

# RacingLine

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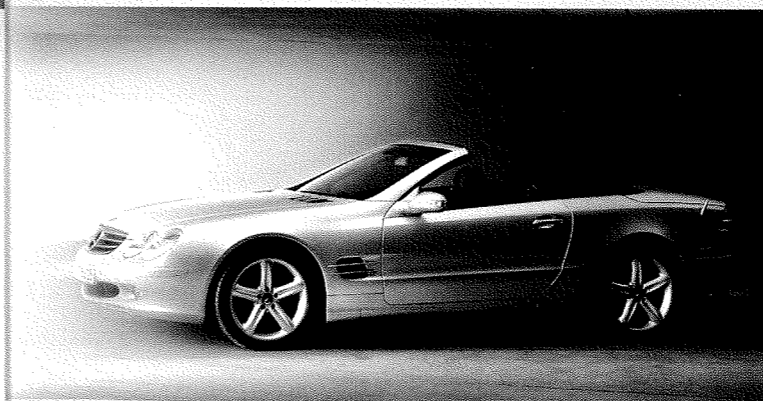
# MP4-18

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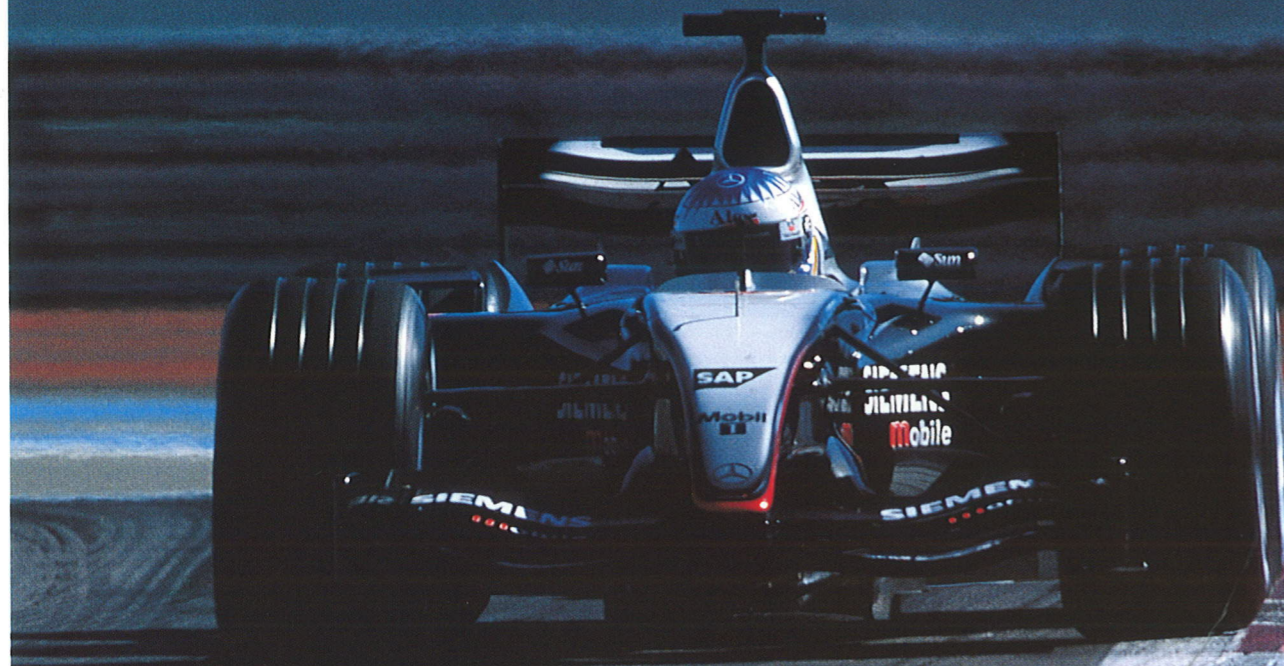
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Mercedes-Benz

# RacingLine

JULY 2003



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“MORE THAN ANY CAR THAT TEAM McLAREN MERCEDES HAS PRODUCED FOR SOME YEARS, MP4-18 WAS STARTED FROM A BLANK SHEET OF PAPER. NEARLY EVERYTHING ON THE CAR IS NEW”

ADRIAN NEWWEY, TEAM McLAREN MERCEDES TECHNICAL DIRECTOR



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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

## 2003 GP Results

Australian GP: David Coulthard 1st; Kimi Räikkönen 3rd  
Malaysian GP: David Coulthard DNF; Kimi Räikkönen 1st  
Brazilian GP: David Coulthard 4th; Kimi Räikkönen 2nd  
San Marino GP: David Coulthard 5th; Kimi Räikkönen 2nd  
Spanish GP: David Coulthard DNF; Kimi Räikkönen DNF  
Austrian GP: David Coulthard 5th; Kimi Räikkönen 2nd  
Monaco GP: David Coulthard 7th; Kimi Räikkönen 2nd  
Canadian GP: David Coulthard DNF; Kimi Räikkönen 6th

## RacingLine

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# InsideLine

It is, of course, somewhat frustrating for Team McLaren Mercedes to have emerged from the eighth of the season's 16 races nine points behind in the Constructors' World Championship, with Kimi three points adrift in the Drivers' World Championship standings. However it must be apparent to everybody that the balance of the season will be closely fought and our rival constructors will inevitably improve their performance, as we work hard to develop ours.

Whilst we continue to hone the much-developed MP4-17D, which has been used throughout this season, the team has an undoubted air of excitement following the arrival on the test track of our all-new MP4-18. The decision to extend the development timescale of MP4-18 has allowed our design team at McLaren and Mercedes-Benz to really push the boundaries of technical performance. Consequently we have no doubts that the MP4-18 will surpass the performance of our current car.

It is imperative, however, that we develop this car in a disciplined manner, not only to optimise its performance, but also to ensure that we have the requisite serviceability and reliability necessary to sustain our championship campaign. The revised points scoring system in the Formula 1 World Championship and the unprecedented levels of reliability achieved by the leading teams this year have only served to heighten the necessity for a reliable car for any serious title challenge.

David, Kimi and Alex have now all driven the MP4-18, which is still in its early stages of development, and it has demonstrated to them that we have indeed designed a faster car. During the week after the Canadian Grand Prix we will continue an intensive development programme of MP4-18 at the Jerez circuit in southern Spain, following which the team will determine the timing of its race introduction. In the meantime we continue to develop the MP4-17D package, which still demonstrates the pace to win races and score consistent World Championship points.

Team McLaren Mercedes are now looking forward to the remaining races of the season confident that we are able to continue to pursue our World Championship ambitions. I am sure there will be many more close and exciting races before the championship is decided. We intend to be there when it counts at the end.

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







## REPORT – ROUND 6

A1-RING, MAY 16-18

# AUSTRIAN GRAND PRIX

Team McLaren Mercedes driver Kimi Räikkönen maintained his lead in the Formula 1 Drivers' World Championship by finishing second in the Austrian Grand Prix. His team-mate, David Coulthard, scored a fine fifth place, despite starting 14th on the grid.

After two aborted starts, the race eventually got under way. Kimi lost a place to the Williams of Juan Pablo Montoya, while David gained two places to move up the field into 12th position. The failure of Jos Verstappen's Minardi on the opening lap, however, brought out the safety car, bunching up the field until the end of lap three.

The race then developed a pattern, with Kimi holding station behind Montoya, while having to resist intense pressure from the Ferrari of Rubens Barrichello. A brief shower on lap 14 caught several drivers unawares, but the track soon returned to a state of dryness.

As the first wave of pitstops took place, the fact that both David and Kimi had been running with relatively heavy fuel loads became apparent, as they stayed out while several of their rivals took on fuel and fresh tyres. David eventually

**“RUBENS AND I HAD AN EXCITING FIGHT, BUT I KNEW THAT I COULD STAY AHEAD”**

### KIMI RÄIKKÖNEN

came in to the pits on lap 20, however, and a 9.4-second pitstop enabled him to rejoin in 12th. Kimi came in three laps later, rejoining in second behind Montoya. As Ferrari's Michael Schumacher closed in on the pair, Montoya's engine exploded, and the German passed Kimi to take the race lead.

David, meanwhile, was working his way steadily through the field, and was up to fourth before his second and final pitstop on lap 50, after which he resumed in sixth place.

Kimi kept in touch with Schumacher and was promoted to the lead when the German pitted at the end of lap 41. Kimi still had to stop again, though, and rejoined third behind both Ferraris on lap 49. When Barrichello made his final stop, Kimi retook second and maturely resisted intense pressure from the Brazilian to claim the eight points. David overhauled the Williams of Ralf Schumacher on lap 57 to gain fifth place.

“I'm pleased I managed to keep the lead of the World Drivers' Championship,” said Kimi after the race. “I was a bit slow off the line at the start, and then spent a lot of time trying to keep Barrichello behind me. But after a few laps, the car became more stable and I was able to start pushing again. At the end, Rubens and I had an exciting fight, but when we got to the last lap, I knew I could stay ahead.”

David, meanwhile, was pleased to have raced so well after a frustrating qualifying. “It was good to score points after struggling through the weekend with the car's balance,” he said. “I had a tough race with lots of battles. Fortunately, the team's strategy helped me to claim fifth. I'm now looking forward to Monaco. It's a race I always enjoy and it's one of those events that has something special about it.” ■

#### TRACK FACTS A1-RING

Lap length	4.326km
Race distance	298.494km
Number of laps	69

#### RACE RESULTS A1-RING

1	Michael Schumacher	1h24m04.888s
2	Kimi Räikkönen	+3.362s
3	Rubens Barrichello	+3.951s
4	Jenson Button	+42.243s
5	David Coulthard	+59.740s
6	Ralf Schumacher	+1 lap
7	Mark Webber	+1 lap
8	Jarno Trulli	+2 laps

#### DRIVERS' STANDINGS

1	Kimi Räikkönen	40pts
2	Michael Schumacher	38pts
3	Rubens Barrichello	26pts
4	Fernando Alonso	25pts
5	David Coulthard	23pts
6	Ralf Schumacher	20pts

#### CONSTRUCTORS' STANDINGS

1	Ferrari	64pts
2	Team McLaren Mercedes	63pts
3	Renault	35pts
4	Williams-BMW	35pts

#### TRACK FUTURE

The 2003 Austrian Grand Prix may have been the last for the immediate future. The event seems likely to be removed from the Formula 1 calendar for 2004.

Set in the picturesque Styrian mountains, the current configuration of the track – revised from its former, faster incarnation as the daunting Österreichring – hosted its first grand prix in 1997. It has often been criticised for its stop-start nature, but does, however, offer several overtaking opportunities and often produces exciting and entertaining races.

Team McLaren Mercedes driver David Coulthard, who won the event in 2001, and has had four consecutive second places there prior to that, remains a fan of the circuit, however.

“The Austrian Grand Prix is a race that I've always enjoyed,” he says. “The track has some good overtaking opportunities, which usually means that it produces interesting grand prix. The circuit really suited my style of driving as well, and my record there reflects that.”

## LAP-BY-LAP

- 1 Kimi loses one place at the start, while David moves up to 12th place
- 19 Kimi takes second place as Juan Pablo Montoya pits
- 31 Montoya blows his engine, and Michael Schumacher passes Kimi to take the lead
- 43 Kimi takes over the lead of the race as Michael Schumacher pits
- 49 Kimi makes his second pitstop and falls to third place
- 51 Kimi retakes second place when Rubens Barrichello makes his pitstop
- 57 David overtakes Ralf Schumacher to move into fifth place
- 69 Kimi crosses the line in second after resisting the Ferrari of Barrichello. David scores four points as he comes home fifth

### TEAM ANALYSIS MARTIN WHITMARSH



Second place in the Austrian Grand Prix was another excellent finish for Kimi, who achieved a near-perfect lap in Saturday's qualifying.

After Saturday's session, we found a small crack in the exhaust valve of Kimi's car, which provided us with a big challenge to get it fixed in the brief time we have available on race day. The fact that we overcame the problem is a fabulous testament to Mercedes-Ilmor and the rest of the team.

The two aborted race starts were not ideal for a Formula 1 car, because they are designed to have air flowing through and over them to cool the engine. The car temperatures, therefore, increased significantly, with Kimi's in particular becoming very hot and losing water, which compromised his start.

From lap 28, we had a problem on Kimi's engine, which may have been caused by the protracted start. As a result, we had to lower the engine speed a little to ensure reliability. For a good part of the race Kimi was down on power, and this puts his controlled performance in the closing stages into perspective. It was a fantastic job by him considering the circumstances.

By contrast David's qualifying lap was disappointing, and the nature of the new qualifying rules meant his mistake was punished, pushing him down the grid order. Once again, though, he was able to demonstrate his vast Formula 1 experience by climbing through the field to fifth, scoring valuable points for himself and the team.

After six races, we feel that the strategy of starting the season with the MP4-17D has proved a sound one. This is due to the effort put in by the team and our Partners at Mercedes-Benz. Clearly we have a reliable and fast package this year, and that is very pleasing for everyone in the team.



RIGHT Kimi Räikkönen maintained his Drivers' World Championship lead with second place in the Austrian Grand Prix. The Finn resisted intense pressure from Rubens Barrichello to take his fifth podium finish of the year

LEFT AND BELOW Kimi's fans were out in strength to support the Finn, while the locals added a bit of colour to proceedings

LEFT Formula 1 races are very tense for the mechanics, who – after a hard weekend of work – have no chance to relax, as they may have to leap into action for a pitstop at any point

RIGHT David Coulthard once again proved the value of his 10 years of Formula 1 experience, with a superb drive to take fifth place, despite having started from 14th on the grid after problems in qualifying



## REPORT – ROUND 7

MONTE CARLO, MAY 29-JUNE 1

# MONACO GRAND PRIX



A pair of solid performances from Team McLaren Mercedes drivers Kimi Räikkönen and David Coulthard in the Monaco Grand Prix helped the team reclaim its position at the top of the Constructors' World Championship, while Kimi extended his lead in the Drivers' World Championship.

Kimi missed out on his first pole position after being narrowly beaten by Ralf Schumacher's Williams, while David took sixth place on the grid.

At the start, Kimi lost out to the second Williams of Juan Pablo Montoya in the short run to Sainte Devote, but the Finn kept in touch with the two cars ahead until the first pitstops, despite a pause in the action as the Safety Car was brought out for a first-lap incident involving another car.

Ralf Schumacher was the first of the leading cars to pit on lap 20, with Montoya in two laps later for his own stop. This allowed Kimi to lead, and the Finn tried to use the clear air to build enough of a gap before his own stop.

Unfortunately, Kimi was baulked in traffic and, when he made his pitstop on lap 24, he rejoined behind Montoya,

## “HERE YOU DON'T HAVE ANY CHANCE TO GET PAST IF THEY DON'T MAKE MISTAKES”

### KIMI RÄIKKÖNEN

although excellent work by the Team McLaren Mercedes pitcrew helped him rejoin ahead of Ralf Schumacher. He was now effectively back up into second place and chasing Montoya hard for the overall lead.

Try as he might, though, Kimi was unable to pass the Colombian, thanks to the twisty nature of the street circuit that limits overtaking. During the second set of stops, Kimi once again pushed hard to build an advantage over the earlier-stopping Montoya, but was again frustrated by traffic and forced to accept second place. This did, however, enable him to extend his Drivers' World Championship lead.

“For me the race was mostly about chasing Montoya, but here you don't have any chances to get past if they don't make any mistakes,” Kimi admitted. “The car was great, and I knew I would run a little bit longer on the pitstops, but I always had traffic when Montoya went into the pits and that destroyed the chance to try to pass him.”

David suffered from his starting spot, which left him in a queue of traffic. He had been able to run as high as fifth during the pitstops, but was never able to break free of the pack and – as a result – finished the race seventh. The two points he scored were valuable, though, because they enabled Team McLaren Mercedes to regain the lead of the Constructors' World Championship from Ferrari.

“I couldn't run the pace I would have liked because I got stuck behind Jarno Trulli and, unfortunately, he was on the same fuel stop strategy as me,” David explained. “Otherwise, considering the speed of my car and our strategy, I'd have had the chance to gain a much better position.” ■

### TRACK FACTS MONACO

Lap length	3.340km
Race distance	260.520km
Number of laps	78

### RACE RESULTS MONACO

1 Juan Pablo Montoya	1h42m19.010s
2 Kimi Räikkönen	+0.602s
3 Michael Schumacher	+1.720s
4 Ralf Schumacher	+28.518s
5 Fernando Alonso	+36.251s
6 Jarno Trulli	+40.972s
7 David Coulthard	+41.227s
8 Rubens Barrichello	+53.266s

### DRIVERS' STANDINGS

1 Kimi Räikkönen	48pts
2 Michael Schumacher	44pts
3 Fernando Alonso	29pts
4 Rubens Barrichello	27pts
5 Juan Pablo Montoya	25pts
6 David Coulthard	25pts

### CONSTRUCTORS' STANDINGS

1 Team McLaren Mercedes	73pts
2 Ferrari	71pts
3 Williams	50pts
4 Renault	42pts

### TRACK CHANGES

It's almost part of the legendary nature of the Monaco Grand Prix that the track layout around the streets of the Principality has barely changed since it was created in 1929.

Time moves on, though, and this year the Swimming Pool section and pitlane exit at Sainte Devote were modified as part of a series of changes that will offer an improved pitlane and garages, and an extra 10,000 spectator seats, for 2004.

“At Sainte Devote, they've taken the barrier from the entry to the corner, but left the kerb where the barrier used to be, so they've created more space on the inside,” David explained. “The main alteration is the layout of the Swimming Pool complex. There is a tighter left turn-in here and the track runs closer to the front of the harbour on the reclaimed land. It looks a lot more open and a lot less challenging than before, which, in some respects, is a shame, because that used to be one of the more challenging sections of track.”

## LAP-BY-LAP

**1** Kimi loses second place to Ralf Schumacher at the start

**20** Ralf Schumacher and Juan Pablo Montoya pit, allowing Kimi to take the lead

**27** David, now in fifth, drops back to seventh after his own pitstop

**52** Kimi makes his second stop, but is unable to gain enough of an advantage to move ahead of Montoya

**56** David makes his second stop, but just fails to get past Jarno Trulli, who pits on the same lap

**78** Kimi finishes the Monaco Grand Prix as runner-up, while David crosses the line in seventh place

## TEAM ANALYSIS

MARTIN WHITMARSH



For the Monaco Grand Prix both of our drivers had a car that was undoubtedly quick, with Kimi only four-hundredths of a second off pole position for the second race in succession.

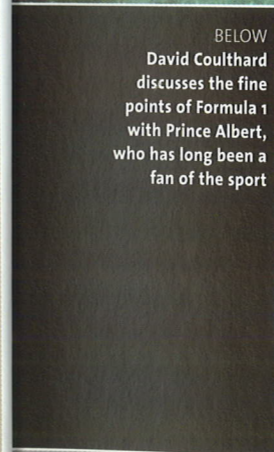
Both drivers, though, were heavily affected in the race by the nature of the Monaco track, which means that running behind other cars can cause more problems than at other circuits. Unless the drivers in front of you make mistakes, it is almost impossible to pass around the narrow streets.

David was particularly affected by this. The fact that he was one of the fastest drivers during the course of the weekend showed his potential pace, but the fact that his sole qualifying lap on Saturday was only good enough for sixth place meant that he was always going to be stuck in a queue of traffic come the race on Sunday.

Yet again, though, he dealt with the situation maturely and got on with the job in hand. He avoided making any mistakes that could either have lost him another solid points finish or even eliminated him from the race.

Kimi was also affected by traffic. Just after Juan Pablo Montoya's second stop, Kimi really demonstrated the speed of the car by setting the fastest lap of the race. Had he not encountered Jacques Villeneuve, he would have been able to make up more time and, possibly, even take the lead.

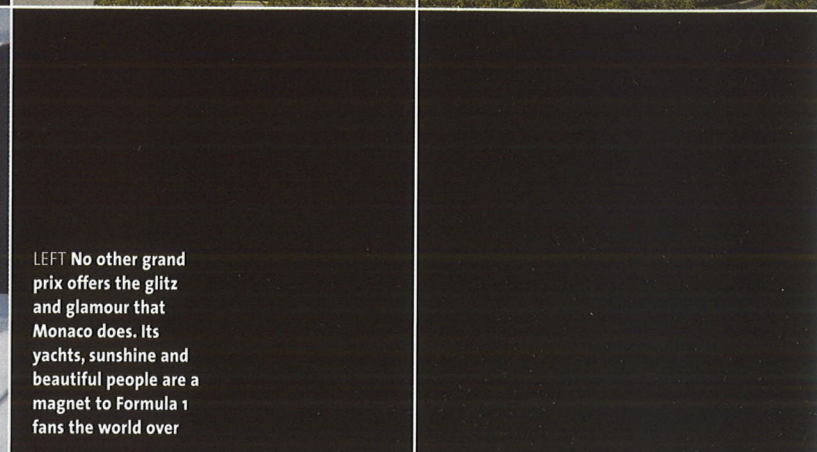
Everyone at Team McLaren Mercedes has worked extremely hard to get closer to our competitors, but we have never been complacent, because we know how difficult it is to win both races and the championship in Formula 1. We are totally determined, though, to make sure that it is just as difficult for our rival teams to beat us, and this determination will stand us in good stead as the season progresses.



RIGHT Monaco and its harbour have a timeless appeal, but the street circuit is finally starting to be transformed, with further modifications on the way for 2004



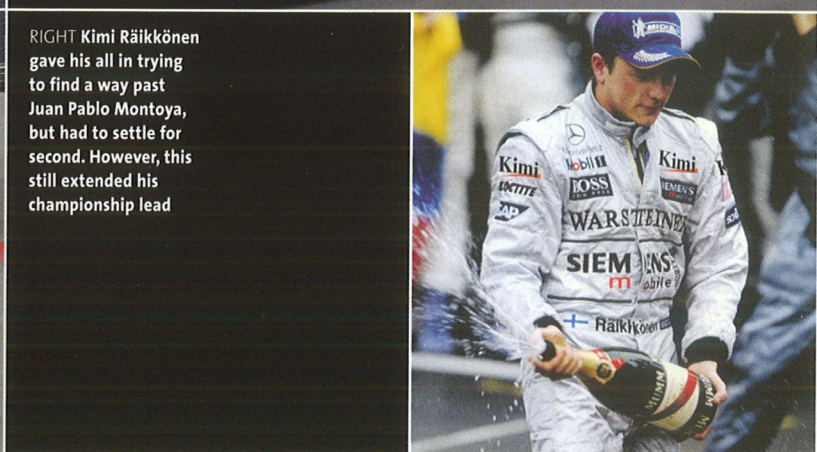
LEFT No other grand prix offers the glitz and glamour that Monaco does. Its yachts, sunshine and beautiful people are a magnet to Formula 1 fans the world over



BELOW David Coulthard discusses the fine points of Formula 1 with Prince Albert, who has long been a fan of the sport



RIGHT Kimi Räikkönen gave his all in trying to find a way past Juan Pablo Montoya, but had to settle for second. However, this still extended his championship lead



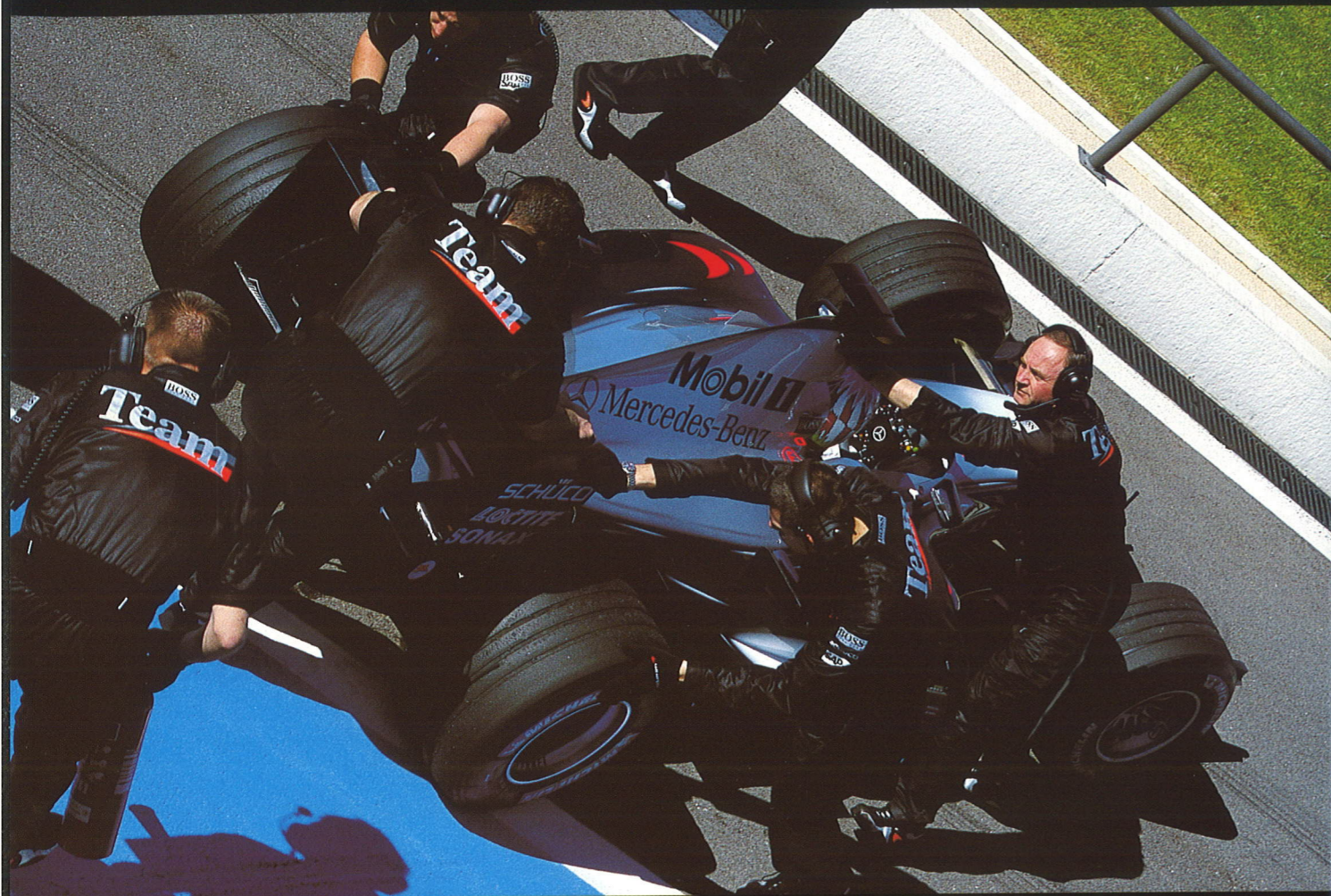
# OUT OF THE SHADOWS...

After almost a year of development, the new and radical Team McLaren Mercedes MP4-18 has emerged. *Racing Line* was there to see the first test of the car at Paul Ricard

WORDS LUKE HAYTER PHOTOGRAPHS LORENZO BELLANCA/LAT

SIEMENS  
mobil





ABOVE During the course of the three-day test at Paul Ricard, there was plenty of work for the Team McLaren Mercedes test team to get through as they gained the first impressions of MP4-18



Success in Formula 1 is entirely dependent on 'the package' – the successful integration of the component parts that make up the whole. If each individual part of the car or team is optimised to the ultimate degree, then their collective sum is almost always significantly greater as a result.

Team McLaren Mercedes is well aware that, to build a long-term winning strategy in Formula 1, it has to stay ahead of its rivals in every possible sense, leaving nothing to chance in its quest to be the best. The latest part of this innovative and meticulous strategy is the introduction of its latest Formula 1 challenger – the eagerly awaited MP4-18.

Long-envisioned as a bold step forward, the MP4-18 has been in development for almost a year by Team McLaren Mercedes, Mercedes-Benz and Mercedes-Ilmor. But now, in late May, it is finally time for the acid test, the first chance for the car – which has already undergone a comprehensive research, design and manufacturing

programme – to make its testing debut.

The car has been flown to the Paul Ricard circuit in southern France for its first run, and the impressive facilities at the circuit provide an ideal setting in which to give the MP4-18 its debut, because they, too, are fresh and modern. Even the weather is smiling on the team. There is barely a cloud in the sky.

As a gusty wind gathers momentum along the Mistral straight, the sense of anticipation is keen. Photographers from around the world have arrived to catch a glimpse of the MP4-17D's successor. Indeed, such is the media interest in today's test, that the throng is stationed firmly opposite Team McLaren Mercedes' two pit garages, ignoring the other teams here.

For the early part of the morning these doors remain firmly shut, giving no clue as to what or who might be within. At 12.43, however, the silence is broken as the new Mercedes-Benz FO110P engine rasps into life, ramping up the sense of expectancy and bringing the photographers to their feet. There is a great surge forward to

be near the car, and everyone is eager to be the first to get a photograph. But, after several ear-blistering blips of the throttle, the sound abruptly ceases.

Twelve minutes later, the barriers shielding the garage doors are finally removed, and the photographers start to jostle for prime position as MP4-18 puts its wheels onto the track for the first time. Representatives from all of the rival teams who are testing at the circuit today make the short journey from their own garages to watch the spectacle unfold. As the car accelerates down the pitlane for the first time, the level of attention heaped on it is clear.

"There is always an obvious sense of expectancy when you run a new car for the first time," explains McLaren International Managing Director Martin Whitmarsh, who is here in France along with TAG McLaren Group Chairman and CEO Ron Dennis to see the car make its debut. "For Team McLaren Mercedes, though, this feeling is, perhaps, heightened this year because we believe the MP4-18 will represent a significant step forward for us."



Even with just the brief glimpse that we have been afforded, it is clear that the car is a thing of beauty, and the attention to detail that has been applied to every aspect of its design is obvious. The distinctive Team McLaren Mercedes livery serves only to accentuate this, and, as the bright French sunlight bounces off the car's innovative lines, the differences between this machine and its predecessor – the MP4-17D – are striking.

"More than any car that Team McLaren Mercedes has produced for some years now, MP4-18 was started from a blank sheet of paper," explains Technical Director Adrian Newey. "Nearly everything on the car is new, and it represents a really big design push in all areas – this is the reason why the car's gestation period has been longer than usual.

"We took the view that we wanted to make a big step with MP4-18, and produce a car that was both reliable and competitive. Consequently, it was always designed with a view to being introduced later than the start of the

season, because we really wanted to give ourselves the time to get the fundamentals of the car right.

"Extra research time was allocated to each and every area of the design, and this has enabled us to take quite different approaches with many of the aspects of the overall package. We have worked very hard at coming up with an aerodynamically efficient design, focusing particularly on making sure the mechanical and aerodynamic sides of the car work in harmony."

MP4-18 is the first Team McLaren Mercedes car to benefit from the restructuring of the team's technical department in late 2002. A number of key appointments were made which brought new direction to the team, and added to the wealth of technical and design expertise already in place.

Recently-appointed Chief Designer Mike Coughlan was installed to further strengthen the technical team under Adrian Newey and make sure that the team could translate the design into a car that would take Team McLaren Mercedes back to the

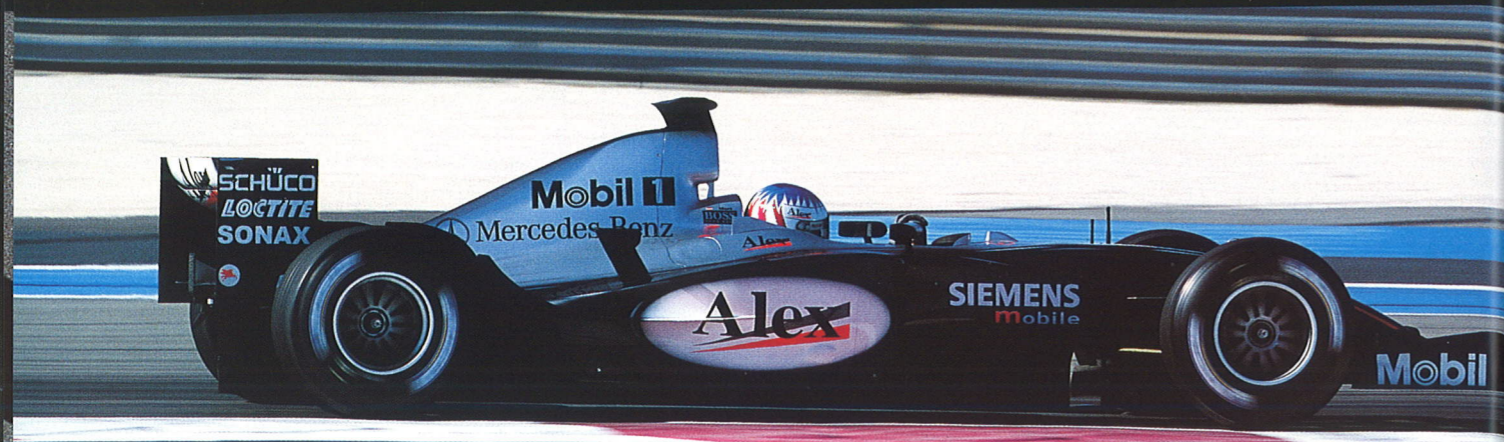
winner's fold in the immediate future.

"Leading a Formula 1 design team involves an awful lot of work, and it's just not possible for one person to do the job," says Coughlan. "It takes a great deal of collective effort, and I have to say that I have already established a great working relationship with the team of very enthusiastic and talented engineers here at Team McLaren Mercedes.

"Someone who is as free-thinking and creative as Adrian [Newey] is a pleasure to work with, and he has allowed me to focus entirely on realising his vision for the car, which has been a massive help. This has allowed us to adopt a consistent design approach across all areas of the car, thus enabling a concentration on attention to detail, and ensuring that the car is as well thought-out as it can be."

The development of MP4-18 looks even more impressive when you consider that it has been developed in tandem with the MP4-17D that has been used so far this year – itself a comprehensive update of last year's

ABOVE From the front, the reduction in the dimensions of the nosecone on MP4-18 is obvious. Many of the changes on the car have been focused on lowering the weight of the car and its centre of gravity



“NEARLY EVERYTHING ON THE CAR IS NEW, AND IT REPRESENTS A REALLY BIG DESIGN PUSH IN ALL AREAS”

ADRIAN NEWWEY, TEAM McLAREN MERCEDES TECHNICAL DIRECTOR

ABOVE From the side, the major changes to MP4-18's design are clear. The sidepods are taller at the front, but much lower at the rear, while a small vertical fin on the engine cover aids the airflow over the car

MP4-17. The car has remained competitive, though, in the early rounds of 2003, indeed winning the Australian and Malaysian Grands Prix.

“The fact that Executive Director of Engineering Neil Oatley and his team have kept the MP4-17D competitive while we have been developing the MP4-18 has been a source of great pleasure to me,” continues Coughlan. “The team has responded tremendously to the challenges it has been set, so much so that we are now able to design and detail components for both cars around one and a half times quicker than ever before. This is a tremendous achievement, and we are very pleased with the work we've achieved so far.”

It is early afternoon at Paul Ricard when MP4-18 runs again, and there is an intense workload to get through each and every time it turns a wheel. Team McLaren Mercedes Third Driver Alex Wurz has to debrief the engineers in exact detail, relaying every aspect of the car's behaviour.

It is a role in which Alex excels,

though. The Austrian is renowned for the quality of his feedback and for his raw speed in the car.

The tandem development of the MP4-17D and MP4-18 has required a significant effort, technically and in terms of human resources – a fact recognised by Neil Oatley, who has been designing Formula 1 cars since the mid-1980s.

“This last winter has been an extremely exciting and busy time for everyone in the design department,” he admits. “It's the first time for many years that we have developed an existing car while at the same time designing a new one from what was virtually a blank sheet of paper.”

“The fact that we have remained competitive with a development of our 2002 car is a testament to the level of skill and dedication applied by all those involved. With MP4-18, we believe we have taken a big step forward. This is the result of a lot of effort going into the car over a longer period of time than normal. Thus we have ended up with a car that is

structurally superior, with big improvements in weight reduction and with a lowered centre of gravity.”

Of course, in modern Formula 1, no team can achieve real and sustainable success without the focused support of committed partners. Therefore the emergence of a bold and innovative new Team McLaren Mercedes car is due in no small part to the contribution of Mercedes-Benz, along with Michelin.

The new Mercedes-Benz FO110P V10 engine has been specifically designed to complement MP4-18's low centre of gravity, and is able to sit much lower in the car as a result. The engine's packaging has also been improved in an effort to supply still more power from the lightest and most compact Formula 1 engine ever built by the company.

By the same token French tyre manufacturer Michelin has worked closely with the team through each stage of the design and conception of MP4-18. After the steep learning curve that Michelin and Team McLaren Mercedes had to undergo with MP4-17 and MP4-17D – which were

not originally designed for Michelin rubber – the new car has been designed purely with Michelin in mind, thus optimising every element of the tyre/chassis interface.

“MP4-18 represents the first car that we have been able to design once we've had a strong running relationship with our particular tyre manufacturer,” explains Adrian Newwey. “Consequently, we have been able to influence the design of the car and expand it specifically for Michelin tyres. We are optimistic that this car will be able to optimise tyre performance much more fully – that is, to present the tyre to the ground in the optimum way. We have undertaken almost continual dialogue with Michelin, and this is yet another area of the car's performance that we expect to take a big step forward.”

With MP4-18 representing months of hard work and energy by the team and its Partners, it's no surprise that there is a feeling of excitement surrounding its debut – particularly for Alex, the first person to drive it.

“It's a great feeling to take the new car out for the first time,” Alex admits. “The moment the engine fires up for the first time there are a lot of thoughts going through your head, because all of the team's hopes and emotions are focusing on it. At that moment, you appreciate how much work has gone into MP4-18's production. We are all very excited by the possibilities that the car has, and it is a tremendous feeling to be the first person to drive it.”

This is only the start of the hard work for Team McLaren Mercedes to prepare MP4-18 for its race debut later in the year, though. Even the version of

the car that tested at Paul Ricard has significant improvements – including a new and very innovative gearbox – still to be added at a later date.

Rarely can a Formula 1 car have been as eagerly awaited, as anticipated, as MP4-18. The first time it lines up on the Formula 1 grid, it will be carrying the hopes and ambitions of a dedicated and committed group of people who have spent countless hours searching for the tenths of seconds that will take the team back to the top. Ever innovative, always focused – this is simply the Team McLaren Mercedes way. ■

The brunt of the early testing effort fell on the shoulders of Team McLaren Mercedes Third Driver Alex Wurz, and the Austrian was impressed by his initial experience of the car



# BEST OF BRITISH

The British Grand Prix is always special for Team McLaren Mercedes. Not only is it the McLaren team's home race, but it is also one in which the Formula 1 outfit has proved particularly successful, as its trophy cabinet demonstrates

WORDS BRUCE JONES PHOTOGRAPHS TED HUMBLE-SMITH, LAT

The British Grand Prix holds a special place in the history of the Formula 1 World Championship, not only as the venue for its first ever round back in 1950 but also as one of the linchpin events on the calendar.

However, to the six British-based Formula 1 teams – including Team McLaren Mercedes – the British Grand Prix is more than that, because it's also the team's home race. No-one would ever admit that competing on home soil results in an increased effort from the team – after all, Formula 1 is far too competitive for anyone to ever be working otherwise.

There is always something special about a team's home race, though – a unique atmosphere that adds to the buzz surrounding every Formula 1 event and makes it one that's just a little bit different.

The British Grand Prix also has other reasons to be important to McLaren – after all, it's a race in which the team has excelled, winning no less than 12 times at Brands Hatch and Silverstone, thanks to the efforts of legendary drivers such as Emerson Fittipaldi, James Hunt, Niki Lauda, Alain Prost and Ayrton Senna.

More recently, former double world

champion Mika Häkkinen and current driver David Coulthard have added to Team McLaren Mercedes' tally, with David's two wins in 1999 and 2001 proving particularly poignant.

In the run-up to this year's event, *Racing Line* has hand-picked five of McLaren's 12 British Grand Prix victory trophies, each with a unique story of a brilliant pursuit, a sublime overtaking manoeuvre or a strategic twist that added a little sting in the tale. With all things going according to plan, they could well be joined by another British Grand Prix winner's trophy on July 20. ■



1984 BRITISH GRAND PRIX

BRANDS HATCH, JULY 22: NIKI LAUDA

Niki Lauda said that success at Brands Hatch was likely to be "his last shot for the championship", as team-mate Alain Prost travelled to the Kent circuit with a 10.5-point advantage with only seven rounds to go.

It might not seem much, with a win worth nine points in those days, but Prost was outqualifying the Austrian more often than not and was looking more likely to collect more points over the course of the season.

Nelson Piquet qualified his Brabham on pole position, but the TAG-engined McLarens were clearly suited to the twists and inclines of Brands Hatch, and Prost and Lauda were second and third fastest. Piquet led away, but the McLarens moved to the front when the Brazilian pitted for fresh tyres after just 11 laps.

Infuriatingly, they weren't able to capitalise on their advantage, because the race was stopped on lap 13 after Jonathan Palmer's RAM-Hart slammed off the track at Clearways. With a two-lap countback – as at this year's Brazilian Grand Prix – this meant that Piquet was able to take the restart from pole, on fresh rubber.

Prost got the jump on Piquet off the line, but it was to be Lauda's day as Piquet's tyres went off again and he moved up to

second. Lauda then quickly closed in on Prost, who was clearly trying very hard to stay in front of the super-smooth Austrian.

Prost's efforts were to prove futile, though, because his gearbox failed on lap 37. This should have left Lauda clear to win as he pleased, but Piquet closed back in onto his tail. Piquet's turbo boost suddenly started to fluctuate, however, and he dropped away, leaving Lauda to cruise home to the flag, 42 seconds ahead of Derek Warwick's Renault.

"That was perfection," Lauda beamed afterwards. The win was also payback to the Austrian for what had happened 10 years earlier at the same venue when he had had to pit his Ferrari with a puncture, then found the pit exit blocked by an official's car and thus lost the race, ending up fifth.

So, a great day for McLaren and an even better one for Lauda. With every point proving crucial in this internecine battle for glory, the nine points he had gained over his team-mate would prove crucial for Lauda. At the end of the season, he would beat Prost by just half a point.





## 1985 BRITISH GRAND PRIX

SILVERSTONE, JULY 21: ALAIN PROST

McLaren won the British Grand Prix for the second year running in 1985. The race was at Silverstone, and, on this occasion, Alain Prost took the honours.

However, it was clear McLaren's dominance of 1984 was not to be repeated because the team's reigning World Champion, Niki Lauda, had only three points when he arrived at the Northamptonshire circuit for the eighth round.

Prost was faring better because he'd won in Brazil and Monaco, while Lotus drivers Ayrton Senna and Elio de Angelis, Ferrari's Michele Alboreto, Williams's Keke Rosberg and Brabham's Nelson Piquet had all won a race apiece during the first half of the year.

It was incredibly competitive at the head of the field – a point particularly proved by the extent to which Rosberg extended himself to secure pole with what, for

almost two decades, would be the fastest ever lap in Formula 1.

The race was equally close-fought. Having started third, but fallen to fifth after hitting oil, it took a string of record laps from Prost to enable the Frenchman to catch Senna and Rosberg. The Finn then dropped down the order as he slowed to save his tyres, before retiring with exhaust failure on lap 21.

Prost then set about chasing Senna for the lead, but many thought the Brazilian was using more turbo boost than was advisable in his attempts to keep ahead. "All I knew," said Prost, "was that I couldn't put my boost up because I'd run out."

Making matters better still for McLaren, Lauda had managed to climb up the field to third place after a dreadful start dropped him from 10th to 19th. Unfortunately, the

Austrian's run of bad luck would continue because he was forced to pull to a halt with electrical problems on lap 57, just eight laps from the end of the race.

Lauda's luck was shared by Senna, however, the Brazilian suffering a fuel injection problem on lap 60, allowing Prost to move past into the lead.

The Frenchman had no such worries and, with one lap to go, was surprised and delighted to be greeted by the waved chequered flag, mistakenly hung out early. Third-placed Jacques Laffite and fifth man Derek Warwick were even more delighted because they then ran out of fuel on what should have been the final lap.

So it was that the nine points for victory moved Prost to within two points of Alboreto in the title race – a battle that the Frenchman went on to win with ease.



## 1998 BRITISH GRAND PRIX

SILVERSTONE, JULY 10: AYRTON SENNA



Up until the British Grand Prix in 1988, McLaren's Ayrton Senna and Alain Prost had led every lap of the seven grands prix completed. But, at a very wet Silverstone, another team hit the front – Ferrari.

The Ferraris of Gerhard Berger and Michele Alboreto had kept Senna and Prost off the front row in qualifying, and Berger managed to stay ahead of Senna as they aquaplaned their way around the sodden track to Woodcote at the end of the opening lap. A slow-starting Prost, meanwhile, was enveloped in the spray in 11th place.

Try as he might, Senna couldn't dislodge Berger, but it was later to become clear that the Austrian had been using much more fuel than he ought to have done in the days of restricted fuel tank size, when drivers had to watch the fuel gauge with as much caution as the rev counter.

Indeed, the Austrian's desire to run at the front ultimately was to cost him victory because he later had to back right off, eventually finishing down in ninth after losing three places as his car spluttered on the run to the chequered flag.

Senna was serene, though, taking the lead on lap 14 and staying in front for the remaining 51 laps. He, too, had to watch his fuel gauge, but, for the eighth time that season, Senna proved why McLaren was

the team to beat over a race distance.

"There was no way that I was going to finish if I kept up that sort of speed," Senna admitted, "so I figured that there wasn't much chance for Gerhard, either."

Senna's drive was all the more impressive when you consider that both McLarens were also suffering from a handling imbalance that had afflicted them all weekend long. Only a fired-up Nigel Mansell looked to be a threat, but he finished 23 seconds down on the Brazilian.

In comparison to Senna's regal drive, Prost had a torrid time, making a poor getaway as he tried a carbon clutch for the first time, then finding the torrential conditions not to his liking. Having fallen back to 16th, a lap down, he pulled off on lap 24 with handling problems.

For the rest of the season Prost and Senna continued their intra-team battle for the Drivers' World Championship, with Senna eventually taking the honours for the first time in Japan.

Certainly the Brazilian's greater number of race wins, with eight victories compared to Prost's seven, helped him immensely in his cause, and drives like that difficult Silverstone win – in atrocious conditions with a difficult car – demonstrated why he was such a worthy champion.





### 1999 BRITISH GRAND PRIX SILVERSTONE, JULY 11: DAVID COULTHARD

David Coulthard had four grand prix wins to his name when he arrived at Silverstone for the 1999 British Grand Prix, and five when he left, massively happy that he'd finally won the race that he wanted above all others – his home event.

It was certainly a race of incident, including a restart that didn't include title challenger Michael Schumacher, who had crashed at Stowe and broken a leg, putting himself out of action for the bulk of the season. And this was *after* the race had already been red-flagged because two cars had failed to get off the grid.

So it was that Coulthard and Ferrari's Eddie Irvine, both of whom had jumped Schumacher at the start, had it all to do again. Pole-sitter Mika Häkkinen held station, but Irvine blasted past Coulthard to run second and briefly take the lead when Häkkinen came in for his first pitstop with several seconds in hand.

This was when the race turned, because Häkkinen wasn't sure that all was well with his left rear wheel as he accelerated away from the pits and he came in again a lap later. Seconds after, Irvine came in for

his first stop and, unsuspected by the Team McLaren Mercedes pitcrew, overshot his pit. The lost seconds were to turn the race to the team's advantage. Or, more specifically, to Coulthard's because he was in the lead when Irvine re-emerged from the pits.

Häkkinen's day of woe was not over, though, because his car later shed that left rear wheel and he was withdrawn from a race that had long since passed into the hands of Coulthard and Irvine.

With two British drivers dicing for honours in the British Grand Prix, the home crowd had plenty to cheer, and it was to be Coulthard's day, Team McLaren Mercedes turning the Scot around faster than Irvine at their second stops. And that was that as he held Irvine at bay to the finish.

Having gone more than a year without a victory, Coulthard's confidence was back on track.

"The tiniest mistake, and the race would have been lost," said Coulthard. "I knew that, and so did everyone in the pits."

The applause was something that he'd never forget. Silverstone in the sunshine had never looked better.



### 2001 BRITISH GRAND PRIX SILVERSTONE, JULY 15: MIKA HÄKKINEN

Mika Häkkinen would have been the first to admit at the 2001 British Grand Prix that his World Championship campaign wasn't going the way that he'd have wanted it to.

Indeed, the first 10 rounds had produced just one podium visit. He was 69 points down on points leader Michael Schumacher, 36 down on team-mate David Coulthard and a full 10 months had passed since his previous win. Sure, he had been set for victory in the Spanish Grand Prix a couple of months earlier until a cruel stroke of luck on the final lap, but it was clearly time for the Finn to start winning again. And win he did.

Qualifying on the front row behind Schumacher's Ferrari was a start, but it was the move that he pulled off five laps later that really showed that he was back at his best, blasting around the German into Becketts after Schumacher made a slight mistake at Copse.

This was Häkkinen's title-winning years of 1998 and 1999 revisited, and he then simply streaked clear. Even though it would later become apparent that Häkkinen was planning to pit twice and Schumacher just once, the fact that the McLaren ace was

half a minute ahead by 20 laps was astonishing. It was no contest.

"I knew that I had to build a big lead," said Häkkinen. "I thought it would be nice to be able to stop and have a cup of tea before Michael arrived."

By this stage Juan Pablo Montoya had also demoted the Ferrari, but the Williams driver was never to trouble Häkkinen, who dominated as no-one had thus far that season, winning by over half a minute.

Coulthard was not to have much of a crack of the whip, though. He started third and held the position into the first corner, but Jordan's Jarno Trulli made a futile bid to pass him and they clashed, dropping the Scot to the tail of the field and, soon afterwards, into retirement with the resultant suspension damage, harming his title push.

However, Team McLaren Mercedes could celebrate again because Häkkinen had rediscovered his winning touch. The Finn would not be in contention for the title, but would win again at Indianapolis in the SAP United States Grand Prix to cap a remarkable Formula 1 career before he ultimately retired at the end of the year. ■



Team McLaren Mercedes test driver **Pedro de la Rosa** has settled in to his role with the Formula 1 outfit. He caught up with *Racing Line* to discuss his first impressions of the team and the MP4-17D car, as well as the benefits that his role is bringing to his career

WORDS ADAM COOPER PHOTOGRAPH GETTY IMAGES

**You've now been working with Team McLaren Mercedes for some time – are you starting to feel at home?**

I felt at home with the team from the start, and I don't feel different now. It's just that now I know everyone and what they do. I've been working closely with the engineers and the mechanics, and I have built up a good baseline from which to work. It's been very interesting to get to know new people and different approaches to engineering, especially with a top team such as this.

**How did the link between yourself and the team first come about?**

It was January when we first began talking, because Team McLaren Mercedes wanted to strengthen its test team. It wanted to try me, and, if I did a good job, I might get the role. I knew it was very important for me to perform to my absolute maximum! We did a test in Jerez, which went well, and I got the job.

**The team already has three drivers. Has it surprised you how much work there is for you to do?**

I'm getting a lot, but it's not only how many test days that the team has – it's how well it uses them. We do so many laps per day, per car compared to the last team that I was with. So you do so much work in one day, and it's much more tiring for the drivers!

**Do you think you have a similar driving style to the other Team McLaren Mercedes drivers?**

I'm more like Alex [Wurz]. We're both in between Kimi [Räikkönen] and David [Coulthard]. But there are only two ways of driving a car – quick and slow. The only set-up difference is very small – it's just a little bit of front wing or something. Not significant at all.

**How different is the MP4-17D from the Formula 1 cars you have driven previously with other teams?**

It's night and day. It's hundreds of little things that make the car quicker. I could stay here for three days explaining the difference! It's mostly attention to detail, and that's because the organisation is good. Everything at Team McLaren Mercedes is focused on making the car go quicker. That's the biggest difference.

**Is it satisfying to work with such a high-profile team at the front of Formula 1, even if you're not scoring points yourself?**

It's always better to be with a leading team than one that isn't. But, at the end of the day, I'm happy because the team is doing well and my work is important in the progress we're making.

**Where is this going to lead? Are you hoping that testing with Team McLaren Mercedes might mean a return to race driving?**

Well, I don't want to be at home doing nothing. I need to be moving, driving, and keeping busy. I want to go racing. I've never hidden my feelings about that. But, during this year, my only aim and focus is to do a good job for Team McLaren Mercedes.

**There are always new young guys coming along. How difficult will it be to find a drive in the future?**

I'm realistic, so I know it will be tough. There aren't many quick guys around with experience, though, and I don't think the new qualifying format will help drivers with limited experience. I can't complain at the moment. Racing is my life, and I'm happy now. At least I drive a competitive car, which I've never, ever done in Formula 1 before.

**You've only been to the Spanish Grand Prix so far this year. What has it been like watching the other races on television?**

It's quite tough, but the toughest race for me was Barcelona! I would rather be at home watching the race than be at the races. It's inevitable that you get a bit frustrated, but even more so at your home grand prix.

**Have you learned anything new from watching the grands prix on the television?**

I've been able to analyse very closely the teams' strategies. Sometimes it's good to watch from the outside, so you can see the whole picture. The new qualifying format and the races are better for the spectators, but I'm not sure that I would like it as a driver. You never know what fuel strategy people are running.

**Do you have more spare time now to enjoy things that you couldn't when you were racing?**

Yes, I have more spare time, and I have more time for my new little baby, Gina. We didn't plan it this way, but it worked out every well! During the week, I'm testing, and, in race week, there might be a shakedown or other team commitments. The biggest difference is that I have the weekends off, so I've been spending more time in Barcelona and Majorca, which is very good. But my life has not changed much.

**Are you enjoying fatherhood?**

It just gives you a lot of energy, which is the biggest difference. You wake up in the morning and watch your baby, and you approach the day in a different state of mind! It just makes you feel more relaxed. It's a fantastic feeling. ■

# DRESSED FOR SUCCESS

In Formula 1, the safety of the drivers is vital, and one of the major elements of their protective equipment is the overalls they wear while in the car. *Racing Line* went to Italy to find out exactly how these hi-tech race suits are manufactured

WORDS LUKE HAYTER PHOTOGRAPHS STEVE ORINO



RIGHT Manufacturing the race suits for Team McLaren Mercedes is a long process, but entirely necessary to ensure that not only are the overalls safe, but they also look the part when the drivers are the focus of the world's media

LEFT FROM TOP The materials are selected from a range of Nomex-based products and cut to Team McLaren Mercedes' driver measurements. At the same time, the logo designs are digitised, ready for embroidering

Formula 1 is now safer than it has ever been, but there is always an element of risk. It is because of this inherent jeopardy that all involved with the sport are constantly striving to make it safer, while maintaining its essential elements of speed and excitement.

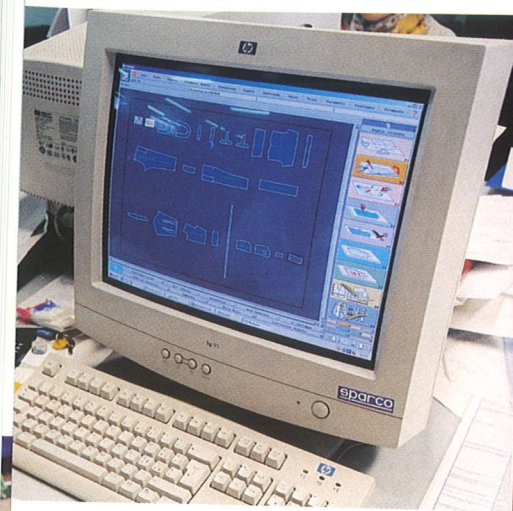
At the most fundamental level, the driver himself must be adequately protected against the many hazards he faces while driving a Formula 1 car, and the most obvious expression of this protection is the overalls that he wears while driving. These serve many purposes, the most important, and obvious, of which is to protect the driver in case of fire.

The FIA, motorsport's governing body, first offered a recommendation that drivers wear fire-resistant clothing back in 1968, and there has been a steady evolution in the sport of the level of protection offered by the drivers' apparel ever since.

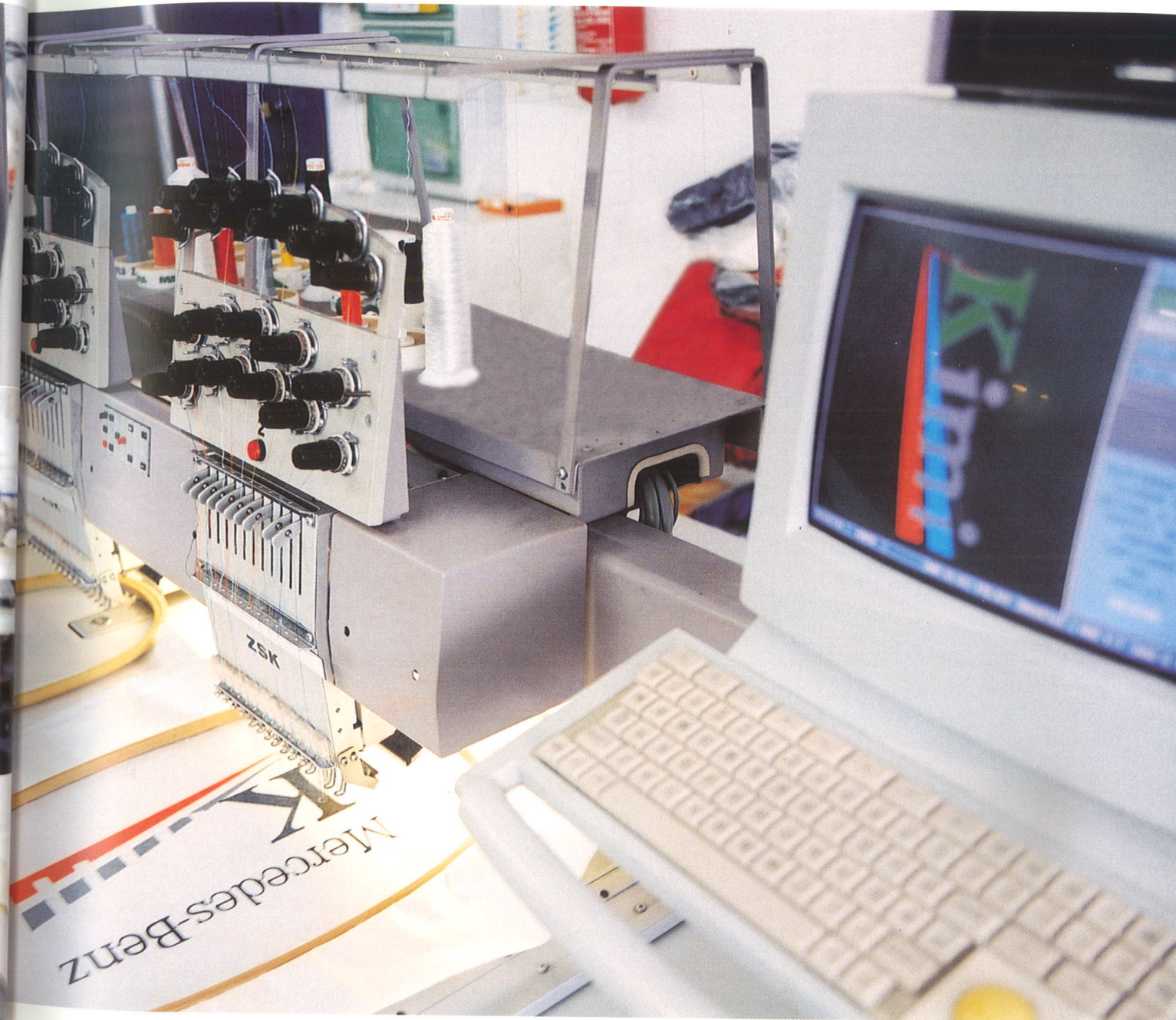
The race suits worn by all four of Team McLaren Mercedes' drivers are supplied by Sparco, which ensures that the materials used in their construction are always at the leading edge of technology. The company provides Team McLaren Mercedes with around 40 suits per driver, per season to ensure that the overalls always look fresh during the gruelling racing and testing programme.

"We are constantly liaising with our materials supplier to ensure that each and every material we use offers the most protection possible, and is as technologically advanced as it can be," explains Fulvia Gaspari, Head of Business Development at Sparco. "We





CLOCKWISE FROM TOP LEFT The wide variety of thread colours available allows the overall designers to produce bespoke logos.



work closely with Team McLaren Mercedes to ensure that we are fulfilling all of their requirements, and we are constantly searching for the latest materials to make the drivers' race suits lighter, even more comfortable and, most crucially, safer."

With such an important theme as safety, there is little or no room for compromise, and each and every stage of the production process must be optimised to ensure the best results.

All of the overalls used by the Team McLaren Mercedes drivers – and indeed all Formula 1 drivers – must be able to resist flame. An official ruling by the FIA originally enforced this law in 1975, seven years after it first proffered its recommendation on the same issue. Now, all clothing worn by the drivers must meet stringent safety criteria laid down by the governing body. The process of constructing apparel to meet these requirements begins with the raw materials. There are four constituent materials in each set of overalls, and all are constructed, in varying ways, from a synthetic material named Nomex.

Nomex grew out of work conducted in the late 1950s to find a material that could offer protection in the event of the wearer being exposed to extreme heat or flame – fire fighters, for example. Put simply, the material consists of interlocked, or 'splunaced' fabrics which offer durability and softness as well as fire resistant qualities. It is ideal for use in motor racing to protect the drivers should they be exposed to fire.



"The suits that we produce for Team McLaren Mercedes represent the absolute peak of fire-resistant race suit technology," continues Gaspari. "They are extremely advanced and lightweight, and need to be treated with the utmost care. Team McLaren Mercedes expect the best from every aspect of their set-up, and the overalls worn by the drivers are a very important part of that expectation."

The four materials used in a race suit are all Nomex-based, but of differing textures. For example, the inner layer must be soft and breathable,

because it sits directly next to the driver and offers him his final layer of protection. The two middle layers are slightly heavier, but still comfortable. The outer layer is shiny, and is the first point of resistance to any errant flame.

These fibres have been developed in the laboratory over time to offer the driver the ultimate in protection and comfort, and it has not been mere coincidence that there have been no life-threatening burn injuries sustained by a Formula 1 driver for the best part of the past 20 years.

The next stage of the production

process is to cut the cloth accordingly. To enable this procedure Team McLaren Mercedes sends a set of measurements for each of its four drivers, which reflect the physical dimensions and personal requirements of the driver in question. David Coulthard, for example, likes a race suit that fits snugly, while Kimi Räikkönen prefers his to be looser.

These measurements are then turned into patterns by a computer, patterns which will be used to dictate the size of each and every constituent part of the finished product. These are >>



ABOVE The cloth is cut by machine. Up until recently, this process was done by hand, but even this is now computerised – such is the accuracy of the equipment and the need for each and every pair of overalls to be as comfortable and as perfect a fit as the last

then transferred to another computer, which electronically cuts the materials to the correct size and shape – right down to a hundredth of a millimetre. As ever, precision is all in Formula 1. The material then goes on to the embroidery facility, where the intricate and detailed Partner logos are applied. This, again, is controlled electronically. Team McLaren Mercedes will send computer-generated images of all the logos which are to be added to the suit. These then have a specially designed stitch pattern superimposed by a skilled computer programmer,

who maximises the quality of the stitching by applying each complicated stitch pattern by hand. The finished design is then sent to a hi-tech embroidery machine, which renders the designs perfectly onto the outer layer of the Nomex. These machines are capable of applying the same pattern to up to 12 individual cuts of cloth. Depending on its intricacy, each logo can take up to four hours to be applied, because each consists of a minimum of two layers of stitching to ensure the quality of the finished product is as high as can be.

Once this process is completed and all logos have been added to the section of the pattern in question, the materials are moved to a different section of the manufacturing plant – a flat table that is marked out with a pre-measured grid formation. This will later form the 'box' stitching pattern which is a common feature of many drivers' race suits. The reason for this method of box-stitching is simple, it allows a pocket of air to be maintained between the constituent materials that make up the four layers of suit, ensuring that each material has

## TESTING THE OVERALLS

Since 1975, the sport's governing body, the FIA, has stipulated that every driver competing in Formula 1 must wear fire-resistant clothing at all times while in the car. In the 28 years since, technology in this area has advanced to the stage where drivers are currently afforded better protection in the unlikely event of fire than ever before.

At each stage of the process of manufacturing a set of race overalls, the materials must be tested to determine their fire-resistant qualities. This test is carried out directly by the FIA at one of its eight dedicated test centres around the world. The test is a complex process, covering all fire-related eventualities and testing the materials' ability to deal with them safely.

The bottom line is that a set of racing overalls used in Formula 1 must be able to keep the driver safe from fire for a minimum of 14 seconds. This makes sense when one considers that FIA regulations also stipulate that a driver must be able to extract himself from his vehicle within a maximum of just five seconds. Thus, the protective clothing worn by the driver all but eliminates the threat of him suffering burns in the event of fire.

At each stage of the race suit production process, samples of the materials used will be sent directly to the FIA, which must then approve them before the process can continue.

The first test involves applying a very hot flame, just two centimetres in length, to each of the four materials that constitute the complete race suit, and each material must resist this intense heat for about 15 seconds. The second test involves applying a constant heat to a fixed section of the material, because this measures the amount of heat that is allowed to leak through the material.

The objective, of course, is for the material of the suit to maintain its ambient temperature and not be affected by the heat – thus allowing the driver to maintain an acceptable body temperature. The materials are expected to maintain their ambient temperature for 40 seconds.

The FIA carries out these tests over a period of one month, which includes a cycle of 20 washes of the garment to ensure that its properties are not degraded by everyday wear and tear.



the best possible chance to do his job.

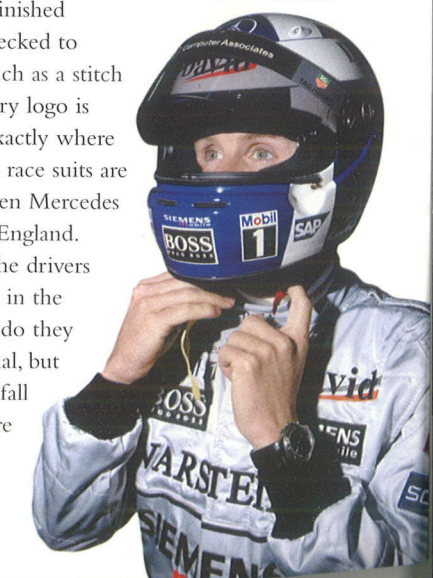
After each section of the pattern is marked with the grid pattern, it then moves on to be finished individually by hand, with the stitching-in of the box pattern the first step. Once each section has been completed in this way, the sections can then be stitched together, and zip fasteners and Velcro can be added to finish the job.

The whole process takes one week from initial pattern to finished, race-ready product. Each stage of every process has to be millimetre perfect, and the experienced machinists – who have a passion for motorsport – take great pride in the quality of their work.

Once completed, the finished product is fastidiously checked to ensure there is not so much as a stitch out of place, and that every logo is straight and positioned exactly where it should be. The finished race suits are then sent to Team McLaren Mercedes headquarters in Woking, England.

These overalls enable the drivers and team to be confident in the knowledge that not only do they look smart and professional, but whatever twists of fate befall them on the track they are protected as well. ■

ABOVE AND LEFT Once the overalls have been fastidiously checked for quality and accuracy, they can be packed and shipped to Team McLaren Mercedes, ready for the drivers to wear at a race



BITS &amp; PIECES

&gt;NO.0014

## THE FUEL TANK

WORDS BRUCE JONES PHOTOGRAPH TED HUMBLE-SMITH



Inserting a fuel tank into a Formula 1 car is said to be like folding up an armchair and posting it through a letterbox. This may be an exaggeration, but when you compare the size and shape of a fuel tank with the opening in the bulkhead through which it must pass, you can understand the description.

Large and bulky, the modern-day fuel tank is not a thing of beauty, with its shape notched from all angles and its surface bumpy with the ribs that hold together the sections from which it's made. But it does the job it is required to do, not only storing up to 30 gallons of fuel but also delivering it to the engine in the most efficient way possible.

Mark Ingham, Principal Designer Engine Systems, explains why it's shaped as it is.

"From the metal fuel tanks of old, the tank developed into a tough bag that fits into a cavity," he says. "The cavity used to be anywhere in the car, even alongside the driver. Nowadays, for safety reasons, the fuel cell cavity has become incorporated into the driver survival cell or monocoque, with regulations ensuring that no fuel is stored in front of the driver's back."

The tank is splayed at its base, with a moulded shape in an offset of the driver's back, rising up to behind his neck. Two studs on the tank's front side go into the seat back to stop the tank collapsing as it empties.

On each side at the top, there's a hole for refuelling, with the one over the driver's right shoulder for race refuelling, the one over his left for non-race refuelling when a pit rig is used. The only time that these are swapped is for the Brazilian, French and Canadian Grands Prix, where the pit garages are on the left-hand side of the cars in the pitlane,

rather than the right, as at other circuits. At the rear of the tank, there are two openings. The one at the bottom is for the mechanical pump which picks up the fuel from the collector and pressurises it. The one at the top is for the fuel outlet pipe, which has a self-sealing, frangible coupling to prevent fuel spillage in the event of an accident when the fuel supply is severed.

"The ideal shape for a fuel tank would be low and flat to keep the centre of gravity low in the car," Ingham admits. "For optimum fuel collection, though, you'd want your tank to be tall and thin. So tank design is always something of a compromise."

One clever design tweak is the two baffles inside, effectively shelves, that are there to stop the fuel sloshing around, keeping it low in the tank for ease of collection and to keep the centre of gravity low.

Today's fuel tanks are made from a Kevlar and rubber mix – known as FT5 – with the Kevlar for strength and the rubber to make the Kevlar weave impermeable. With such a complicated shape, there's no way that it can be made out of one sheet of this material, with areas that have two or more faces requiring the joining of several panels.

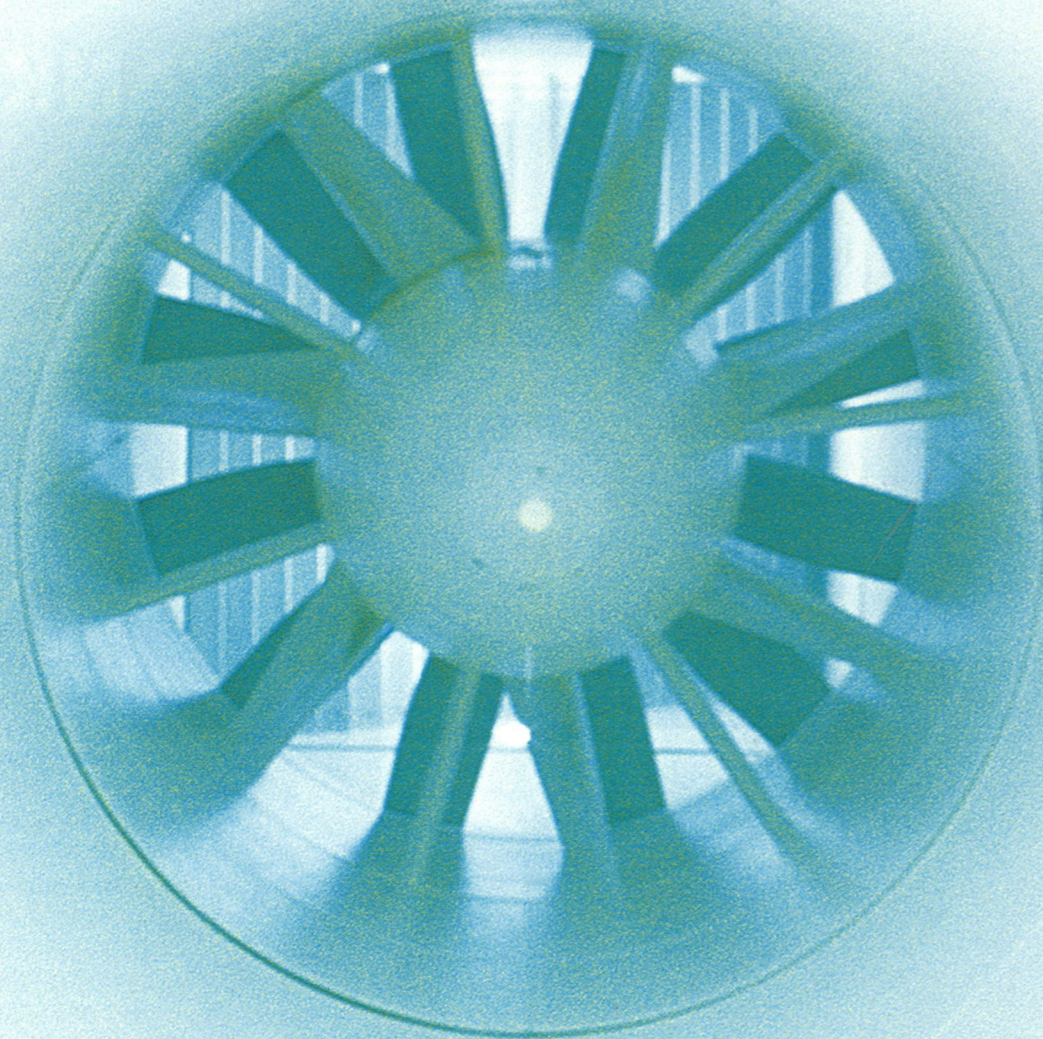
In fact, the tank is made from about 30 panels, as can be seen by the areas of ribbing where they are joined. A decade ago, a tank was made from just five panels.

In some ways, with this complex construction, that comparison with an armchair now seems even more justified. ■

### i TECHNICAL SPEC

MATERIAL Kevlar/polyurethane

NUMBER USED PER SEASON 10



# AERO DYNAMIC

With a Formula 1 car's wings glueing it to the ground – as if it were an upside-down aeroplane – the role of aerodynamics in the sport is absolutely crucial. Thankfully, Team McLaren Mercedes has access to an advanced, bespoke wind tunnel at its new headquarters which is one of the best in the business

WORDS TONY DODGINS PHOTOGRAPHS MARC BURDEN

INSIDE THE WIND TUNNEL



ABOVE The 145-metre long wind tunnel contains 400 tonnes of steel, but such a large structure is entirely necessary to ensure that the airflows produced are as controllable and accurate as possible



A modern, bespoke wind tunnel is a necessity rather than a luxury in Formula 1. Such is the intensity of competition at motorsport's top level that a 10 percent improvement in the complex and highly-sophisticated relationship between downforce and drag on the wings of a Formula 1 car will translate into a one-second improvement in lap time – roughly equivalent to the order of gain that the team hopes to find during each car's lifecycle.

At the McLaren Technology Centre, the TAG McLaren Group's new headquarters in Woking, England, a fully-enclosed wind tunnel – built specifically for the team's exclusive use – has been operational now for nearly two years and has been working almost continuously all that time. No fewer than 3000 runs were employed in defining the team's new title challenger, the MP4-18, for example.

Previously, Team McLaren Mercedes used a commercial wind tunnel in nearby Teddington, but this had its restrictions. Not only was the tunnel of an older design – with concrete construction and timber fan blades, compared to steel construction with aluminium blades in the team's new wind tunnel – but, crucially, Team

McLaren Mercedes can now operate its wind tunnel whenever it wants.

The real advances, however, are the state-of-the-art adaptive walls – designed to reduce air blockage to a minimum – and the steel-belted rolling road. There is no doubt in the mind of Wind Tunnel Manager Paul Mackwood that the new and highly advanced wind tunnel is a key asset to Team McLaren Mercedes.

"Certainly, this is a much better

**"CERTAINLY, THIS IS A MUCH BETTER WIND TUNNEL. IT'S FASTER, WITH BETTER FLOW QUALITY"**

**PAUL MACKWOOD, WIND TUNNEL MANAGER**

tunnel," he says of the new facility. "It's faster, with better flow quality."

This is a view backed up by Peter Prodromou, Head of Team McLaren Mercedes' Aerodynamics Department. "It's a night and day difference compared to what we could do at the old wind tunnel," he confirms. "Previously, all the necessary attention to logistics and management detracted from the aerodynamic side. The flexibility wasn't there."

McLaren currently employs a

two-shift system to operate its new wind tunnel, with an aerodynamicist and two model makers in the tunnel from seven o'clock in the morning until midnight during the week, with reduced hours on Saturday.

As well as testing new development parts for the cars, the team also maps its aerodynamics in the tunnel. Different wing angles and set-ups are needed for different race tracks, and all have to be tested, with tables of

aerodynamic data built up for the race team's use. They relate to a myriad of changeable areas – flap angles, rear wing angles, cooling options, brake ducts, bodywork exits and so on.

In the wind tunnel, the aerodynamic forces experienced by the car are what are predominantly measured. There are no braking or cornering forces, for example. Inside the model is a load cell that measures all six components of force – the downforce, the drag, the side force and the three moments

# ORIGINAL EQUIPMENT IN THE WORLD'S FINEST AUTOMOBILES



**Mobil** Command Performance



ABOVE Although a Formula 1 car may look the same from the start of the season to the finish, there are many subtle differences in the car's aerodynamics – all of which have been honed in the wind tunnel

associated with that: pitch, roll and yaw. One side of the load cell is attached to the model and the other to the strut that supports the model from above.

Any wind tunnel has limitations, however, because it can never be a truly perfect simulation – for one, a real driver doesn't have a supporting strut sticking out of the top of his head – but the aim is to eliminate as many imperfections as possible.

Then there's the airflow. In a wind tunnel, a race team's aerodynamics department is simulating the reality of a car moving through still air over a stationary road. A moving model is not practical, though, so the model is instead held still and the air moved past it. To get accurate results the air needs to be moved past the model uniformly.

That demands what is known as a closed return wind tunnel, providing the best possible airflow conditions in advance of the model. In a closed return wind tunnel, the air that passes over the model through the working section is collected by a duct, taken all the way round and fed back in again.

In front of the working section, there are a series of wire mesh screens and a six-inch-deep honeycomb mesh. They act to remove the disturbances put in the flow, firstly by the model

but mainly by the fan itself.

The fan, which is around four metres in diameter, puts some big 'swirling' structures into the flow which must be removed before the flow passes over the model.

Then there's the size of the model. You might assume that a 100 percent model would be the optimum design for accuracy, but you would be wrong. With a 100 percent model, you would need a very big tunnel because you

**"CFD IS BECOMING INCREASINGLY COMMON, BUT YOU USE THE WIND TUNNEL IN A DIFFERENT FASHION"**

PETER PRODROMOU, HEAD OF AERODYNAMICS

artificially constrain the airflow.

When something big is placed in an airflow and walls are built around it, the air has to expand to go around the model, and the walls restrain the flow and don't allow it to expand properly. The airflow therefore accelerates locally to the model, so you get an artificial speeding up of the flow and you have to correct your results for it.

Also, there's the fact to consider that you would have to make full-size, full-strength parts all the time, with

the manufacturing cost and time problems that incurs. And, remember, since these are development parts, they could be quickly disregarded.

Of course, there are other methods of designing, developing and analysing the aerodynamics of a Formula 1 car, with Computational Fluid Dynamics now a much bigger influence in current design than ever before, but the wind tunnel still has a crucial place in a modern Formula 1 car's

development, and it looks certain to stay that way for many years to come.

"The two techniques complement each other, along with the on-track testing," Prodromou explains. "We would be less effective without any of them. CFD is becoming increasingly important, but you use the tunnel in a different fashion."

Which, ultimately, is why McLaren has developed one of the country's most advanced wind tunnel facilities. It's certainly not just a lot of hot air. ■



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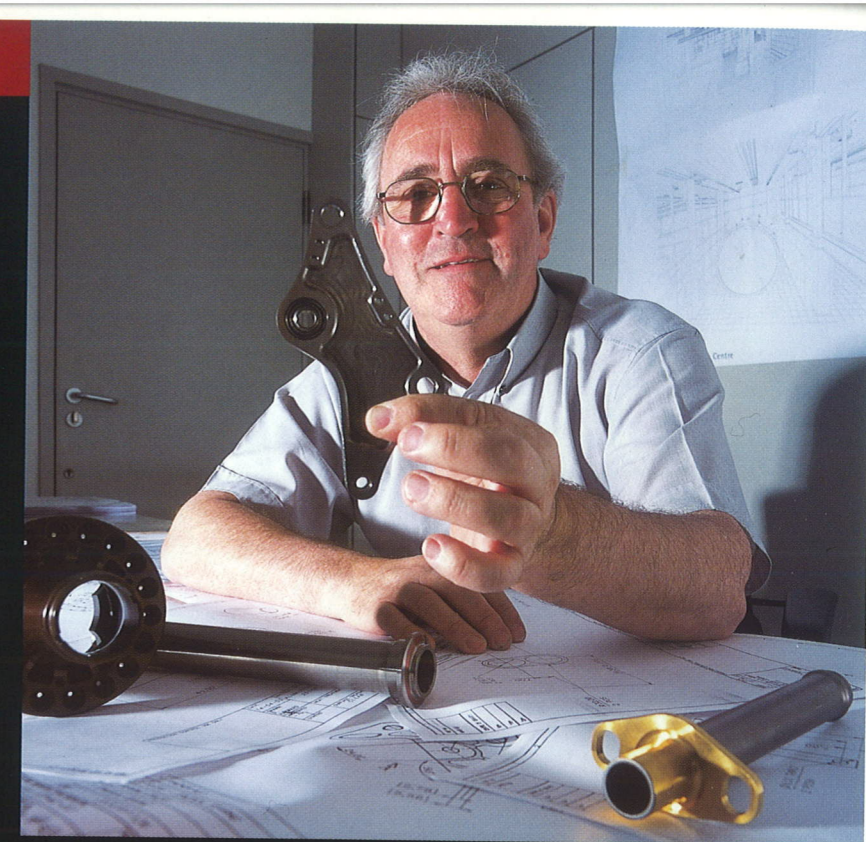
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## COLIN SKILTON TECHNICAL BUYER

WORDS BRUCE JONES PHOTOGRAPHS STEVE ORINO



### When did you join McLaren?

Back in 1981, after I saw an advertisement saying that McLaren wanted a machinist. I applied for the position that was advertised and quickly realised that it was something a bit special. It was a good job, with an excellent quality of work.

About three years after I joined, computerised equipment started to be introduced in place of the manual machines that we'd used up until then and I was one of the first people to go onto these CNC machines, which was a nice thing to be able to do – it was a bit of a fillip, really.

After about 10 years in the machine shop, I applied to be the Production Control Manager's Assistant, and got the job. McLaren then grew bigger and busier, the cars became more and more technical and it became apparent very quickly that we didn't have the resources in-house to do everything, so we had to find people outside the company for some of the jobs. So, with my machine knowledge, I became a technical buyer.

### What does your role entail?

I'm tasked with finding companies to make anything we can't make in-house, either through our capacity or our capability – that's to say not having the particular types of machinery, such as jig grinders, gun drills or spark eroders, to perform certain tasks.

We often have the machine required for the task, but simply not enough time to perform it because the machines may be being used to produce something else for the team.

If we can't do something, I have to find someone who can. We make it plain that the first thing we want is quality, and then we want it within our time restraints. We tend to use the smaller engineering firms because they can respond more quickly and are more likely to work overnight for us.

### What has given you the most satisfaction during your time with the company?

I got a lot of satisfaction out of the parts that I used to make. We were always, and still are, up against the clock, and I always felt a buzz when I was given something to do and got it done in time for whatever test session or race that part was needed for.

I've found through my role as Technical Buyer that there are plenty of suppliers out there who want to be involved with Formula 1, but they don't always perform as we want them to, so I'm probably most proud of having put together a supplier base of companies that are very happy to work with us at McLaren.

As a result of this, I get a lot of phone calls on the Monday after a race. If they weren't Formula 1 fans when they started, they certainly are

now, and I hope that I've played a part in bringing that about.

Of course, you'll always get the 'didn't we do well' comments if we've won and the 'you didn't do so well' comments if we haven't.

### Were you a Formula 1 fan before you joined McLaren?

No, not at all, but the sport does grow on you. I recall a particular incident that happened once when I was going to Silverstone for a test. The team used to take one person from each of the departments to spread them around the circuit with stopwatches. Ayrton Senna was driving for us then, and I was on the pitwall.

Alain Prost had just left the team for Ferrari, and Senna wanted me to time him on a specific lap. Trouble was, Prost came into the start/finish straight in a gaggle of four or five cars and I missed him. Senna, standing right beside me, scowled at me and walked off. I thought that I'd really blown it.

I didn't see him again until he emerged from the motorhome at about 10 or 11 o'clock that night and walked over to me and asked whether I'd had a good day. I said: "Yes thanks", and he replied: "But you missed Prost..."

Fortunately, he was smiling. It was a nice moment. ■

>RETRO

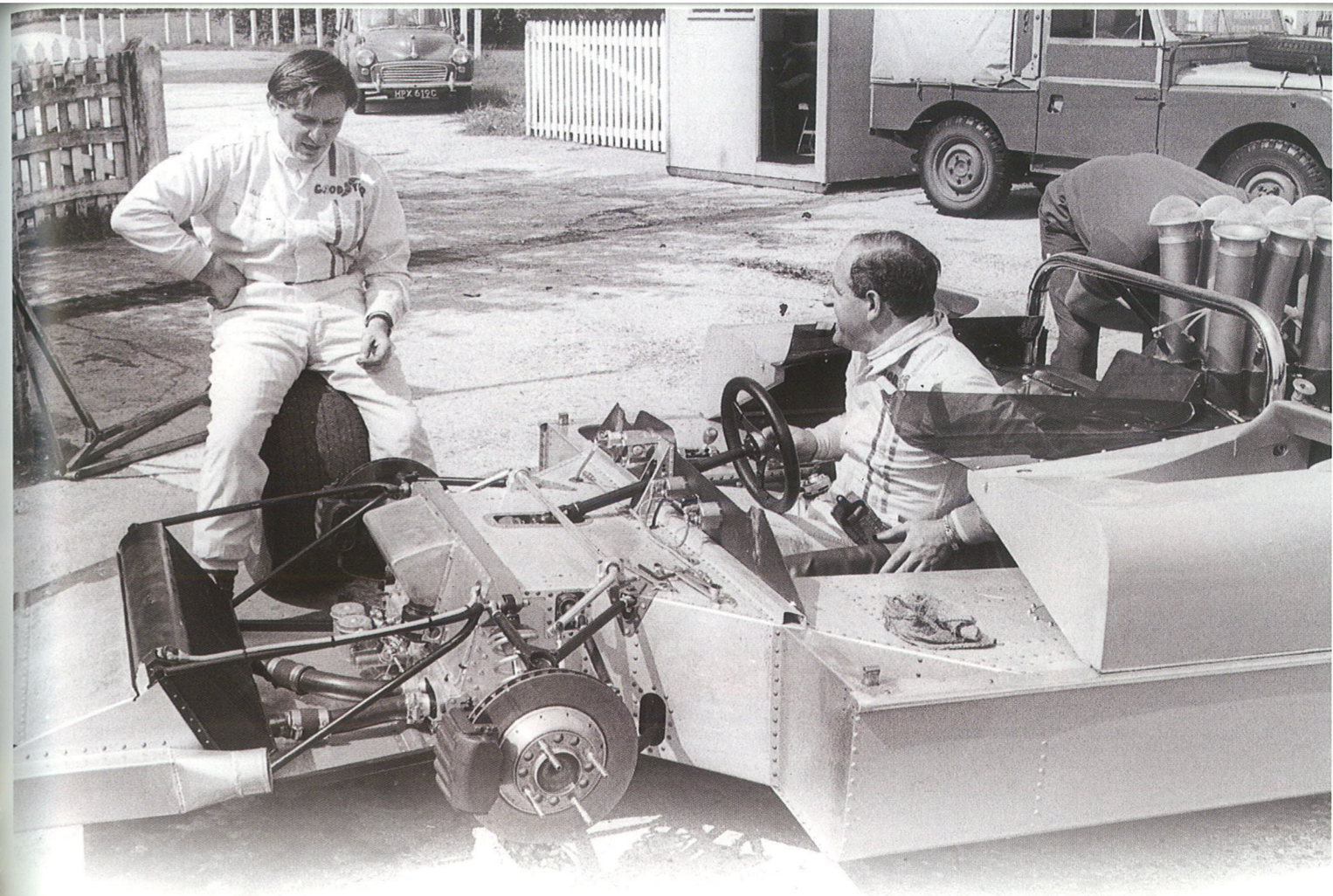
# The Can-Am Years

In the late 1960s, McLaren was not only making the headlines in Formula 1. The team was also dominating the North American Can-Am sportscar championship, with drivers Bruce McLaren and Denny Hulme racing a series of car designs that truly set the pace for the rest of the field to match

WORDS GORDON KIRBY PHOTOGRAPHS LAT PHOTOGRAPHIC



MAIN The McLaren team dominated the North American Can-Am sportscar series between 1967 and 1971, with team founder Bruce McLaren and team-mate Denny Hulme notching up two titles each



ABOVE Bruce McLaren and Denny Hulme were good friends and even better team-mates, helping to spearhead the McLaren team's early success in Can-Am and Formula 1

RIGHT By 1972 the McLaren team was less dominant thanks to increased competition from Porsche, but Denny Hulme was still able to win two races in the stunning M20



McLaren's reputation as a racing car manufacturer in the company's early days was really cemented in the late, lamented Can-Am series. Between 1967 and 1971, McLaren's orange Can-Am cars proved almost unbeatable, winning five consecutive championships and 37 of the 43 races in which they competed.

Those were the days of the 'Bruce & Denny Show' as team founder Bruce McLaren and fellow Kiwi Denny Hulme dominated the series. McLaren and Hulme alternated as the Can-Am champion for four successive years and, in 1969, won all 11 Can-Am races, scoring eight one-twins. It was, in its own way, just as successful as McLaren's record-setting 1988 Formula 1 season with Ayrton Senna and Alain Prost.

The Can-Am series came into being in 1966 with two races in Canada and four in America, thus the Can-Am moniker. Since the late 1950s many top Formula 1 drivers raced in an informal series of American and Canadian sportscar races run each autumn. The prize funds were big and the rules wide open, and eventually the races were combined into a formal series.

The original Can-Am championship



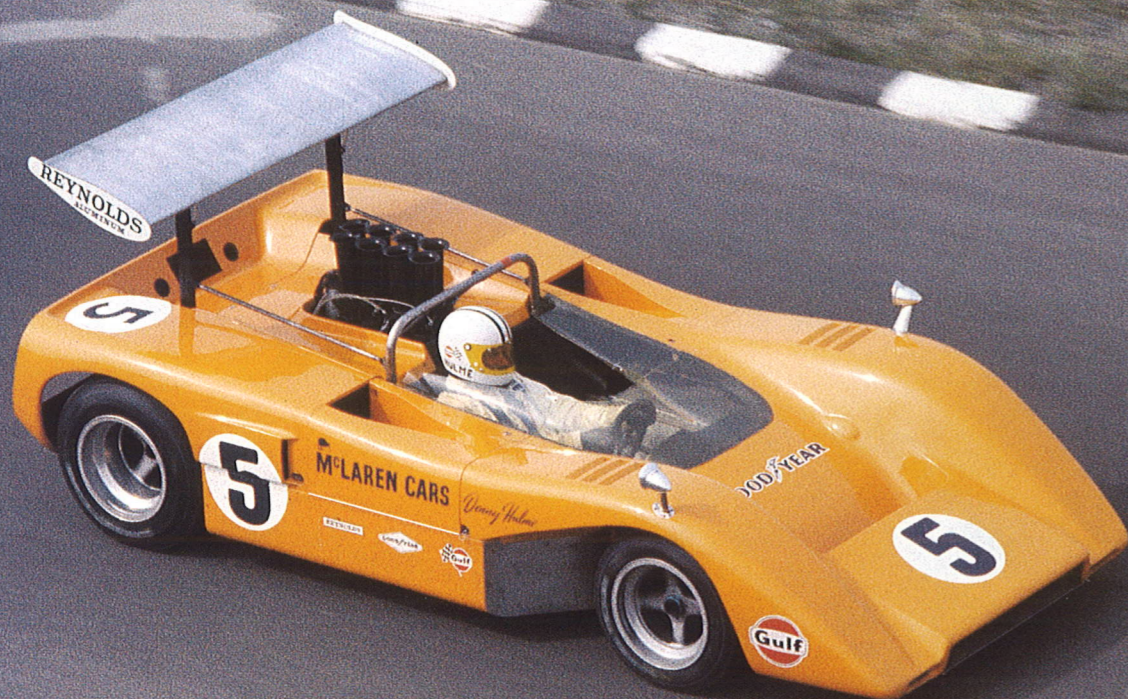
ran from 1966 to 1974 and was conceived as an unlimited formula for two-seater sports/racing cars, based on the Group 7 rules of the FIA, world motorsport's governing body. There were no limits on engine displacement, means of aspiration, aerodynamics or tyres, and the series spawned a host of fascinating cars, including Jim Hall's revolutionary Chaparrals, as well as all manner of super- and turbocharged monsters, although most cars ran seven- or eight-litre Chevrolet or Ford V8s.

In addition to being technically more open than Formula 1, Can-Am also

paid more prize money, attracting plenty of overseas interest. John Surtees, world champion with Ferrari in 1964, won the first Can-Am title in a factory Lola, beating Mark Donohue in his Penske-run Lola. Bruce McLaren and team-mate Chris Amon finished third and sixth in the championship, neither McLaren driver winning a race.

Bruce drove for Cooper in Formula 1 from 1959 to 1965, but he built his own Can-Am sports/racer in 1964, intent on becoming a Formula 1 constructor in his own right. Based on a Cooper Formula 1 car bought from >>

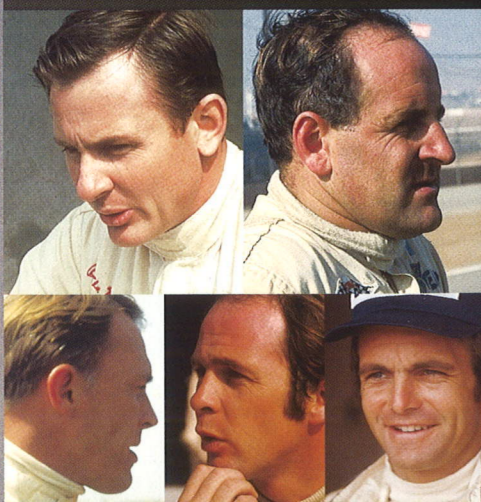
## RETRO The Can-Am Years



In 1969, McLaren won all 11 of the races in the Can-Am series, with Bruce McLaren beating Denny Hulme (left) to the overall title honours for the second time

### >THE DRIVERS

## BRUCE McLAREN, DENNY HULME, DAN GURNEY, PETER GETHIN & PETER REVSON



CLOCKWISE FROM TOP LEFT Bruce McLaren, Denny Hulme, Peter Revson, Peter Gethin and Dan Gurney

As ever with the McLaren team in the late 1960s, founder Bruce McLaren was not only driving the company forward, but racing the cars as well. In Can-Am, many of the drivers who competed with Bruce in Formula 1 accompanied him across the Atlantic, creating an unbeatable driving line-up.

McLaren's first Can-Am team-mate was Chris Amon, also from New Zealand. Amon never drove for McLaren in Formula 1, but partnered Bruce in Can-Am in 1966 before going to Ferrari. Amon was replaced by Denny Hulme, who immediately became as integral a part of McLaren as Bruce himself.

Hulme won the Formula 1 World Championship with Jack Brabham's team in 1967, but then joined McLaren in Formula 1 as well as Can-Am for 1968. Hulme drove for McLaren for seven years. He won two titles and 22 Can-Am races with the team, as well as six Formula 1 races.

Dan Gurney stepped in to replace Bruce after the New Zealander was killed testing at Goodwood. Gurney had run three Formula 1 races in a third McLaren at the end of 1968 following the demise of his Eagle Formula 1 project and was happy to help out the McLaren team a year and a half later. A contractual conflict meant Gurney couldn't continue with the team, however, and he was replaced by Formula 5000 star Peter Gethin, who also drove in 14 Formula 1 races for McLaren in 1970 and 1971. Gethin also ran seven Can-Am races for the team in 1970, winning at Elkhart Lake.

Peter Revson made a strong impression driving a Can-Am Lola for Carl Haas in 1970. That earned him a ride with McLaren for 1971, and he duly won the Can-Am title after a season-long tussle with his team-mate, Hulme. Revson won the British and Canadian Grands Prix for McLaren in 1973 and finished second for the team at Indianapolis in 1971.

Most successful of the many privateers to race McLarens in Can-Am was Lothar Motschenbacher, who finished second to Hulme in the 1970 Can-Am series. Motschenbacher also scored his best result that year by finishing second to Gurney at St Jovite.

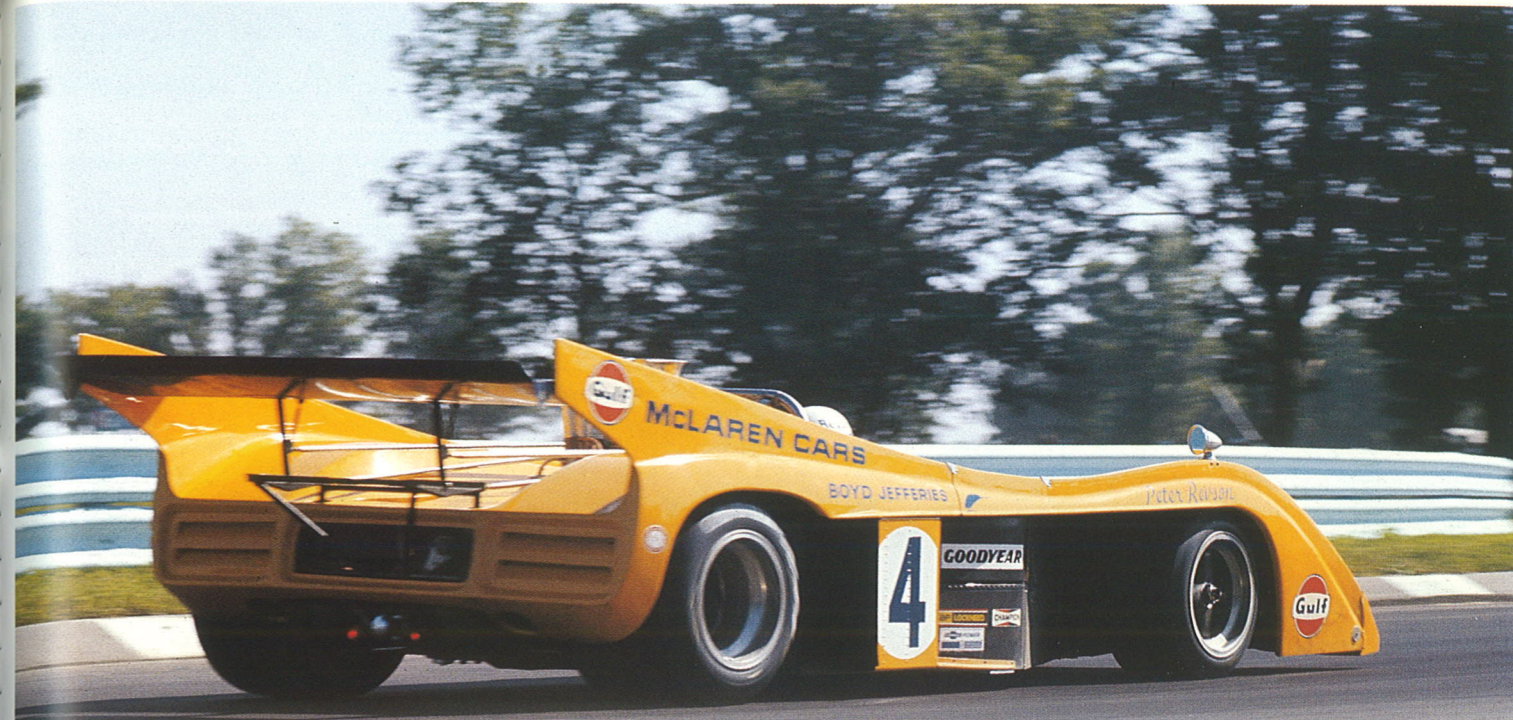
Roger Penske, the sports/racer was powered by an Oldsmobile V8 engine.

Bruce raced the car successfully in America and Europe. The following year, the first bespoke McLaren sports/racer, the M1A, was built, and the car was successful enough to draw interested customers. McLaren struck a deal with Elva, an established racing car manufacturer, to build customer cars and started competing with Lola for the growing Group 7 car market.

Meanwhile, McLaren switched to Chevrolet engines for the factory cars and developed the M1B, then the M1C. Quite a few of these cars were sold to American customers, and it was the M1C that Bruce and Chris Amon raced without much success in the inaugural Can-Am series. After taking a beating from Lola and Chaparral, McLaren returned to the UK to begin work on a brand-new Can-Am car.

The resulting M6A was a classic, aesthetically and competitively, and was the first Can-Am car turned out in the team's trademark orange colour scheme. Denny Hulme signed up as McLaren's team-mate after Amon decided to join Ferrari in Formula 1, and so began the 'Bruce & Denny Show' as the pair won five of six races and finished one-two in the 1967 Can-Am standings, with Bruce McLaren taking the title.

A new car, the M8A, was built for



1968, and McLaren and Hulme won four of the six races, with Hulme beating his boss to the title. The series was expanded to 11 races in 1969, and McLaren and Hulme continued with a further development of the M8. This time they struck gold like never before, winning all 11 rounds and finishing one-two no fewer than eight times.

Engine development was moving fast as McLaren and the team's competitors went to bigger and bigger Chevy, or in some cases Ford, stock block-based V8s. Another new car, the M8D, was designed for 1970, but Bruce McLaren was killed while testing the prototype at Goodwood in June. The M8D featured much larger wings than those used in the past and the quantum leap in downforce and drag resulted in the rear bodywork of the test car coming adrift. The car crashed into a marshal's post, instantly killing McLaren.

The loss of the team's founder was a huge blow, but Denny Hulme became the key to pulling everyone together

for the upcoming season. American ace Dan Gurney was drafted to replace McLaren, but departed after three races because of a contractual conflict between two of the team's backers. Gurney won the first two Can-Am races of the year, but, after one more start, he was replaced by Peter Gethin who scored one win in his seven races. Team stalwart Hulme, meanwhile, won six races and took the title once again.

Peter Revson, who drove for McLaren at Indianapolis in 1970, replaced Gethin in the 1971 Can-Am series. Revson also drove for McLaren in three US Auto Club 500-mile races and was signed up for Can-Am, USAC and Formula 1 in 1972. He drove an M8F to win the 1971 Can-Am title, narrowly beating team-mate Hulme, with Jackie Stewart third.

An all-new M20 was designed for 1972, but Porsche produced the 917/10 turbocharged flat-12 Can-Am car, run by Roger Penske for Mark Donohue and George Follmer. The turbo Porsche outpowered the McLarens, and it soon became clear that a turbo engine was now required. Donohue was injured early in the year and missed four races, but Follmer was able to win five times, beating Hulme to the championship and ending McLaren's proud string of Can-Am titles.

Unable to compete with the turbo Porsches, McLaren pulled out of the Can-Am series at the end of the year to focus on Formula 1 and USAC. The Can-Am series survived just two more years with Donohue dominating the

1973 season in an even more powerful Penske/Porsche 917/30, while Jackie Oliver swept the board in the 1974 championship in a Shadow-Chevrolet after Porsche pulled out.

Oliver and team-mate Follmer failed to finish the final Can-Am race of 1974 at Elkhart Lake, so that the last of the original Can-Am races was won by privateer Scooter Patrick at the wheel of a two-year-old McLaren M20. It was a fitting end to a series that was defined by the marque. ■

### >THE CAR

## McLAREN'S CAN-AM CARS

A key to McLaren's early success in Can-Am and Formula 1 was design chief Robin Herd. Herd was responsible for all the early Formula 1 and Can-Am McLarens, and really hit his stride with the elegantly curvaceous M6A Can-Am car in 1967 and the M7A Formula 1 car in 1968.

Aluminum monocoque technology was evolving rapidly at the time and Herd was a master of that aspect of race car design. He was also fascinated by aerodynamics, which was an even more quickly evolving racing car science. Wings sprouted on the majority of Formula 1 and Can-Am cars in 1968, and Bruce McLaren and Herd were in the middle of the revolution.

When Herd left to start the March team in 1969, he was replaced by Gordon Coppuck, who was essential to McLaren's emergence over the following years as a regular winner in Formula 1, Can-Am and the Indianapolis 500.

Coppuck developed the science of aerodynamics even further, integrating wings into the design of McLaren's Can-Am and Indy cars and triggering yet another technical revolution at Indianapolis in 1971 when Peter Revson broke the track record by eight mph.

He applied the same principles to McLaren's Can-Am cars from the series of M8s through to the M20, because effective downforce was one of the most important areas in which McLaren exceeded its Can-Am rivals in 1969, 1970 and 1971.

ABOVE Peter Revson joined McLaren after Bruce McLaren's tragic death in 1970. He went on to win the 1971 title and continued with the outfit in 1972

LEFT McLaren was very much centred around team founder Bruce, but the team continued on to great success in Formula 1, Can-Am and IndyCars after his death

>RETRO  
**The Can-Am Years**



>THE CRUCIAL RACE  
**BRIDGEHAMPTON, 1967**

Pinpointing one crucial race that cemented McLaren's reputation in Can-Am is hard, such as the team's dominance in the series. Yet the second round of the 1967 season, at Bridgehampton, is probably when the team first showed its true pace.

The 1967 season was when the McLaren myth really enveloped Can-Am. During the preceding years The Beatles, the Rolling Stones and other pretenders had swamped American popular culture. It was as if the USA was preparing for an English-based team of multinationals to steamroller America's best in the hi-tech sports car series.

After qualifying one-two on the grid, with Denny Hulme on pole, the Kiwi and his fellow countryman and team founder Bruce McLaren ran in close formation to the end of the race, beating convincingly the rest of a 30-strong field that included a total of 14 works and privateer McLaren chassis.

Bruce, Denny and the orange McLarens became stars. Race fans loved Bruce's reticence and Denny's casual, man-of-the-people way of life. The 'Bruce & Denny Show' took instant shape and, by the end of the year, the dominance of the McLarens was what Can-Am was all about.

The cars were spectacular, destroying lap records year after year, and nobody cared that the races were rarely close-fought. Everyone just enjoyed the spectacle of it all instead. In fact, aside from the Chaparrals and a handful of Lolas entered by Carl Haas and Roger Penske, the McLaren's had little serious opposition. So dominant did they become that at Elkhart Lake in 1969 McLaren and Hulme gave the final qualifying session a pass, preferring to go water-skiing.

ABOVE Bruce McLaren followed Denny Hulme home at Bridgehampton in 1967 for the team's first one-two finish. RIGHT Hulme celebrates his record 22nd Can-Am win at Watkins Glen in 1972. Peter Revson looks on



>1967-74 McLAREN CAN-AM RACE WINS AND TITLES

**1967 (CHAMPION: BRUCE McLAREN)**

Elkhart Lake (Wisconsin) – Denny Hulme  
Bridgehampton (New York) – Denny Hulme  
Mosport Park (Ontario) – Denny Hulme  
Laguna Seca (California) – Bruce McLaren  
Riverside (California) – Bruce McLaren

**1968 (CHAMPION: DENNY HULME)**

Elkhart Lake (Wisconsin) – Denny Hulme  
Bridgehampton (New York) – Mark Donohue  
Edmonton (Alberta) – Denny Hulme  
Laguna Seca (California) – John Cannon  
Riverside (California) – Bruce McLaren  
Las Vegas (Nevada) – Denny Hulme

**1969 (CHAMPION: BRUCE McLAREN)**

Mosport Park (Ontario) – Bruce McLaren  
St Jovite-Mt Tremblant (Quebec) – Denny Hulme  
Watkins Glen (New York) – Bruce McLaren  
Edmonton (Alberta) – Denny Hulme  
Mid-Ohio (Ohio) – Denny Hulme  
Elkhart Lake (Wisconsin) – Bruce McLaren  
Bridgehampton (New York) – Denny Hulme  
Michigan Raceway (Michigan) – Bruce McLaren  
Laguna Seca (California) – Bruce McLaren  
Riverside (California) – Denny Hulme  
College Station (Texas) – Bruce McLaren

**1970 (CHAMPION: DENNY HULME)**

Mosport Park (Ontario) – Dan Gurney  
St Jovite-Mt Tremblant (Quebec) – Dan Gurney  
Watkins Glen (New York) – Denny Hulme  
Edmonton (Alberta) – Denny Hulme  
Mid-Ohio (Ohio) – Denny Hulme

**1971 (CHAMPION: PETER REVSON)**

Elkhart Lake (Wisconsin) – Peter Gethin  
Donnybrook (Minnesota) – Denny Hulme  
Laguna Seca (California) – Denny Hulme  
Riverside (California) – Denny Hulme  
Mosport Park (Ontario) – Denny Hulme  
Road Atlanta (Georgia) – Peter Revson  
Watkins Glen (New York) – Peter Revson  
Elkhart Lake (Wisconsin) – Peter Revson  
Donnybrook (Minnesota) – Peter Revson  
Edmonton (Alberta) – Denny Hulme  
Laguna Seca (California) – Peter Revson  
Riverside (California) – Denny Hulme

**1972**

Mosport Park (Ontario) – Denny Hulme  
Watkins Glen (New York) – Denny Hulme  
Donnybrook (Minnesota) – Francois Cevert

**1974**

Elkhart Lake (Wisconsin) – Scooter Patrick

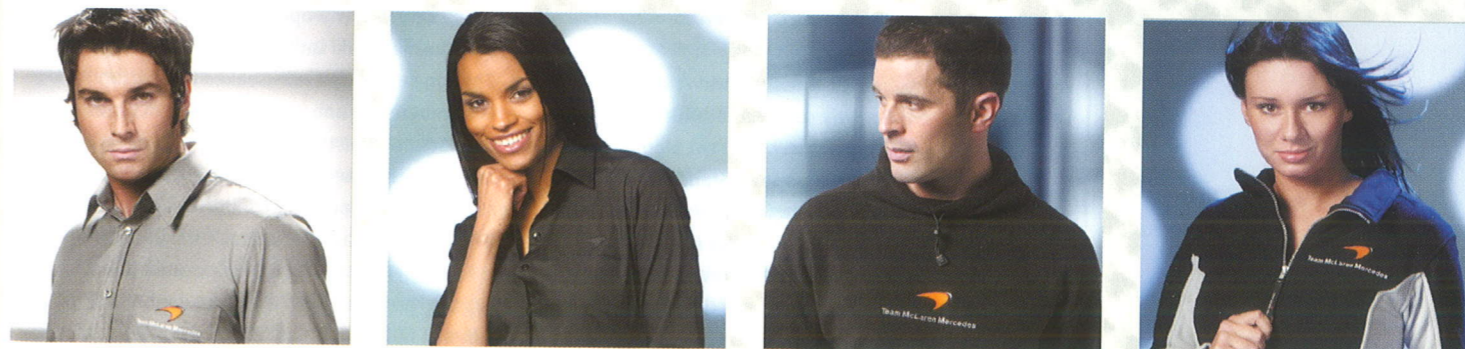
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## PREVIEW JUNE 27-29, NÜRBURGRING EUROPEAN GRAND PRIX

### TRACK INFORMATION

LAP LENGTH 5.148km  
RACE DISTANCE 308.863km  
NUMBER OF LAPS 60  
2002 POLE POSITION  
1m29.906s (205.975kph)  
2002 RACE LAP RECORD  
1m32.226s (200.794kph)

### PREVIOUS McLAREN WINS

1984 **Alain Prost** MP4/2 (Nürburgring)  
1993 **Ayrton Senna** MP4/8 (Donington Park)  
1997 **Mika Häkkinen** MP4-12 (Jerez)

### RACE TIMETABLE

#### FRIDAY JUNE 27

08.30-10.30 Private testing  
11.00-12.00 Practice session one  
14.00-15.00 Qualifying session one

#### SATURDAY JUNE 28

09.00-09.45 Practice session two  
10.15-11.00 Practice session three  
13.30-13.45 Pre-qualifying warm-up  
14.00-15.00 Qualifying session two

#### SUNDAY JUNE 29

11.15 Drivers' Parade  
14.00 European Grand Prix

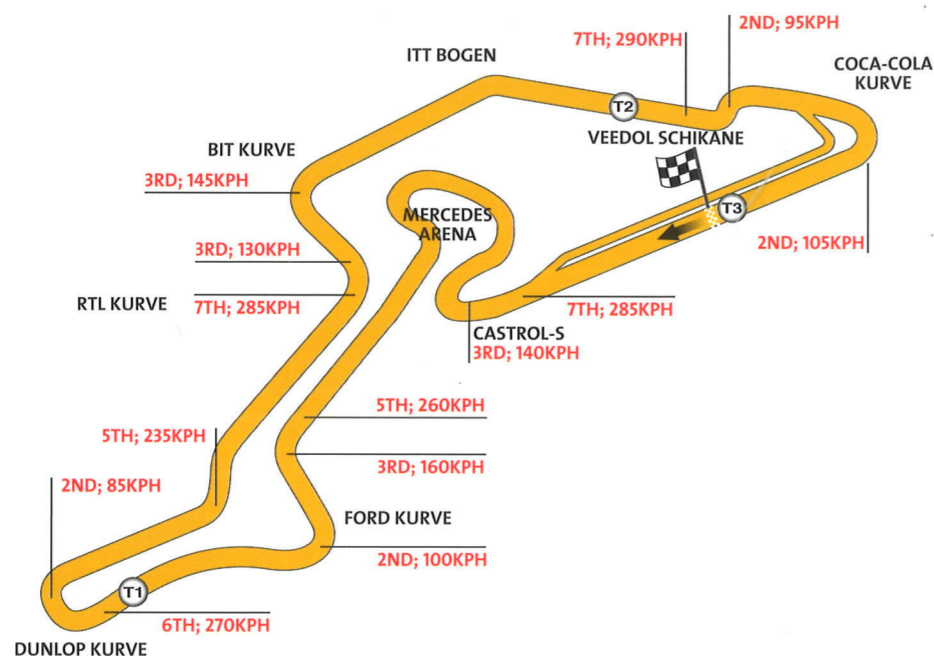
### FURTHER INFORMATION

**NEARBY CITIES (AIRPORTS)**  
Frankfurt (Frankfurt International) – 180km  
Cologne (Cologne Bonn Konrad Adenauer) – 95km

### TICKET INFORMATION

+49 26 91923060

**WEBSITE** www.nuerburgring.de



### CIRCUIT HISTORY

The first World Championship European Grand Prix took place in 1983, due to the cancellation of that year's proposed New York Grand Prix.

The event was held at Brands Hatch in the UK, a sometime host of the British Grand Prix. For 1984 it moved to the newly-constructed Nürburgring in Germany – a safe, modern circuit set alongside the old Nordschleife. The European Grand Prix returned to Brands Hatch in 1985, before vanishing for seven years due to the addition of a race in Hungary.

When the Mexican Grand Prix was dropped from the schedule in 1993, a European Grand Prix was held at Donington Park in the UK, before moving on to Jerez in Spain for 1994. The Nürburgring hosted the 1995 and 1996 events, with Jerez again the venue for 1997. The race was renamed the Luxembourg Grand Prix in 1998, again held at the Nürburgring, but has remained at the venue from 1999 to the present day with its European moniker.

### GRAND PRIX HISTORY

McLaren's first success at the European Grand Prix came early in the race's history, with Alain Prost winning at the newly-opened Nürburgring in 1984 and team-mate Niki Lauda finishing fourth.

The 1993 event at a rain-soaked Donington Park is remembered as one of the greatest victories of Ayrton Senna's illustrious McLaren career, and was a day when the peerless Brazilian showed his full mastery of truly appalling conditions.

The 1997 event at Jerez was also a memorable one for Team McLaren Mercedes, because it was the first grand prix to be won by future double World Champion Mika Häkkinen, driving the MP4-12.

Team McLaren Mercedes has made the podium for the last three European Grands Prix, with Mika and David Coulthard finishing second and third respectively in 2000, Coulthard again taking third in 2001 and Kimi Räikkönen claiming the last step of the podium at the 2002 event.

## PREVIEW JULY 4-6, MAGNY-COURS MOBIL 1 FRENCH GRAND PRIX



### TRACK INFORMATION

LAP LENGTH 4.411km  
RACE DISTANCE 308.586km  
NUMBER OF LAPS 70  
2002 POLE POSITION  
1m11.985s (212.594kph)  
2002 RACE LAP RECORD  
1m15.045s (203.926kph)

### PREVIOUS McLAREN WINS

1976 **James Hunt** M23 (Paul Ricard)  
1984 **Niki Lauda** MP4/2 (Dijon-Prenois)  
1988 **Alain Prost** MP4/4 (Paul Ricard)  
1989 **Alain Prost** MP4/5 (Paul Ricard)  
2000 **David Coulthard** MP4-15 (Magny-Cours)

### RACE TIMETABLE

#### FRIDAY JULY 4

08.30-10.30 Private testing  
11.00-12.00 Practice session one  
14.00-15.00 Qualifying session one

#### SATURDAY JULY 5

09.00-09.45 Practice session two  
10.15-11.00 Practice session three  
13.00-13.45 Pre-qualifying warm-up  
14.00-15.00 Qualifying session two

#### SUNDAY JULY 6

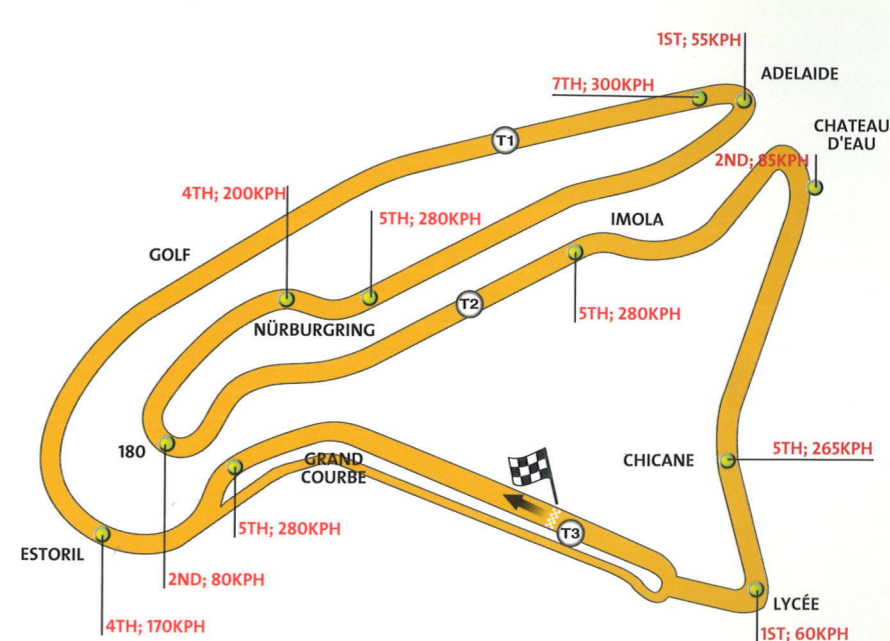
11.15 Drivers' Parade  
14.00 Mobil 1 French Grand Prix

### FURTHER INFORMATION

**NEARBY CITIES (AIRPORTS)**  
Lyon (Satolas) – 272km

**TICKET INFORMATION**  
+33 386 218000

**WEBSITE** www.magnyfi.com



### CIRCUIT HISTORY

France has a long and proud tradition of motor racing. Indeed, the first ever grand prix was held there back in 1906. Since the inception of the Formula 1 World Championship in 1950, France has been omitted from the calendar just once – in 1955.

The 1950 event was held at Reims, a track which consisted of a triangle of public roads close to the village of Gueux. This track alternated as French Grand Prix host with Rouen-les-Essarts – laid out on public roads to the west of Normandy – until the introduction of Clermont-Ferrand in 1965.

Set in the Auvergne hills, the twisting, swooping nature of the track meant danger was ever-present, and it hosted the French Grand Prix for the last time in 1972. Throughout the 1970s and 1980s, the race alternated between Paul Ricard and Dijon-Prenois, before settling at the newer Magny-Cours, near Nevers, from 1991. This year, the track's final hairpin has been modified to offer an extra overtaking spot.

### GRAND PRIX HISTORY

The McLaren team's first success in the French Grand Prix came in 1976, with that year's World Drivers' Champion James Hunt taking the victory laurels at the Paul Ricard circuit.

It was 1984, however, before the McLaren team would win the event again, with Austrian Niki Lauda claiming first place at Dijon-Prenois en route to the third and final one of his three Drivers' World Championship titles.

Frenchman Alain Prost clearly revelled in racing in front of his home crowd, winning the French Grand Prix for McLaren two years in succession at Paul Ricard in 1988 and 1989.

Team McLaren Mercedes' next victory in France, its fifth, is also its most recent, with David Coulthard posting a dominant win ahead of his team-mate, Mika Häkkinen, at the 2000 race, by which time the grand prix had moved yet again, this time to its current home at Magny-Cours.



## PREVIEW JULY 18-20, SILVERSTONE BRITISH GRAND PRIX

### TRACK INFORMATION

LAP LENGTH 5.141km  
 RACE DISTANCE 308.355km  
 NUMBER OF LAPS 60  
 2002 POLE POSITION  
 1m18.998s (234.279kph)  
 2002 RACE LAP RECORD  
 1m23.083s (222.760kph)

### PREVIOUS McLAREN WINS

- 1973 Peter Revson M23 (Silverstone)
- 1975 Emerson Fittipaldi M23 (Silverstone)
- 1977 James Hunt M26 (Silverstone)
- 1981 John Watson MP4/1 (Silverstone)
- 1982 Niki Lauda MP4/1B (Brands Hatch)
- 1984 Niki Lauda MP4/2 (Brands Hatch)
- 1985 Alain Prost MP4/2B (Silverstone)
- 1988 Ayrton Senna MP4/4 (Silverstone)
- 1989 Alain Prost MP4/5 (Silverstone)
- 1999 David Coulthard MP4-14 (Silverstone)
- 2000 David Coulthard MP4-15 (Silverstone)
- 2001 Mika Häkkinen MP4-16 (Silverstone)

### RACE TIMETABLE

#### FRIDAY JULY 18

- 08.30-10.30 Private testing
- 11.00-12.00 Practice session one
- 14.00-15.00 Qualifying session one

#### SATURDAY JULY 19

- 09.00-09.45 Practice session two
- 10.15-11.00 Practice session three
- 13.30-13.45 Pre-qualifying warm-up
- 14.00-15.00 Qualifying session two

#### SUNDAY JULY 20

- 11.15 Drivers' Parade
- 14.00 British Grand Prix

### FURTHER INFORMATION

#### NEARBY CITIES (AIRPORTS)

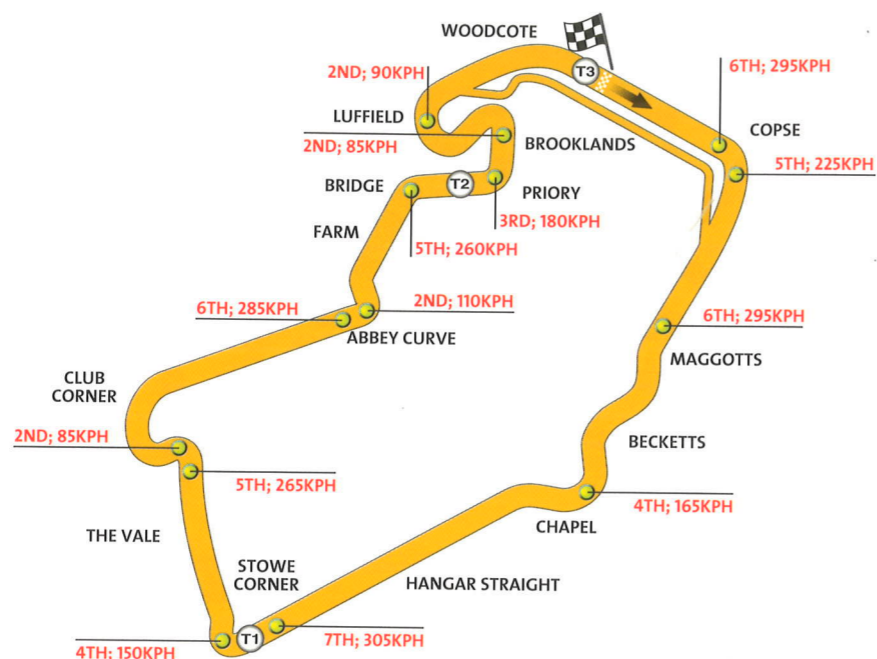
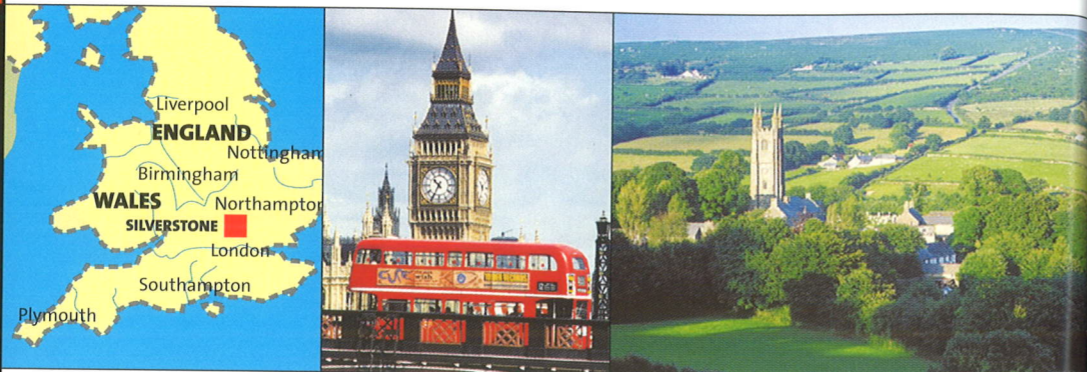
London (Heathrow, Stanstead and Luton) - 120km

#### TICKET INFORMATION

+44 13 27857273

#### WEBSITE

www.silverstone-circuit.co.uk



### CIRCUIT HISTORY

The first ever Formula 1 World Championship race was held at Silverstone in 1950, and the circuit continues to host the British Grand Prix to this day.

Based on a disused World War Two aerodrome, the track hosted the race exclusively until 1955, when a new circuit at Aintree in Liverpool was developed. The British Grand Prix then alternated between the two tracks until transferring to Brands Hatch, near London, in 1964. Brands Hatch and Silverstone then alternated as hosts for the British Grand Prix, because by this time the Aintree track had become outmoded.

Since 1987, though, the Silverstone circuit has been the sole venue for the British Grand Prix. Despite measures to calm speeds over the years, with various chicanes being added, the track remains both fast and challenging, and the knowledgeable and enthusiastic fans add plenty of excitement to the event.

### GRAND PRIX HISTORY

McLaren's inaugural success at the British Grand Prix came courtesy of American Peter Revson at Silverstone in 1973 driving an M23. This was followed two years later by double World Champion Emerson Fittipaldi, again driving an M23.

In 1976, James Hunt won the race at Brands Hatch, but was later disqualified for a technical infringement. The Englishman made amends a year later, however, by winning in front of his home fans at Silverstone. In 1981, Ulsterman John Watson won again for McLaren, which dominated the event again a year later, with Niki Lauda at the wheel.

The Austrian was victorious once more in 1984, before Alain Prost took two British Grand Prix victories in 1985 and 1989, with team-mate Ayrton Senna winning in 1988. David Coulthard has a brace of home victories to his credit, in 1999 and 2000, but Team McLaren Mercedes' most recent victor at the event was Mika Häkkinen in 2001.

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# GOODWOOD: LATEST NEWS

In last month's issue of *Racing Line*, we featured Team McLaren's plans to attend the 10th annual Goodwood Festival of Speed, held at Goodwood House in West Sussex, England, over the weekend of July 11-13.

There are a vast array of different activities taking place at the Festival of Speed, as well as the opportunity to purchase merchandise from the official Team McLaren Mercedes collection, which will be on sale over all three days from stand number 045.

We look forward to meeting those of you who plan to attend this year's event, in particular those Team McLaren members and friends who have booked tickets for the exclusive hospitality area on the second day of the event on Saturday July 12. ■

## Team McLaren Member Profiles

Last month, we told you of a new feature to be introduced in the Team McLaren pages – Member Profiles. We asked you to write in and tell us more about yourselves and your passion for Team McLaren Mercedes. We were inundated with your replies. Below you will find just a small sample of your responses from the many we received. Remember, keep your profiles coming in. We'll print another selection next month

- What is your name? Stuart Vickers.
- How long have you been a Team McLaren member? Five years.
- How old are you? 28.
- What is your most prized piece of McLaren merchandise/memorabilia? My most prized McLaren possessions are a half-scale Mika Häkkinen crash helmet – apparently they are very few in number and were commissioned by Mika himself to be presented to his mechanics – and a scale model of his 1998 Drivers' World Championship-winning car.



- Who is your favourite McLaren driver of all time? Mika Häkkinen.
- What is the best race you have seen? The 2000 Belgian Grand Prix, when Mika made that unforgettable overtaking move around the outside of Ricardo Zonta to take the lead from Michael Schumacher and keep the race for the championship wide open.
- What is your favourite McLaren memory? When I went to Silverstone testing and saw a Team McLaren Mercedes car leave the pits for the first time with Mika behind the wheel. I had never seen a Formula 1 car in the flesh before and I'll never forget the experience. Luckily, I have a picture to remember that day by.

- What is your name? Chris Harrold.
- How long have you been a Team McLaren member? I've been supporting McLaren for many years, but I joined in 2001.
- How old are you? 29.
- What is your most prized piece of McLaren merchandise/memorabilia? A bit ordinary, but the Team McLaren soft briefcase. This has travelled with me for work and pleasure for the past three years, and has been both useful and a good talking point.
- Who is your favourite McLaren driver of all time? Mika Häkkinen. His coolness in winning and his ability to get on with the job under any circumstances – traits seemingly inherited by Kimi – win lots of praise.
- What is the best race you have seen? Japan in 1998 when Mika clinched his first title.



- What is your favourite McLaren memory? The factory tour – being an engineer myself only enhanced the experience of seeing all the machines and equipment used to make the cars. Having the opportunity to see and touch a fully-assembled Team McLaren Mercedes grand prix car was a priceless experience.



- What is your name? Steve Thomas.
- How long have you been a Team McLaren Member? Four years.
- How old are you? 33.
- What is your most prized piece of McLaren merchandise/memorabilia? My most prized piece of merchandise is a limited edition Mika Häkkinen cap.
- Who is your favourite McLaren driver of all time? Mika Häkkinen, of course!
- What is the best race you have seen? The best race I have ever seen is the 2000 British Grand Prix at Silverstone.
- What is your favourite McLaren memory? David Coulthard lifting the winner's trophy at the above race, and me sitting opposite the winner's podium watching him do so!

## LETTERS

Send your letters to Team McLaren, Admail 622, Woking, Surrey GU21 1WH or email us at [racingline@mclaren.com](mailto:racingline@mclaren.com)

### RINGING THE CHANGES

What a season so far! I've been a fan of Formula 1 and, of course, the McLaren team for nearly 20 years, but I can't recall such an exciting start to the season.

I don't know if the new rules can take all the credit, but they've certainly produced a few mixed up grids.

The fact that Team McLaren Mercedes is battling at the front of both the Drivers' and Constructors' World Championships before the introduction of its new car also fills me with hope for the rest of the season.

*Nathan Thomas, Pontefract*

### DESIGNS ON THE FUTURE

I've just seen the first pictures of the new Team McLaren Mercedes Formula 1 challenger – the MP4-18 – and I have to say that it looks stunning. It certainly seems that Adrian Newey and his technical department have taken a bold and imaginative step forward with this car, and I for one can't wait to see it make its race debut.

*Cain Allan, via email*

### THE STREETS OF STUTTGART

I have never been to a grand prix and therefore have not seen a Formula 1 car up close, let alone running. How pleased I was, therefore, to find out that Kimi Räikkönen and Team McLaren Mercedes were coming to my home town of Stuttgart!

I had a truly fantastic day, along with the thousands of others present, and it was great to see Kimi demonstrating his mastery of his very powerful machine.

Thanks once again.  
*Klaus Schaeffer, Stuttgart*



The new Team McLaren Mercedes MP4-18 Formula 1 challenger made its testing debut in France recently, and it certainly impressed Cain Allan

### A ROSA BY ANY OTHER NAME

I am a Formula 1 fan from Spain and I was really happy to hear that Pedro de la Rosa has joined Team McLaren Mercedes as a test driver. I have been a fan of the team and Pedro for a long time, and it's great that there is now a Spanish driver helping the team with its efforts to reclaim the Drivers' and Constructors' World Championships!

Formula 1 has not always been the most popular sport in Spain, but now the interest is certainly increasing. I'm sure that Pedro will do a fantastic job.

Go Pedro!  
*Maria Constantino, Madrid*



### A FEAST FOR THE EYES

I felt that I just had to write in and congratulate you on the excellent 'Food for Thought' feature, which looked at the Team McLaren Mercedes drivers' diets in the July issue of *Racing Line*.

As someone who works in the field of nutrition myself, it was a pleasure to see this wide-ranging and complex subject tackled so deftly and clearly.

Also, the feature itself looked good enough to eat!  
*Amy Ogle, London*

# POSTCARDS FROM MONACO

The Monaco Grand Prix is always a busy weekend for Team McLaren Mercedes and its Partners. *Racing Line* followed the team to several of its off-track activities to get a flavour of the most glamorous race on the Formula 1 calendar



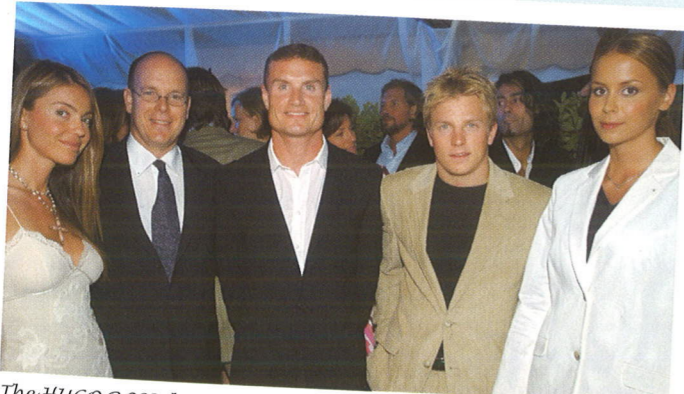
Jay Kay from pop band Jamiroquai was one of several guests who went karting with HUGO BOSS at Le Luc circuit on the Friday



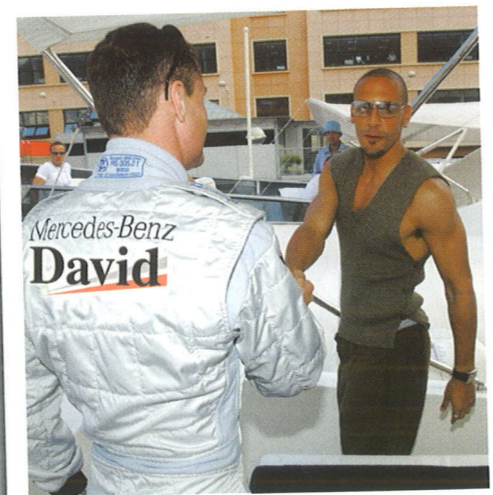
SAP was one of many Partners which used the Monaco Grand Prix to entertain guests, including this event at the Hotel du Cap



Fellow 'Flying Finns' Kimi Räikkönen and Mika Häkkinen met up at the traditional dinner of HUGO BOSS at La Chaumerie on the Thursday evening, and no doubt exchanged a few racing tips



The HUGO BOSS dinner attracted a great turnout, including HSH Prince Albert of Monaco, David, Kimi and their girlfriends



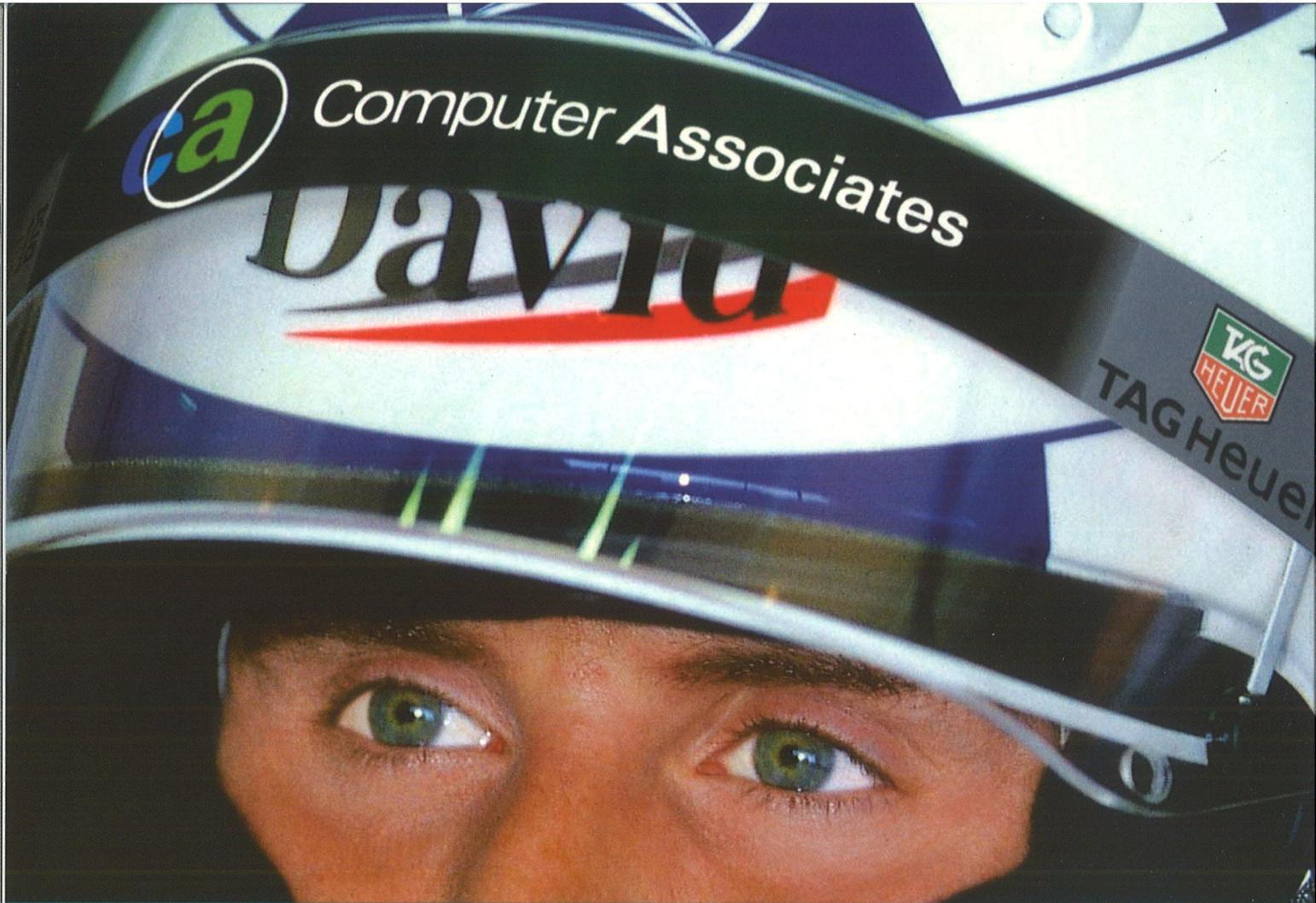
Monaco always attracts sporting stars from other disciplines. Here, David meets England international footballer Rio Ferdinand

# IN THE NEXT ISSUE



# DEMONSTRATE THE POWER

FIND OUT HOW TEAM McLAREN MERCEDES TECHNOLOGY PARTNER COMPUTER ASSOCIATES USES FORMULA 1 AS THE ULTIMATE PROVING GROUND FOR ITS SOFTWARE SOLUTIONS



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