

RacingLine

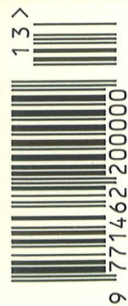
March 1999

£2.95



We take a peek at 1999

Behind the scenes at West McLaren Mercedes



Plus: Anatomy of a pitstop ■ Winter training with David Coulthard



There are days
when the ocean reminds me of her
awesome hidden power.

In moments of tranquillity she charms me.

Then suddenly

very suddenly

she assumes a distinct and very definite existence.

From fathomless depths she produces that elemental sound.

That grumbling groan of pure, potential power.

As if for the first time,

I'm aware of the phenomenon that lurks beneath the surface.

All the while the current acquires a momentous velocity.

Each second adding to her speed

to her inevitable urge.

And I'm left captivated by her eternal energy.



E-class AMG

RacingLine

March 1999

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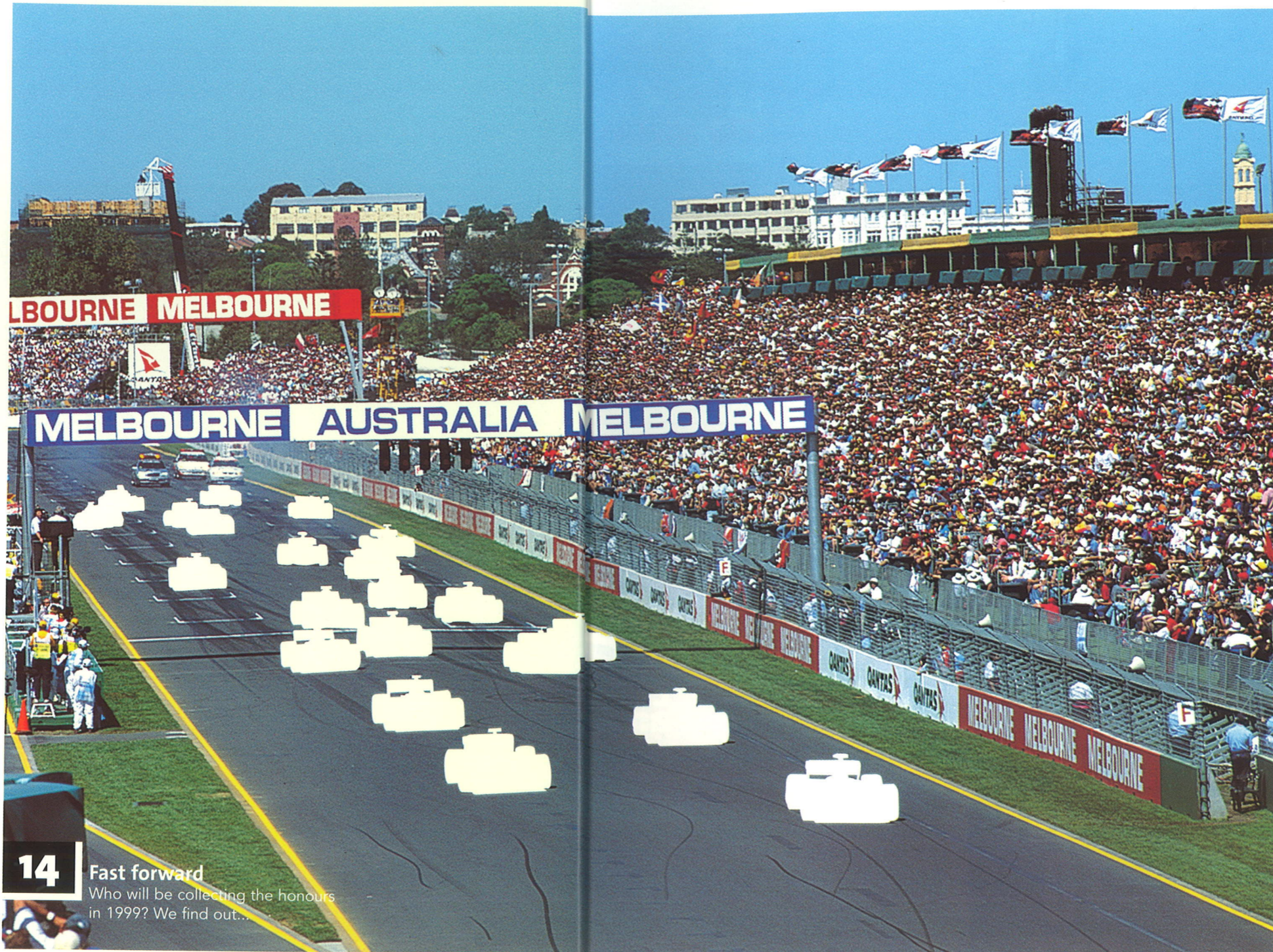
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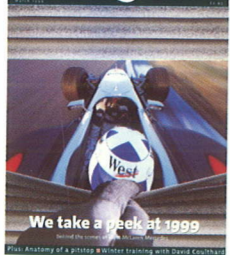
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RacingLine THE COVER

New for '99

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and gone behind the scenes at Woking to find out how our challenge is shaping up



We take a peek at 1999



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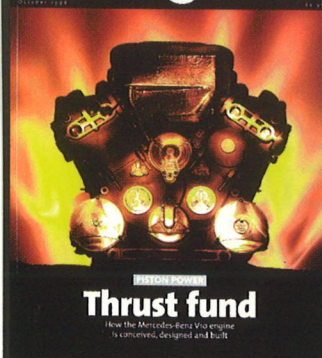
Racing Line goes training with DC in the hills behind Monte Carlo

Visitors welcome

Those of you who already know Racing Line might be surprised to see a barcode on the cover of this issue. This is because, as Ron Dennis says in his introduction on page seven, this month's magazine is being made available to the general public, rather than to Team McLaren members exclusively. None of the previous 12 issues has had a public outing, and at the start of a new season of Formula One racing it seemed a good time to show the rest of the world what it has been missing.

Given that we have 'visitors' this month, the content of the issue is perhaps a little more biased towards motor racing, racing cars and racing drivers. Murray Walker tells us his views on the contenders for this season's F1 championship, with special reference to their strengths and weaknesses in comparison to West McLaren Mercedes. We also have a look at what happens during those amazingly efficient pitstops and spend a day with DC as he trains for another tough season. As with everything in Racing Line, these are features exclusive to us that offer a special view behind the scenes of McLaren International and its partners, not merely in F1 but also in other areas: the West Competition Team in F3000, for instance, and the activities of McLaren Cars. In short, there are very few companies involved in such a variety of interesting projects, and we hope you'll enjoy this issue enough to make you want to read on in future.

Jess McAree, Editor



Plus: McLaren at Farnborough ■ Trackside with Ricardo Zonta



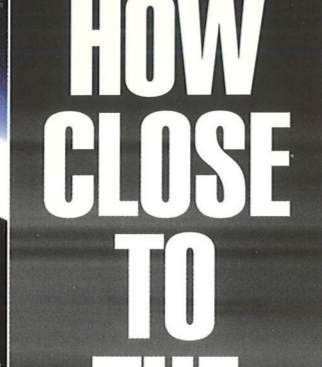
Plus: Mercedes celebrates in style ■ Tony Bullmore, all right again



Plus: TAG McLaren Audio's new launch ■ McLaren at



Plus: Hot air balloons in Germany ■ Vintage Adrian Newey



Plus: Fast cars, fast clothes ■ Watson remembers Silverstone



Plus: Digital TV at Silverstone ■ McLaren's first G1

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If you want to get under the skin of Formula One and see what it takes to run and produce a World Championship winning team, then 'Racing Line' and 'Team McLaren Membership' is the exclusive package every racing enthusiast needs!

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BE PART OF A WINNING TEAM

Racing Line provides a unique insight into the West McLaren Mercedes team and behind the scenes of the TAG McLaren organisation. Available only through membership of Team McLaren, you will receive twelve monthly editions of Racing Line.

Plus:

- ▶ Advantageous prices on Formula Fashion, McLaren's only official merchandise.
- ▶ The chance to see what happens at a Formula One test.
- ▶ VIP tour of our facility to see exactly what goes into building and racing the West McLaren Mercedes.
- ▶ The opportunity to meet a driver.
- ▶ Access to exclusive events, competitions and special offers.
- ▶ Exclusive member's pack.

Individual membership:

UK £49, Europe £57, Worldwide £68.

Family membership:

UK £69, Europe £84, Worldwide £97

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

Ten 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 Hakkinen – MP4-13-Mercedes, 100 points

West McLaren Mercedes' 1999 Motorsport Calendar

7 Mar	Australia (Melbourne)	F1
11 Apr	Brazil (Sao Paulo)	F1
1 May	Italy (Imola)	F3000
2 May	San Marino (Imola)	F1
15 May	Monte Carlo (Monaco)	F3000
16 May	Monte Carlo (Monaco)	F1
29 May	Spain (Barcelona)	F3000
30 May	Spain (Barcelona)	F1
13 Jun	Canada (Montreal)	F1
26 Jun	France (Magny Cours)	F3000
27 Jun	France (Magny Cours)	F1
10 Jul	Great Britain (Silverstone)	F3000
11 Jul	Great Britain (Silverstone)	F1
24 Jul	Austria (A1-Ring)	F3000
25 Jul	Austria (A1-Ring)	F1
31 Jul	Germany (Hockenheim)	F3000
1 Aug	Germany (Hockenheim)	F1
14 Aug	Hungary (Hungaroring)	F3000
15 Aug	Hungary (Hungaroring)	F1
28 Aug	Belgium (Spa Francorchamps)	F3000
29 Aug	Belgium (Spa Francorchamps)	F1
12 Sep	Italy (Monza)	F1
25 Sep	Germany (Nurburgring)	F3000
26 Sep	Luxembourg (Nurburgring)	F1
17 Oct	Malaysia (Kuala Lumpur)	F1
31 Oct	Japan (Suzuka)	F1

RacingLine

Editor: Jess McAree
Deputy editor: Jonathan Evans
Art editor: Tim Scott
Staff writer: Toby Waller
Production manager: Julian Daniels
Publisher: Paul Clifton
McLaren Co-ordinator: Jez Spinks

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InsideLine

I am taking a rather different theme for the introduction to this month's issue of Racing Line as it is being made available to a wider reading public. Normally this magazine goes to Team McLaren members and those who work within the TAG McLaren Group. But I am pleased that on this occasion we are able to offer an insight into our business to a more diverse audience than usual.

For those unfamiliar with the breadth of our business, the TAG McLaren group includes a number of companies involved in imaginative, cutting-edge high technology engineering. Of course, our core business is the operation of the West McLaren Mercedes Formula One team that won the 1998 World Championship and I am certain that casual readers will instantly identify with that. But in addition, our group includes TAG Electronic Systems, which specialises in sophisticated electronic solutions for both road and racing cars, and TAG McLaren Audio, which focuses similar levels of high technology on the manufacture and development of sound systems for discerning customers.

Our business also includes McLaren Cars, which manufactured the super performance McLaren F1 road cars, TAG McLaren Marketing Services and Lydden Hill circuit, while other associated companies include watchmakers TAG Heuer, TAG Finance and TAG Aviation. All these concerns are bound together by the same commitment to excellence and success that has been a cornerstone of the McLaren Formula One operation and enabled it to establish a place as one of the most successful Grand Prix teams of all time.

I hope that our new readers find much to hold their attention between these covers, perhaps stimulating the casual motorsports fan into a more detailed and long-lasting enthusiasm for the business that forms the basis of the TAG McLaren Group's wide ranging activities.

Ron Dennis

The month

MP4-14 is revealed to the world, Lauda drives MP4-98T two-seater



SEASON'S GREETINGS

Lift off for '99

The West McLaren Mercedes team was in optimistic mood when it unveiled its latest Formula One challenger at the Circuit de Catalunya in southern Spain on 8 February.

"The West McLaren Mercedes team is approaching the new season in the same way we approach every season – totally focused on the job of winning races," explained TAG McLaren Group Managing Director Ron Dennis.

"MP4-14 represents the biggest single step we felt we could take for 1999. This car does not carry with it the word evolutionary. It has perhaps the smallest ever percentage of carry-over components from last year's car."

The drivers

In the driving seat of the MP4-14 are two of the fastest competitors in the sport – 1998 World Champion Mika Hakkinen and David Coulthard.

"It is going to be a bit closer this year particularly as everyone will be running on the same tyres, although the fourth groove in the front tyre will add an element of the unknown with regard to handling," said DC. "Mika and I know each other's strengths and weaknesses well and obviously I have worked to improve myself to ensure that when I get to Melbourne for the opening race I'm

in a position to get in front and stay there. I am going into this year aiming to win more races and to win the championship. I know I have the ability; I just need more good fortune than I have

had in the past. I'm not under any pressure. If I do the job right then I have got a good chance."

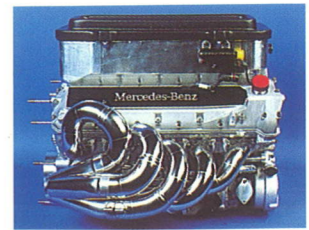
Mika's challenge is to add to his 1998 success. "Being champion gives you more confidence. You know how to win races, how to win a championship, so you don't have to waste your energies there. I can just focus on what I have to do.

"I have had a great winter, I've had a good rest and I am really looking forward to the new season. I want to be a better driver than last year but I know it's going to be very hard retaining the title and that I will have to beat David first. He and I work very well as a team, we get on well. And that makes the job much more enjoyable for us all. I believe we start this season from a really good position with this car."



The engine

The West McLaren Mercedes MP4-14 will be powered for the fifth year by a Mercedes V10 – the brand-new FO110H. "The challenge in the 1999 season will be even greater than in 1998," said Head of Mercedes-Benz Motorsport, Norbert Haug, at the car's launch. "In comparison to last year, our engine has been improved in terms of better performance, consumption and weight. Concerning the MP4-14, I have no doubt that our partner McLaren has built an even better and faster race car than last year's winner."



FO110H V10 tech spec

Engine type: 72-degree V10
Capacity: 2998cc
Valves: two camshafts per bank, four valves per cylinder
Cylinder block: cast aluminium alloy, wet liners
Cylinder head: one-piece sand cast aluminium alloy
Crankshaft: steel
Oil system: dry sump
Ignition: TAG 2000 Electronic system
Spark Plugs: NGK

The car

The West McLaren Mercedes MP4-14 has been designed and built in-house at McLaren International by a 350-strong team over the past seven months. Ninety per cent of this year's car is totally different from last year's, but Technical Director Adrian Newey insists that it's not an unknown quantity.

"There is a lot of new thinking in the car and there are many new parts," he explained. "It is much easier to work on a project like this from a position of strength after winning the world championship. We are a little wary about how the car will perform, because we don't know that yet, but the whole team is very confident."



MP4-14 tech spec

Fuels and lubricants	Mobil Unleaded and Mobil 1 engine oil
Adhesives	Loctite
Electronics	TAG Electronics Management System 2000
Radios	Kenwood
Dampers	Penske
Brakes	AP Racing calipers
Tyres	Bridgestone
Race wheels	Enkei
Transmission	McLaren longitudinal gearbox with semi-automatic operation. Control by TAG Electronic systems. McLaren drive shafts and CV assemblies.
Chassis	McLaren moulded carbon fibre / aluminium honeycomb composite incorporating front, rear and side-impact protection structures. Contains integral safety fuel cell.
Suspension	Inboard torsion bar/damper system operated by pushrod and bellcrank with a double wishbone arrangement.



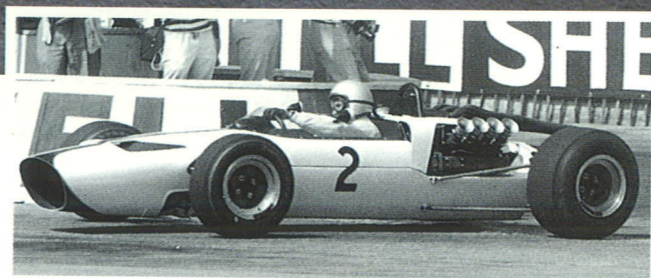
GP PEDIGREE

Forty years of winning

The McLaren name is no stranger to Grand Prix success. This year marks the 40th anniversary of McLaren's first appearance in the winners' circle – team founder Bruce McLaren's first win in the final round of the 1959 Formula One World Championship.

Crossing the finishing line of the US Grand Prix just 0.6sec ahead of fellow Cooper-Climax driver Maurice Trintignant, Bruce became, at 22, the youngest driver ever to win a GP. It was the start of a great many successes that have extended to the present day.

By 1964, Bruce had notched up a further two wins and founded the team that still carries his name.



La Rascasse, Monaco: Bruce in first F1 McLaren, 1966; Mika in 1998

Making its debut in that year's Monaco Grand Prix season opener, it has since gone on to become one of the most famous Formula One teams in the history of the sport.

In 34 years, McLaren has notched up 116 wins, 92 poles and 80 fastest laps, equalling Ferrari's eight constructors' titles achieved in five decades of racing. McLaren has overtaken the Italian marque with 10 drivers' titles, making it the most successful team in F1.

Success at Le Mans in 1995 with the McLaren F1 and three Indianapolis 500 wins in 1972, 1974 and 1976 show just part of the diversification the company has gone through in its long history. McLaren's pedigree of success, started by Bruce in 1964, looks sure to continue into 1999 and beyond.



HUGO'S HOME

Boss of the fashion world

McLaren partner Hugo Boss unveiled its new UK showroom and offices in Clifford Street, London, with a drinks evening on 21 January.

"The new facility marks the start of an exciting year for Hugo Boss," said Chairman Werner Baldessarini. "The UK has already established itself as a leading European market, with London as a global fashion capital. We're looking to build on the successful presence already achieved in the UK, and these showroom facilities and our experienced team place us in a strong position."

Hugo Boss has been a partner of the McLaren team since 1984. A West McLaren Mercedes showcar, on permanent display in the lobby, demonstrates the strength of the relationship.



FRESH CHALLENGE

Out with the old, in with the new

A fresh season brings new challenges for everyone at West McLaren Mercedes. And that's particularly true for the three-strong team that produces pit equipment for the race and test crews.

"A new car means new dimensions," says product designer Andy Blackmore. "All the ride-height and set-up equipment, the stands for the car in the pits, the jacks for pitstops and the fans for the airbox and radiators will have to be changed – simply because the old

ones will not fit this year's new car."

Throughout the season, equipment will constantly be introduced as Blackmore, Phil Davis and Roger Harper come up with new ideas, or mechanics face new problems that need solving. "We will introduce some more equipment for the first European round, when we can transport equipment to the circuit by truck, and there'll be another big push for our home race at Silverstone. But the start of the season is always pretty tough. There's a lot to do, and you have to work round the engineers and mechanics building the car – that always takes priority."

It's also the time of year when the team likes to have a new look at regular equipment. Last year, for instance, the pitcrew helmets were redesigned to make them feel more menacing.

"I can't say too much, but we've got some pretty exciting plans for the rest of the year." Take a long last look at the timing stand above – it's the last time you'll see it in its present form. Want to know what it looks like? Well, we're not telling, but keep your eyes on the West McLaren Mercedes pit in Melbourne for the first glimpse.



With the start of a new season, the 'prat perch' will be replaced



The West McLaren Mercedes team finally let its hair down for an end of season bash on 29 January. The venue was the Royal Albert Hall, where the Cirque du Soleil, DJ Dr Fox, The Funkin' Bar Stewards and Bjorn Again entertained guests till 3.00am

YOUNG & OLD

McLAREN'S ALUMINIUM SIDINGS

The steamroller success of McLaren in CanAm sports car racing was largely financing the troubled Formula One programme in 1966 and 1967, and Bruce McLaren and team director Teddy Mayer were earnestly door-stepping large corporations in the United States trying to encourage a commercial association with the team's ongoing success.

They would meet with corporate people in the afternoon and make a personal presentation. Bruce's sunny personality, effortless charm and proven success as a racing driver certainly broke the ice in company boardrooms where they might not have cared to get into bed with a lot of noisy, grubby race car people. In North America, racing tended to be dirt tracks; in Europe, it was automatically Grand Prix cars at Monte Carlo. A slight difference in perceived interpretation. After this initial

meeting, Teddy would be up all night preparing a formal written sponsorship proposal to be delivered the following morning.

Backing from Reynolds Aluminium, by contrast, almost fell into the McLaren lap. In 1968, Frank Williams was wooing the Reynolds company in the USA for commercial backing and product

involvement in a new team he wanted to create, and he had taken Max Mosley with him to use a lot of big words and back Williams' bubbling enthusiasm. Mosley, now President of the FIA, was then a lawyer, with a degree in physics, "the gift of the gab" and huge enthusiasm having raced his own car in Formula Two.

"Unfortunately Frank had the bright idea of bringing along a driver and chose Bruce McLaren, who was winning everything in CanAm," Mosley explained. "Alongside Bruce, Frank and I were nothing, so he walked away with the money."

I was working with the McLaren team on sponsor liaison then, and we worked on endless ideas to involve aluminium in the press release photographs, including one well-used shot of a smiling Bruce holding aloft a Formula One monocoque tub.

Eoin Young



Bruce was normally averse to strong-arm tactics...

DRINK UP

Schweppes' driver tonic

Getting fully hydrated before a GP is a vital part of the pre-race routine for David Coulthard and Mika Hakkinen. They can sweat up to two litres of fluids during a race, so it is essential to get plenty of water and minerals in body before the red lights go out.

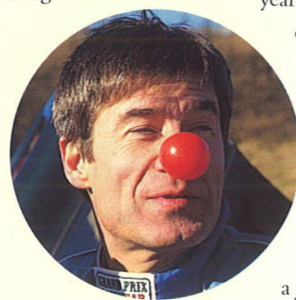
And that's where these funky bottles come in. Designed by McLaren in conjunction with soft drink partner Schweppes, they contain drinks formulated by McLaren's fitness consultants and will be seen in the drivers' hands at all 16 of this year's races.

"It all came about through us wishing to build our position as soft drink partner to the West McLaren Mercedes team," explains Schweppes Marketing Director Stephen Joy. "We wanted to be associated with putting the refreshment directly into the drivers. We've upgraded the design of the bottle with



West McLaren Mercedes to reflect both our individual brandings."

This year Schweppes is furthering its involvement with the team. "We're getting our Schweppes research and development people together with McLaren's fitness experts to see how we can combine our soft drinks expertise with all their nutritional knowledge. We want to get involved in any way we can as soft drink partners to be part of the team and its success."



HIGH SPEED

Another record broken?

What do *Top Gear's* Tiff Needell, the McLaren F1 road car and a large Red Nose have in common? An answer was to be found at Millbrook Proving Ground's high-speed test track in February when, in front of the *Top Gear* cameras and in support of this year's Comic Relief, Tiff was

due to climb behind the wheel of chassis XP5 and attempt to set a new record for the fastest lap speed on a UK circuit in a production road car. The target was 180.44mph established in a Jaguar XJ220 at Millbrook in 1995 by *Autocar* magazine

writer Colin Goodwin.

XP5 already holds the world speed record for a road car of 240.14mph, set last year at VW's Ehra-Lessien test track, as well as the lap speed record for the MIRA circuit of 168mph. But with weather conditions at Millbrook due to be unsettled and wet, the team was to face a stiff challenge. What happened? Well, you can see it on *Top Gear* on 18 March, and don't miss the in-depth story in next month's *Racing Line*.



Has the McLaren F1 broken yet another record? Find out in next month's issue

HAPPY RETURN

Lauda and sons put MP4-98T to the test

Triple-world champion Niki Lauda had a taste of modern F1 when he was invited to take a spin in McLaren's MP4-98T two-seater on the day before West McLaren Mercedes launched its 1999 challenger. The experience was a birthday present from Ron Dennis and Norbert Haug for Lauda, who celebrates his 50th on 22 February.

"At the time I won my last World Championship in a McLaren-TAG turbo in 1984 we thought this was the last word in engineering," said Lauda. "Now it seems pre-historic compared with the 1999 car!"



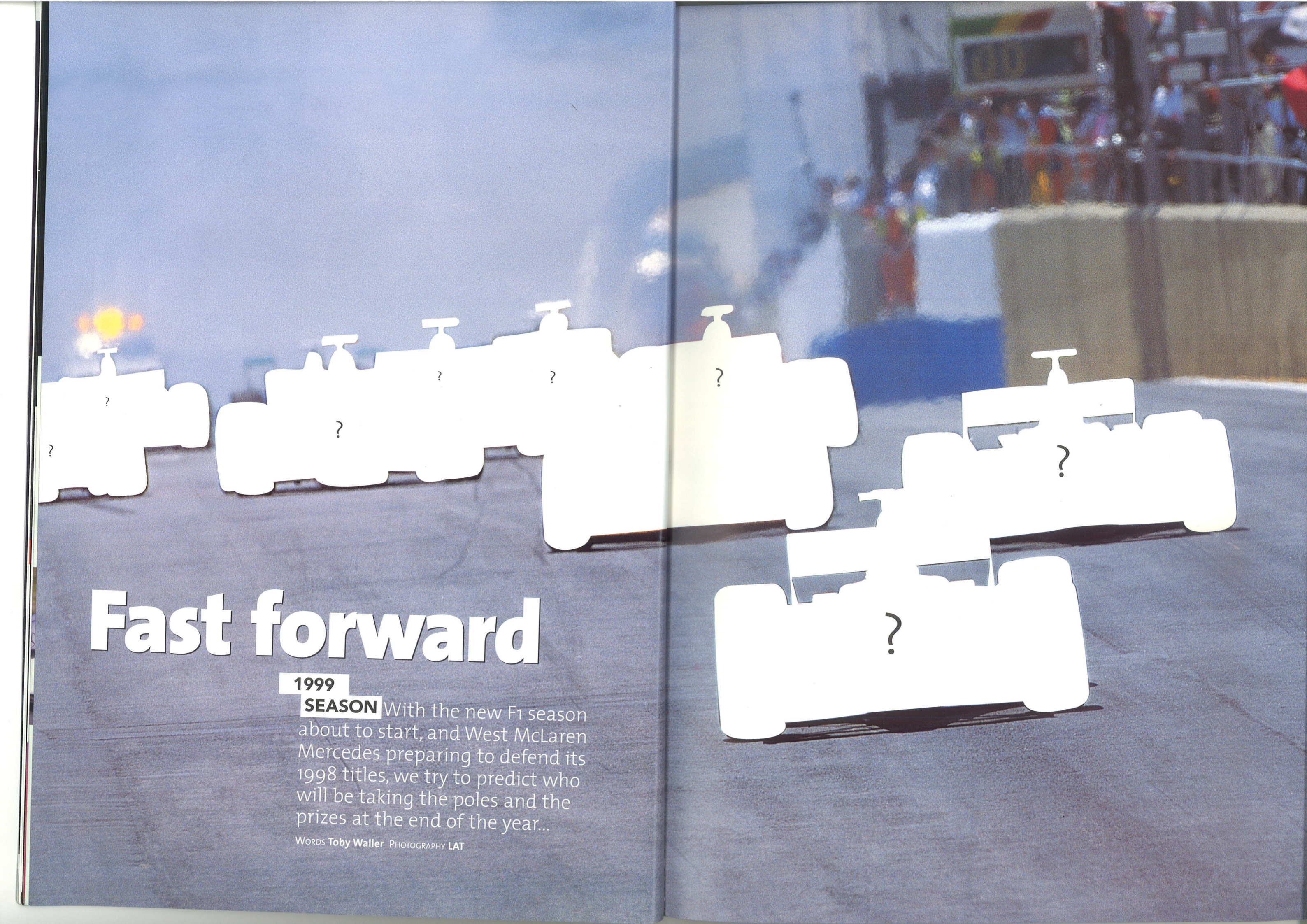
Lauda took his sons Lukas (left) and Mathias for a spin in the MP4-98T



THE PERFECT MIX



West McLaren Mercedes
OFFICIAL SOFT DRINK PARTNER
1998 FORMULA ONE WORLD CHAMPIONS



Fast forward

1999

SEASON With the new F1 season about to start, and West McLaren Mercedes preparing to defend its 1998 titles, we try to predict who will be taking the poles and the prizes at the end of the year...

WORDS Toby Waller PHOTOGRAPHY LAT

As the Formula One cars line up for the 1999 Australian Grand Prix on 7 March, the probability is that the West McLaren Mercedes team will add more race wins, and possibly championships, to the record books.

Since the McLaren team made its Formula One debut at the 1966 Monaco Grand Prix, it has notched up the impressive total of 116 race wins, 93 pole positions and more drivers' and constructors' championships than any team in F1 – including the oldest of them all, Ferrari, which made its first world championship F1 outing back in 1950. In cold, hard statistics, that's 116 wins from only 476 races, compared with Ferrari's 119 wins from 603 races.

This year's West McLaren Mercedes car, the MP4-14, has been designed by a team led by another man who's used to winning F1 world championships – the team's Technical Director Adrian Newey. Now boasting seven F1 title-winning chassis to his credit, he heads a design team that includes people such as chief designer Neil Oatley and head of aerodynamics Henri Durand, both of whom are used to F1 success. The car they've created will again be powered by the hugely successful Mercedes V10 engine, considered by many to be the best in F1.

And let's not forget the drivers. The team has one of the strongest driver line-ups on the grid. Last season's champion Mika Hakkinen has been rated as one of the fastest men in the

sport since his 1991 debut – and one of the few to match Ferrari's Michael Schumacher. David Coulthard has always been a potential race winner: he's come third in the drivers' championship three times now, and you can bet he wants to go one better, if not two.

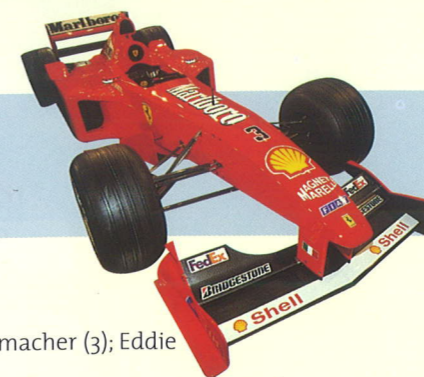
For the 1999 season, then, it's no secret that *Racing Line* will be cheering loudest for one team and one team only... but then, as we'd be the first to admit, we're rather biased. Luckily, there are plenty of more impartial observers who appear to share our views – one of them TV's veteran F1 commentator Murray Walker. "West McLaren Mercedes is clearly the team to watch," he told us. "I still expect the main battle to be between Ferrari and McLaren, and I expect the latter to take the constructor's championship again this year: I feel sure that Hakkinen and Coulthard will score more points than Schumacher and Irvine."

"As for the drivers themselves, I have always felt that David is as good as Mika – although Mika will have a psychological advantage this season because he's taken the title once, and they say it's always easier to win it the second time. David has a psychological mountain to climb. As for the car, I've heard that the West McLaren Mercedes MP4-14 is going to be very good. This is the team to beat this year."

Praise indeed, but what of the competition? To get some clues as to what we can expect, we asked Murray to give us an independent analysis of the other runners on the grid...

'I'm expecting David and Mika together to score more points than Eddie Irvine and Michael Schumacher'

Murray Walker



Ferrari

Drivers: Michael Schumacher (3); Eddie Irvine (4)

Team founded: 1929, **Team principal:** Luca di Montezemelo, **Technical director:** Ross Brawn, **Base:** Maranello, Modena, Italy, **Races:** 603, **Wins:** 119, **Constructors' titles:** 8, **Drivers' titles:** 9

The Prancing Horse has been the most consistent title challenger for the past two seasons, but has fallen on both counts at the final hurdle. With the ever-threatening Michael Schumacher, the scarlet chargers pose the biggest threat to McLaren's title ambitions.

"This year Ferrari has something it's never had: continuity at the top level," points out Murray. "Ferrari chairman Luca di Montezemelo is inspiring, team boss Jean Todt is good at martialling everybody together and the team has a good partnership in technical director Ross Brawn and designer Rory Byrne."

"My expectation is that Schumacher will win the drivers' championship – although not the constructors', which I think will again go to McLaren."



Jordan-Mugen Honda

Drivers: Damon Hill (7); Heinz-Harald Frentzen (8)

Team founded: 1991, **Team principal:** Eddie Jordan, **Technical director:** Mike Gascoyne, **Base:** Silverstone, Northants, England, **Races:** 130, **Wins:** 1, **Constructors' titles:** 0, **Drivers' titles:** 0

When Eddie Jordan finally saw his cars pass the chequered flag as winners at a rain-soaked Spa-Francorchamps last year, one of the men standing beside him on the pitwall to congratulate the latest member of the Grand Prix winning constructors' club was Ron Dennis. Now Jordan is aiming to pose a threat to McLaren's race-winning ambitions.

"I'm expecting Jordan to do better this year, because it now has the resources it has always needed: a wind tunnel, good people, a good engine in the Mugen-Honda and a substantial budget. Probably their biggest problem is that they have to get used to the new Bridgestone tyres. McLaren obviously sometimes had an advantage last year with tyres, and teams that can't build their car around a known tyre quantity have a problem."

"Jordan has a substantial advantage with its drivers. Damon Hill last year demonstrated that he can still win races with the right car, and with the correct mental motivation and a good car Heinz-Harald Frentzen can be blindingly fast. For one reason or another he's only ever won one race. This may be his year, but I doubt it."



Murray Walker
F1 TV commentator



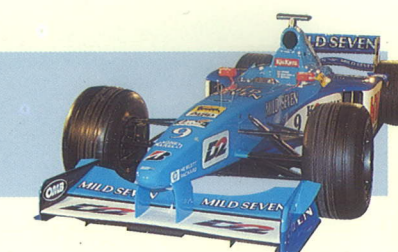
Williams-Supertec

Drivers: Alex Zanardi (5); Ralf Schumacher (6)

Team founded: 1969, **Team principal:** Frank Williams, **Technical director:** Patrick Head, **Base:** Grove, Wantage, England, **Races:** 345, **Wins:** 103, **Constructors' titles:** 9, **Drivers' titles:** 7

Together with Ferrari and Jordan, Williams is rated by Murray as the team most likely to pose any kind of challenge to West McLaren Mercedes. Last year was the team's first without a win since 1988, partly down to McLaren technical director Adrian Newey's departure from Williams. "Williams is definitely at the top of the second rank, but they still have major disadvantages to overcome – they have two new drivers and one, Alex Zanardi, is new to modern F1. He's been in the formula before, of course, but not in its current form."

"Williams' main problem is that it's still stuck with the SuperTec engine and, even though SuperTec boss Flavio Briatore mumbles that it's better than last year, common sense says that Williams can't be as good as McLaren or Ferrari."



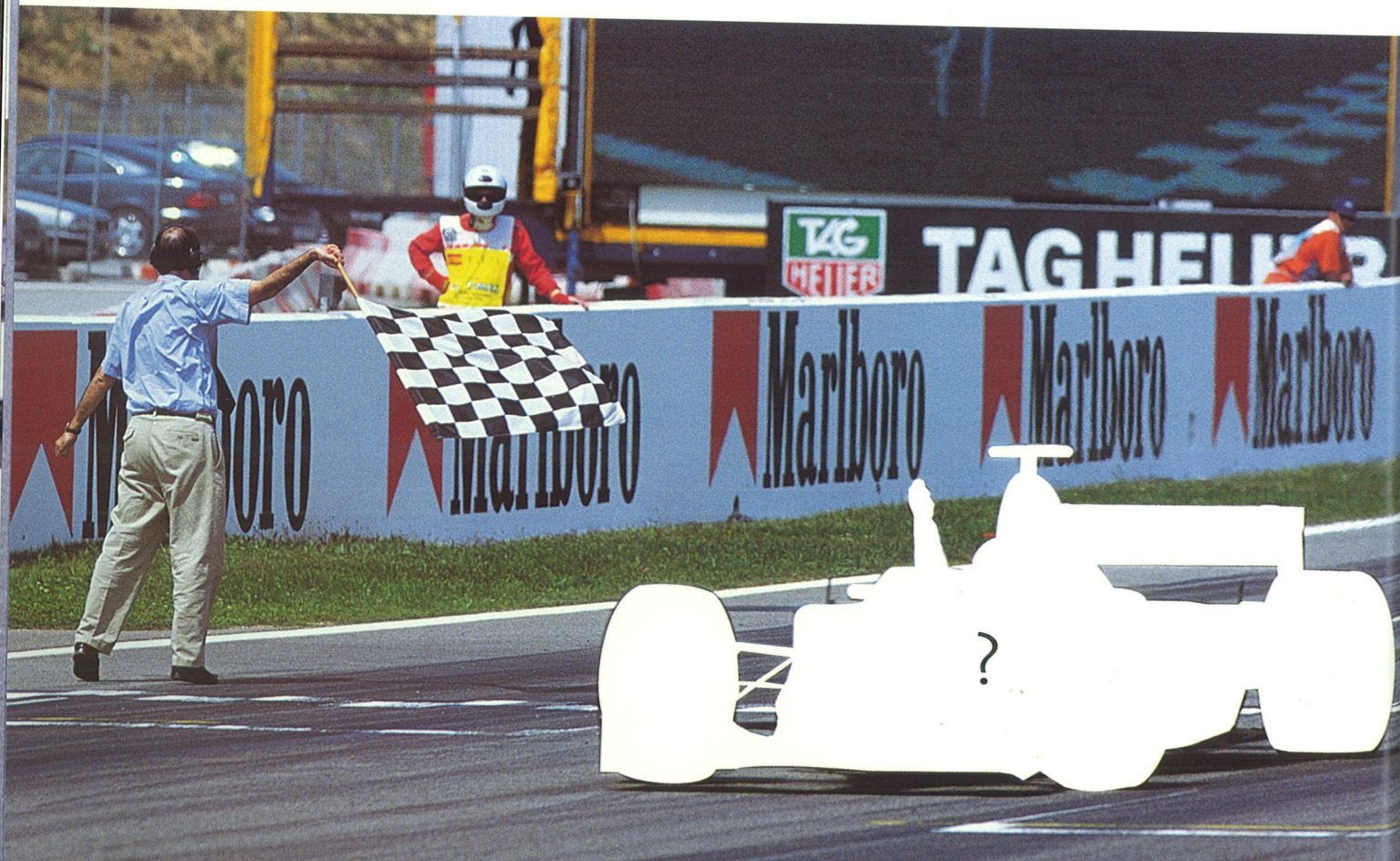
Benetton-Playlife

Drivers: Giancarlo Fisichella (9); Alexander Wurz (10)

Team founded: 1986, **Team principal:** Rocco Benetton, **Technical director:** Pat Symonds, **Base:** Enstone, Oxford, England, **Races:** 210, **Wins:** 27, **Constructors' titles:** 1, **Drivers' titles:** 2

After dominating the title battle in 1994 and 1995, Benetton's race and title-winning potential vanished. Murray thinks the team will again be struggling this season.

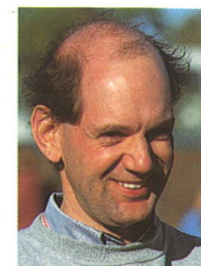
"The design team has responded bravely this year with all sorts of new revolutionary aerodynamic and electronic things which they won't tell us about. They also claim to have a magic braking system. I hope it all works, but even if it does they're still stuck with the Mecachrome engine which seems very unlikely to be good enough to beat the Mercedes engine of McLaren or even that of Ferrari. I don't see them doing any better than last year."





Get into the grooves

West McLaren Mercedes
Technical director Adrian
Newey guides us through
the regulation changes
for the 1999 F1 season



Addition of fourth circumferential groove to front tyres

"This is the regulation that will have caused all the teams the most problems, simply because it makes such a huge difference to the handling of the car. The fourth groove means that there is less rubber on the road and so less grip. Because of that, the rubber compound must be harder too. All of which changes the balance of the



car. The set-up has to be changed of course, but we have also had to make some more fundamental changes on the car.

The new tyre regulations have come in to place to slow the cars down. On most circuits, the lap times will be at least a second, and

maybe two seconds slower. Naturally, twisty circuits will affect the lap times more than the high-speed tracks at, say, Monza and Hockenheim."

Number of dry tyres reduced to 32 from 40

"There will be some interesting tactical decisions made this season, with a 20 per cent reduction in the number of tyres available to each driver.

Ideally, you would want to have a new set of tyres at each stop in a race, but it is now going to be far harder to achieve that. If you use up three or four sets in qualifying, then three or four sets in the race, you have already used up your allocation – and that's not taking practice into account. It will mean that teams will have to try to get away with using worn tyres in qualifying or maybe even for the last stint of a race."

Wheel uprights must be tethered to the monocoque at the front and the gearbox at the rear

"This regulation has been brought in for crowd safety – there was nearly a disaster at Suzuka in 1996 when Jacques Villeneuve lost a wheel and it almost flew over the fencing into the crowd.

It is the upright that is tethered, not the wheel, so there's no problem changing wheels at pitstops. When a wheel is lost in a race, it's normally because of an accident and the wishbones breaking.

The only worry is that the tether might act as a spring and the wheel could come back to hit the

driver. It's a bit like seatbelts: very, very rarely a driver would be better off without one, but in general the benefits far outweigh the drawbacks."



Construction of fuel cell improved

"Another case of the technology being available, so being applied. The fuel 'tank' is essentially a rubber and kevlar bag. Kevlar is used in the manufacture of bullet-proof vests, and is extremely strong with a high degree of penetration resistance. In an impact, the fuel cell will 'give' like a balloon, but the kevlar will stop it from tearing."

FIA pressure relief valve added to water system

"Some cars take advantage of the fact that running water in the radiators at high temperature and consequently high pressure improves overall speed, simply because it allows smaller radiators. But high pressure can be very dangerous.

This regulation is really for the mechanics' safety. When the car is in the confined space of a garage it can be extremely dangerous to have what is, in effect, a pressure cooker ready to blow; a release valve is a sensible precaution."

Engine oil system breather now fed directly into airbox

"This is the system used on most road cars. It means that if the oil tank is overfilled, oil doesn't spray onto the driver's of the following cars, which has been a problem in the past. On the other hand, it won't help if there's an oil leak, of course."

Neutral switch repositioned for easier stewards' access

Self-explanatory really. In the event of an accident, the marshals need to be able to select neutral gear quickly and easily so that a stricken car can be moved.



Nosebox impact resistance increased by 17 per cent

"This is a simple one to overcome. We just use more material to make the nosebox stronger. It weighs a little more, of

course, but again it is well worth that small price if you can improve driver safety.

As technology continually advances, it becomes more and more possible to improve safety, so it would be silly not to do so."

Driver's seat must be removable, and the headrest includes FIA standardised fixings

"Anything that improves driver safety can only be good for the sport. These regulations haven't caused us any real problems. The headrest on every Grand Prix car now comes off in exactly the same way, so there is no confusion for the marshals at a circuit in the event of an accident on track.

Once the medics can get to the driver, they can now slide a splint down behind the seat to ensure that the driver is stable before removing the whole seat, with the driver still in it. It means a redesign of the seat, of course, and the seat-back bulkhead, but it doesn't actually affect the dynamics of the car."



Sauber-Petronas

Drivers: Jean Alesi (11); Pedro Diniz (12)

Team founded: 1993, **Team principal:** Peter Sauber, **Technical director:** Leo Riss, **Base:** Hinwil, Switzerland, **Races:** 97, **Wins:** 0, **Constructors' titles:** 0, **Drivers' titles:** 0

Since it entered the sport in 1993, the Swiss Sauber team has consistently struggled to get out of the F1 midfield. Murray remains cautious about its chances in 1998.

"This is a much revised car that's been built specifically to the requirements of Jean Alesi, who I think is extremely good. Moreover, they have last year's Monza Ferrari engine, which was good enough to bring Ferrari a one-two victory there, so it's not short on power.

"Jean is a great driver and his partner Diniz is a good back-up man. What's more, he's quick: he outqualified Mika Salo once or twice last year, and outqualified Damon a few times the year before.

"Unfortunately none of this means that the car will be able to match up to the West McLaren Mercedes MP4-14. Being based in Switzerland, as Sauber is, doesn't help their cause and designer Leo Riss isn't in the same league as McLaren's Adrian Newey. I hope I'm wrong, but I think they'll be lucky to score points."



Arrows

Drivers: Mika Salo (14); TBC (15)

Team founded: 1977, **Team principal:** Prince Malik Ado Ibrahim, **Technical director:** Tom Walkinshaw, **Base:** Leafield, Oxfordshire, England, **Races:** 320, **Wins:** 0, **Constructors' titles:** 0, **Drivers' titles:** 0

Taken over in 1996 by Tom Walkinshaw, and with added financial input from Nigerian Prince Malik Ado Ibrahim, things are looking up for Arrows.

"Arrows has good facilities, but they haven't got a strong enough engine and the new money they have found this season isn't going to be able to turn that around fast enough. Having said that, I'm expecting Arrows to do better: Tom Walkinshaw has been liberated to concentrate on the team and Prince Malik Ado Ibrahim is to find the money, which will help. But fundamentally, this year's car will only be an evolution of last year's – and no discredit to engine designer Brian Hart, but the engine simply isn't powerful enough." ➤



Stewart-Ford

Drivers: Rubens Barrichello (16); Johnny Herbert (17)

Team founded: 1996, **Team principal:** Jackie Stewart, **Technical director:** Gary Anderson, **Base:** Milton Keynes, England, **Races:** 33, **Wins:** 0, **Constructors' titles:** 0, **Drivers' titles:** 0

After a shock second place at Monaco in its debut year, Jackie Stewart's outfit experienced a trying second year of Formula One. But with even more backing from Ford than ever before, the team enters 1999 with new confidence.

"Jackie has said he's looking for race wins this season, and I have to say he must be looking through rose-tinted specs," says Murray. "I hope he's right, but we don't know how well this brand new Ford Cosworth engine is going to go. They say it will be second only to the Mercedes-Ilmor engine, but we don't know that."

"Also Johnny Herbert is a new driver, and technical director Gary Anderson is new to the team. I regard Stewart as a third rank team, and they're going to struggle. It can't even pin its hopes on luck. F1 cars are so reliable nowadays that there's less chance of the big boys dropping out and leaving the points to others."



Minardi-Ford

Drivers: TBA (20); TBA (21)

Team founded: 1985, **Team principal:** Giancarlo Minardi, **Technical director:** Gustav Brunner, **Base:** Maranello, Modena, Italy, **Races:** 221, **Wins:** 0, **Constructors' titles:** 0, **Drivers' titles:** 0

Regularly at the back of the grid, but perpetual hard workers, Minardi looks set to challenge for nothing more than points in 1999. Always underfinanced, the Italian minnows have done well to survive where others have failed to survive the pirhana pond that is F1. As Murray admits, it's likely to be another trying year for the team. "Try though it may, and good though it may be, Minardi is never going to pose a serious challenge," says Murray. "The team has greater investment and new premises this year, but it's still using a customer engine, it doesn't have the resources of the bigger teams and it will have two new drivers whom we don't know... so it simply won't be as good as everyone else."



Prost-Peugeot

Drivers: Olivier Panis (18); Jarno Trulli (19)

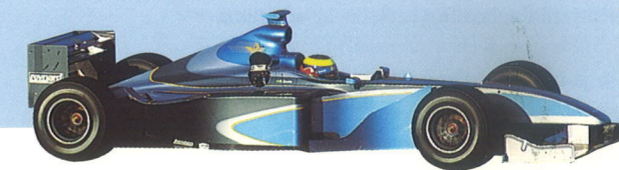
Team founded: 1997, **Team principal:** Alain Prost, **Technical director:** John Barnard, **Base:** St Quentin en Yvelines, Paris, France, **Races:** 33, **Wins:** 0, **Constructors' titles:** 0, **Drivers' titles:** 0

Former McLaren world champion Alain Prost entered the sport as a constructor in 1997, having taken over the French Ligier team. But in 1998, the team's first real attempt at building its own chassis would prove to be a disaster.

"The team had a horrific year," explains Murray. "It moved factory, the car simply wasn't up to scratch and Olivier Panis had problems with his legs that meant the team simply couldn't achieve anything."

"Prost can be expected to do better this season if only by virtue of the fact that the engine will be a bit better. They've now got 200 of the right people and Panis is saying he's mentally liberated this year from the worry about his legs."

"I guess the team will be scratching around to get points, but to their huge advantage, they have John Barnard on board. He's proved he can be a genius at both McLaren and Ferrari, and the Arrows car he produced in 1998 was very tidy. I expect Prost to do better than last year, but they won't necessarily be higher in the pecking order."



BAR-Supertec

Drivers: Jacques Villeneuve (22); Ricardo Zonta (23)

Team founded: 1998, **Team principal:** Craig Pollock, **Technical director:** Adrian Reynard, **Base:** Brackley, Northants, England, **Races:** 0, **Wins:** 0, **Constructors' titles:** 0, **Drivers' titles:** 0

British American Racing are the new kids on the block of Formula One, having taken over the Tyrrell team in 1998. The chassis is designed by successful constructor Reynard, which has won the first race it's contested in every major championship. Can it break its duck in Formula One, Murray?

"I'm prepared to stick my neck out and say that BAR is going to do much better than most people expect. They have a massive budget, a state-of-the-art new factory and a superb designer in Malcolm Oastler, who's proved his ability by winning races in every other category. BAR also has two cracking drivers, one an ex-world champion, and the whole team is enormously highly motivated. I have great respect for managing director Craig Pollock, and the team has excellent people at every level and discipline. So you really ought to say that in theory they should do well."

Talking...

David Coulthard

A number of factors conspired against you last season. How do you see your chances against your team-mate Mika in 1999?

My chances against Mika are as good as they can be. I have an equal shot at the championship. The fact that Mika is world champion gives him extra confidence, but what you lose in hunger you of course tend to gain in confidence. I'm still hungry. I don't feel I've achieved everything I can in F1. Championships come to you if the car happens to be the best, or one of the best, in any particular year, and if you have reliability. I could sleep at night knowing I had given absolutely everything and I wasn't champion, but I find it difficult to sleep now knowing that I haven't given everything... there's various reasons for that: partly myself, partly factors coming from the team and the environment. Mika is just another person to beat, but with the added knowledge I gain from working with him, knowing his set-up, and know what he's going to be doing.

You criticised the new four-groove front tyres when you first tried them. Do you still anticipate problems?

I spoke honestly about what it felt like to go to a tyre that had less performance than the previous year. People accused me of being critical, but I just see it as an observation. How are the new tyres? Well, they're not as good as the old ones as they don't offer as much grip, and there it is. People just sometimes don't want you to speak your mind. I haven't decided yet what F1 expects from drivers: you're criticised for being honest, and you get criticised for holding back on information.

Do you expect Ferrari to be McLaren's only real rival again, or can other teams pose a serious threat?

I think the '99 season is going to be much more open, because everyone will be on the same tyres. It's definitely going to make it a lot closer. We expect to be strong, with our main contender being Ferrari. Benetton and Williams will both be there and we'll also have to keep a close eye on BAR, who I think will be in good shape.

You've been criticised for being a 'gentleman racer'. Do you feel you need to toughen up to claim Championship glory?

I don't see a problem with being who I am. Why should I try and be someone else? We all take certain opportunities in life and there's things I'll do and the way I am that will please some people and it won't please others. The way I see it, I'm halfway through my available lifetime and I don't see why I should change. Even if I don't please 50 per cent of the people I don't really care. I certainly don't think I do anything deliberately to hinder other drivers, to make other people feel uncomfortable. I want to race; I want to win. I want to give everything I can to the team on the track.



...tactics

Mika Hakkinen

How do you think West McLaren Mercedes is going to do this season?

Predicting who will achieve what in the 1999 FIA Formula One World Championship is a more difficult task than it has been in recent years. Obviously everybody in the West McLaren Mercedes team has high hopes for the performance of our new car, but I find myself more reluctant than usual to speculate about how everything will work out under the new tyre regulations.

The fact that everybody will be running on Bridgestone tyres can also be expected to have a serious influence on the outcome of the new season. It is very difficult to judge whether the performance differentials between the various competing cars will be smaller or greater than we saw last year when Formula One was heavily involved in a tyre war between two manufacturers.

There is also the issue of how the cars will handle on the four-grooved front tyres. I've heard a great deal of mixed comments from many of my colleagues on this topic, but I am determined not to pre-judge the situation and will be making my own personal conclusions once I have settled into the discipline of pre-season testing.

How do you feel about your own chances of successfully defending your title?

Personally, I will be going back into action after the longest holiday away from the cockpit since I started my GP career. I have found this extremely positive because it has given me the chance to relax and recharge my motivation after that very satisfying 1998 season.

As far as another World Championship is concerned, I feel more motivated than ever. I am sure David will be trying hard, but I'm afraid I won't be doing him any favours. I feel we start the year on an equal footing and I shall be trying to secure my second World Championship. When I clinched the World Championship at Suzuka last autumn, I made it clear that it was my ambition to retain the title this year. That determination still stands.

Do you expect the MP4-14 to be as good as last year's title-winning chassis?

As usual, the new McLaren-Mercedes MP4/14 will be one of the last cars to be unveiled, in line with a long established McLaren tradition. I am hoping that the McLaren philosophy of maximising the amount of development time and then building the car at the last possible moment will pay off again. It would be all too easy to make a judgement that "Williams is going to do this" and "Ferrari is likely to do that", but the hard truth is that nobody is in a position to make a really accurate forecast. Clearly I have every confidence in both McLaren and Mercedes-Benz to get the very best out of the prevailing regulations – and obviously nobody can discount Michael Schumacher and Ferrari.

New season, new party



West McLaren Mercedes
1998 FORMULA ONE WORLD CHAMPIONS

Untried and untested

BACK TRACK

McLaren's new M5A was unveiled midway through the 1967 season. On its debut at Canada's Mosport Park it almost scored a sensational victory

WORDS **Doug Nye** PHOTOGRAPHY **LAT**

At the start of a new F1 season, with the recent launches of all the new cars, it's interesting to remember how much Formula One has changed over the past 30 years. The unveiling of the MP4/12 in 1997 was a lavish affair, with the Spice Girls as chief attraction, but way back in August 1967 there were no funds available to stage such an event for the launch of McLaren's third title challenge. Instead, a few members of the specialist motor racing press were invited to the old red-brick works on the Colnbrook industrial estate, and team management simply rolled out the new car for photography.

The car under scrutiny was McLaren's latest Formula One attempt, the M5A, powered by a 3-litre V12 manufactured by rivals BRM. The car with which McLaren had kicked off its second F1 season – an M4-type Formula Two chassis rigged with big tanks and a 2.1-litre BRM V8 – had crashed heavily in the Dutch Grand Prix at Zandvoort, and then burned out in post-repair testing at Goodwood.

Without a car of his own, Bruce McLaren had accepted the offer of a drive alongside rival driver/constructor Dan Gurney in his All



Bruce fluffed the start and was lost in the spray (top), but recovered well, overtaking Jim Clark for second place (above). Then there were problems

American Racers Eagle team for the French, British and German Grands Prix. But when the BRM V12 finally arrived at Colnbrook, it was fitted into the new M5A monocoque and rushed to Mosport Park in Canada for that country's inaugural Grand Prix. A promising, but all too brief shakedown, meant the team only just caught the Air France Boeing taking the F1 regulars across the Atlantic.

Mosport Park was a demanding, looping circuit set in gorgeous hilly country, but that August's chill and drear weather meant the scene was more akin to the Nürburgring as drizzle, mist and low cloud shrouded the track on race day.

With butterflies churning in all the drivers' stomachs on the grid, and rain still drizzling down, the flag dropped. Bruce muffed the start, and found himself running in the spray of the midfield starters, all sliding, twitching and fighting for grip on the streaming surface. In contrast, Bruce's M5A felt surprisingly stable in the slick conditions. The further he drove, the more his confidence grew. "I was up to second or third in a couple of laps. Then I came unstuck..."

Pushing too hard in one particularly ►



treacherous turn, Bruce spun off the track, over the gripless grass and up a bank. Several places were lost, but Bruce had managed to keep the engine running and rejoined the track to drive on. "It's often a good thing to have a spin like that early in a race," he admitted later, "because while you're kicking yourself for doing it, you're liable to try a bit harder."

1967 was the year of the Lotus-Ford 49s with their brand new DFV V8 – cars that were rewriting the performance standards of the time. But in these treacherous conditions, the DFV's ferocious power curve was giving drivers Jim Clark and Graham Hill some rather heart-stopping moments. McLaren's more modest BRM V12 had a much smoother response, and Bruce was having a less frightening time.

Clark's previously all-conquering Lotus was vanquished to take second place, and Bruce set off in pursuit of the Repco-Brabham of Denny Hulme. The new M5A looked set to take the Canadian Grand Prix on its debut. But then the weather changed for the better, adding another twist to the tale. "If it stayed wet I was in good shape, but unfortunately it started to dry rapidly, and for some reason the BRM engine started to misfire," said Bruce.

Pre-race, to save weight, McLaren had decided to remove the new car's alternator. "We felt it would be unnecessary because the new BRM engine used only a mechanical, not electrical, fuel pump... and then the misfiring began. A couple of laps later I



Canada '67 was one race where Bruce wanted rain

'It's often a good thing to have a spin like that early in a race: while you are kicking yourself, you're liable to try harder'

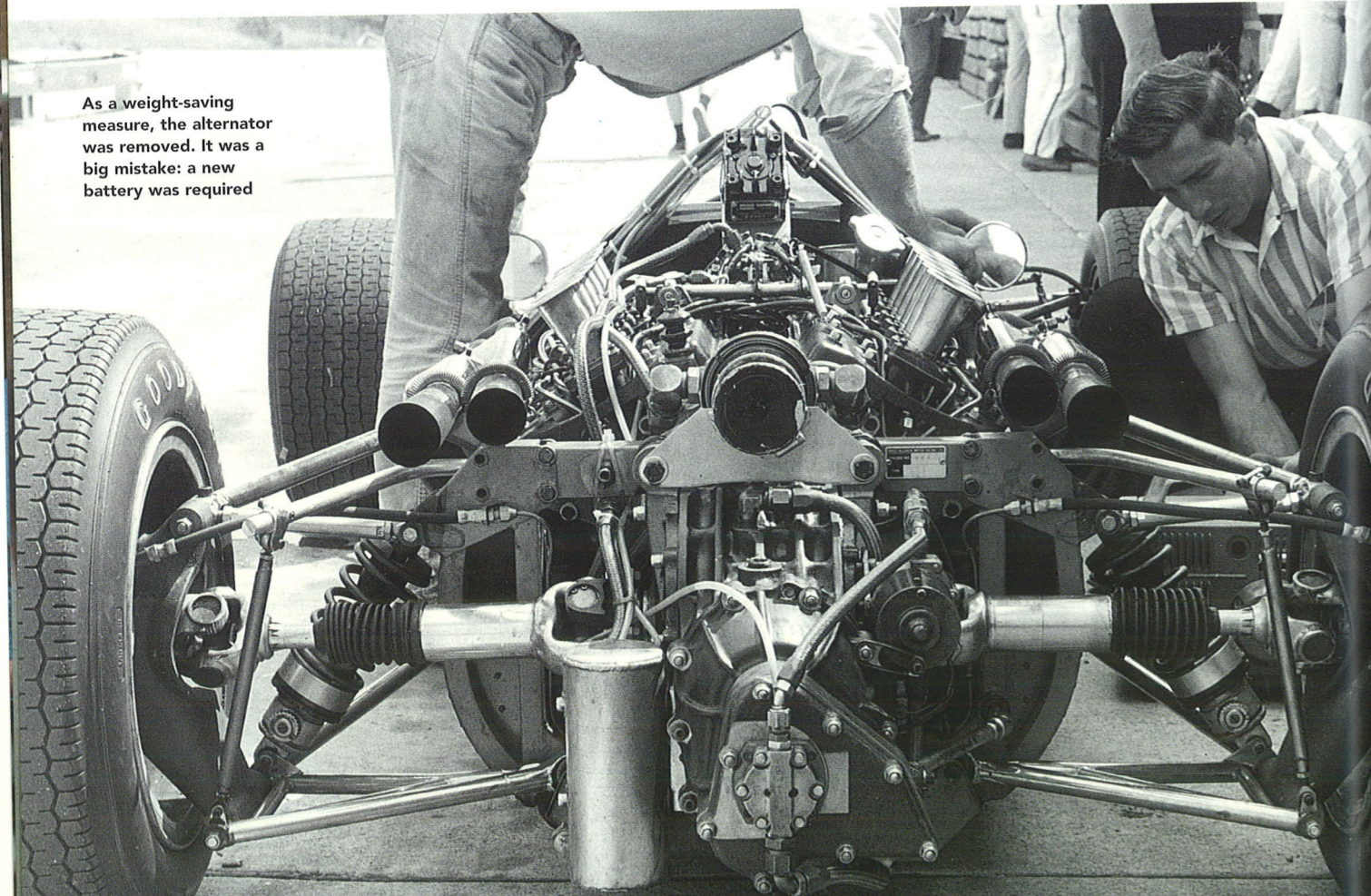
Bruce McLaren

dropped about 500 revs. I suspected I had a flat battery, and now I noticed that the oil pressure was falling to an alarming 10lb on the corners. The track had dried out almost completely by now, and on the big long corners there was no chance of running to the end with oil surge like that. My only salvation would be if it started to rain again. It's not very often during a race you want it to rain, but this was one of those occasions..."

Bruce's prayers were answered. But by the time the rain began falling again, the engine would hardly run, spluttering and popping its way along. Ultimately, Bruce was simply forced to stammer his way into the Mosport pitlane, where a fresh battery was installed.

After presenting such a serious threat to Denny Hulme, who would finish the season as world champion, the new McLaren's debut would end just out of the points in seventh place. Immediately after the race, as the cars cooled off back in the muddy paddock, it was found that sitting the hot oil catch-tank above the battery had, in fact, part-boiled it dry. "If we had had time for further testing we would probably have discovered this," lamented a disappointed Bruce.

Given the extensive testing undertaken with new F1 cars these days, it's hard to imagine the MP4-14 ever suffering from such a simple problem. But in those days, you raced your new car 'straight from the box'... and crossed your fingers. ■



As a weight-saving measure, the alternator was removed. It was a big mistake: a new battery was required

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TEAM

3000

McLaren's West
Competition F3000 team is
gearing up for its second
season in the formula, and a
shot at the title

WORDS **Toby Waller**

PHOTOGRAPHY **Dan Burn Forti**





At the time it seemed a good idea. Where better than the famous Brooklands banking, the birthplace of British motor sport, to stage a photo shoot of the West Competition Team's drivers for 1999? The perfect location... or so we thought. The fickle British weather, on the other hand, thought otherwise.

In the grey light and relentless drizzle, it's a miracle that McLaren's F3000 drivers, Nick Heidfeld and Mario Haberfeld, and team boss David Brown are all in such good humour. Perhaps it's because this morning their new Lola B99/50 chassis was fired up for the first time – there's nothing like the howl of an engine to get a racer's blood running faster.

Nick and Mario, still getting acquainted as team-mates, are having a little bit of fun as the photographer muses over polaroids. While Mario wipes the rain from his Boss jacket, Nick attempts to keep his hair under control. Haircut weather, we joke: the sort of wind that reminds you a trip to the barber is needed.

As the photographer sets up for the next shot, he asks Nick to step a bit further in front of Mario. The sudden and forceful sideways step would probably result in a steward's enquiry on track, but the laughs from Nick and Mario suggest it's just a bit of friendly joshing between two young guys, out to prove who's boss ahead of their first year together.

For team boss David Brown, working with such young talent is just one of the many enjoyable aspects of his position. When he joined McLaren, after several years as world championship-winning race engineer at F1 rival Williams, one of his roles was to look after the young drivers that the team was beginning to nurture. In conversation with TAG McLaren Managing Director Ron Dennis one day, the idea of assembling an F3000 team as part of that programme came up. It was a role David was eager to take on.

"It was a great chance to run a team myself, as I'd always felt like a cog in a large machine," he says. "It was a chance to be independent, have more freedom in the ways the team is run. And also, to use all the criticisms that I've built up of other people over the years in other teams, to do things my way and to see if I could do a better job.

"But F1 gave me a massive amount of

experience. Everything from the attitude towards racing, to all the details: how you put racing cars together and set them up; how you deal with the drivers. But a lot of it is just about being a competitor and learning about being inside the motor racing environment."

This season will be the team's second year in the formula. They surprised all the regulars in the F3000 paddock with how quickly they learned in their first season. A first win came in only the fifth round of the championship, and Heidfeld missed the title by the narrowest of margins. It's a situation the whole team is keen to improve on in its second year.

"We should be at the top," says David. "But it's a very fickle business. We have a lot of things in our favour, but there's increased competition this year. There's a lot of good teams, and with more Formula One teams getting involved, they will have access to more technology.

"We learned a lot in our first year. The importance of testing, for instance, and who our biggest competitors were. We also learned a lot from watching how they did things. When we started at our first test it was a complete circus. The first time we started the car, it took half an hour while we stood there like a load of children!"

As more and more teams become involved in both Formula One and F3000, how do the two formulae compare for a man who's been at the sharp end of both? It must be a special challenge in a one-make formula, where cars are identical and the only thing that can be changed is the set-up.

"Technically it's fairly dull," David admits. "But because everybody has exactly the same equipment it's very difficult to find an edge. Everyone's searching for small advantages and trying to build them together for something tangible on the circuit. The cars are fairly robust. They're not covered in electronics so there's a lot less to go wrong. The atmosphere isn't quite as overtly aggressive and unpleasant as F1 can be, although it's still a competition – you don't go out there to hold hands. You're there to beat everyone else and that is why you do it."

Nick Heidfeld, who already has the German Formula Three championship along with thousands of F1 testing miles with West McLaren Mercedes under his belt, is certainly ▶

Mario (far left), Nick (near left) and David are looking forward to a winning second season in F3000

Living in a one-make world

Formula 3000 is exceptional in the world of international motor racing as it is a one-make formula. Cars for all the teams are built by British racecar constructor Lola, control tyres are supplied by British rubber firm Avon and the 3.0-litre engines are manufactured by Zytek. Testing is limited so that teams with larger budgets can't gain an advantage with track time over lesser funded opposition.

This year's cars have been modified to make the chassis stiffer, to improve driver safety and aerodynamics.

"They look much better with barge boards and a Formula One-style airbox," says David Brown. "The shape lends itself really well to our paint scheme."

Despite the fact that every car is the same, and engines are limited to 6000rpm, F3000 is not the place to be if you are a shrinking violet. Top speeds are measured around the 300km/h mark, and races that last an hour and 20 minutes place considerable

stress on the driver. "It's a bit different to F1," says Nick Heidfeld. "In F1 the g-forces are harder on the neck, and the legs are thrown around in the cockpit more. But F3000 is tougher on the arms because of the way the suspension and steering are set up."

The challenge of the one-make formula is that everyone has identical equipment. It is essential for a team to be able to react to minute changes in track conditions and adapt to different circuits – and this, in turn, requires good feedback from the drivers behind the wheel. "It's important for the drivers to be able to communicate with the engineers to make the cars quicker," says David Brown.

"It's fine if you're lucky enough to walk into a good set-up, but as soon as conditions change or it becomes difficult, the driver has to be able to think clearly about set-up as well as drive the car. It's one of the qualifications for the job, and both our guys have got it."

Driver profiles

Mario Haberfeld

Born 25/1/76, Brazil
Lives Cambridge

1991-1993	South American Karting
1994	Brazilian Formula Ford (11th), Formula Ford Festival (9th)
1995	British Formula Ford (4th; 4 wins), Formula Ford Festival (2nd)
1996	Formula Renault Eurocup (4th)
1997	British Formula Three (6th)
1998	British Formula Three (champion)



Nick Heidfeld

Born 10/03/1977, Germany
Lives Monaco

1990-1993	German Karting
1994	German Formula Ford 1600
1995	German Formula Ford
1996	German Formula Three (3rd)
1997	German Formula Three (champion)
1998	FIA Formula 3000 (2nd)

Nick's second in last year's championship far exceeded team rivals' expectations

the team's best championship chance.

"I think I will win this year, but I can't be sure," he says. "I learned a lot from last year. It's hard to point out one thing – maybe my biggest mistake was at Barcelona. I was quicker than my championship rival Juan Pablo Montoya, but I didn't wait long enough to be able to overtake him. Second place would have given me six important points, but I spun down out of the points."

One word to define Nick's races last year is "spectacular". Fighting for the championship, he was always forced to push the car to the limit, often sliding, occasionally spinning. Was that provoked by the thrill of the chase, or is it just his natural style?

"Definitely I want to be on the limit, but from the outside it's hard to judge if I'm there. I don't know how it looks. At the final race at the Nürburgring last year I was 100 per cent flat out because I was forced to the back of the grid, and had to get into the points for any chance of the championship. That time I was probably a bit over the limit, because I spun. But I had nothing to lose because other people could drop out and I was going for the championship. You have to adapt your aggression to the situation."

It's certainly a more relaxed Nick Heidfeld away from the track nowadays. The constant media pressure he faced when racing in his native Germany taught him valuable lessons about dealing with that aspect of the racing driver's job. But when he joined the West Competition Team, the language barrier was still a problem.

"I've been with an English team for one year now and as I've learned the language so it's got a lot easier," he says. "That was more important than getting used to the press, because I'd already done that in Germany. In some ways, the pressure in F3 was a lot greater because I started the year as favourite to become champion. In F3000 there wasn't that expectation."

Mario Haberfeld, on the other hand, has faced a very different route to F3000. His native Brazil didn't offer the best motor racing prospects, so he took the difficult decision to move to Britain, where he worked his way up to the Formula Three championship for 1998.

"Coming to England made me a far stronger person," he says. "At home if the race is no good, you go home to your family or your girlfriend and get a hug. I could live in Brazil and have a much better lifestyle, but I want to go racing so I live here and it pays off. The first year was a bit difficult – living alone, the language barrier – but it's not a problem now. The only thing is the weather!"

Fellow Brazilian Rubens Barrichello,

currently with Stewart in Formula One, helped Mario to acclimatise while he was in Stewart's junior teams. "Rubens is a very good driver," admits Mario, "and he has given me many great tips."

It may be his first F3000 season, but Mario is no wallflower. He's going to fight his teammate – all the way to the title, if necessary. "It will be difficult, but every time you start a season you have to think you can win it. You can't just think 'It's my first year, I'll just take it easy'. If you wait for the second year, it won't happen," he says. "I know it's going to be difficult, especially with circuits I don't know."

And he certainly knows how to win championships when the chips are down. In his second year in F3, he was 53 points down on the championship leaders at the halfway stage. But by the season's end, he had staged the greatest comeback in the championship's history and taken the title.

"I learned that you can never give up," he says. "We were a long way behind, and nobody expected us to win. But we still believed and worked hard to correct the things that were wrong and improve. I've never had a problem with pressure. Sometimes it's a good thing because it gives you more motivation to succeed. You have to use it in your favour and turn it around."

Earlier in the day, David Brown reminisced about his time with Nigel Mansell at Williams, and the day they ran the Formula One car, albeit slowly, round the remaining stretch of the banked Brooklands speedway. Alain Prost and Ayrton Senna also drove for the team during his time there. How do his new young charges compare?

Anxious to ensure his boss' remarks are recorded for posterity, Mario holds my tape recorder closer to David's mouth.

"Well, they're untidy," observes David, acknowledging his drivers' hoots of derision with a smile. "But they're always on time, never late. And they call their team manager sir, which is an important thing..."

More laughs. David brushes off the offensive remarks that follow with what looks like a well-practised insouciance. "No, seriously. They're both very competitive, very skilled drivers which is what you need in any team. They have got good technical knowledge and work well in the team. They can sit next to each other and have a civilised conversation, and they're both bright."

"Most people who know me at all know that I want to compete and win at everything, so there's no point in having drivers who I don't think can do that in the team. I think they're the best two drivers available and that's why they're here." ■

'I was probably a bit over the limit, because I spun. But I had nothing to lose, because I was going for the championship'

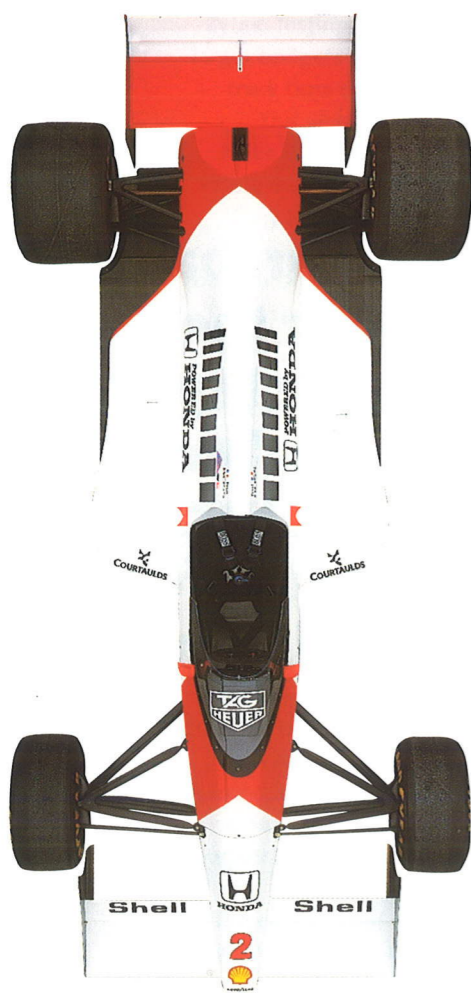
Nick
Heidfeld

BLAST FROM THE PAST

MP4/5 The world expected a lot after 1988's all-conquering MP4/4. McLaren did not disappoint

WORDS Peter McSean

PHOTOGRAPHY Charles Best



There was one thing missing from the front row in 1989: a sign that read 'Reserved for the McLaren MP4/5'. Still, the white '1' and '2' may have negated the need. The car of reigning champion Ayrton Senna wore '1', team-mate Alain Prost's '2'.

Rarely were the two MP4/5s off the front row, usually with Senna's in top spot. As in 1988, the McLarens were a class apart. In '88, the Honda turbo V6-powered MP4/4 won 15 of the 16 GPs. So the world demanded great things from McLaren in 1989. Never mind that there were 19 other teams to beat. Or that this was McLaren's first season with the normally aspirated 3.5-litre V10 Honda RA109E engine. McLaren had to win, and win well.

Under pressure to produce the best car, Neil Oatley and his team rose to the challenge. The MP4/5 was an evolution of the all-conquering MP4/4, with aerodynamic improvements that included improved cooling for the engine.

Development prised 685bhp from the V10. Single caliper brakes were introduced, and the longitudinal six-speed transmission was then replaced with a transverse arrangement midway through the season, at the British GP.

Whatever the specification, the MP4/5 was uncatchable. Senna won six races, Prost four. There were four one-two finishes and, once again, McLaren won the constructors' title. Feuding between Senna and Prost culminated in that infamous crash at Suzuka, but Prost won the drivers' championship, with Senna runner-up. The MP4/5 had won, and won well. ■

Tech spec

ENGINE

Type Honda RA109E, 72deg V10
Capacity 3490cc
Horsepower 685bhp at 13,000rpm

TRANSMISSION

Type McLaren longitudinal six-speed, replaced by McLaren transverse six-speed

SUSPENSION

Front Double wishbone, inboard coil/dampers
Rear Double wishbone, inboard coil/dampers

WHEELS

Front 11.75in wide, 13in diameter
Rear 16.25in wide, 13in diameter

BODYWORK

Construction One-piece carbon fibre cockpit/engine cover with separate nose and floor

DIMENSIONS

Wheelbase 2895mm
Track 1819mm front, 1670mm rear
Weight 500kg

QUICK CHANGE For the men in the West McLaren Mercedes pit crew, second best is simply never good enough

WORDS Adam Cooper

PHOTOGRAPHY LAT

Every second counts

Success in Grand Prix racing is built on teamwork. At West McLaren Mercedes, hundreds of people are involved in the quest for victory, and while most work quietly behind the scenes back at the Woking facility, there's a group of guys who are directly involved in the action during a race. For a few seconds at each race, their team work is seen by millions of television viewers.

One second wasted in a pit stop can mean the difference between winning or losing; that was perfectly illustrated at last season's Luxembourg GP, where the crew helped to get Mika Hakkinen into the lead at the first stop. Mistakes can cost not just time, but perhaps lead to a fire. It's never happened to McLaren, but other teams have suffered nasty incidents, and you can never take too many precautions. It's all about practice; at every GP meeting the crew has a series of training runs on Thursday afternoon and Sunday morning.

We asked David Coulthard to help guide us through exactly what happens, second by second, in a typical McLaren pitstop...▶



Anatomy of a Pitstop

-1 LAP

Race strategy is discussed in detail on the Saturday evening and Sunday morning, and before the start David will have a good idea of when he is expected to pit. However, circumstances such as the weather and safety cars will have to be taken into account, so the race engineers on the pit wall may change the schedule. Also the amount of fuel in the fuel rig might be reset at this point to take account of new strategy or race conditions. "You are aware of your original plan of when you're going to stop," says David, "and you know it's getting close. Sometimes there's a change of plan depending on what strategy you can change to, and on reaction to traffic. If that's the case, then my engineer, Pat Fry, will tell me to come in, and will continue to tell me until I confirm that I'm coming in that lap." The crew hears the order to get ready around 30-40 seconds before the car is due. The rules prevent them from being out in the pitlane until their car is definitely coming in.

The tyres, still wrapped in electric blankets, are carried into the pitlane. They won't be unwrapped until a few seconds before the pitstop so that other teams can't see what tyres the team is using. Chief truckie Steve Cook adjusts the tyre pressures as requested by each of the driver's race engineers. He is the man with overall responsibility for 12 sets of tyres between the two cars. The drivers have a maximum tyre allotment for the race weekend under FIA rules, and it's illegal for the team to put Mika's tyres on DC's car or vice versa, so Steve's job is a crucial one.



It doesn't get much tenser than this for the crew: the car is now roaring into the pitlane - but there's still time to think...



-0 SECS

The car enters the pit lane. Despite the radio message conversation, there's still a little uncertainty until David actually steers into the pit entry road. His key job is to avoid breaking the speed limit, which varies between 80-120km/h, depending on the size of that particular track's pitlane. On the other hand, if he goes too slowly he'll lose time. He has to brake to bring the car down to the correct speed but thereafter, to help him maintain that speed, a pre-set rev limiter keeps him bang on target. But it's no use unless the driver switches it on! "I've asked them to remind me of the speed limit when I'm coming into the pitlane - it's my choice; belt and braces stuff to make sure there's no fear of me forgetting to do it. It's a button which you push when you go down into second gear. The fuel flap is also activated by that."

'They remind me of the speed limit when I come in. It's my choice - belt and braces stuff to make sure I don't forget'

David Coulthard

-3 SECS

The car approaches the garage. David's next task is to find his garage. That's not as silly as it sounds: in the past, drivers have stopped at neighbouring teams' garages by mistake. It's vital that he stops at exactly the right point. A few centimetres either side, and both the wheel guys and the fuel men will lose seconds as they shuffle around. "As I approach the pit, the first thing I look for is Mike Negline standing there with the lollipop, guiding me towards where the guys are. Then I'll watch the front right wheel man, Phil Williams, whose nickname is 'Shadwell'. I watch his hand rather than the front jack; it's more important where the wheel gun is, and anyway I can't see the nose. So I look for the hand and aim for that." Both drivers practise their pitlane entry during Friday and Saturday practice and Sunday warm-up.

00:00 SECS

David puts the car into neutral and keeps his foot on the brake. Once the car is stationary, things happen in a blur. On a good day it will take the four wheel gun men just 0.2sec to get their air guns onto the wheelnuts; they instantly undo the nuts, then lean back.

00:01 SEC

The wheel gun men are in action even before the front and rear jack men spring into action and raise the car off the ground. The fueller, Steve Morrow, should be able to connect within 1.5sec; the flap, already opened by the speed limiter, should mean that there is no obstruction. Over his shoulder Steve carries a hose which, when full of fuel, weighs some 40kg. Known as "Forklift" to his pals, Steve is a strong guy, but the hose is so unmanageable that a second man, Peter Vale, stands behind to help support it.

"There's a lot of weight, a lot of strength in those two guys," says DC. "They're on the job straight away, and that's where you gain the time." Fuelling can take anything from seven to 10sec, depending on the race strategy. If there's only one stop, it will take longer as more fuel has to go in. But if David's running a two or three-stop strategy, then less fuel is required so the whole stop is shorter.



00:02 SECS

As the fuel is going in, the wheel gun men have leaned back out of the way and allowed the 'wheel off' guys to start work. All four wheels should be gone at 2.5sec, and the four 'wheel on' men are able to do their stuff. Meanwhile on the other side of the car from the fueller, team co-ordinator Jo Ramirez leans into the cockpit and cleans David's visor. This can be very important, especially in wet races when mud and grime can foul the drivers view. "When Jo is cleaning the visor, for that period I can't see anything," says David. "I'm always joking with him that when we have two or three pit stop races, the time is very short, and as he's getting older he's not getting any quicker with the wiping! One stop it's no problem, but I need him away quickly, because I need to see the lollipop..."

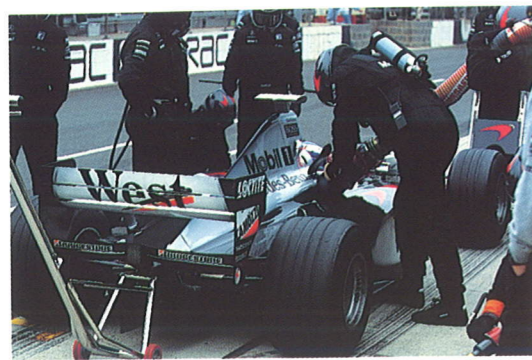
00:03 SECS

The wheels should be on by 3.5sec. 'Wheel on' men then move out of the way and the wheel gun men lean forward and tighten the nuts. When the job is finished they raise a hand to signal that everything is okay. ➤

All hands on deck. Wheel guns are engaged before the car can be lifted off the ground. "Forklift" has just attached the fuel rig hose

00:04 secs

With all four wheels changed, the car is dropped from its jacks. Now everyone is waiting for the fuelling to finish. "Forklift" holds the hose in place until the fuel load requested by the race engineers has gone into the car; it flows at a set rate, so the bigger the load, the longer he has to wait. Lights in his crash helmet tell him when the job is finished. Behind him Roger Duff looks after the fuel rig, and is ready to stop the flow should there be a problem or a leak; the rigs are high-tech



After five seconds everyone is simply waiting for the fuel to finish flowing...

machines, but they are not infallible. Designated fireman Drew Miller stands by in case of emergency.

00:05.5 sec

By now lollipop man Michael Negline will have flipped his sign over to request David to select first gear, and the fuel is nearly all in. David can do nothing but sit and wait for the 'go' signal. "You're used to that period of time, and if your stop is a second longer than it should be, you know, you feel it. You know when you've done a good stop and when you've had a problem. The good thing is your whole body's relaxed. On the track your body is tense the whole time, even on the straight. All the same, I don't look forward to the pit stops for a rest!"

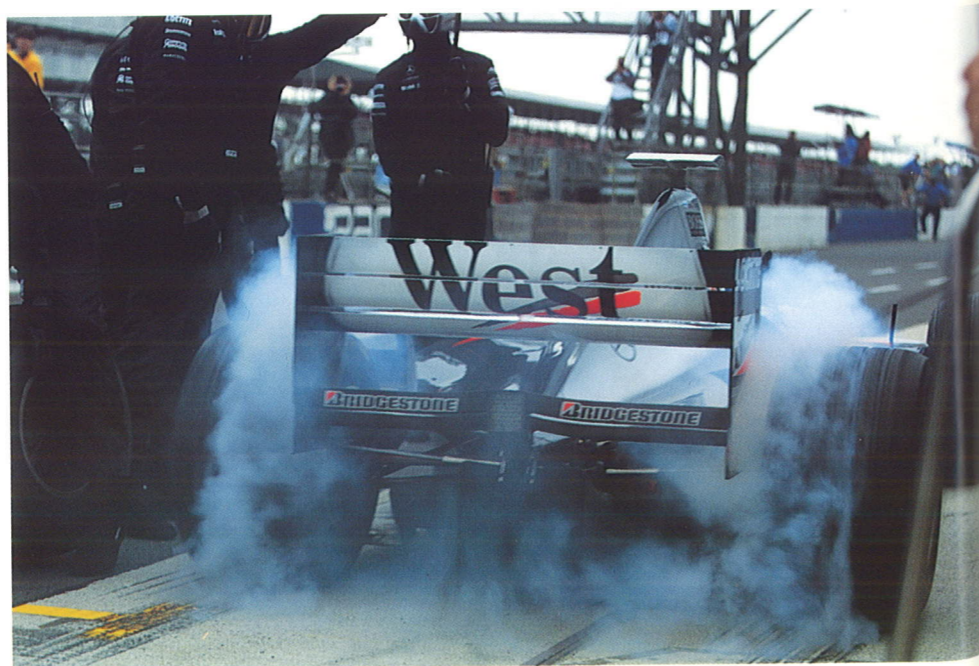
00:06.5 sec

If this is a multi-stop race, then the fuelling should be over at around 6.5sec. The hose comes off and Paul Cann wipes any spillage off the car. He barely has time to do it, because as "Forklift" steps out of the way Negline lifts his lollipop sign, which is the signal for the driver to leave. David should be able to move within 0.3sec of the fueller pulling the hose off. The timing is crucial. If the car is waved out too early, it can shoot off with the fuel hose still attached. But if a fraction of a second is wasted, the driver can lose a position on the track. Negline also has to make sure that he doesn't allow the car out into the path of another driver who is still travelling at 120km/h down the pitlane.

00:07 secs

The car is already on its way. The rev limiter is still engaged and keeps DC safely under the speed limit, but he has to remember to press the button to switch it off at the end of the pit lane – an FIA sign marks the end of the restricted zone. The fuel flap will automatically close. As he heads out onto the track, we soon learn how the stop has affected his race position. David's tyres have been pre-heated, so he should be able to push hard straight away. But he has to take account of the extra fuel load. "It's the same as at the start of the race. People don't realise the car is constantly changing during a GP as the fuel goes lighter, the tyres get older." Meanwhile the crew rushes to get ready for a stop by Mika within a lap or two, assuming he hasn't stopped just before David. When both stops are done, the crew goes back into the garage and starts to reset and replace equipment for the next stop. On a busy day they can do as many as six... ■

...and, after what can seem an eternity, the car finally smokes off up the pitlane – with speed limiter still on, of course



McLaren pit stop crew

No fewer than 21 crew members are involved in a race pit stop, and while some jobs are more critical than others, everybody has to be on top form. Danger is part of the job, so all involved wear firesuits and protective helmets to minimise the risks. Everyone in the pit stop crew has a 'normal' job on the race team, as a mechanic, truck driver or spares man, and the stops form just a small part of their overall duties. This is how the squad breaks down:

Twelve men are directly involved in the tyre changes (three on each corner of the car), three take care of the refuelling, one wipes away any fuel spillage, two operate the front and rear jacks, one cleans the driver's visor, and one stands by with a fire extinguisher. That just leaves the man who takes overall charge of the pit crew – chief mechanic Michael Negline, who holds the lollipop board. "The really worrying thing is the build-up before the pitstop and the worry that something may go wrong during it," says Michael.

1998 season pitlane team

Stop Sign: Michael Negline
Front Jack: Ian Coates
Rear Jack: Adrian Burgess
Fuel nozzle: Steve Morrow
Hose support: Peter Vale
Car support (Ilmor): Mark Grey
Fuel spill wipe: Paul Cann
Refuelling rig: Roger Duff
Extinguisher: Drew Miller
Visor/screen clean: Jo Ramirez

RIGHT FRONT

Air gun: Gary Wheeler
Wheel off: Phil Williams
Wheel on: Paul James

LEFT FRONT

Air gun: Simon Moule
Wheel off: Julian Chaplin
Wheel on: Trevor Lawes

RIGHT REAR

Air gun: Stephen Giles
Wheel off: Mark Lunnon
Wheel on: Keith Barnard

LEFT REAR

Air gun: Jon Ostrowski
Wheel off: Kris De Groot
Wheel on: Chris Thompson

It's a wrap

The preparation of a Grand Prix car's new tyres before a pit-stop is a vital and precise business, and nothing is left to chance

WORDS Jonathan Evans

PHOTOGRAPHY Ted Humble-Smith

A GP driver has enough to think about during a crucial pitstop without having to worry about warming his tyres. Or even that he has got the right tyres fitted to his car.

So it's a good thing that he doesn't have to. That job goes to Steve Morrow and his team, and it's a role which they have to take extremely seriously.

This year's regulations state that each driver can use no more than 32 dry tyres; that's just eight sets for each race weekend. From this allocation the driver must select which of two specifications he will carry forward into qualifying and on to the race. The decision has to be made by Saturday lunchtime. From this point on, he may use only 28 tyres as his nominated specification. Not only that, but each driver's tyres are specifically assigned to him, by code number, by the FIA. Any mistakes in the allocation and the driver is disqualified.

The strict rules mean that Morrow checks and rechecks the tyres fitted to the rims that the team supplies to Bridgestone. Steve looks after David Coulthard's tyres, and Andrew Miller takes care of Mika Hakkinen's. During a race, however, Steve and Drew are part of the pit-lane crew, as fueller and fireman respectively. Then, it's the task of chief truckie Steve Cook to look after both sets of tyres.

"The tyre warmers are basically electric blankets," says Steve. "They can heat the tyres to between 50-100C. The actual temperature depends on lots of things: the surface of the track, how quickly the tyres are going to come in and the ambient temperature."

The tyres are kept in their warmers for at least two hours before they are needed. "The crew is advised of a pitstop a few laps before the car is due to come in," says Steve, "so we can get ourselves in the correct position."

"I have four people who take the tyres from the stack to the pitstop. It sounds obvious, but it's vital that the specific set required for the stop is first in line, so there's no confusion."

The tyre warmers aren't taken off until the last possible second. "When the car goes past the pits for its 'in' lap, the team runs out – not too soon so as not to give anything away. The tyres go out with the blankets still on them. At a pre-set time, the blankets come off." The countdown given will depend on where the garage is in the pitlane.

"The tyres taken off are brought straight to me to take the pressures while they're still up to their maximum," says Steve. "It's all done at speed, because when there's no heat going into the tyres, the pressure goes down."

The next car will probably come in on the next lap. "We do the same thing with that one. When I've got both cars' tyre pressures, I take the information to the pit wall and hand it to the engineers, who decide on any adjustments required for the next set. They don't need to make any change 70 per cent of the time, but sometimes they might just take a little bit more out of the left-front, or whatever, to help the balance of the car."

The pressure on the tyre team is great: it is all too obvious if they make a mistake. And even if they don't, the racing gods can conspire against them. "Because we've only got eight sets of tyres for each driver, our main worry is picking up punctures, low tyre pressures when a car comes in, loss of temperature. Then you have to start looking into problems there and then. Once you've run a complete set of tyres, of course, you cannot replace them."

That's why Steve is forever on the prowl around his precious tyres: "You don't just wrap them up, turn the blankets on and walk away.

You are constantly checking each tyre's temperature – you can't afford to be in the situation where you want, say, set four, then put them on the car and find one of them flat and cold.

"We pride ourselves on the fact that we keep an eye on all our equipment and make sure it's all up and running. You check it all and then double check it." And then, 10 minutes later, no doubt, he triple checks it. Just to make sure. ■



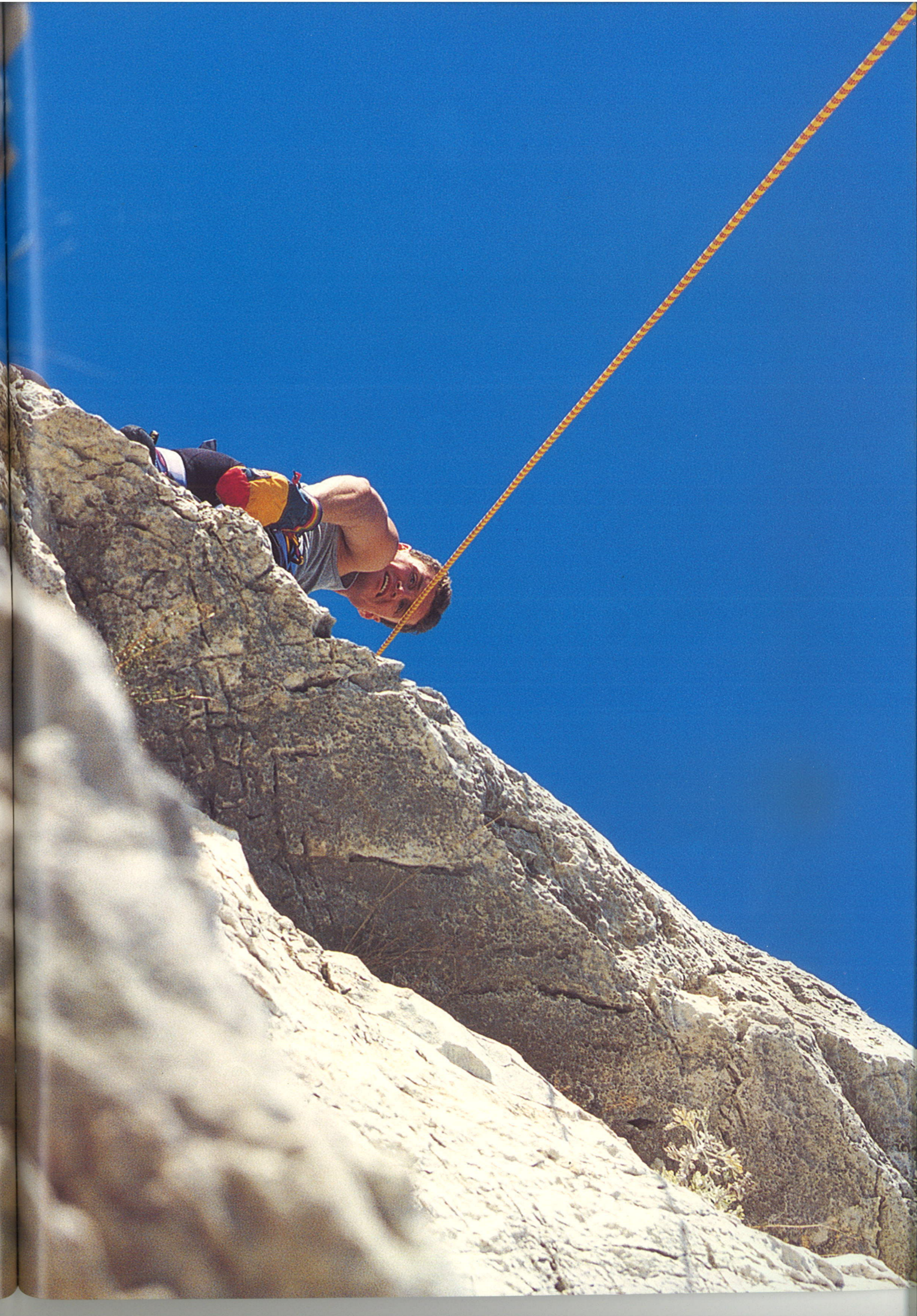
Electric blanket tyre warmer (opposite) is put on a minimum of two hours before the wheel is due to be used

Cliffhanger

ROCK
STEADY

Winter, for most of us, means piling on the pounds at Christmas. For F1 drivers, it means hard toil to get into shape for a new season. We followed David Coulthard's off-season training schedule to see how they stay in shape

WORDS Jez Spinks PHOTOGRAPHY Ted Humble-Smith



Man and machine. It's what F1 is all about; driver and car working in absolute harmony. But modern day Grand Prix drivers know that they will be relying upon more than the high technology in their Formula One cars to help them through to the end of a race.

So demanding is the job of racing an F1 car for two hours that a driver's body needs to be as well tuned as the machine he races, attaining incredibly high levels of fitness to endure the stresses of driving.

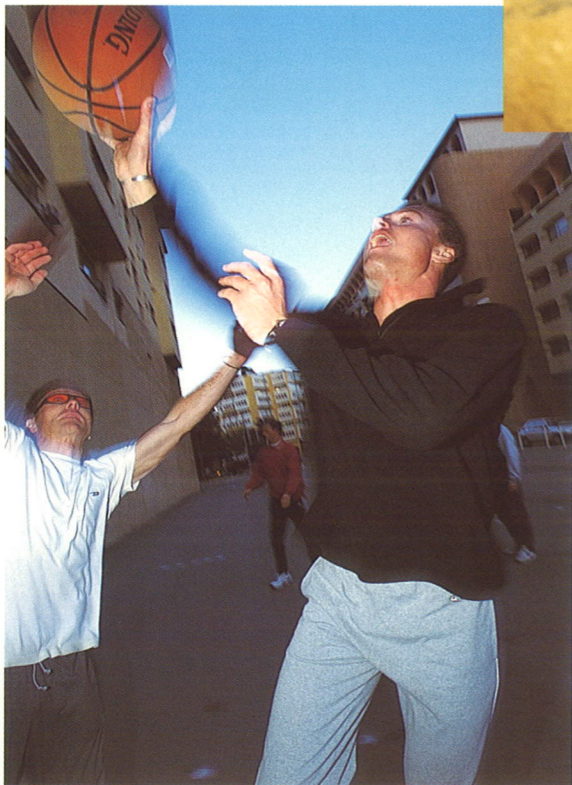
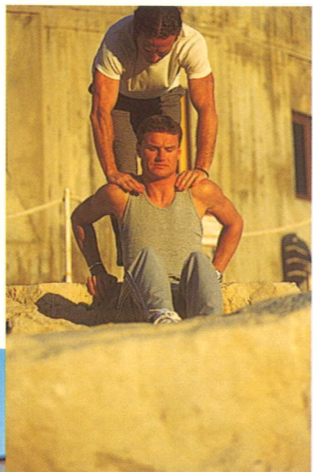
Fatigue affects judgement and reflexes, and to race on the limit in modern Formula One, you need to be 100 per cent sharp and focused for every second of every Grand Prix.

Rarely nowadays do you see scenes like the one at the 1991 Brazilian GP, when the great Ayrton Senna had to be helped from his McLaren after winning the race, or the 1992 Monaco race where Nigel Mansell was apparently on the verge of collapse after his epic late-race battle with Senna. Nowadays, when F1 drivers remove their helmets and balaclavas, a few beads of sweat and ruffled hair are the only clues to the two hours of physical torture they have just endured.

West McLaren Mercedes driver David Coulthard is all too aware of the need for peak physical fitness. He learned his lesson the hard way in 1995 – his first full Grand Prix season – when he was struggling with tonsillitis. "I got my first bout of tonsillitis just before the first race in Brazil," he says, "and from then until the French GP, about halfway through the season, I couldn't do any exercise and had to spend the rest of the day after a race in bed."

To avoid making that same mistake again, David regularly teams up with McLaren's head of physiology Jerry Powell to ensure that he is physically prepared before and during a GP season. It's never such a simple task, because even when David isn't on the circuit he's got testing and promotional commitments to see to throughout the year.

DC's regime includes a lot of back and shoulder work (right). A spot of basketball (below) helps to entertain



'Tonsillitis meant I couldn't do any exercise and had to spend the rest of the day after a race in bed'

David Coulthard

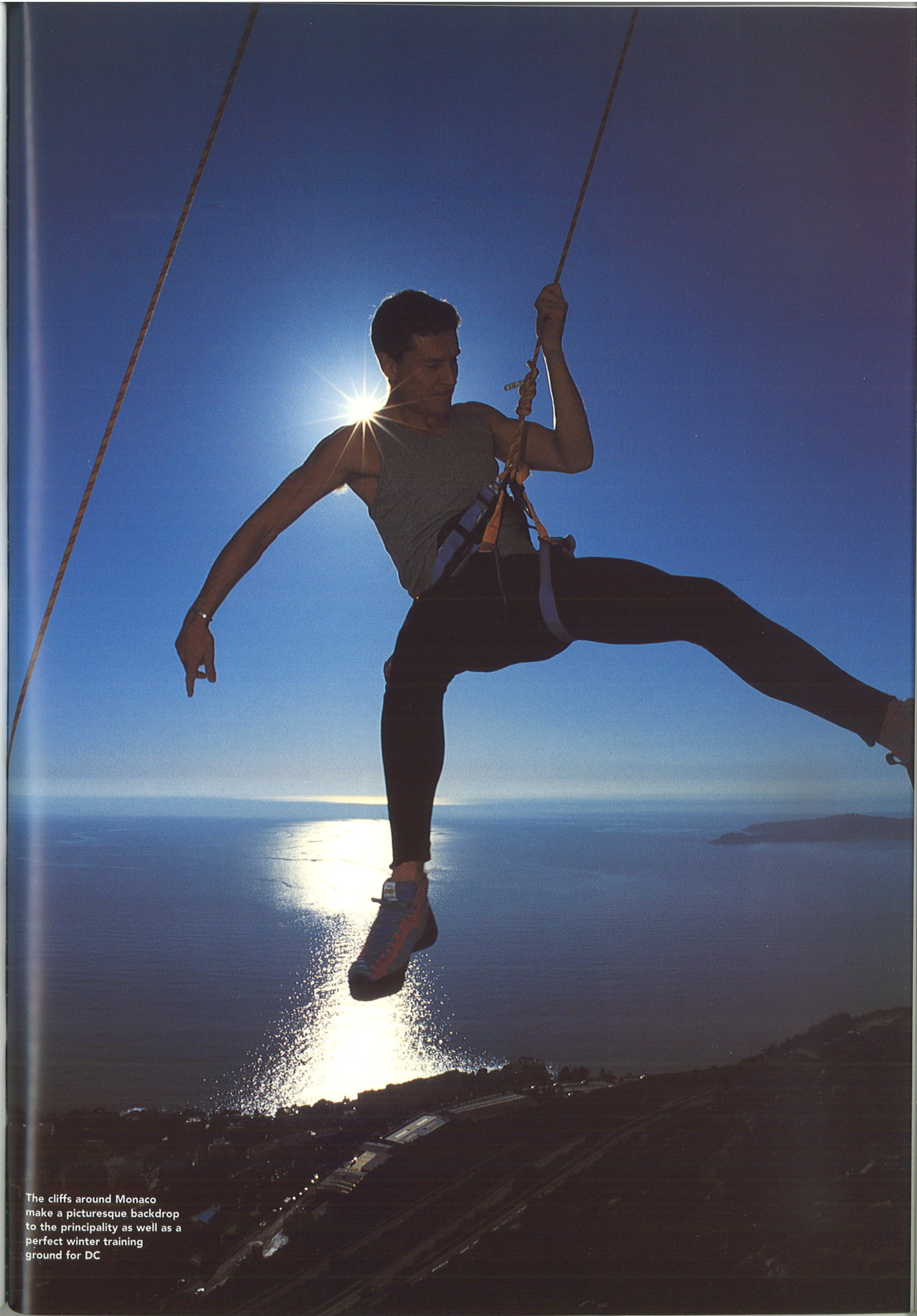
"It can be extremely difficult to come up with a fitness schedule for DC, but hopefully with less testing this year we will have more time," says Jerry, who has spent most of his life devoted to the practice of fitness training. He was introduced to motor racing through Le Mans and the British Touring Car series before joining McLaren. "Last year during the season we had, at best, five days twice a month and that included scheduling recovery work from the previous week's race or test, before jetting off on a Thursday lunchtime for the next one."

David agrees that he doesn't have the time he'd like. "There just isn't enough time to work solely on the training, particularly in the winter. In a perfect world you would have eight consecutive weeks of proper training programmes with structured meals and structured rest days etc. We had it as structured as possible over a two to three-week period in January, but that's still not enough. I feel a lot better though; a lot stronger. It may not be noticeable to those on the outside, but when you're training you can see your body changing with muscle definition. We're not out to be muscle men, but it's good to work on a particular muscle, perhaps all the little muscles in your shoulders and your back, see them develop and know they're going to help when it comes to driving the car."

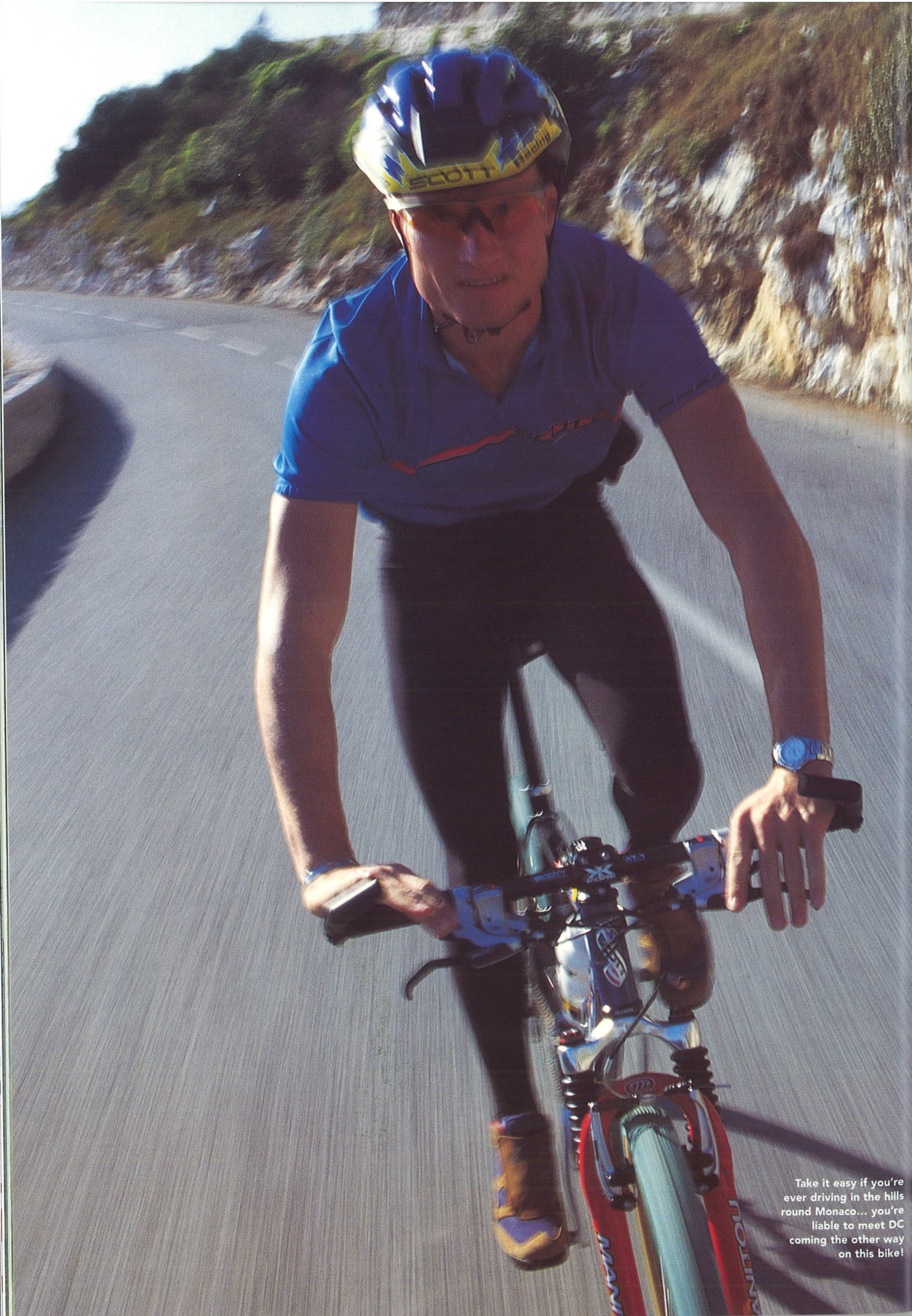
David's back is an important area of training focus. He is far from being the shortest driver in F1 and being in the cramped confines of a race car cockpit while being subjected to a bumpy ride over track bumps and kerbs for two hours on a Sunday afternoon doesn't do much for his comfort or spine.

"I had a problem with my back when I first started in F1," he admits. "After only my second race in 1994, I had such bad spasm and painful swelling in my left lower back that it ruptured the tissue around the muscle. Laying back that night after the race, I felt like I was lying on a bar of soap because it had swollen so much. We try to work hard on strengthening the lower back – the idea's to do anything to keep it as supple as possible."

Developing neck muscles is equally crucial. Grand Prix drivers experience severe g-forces under acceleration, braking and through the corners, coping with loads that peak at nearly 5g. In effect, this means that the driver's neck has to support nearly five times the



The cliffs around Monaco make a picturesque backdrop to the principality as well as a perfect winter training ground for DC



Take it easy if you're ever driving in the hills round Monaco... you're liable to meet DC coming the other way on this bike!

combined weight of his head and helmet when braking and cornering during any race – that's up to 25kg of weight in the worst corners – no fun if you're not used to it.

David and Jerry work to ensure that DC's neck is muscularly balanced to cope with both left-hand and right-hand corners, but since he races and tests mainly on clockwise circuits there will still be some discomfort for the left side of his neck when he's driving round anti-clockwise circuits such as Interlagos and the new Sepang track which is due to host this season's Malaysian Grand Prix.

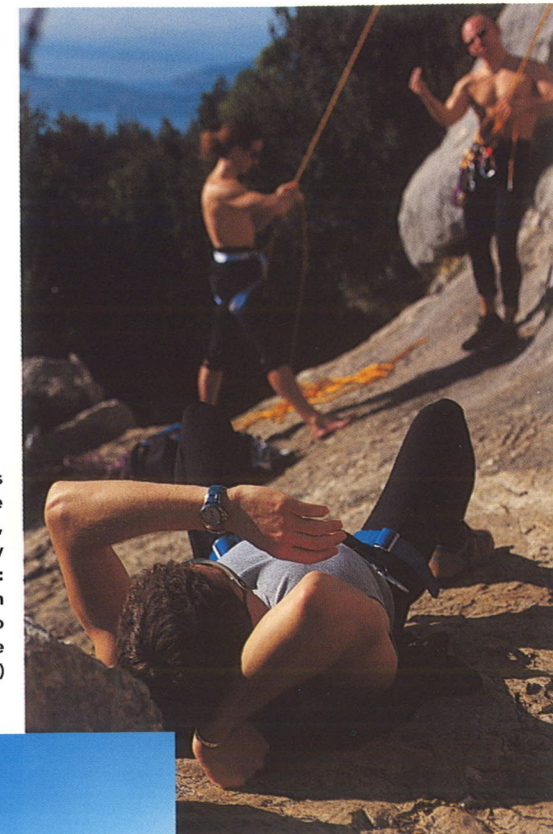
While David's back and neck are specific areas of focus, his general fitness would make any athlete proud. Because he's at the pinnacle of F1, the physical and psychological demands are as great as in any other world class sport. Ask Jerry which type of sports person DC relates to most in terms of physique and specialised training and he will tell you that DC is unique: "He is as lean as any middle distance runner but with much more upper body muscle mass. His specialised training is specific to Formula One, although the physiological principles of training and muscular adaptation do not change from sport to sport so we obviously apply these within every exercise."

McLaren's Woking facility provides a special, bespoke Human Performance Lab – featured in the first issue of *Racing Line* – which Jerry can use to measure and monitor DC's fitness levels. He gets David into the lab three times during the season and once at the end of it.

"Basic testing of DC's fitness would involve looking at his maximum O₂ uptake, anaerobic threshold and peak power output," says Jerry. "Heart rate and power per kilogram are also assessed, and we may include a biomechanical check of the spine and pelvis, strength tests for muscle balance, soft tissue work looking for adverse tension in muscle fibres, and maybe a nutritional overview."

David's off-season this year was quite short, from the end of November through to the final week of January, and thus it makes sense for him to do his training with Jerry near his Monaco home. Around the corner from his apartment is the Olympic standard stadium,

When he's climbed the rocks (right), DC's only halfway home: before he can relax he has to carry his bike down (below)



where David uses the weights room in conjunction with an outdoors programme. If you ever happen to be walking over the

beautiful mountain range behind Monaco, you may well catch sight of Jerry and DC combining sprints and uphill climbs up the winding roads on their mountain bikes.

Occasionally, Mark Arnall, the team's sports therapist, joins them for some rock climbing... which involves hiking with bicycles on their backs to get there! Jerry also introduces basketball – "excellent for balance and awareness" – and bodyweight exercises on the beach to introduce a bit of interest and variety into DC's training sessions. It may all sound like fun, but these activities are part of a serious structured

programme geared towards optimising DC's fitness for the new season.

An equally important outcome of all this training is that it enables David to recover more quickly from a back-to-back race and testing schedule and from the jet lag encountered on flyaway races.

Neither DC's psychological nor his physical fitness, says Jerry, can ever be neglected: "Each aspect has its own place in the programme. We don't have a real, structured regime for mental training as such, but we discuss aspects of how to approach situations and how best to prepare for each race. Also, much of David's physical training is designed to put stress on his mental toughness – the ability to complete an intense exercise session when his whole physique is screaming to stop. The psychological aspect of training becomes increasingly important over the actual race weekend, peaking when David is finally sitting at the start line waiting for the red lights to go out."

While West McLaren Mercedes waits to see if its 1999 F1 car and engine combination produces another competitive championship challenger, the team can at least be assured that in Melbourne David will be 100 per cent fit, primed and ready to go the distance. ■

A typical winter training day for DC

07.30-08.00	Breakfast and supplements
09.00-10.00	Bike ride – uphill, plus intervals and sprints
10.00-10.15	Stretch at top of mountain
10.15-10.45	Down – still intensive, including sprint races
11.00-12.00	Fluid replacement and stretching
12.00-14.00	Food
14.00-16.00	Gym
16.30	Food
18.00	Massage
20.00	Food

TEAM MATES



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What's your biggest regret?

Probably that I didn't have the wisdom of age in my youth. At the start of my racing career, all I had was talent – I lacked the ability to listen to advice. I've always had a single-minded determination and strong self-belief, but these aren't in themselves sufficient to maximise a racing driver's potential. I suppose my problem was that I had too much natural talent, so the application was occasionally missing. When driving's the easiest thing in world, you sometimes don't achieve what you should. Drivers with less talent can achieve more. Nearly all F1 drivers have a tendency to look to their team to support them and give them self-belief, but outstanding drivers are usually those who motivate the team rather than the other way round. When Mika Hakkinen had a test contract in 1993, for instance, I watched him tirelessly going about the job, with all the minutiae and tedium that development involves, with a willingness that made people realise what a great guy and team player he is. That's what being a good racing driver is all about; it's something I could have done better.

What's the daftest thing you've seen in racing?

Well, one issue I still feel very strongly about is what happened at Argentina in 1979. I was next to Scheckter into the first corner – a quick right, then a quick left – and I was on his left in the right-hander. I felt my nose was marginally ahead of his, so I pinched him and he just stayed there. Our subsequent collision saw me spinning in the middle of the pack – not the most enjoyable experience. Jody also went off, but came back on track again minus one rear wheel. Unfortunately he didn't seem to be aware of this, and pretty quickly his car pirouetted and took out Piquet and a few others in the tail end. As a result, I got caught up in a political issue with the stewards. There was talk of me being banned, possibly for the whole season, and it took a lot of negotiation to placate the stewards. This was bad enough, but what really wound me up was that I never had a chance to answer the charge. I couldn't defend myself, and I ended up getting fined 10,000 Swiss Francs. Okay, it was only a small event in my career of 152 Grands Prix, but it had a major bearing on that whole season: I was racing under a suspended ban, so if I got involved in any other incident, however small,



Cash back

**"IF I'M
HONEST"**

John Watson may have piloted F1's first carbon fibre chassis to victory for McLaren in 1981, but his starkest memory concerns a sum of money...

I knew I'd be hanged, drawn and quartered. I see it as a real miscarriage of justice, and I'm still waiting for an apology. I say to the FIA stewards: Isn't it time you refunded me my 10,000 francs plus interest compounded over the last 20 years?

What memories stand out from your career with McLaren?

The best ones are the arguments! For the 1983 French Grand Prix we had a revised engine, but there was only one available for qualifying at Paul Ricard. In a meeting with Ron and John Barnard it was explained to me that 'naturally' Niki Lauda would be having it. Well, I went mad at Ron and John, because I was ahead of Niki in points at the time. I went crazy, calling Barnard an ostrich with his head in the sand – we really let rip in those days! But that's what a team wants to see in a driver... 100 per cent commitment. I didn't get my way, but I did get an engine for the race.

Niki didn't have it all his own way, though. When the TAG Turbo project was underway, John Barnard was adamant that he wanted to build a car around the engine without compromise. There were lots of delays.

Since Niki realised that the sooner he got the turbo engine the sooner he'd be winning again, he got stuck into the European President of Marlboro, who was signing off the budget. It caused political problems, and he wasn't popular in the team.

When the car did eventually run that August, it was a big step forward and because Niki had rocked the boat so badly, it was decided to give me the first drive! So I drove it first at Porsche's proving ground, Weissach, outside Stuttgart.

What's the worst moment of your time with the team?

The lowest point was our non-qualification at Monaco in 1983. We didn't at that point have turbo engines, unlike our principal competitors, so our cars were lighter in qualifying trim and we were unable to get the grip. Only 20 cars were allowed to start the race, and Niki and I were both outside the top 20. Ron pushed the tyre partner Michelin to produce some tyres that would be more suitable, and these would have allowed us to qualify easily. Unfortunately, just before qualifying it rained and didn't dry out fast enough to give us the grip. We didn't qualify, and it was a PR disaster: Marlboro had brought loads of people down to watch, and it was probably one of the lowest times of Ron's career. He was in a black mood and said: "It would have been better if you'd both crashed your bloody cars, rather than not qualify." ■



McLaren's winning

combination

RIGHT STUFF Enthusiasts' clubs are nothing new, but Team McLaren took the idea into a whole new realm. This is its story

WORDS **Toby Waller**

How many people can say they have met a Formula One World Champion? A Grand Prix race winner, even? Not many... at least, not many of the people you bump into in the street. Meet a few Team McLaren members, on the other hand, and you may be surprised to find yourself talking to people for whom talking to Mika or DC is old hat.

Since Team McLaren memberships first became available at the British Grand Prix in 1995, thousands have joined to take advantage of special offers, exclusive competitions and visits to McLaren's Woking headquarters and the team's pit garage at test sessions.

"We recognised at the time that McLaren as a team was quite aloof and a bit out of touch with the general public," explains Team McLaren's Gary Marsh. "The team had had

many years' success, and we decided to make ourselves more accessible to the public – but we had to make it the best that we could. That meant running it in-house at McLaren rather than from some back bedroom."

Like Bruce McLaren's own tentative steps into F1, Team McLaren had humble origins. But in the second issue of Team McLaren's monthly magazine, *Racing Line*, members of the public got their first opportunity to see the benefits of membership at first hand.

Members could take advantage of a special two-for-one entry into Silverstone to watch the McLaren F1 GTR supercar in the Global Endurance GT championship and take part in a karting race, the winner of which would be invited to the GTR pits that afternoon. Most importantly of all, they could visit McLaren's Woking headquarters and see behind the scenes of the facility that produces the F1 cars.

"The mission statement of Team McLaren is 'Get closer to the action,'" says Gary. "That means getting the public into the paddock, meeting the drivers and coming into the pits. Previously only partners had been able to visit

the facility. But thousands of Team McLaren members have now visited us, and hundreds have attended tests at both Silverstone and Barcelona. In fact, the tests are probably the most popular things we do." Available places are invariably filled within a few days of the magazine hitting members' doormats.

Over the past three years, Team McLaren has also enabled fans to meet the drivers – often with unexpectedly high demand for attention. "At the first Autosport International show we attended, in 1998, David Coulthard opened the show and we allowed Team McLaren members to get his autograph. We weren't quite sure what the demand would be, and we were amazed with the huge queue that extended right down the hall.

"David stayed for well over an hour and signed them all – above and beyond the call of duty, but that is what the drivers and members of the team are like. They all know about Team McLaren and are ready to help, meet members and sign autographs whenever they can.

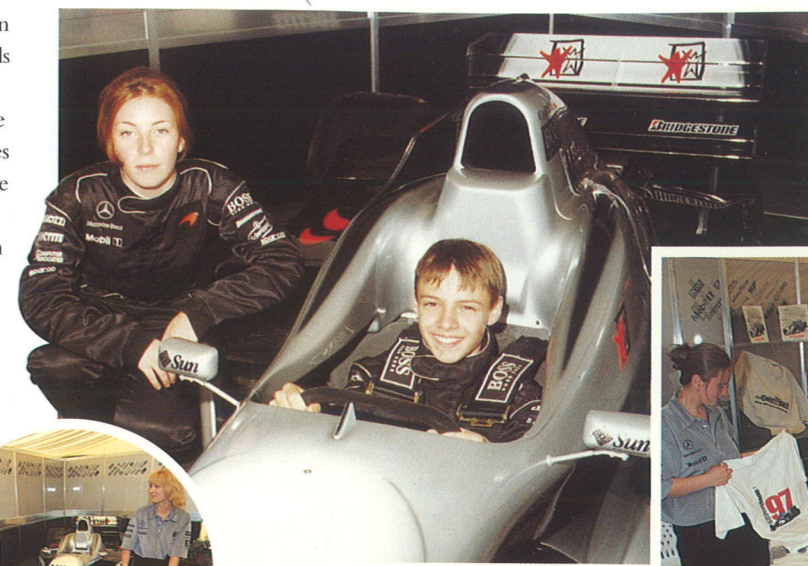
"We get so much feedback from members saying that they can't believe they were really standing in the pits with Mika and David, and they're always very keen. At a Silverstone GT race, two members turned up and wanted to help, so we had them washing the cars!"

For some members, the access has been beyond all expectations. In February 1996, *Racing Line* ran a competition to win a day as a member of the test team. The winner, Ed Miller, would act as team gofer (go for this, go for that) – a privilege that required a little hard work, but afforded unique access to the team.

"We were a little surprised when we picked the winner, and he was from America," says Gary. "He flew over especially for the day, but we were even more surprised when he turned up and was a 6ft 7in giant of a man. We managed to squeeze him into the largest size uniform; actually he turned out to be useful for all the 'tall' jobs, like washing the transporter and holding the pitboard out over the pitwall!"

In 1998, when McLaren unveiled its unique MP4-98T two-seater, a behind-the-scenes feature in *Racing Line* was accompanied by a competition to win the ride of a lifetime, open only to

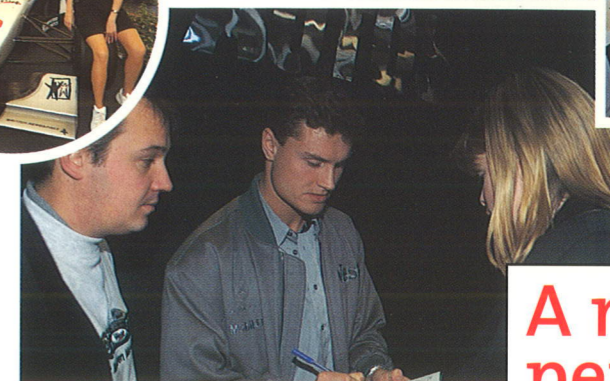
Silverstone 1997: the things people will do for attention...



Samantha Jones and David Gamble (left) won a competition and had a great day enjoying Team McLaren's hospitality



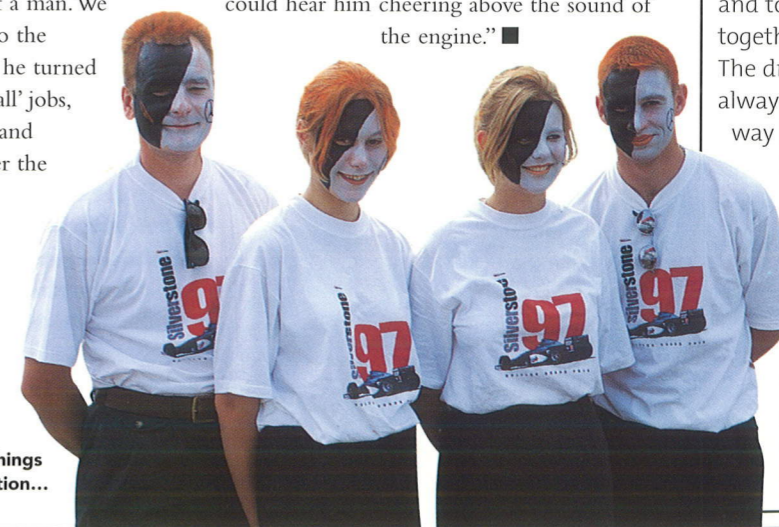
Team McLaren gives every member a genuine chance to get close to the drivers and the cars. More than once...



A member's perspective

Team McLaren members. The winner, Mike Harris, became one of the few members of the public to know what it is like to top 170mph and corner at 4g in an F1 car at Silverstone.

Over the years there have been many magic moments and memories. Ask Gary what stands out for him, and it requires thought. "Having over a thousand members at the Night of Stars and Cars where we unveiled the 1997 car with the Spice Girls and Jamiroquai was outstanding. But one of the more personal moments was when a young disabled lad took a ride in a two-seater kart at the British Grand Prix. You could hear him cheering above the sound of the engine." ■



Paul Lockyer has been a member since the founding of Team McLaren. This is his inside view.

"I have been into Formula One since 1985, and I have always liked Ayrton Senna and Nigel Mansell. I've been a member of Team McLaren right from July 1995, after the launch at the British GP. About the only thing I haven't been to was the Night of Stars and Cars launch in February 1997. Within months of joining we'd been on a factory tour, and to be able to see the cars being put together before a race was phenomenal. The drivers that McLaren has had have always been great, going out of their way for the fans. I've met Mika and David on a number of occasions.

They're great personalities and it would be a shame to lose them. Other teams try, but don't do as well. I would never have got as close as I have to F1 without joining Team McLaren. Test sessions are the real highlight – being in the paddock with the teams, the trucks and the drivers."

Visit a Grand Prix



All over the world, tickets for the 16 Grands Prix are vanishing as fans book their place trackside for what promises to be one of the most exciting seasons yet. But you can guarantee your place thanks to our exclusive relationship with Page and Moy. The trips benefit from

our own Team McLaren representative to keep you informed of goings on in the paddock. For some members last year, there was the opportunity to visit the McLaren pit garage – you never know, you could be just as lucky.

Contact Page and Moy on 0116 250 7878 to find out more information about the Team McLaren packages to the San Marino, Barcelona, Canadian, Austrian, Hungarian and Belgian Grands Prix. Remember, you need to have your Team McLaren membership number to take advantage of these special offers.

Apologies to all those Team McLaren members who wrote to us expressing interest in our planned trip to the first test of the West McLaren Mercedes MP4-14 in Barcelona earlier this month. Due to the late decision on the unveiling of the car, we were unable to put together the trip in such a short period of time.

Rest assured, though, we will be repeating our annual trip to the pre-British Grand Prix test at Silverstone, details of which will be published as soon as they are confirmed.

Go on a factory tour

Dates for the Team McLaren tours of our Woking headquarters are filling rapidly. If you haven't registered your interest, then send us a postcard with your name and membership number to the address on page 58. We'll write to you as soon as we can fit you into a date to see if you can make it.

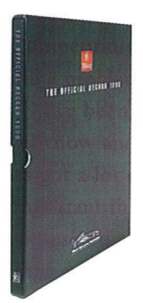
Remember, due to the extraordinary demand generated by these tours, all places are strictly limited to Team McLaren members and will be allocated with priority given to those who have yet to go on a tour.



Travel tips – Australia

Unless you live in Australia, attending the first race of the season means a long-haul flight. Richard Carmichael of TAG McLaren Marketing is used to the 24-hour long journey and has some tips for the long-distance flyer. Move about the cabin regularly, he says, and drink plenty of water – not alcohol. Also, take tons of CDs or tapes to listen too. Why he suggests sitting next to a supermodel, we're not quite sure...

Win a signed book



1998 was a tumultuous year for the West McLaren Mercedes team – the lows ultimately exceeded by the high of championship victories for team and driver Mika Hakkinen. You can relive every moment of the season in a new 120-page book *The Official Record 1998*.

Elsewhere in this issue you'll find an offer for Team McLaren members to obtain the book at a reduced price. But we've got one very special book available to win in our exclusive competition.

To win a copy of the book, signed by Mika, David Coulthard and Ron Dennis, all you have to do is answer the following three questions. (It may help if you study this issue of *Racing Line* carefully.)

- 1) What is the pitlane nickname of refueller Steve Morrow?
- 2) How many Grands Prix has McLaren entered and how many has it won?
- 3) Which championship did Nick Heidfeld win before he joined the West Competition F3000 team?

Send your answers with your Team McLaren membership number and details to our address on page 58 or pop them on a fax. Entries will be accepted until the end of March.



Go Karting with Team McLaren

If you fancy racing for Team McLaren, enter one of our dedicated karts in selected rounds of the CSF British Endurance Championship. For just £650 an event, teams can hire one of the twin-engine karts for as many of the races as they wish. For dates, news and information about our two 24-hour endurance events, ring Race Productions on 01642 231116.



LETTERS

Stamp collector

I'm in Helsinki, and it's sooo cold and snowing. I arrived two days ago, and the temperature was -9C. The reason why I came here on a 10-hour flight was to get Mika Hakkinen's new stamps. There was a long queue at the post office first thing this morning, but I'm so happy to get them. I had to take two days off work to get them, which was nice of my boss, and I'm going back to Japan tomorrow. I'll be looking forward to the latest issue of Racing Line, please take good care of yourselves and keep sending us fabulous stuff.
Hans Rie Sato, Tokyo, Japan

Bad hair day?

I saw your reminder about my promise to dye my hair silver in the latest Racing Line. I just want you to know I haven't forgotten! Since 1 November, I've tried every type of dye imaginable – permanent, wash-in, semi-permanent, the lot. Even acrylic paint (I don't recommend it). None of them work and they certainly don't look silver. You see, like McLaren, I'm a perfectionist and if I'm going to do something I want to do it right. To be honest, I'm surprised I've got any hair left. As soon as I have a result, I promise I will send in pictorial evidence!



Finally, a big thankyou for the trade day ticket offer for Autosport International. What a brill day. I met DC last year, Johnny H and Rubens this year. Hopefully next year it will be Mika. As usual, the McLaren stand was head and shoulders above the rest, and I thought that Nick Heidfeld was lovely – a star in the

making. Cheers, and keep up the good work.
Janine Pingree, Stourbridge, West Midlands

A surprise Christmas present

On the 25 December, while I was waking up, I saw a McLaren MP4/12 through the window of my house. It was in the ANCAP-Mobil 1 service car of Punta del Este, but I thought that Ron Dennis wanted to give me a big surprise for Christmas!

Thanks for the Christmas card, and a Merry Christmas and a Happy New Year to everyone at West McLaren Mercedes.
Juan Ignacio Caceres, Maldonado, Uruguay



To take advantage of Team McLaren offers join now:

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email us at
racingline@dial.
pipex.com

or see our website
www.mclaren.co.uk

www.mclaren.co.uk



What's on the Internet this month?

West McLaren Mercedes' 1999 Formula One World Championship challenger, the MP4-14, was officially unveiled at the Circuit de Catalunya in Barcelona on 8 February – but you could get a first look at the car on West McLaren Mercedes' own internet site, www.mclaren.co.uk.

Throughout the year, it's the best place to get all the news and information about the team's progress as it competes for more race wins and championships to add to the record books.

At each race there'll be pictures from practice, qualifying and the race itself, with press releases supplying all the inside views direct from David, Mika and Ron Dennis.

www.mclaren.co.uk

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IN THE NEXT ISSUE
Published on 8 April, 1999



KARTING WAYS

Challenge Hamilton

Lewis Hamilton issues *Racing Line* the ultimate karting invitation

PLUS

Australian Grand Prix: first race of the new F1 season

We go down under with the Bruce McLaren Foundation
McLaren F1 road car attempts to break new speed record

The Winning Formula

Partnership

Teamwork

Commitment



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