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## GREATNESS IN THE EYE OF THE BEHOLDER...



How would you define a ‘great’ racing car? Race wins and championship titles are an obvious place to start – and admittedly, when we began the process of rounding up the ‘voices’ to fill this special magazine, published by the team behind *Motor Sport*, we had in mind the likes of the Lotus 72, Ferrari F2004, Porsche 917, Audi R10 and so on.

But as the interviews of familiar racing figures began, we realised greatness is often a very personal thing. Naturally, most – but not all – would pick cars they had experienced first-hand, as a driver, designer, engineer or team boss. And on occasion the cars that stood out in their minds as ‘great’ weren’t necessarily so in the grand scheme of history. That’s why you’ll find a Minardi here among Formula 1 cars from Lotus, Williams and McLaren.

Unexpected? Certainly. Wrong? Not to the man who chose it.

As the interviews accumulated, our magazine took on a life of its own, full of personal anecdotes about the myriad cars that made careers. Some of those we spoke to, such as Mario Andretti and Dan Gurney, couldn’t be tied to a single choice from multi-faceted lives at the wheel. Such heroes have earned the right to choose an F1, sports and Indycar, so we allowed them more than one bite.

Others refused to be confined by category. Hence the short ‘Odd ‘n Sods’ chapter on cars that, by and large, are mere footnotes in lower divisions of racing lore.

Thus there is nothing definitive about the selection listed herein. Then again, there’s no claim that this compilation offers the ‘Greatest Racing Cars’ of history. It’s much more personal than that, much more quirky – and all the better for it.

### DAMIEN SMITH, EDITOR

PS: You can also read this magazine on tablet devices, iPad or Android. Our digital version includes video clips from a selection of the Grands Prix listed, while some of the images are available to purchase via our online photo store:

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GREAT RACING CARS

FORM



# WULFA 1

For engineers, racing's arch-pragmatists, personal favourites might have served as an educational tool, or else broken fresh technical ground. To a driver, you'd imagine greatness is most likely symbolised by the trappings of success, a chassis that notched up countless wins and carried them to many a champagne shower (and, perhaps, a world title). As the next 42 pages show, though, that's not always the case. There are many reasons to love a car. That's why the McLaren MP4/4 and Ferrari F2004 appear here, as does the Minardi M189. Diverse or perverse? You decide. »





## 1977

# LOTUS 78



### MARIO ANDRETTI

*1978 F1 world champion,  
1969 Indy 500 winner...  
one of racing's greatest  
all-rounders*

In Formula 1 everyone expects me to pick the Lotus 79. But quite honestly, the Lotus 78 to me was much more fun to drive. The 79 had poor brakes. I won several races in the 79 with my brakes to the floor. When I clinched the championship at Monza with the 79, at the race where Ronnie died, I actually won but Villeneuve and I were penalised for jumping the start. I spent the whole race chasing Villeneuve down and I had one clear outbraking chance on the last lap. When I did, the brakes on the 79 were so bad that my foot damn near went through the nose!

At Watkins Glen, the downhill section is fast and dangerous. In 1978 Carlos Reutemann had a slower car than me but he had the measure of me because his car had better brakes and I couldn't stay with him through there. So in many ways it was frustrating.

The reason the brakes weren't very good was because of the way Chapman designed them. Both the Lotus 78 and 79 had inboard rear brakes but they were detrimental to the airflow through the diffuser. So Colin decided to move the brakes further inboard on the 79. He had Hewland

cast the gearbox containing half of the brake caliper, which was therefore made out of magnesium.

Well, with a full load of fuel after four or five laps the brake pedal started getting longer and longer because the fluid was boiling in the calipers. You had some braking from the front but the rear would go to the floor. Pretty soon, there were no rear brakes.

We went through the whole season with both Ronnie and I screaming about the brakes. The problem was at the end of the race when they rolled the car onto the trailer they would ask the mechanics to check the brakes and once they had cooled down a little bit, the brakes were fine. So Chapman didn't believe us. He didn't like drivers telling him about technical things so he ignored us. We had battles over other things as well, but I'll always remember how bad the brakes were on that car.

So if I was going to choose the car that gave me the most satisfaction winning races, I would say the Lotus 78 rather than the 79. I should have won the championship with the 78 in 1977 but I ran out of gas in three races. Chapman used to pull the last litre or two of fuel out of the cars before the race. He wanted them to be as light as possible. He always pushed to – and sometimes beyond – the limit.

In South Africa he pulled fuel out of the car just before the start and I ran out with two laps to go while I was leading. In Sweden the metering unit slipped to full rich and I was leading by 28 seconds when it ran out of fuel with two laps to go. That was before two-way radios and when I pulled in they had to scramble to get some fuel and put it in the car and I finished fifth or sixth. But I should have won that race.

At the end of the season at Mosport I had a one-lap lead on Scheckter and I ran out of oil on the second-last lap at the top of the hill on the back straightaway. The engine scattered and Scheckter and a bunch of them went past me and I was classified ninth. So it should have been an easy championship win with the Lotus 78, but it wasn't to be.

I loved the 78. You could hustle that car right to the end of the race. 



### *Essential info*

## Lotus 78

#### **Entrant Team Lotus Drivers**

Mario Andretti, Gunnar Nilsson, Ronnie Peterson

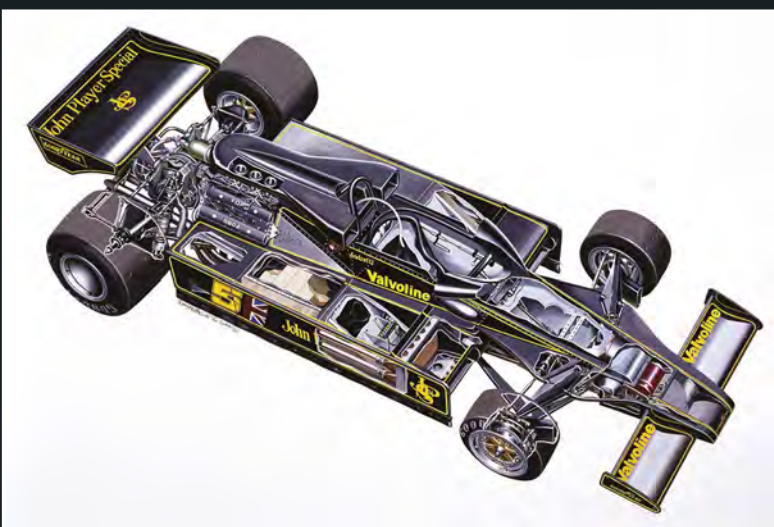
#### **Debut** 1977 Argentine Grand Prix

**Achievements** 7 wins, 9 poles

#### **Constructors' Championships** 0

#### **Drivers' Championships** 0





## *Denis Jenkinson on the Lotus 78*

When the new Lotus made its debut in the Argentine Grand Prix

Entirely new in concept is the JPS Mark III or Lotus 78 as it will be known, and whereas the 1976 cars were pencil slim the 1977 cars are 'full-width', with radiators in the leading edges of the sponsons just behind the front wheels. The hot air from these radiators exits on top of the sponsons by the cockpit and under the sponsons the shape is that of an inverted aerofoil, to create a suction or downforce. To guide the air and keep it on the straight and narrow path, the sides of the sponsons have plastic skins reaching almost to the ground. These are covered by brushes that do actually sweep the ground and ensure that any air under the car stays there until it escapes through the back. They also prevent any air going under the car from the sides. In the interest of a long wheelbase layout, the casting separating the Cosworth engine from the Hewland gearbox is the oil tank, with a hole through the centre for the clutch shaft, the clutch being operated axially through this shaft. Although the body of the car is to maximum permissible width, the cockpit itself it incredibly narrow, tapering forwards almost to a point. Engine air is taken in through 'ears' protruding on each side of the cockpit crash bar and compared with the Tyrrell the upper surface of the new Lotus is very 'craggy' and far from smooth. Two of these new cars have been built at this time, and both were shown to the press in December, ready to race. [Mario] Andretti drove 78/2 and [Gunnar] Nilsson drove 78/1 in practice, the American taking over 78/1 for the race.

MOTORSPORT



Taken from the February 1977 issue of *Motor Sport*

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*Essential info*

**Brabham BT44**

**Notable entrants** Motor Racing Developments, Goldie Hexagon Racing **Notable drivers** Carlos Reutemann, Carlos Pace, John Watson **Debut** 1974 Argentine Grand Prix **Achievements** 5 wins, 2 poles **Constructors' Championships** 0 **Drivers' Championships** 0

1974

**BRABHAM  
BT44**

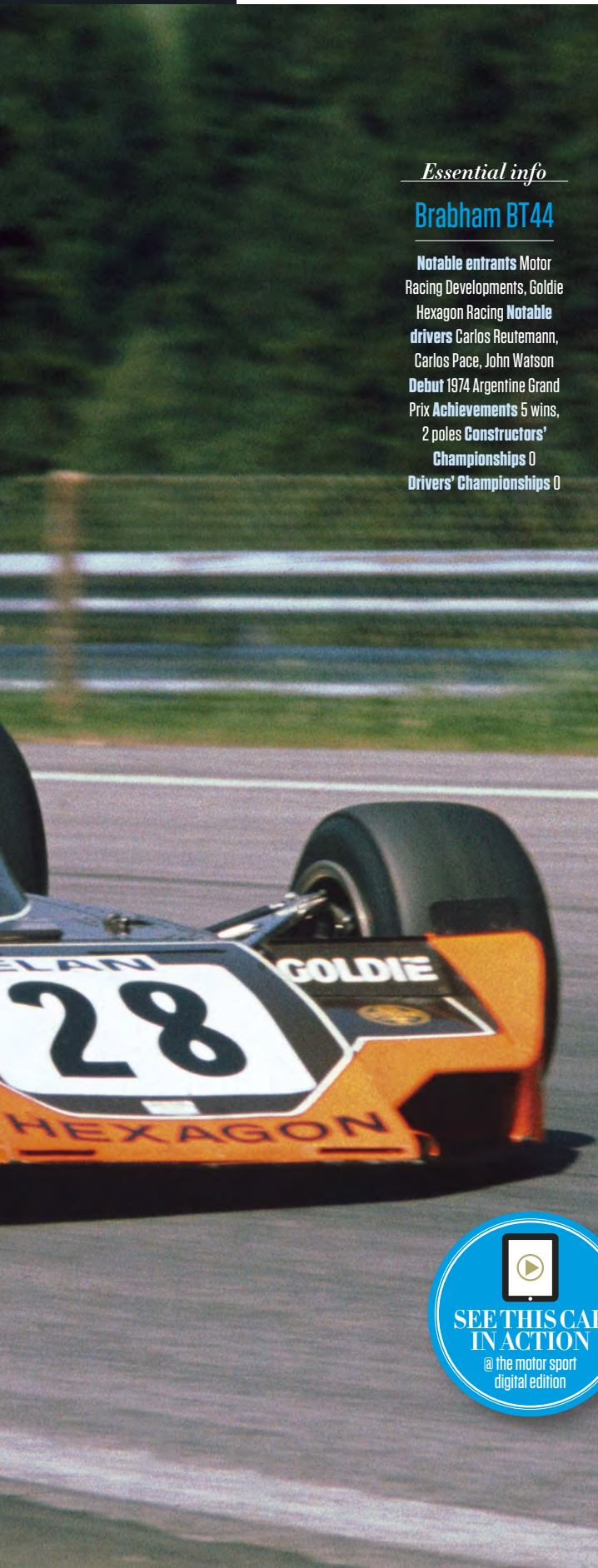


**JOHN WATSON**

*Five-time GP winner*

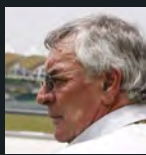
I choose the Hexagon Brabham BT44 because it was the first really great Formula 1 car I drove. I've raced lots of really good cars at all different levels but the BT44 gave me something beyond the BT42, with which I started my F1 career. This car was a significant step forward and it elevated me to a much higher level, enhanced my reputation as a driver. You always think you're giving your best, and you probably are, but this car lifted my game, took me to another threshold of performance and gave me that psychological boost that is so important to every driver.

What made the car great was the combination of good grip and balance, much better than the BT42, so I could deliver a performance without having to work hard to get it. I don't think Carlos Pace and Carlos Reutemann [in the works cars] were any better than me at the time, but they got the BT44 before me. Once I got into it, my status, if you like, was suddenly improved. »





# 1973 BRABHAM BT42



## GARY ANDERSON

*F1 designer for Jordan,  
Stewart & Jaguar,  
TV pundit*

These were the Gordon Murray-designed cars on which I worked at the start of my Formula 1 career. The things I most remember were the pure simplicity, functionality and ease with which we were able to work on them. For my first couple of years in F1 it was just as well they were simple, because previously I'd been used to working on Massey-Ferguson tractors! I joined Brabham in 1972, building F3 cars, and in '73 stepped up to F1 as second mechanic, firstly with Andrea de Adamich – in a BT37 – and then with Wilson Fittipaldi.

The lessons you learn during your formative years stay with you for life and some of what I


learned from Gordon influenced my own designs later on. If you try stuff that's too tricky, there's a fair chance that you won't fully understand it and might trip yourself. If you do things simply, getting the general principles right, you end up with a good little package. I used to sit down and chat to Gordon, trying to understand stuff about camber changes and roll centres – stupid questions that you might ask as a kid, but then I was a kid in motor sport – and he'd sit on a toolbox and answer. Those things stick with you. I had similar experiences with Gordon Coppuck at McLaren – neither would try to be a brain surgeon and baffle you with science.

Is there a direct lineage between the Brabham BT42 and my Jordan 191? I'd say so, yes. Whenever you're trying to think through an idea, you refer to the old filing cabinet between your ears – it might just be a simple fuel




connector and you'll think, 'Right, that's how we used to do it at Brabham'. The machining tools have changed in the intervening years, but the background methodology is similar.

Of the drivers I worked with in those days, Wilson Fittipaldi was a sort of prototype Ralf Schumacher – he was 'Emerson's brother', and didn't seem terribly dedicated. Carlos Reutemann was obviously very good, and one of the most laid-back people I've ever met. At Paul Ricard in 1973 he was sleeping on some bark chippings by the side of our garage. We woke him about 15 minutes before the start, he went out and did the race, then came back and went to sleep in the same place.

Carlos Pace was the one who really stood out, though. He had a lot of natural talent, a great work ethic and he was a real gentleman. We had still to see his full potential when we lost him in that plane accident. 

As soon as I drove down the pitlane I realised how good it was, it's as obvious as that, a feeling you get through your hands, through your body, and that inspires confidence. Then, out on the track, it's the way the car communicates that message to you. Gordon Murray is an exceptionally clever man. He approached design from a very lateral perspective and the BT44 was subtly a very clever car, with rising rate titanium springs, and it was the first time I realised just what a really good racing car feels like.

It had a short wheelbase, and was very narrow, and the triangulation of the chassis matched the triangulation of the 90-degree V8 Cosworth engine so there was a synergy all the way through Gordon's design criteria. The BT44 was a fantastic car and, a bit like your first girlfriend, you never forget her. 





## 2003

# WILLIAMS-BMW FW25

### JUAN PABLO MONTOYA

*Seven Grand Prix wins, Indycar champion and Indy 500 winner*



Probably the best driving car I ever had was the 2003 Williams-BMW. That car was unbelievable. It had a great balance and it was a car you could hustle like there was no tomorrow. With a V10 BMW we had close to 900 horsepower and it would rev to 19,000 rpm. It was insane!


That car had plenty of power but the good thing was it drove so well and felt so good. I've driven a lot of different race cars and some just drive awful. They might be quick but they drive awful. But that Williams had such nice balance. For me, turning in the middle of the corner is really important and that car would do that for me. I really loved driving that car, and we won some races too, in Monaco and Germany.

### SCOTT DIXON

*Three-time Indycar champion, 2008 Indy 500 winner*

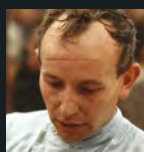


The one that really stands out was when I drove the Williams-BMW F1 car in 2003. It did everything a racing car is supposed to do. The balance was really good and the brakes were fantastic. It had all the current technology and was just a tremendous car.

Unfortunately, it was at a period of my career where I wasn't doing much road racing and hadn't done much road racing in big cars. I'd done two years of Champ Car and then spent a year before that doing just ovals in the IRL so I wasn't really able to get the best from the car. But that was a phenomenal car to drive, a real pleasure and a great memory. 

1965

# FERRARI 1512


**JOHN SURTEES**


*Seven-time motorcycle world champion, 1964 F1 World Champion*

This is not an easy choice. There are so many, and all of them so exciting. It's a strange answer, but I think, if I have to choose one, it has to be the Ferrari 1512 that I had at Monza at the end of 1965.

"I would not normally choose a 1.5 litre car, but there was something so good about the 1512 at the end of the year. I felt this really could be a very good car, and I believe it was, although it never went on to achieve very much. Despite all the problems, like the clutch failing on me at Monza that year, I knew I could have dealt with the opposition.

"If only I'd had my hands on that car for the whole season I could have really nicely cemented my championship from 1964 with

a second title. I think we could have had great success, the way that car felt. I had tremendous faith in Ferrari's engine man Franco Rocchi – he came up with some good modifications for the flat 12-cylinder engine for the end of the season but unfortunately I only raced the car once at Monza because two weeks later I had the accident in the Can-Am Lola at Mosport.

"We had problems with the car that we didn't normally have, like clutch and gearbox, but the engine was superb and it handled pretty well. It was a season where we'd been playing second fiddle, the Lotus was the car to have, and we didn't win a single race. So it was great to feel competitive again at Monza, and that's why I've chosen the 1512. 



PAUL HENNINGER







# 1996

## WILLIAMS FW18



**DAMON HILL**  
*1996 F1  
 world champion*

I have to say my world championship-winning car from 1996, no hesitation. This was a Williams made for me. Adrian Newey made sure I fitted inside the car – my biggest problem throughout my career was fitting inside a car because of my height, and my big feet, so I had some extra room in the footwell and a bit more length because I'm long in the body, too. I promise you, that car was more comfortable than going to bed at night. I could get in FW18 and just sit there, my feet up on the taps, it was just beautiful.

The car was brilliantly balanced, everything worked so well, it was just a dream. It wasn't nervous in any way, the aerodynamics were very useable and it just had such good balance. Where I sat in the car, that was the centre of everything, so with a slight bit of pressure here and there, you could move the car around, make it do your bidding. Just a delightful racing car to drive.

If everyone else is struggling, you just turned to Adrian and he'd put his egg head on, scribble something on his pad, go away and solve it. He was just such fun to work with because he's bright and you could have a giggle with him. The key to both Adrian and Patrick [Head] is that, in their different ways, they're both racers.

They both needed to win and so wanted their driver to give them what they desired. 

## Patrick Head on another Williams masterpiece

Designer Patrick Head on the significance of the car that took Damon Hill to the 1996 World Championship

Williams has achieved massive success since it scored its first Grand Prix win in 1979, but none of the team's cars has been anywhere near as successful as last year's Renault-powered FW18.

World champion Damon Hill and runner-up Jacques Villeneuve won 12 of the 16 Grands Prix, a record bettered only by McLaren's unrepeatable 15 wins with Ayrton Senna and Alain Prost back in 1988, when Honda got its sums right in the last year of turbo engines.

Williams scored 10 wins in both 1992 and 1993, the championship years for Nigel Mansell and Prost respectively, and then in the traumatic '94 season Hill scored six victories and was beaten to the title only in the last race.

In 1995 Hill and David Coulthard won only five times between them with the FW17. It was a season marked by incidents for both men, and the figure could well have been doubled; although Schumacher and Benetton did win the title, there wasn't much wrong with the FW17 by season's end. These days successful cars change very little over the winter, and not surprisingly for the Williams design team, the '96 car was only a subtle development on the previous model. The FW17 had an upgrade towards the end of

1995, which was the 17B, and that was already a pretty good car. The higher cockpit sides were the main visual difference on the FW18, but it was very much an evolution.

The cockpit sides were a key change; along with Jordan, Williams produced a very sleek, low design that met the new safety rules. Other teams were frustrated when their shapes proved less aerodynamically efficient.

In addition to the 12 wins, Hill and Villeneuve took 12 poles, losing out only to Michael Schumacher and Olivier Panis in the other four events; remarkably, Damon was on the front row for every race. For us, it was our best season. It was definitely a good car. The drivers were obviously happy with it. But as a designer naturally you remember cars from the days when there were maybe only two or three people involved in the design. Now, although it is just as satisfying to create a winning design, you don't tend to have quite such a central feeling about the car, because design is very much a team effort.



Taken from the July 1997 issue of *Motor Sport*

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### Essential info

#### Williams FW18

##### Entrant Williams Drivers

Damon Hill, Jacques Villeneuve

Debut 1996 Australian Grand Prix

Achievements 12 wins,

12 poles Constructors'

Championships 1 (1996)

Drivers' Championships

1 (1996)





## 1997

# WILLIAMS FW19




**JACQUES VILLENEUVE**

*1997 F1 world champion,  
1995 Indy 500 winner*

My favourite race car obviously was the Williams-Renault in 1997, because I could do what I wanted with it. It was a very difficult car to drive. It was an Adrian Newey car and they're always like that. They operate best in a very small window, but when you get in that window you can go a second a lap faster and we had that with that car that year. It was amazing, but it was a car that would catch us out once in a while.

It wasn't a car you could drive fast with understeer. It suited me. It was a car you had to respond to. It was like driving on ice but with a lot of grip. You were always on a knife edge but the edge with that car was so fine and if

you could live on that edge it was great. But as the tyres got old in the race and you got a little bit 'out of the window' [of performance] it was difficult to drive and very difficult to drive in the wet. But for qualifying it was amazing. You could do a lap and get out of the car and think, 'Wow, that was amazing. That was special'. You knew you had done a lap that nobody could get close to.

You could go into the last run and feel stressed out, like in a boxing match, knowing you really had to put your balls on the line. But if you did that you went two or three tenths faster and didn't know where it had come from. That car permitted you to do that. 





1973-77

## McLAREN M23



**EMERSON FITTIPALDI**  
*Two-time F1 World  
 Champion and Indy  
 500 winner*

I have driven so many great cars, in both Grand Prix racing and in Indycar, so choosing one is really impossible.

However, 2014 is the 40th anniversary of my World Championship victory in the McLaren M23, my second championship but a first for the McLaren team.

Leaving Team Lotus and Colin Chapman was not an easy decision – the Lotus 72D was one of the great Formula 1 cars of all time – but in '73 the new 72E was not so good.

I liked the potential of McLaren, they wanted to win, they wanted a championship, there was good money from Marlboro and Texaco, and the M23 had won races in '73. It was a strong car, well engineered, and reliable. I liked the team, the way they worked – not a big team but very efficient – and they had a huge desire to win.

Working with Gordon Coppuck was good: we tried long wheelbase, short wheelbase, the car was very adaptable for different circuits. It wasn't as sophisticated as the Lotus but it was very driveable and I knew we could win races.



## The infamous M23 racer

Jody Scheckter on the car he raced – and crashed in 1973

Despite the promise shown in Kyalami 1972, Scheckter had doubts about how '73 would turn out. McLaren had canned its F2 programme, and with Denny Hulme and Peter Revson the first choices in F1, only occasional GP outings were on offer. When opportunities arose, he needed to make the most of them.

At Paul Ricard — just his third GP — Scheckter found himself in Gordon Coppuck's new M23, a car that would turn out to be one of the most successful in F1 history. In France, Jody led sensationally until 12 laps from the end, when Emerson Fittipaldi made a move and the pair ended up in the catch fencing. If they hadn't already noticed before, they knew now: Scheckter had arrived.

But his rise would be pulled up short at Silverstone in July, when he triggered the infamous nine-car pile-up that decimated John Surtees' team. Jody hid in the team motorhome.

After a couple of late-season appearances, Scheckter moved on from McLaren, frustrated by the lack of opportunity. As for the M23, it would rack up 16 GP wins over four seasons and carry James Hunt to the '76 world title.

"People think of me in this car at Silverstone, with the big pile-up, but I prefer to think of Paul Ricard that year. I was competitive. It was the only time I had a senior driver in the same team as me, in Denny. When I got to Tyrrell in 1974, I was the senior driver. That didn't worry me at the time, but I wonder if I could have become more competitive by continuing alongside someone like Denny. McLaren was one of the more advanced teams back then. At Tyrrell I felt they were behind McLaren. And if you look at the cars now you'll see how refined they were compared to cars that came even much later."



Taken from the February 2013 issue of *Motor Sport*

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### *Essential info*

## McLaren M23

#### **Entrant McLaren Drivers**

Emerson Fittipaldi, James Hunt, Peter Revson, Denny Hulme, Jochen Mass, Jacky Ickx, Jody Scheckter, Gilles Villeneuve

**Debut** 1973 Spanish Grand Prix

**Achievements** 16 wins, 14 poles

**Constructors' Championships** 1 (1974)

**Drivers' Championships** 2 (1974, 1976)

We took the M23 to Paul Ricard in the winter of '73 and it was immediately fast on the short circuit. There were things I'd learnt from the Lotus 72, we developed a longer wheelbase, a wider track, and that gave the car better weight distribution and more traction. We kept on working with Gordon and I knew we could win – but I never imagined we'd get the championship in that first year.

The car felt really good at Interlagos; I was on pole and won the race. My home Grand Prix, imagine that. The race was stopped eight laps early because of heavy rain, Clay Regazzoni was second for Ferrari, and at the end of the season at Watkins Glen it was between the two of us for the World Championship. I have never felt so much pressure, not ever, but Clay was delayed by a pitstop and fourth place was enough to win my second championship, the first ever for McLaren, and the Constructors title for the M23. When I drive the car now, 40 years later, I have many good memories.

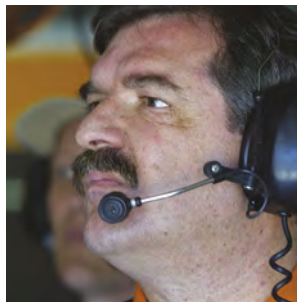






1954-55

# MERCEDES-BENZ W196




**SERGIO RINLAND**

*Veteran racing  
car designer*

The 1954 Mercedes was fantastic in every aspect everyone, except for the driver, could not see! Remember that famous photo of Fangio hitting the oil drum at Silverstone? It was the ultimate F1 car really, way ahead of its time. It was simple and refined and of course it took Fangio to his third title. They were so far ahead of the opposition it was ridiculous. For an Argentinian like me it is nice to see our hero winning in one of the all-time greatest F1 designs.

The 2.5-litre normally aspirated engine had direct injection, which is what we have now in F1, 60 years later. It was the first car to have this so it was way ahead of the development curve in F1 at that time.

It had the inboard brakes and the engine was designed on the side to lower the line of the car, to be able to sit the driver on the floor. Again, something that none of the opposition even thought about until much later really.

It used new technologies like fuel injection and it was quick and reliable, winning nine of the 12 races it entered. And that is why I probably would not choose anything 



## Return of a legend

Denis Jenkinson on the comeback they'd all been waiting for, as the new W196 dominated the French Grand Prix

Everyone interested in Grand Prix racing has been awaiting the appearance of the new Mercedes-Benz with great expectations, remembering the peak of perfection that the 1939 Grand Prix cars had reached. With Rudi Uhlenhaut still in charge of design, and Alfred Neubauer as team chief, it was reasonable to expect the 1954 Formula 1 team to be the equal of any of its rivals, and also the season of racing with the 300SL sports cars in 1952 was an obvious practice for both design and organisation departments of Mercedes-Benz. The thoroughness with which the sports car field was attacked, with well-earned results, gave an indication of what one might expect when the Grand Prix team was finally put in action.

Keeping to their promise of three cars for the French GP at Reims, the Mercedes-Benz team made its first public appearance in a race on July 4, and achieved the result of first and second, positions that were held from the fall of the flag to the finish, while the third car set a new lap record before retiring when third. Clearly Mercedes-Benz was on

form, and these racing cars, which could beat Ferrari, Maserati and Gordini on their first outing, were worthy of close inspection. The general shape of the cars, with all-enveloping body, is already well known to readers of *Motor Sport*, but what that body conceals is what interests.

Taking the power unit first of all, this is a straight eight-cylinder of 76mm bore and 68.8mm stroke, giving a capacity of 2496cc and running up to 8500rpm. The engine is mounted on its side, some 20 degrees from the horizontal. Many readers have already complained that *Motor Sport* is too pro-German, but personally I feel that July 4 witnessed the beginning of a new era in Grand Prix motor racing, similar to that witnessed in 1934 at Montlhéry, when from the point of view of technical interest the current Alfa Romeos and Maseratis were made to look obsolete. The 1954 Grand Prix Mercedes-Benz sets a new standard, but in fairness I would say that I saw a similar standard, for its time, in 1949 when I had a first private look at the BRM. Unfortunately, it was obvious that the conception was beyond the capabilities of those concerned, as has subsequently been proved, but it was just as much a landmark in the development of the racing car.



Taken from the August 1954 issue of *Motor Sport*

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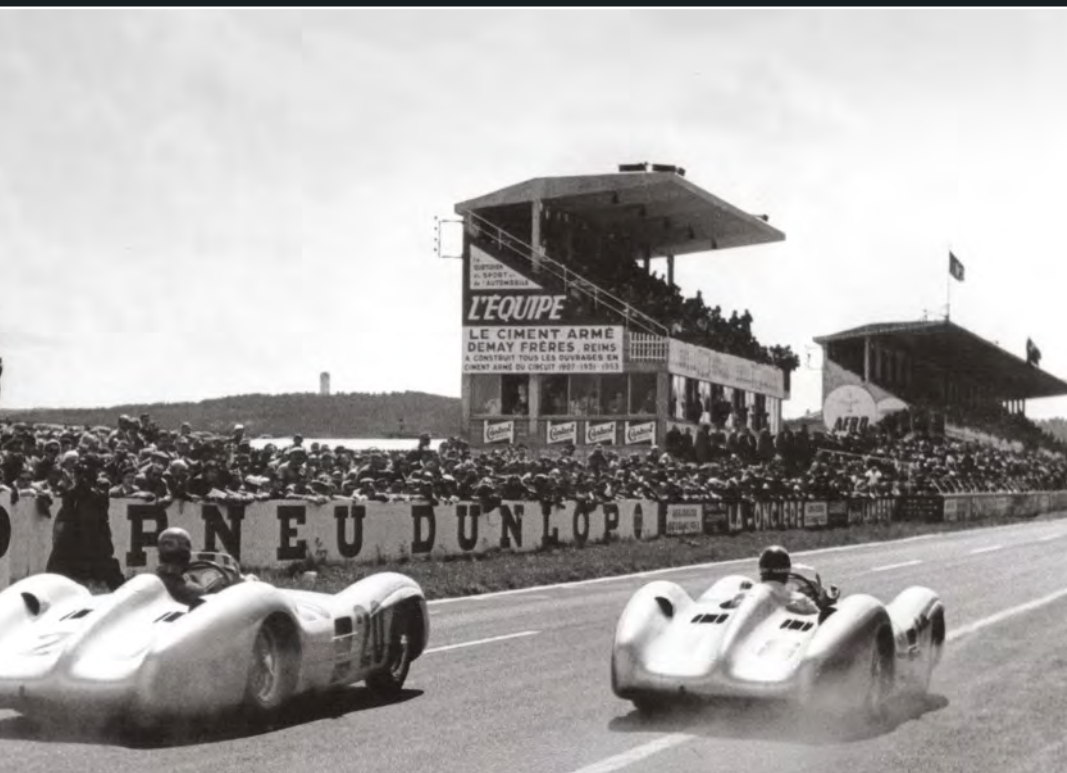


from the last 20-30 years, even when I was involved in F1. There were too many restrictions even then.

Every time I see the Mercedes-Benz W196 I look at it in wonder and awe. For the time in which it was designed and built, it is like a car from a different, future era. When you measure it against the Maserati 250F, which incidentally was a fantastic car and looked beautiful, there is no comparison from a technical perspective.

I remember Fangio saying it was not that easy to drive but you were always sure it would not break. That says a lot about the difference between German engineering and what other countries were doing at the time.

It would have been interestingly to see if Mercedes-Benz would have dominated Grand Prix racing had it not been for the Le Mans tragedy. In the 1960s we had lovely Formula 1 cars. I mean those 1500cc cars were absolute jewels, but jewels of simplicity. Mercedes was on a different level entirely and probably would have cleaned up for as long as they wanted to. 



### *Essential info*

## Mercedes-Benz W196

**Entrant** Daimler-Benz AG  
**Drivers** Juan Manuel Fangio,  
 Stirling Moss, Hans Herrmann,  
 Karl Kling **Debut** 1954 French  
 Grand Prix **Achievements** 9  
 wins, 8 poles **Constructors'**  
 Championships n/a  
**Drivers' Championships** 2  
 (1954, 1955)

1938-39

# MERCEDES-BENZ W154



**MIKE BLANCHET**  
*Veteran engineer*


The Silver Arrows Mercedes W154, at least the last three-litre V12 supercharged one, was so elemental with that great long bonnet and a massive steering wheel, that it has to be one of the greatest racing cars. It was a real brute, but sophisticated with it. I think this is what racing cars should look like, so exciting, and it must have made one hell of a spectacle.

There is a good argument for stating that it was one of the first racing cars that was thought about scientifically. Before that it was pretty seat-of-the-pants and all a bit artisan. Mercedes really looked in to things like roll centres and cambers when they designed the car and they went in to great details and every aspect to come up with this extraordinary machine.

Driving those things around the Nordschleife must have been so exciting and hairy. The drivers had to have

incredible brawn to get the best out of them. Of course you had to drive them within their own limits, but there was so much skill and energy needed just to keep those things on the track. And remember that the races then were usually three hours at least.

I think it was telling that Rudi Uhlenhaut was one of the designers on the W154. First and foremost he was an engineer, but by all accounts was as good if not better at driving than some of the regular pilots. But of course Rudolf Caracciola was the man, wasn't he? Although Dick Seaman scored some good results, especially the win at the Nürburgring in 1938.

I count myself lucky to have seen some of these cars at Goodwood and so forth. Quite what they were like to see in period, raced by those heroes, is something I can only dream about. 





## Remembering Donington in 1938

*Motor Sport's* long-time editor Bill Boddy recalls the day the W154 and the Auto Unions conquered Britain

In 1938 Mercedes-Benz had von Brauchitsch, Seaman, Lang and Bäumer as drivers, Auto Union fielding Nuvolari, Müller, Hasse and Kautz in their oversteering rear-engined V12 cars. The W154 Mercedes-Benz also had a V12, of three litres to comply with the GP rules. It was an electric occasion, the race started by the Duke of Kent, the BRDC President in Chief, German Embassy staff arriving in open Mercedes-Benzes and BMWs and Hitler's Reichsleiter Hühnlein present. Hühnlein was given a few laps in Lionel Martin's Bentley, while the Duke, after flying up from London, had some quick ones in a V12 Lagonda driven by Seaman.

Like Schumacher, Nuvolari had asked how much more of the last practice session remained, then, with minutes to spare, rotated a finger to tell his mechanic to start the Auto Union and went out to try for pole position. But Lang had gone 0.2sec quicker.

The flag fell and they got away in a crash of sound, and the almondy boot-polish aroma of burnt racing fuel hung under the trees. One lap gone and Nuvolari led, ahead of Müller, Brauchitsch, Seaman, Lang and Bäumer. Along the straight speeds rose to 170mph. Kautz's throttle struck open and he hit a bank and was out after two laps. Ten laps run and Nuvolari had 14.6sec on his team-mate and Seaman had passed von Brauchitsch. At 26 laps Nuvolari came in to change a plug, dropping him to fourth, Müller still leading and Lang picking off the ERAs as if they were London taxis.

Then drama! Hanson's Alta blew its engine, shedding oil. Nuvolari, foreseeing this, slid sideways onto the grass, bare arms putting the steering from lock to lock, and kept on. Von Brauchitsch spun twice but recovered. Hasse really lost it and hit the bank. Seaman went off and push-restarted; Lang and Müller slid but kept going. Drama again, as Bäumer had all the wheels changed and fuel put in, to leave after 35sec, against Lang's earlier stop of 33sec. With 30 laps to run, Muller led Lang by 21sec, Nuvolari by 79sec. But, as expected, Tazio gave all he had. Making fastest lap at 83.71mph with 17 more to do, he closed on Lang, whom he took on lap 67, to win the race at 80.49mph after 3hr 6min 22sec of hard work. Seaman was third, a lap behind.

As John Eason-Gibson drove me back to London in his Opel Kadett, we had much to discuss.



Taken from the June 1999 issue of *Motor Sport*

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## 1970-75

# LOTUS 72



**BRUNO GIACOMELLI**  
*F2 and F3 champion,  
GP veteran*

My favourite car of all time is the Lotus 72, Jochen Rindt's car. I loved it so much. From the engineering and design point of view it was just amazing.

I know that Maurice Philippe had a lot to do with the design of the car and that he worked on it with Colin Chapman. I got to know Maurice a little bit when he worked at March and we spent some time on the March IndyCar, which they supplied for the Alfa project with which I was involved. It was a pleasure for me to talk and work with him just for a few days in 1989 at Fiorano, where we tested. I was a secret fan of his work!

The Lotus 72, just like the McLaren M23, lasted for so long in different evolutions. I think that shows how good the car was, because it had a long and successful life. It had great aerodynamics and with inside (inboard) brakes it made the car look so clean. It also had the torsion bar



*I wish I'd designed...*

Adrian Newey on the car that inspired him as a child



For me it's the Lotus 72, an emotional choice as much as a design one. It came out in 1970 when I was 11 and getting interested in motor sport, starting to appreciate the designs. I began to build Tamiya kits. These were very accurate, very good for teaching you the names of the components and how they fitted together. They helped me appreciate the design much more than spectating did. The 72 was a pretty big lateral departure from its competitors; the cars at that time were still very much the classic 1960s cigar shape, but with wings bolted on as an afterthought. Chapman decided to go the wedge-shaped route, which was relatively novel, designing the car around the aerodynamics rather than vice versa. There was no airflow management underneath the 72, it was a first step. But it was saying, 'Let's think about the aerodynamics from the root of the design.'

It was one of the first to have its radiators ahead of the rear wheels; that follows on from the wedge shape, which dictates very little space in the nose.

I imagine that was partly for penetration, letting the front wings work as well as possible, and partly because it's a good packaging solution, with short pipe runs and keeping the weight of the radiators central, reducing the polar moment. An elegant solution, mechanically and aerodynamically.

It had torsion-bar suspension, not the first car to use it in F1, but it reintroduced the concept presumably for reduced weight and better packaging than a coil spring.

But you're creating an extra problem because you can't buy ready-made torsion bars like you can springs, it's a question of how you push design against production. Modern F1 cars, without exception, have torsion-bar front suspension, and most have it at the rear, too. It's a trend that has been followed several years later, though not necessarily for the same reasons. Lotus did a neat job of installing inboard front brakes while tweaking the wedge shape, with those little conning towers to extract the air. Today, carbon discs and





### Essential info

## Lotus 72

**Notable entrants** Team Lotus, Rob Walker  
**Notable drivers** Jochen Rindt, Emerson Fittipaldi, Ronnie Peterson, Jacky Ickx, Reine Wisell, John Miles, Graham Hill  
**Debut** 1970 Spanish Grand Prix  
**Achievements** 20 wins, 17 poles  
**Constructors' Championships** 3 (1970, 1972, 1973)  
**Drivers' Championships** 2 (1970, 1972)

and anti-dive suspension set-up, which initially had problems but was soon shown to be the future in F1.

It was a design that was way ahead of any other cars on the grid at the time, so it was 'the future' – typical of Lotus and a big vision from Chapman and Philippe.

At Monza in 1970 I was just 18 years old and only a fan. I got to the track just after Jochen's accident and couldn't understand what had happened. I remember it very clearly and was so sad. The next day Regazzoni won for Ferrari and it was like nothing had happened, very strange. The *tifosi* went crazy but I was still so sad for Jochen and that the Lotus 72 would not be in action that day. Lotus had gone home and that day I must have been the only Italian who was not interested so much in Regazzoni and Ickx.

light calipers form a relatively small percentage of the unsprung weight, but they were using iron discs and heavy calipers, so, especially with the small front wheels of the time, the brakes were a big fraction of the unsprung weight, hence moving them inboard.

I'd not seen a Lotus 72 since I was a teenager, and when I saw one a couple of years ago I was surprised at how big it was. I had the impression at the time that it was rather small, but now the

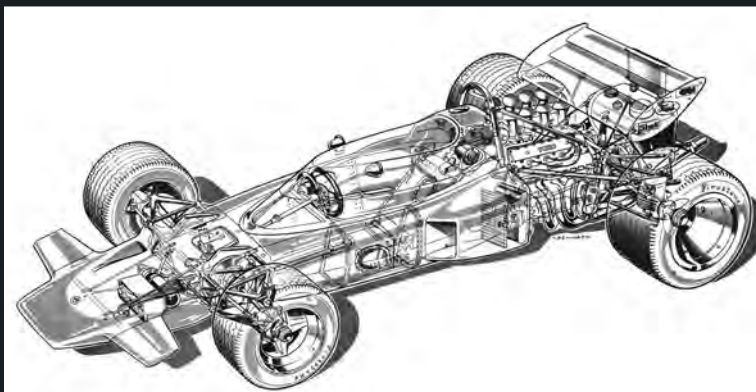
monocoque seems broad. Cars have got much slimmer now, a reflection of progress and not a criticism of the 72.

In the early years Chapman was very much the designer and engineer, but Maurice Philippe was heavily involved from the Lotus 49 onwards, so it's less clear who was responsible for what. It's probably true that, latterly, Chapman was getting more credit than he was due, when it was people working for him who were coming up with the ideas. But

nevertheless there's no doubt he was a highly talented and ingenious designer. The 72 prompted people to think about how to integrate the aerodynamics into the design, with broader wings a better overall package. Whether they copied it, or it simply triggered fresh ideas, it pushed thinking into new areas.

I believe it was quite common in those days for people to produce a new car that wasn't as good as they'd hoped, and not to understand why. You might take two steps forwards and one back and still be pleased with yourself because you had made some progress.

In a way it would be exciting because you would have to use your intuition, yet if you'd made a mistake and couldn't understand why, it must have been very frustrating.



Taken from the August 2000 issue of *Motor Sport*

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1988

# McLAREN MP4/4



**MARK HANDFORD**  
*aerodynamicist  
(with a wing 'device'  
named after him!)*

I really admired the Lotus 79, because it was winning everything when I started to take a proper interest in racing.

But the McLaren MP4/4 was the first car that I remember being so dominant and it was at a time when I was just starting in racing. A little later on I worked with Steve Nichols a little at Benetton and he actually told me that it was so much better than they first expected. Obviously they had favourable conditions, because in 1988 I think Honda had lobbied for – and optimised – technical regulations that favoured them considerably, especially when it came to the fuel consumption.

The V6 was also quite small and low lying, which was perfect for a chassis that had similar traits and was a

## *The dawn of a new challenge*

Denis Jenkinson reflects on the MP4/4's winning debut in Brazil

At one time, a brand-new car winning its first Grand Prix was an outstanding achievement, but nowadays it seems to be an accepted thing, especially where McLaren International is concerned.

At the end of last season the McLaren TAG-Porsche contract ended and the Woking-based team, masterminded by Ron Dennis, switched its allegiance to Honda for the supply of engines. This meant a major redesign of its cars, and the best thing to do was to start from scratch with a clean drawing board.

The very successful Porsche-powered McLarens had been designed by John Barnard, and when he left to join Scuderia Ferrari much of his design philosophy and thinking naturally remained behind with those who had been working with him. Gordon Murray moved from the Brabham team to McLaren as technical director, and found waiting for him a highly skilled and dedicated workforce led by Steve Nichols and Neil Oatley, who were more than capable of carrying on where Barnard had left off.

With the change to Honda power in the offing, there was little point in doing much during 1987 other than continue development of the existing car. But once the 1987 season was over, work could start in earnest on something entirely new.

From the performance of the MP4/4 in Brazil, one can estimate that, at 2.5 bar boost pressure and mixture adjustments to go through the race on 150 litres of fuel, the Honda engine is probably giving 650-700 bhp.



Taken from the May 1988 issue of *Motor Sport*

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### *Essential info*

## McLaren MP4/4

#### **Entrant McLaren Drivers**

Ayrton Senna, Alain Prost

#### **Debut** 1988 Brazilian Grand Prix

**Achievements** 15 wins,


15 poles

#### **Constructors' Championships** 1 (1988)

#### **Drivers' Championships**

1 (1988)

carry-over from the 1987 car. I'm not sure if Steve was miffed about everyone saying they had this low-lying cockpit because Gordon Murray had come, but you couldn't blame him if he was because, as far as I know, Gordon didn't have a whole lot to do with the MP4/4.

It is a matter of history and legend now that Senna and Prost won all but one race – and they should have won the lot. The car was so clean looking and sleek. I think that if you are going to choose one car, then this would have to be it because it had pretty much everything: great handling, inherent pace, good power, reliability and it also provided two of the greatest ever drivers with a platform to put on a thrilling and dominant display. 



*Essential info*

**Williams FW14**

**Entrants** Williams Drivers

Nigel Mansell, Riccardo

Patrese **Debut** 1991

United States Grand Prix

**Achievements** 17 wins,

21 poles **Constructors'**

**Championships** 1 (1992)

**Drivers' Championships**

1 (1992)

1991-92

**WILLIAMS  
FW14 & 14B**



**MARK BLUNDELL**

*1992 Le Mans winner,  
61 GP starts, Champ  
Car race winner*

The Williams FW14 was as close as it comes to perfection for me, really. It was just a pleasure to use. It did whatever you wanted it to do and as a driver you can't ask for much more than that.

It was quite a strange time for me, actually, because I was testing and developing the FW14 in 1991 when I was actually racing for Brabham. There were no issues between the teams with me doing both – in fact Brabham was quite pleased because the team was developing the fairly unusual Sergio Rinland BT60Y and they would ask me about the Williams all the time.

I remember going to Imola in early '91 and going two seconds quicker in the FW14 on race tyres than I had with the Brabham on qualifying tyres. It was night and day really. I remembered thinking about that quite deeply when we were getting up at the crack of dawn for pre-qualifying!

The FW14 was quick, had amazing downforce levels and that great Renault V10 engine. After some initial bugs were ironed out it was reliable, too. It was actually the first generation of car that used a blown

GOOD YEAR

mon



underwing concept. When you planted the throttle you felt it just suck down on to the track and the thing was cornering on rails. It was just the most harmonious car I have ever driven, there were no weak areas.


Every single change that you made on it would show up immediately.

I worked closely with Patrick Head and also a young guy who had just started at Williams – Paddy Lowe! Then there was Adrian [Newey], who pioneered the FW14 and its performance. It was a ‘supergroup’ of talented people and, looking back, it was quite a formative experience for me as a young driver.

There was a huge amount of development going on, particularly with the active systems and other gizmos. Driving that car was quite influential in my decision-making process, because it made me realise the gulf between the big teams and the not-so-big teams. I realised

that doing proper due diligence on career moves was very important!

I had been testing for Williams since 1989 and actually I was scheduled to take part in the planned non-championship race at Donington in 1990. It was meant to happen on Easter weekend and I was going to drive an active car, but it never happened and I was destined never to race for Williams, which was a big shame.

I was not surprised that Mansell dominated so much in 1992. The FW14B suited him because he was capable of completely trusting the car and its downforce. Physically the cars of that era were so much tougher than today’s. Just look at the shape of me and Mansell compared to modern drivers. We had bigger top halves by far because power steering was still not part of the package, although it was just being developed. You had to hustle the cars much more, even a great one like the FW14. 



## *Mansell, the master of traction control*

Patrick Head on Nigel Mansell’s skill in making the most of the system that made the FW14B so dominant in 1992

Nigel proved to be particularly adept at getting the best from FW14B, whereas the car troubled Riccardo Patrese — even though he’d been fully competitive with Nigel in the previous year’s FW14.

Nigel showed little interest in active ride in 1986 and ’87, when we ran the Honda engines with him and Nelson Piquet, and when he came back from Ferrari in ’91 he still wasn’t that interested until he heard about the lap times Damon Hill had been achieving in testing. By that time he was also more convinced about its safety. Our active control responded to changes in load

distribution, but there was always a small period before the system corrected, and during that period the usual feedback to the driver was not present. There was a fraction of a second delay and it felt to the driver as if he didn’t have roll stiffness or roll resistance. Riccardo found that hard to deal with but once Nigel had worked out that, on the other side of this correction, the grip was still there, he learnt to ignore the slightly floaty initial feel of the car.

Our active system had fixed front-to-rear roll stiffness distribution, but we

were able to adjust the balance of the car powerfully by altering the angle of attack — in effect changing relative front and rear target ride height. We could do this ‘on the fly’, eliminating any understeer or oversteer characteristic, applying the correction continuously to each metre of the track. To partly overcome the response lag of the system mentioned above, Paddy Lowe applied ‘feed-forward’ [an ‘early warning’ signal], in part predictive and in part responding to sensed lateral and longitudinal acceleration.

Had active been permitted in 1994, we would have moved away from the AP-based ‘tripod’ system towards the [four-channel] system eventually used by McLaren, and now partly present in pitch and roll control on the MP4-12C road car. So active ride has not completely gone.



Taken from the March 2012 issue of *Motor Sport*

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# 1993

## WILLIAMS FW15C



**KARUN CHANDHOK**

*F1 and sports car driver  
– and super-fan!*


I really admire the Lotus 49, the Porsche 956 and the McLaren MP4/4 which are all iconic cars. On looks I suppose the 1990 Ferrari 640 has to be up there too as it was gorgeous. But for me the Williams FW15C is the greatest car of all time because racing is all about technological innovation and it had the lot.

It was my dream car when I was a kid, but it certainly wasn't Alain Prost's – although it did bring him a fourth title. When I spoke to Alain about it he wasn't that keen on the memories of driving it in '93. I am sure he appreciated that it was technologically advanced, but he said that he felt he could not attack a corner the way he did in a passive car.

The design team on that car reads like a who's who of F1 these days. Newey, [Geoff] Willis, [Paddy] Lowe, plus David Brown as Alain's race engineer. What a team, and that is without even mentioning Patrick [Head] and Sir Frank [Williams].

I haven't driven a 15C but I did have a go in Patrese's 1992 FW14B from 1992 at Turweston airfield a few years ago. There were a few corners we put into the airfield with cones and it was mega to get an appreciation of the grip levels. It was very funny because the engineers had to bring these early 1990s MS-DOS laptops to run the software and systems.

But by 1993 the FW15C had everything on it and will probably forever be the most advanced F1 car in terms of the systems it had running; ABS, full hydropneumatic active suspension, fly-by-wire controls, anti-lock brakes and full traction control. Just incredible, no wonder Alain called it a 'little Airbus'.

Alain was given a FW15C for winning the title in '93, but he sold it in 2011. To maintain it in good standing condition you have to keep pressurising the hydraulic systems and Mrs Prost got very pissed off because the fluid kept leaking all over the garage floor! 





## 1987

# TYRRELL 016



### JONATHAN PALMER

*1981 British F3 champion, 1983 European F2 champion, 82 Grand Prix starts*

It was a transitional time for F1, the start of the crossover between the first turbo era and natural aspiration. Tyrrell opted to take the non-turbo route and there were only six cars in our separate class. The 016 definitely wasn't pretty, but I trusted it. I had a very good engineer in Brian Liles and got some decent results with it, including fifth at Monaco and fourth in Adelaide, which was my best F1 result. It had a bigish tub, but it reacted to changes in a logical, methodical way and I felt able to chuck it around. I was particularly happy with that Monaco performance.

As a driver you always want to be able to

improve your set-up and you build a mental database of what you can do to address certain problems, in terms of springs, dampers, roll-bars, wings or whatever. Between Brian and I we could usually work out how to get the best from the 016, but we also had a very clever device – a knob that adjusted the front ride height via a hydraulic system. You could use that to vary the balance. In those days, of course, we had one set of tyres for a race distance and started with a full tank of fuel, so the balance was inevitably going to change. From an aero perspective, being able to lift or drop the front was a major bonus.



I felt pretty comfortable in the car straight away, but then I'd spent a couple of years racing Zakspeeds. That season, Martin Brundle and I effectively swapped places. We were both at one of Jackie Stewart's Gleneagles shooting events as we were finalising our deals and eventually admitted to each other what we were doing. I felt pretty quickly that I'd got the better end of that deal...

It was great working with Ken Tyrrell, who was always very direct. I had a one-year deal, with options for the following two seasons, and remember having dinner with Ken in the Suzuka Circuit hotel towards the end of 1987. I asked whether we were still on for the following year and he replied, 'I don't know yet'. I'd won the Jim Clark Cup for the team, but nothing subsequently happened and I began to wonder whether I'd be staying.

Then, at about midday on November 30, with the option just about to expire, he rang me at home. 'Hello Jonathan, Ken here. Just taking up the option. Thanks, bye-bye...'

That was how he worked, but it was a very, very happy team.

## 2005 RENAULT R25



### ROBERT KUBICA

*2008 Canadian GP winner; serious injury prompted WRC switch*

I'm a circuit driver so it's normal that I will always choose a single-seater because I have grown up in this world, not in rallying.

The first time I drove an F1 car was the Renault from 2005 and it's my best car. It happened at Barcelona in December 2005 and was my prize for winning the World Series by Renault title.

We were driving the V10, but limited to V8 power – although in the pitlane you had a full V10 before the limiter cut in. Every time I switched to V10 there was a big smile. But the V8 was still impressive, although there was also the combination of the tyres and the way the car handled that made it very special.

Actually the tyres were really playing a big role. They were the days when F1 had the best tyres, because of the big competition between Michelin and Bridgestone, and they made a big difference with how the car was to drive.

I would like to drive the car again now, but I would probably be too fat...





2004

## FERRARI F2004



**ROB SMEDLEY,**  
*Long-time Ferrari F1 engineer,  
now working for Williams*

The best thing I ever worked on was the 2004 Ferrari. It was just absolutely the perfect racing car, just massively impressive. It was an epic proposition in all departments.

It really had it all at every single circuit, whether high-speed, low-speed, whatever. You could have done the bloody Mille Miglia in it and it would still have won! In qualifying trim, in race trim, whichever driver you put in, it was just very quick and well balanced.

It was my first full year at Ferrari and I was on the test team. I couldn't believe the levels of excellence at first, because when you think about Ferrari at that time, the speed at which they got things through the door was sensational. They were just pushing a huge amount of development through. They had this

massive appetite to dominate and they did from 2000 to 2004. It was hard work at the start with the development, but it paid off because we won all bar three races that season.

Michael just destroyed everyone that year. There is no doubt about it – even a journeyman driver would have won with that car. It was so good, but in Michael's hands it was devastatingly good.

We tested the car very late in order to maximise development. Michael was the first one to test it. He was in the old car at Mugello and went out for a long run. Then he switched to the new one and came back after a few laps with a massive smile on his face. 'Now this is a seriously quick racing car,' he said. He was laughing as he spoke! 🧩🧩

# 1992

## LOTUS 107



### JOHNNY HERBERT

*1987 British F3 champion,  
160 Grand Prix starts, 3 wins*

Big fat tyres, big wings... This was my idea of a Formula 1 car and you had to be really aggressive to get the best from it. All drivers want a car that's balanced and responds to changes, which the 107 did. It was quite sensitive to wing adjustments and that allowed you to dial it in as you wished.

We had a lot of reliability problems during the season, but it was a sublime car to drive and you could be really brutal with it on the way in to fast corners. You could stop and turn at the end of a long straight – into the Adelaide hairpin at Magny-Cours, for instance – and the car would just dig in and go. That actually suited me, because with the after-effect of my serious leg and foot injuries [sustained in an F3000 accident at Brands Hatch, 1988], I found things more difficult when a little

sensitivity was required. That wasn't an issue with the 107 – it was brilliant to drive and very satisfying to wring its neck.

One race that stands out is Silverstone 1992, for two reasons. Mika Häkkinen and I were running about fifth and sixth in the two 107s, with me ahead, and it was the first time I'd run in the points at my home Grand Prix. Gearbox failure eventually put me out, but to drive such a car at that mega-fast track was fantastic, with a huge crowd cheering on Nigel Mansell and the Brits. It was wonderful to be part of that.

The day's other highlight? Mika was arrested on his way to the track, for driving on the wrong side of the road in an attempt to beat the traffic. While he was at the cop shop, I had to try both cars in the warm-up and went four tenths faster in his than I did in mine.



1985


## BRABHAM BT54

**MARC SURER***1979 European F2 champion,  
82 Grand Prix starts*

I feel a bit guilty, because today's drivers never had the chance to experience what I did – more than 1400bhp in qualifying trim. It was the only top Grand Prix car I ever drove and it's hard to describe what it was like with an unlimited turbo on a qualifying lap. You had wheelspin all the way up to fourth gear... The straights always felt too short.

It was very hard to adapt to the extra boost, for me at least. Nelson Piquet could do it: he'd go out and immediately find two seconds. I'd find one second on the first run and perhaps another on the second, but he was able to adapt immediately to qualifying tyres and the extra boost. You arrived at the corners so much faster than you had in practice and didn't believe you could get around at that speed, but

then you braked, turned in and thought, 'Shit, it was possible', so next time you'd try it. I found it tricky, but Nelson had grown up with that engine and just got on with it. You couldn't practise in that configuration, though, with the wastegate closed and more than six bar, or you'd blow the engine.

It was also a chance to work with a professional team under Gordon Murray. I learned such a lot, because this sport is about the people as well as the car. [Current FIA race director] Charlie Whiting was my race engineer and a very good one. He worked through things very logically, calmed me down when necessary and sorted everything step by step. That car was like a cannonball, though, even on half throttle... 





## 1989

# MINARDI M189



**LUIS SALA**

*1987 FIA F3000 runner-up,  
26 Grand Prix starts*

The first F1 car I drove was a Coloni – not exactly the quickest chassis of its time, but it still felt like a huge step up from F3000. I remember sitting in the cockpit at the end of the test, as everything went quiet, and thinking, ‘Wow, this is really good’. Compared with the other F1 cars, though, it was very slow. The Minardis I raced were another step forward.

The M189 wasn’t always nice to drive, but when we got the set-up right it was lovely. The highlight was Silverstone – not just because I

finished sixth, to score my only championship point, but my team-mate Pier-Luigi Martini was fifth and together we did enough to prevent Minardi dropping into pre-qualifying for the rest of the season.

Remember that? It was terrible. You’d be at the track at about 6am on a Friday morning, to prepare for an early, one-hour session, and if you weren’t among the fastest four your weekend was over and you’d head home to watch the Grand Prix on TV.

GREAT RACING CARS

SPORTS





# SPORTS CARS

It's not always about race wins. Sometimes the sheer aesthetic appeal of a car can hook an onlooker, even lead a youthful spectator into a motor racing career. A sports car's graceful flanks give more visual leverage than the skeletal form of a Grand Prix car, as some of our respondents affirm. Others choose a mount that brought them victory, including the greatest sports car prize of all, or a test-bed for ingenious technology of a sort that's banned from today's F1. From tube-frame Fifties to today's composite wonderships, sports cars retain a unique appeal. »





### Essential info

### Jaguar XJR-14

**Entrant** TWR Jaguar **Notable drivers** Teo Fabi, Derek Warwick, David Brabham, Davy Jones, Martin Brundle **Debut** 1991 Suzuka **Achievements** 6 wins, 11 poles (WSC & IMSA) **Constructors' Championships** 1 (WSC: 1991) **Drivers' Championships** 1 (WSC: 1991)

# 1991 JAGUAR XJR-14



### MARTIN BRUNDLE

*1988 world sports car champion, 158 F1 Grands Prix*

The XJR-14 stuck to the ground, gave you confidence, did everything it was supposed to do and was an absolute pleasure to drive. I used to challenge myself in it, because you'd go through a corner with so much speed and think, 'I can't believe I just did that. Right, see if you can do this, then...' It was almost a lap by lap personal challenge. It was a Ross Brawn car, basically a single-seater with bodywork, and I was involved from the get-go, having sat in a balsawood buck, choosing where I wanted the steering wheel, gearlever and all that sort of thing.

The stand-out races were probably Monza, where I finished first and second, and Silverstone, where I lost 10 minutes with a broken throttle cable but still finished on the podium. I took three laps out of Schuey and his gang with the Merc, five out of the Peugeots and two out of my own team-mates, while driving solo. I thought that was a reasonable effort.

It was a car in which I felt totally and utterly at one.

**DEREK WARWICK**

*Le Mans winner, 1992  
world sports car  
champion, 147 F1 GPs*

I'm tempted to choose my little Hawke DL15 Formula Ford, which was a pretty incredible car, but I'm going for the Jaguar XJR-14, a pure thoroughbred, a Formula 1 car with clothes on and spectacular to drive. I tell you, that Ross Brawn car was just unbelievable, probably the best racing car I've ever driven.

The Jag was the first small, nimble Group C car because before that we had the Porsche 956 and 962, the big V12 Jaguars, and the XJR-14 simply moved Group C into a different era. This was a real thoroughbred racing car.

I remember the first time I sat in it,

at Silverstone on the South Circuit, and I did the installation lap, came in, spoke to Ross, and said, 'This car is just incredible'. And that was just an installation lap, it was that good, I knew immediately.

On my first flying lap, through the right kink by the makeshift pits we had at that time, there was always a dab on the brakes, or you'd come down a gear. But not with that Jaguar. It was flat in top gear... and it made me laugh, because I could see all the guys ducking down behind the barrier because they thought the throttle must have stuck open. 🏁





## The 'fat' F1 car

The sports car that had no doors

The 3.5-litre Group C formula encouraged a new breed of sports car based around F1-spec engines, but it didn't mandate it. The chassis rules were largely the same as for the old fuel-formula Group C machines, save a new weight limit of 750kg, down from 900kg, and a concession to allow perspex windscreens. What wasn't the same was the mindset of Ross Brawn and the design team he had established at Tom Walkinshaw Racing, after his recruitment from Arrows after the end of the 1989 F1 season with instructions to spend a whole year designing the car around Cosworth's Ford HB V8.

"The starting point was the question: how keenly can we interpret the regulations?" explains Brawn. "We took a very competitive interpretation of the rulebook from a structural and aerodynamic perspective."

Just look at the XJR-14 in our photos, resplendent in surely the best of the Silk Cut liveries. It looks like nothing that came before it. Group C sports cars of the day had doors. The XJR-14 had windows that popped out — a mechanic was assigned to play catch at pitstops. It was central to the concept of creating what chief designer John Piper calls "a fat F1 car".

"There was a regulation stipulating the size of the [side] window and the size of the door," he explains. "We made them the same thing. That meant you didn't require a dogleg in the tub, which meant you could have a narrow, high-sided and very stiff monocoque."

The narrow chassis allowed the TWR technical team to move the radiators out of the nose and into the sidepods, freeing up the nose for aerodynamic gain.

Here again, TWR came up with a novel interpretation of the rules to get sufficient airflow behind the front wing that distinguished the XJR-14 from its forebears.

Brawn again: "We checked the crash-test regulations and it stated that there could be no damage to the survival cell beyond the pedal line. That meant there was a large chunk of the chassis that you could damage and that allowed us to achieve the short nosebox."

The XJR-14 chassis, produced by TWR's in-house ASTEC composites company, didn't quite make it through the test as planned. The damage to the monocoque was more extensive than envisaged, which meant the pedals had to be moved backwards.

That wing was crucial — though never entirely successful — in trying to balance out the massive amounts of downforce generated from the underside of the car courtesy of another bit of clever rulebook interpretation.

Piper: "The rules stated that you could have a two-element rear wing, but there was no regulation on the distance between them. So we put the second plane down level with the diffuser, which effectively gave us a massive extension."

That explains downforce numbers that were, according to Brawn, "an order of magnitude more than were being achieved in F1 at the time". He points out that the Jag was capable of lap times that would have qualified it on the back of an F1 grid. "You could work it out," he says. "We were nearly 250 kilos heavier than an F1 car, and today that would equate to 10 seconds."



Taken from the January 2013 issue of *Motor Sport*

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## 1982-85


# PORSCHE 956



**DEREK BELL**  
*Five-time Le Mans  
 24 Hours winner*

It's a tough choice, with so many good cars, but I'm going for the Porsche 956. In December 1981 I had lunch with Professor Bott, the man in charge of Weissach, and he invited me to race the Group C 956, which later became the 962.

Porsche had never built an aluminium monocoque chassis before, never built a ground-effects car, and never put a flat-six engine in a monocoque chassis, so I wasn't sure I wanted to do it. But Professor Bott said, 'We have never been wrong before' so I signed up. And yes, it was a great car.


The most memorable drive in the 956 was Le Mans 1983. Jacky Ickx and I were chasing a hat trick of wins but Jacky got taken out under braking for Mulsanne Corner and we lost a lap. We fought back from last place without abusing the fuel strategy and took the lead at dawn on the Sunday. I passed Vern Schuppan on the Mulsanne Straight and then the engine stopped as I got to the corner. Not being mechanically minded, I had paid close attention to 



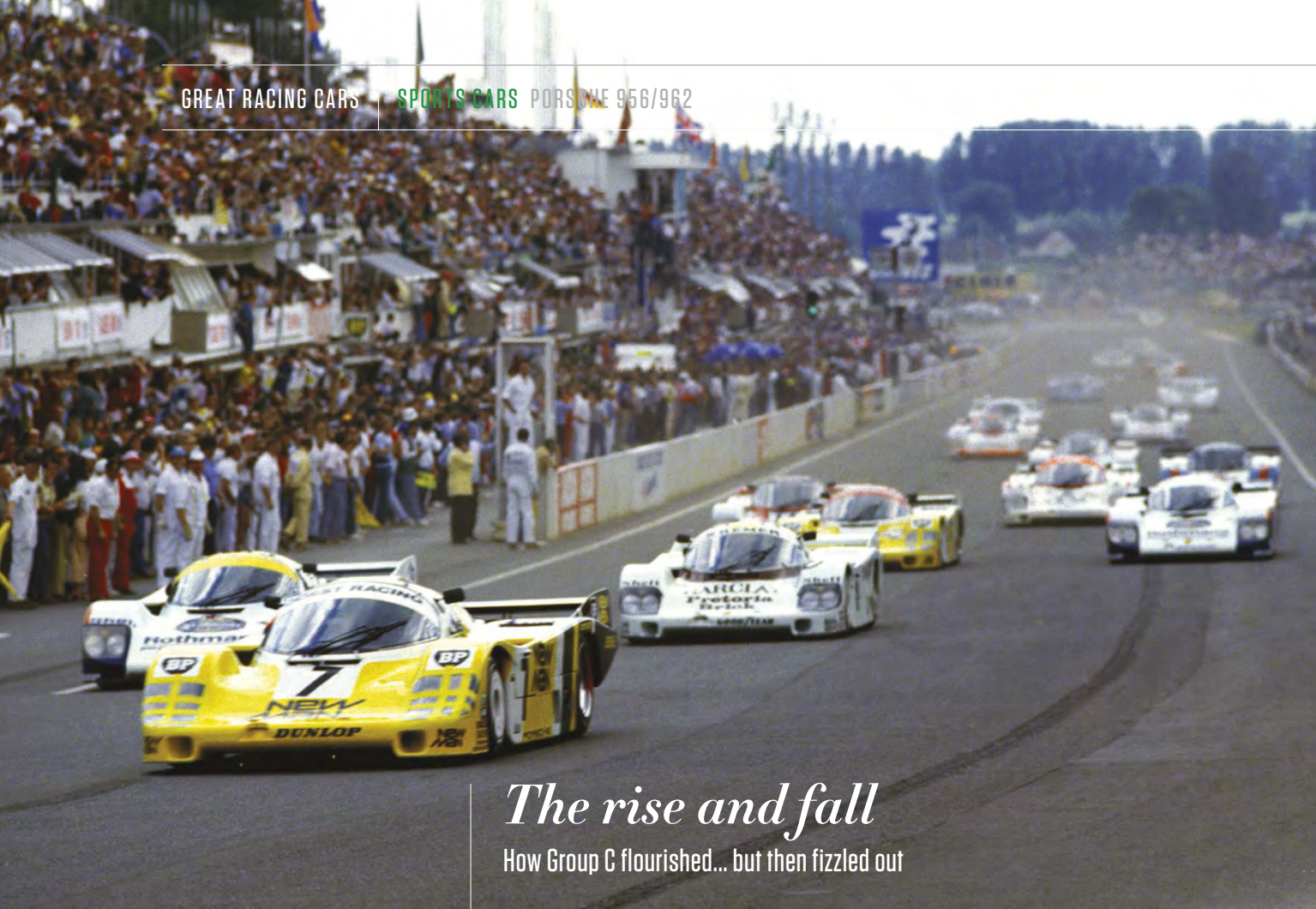




the briefing on what to do if the motor stopped, and so I changed the coil, the flywheel sensor and the electronic box, turned the key and she started! Jacky took over and we were back up to second and closing on the lead by noon. Then we had to change the oil cooler. By now I was tired and losing interest, but we were still second. With 90 minutes to go it looked like the brake discs were cracked and needed changing. Norbert Singer told me it would take at least four minutes to change them, and the only other option, he said, was ‘just drive slowly’, so that’s what I did, using the gears to slow down – not easy from 350kph on the Mulsanne.

I set a new lap record in my final stint but we couldn’t catch the Schuppan/Haywood/Holbert 956 and finished just 17 seconds adrift at the end. The other car, we discovered, could not have done another lap as they’d had overheating problems. That was a special Porsche 956 memory. 





## The rise and fall

How Group C flourished... but then fizzled out

### Essential info

#### Porsche 956/962

**Notable entrants** Porsche, Joest, Brun, Kremer, Richard Lloyd and many more **Notable drivers** Jacky Ickx, Derek Bell, Stefan Bellof, Al Holbert, Hurley Haywood, Jochen Mass, Hans-Joachim Stuck, Bob Wollek, Klaus Ludwig, Henri Pescarolo, AJ Foyt, Al Unser, Al Unser Jr, Vern Schuppan, Chip Robinson, Bobby Rahal, Jo Gartner, Mauro Baldi... **Debut** 1982 Silverstone 6 Hours **Achievements** 97 wins, 71 poles (WSC & IMSA) **Constructors' Championships** 8 (WSC 1982-86, IMSA 1985-87) **Drivers' Championships** 8 (WSC 1982-86, IMSA 1985-87)

It had been great while it lasted. The 1992 FIA Sportscar World Championship was proof of that old adage that you only need two cars to make a motor race, although strictly speaking there were as many as four or five front-running cars per meeting; those rounds that weren't cancelled, you understand. Political machinations had served to neuter the series before the season had even begun. It was a sad end for anyone who witnessed Group C in its pomp, a wonderful era of sports car racing that left an indelible impression.

Arriving in 1982, this was a category that breathed new life into an arena of motor sport that, like a dead horse, had been flogged once too often during the previous half-a-decade. Grids during the Group 6 period waned as manufacturers departed in droves, and the few that lingered racked up hollow victories over a ragtag bunch of privateers.

FISA responded with a series based, if only initially, on fuel efficiency. This acted as a stabilising force and attracted former Grand Prix stars, young hotshots looking to forge a reputation, competent journeymen and local heroes. Oh, and

manufacturers. In North America the movement gained similar momentum, although typically they did things their own way. FISA's hopes of fashioning a link with the International Motor Sports Association failed to reach fruition after IMSA's committee rejected the fuel-based regulations. Instead it introduced an equivalency formula – Grand Touring Prototypes – based on engine size and weight. It too flourished, with Indycar and even NASCAR stars racing on free weekends against established sports car aces.

It was fantastic. Then F1-style engines arrived in 1991, leading many to surmise that this was merely a smokescreen to entice manufacturers into jumping ship to F1. Costs rocketed, factory teams made for the door, and in '92 Group C died a pitiful death, IMSA GTP lasting one further season. Game over.



Taken from the July 2012 issue of *Motor Sport*

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## 1986-94

# PORSCHE 962



**HANS STUCK**  
*Two-time Le Mans  
winner, 74 GP starts*

Throughout my entire career, the Porsche 962 was the ultimate racing car. The combination of power, downforce and grip from those wide tyres made it something special.

It was a car that required bravery. You had to turn off your brain in the high-speed corners and you really needed big balls at places like Eau Rouge. But you always felt safe in this car. It wasn't tricky in any way, so that encouraged you to drive it fast.

My favourite 962 was the car I raced with the factory in the German Supercup races during the mid-1980s.

Everything was on the limit and we had a lot of power because they were shorter races.



**EJE ELGH**  
*F3 & F2 race winner,  
long-time endurance racer*

Why the Porsche 962? I raced them in Europe, Japan and the States – all over the place. It had so much grip, particularly at the rear. That made it a bit of an understeering pig, but once you learned to cope with the understeer you had all that rear grip to give you confidence and it made you feel like the best driver in the world. It had lots of torque and was actually a bit of a beast, but I rather liked that.

Sometimes I drove other Group C cars – a Toyota, for instance – with light power steering and a very sensitive rear end, but I never really enjoyed that. I wanted a car you really had to take by the scruff of the neck just to get it to turn in.







*Essential info*

**Porsche 917**

**Notable entrants** Porsche, John Wyer Automotive

**Notable drivers** Jo Siffert, Pedro Rodríguez, Brian Redman, Vic Elford, Hans Herrmann, Richard Attwood, Kurt Ahrens, Leo Kinnunen, Helmut Marko, Gijs van Lennep

**Debut** 1969 Spa 1000Kms

**Achievements** 15 wins, 11 poles (WSC) **Constructors' Championships** 3 (1969-71)

## 1969-71

# PORSCHE 917



**HELMUT MARKO**

*1971 Le Mans winner, 10 Grand Prix starts, Red Bull linchpin*

I can't recall whether it felt better in long- or short-tail guise, but when the handling was sorted it was an unbelievable car. My victory at Le Mans apart, I recall leading my first race in a 917, at the Österreichring in 1970, but it ran out of fuel and failed to finish. We introduced ABS at the same track one year later, but that failed and Gérard Larrousse and I retired after an accident.

It wasn't an easy car to set up and I never found it particularly easy to drive, with all that power. It was a bit of a monster, but perhaps that's what we're missing in modern Formula 1 at the moment – something to separate the men from the boys. **D**

## *Birth of Porsche's most celebrated racer*

The story behind the legend

The Porsche 917 was born from regulations aimed to make sure such a car was never built. In 1967, alarmed by the expense of prototypes such as Ferrari's P4, motor sport's governing body the CSI decreed that from 1968 all prototypes would be limited to 3 litres. It was a rule you could only duck if you produced 50 examples, something no one building three or four highly specialised racers could countenance.

Fortunately for Porsche and marques such as Lola who stood no chance of manufacturing 50 of its T70s, the CSI cut the requirement to 25 examples. This would allow cars such as the Lola to race while restricting the big boys to a 3-litre limit.

At Porsche, Ferdinand Piech thought differently and presented a 917 plus 24 sets of parts for inspection. When this was rejected, he turned the parts into cars, ready for inspection in April 1969.

It was Piech's masterpiece, a car created from an almost uniquely harmonious marriage of technical innovation and pragmatism. The result was a super-light racing car, with huge power and, ultimately, almost impregnable reliability. The lightness came not simply through the use of trick materials such as titanium and magnesium, but by pushing more mundane materials to unprecedented levels. The outer skin of the glass-fibre bodywork, for instance, is just 1.2mm thick and complete with the windscreen, perspex, seats, wings and even the wiring loom, weighs just 95kg.

The flat-12 engine, far from being a leap into the

unknown, was based around technology Porsche had known for years. Each cylinder was fed by just two valves and the reason Porsche did not bother at first to use the full 5-litre allowance was simply that the engine was, at its heart, that of a 3-litre 908 with another four cylinders grafted on. Many components were common to both, the engines differing most in the method of power take-up which was from the end of the 908 and the middle of the 917 unit. This meant the 12-cylinder car could run with, in essence, two short and stiff crankshafts thereby allowing the engine to rev higher.

According to Porsche figures, a 1969 4.5-litre 917 engine produced over 580bhp, rising to more than 620bhp for the 5-litre motor for 1971. Kerb weights rarely rose much above 800kg.

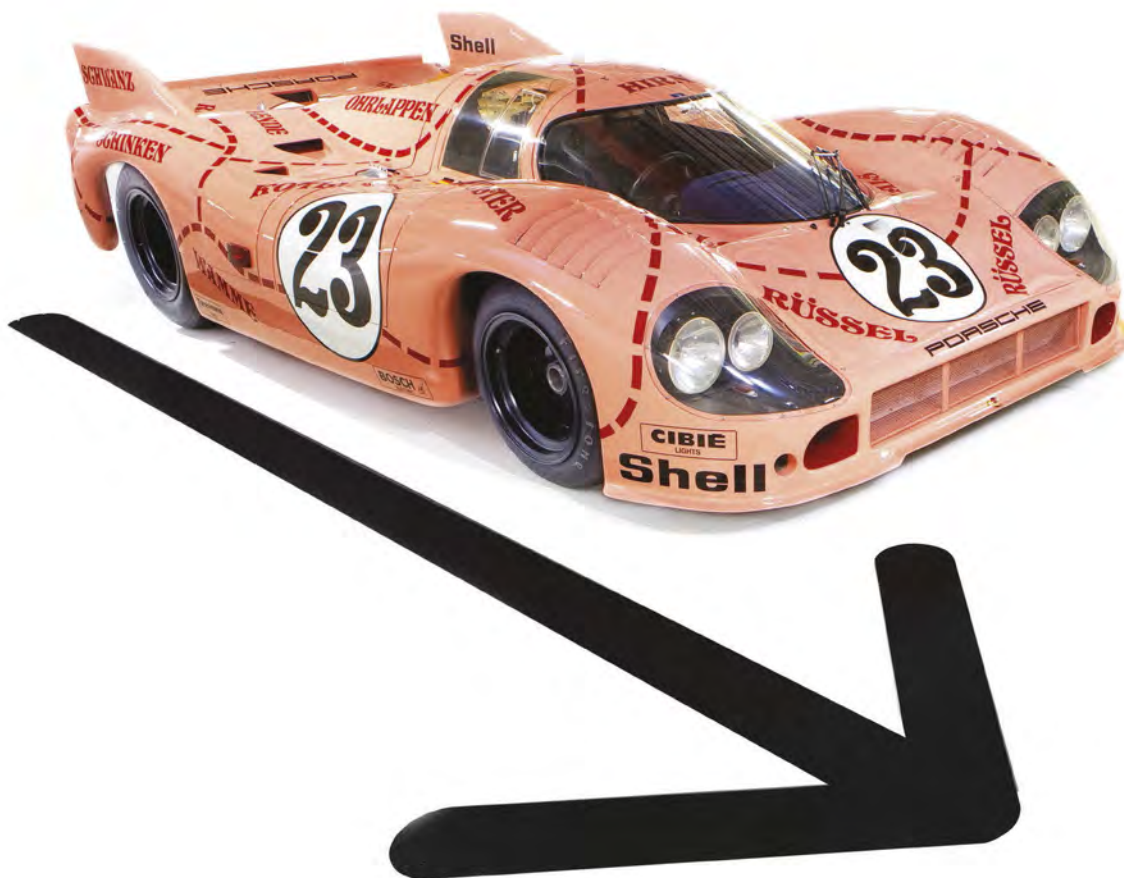
Take a 4.9-litre 917 from 1970 possessing a power-to-weight ratio of about 750bhp per tonne and compare it to the only car to offer opposition, the Ferrari 512S. That weighed 880kg and produced just 550bhp to give a power-to-weight ratio of just 625bhp per tonne. Looked at in such terms, the dominance of the 917 was not so much surprising as inevitable.



Taken from the February 1999 issue of *Motor Sport*

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## Pretty in Pink

The 917 took many forms during its racing life. *Motor Sport* took a closer look at one of the most famous – the so-called ‘Pink Pig’

It is not unusual for a racing driver to describe a racing car as a pig. It is rare, however, for a senior designer to declare that a racing car resembles a pig. And rarer still for the team to paint said car pink and carve it, like butchers, into cuts of meat outlined all over its bodywork. This is the strange saga that is the Porsche 917/20, which first appeared in public in the spring of 1971. And it's not over yet. On sale now in Europe, from Porsche Design, is a money box in the shape of a Pink Pig. There is, if you prefer, something known as an ‘art ball chair’. It's priced at a mere £2880, this being a piece of trendy pink furniture for the Porsche fanatic. Such is the legend of this racing car, only one of which was ever built. The car was the result of Porsche's relentless quest for ever more slippery aerodynamics, and it was aero specialist Robert Choulet of SERA (Société d'Études et de Réalisations Automobiles) in Paris who took on the task of creating a new body shape. The French company had previously worked on a new long-tail version of the 917, the Langheck, for the 1970 Le Mans 24 Hours.

Porsche's target was to extract drag numbers similar to the 917L, and the downforce numbers of the 917K, without resorting to the long and weighty tail that had been introduced in search of ultimate speed on the Mulsanne Straight. The result was the Pig, though the ‘pink’ part came later. Choulet eventually presented Porsche with what was generally agreed to be an ugly racing car. The 917/20 had an unusually wide body, with strange lateral overhangs that were designed to lessen the effects of air flowing over the wheel arches. The short, stubby car was revealed to the world at the traditional Le Mans test in April, sponsored by Martini & Rossi and driven by Willi Kauhsen and Gijs van Lennep. But Count Rossi, dismayed by its ugliness, refused to let the car run in his famous colours. So, in a rare moment of not-very-German humour, it was decided to paint it pink and mark out the bodywork in cuts of meat as a butcher might have done with a real pig. Amusing, no? The car is now in Porsche's ‘Rolling Museum’ in Stuttgart and is, unsurprisingly, the subject of much attention and discussion among visitors from all over the world.

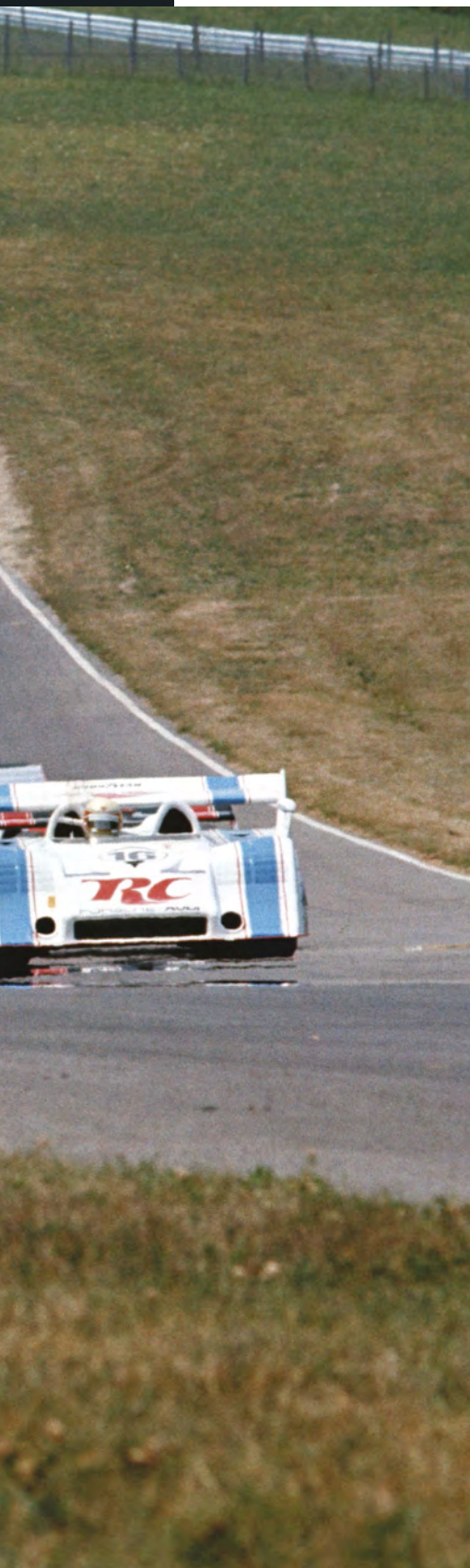


Taken from the November 2011 issue of *Motor Sport*

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## 1973

# PORSCHE 917/30




**ROGER PENSKE**

*Legendary US  
team owner*

The 917/30 was a derivative of the 917/10 and it was the first real turbocharged racing car developed to compete in the Can-Am series.

McLaren had dominated for a number of years with big V8s and Porsche made the commitment to go forward with a full aerodynamic race car that had lots of downforce – and to use a turbocharged engine that would produce more than 1200 horsepower. The driver had a control knob that enabled him to add boost as he wished.

We went to Porsche's test centre at Weissach in 1972 and at the time there were no buildings. They had just built the track and we ran the 917/10. I watched that car test for half a day and there was a tremendous amount of throttle lag. Porsche worked on that steadily to improve the lag with the evolution of turbos and wastegates. When we took the 917/30 to its first race at Mosport in 1973, we had a tremendously competitive piece of machinery and Mark Donohue went on to dominate that year's Can-Am series.

We set a closed course world record with that car and Mark Donohue drove it to many victories and the Can-Am championship in 1973. The execution of that by Porsche, Donohue and our team was outstanding. 



*Essential info*

**Ferrari 312PB**

**Entrant** Scuderia Ferrari

**Notable drivers** Jacky Ickx, Mario Andretti, Clay Regazzoni, Arturo Merzario, Ronnie Peterson, Sandro Munari, Brian Redman, Tim Schenken, Carlos Reutemann, Carlos Pace, Ignazio Giunti

**Debut** 1971 Buenos Aires 1000kms **Achievements** 12 wins, 14 poles **Constructors' Championships** 1 (1972)



1971-73

FERRARI

312PB



**BRIAN REDMAN**

*All-round ace in sports cars and single-seaters*

Of course, the 312PB Ferrari sports car was stunning. We won every race we ran in 1972 with that car, except Le Mans where we didn't go. That was a Grand Prix car with bodywork and it was superb. It handled beautifully and the gearbox was the best you could ever find. You just couldn't make a mistake with it. You'd push the lever as fast as you could and it went into gear straight away.

## *A boxer with plenty of punch*

Profile of the beautiful Ferrari 312PB

The compact, pretty and punchy 312PB, the twinkle in designer Mauro Forghieri's eye, had begun its birth pangs. An increase in minimum weight for prototypes to 650kg made Porsche's 908 an uncompetitive prospect for the 3-litre era, as it relied on light weight rather than high power for its speed, and rather than develop a new engine, Porsche announced it would withdraw from prototype racing after 1971. That confirmed Ferrari's resolve, and Forghieri took the bold decision to develop the new car by running it throughout 1971 against the 917; meanwhile the brutal 512 would receive no more works development, but in its last valid year would be left to the privateers.

Unlike Porsche, Forghieri already had a strong 3-litre engine, the new flat-12, introduced in F1 in 1970. Theoretically you can't run an F1 engine in a sports car, at least not without detuning it substantially. But Ferrari's unique set-up, the recent injection of cash from Fiat's partial buyout and the Old Man's drive for success in all spheres allowed it to spend whatever time and money were necessary to turn its F1 engine into an enduro unit. Forghieri's central aim in flattening the iconic vee to a boxer flat-12 was to lower the centre of gravity and offer clean airflow to the F1 car's rear wing. With its four chain-driven overhead camshafts, the 48-valve unit was relatively wide but short, aided by using only four main bearings, which also reduced friction. By the time it went into the sports car the engine had upgraded to a bigger bore, shorter stroke spec.

Ferrari's 312PB fought the sports car championship for three seasons, and dominated it for one glorious year before Matra stole its crown.



Taken from the November 2006 issue of *Motor Sport*

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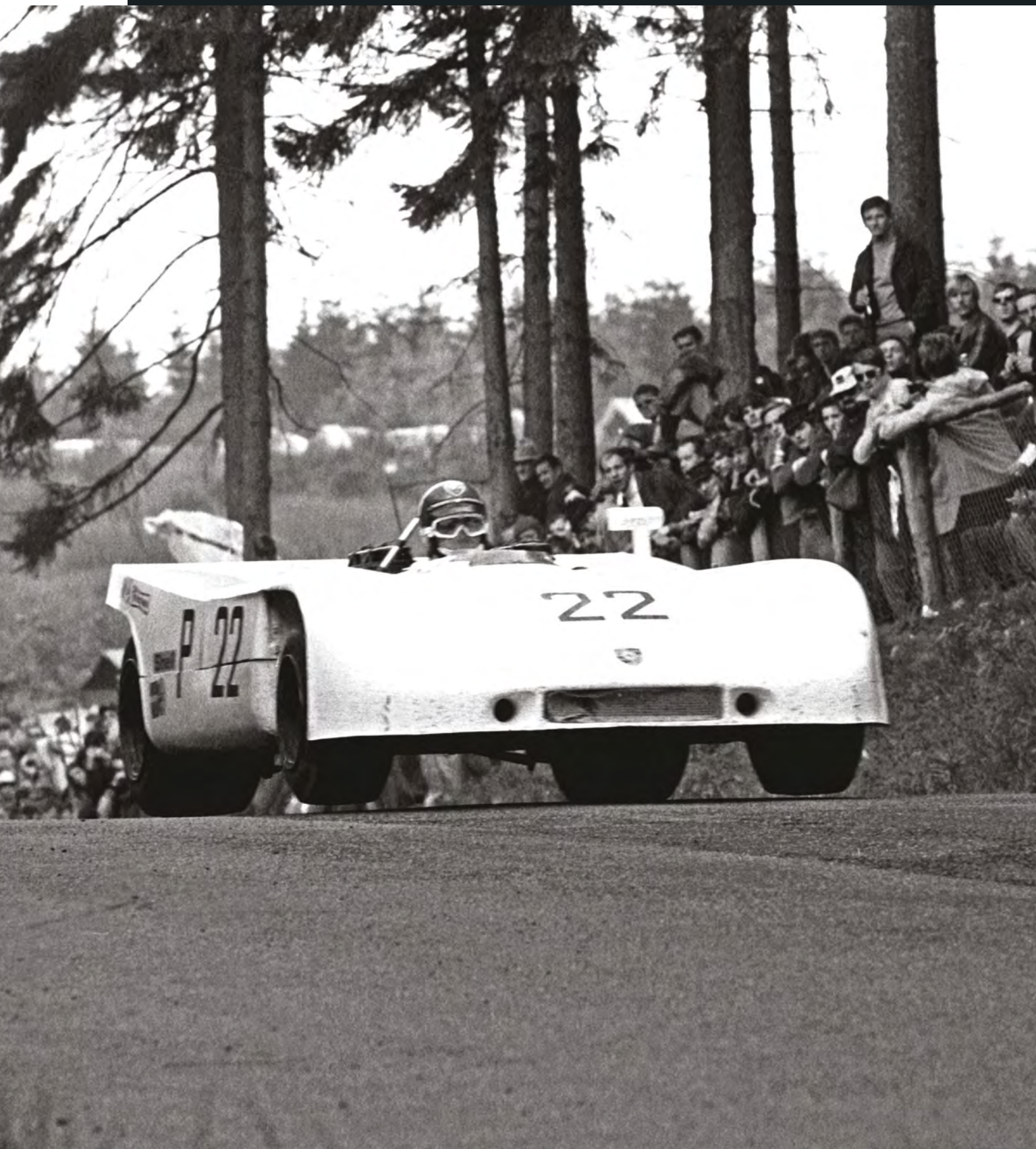


### MARIO ANDRETTI

*1978 F1 world champion,  
1969 Indy 500 winner...  
one of racing's great  
all-rounders*

I loved the 312PB I raced with Jacky Ickx in 1971 and '72. You could throw it around like a Formula 1 car. It was small and nimble and we won a bunch of races in that car. I have great memories of driving it.

We finished second in a nine-hour race at Kyalami in 1971 after losing lots of time. I was on pole and led the first hour, but then the fuel pump broke. By the time we got the car back to the pits and had it fixed we were 23 laps down but still we came back to finish second. We made up I don't know how many laps. Jacky and I were going ten-tenths all the way. We had more fun than if we had led all the way. There were a few hours of rain, which really helped us, and after the race every corner on the car was bent because we leaned on so many cars as we lapped them... 





### *Essential info*

#### **Porsche 908/3**

**Notable entrants** Porsche,

John Wyer Automotive

**Notable drivers** Jo Siffert,

Pedro Rodríguez, Brian

Redman, Vic Elford, Hans

Herrmann, Richard Attwood,

Kurt Ahrens, Leo Kinnunen

**Debut** 1970 Targa Florio

**Achievements** 6 wins,

2 poles **Constructors'**

**Championships** 2 (1970, 1971)

## 1970

# PORSCHE 908/3



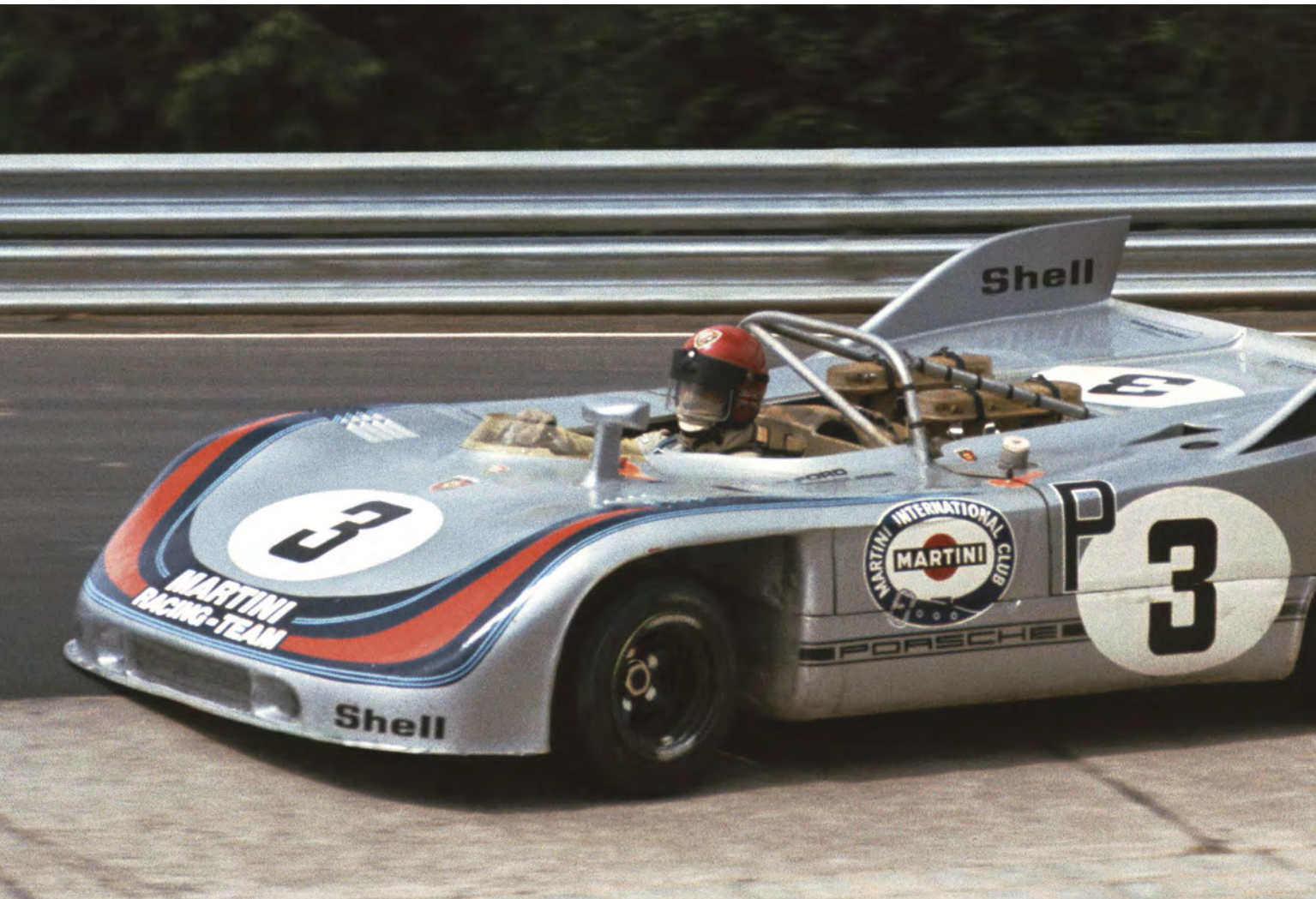
### **BRIAN REDMAN**

*All-round ace in sports cars and single-seaters*

In 1969 I co-drove with Jo Siffert for Porsche in a 908/2 and we won five of the 10 World Sports Car Championship races. We had a fantastic season and at the end of the year there was a massive celebration at Stuttgart. During that celebration we went to Weissach and the Porsche engineers asked me if I would like to see the new 908/3. They took me over into a darkened corner and took the dust cover off the first 908/3 and invited me to sit in it. It was amazing because there was nothing in front of your feet.

When I got out of the car the Porsche engineers asked me what I thought about their latest baby. I said I thought it was a very good car for Douglas Bader, the famous WWII fighter pilot who lost his legs in an accident before the war. From below your knees, your legs were ahead of the front wheels! There was nothing to protect you.

The 908/3 was built specifically for the Targa Florio and the Nürburgring and Jo and I won the Targa Florio with that car in 1970. It was a great little car and I still get to drive it from time to time courtesy of the Collier Museum in Florida, which owns it. It's unbelievable what that car can do with 370 horsepower and weighing only 1,100 pounds. It was an amazing car. Manfred Bentley was the engineer who designed it and he never received the credit he deserves. **»**



## *Sweetness and light*

Its dimensions suggested the 908/3 might be a handful, but that wasn't the case

What better measure of a car's brilliance can there be than to know that of all the cars he raced in his long career, the Porsche 908/3 is Brian Redman's favourite? "It's a jewel of a car," he says. "You look at that non-existent wheelbase and think it must be twitchy as hell but nothing could be further from the truth. It was fast, friendly and with that torquey flat-eight motor, wide tyres and no downforce, it was an absolute dream to drive on the Targa."

Ah yes, the Targa Florio, one of the races (along with the Nürburgring 1000Kms) for which the 908/3 was specifically designed. Of course Porsche already had the 917 at its disposal, but

understandably felt its brutal power would not be put to best use in the Sicilian hills. As for the 'Ring, computer simulations suggested there would be little difference in lap time between the two cars, but Porsche rightly figured the 908/3 would be far easier to drive and therefore less likely to go punching holes in the Eifel scenery.

Actually that 908 title is a little misleading. Its 3-litre engine aside, the car actually owed very little to the earlier 908s and rather more to the astonishing beryllium-braked, titanium-sprung sub-400kg 909 Bergspyder hillclimb car of 1968. With the bigger engine and the need to be reliable for hours on end







### JÜRGEN BARTH

*1977 Le Mans winner,  
veteran Porsche engineer*

The 908/3, conceived by a genius in Ferdinand Piech, has to be the most fantastic car in motor sport history. It was built to win the Targa Florio, though with the old Nürburgring a little bit in mind as well.

The driver sat more or less on the front suspension and the differential was on the back of the gearbox, and all the weight was on the right side to take advantage of anti-clockwise tracks. The driver, the fuel tank and even the battery are on the right of the car.

It was amazing to drive; it handled like a kart. It was a bit tricky with a full fuel load but my only regret is that I never raced it in the Targa Florio.



rather than a few seconds at a time, the 908/3 was never going to be that light, but its 545kg kerb weight still made it a quarter of a tonne lighter than the already flyweight 917. And with 360bhp under the driver's foot, it was no slouch.

A Gulf 908/3 opened the account by winning the 1970 Targa with Redman and Jo Siffert while the rival Salzburg car of Kurt Ahrens and Vic Elford took care of the Nürburgring 1000Kms. In '71 all three 908/3s crashed out of the Targa Florio, leaving victory to Alfa Romeo, but the model went out in style with a total podium lock-out at the 'Ring, with first and third going to Martini cars and second place to the

Siffert and Pedro Rodriguez Gulf entry.

The car seen here is none of the above. In fact chassis 12 was built for the '71 season but only did one race in Gulf colours, with Siffert and Derek Bell qualifying fifth for the Nürburgring race but retiring from second place with a broken chassis frame. It was sold to Joest Racing in 1974 and continued to race for a further four seasons.



Taken from the March 2013 issue of *Motor Sport*

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## 1960-62

# LOTUS 19



### DAN GURNEY

*All-American hero in F1, Indycars, sports cars... anything and everything!*

If you ask me to choose my favourite of all the cars I raced, I have to pick Frank Arciero's Lotus 19. The Lotus 19 represented a great leap forward. It was not a good car from the reliability standpoint, but we drove it on tracks like Daytona, which imposed a lot of extra stress, and it never failed us.


The Lotus 19 was the proverbial giant-killer. With a little 2.5-litre Coventry-Climax four-cylinder engine with big Weber carburettors, it could take on the V8 Chevys and Buicks that were being raced at the time – and any of the more fancied Jaguars and Ferraris. It was just plain easier to drive and faster.

It was a truly remarkable car that emanated from Colin Chapman's mind. When I first saw it, I was shaken by how beautiful it looked. When I drove it not long after that, it was beautiful in that regard also. You're talking about a moment in time where something like that could occur and it did. I've driven other

Lotuses and quite a few different cars, but the Lotus 19 lived up to its billing.

Based on my own ability to predict what Chapman was going to produce, I talked Frank Arciero into buying that car before ever seeing it. The Lotus 18 Formula 1 car was Chapman's first rear-engined F1 chassis. It was a fast car and, from what Chapman told me, the Lotus 19 was going to be even better.

So my faith in Chapman's creative abilities enabled me to sell Frank on buying this new rear-engined sports-racer. Being Italian and a fan of Ferraris and Maseratis, Frank was sceptical about buying a rear-engined English car, but I was able to convince him.

In my first race with Frank's Lotus 19 at Riverside in October, 1960, I qualified on pole and drove it in a dozen races over the next two years. I won at Nassau in 1960 and '61 and at Daytona, Mosport and Laguna Seca in '62. It was a great car. 

# 1988

## NISSAN GTP ZX-TURBO



**GEOFF BRABHAM**

*Le Mans winner and  
oldest son of Jack*

We scored eight victories in a row with this car and the first of four straight IMSA championships. We won close to 20 races over the two years we used it. I saw it on display at Sebring this year and it's one of those timeless cars that doesn't look out of place today, more than 25 years later, and there's not many cars you can say that about.



It was very interesting to be part of the development of that car with Nissan and Electramotive. When I first drove for them, the car was basically a Lola and it wasn't particularly good. But then Trevor Harris designed a whole new chassis for them with a completely different aero package and the first time I drove that car it felt better just driving out of the pitlane. We also switched to Goodyear tyres and those things turned that car into an absolute race winner.

We had a great rivalry with Jaguar in '88.

It was really intense. They had come over from Europe and obviously felt their car was much better than the Porsche 962, which it was. The Nissan had been fast but extremely unreliable and I think TWR and Jaguar thought they were going to do very well in IMSA. They won Daytona and I always remember one of their drivers saying once they got to the street circuits they were really going to kick ass because all the turbocars were really going to struggle on those tracks.

As it turned out, our car was absolutely awesome on street tracks and we beat them pretty easily. That started a rivalry and we went on to win eight races in a row. But some of them were really hard fought, where we had to come from behind. It wasn't like we totally dominated. It was a hard slog at times but that made it more rewarding.

When I first drove for Nissan there weren't any restrictions on the turbo and we had more than 1000 horsepower. We used to race with less than that, somewhere around 900, but it was a little bit of a hand grenade. In '88, IMSA put some restrictions on the size of turbo inlets because speeds were getting pretty high. That cut down the horsepower but funnily enough it increased the torque so we went faster. We still had more than 800bhp, but no one would say publicly how much we had.

That was a good era for sports car racing in America. The cars excited people. The fans loved watching them and they were pretty rewarding to drive.





## 2006-08

# AUDI R10 TDI



**ALLAN McNISH**

*Three-time Le Mans 24 Hours winner,  
2013 world endurance champion*

This is my favourite, the one that makes me smile. It was a pioneering car in 2006, with its new diesel technology, and it had a heck of a lot of power, a massive amount of torque. We got everything we could out of that car over the years, it couldn't have gone any faster.

It was a beast, but a beast you could throw around – and you really had to throw the R10 around. If you drove it gently, then you were slow, but if you grabbed it by the scruff of the neck, and chucked it around the circuit, then you got the lap times. You had to attack, every single lap of the race, and the bizarre phenomenon was that you could race the car at the same speed as you did in qualifying. So we didn't always qualify at the front – but we knew that, when it came to race pace, we would be right in the fight.

Back in December 2006, at the Essen Motor Show, Frank Biela had just come back from the very first test at Misano, and he had a huge

grin on his face, and said 'You cannot believe how good this car is going to be'. And Frank was right – when I first drove R10 at Sebring I'd never felt anything like it. Never, in all my life, had I experienced acceleration like that. It was just electrifyingly quick out of the corners. That car was born fast, first lap out I knew it was special, and we developed it from there over three seasons until it was at its absolutely ultimate performance.

The weird thing was, it was so quiet, you couldn't hear the engine revs when you were downshifting from high speed and so we had these big gear numbers displayed on the dash. We even considered piping the engine noise into our earpieces... but it didn't come to anything. At 100mph the wind noise drowned out the engine noise, which was nice at Le Mans because there was much less noise fatigue, and that was a benefit. No question, the Audi R10 was a whole new experience.

## *Saving the best 'til last*

Tom Kristensen recalls the Audi R10 TDI's finest moment in its final year of competition: Le Mans 2008

Tom Kristensen is the acknowledged maestro when it comes to endurance racing, a winner through and through with an enviable reputation for skill at speed in the dark. Kristensen/McNish/Capello was always quite simply the benchmark, the team to beat. The Dane's highlight? Le Mans 2008, with the R10 in its final season. "We qualified fourth behind the three Peugeots," he says, "but always felt we had a chance. The Audi preparation is so good and the car was strong, the diesel having improved enormously since we started with the new technology. We knew we did not have the speed of the Peugeot but I sensed we could win. We were so determined and believed it was possible if we stuck to doing our maximum and executed the perfect strategy. It was a real team effort, all down to the five Ps — 'proper preparation prevents poor performance' so every mechanic did a perfect job during the refuelling stops.

"The race was a turning point for me because I'd had a huge crash in the DTM the year before and had been suffering for months with a constant headache. I wondered if it would ever go away. So I focused on being quiet, being as relaxed as possible and concentrated on the circuit. At the start we were four and a half seconds a lap slower than the Peugeots, but Dindo and Allan did a fantastic job and, when the rain came in the night, we really started to eat into their advantage.

"We came into the morning with the lead and then there was more rain around lunchtime. The race was going down to the wire, but it rained again — in some places around the track — in the afternoon and we had discussions about the right call on tyres, slicks or wets, for the conditions. It was a truly epic battle. People have said it was the best Le Mans



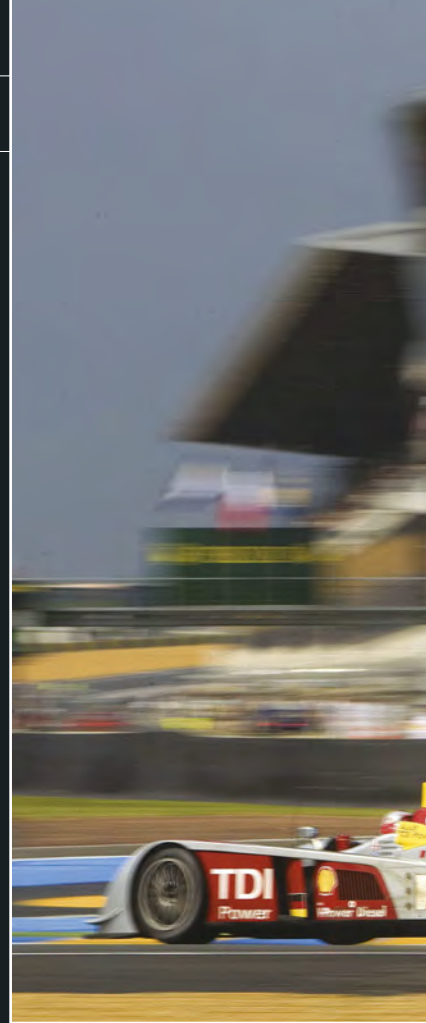
24 Hours ever and fans can relive it with that great film Audi made, *Truth in 24*, which captures the intensity of that weekend.

"It was my first win after the DTM accident so it was kind of a new beginning for me. And it was just a unique feeling to win that Le Mans. The teamwork was fantastic. If you looked at pure performance, nobody ever expected us to beat the Peugeots. But we had such a raceable and driveable car, we studied the weather forecast — the more rain that came, the better we prepared the aerodynamics for the rain and we were prepared to take risks. You have to do that in changing conditions.



Taken from the June 2013 issue of *Motor Sport*

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### *Essential info*

#### **Audi R10 TDI**

**Entrant Audi Sport** **Notable drivers** Tom Kristensen, Allan McNish, Rinaldo Capello, Frank Biela, Emanuele Pirro, Marco Werner, Lucas Luhr, Mike Rockenfeller **Debut** 2006 Sebring 12 Hours **Achievements** 36 wins, 12 poles **Constructors' Championships** 4 (ALMS 2006-08, LMS 2008) **Drivers' Championships** 4 (ALMS 2006-08, LMS 2008)



**RINALDO CAPELLO**  
*Three-time Le Mans winner*

The Audi R10 has a very special place in my heart. Mainly it is because of the power of the car, because it was the first TDI, diesel racer. In the first two years of the project, the power was just amazing and, to be honest, the more I look back to the shape of the car, the more I think this is the most beautiful front end we had in the last 10 years at Audi Sport.

The nose looks like a single-seater in many ways. For sure, the negative aspect of the car was the heavy weight on the rear because of the engine but I have to say that this is the car I like the most and for many different reasons.

I did three Le Mans with the R10, in 2006, 2007 and 2008. Actually the R10 gave me some very tough moments in my career. With the R10 I probably got the best emotions and the worst, too. The best was the pole position I achieved at Le Mans with the R10 in 2007. On the Friday morning after qualifying my engineer came to me very excited and said 'Congratulations on your pole, what a job!' I said suspiciously, 'OK, thanks, but why so happy? I did it already two times before!' He said: 'You did not have the soft tyres, you did it with the hard tyres! The other car was on soft tyres. Our mistake'.

The race was fantastic and we were in complete control until about 7.30am, when I lost a wheel and crashed at Indianapolis. The contrast the following year was extreme because we were really second best on pace to Peugeot, but with the rain we came back into it and won. However, it only killed 50 per cent of the disappointment I had the year before.

But the reason why 2008 was one of the most beautiful Audi Le Mans wins is because everything ran perfectly. And it was unexpected, which made it sweeter. But we always said that we won because the human and the technical aspects all worked in perfect unity. That is why we are very proud.







## 1990

# MERCEDES-BENZ C11



**JOCHEN MASS**

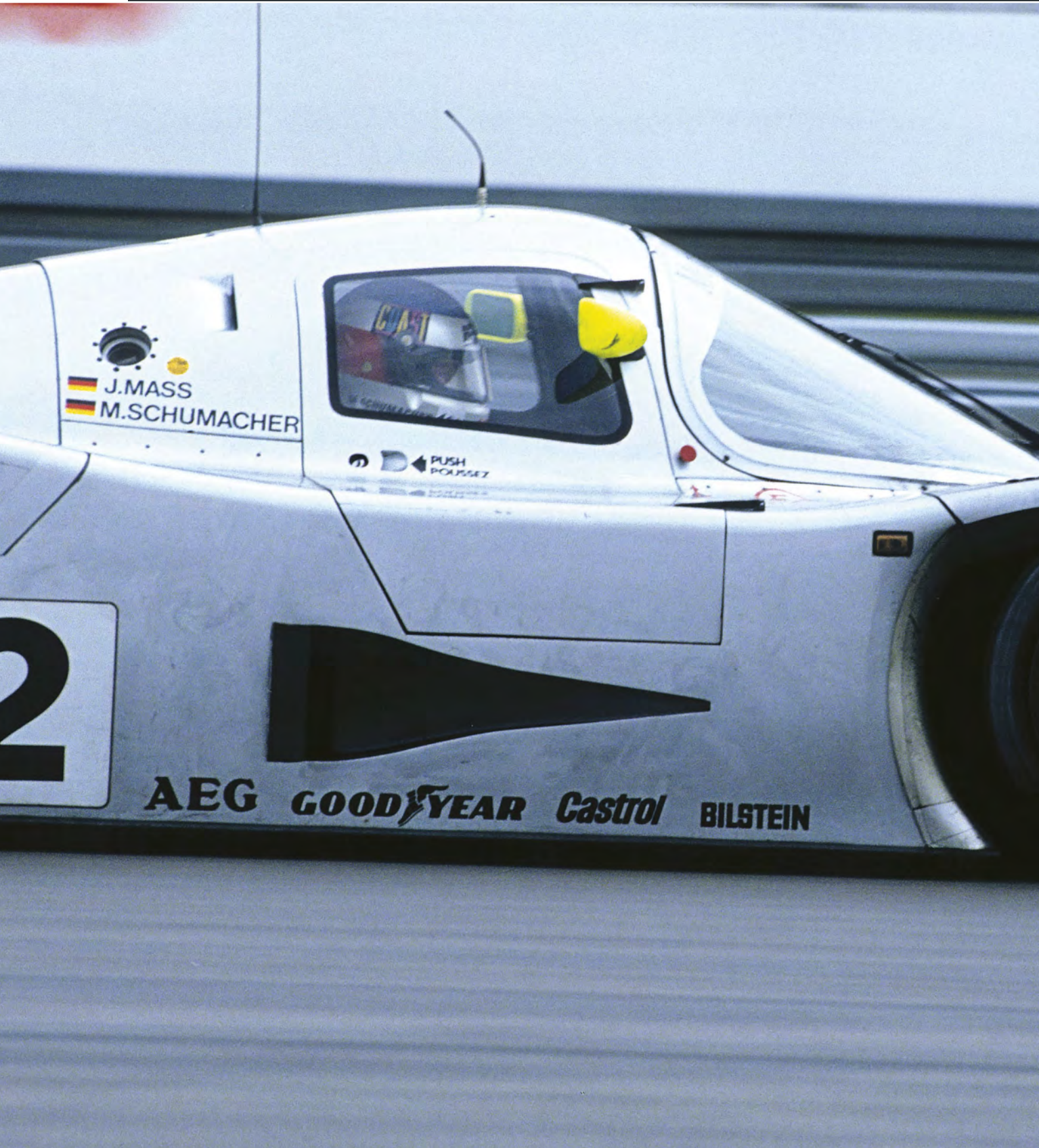
*1975 Spanish GP winner,  
1989 Le Mans 24 Hours winner*

It would be a lot easier to name my least favourite car... but if I have to name my favourite, this has to be the Sauber Mercedes, the C11 or the 291.

These cars were the zenith of what was then known about the sciences of aerodynamics and chassis. The 956 and 962 Porsches were fantastic, too, but they were still alloy and therefore less safe.

The Saubers were just great to drive and also very reliable. The handling was so precise, and never vicious on the limit. Even flat out on the Mulsanne, at over 240mph, never once did a worry enter my mind. Despite the weight of Group C cars then, at 1000 kilos, the Sauber Mercedes was pretty lithe on its feet and handled beautifully.

The C9 needed a lot of sorting but, having done that, the only problem was the tyres. Some tyres just don't connect to the needs of the car but – after we changed brands – it was sheer bliss and we never looked back. In Japan in 1991, in the last race of the Group C series, [Michael] Schumacher and [Karl] Wendlinger's C291 beat the Peugeots and the identical Sauber I shared with Jean-Louis Schlesser. That was demoralising, but a new era of 'supercars' had begun and younger drivers were coming in, which was a bitter pill for us to swallow. **»**



2

J.MASS  
M.SCHUMACHER

PUSH  
POUSSÉZ

AEG GOODYEAR Castrol BILSTEIN

## The car that gave us Schumacher

The great German made his international breakthrough not in F1, but in sports cars with this Mercedes

It was the first pure-bred Mercedes-Benz racer for 35 years. A world championship winner. The car that gave us Michael Schumacher. The machine that laid the foundation stone of the German manufacturer's graduation to F1. The Mercedes-Benz C11 can claim all those accolades, and more. Not least that it was a thing of beauty which still looks good 20 years on.

The C11 was the fruit of an unlikely relationship. A back-door deal to supply engines to the Swiss Sauber sports car squad in the mid-1980s paved the way for Mercedes to return officially to motor sport in '88. For 1990, the partnership produced the first bespoke Mercedes racing car since the marque's withdrawal from competition after the 1955 Le Mans disaster. That car, the Mercedes-Benz C11, went on to sweep all before it on the way to winning the 1990 World Sports-Prototype Championship with Mauro Baldi and Jean-Louis Schlesser. One of the five drivers to notch up victories in the C11 was a young Schumacher, who'd been plucked from Formula 3 to become part of a junior programme conceived by new Mercedes motor sport boss Jochen Neerpasch. The dominance of the C11 in 1990 had a part to play in the marque's return to F1. By the following year, Mercedes was gearing up to build a Formula 1 Silver Arrow with Sauber. That project was quickly canned, but the Three-Pointed Star was soon back at the pinnacle of the sport as an engine supplier.

The C11 was a Mercedes-Benz rather than a Sauber because it was the first car designed by the Swiss team with access to the manufacturer's full resources. That was in stark contrast to its predecessor, the 1989 WSPC-winning C9/88, whose origins could be traced to the early '80s.

The first Mercedes Group C car built on the experience of the C9/88, a family resemblance is evident, but it was in effect

all new. "The C11 was an improvement in every area," says designer Leo Ress. Those improvements included the carbon tub, a switch from rockers to pull-rod suspension and a bespoke gearbox developed by Mercedes. "That allowed a proper integrated rear end that was much stiffer than before."

The new design didn't race until round two of the WSPC at Monza in May. If the C9/88 was good enough to beat rivals from Jaguar, Nissan, Toyota and Porsche, the C11 pummelled them into submission. Baldi and Jochen Mass qualified one-two at Monza, the pole man ending up the better part of two seconds ahead of the 'best of the rest', the Jaguar XJR-11 driven by Martin Brundle. That set the tone for the rest of the season. The only time the Merc would be beaten was at Silverstone. Baldi and Schlesser were on course for victory when an engine failure brought an end to their race when they had a lead of 50 seconds after just 40 laps. There was no back-up car in the race, because the car Schumacher shared with Mass had been thrown out of the event for receiving outside assistance after stopping on track in practice.

Baldi rates the C11 as "probably the best prototype I ever drove" and the "only one of the cars from my career that I ever wanted to own. The C11 was the first car that was really enjoyable to drive after I left Formula 1," he says. "It gave you the same feeling as an F1 car. You could really drive it."

So good was the C11 that Baldi took Eau Rouge flat on the way to pole position for the Spa race in early June. Not bad for a 900kg car with perhaps 1000bhp in qualifying trim.



Taken from the January 2010 issue of *Motor Sport*

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### DAVID PRICE

*Veteran team manager with experience of GP2, F3, sports cars, saloons...*

The Sauber C9 was a good car and it won Le Mans in 1989 and the World Sportscar Championship too, but its successor the C11 was a much better design.

Leo Rees came onboard and we worked together on the carbon parts through my composites company at the time. We made it so much more tuneable because the chassis was so much stiffer and overall the construction was a level up on the C9. It was a big improvement but, of course, me being me, I made the mistake of leaving in 1990 and I was off to manage the Nissan mob.

The C11 had a mighty engine, this incredible four-valve V8. That, combined with the new carbon chassis produced a package that was tough to beat. They were seeing almost 1000bhp in qualifying with a load more boost available from the twin turbo KKKs. It was a mighty proposition.

So I found myself in 1990 working for Nissan, but still providing carbon bits for the Sauber-Merc lot. They won just about everything and I remember feeling some pride... but obviously not being able to show it too much in my Nissan colours.

The chassis itself was a work of art, really. We bonded a separate titanium roll-cage in to the chassis, which was very nicely done. Working with Leo was great because he was so practical and everything was done simply. When it came to running the car it was a delight for the mechanics, very easy to service and the reliability was bullet proof.

The team had everything. A good manager in Peter Sauber, a great designer in Leo Rees and then this driving squad with experienced guys like Schlessler, Reuter and Mass combined with the next generation of Schuey, Frentzen and Wendlinger. As I said, tough to beat.

#### *Essential info*

### MERCEDES C11

**Entrant** Mercedes-Benz  
**Notable drivers** Mauro Baldi, Jochen Mass, Jean-Louis Schlesler, Karl Wendlinger, Michael Schumacher, Heinz-Harald Frentzen **Debut** 1990 Trofeo Caracciola, Monza  
**Achievements** 7 wins, 8 poles **Constructors' Championships** 1 (1990)  
**Drivers' Championships** 1 (1990)





## 1955

# MERCEDES-BENZ 300SLR



**SIR STIRLING MOSS**  
*aka The Boy..*

I have driven and raced so many good cars during my career but, without hesitation, I have chosen the Mercedes-Benz 300 SLR from 1955, the year when Jenks [Denis Jenkinson] and I won the Mille Miglia.

The Mercedes-Benz 300 SLR was quite simply the finest sports car ever made. It was strong, reliable and fast. The only thing the car did not have was disc brakes. This was because Dunlop had the patent on them and, quite understandably, they would not allow them to be used on the Mercedes.

In 1955, having won the Mille Miglia, the Targa Florio and the Tourist Trophy, Fangio and I were in the lead by three laps at Le Mans when Pierre Levegh, in another works 300 SLR, had that terrible accident. His co-driver John Fitch then rather stupidly talked Mercedes into pulling out of the race and soon after midnight the team withdrew the other two cars. **»**

## *The greatest story ever told*

An excerpt from Denis Jenkinson's amazing account of how he co-drove for Stirling Moss to win the 1955 Mille Miglia in a 300SLR

Ever since leaving the start we had had the rising sun shining in our eyes and, now, with the continual effects of sideways 'G' on my body, my poor stomach was beginning to suffer and, together with the heat from the gearbox by my left buttock, the engine fumes, and the nauseating brake-lining smells from the inboard-mounted brakes, it cried "enough" and what little breakfast I had eaten went overboard, together with my spectacles, for I made the fatal mistake of turning my head sideways at 150 mph with my goggles lowered. Fortunately, I had a spare pair, and there was no time to worry about a protesting stomach, for we were approaching Pesaro, where there was a sharp right corner.

Now the calm, blue Adriatic sea appeared on our left and we were on the long coastal straights, taking blind brows, and equally blind bridges at our full 170 mph, and I chuckled to myself as I realised that Moss was not lifting his foot as he had threatened. We were beginning to pass earlier numbers very frequently now, among them some 2-litre Maseratis being driven terribly slowly, a couple of TR2 Triumphs running in convoy, and various saloons, with still numerous signs of the telling pace, a wrecked Giulietta on the right, a 1100cc Fiat on the left, a Ferrari coupé almost battered beyond recognition and a Renault that had been rolled up into a ball. Through Ancona the crowds were beautifully controlled, barriers keeping them back on the pavements, and we were able to use the full width of the road everywhere, and up the steep hill leaving the town we stormed past more touring-car competitors who had left in the small hours of the morning while we were still asleep. All this time there had been no signs of any of our close rivals. We had passed the last of the Austin Healeys, driven by Abecassis, a long way back, and no Ferraris had appeared in



our rear-view mirror.

It was a long way down to the next control point, at Pescara, and we settled down to cruising at our maximum speed, the car giving no impression at all of how fast it was travelling, until we overtook another competitor, who I knew must be doing 110mph, or when I looked sideways at the trees and hedges flashing past. It was now mid-morning and the sun was well above us but still shining down onto our faces and making the cockpit exceedingly hot, in spite of having all the air vents fully open. Through the dusty, dirty Adriatic villages we went and all the time I gave Moss the invaluable hand signals that were taking from him the mental strain of trying to remember the route, though he still will not





admit to how much mental strain he suffered convincing himself that I was not making any mistakes in my 170mph navigation. On one straight, lined with trees, we had marked down a hump in the road as being 'flat-out' only if the road was dry. It was, so I gave the appropriate signal and with 7,500rpm in fifth gear on the tachometer we took off, for we had made an error in our estimation of the severity of the hump. For a measurable amount of time the vibro-massage that you get sitting in a 300 SLR at that speed suddenly ceased, and there was time for us to look at each other with raised eyebrows before we landed again. Even had we been in the air for only one second we should have travelled some 200 feet through the air, and I estimated the 'duration of flight' at

something more than one second. The road was dead straight and the Mercedes-Benz made a perfect four-point landing and I thankfully praised the driver that he didn't move the steering wheel a fraction of an inch, for that would have been our end. With the heat of the sun and the long straights we had been getting into a complacent stupor, but this little 'moment' brought us back to reality and we were fully on the job when we approached Pescara.



Taken from the June 1955 issue of *Motor Sport*

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### *Essential info*

## Mercedes-Benz 300SLR

**Entrant** Mercedes-Benz  
**Notable drivers** Stirling Moss, Juan Manuel Fangio, John Fitch, Karl Kling, Pierre Levegh  
**Debut** 1955 Mille Miglia  
**Achievements** 3 wins, 1 pole  
**Constructors' Championships** 1 (1955)





## 1966-70

# LOLA T70



**MARTIN BIRRANE**  
*Former racer, owner of  
 Lola Cars from 1997-2012*


The Lola T70 is one of the few cars that can stop me in my tracks. It was one of the reasons why I love Lola so much and, indirectly, it was probably one of the reasons why I let my heart rule my head when I bought Lola in 1997.

I remember the sound most of all, that big 5-litre Chevy. I remember being at Brands Hatch spectating in 1968 and seeing them come over the brow of Paddock Hill Bend. There seemed to be all colours of the rainbow coming toward me: yellow T70s, white, red, green... There was the Jo Bonnier car, Sid Taylor's and Jackie Epstein's. Glorious.

The noise they made on the downshift and the way they went through Paddock Hill Bend was just electrifying! I still own two of the Can-Am cars and have owned MkIIIBs as well in the past.

What sets them apart from other great sports-prototypes is their enduring beauty. That is a massive credit to Eric Broadley, who in my mind was an engineering genius. The sad thing was that the engines that were available, the Chevys and the Fords, just were not reliable enough for long races. I know Roger Penske managed to finish the Daytona 24 Hours and win it in 1969, but they were walking wounded, really.

To drive a T70 is exhilarating. They are light, they have relatively little downforce, they are beautiful cars to drive on the throttle. You could throw them into a corner and you could bring them back easily. They were thrilling cars to drive as well as to watch, so they tick all of the boxes for me.

In particular they had a timeless quality and you can go to the Silverstone Classic these days and see a good dozen of them racing year after year. They still thrill the fans because of their look and sound. That a car designed in the early 1960s is still racing hard now is a huge tribute to Eric Broadley and his vision. For me to have the chance of seeing them as a spectator, to race one as a driver, to own one as an enthusiast and to have also overseen an official continuation series makes me feel very fortunate. 



## *Beauty in the eye of any beholder*

But the Lola T70 only enjoyed limited success on the international stage, says Richard Heseltine

Point of view is the crux. It's quite simple really; the Lola T70 is the most beautiful sports-racing car ever made. Period. Anyone who thinks otherwise is, of course, quite wrong. Save perhaps the Chevron B16, nothing comes close to invoking such an intense case of puppy love on initial contact. This is how racing cars should look; muscular, curvaceous and captivating. None of that slab-of-side, geometric nonsense thank you. Here was a car conceived with little more than a vivid imagination, a slide rule and an HB pencil. One that remains the most fêted Lola product amid a back catalogue that covers half a century.

Thing is, for all its gorgeousness, presence and whatnot, the T70 never was a particularly successful racing car. Not really, not for its intended purpose as an international player, anyway.

First came the Group 7 T70 Spider. "It was a good design," recalls the prolific

Tony Southgate, whose résumé includes Grand Prix, Le Mans and Indy 500 winners. "I was effectively Eric Broadley's right-hand man," he recalls. "He would produce the concept and suspension geometry and I would fill in the rest with some sound engineering, although Mike Smith did the doors. I hated doing doors."

Though never assigned any credit, the sensational T70 outline was largely the work of Specialised Moulding's Jim Clark. The former architect and Lotus man (he penned the Elan FHC and the 30 sports-racer in part), had left his native New Zealand to design cars in Europe because "I didn't want to spend all my time doing pig pens... We did all sorts of stuff at SM including the Chevron B16 and McLaren M6GT." The resemblance between all three cars is obvious.

With 1964 Formula 1 world champion John Surtees acting as marque talisman

### *Essential info*

#### **Lola T70**

**Notable entrants** Surtees, Jo Bonnier **Notable drivers** John Surtees, Mark Donohue, Dan Gurney, Brian Redman, David Hobbs, Paul Hawkins, Walt Hansgen... and many more.

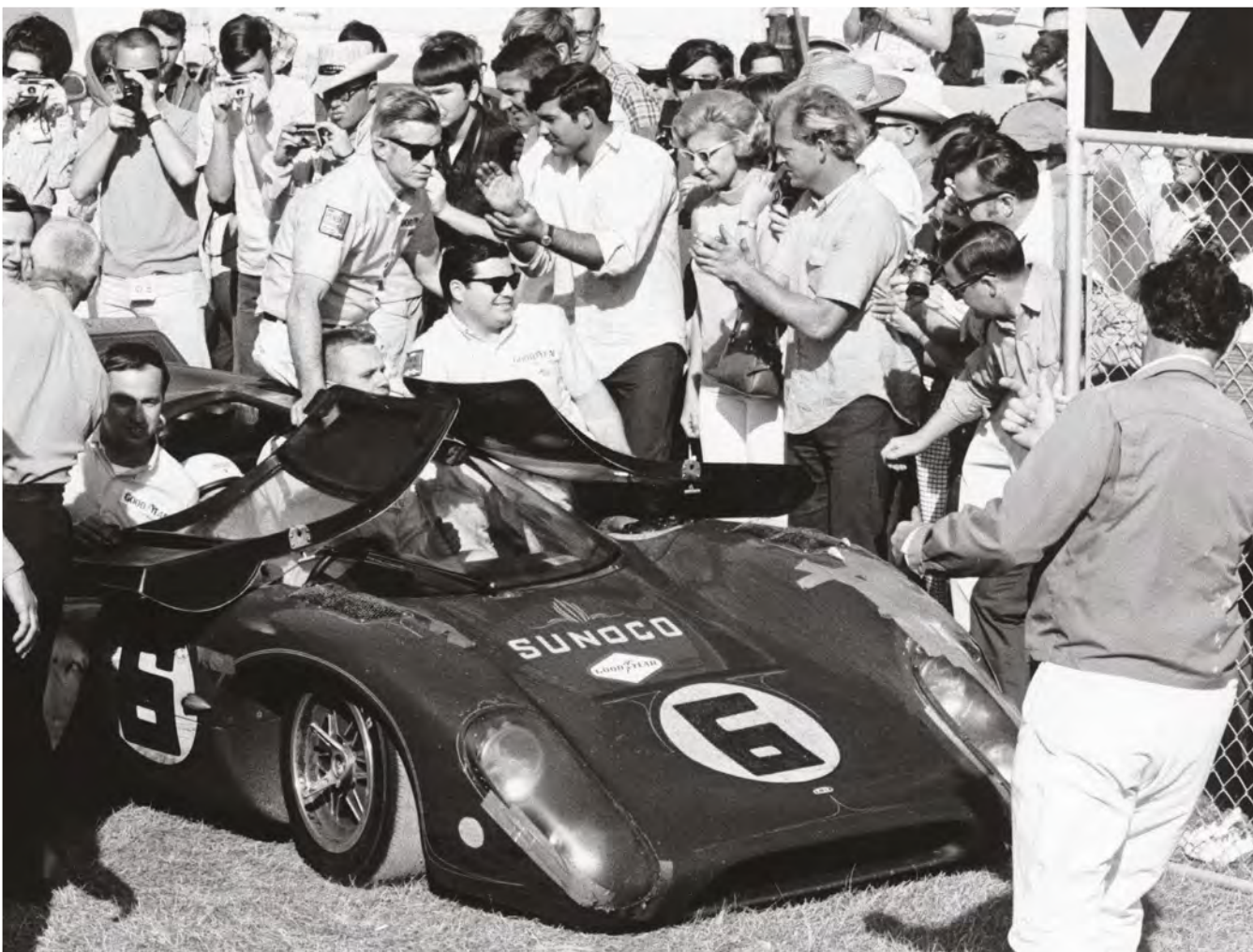
**Debut** 1965 Sebring 12 Hours

#### **Achievements**

7 wins, 8 poles (WSC & Can-Am)

**Constructors' Championships** 0.

**Drivers' Championships** 1 (Can-Am 1966)



aboard his Team Surtees entry, the T70 proved an instant winner, 'Il Grande John' scorching his way to the 1966 US Road Racing Championship. But more was to come, the classic coupé edition taking a bow at the January 1967 Racing Car Show at Olympia.

The first customer car was delivered to Jackie Epstein, who gave the model its debut in that year's Spa 1000Kms. Sharing with Paul Hawkins, he finished a respectable fourth overall, despite having to run in the top-flight Group 6 class rather than Group 4 as the car had yet to be homologated. Then came the Nürburgring 1000Kms, the works Aston-engined T70 of Surtees and David Hobbs qualifying second behind the Phil Hill/Mike Spence Chaparral, only to retire early on with suspension bothers. Come Le Mans and the two Aston Martin-powered factory cars embarrassingly fell out early on: Surtees and Hobbs retired

after just three laps with piston failure, the Chris Irwin/Pier de Klerk sister car following suit just 22 tours later with crankshaft maladies.

For the rest of the '67 season, works and privateer entries — with Chevy power — proved competitive if only in sprint races. Into 1968 and engine displacement was capped at five litres by governing body the CSI: the 327cu in Chevy cranked out 5354cc so engine specialist Jim Travers of Traco Engineering developed a shortstroke 304.6in version. Even so, few Group 4-homologated T70s ever raced seriously in the World Championship of Makes. Sixth in the BOAC 500 for Jo Bonnier and Sten Axelsson was the best placing for the model that season. At national level, however, it proved invincible, winning every Group 4 race.

For the following year, Lola introduced the MkIIIB with a new all-ally

monocoque that owed its architecture — if only in part — to the T160 Can-Am car. Outwardly identifiable by its single pair of headlights, and forward-hinged doors, the latest strain was, and remains, a work of singular beauty.

And Lola picked up from where it had left off in Blighty, winning seven out of eight British GT races in 1969, but it still fell some way short of expectation on the world stage with the exception of Team Penske's victory in the Daytona 24 Hours. The Mark Donohue and Chuck Parsons-driven entry won largely by stealth after faster rivals broke; to finish first, you must first finish and all that.



Taken from the January 2009 issue of *Motor Sport*

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## 2001-03

# BENTLEY SPEED 8




**GUY SMITH**  
*2003 Le Mans  
24 Hours winner*

It's a tough one, between the Van Diemen RF95 in which I won the British Formula Renault title and the Bentley Speed 8 in which I won Le Mans in 2003.

I've gone for the Bentley because even now it just feels so comfortable, and always puts a smile on my face.

I was closely involved in the development of the Speed 8 as Bentley's test driver and racing reserve. We'd had a fast car in 2001, but it wasn't an endurance car because it was hard work to drive and the driveability of the engine really wasn't as good as we wanted it to be. So we focused on making the 2003 car not only fast but also easier to drive and more user-friendly for the whole team.

Throughout the 2002 season, and the early part of 2003, we worked tirelessly, putting thousands of miles on the car to make it better than its predecessor in every area. From the very first test it was obvious to me that the Speed 8 



## *An Audi with a roof? Put a lid on it...*

Why Bentley's Le Mans winner was a genuine British car, despite the long-held rumours. By Andrew Frankel

Unalloyed triumphs are rare events. With almost every victory comes a tinge of regret, a sense not just of a job well done, but ways in which it could have been done even better. Bentley's successful three-year campaign to win the Le Mans 24 Hours at the start of this century is the perfect case in point.

The history books show that at its first attempt, Team Bentley placed third in 2001, a podium position behind two realistically unstoppable works Audi R8s. In 2002 with just one car entered, it came fourth and once more first car home behind the factory R8s. In 2003 with only private R8s to contend with, two Bentleys entered, placing first and second. In all three attempts, amounting to well over 100 hours of racing, one car retired due to freak weather conditions, but none was ever pushed back into the pit garage for repairs. Indeed the winning Speed 8 in 2003 spent a grand total of 17 unscheduled seconds in the pits, an unparalleled

achievement in the history of the race. Who could want for more?

The source of dissatisfaction is two-fold, neither being the obvious fact that Bentley didn't win every Le Mans it entered. I was in the team's pit for the duration of all three races and not once was there any sense that the team was punching below its weight. Indeed most of the time they exceeded every expectation. I know, for instance, that the never-communicated internal goal for 2001 was for one car to get home in the top 10. A podium was unimaginable. No, what still rankles in certain Bentley circles to this day is that the perception still exists that the EXP Speed 8 (or Speed 8 as the 2003 car was known) was actually an Audi R8 with a roof.

On suggestions that the Speed 8 was an R8 coupé, genuine bafflement exists even today. "I guess we just didn't do that great a job communicating it at the time," says Bentley's engineering guru Brian Gush, who

### *Essential info*

### **Bentley Speed 8**

**Entrant** Bentley **Notable drivers** Tom Kristensen, Rinaldo Capello, Guy Smith, Johnny Herbert, Mark Blundell, David Brabham, Martin Brundle, Andy Wallace **Debut** 2001 Le Mans 24 Hours **Achievements** 1 win, 1 pole **Constructors' Championships** 0 **Drivers' Championships** 0







was a different animal – it felt like a car you could jump in and drive to the shops. It was so easy to drive, the engine now so smooth and progressive. Once we got out on the track it was instantly quick, easily faster than the 2001 car, and more importantly it was consistent and reliable.

We knew we had a car that could win at Le Mans and victory in June was a dream come true.

What made it more special for me was that I had so much input into all areas of that car and it doesn't get any better than winning at Le Mans. It's a shame that the Speed 8 didn't do more races. It's a beautiful racing car and people still tell me it's their favourite prototype. It's certainly mine.



was instrumental in the entire project from its earliest days and, with Tony Gott, probably campaigned harder and for longer than anyone to get Bentley to La Sarthe. Brian's killer fact is that there was more British content in the Audi than there was German content in the Bentley. "But people saw that we used an Audi engine, knew we both belonged to the same group and came to some entirely wrong conclusions."

A man with an even greater right to be cheesed off with this perception is Peter Elleray, who designed both the 2001-02 EXP Speed 8 and all-conquering 2003 Speed 8.

"It's just sheer bloody ignorance," he says. "It's true the R8C was designed at RTN," he adds, referring to the Audi coupé that proved completely inadequate at Le Mans in 1999 and Racing Technology Norfolk, the factory where the racing Bentleys were created. "So yes, we had that knowledge. But engine aside, there was not a single thing on the Bentley that had anything to do with the R8C or, indeed, any other Audi."



Taken from the April 2012 issue of *Motor Sport*

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1967

# CHAPARRAL 2F



**CHARLIE WHITING**

*Former Brabham chief mechanic, now tech chief for F1*

I thought the Chaparral 2F was just one of the most incredible cars I had ever seen. I watched it at Brands Hatch, which was my home circuit, when I was about 16 years old and to this day I don't think anything surpasses it. I kept an immaculate lap chart from that day and still have it, along with the programme!

It looked like a spaceship, it was just fantastic. I loved the approach that Jim Hall took to designing racing cars. I was at the BOAC 500 when it won in 1967 with Mike Spence and Phil Hill driving. They beat the Ferraris, Alfa Romeos and Porsches that day and they did so handsomely.

Previously, a lot of how that car was designed and worked was totally unknown. Thankfully it was one of the rare occasions that the transmission didn't break, as previously they struggled to finish races due to the more powerful 5.3-litre engine they had decided to use.

The moveable suspension they had was brilliant, too. It was mounted on the uprights and then they had this dam at the front that kept it planted to the track. Looking back now

it looks a little bit crude, I suppose, but to me sitting in the grandstand at Paddock Hill Bend it was just totally mind-blowing. It was a full year ahead of the Formula 1 teams adopting rear aerofoils, so Hall was well ahead of the game when it came to understanding what could work on a racing car.

Just over 10 years later I was working in F1 with Gordon Murray, who I suppose was that generation's Jim Hall. The Brabham fan car was totally different and an amazingly quick concept, which I suppose you can trace back to some of Hall's theories too.

These days, of course, the rule books generally don't allow for that kind of creative thinking, which in some ways is a shame, but times change.

I remember well when Ross [Brawn] came to me with the Jaguar XJR-14 when I was technical delegate for world sports cars in the early 1990s. That had some very interesting interpretations of the regulations on it, but Ross was clever enough to know how to exploit the loopholes within them. As I said, different times. **»**

## *Chaparral in Europe*

Denis Jenkinson on the American car that came to Europe and conquered Brands Hatch



Anyone who was at Brands Hatch for the BOAC 500 race at the end of July must have been impressed with the sight and performance of the Chaparral 2F driven to victory by Phil Hill and Mike Spence. It was not only a victory against strong opposition from Ferrari, Porsche, Mirage and Lola, but was also a fine victory against the Brands Hatch Circuit, for a lot of people thought the car would be quite unsuitable for the tight little Kentish circuit with all its twists and turns and no reasonable straights. The entry of this lone Chaparral in the BOAC-sponsored race was typical of the enthusiasm and outlook of Jim Hall and Hap Sharp, the two men behind the designing and building of the car.

The Chaparral team came to Europe at the beginning of the season to take part in European motor racing, and this meant they were prepared to race anywhere Ferrari was prepared to go, unlike Ford who came to Europe for the

sole purpose of winning at Le Mans, and would not be drawn into any other European races.

All this season the Chaparral people have been saying "We came to Europe to race, we'll have a go at anything, whether it is suitable or not."

They like racing, and like everyone in racing they also like to win, but this season they have had a pretty bad time, always being strong contenders but never finishing, let alone winning. For those of us who have followed the Chaparral activities this season, it was all the more enjoyable to see them finish the BOAC 500 race and win it after a great battle against Ferrari and Porsche.

I was all set for Mike Spence to take me around Brands Hatch for a few laps in the passenger seat of Chaparral 2F 001, and demonstrate the driving technique of this very advanced car from Texas, but Grovewood Officialdom and their 'niggling neighbours' who complain

about the noise at one minute past 5pm on weekdays, prevented this. A pity, for I am sure it would have been instructive. Having a torque converter there is no clutch, so naturally no clutch pedal, and the gearbox, which has three speed ranges, coupled with the spread of the torque-converter, is controlled by a short lever in an open gate on the right of the driving seat. Putting the lever in Low and the left foot on the brake pedal, the engine is started against the drive, the hydraulic torque-converter slipping until the brakes are released and the engine revs speeded up, or you can take off in High. After a pitstop the getaway was almost instantaneous, the car gathering speed as the engine fired, and accelerating away from very low rpm rather like a steam engine. Once motoring the left foot is used to operate the 'wing' and the right foot on the throttle or brake, or if required the left foot can be used on the foot brake and



the power kept on with the right foot. The 'wing' was being feathered along the pit straight, left alone around Paddock, Druids and along the bottom straight, feathered again after the bridge at South Bank, and again along the Portobello straight, in the braking position through Dingle Dell and Stirling's Bend and feathered on the rush down to Clearways.

The visit to Europe by Chaparral in 1967 has been interesting, bringing new scenes to the racing, and if those people who used to paint slogans on walls reading 'Yanks Go Home' want something to do, they can get the paint pot out and write 'Texans Come Back'.



Taken from the July 1967 issue of *Motor Sport*

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1969

## CHAPARRAL 2H



**RICARDO DIVILA**

*Veteran designer/  
engineer*

Chaparral 2H is the one for me. I just love that car. The Ferrari P3 is a work of art, but when it comes down to engineering the Chaparral is just a step up from everything that came before and probably after, too.

It is hard to separate what was Chevrolet and what was Jim Hall at that period. The whole sucker concept comes from the vehicles that they used to tow B52 bombers on frozen Alaskan runways. It gave the necessary traction to get things moving. Remarkable.

Chevrolet was involved in this and it is actually hard to understand what Jim Hall's standing with the company was, but they certainly used him as an ideas man.

The 2H had a fibreglass composite monocoque with technology that came from Chevrolet. It was very advanced for the time. The wing applications it had, the moveable wing, was for sure a high point in engineering of the period. It came when I was just feeding myself in to racing and, sadly, I never saw it competing in period.

# 1994-2002

## RILEY & SCOTT MkIIIA



### JAMES WEAVER

*Sports car star, 1997  
Daytona 24H winner*

The cars I really remember fondly are my first real racers: the Hawke D11 and Tiga FF79 Formula Ford cars, the Tiga SC80 Sports 2000 and the Chevron B36. But if I have to pick one it would be the Riley & Scott MkIIIA, because it was just such a remarkable design.

It actually started life as the Intrepid in 1990 and then morphed in to the MkIIIA when Bob and Bill founded Riley & Scott just afterwards.

The longevity of it is remarkable, really, because the concept essentially still runs today in the USC. So it went from a roof, to no roof then to a roof again and the concept has been racing since 1990. Remarkable!

The DNA can be traced back to the Tommy Kendall car in the early 1990s. Of course the MkIIIA had a carbon tub, but if you look at the Intrepid with that shovel-nose and imagine



the roof off it, it is a dead ringer. I first drove it in 1995 and one of the first wins we got was at Road Atlanta in that terrible race where Jeremy Dale and Fabrizio Barbazza were badly hurt.

The only thing that held the car back a little was that it was a bit draggy and was never the quickest in a straight line, but it made up for it in the corners because the downforce levels were astonishing. It was a great mechanical package, too, with good brakes. It was also a strong car and we had very few retirements. It was just a great car to qualify or race and holds wonderful memories for me and, I am sure, Rob [Dyson, team boss] too.

It really was a pleasure to drive and the best thing about it was that it would hold its settings through a whole 12 hours of Sebring. All the opposition would be shagged out after six hours but the Dyson Riley & Scott would really carry itself nicely.

We raced it right up until 2002, when Rob bought the Lola LMP675 – and that proved to be another fantastic car.



1975

## ALPINE A441



**MARIE-CLAUDE  
BEAUMONT**

*Rally star turned racer,  
Le Mans pioneer*

My favourite racing car was the Alpine-Renault that Lella Lombardi and I shared in European rounds of the 1975 World Sports Car Championship. It was wonderful, and capable of challenging for victory at Le Mans. I really hoped to continue beyond that season, but Lella harboured F1 dreams, which she fulfilled, while I felt I'd reached my limit. I was able to compete in sports cars, but didn't feel I could aim any higher.

When the ACO accepted my Le Mans entry in 1971, incidentally, it ended a long-standing ban on female drivers [one imposed after Annie Bousquet's death at Reims in 1956].

2009

## ZYTEK GZ09S


**STEFAN JOHANSSON***1997 Le Mans winner,  
79 F1 Grand Prix starts*

This is my all-time favourite. From the first moment we ran that car it was just lightning fast. It never really got anything near the recognition it should have had.

It's really the same car today and it's still winning races 10 years later [in LMP2]. It's just phenomenal. The harmony of the suspension geometry and everything else made it such a nice car to drive.

If you look at what it did back in the day, it used to run circles around the Audis for a while. There was never really enough backing behind the teams to give it the success it deserved, but back in the day it was so much better than the Lola or Courage. It had a Zytek

V8 and there were many versions of that engine. Now it's got the Nissan LMP2 engine.

I drove that car in the first race it ever ran, at Monza. Zytek's Trevor Foster called me up on a Tuesday. I was in California and he asked me if I could be at Monza on Thursday. So I packed my bag, jumped on a 'plane and landed at Milan on Thursday morning. I got in the car and there were literally 10 minutes to go in the first session. We just wanted to make sure the seat fitted and I went out with no data or dashboard. It was a typical new car but I went out and was on pole by 1.2 seconds! I only did three laps but the car was mighty. It was so much fun to drive, just amazing. 





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GREAT RACING CARS

INDY



# CARS

Home series of America's greatest race, the immortal Indianapolis 500, Indycar racing brings very different challenges to Formula 1 – yet there's been an on-off overlap since the Sixties. Designers, drivers and engineers have experimented with swapping disciplines; some worked, some didn't. And frequently it was the home-cooked recipe that went down best. From unsophisticated Sprint cars on scary dirt ovals to the spring jamboree that is Indy, team owners, champions and 500 winners choose the rides that made their heart rates surge. »





1965-67

## LOTUS 38



**DARIO FRANCHITTI**

*Four-time Indycar  
champion, three-time  
Indy 500 winner*

This is 38-01, the car with which Jimmy Clark won the Indianapolis 500 in 1965, and I was lucky enough to have a run in it at Indianapolis a few years ago. It was a stunning car to drive. The four-cam Ford engine is a great engine and the Lotus 38 is one of the most stunningly beautiful cars I've ever seen. I just love it. I was so delighted to drive it at Indianapolis.

Bear in mind that only a few people have ever driven that car: Jimmy, Jackie Stewart and me, plus one of the Lotus mechanics. I feel very fortunate to have driven it. The 38 is just wonderful and very significant as the first rear-engined car to win the Indy 500.





**JOHN KIRKPATRICK**  
*Racing school boss who nurtured many talents*

This is very much a heart answer rather than a head answer. There have been some remarkable cars that have had longevity, but I think the one I have to choose would be the Lotus 38 Indycar. Not least because it was a ‘Jimmy’ car and he was the man for me. My complete hero.

It clearly changed the face of Indycar racing as there was never another front-engined car that could be competitive against the new breed, so it was kind of revolutionary.

The Lotus 38 is a thing of beauty to me. It was a Len Terry design and Terry’s cars always looked beautiful. The Eagle F1 car that he designed was to me one of the most beautiful Grand Prix cars ever built.

When you look at the transition from front to rear engines, it happened in Formula 1 long before it did at Indy, with the Coopers and so forth. Imagine putting yourself in the position of somebody who had been there for years, like Andy Granatelli or AJ Foyt. It must have been pretty fascinating to see the reaction to what Lotus brought over at that period. I would love to have seen old AJ’s face when he saw it being brought in to the paddock



## *Clark’s perfect Indy winner*

Designer Len Terry on the car he drew for Jimmy. Interview by Gordon Cruickshank

At Lotus Len Terry sometimes clashed with Colin Chapman over design matters, and was happiest left alone. He doesn’t count the first Lotus Indycars, 29 and 34, as his – merely modified 25/33s. But for the 38 he had carte blanche because Colin was out at the Tasman races, and he made full use of it to push aero design principles. Instead of the 33/34 ‘bathtub’ – driver sitting between two stressed-skin tubes – he drew essentially a single rigid hull with a hole for the pilot and two sponsons behind to cradle the V8. “When Colin came back he didn’t like the full monocoque because of accessibility. But it was too late! And I wouldn’t have changed it.”

He may be slight, but Len was never one to be slighted. Holding the wheels on was a lop-sided variant of the F1 car’s suspension – wishbones and top link up front, reversed wishbones, top link and radius arms behind, heftier discs and uprights all round. Len beckons me round the back to show how despite the asymmetry – body hunching 3in left to even out loads on ovals – the swing axle lengths work out equal for even steering response. Pointing at the rear cross-member he explains how to plot pivots to give over- or understeer as the driver prefers. “What did Jimmy like?” I ask, and he laughs. “He didn’t care! He could adapt to anything, he was absolutely



for the first time! When Andrew Ferguson was alive, he and I would just sit and talk about the Lotus 38 and Jimmy Clark. Andrew was a great character and he tells all in his wonderful book – *Lotus: The Indianapolis Years* – of the challenges they faced.

The effect Clark had on Scottish motor sport was huge. Overnight it was the place to be. I think Indy was broadcast from the US for the first time in 1966, in cinemas. We were pretty convinced Jimmy was going to win again. Of course, he didn't because he spun twice and there was all the confusion and the win went to Graham Hill and the Lola. It had a huge impact at home.

I still have some copies of the following day's newspapers and it made front-page headlines in most of them, as far as I recall.

The Lotus 38 was just so clean and sleek. It was of course the first full monocoque chassis and the mid-mounted Ford V8 engine gave it brilliant weight distribution. The whole thing was just a work of art and, with that unmistakable helmet in the cockpit, it made a lasting and deep impression on me and many others.

brilliant. In testing you didn't dare let him have more than two full-out laps, because by the third lap he'd have adapted to anything wrong with the car and covered it up!"

The result just looked... right. Slim nose, curved rump hiding the two-speed ZF transaxle, air-gulping intakes and those mustard tailpipes pointing skyward like ack-ack guns. A broad-shouldered cousin to the 33 F1 car.

Though he knows this car inside-out, mechanic Dave Lazenby marvels at it. "It's so purposeful, so right. One of the best cars ever." Crew chief at Indy, he recalls how smoothly the long, leisurely May run-up went. "It was finished on

time, and once we got to Indy there was nothing to do. We'd just push it out each day in the evening cool, Jimmy would go faster yet, and we'd put it away again."

Len Terry grins: "Development is correcting the designer's mistakes. That's why you had an easy time."

Easy if you don't count building up a second 38 and running Cortinas at two US races...



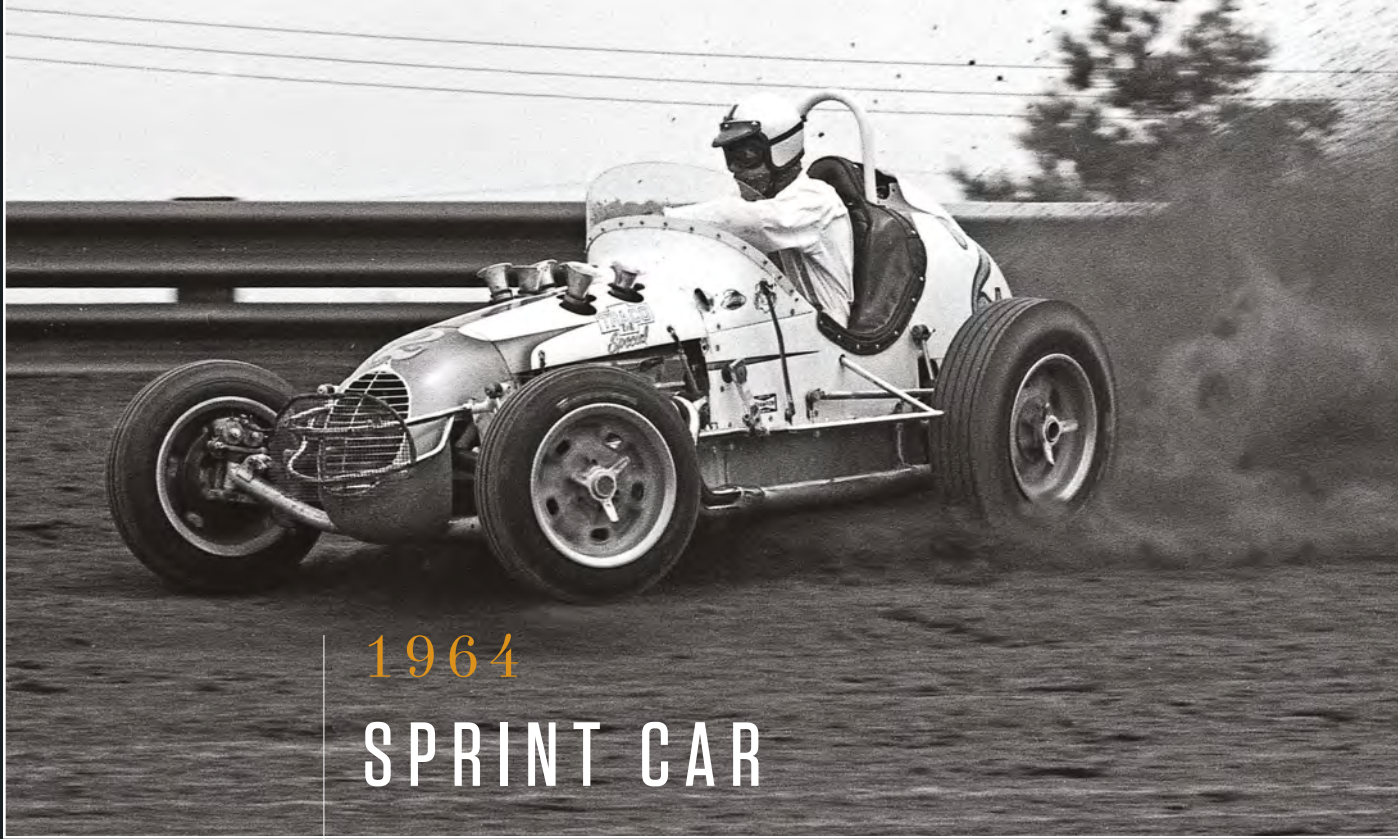
Taken from the July 2010 issue of *Motor Sport*

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### *Essential info*

## Lotus 38

**Notable entrants** Team Lotus, AJ Foyt  
**Notable drivers** Jim Clark, Dan Gurney, AJ Foyt, Roger McCluskey, Joe Leonard, Lloyd Ruby  
**Debut** 1965 Indianapolis  
**500 Achievements** 1 win, 0 poles  
**Constructors' Championships** 0  
**Drivers' Championships** 0



1964

## SPRINT CAR

**AJ FOYT**

*Four-time Indy 500 winner; 1967  
Le Mans winner; Daytona 500  
and 24 Hours winner*

I loved to run sprint cars on half-mile dirt tracks like Allentown, Pennsylvania and also Reading and Williams Grove in Pennsylvania, plus Terre Haute, Indiana. I think my favourite car was a sprint car I bought from Elmer George [and Mari Hulman George] in 1964. I took the Offy out and put a Chevrolet in it. It handled real well and really was unbeatable.

Jud Larson drove it at New Bremen (Ohio) and won the race. It was the day after I won Indy [in 64] and he said that if I won the 500, he was gonna drive the sprinter at New Bremen. I said no, and towed it over there to race it. I think Jud was there in Paul Leffler's sprint car and he got out and came over and said, 'I told you I was gonna drive it.' So I let him drive it and he won the race. 🏁🏁




1965-67

## BRABHAM/BRAWNER HAWK



### MARIO ANDRETTI

*1969 Indy 500 winner,  
1978 F1 champion,  
versatility on wheels*

In Indycars, the car that really launched my career was the Brabham/Brawner Hawk that Clint Brawner built in 1965. We raced that car through 1967 and won two championships with it. In '66 and '67 I had two Indy 500s with that car that were the easiest of my career and I should have won, but we didn't finish. That was a car I totally understood. I would decide what springs to run and we used to jack weight into the anti-roll bars with that car. We had some trick shit that really worked and I had a lot of fun racing it. 



## 1961-64 OL' CALHOUN



**PARNELLI JONES**  
*1960s US racing legend,  
1970s F1 team owner*

My favourite race car for sure is 'Calhoun'. Not only did I win the Indianapolis 500 in that car in 1963, but I was also the first driver to lap the Indianapolis Motor Speedway at over 150mph in that car in 1962.

The car ran at Indianapolis for five years and not too many Indy cars run that competitively for so many years. Lloyd Ruby drove 'Calhoun' in 1960 and I drove it in 1961, '62, '63 and '64. I led a lot of laps at Indianapolis in 'Calhoun' and could have won in my rookie year, 1961, until I lost a cylinder. The next year I led again with 'Calhoun' but ran out brakes before we finally won the 500 in 1963. So that car meant a lot to me.

The first year I ran at Indianapolis, when you got sideways the experienced guys would tell you not to do that. They said if you have to start turning the car the other way you were going to spin it and hit the wall and we saw Jack Turner do exactly that.

One time during practice in my rookie year, I came out of turn four and got sideways. I corrected just a little bit and it was a miracle that I kept it out of the wall. That taught me that the next time the car did that I was going to be ahead of it.

I led the race for 27 laps in my rookie year and had a chance to win until we lost that



cylinder. After the race I got a chance to do some tyre testing for Firestone. I ran around 1500 miles and by the end of the test the gearshift and everything else were falling apart.

But during those tyre tests I learned how to slip the car and be ahead of it. I learned how to slip the car on purpose, so I could come off the corners with the car running freer and keep my speed up, which was one of the reasons I had an edge with that car. In those days the tyres were tall and skinny and the drivers were fat compared to today's young guys.

I get a chance to drive 'Calhoun' every once in a while at Indianapolis and it's like putting on an old glove. I gave that car it's name. One day I said, 'Let Calhoun have the ball'. And from then on, it took on that name. We put a lot of happy miles in that car. 🏁



## Not in my Brickyard

How Parnelli Jones withstood the European invasion at Indianapolis in 1963

Nobody was more determined to prevent the European dog from cocking its leg in Gasoline Alley than Parnelli Jones. He was 29 years of age then, a tough individual born into a poor Arkansas family that had drifted west to California during the dark days of the Depression. This would be only his third start in the Indy 500, but already he had made his mark on the Speedway.

In 1961, his rookie year, he had started from the second row of the grid and led for 75 miles despite the handicap of blood filling the left eyepiece of his goggles after a piece of flying metal cut his forehead. It wasn't until the Offy engine of his Watson-built roadster went off song that Jones conceded the lead, although he battled all the way to the end to finish 12th. In 1962 he qualified on pole, with the first 150mph-plus run for the flying four laps, and led the race until brake problems intervened.

Jones's car in 1963 was the same Watson-Offy roadster he'd raced in 1961 and 1962. Known as 'Ol' Calhoun', it was sponsored and entered by J C Agajanian, a pig farmer and garbage collector who had been running cars at the Speedway since 1948 but was still looking for his first win. Ol' Calhoun was a state-of-the-art USAC roadster, which weighed in at 1500lbs against the Lotus's 1150lbs and looked as big as a bus by comparison.

High winds were gusting over the track when qualifying started. Wind speeds of above 35mph were being recorded when Jones fired up Ol' Calhoun and set off. The target to beat was 150.188mph, set by veteran Don Branson, also driving a Watson-Offy. Jim Clark and Dan Gurney had yet to run. Jones had developed a special technique for qualifying at the Speedway, a style he kept to himself and never used when somebody was running close enough to see what he was up to. Coming into a corner, he tapped the brakes and threw the car into a slide. It was done at high enough speed to force the outer edge of the outside rear tyres to tuck under. The moment the car

stopped sliding, the tyre popped back up, fully erect, slingshotting 'Ol' Calhoun' down the straight. Jones reckoned it gave him another 2-3mph. But if it was fast, it was also risky, if the front wheels weren't pointed straight down the road when he floored the throttle, the popped-up tyre would catapult the car into a slide in the opposite direction and straight into the wall at 140mph. It had happened to other drivers, who had inadvertently created the same effect. Right from the beginning of that run it was clear that Jones was on the ragged edge, the high winds snatching at the front end of the car. Not once did he let up though and the crowds in the grandstand responded to what they could see was a huge effort of guts and will. His fastest lap was 151.847mph, his four-lap average 151.153mph. Veteran commentator Torn Carnegie yelled: "A new track record", and Jones, the adrenalin subsiding, cruised slowly into the pits.

Neither Clark nor Gurney could do anything about it. Gurney badly damaged one chassis trying and dropped to 13th on the grid. Clark averaged 149.750mph to take fifth. Asked for his reaction afterwards, Jones said: "The last thing in the world I was going to see happen was one of them goddam funny cars take the pole."

Jones won somewhat controversially because Ol' Calhoun had been leaking oil in the closing stages, normally an instant case for a black flag. Clark was second, a victim of some sharp practice by the USAC establishment. But when American driver Eddie Sachs, who had crashed out on the spilled oil, raised the issue with Jones, the only reply he got was a punch in the face. It wasn't gracious, but the way Jones drove that car had earned him the right.

SEE THIS CAR  
IN ACTION

@ the motor sport  
digital edition



Taken from the October  
1997 issue of *Motor Sport*

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1972

## AAR EAGLE



**BOBBY UNSER**  
*Three-time Indy  
 500 winner*

The '72 Eagle was a great car. We didn't win the Indy 500 that year, but we broke every record there was. It was the first car to run a 200mph lap and we broke the track record at Indianapolis by 18mph that year, the biggest jump in speed in the history of The Speedway. We had pole after pole after pole.

Roman Slobodinskyj designed the '72 Eagle but a lot of the ideas came from Dan Gurney. Dan really understood the concept and we developed that car together. A lot of my ideas went into that car, but Dan was at the top of his game in those days. All American Racers built some good cars through the late Sixties and in the Seventies. They were good cars, beautifully built, and the '72 Eagle was one of the most successful cars in my career.

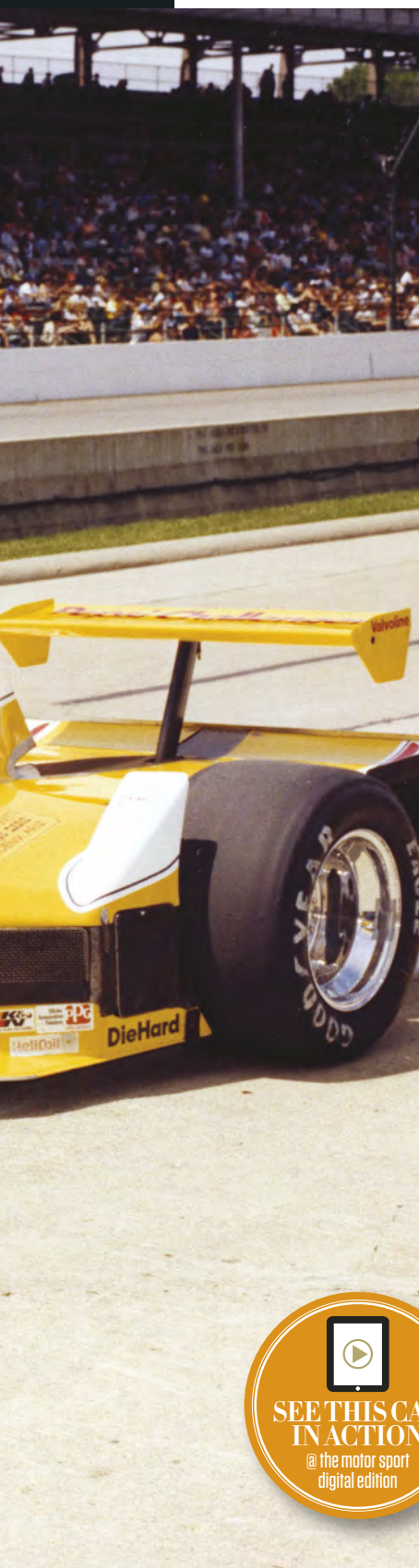
It was way ahead of its time and we had some tricks with the turbocharger that allowed us to make a lot of power. We learned how to make the power and the downforce, too, and it took everyone else a few years to figure out what we were doing. When Dan came up with the 'Gurney flap' wing it turned that car from a good car into a great car. With the Gurney flap it just screamed for more horsepower. Give me more horsepower, it said. I can handle it. That car was bloody fast!

We developed and raced that car through four or five years and I finally won at the Speedway with Dan in 1975. For a few years everybody bought Eagles and one year I think there were 25 in the field at Indianapolis." 🏁









1981

BLAT

EAGLE-CHEVROLET



**DAN GURNEY,**  
*All-American hero in  
 F1, Indycars, sports  
 cars... anything and  
 everything!*

My favourite car of all our Eagles was our 1981 Eagle-Chevy 'Boundary Layer Adhesion Technology' car. Mike Mosley scored a fantastic win in that at Milwaukee, coming through the field from the back of the grid after blowing an engine in qualifying.

It was a superb performance and I loved that car because it was a concept that was completely different from anything else out there at the time. It was even better than we thought it was going to be, but we really didn't know why. It was off the charts and so good and so different that it was banned by the powers that be!

## *Like a BLAT out of hell*

Gordon Kirby recalls how and why Gurney's BLAT Eagle was so special

It's probably happened before and since, but the most spectacular last to first performance I've ever witnessed took place on the Milwaukee Mile in June 1981, when Mike Mosley drove All American Racers' unique Eagle-Chevy from the back of the grid to win.

Mosley performed his feat aboard what was known as the Boundary Layer Adhesion Technology (BLAT) Eagle-Chevy first raced by AAR in 1980. The car is Dan Gurney's favourite Eagle Indycar because it's the definition of All American Racers. It was completely different from conventional thinking, highly innovative in a number of ways, and – the ultimate compliment – it was so successful that it was banned.

Most CART teams ran turbocharged Cosworth DFX V8s in those days, but AAR typically went a different route developing its own normally-aspirated Chevrolet stock-block engines built around Donovan aluminium blocks. The Eagle chassis was completely unlike the other top cars of the time from Penske, Chaparral, Coyote, March, Wildcat and Phoenix. Everyone else was in the midst of developing classic, ground-effect cars based on the Lotus 79 concept with underwings or 'tunnels' creating a low pressure area under the car.

But AAR found a different method. Using the BLAT technique, Dan and engineers John Ward and Trevor Harris produced a car that was at least as – and maybe more – effective than traditional ground-effect cars.

Compared with its competitors the Eagle presented a very different nose to the wind and also had a strikingly different overall shape.

Instead of ducting air underneath the car into an enclosed venturi or underwing in the usual ground-effect way, the BLAT concept involved a twin vortex generating shape that was linked to the trailing edge of the rear bodywork, wing and a very efficient cooling system exhaust. The routing of

the exhaust system added further energy and downforce to the airflow, and variants of this concept have been used more recently in Formula 1.

Sure enough, the maverick Eagle-Chevy package was entirely competitive with the turbo Cosworth-powered opposition in 1981. Dan had also sold Pepsi-Cola on sponsoring the team and after five or six tough years things were looking good for a fresh start from AAR. At Indianapolis Mosley and the Eagle were quick from the start of practice



and attracted plenty of attention from the other teams, who started complaining about the car's legality.

Mosley qualified second for the 500, sharing the front row with Bobby Unser's Penske-Cosworth and AJ Foyt's Coyote-Cosworth, but he was the race's first retirement after just 16 laps with an oil leak. At Milwaukee the following week there was more bad luck when Mosley started last after missing qualifying because of an engine failure. He had to start from the back of the field, 25th, but as soon as the green flag waved he began to motor to the front. Incredibly, he passed everyone and went on to win as he pleased by over a lap from Kevin Cogan and Mario Andretti.

Taken from the *Motor Sport* website

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2003

## REYNARD 021



**RYAN HUNTER-REAY**  
*2012 Indycar champion,  
 2014 Indy 500 winner*

You always remember the car in which you scored your first major win. The 2003 Reynard-Ford/Cosworth was a lot of fun to drive. I loved the looks of that car and loved the way it drove. I just loved everything about it and it's still a beautiful car. I'd put it up against anything else out there.

We won the last race with that car in Australia in 2003 and it was a beautiful car. I had a great run and that would have to be my favourite all-round car. It was always on edge and when you got into its sweet spot it was just fantastic. At a place like Mid-Ohio, it was a tremendous pleasure to drive.



## 2000-01

# REYNARD 2K1/011



**GIL DE FERRAN**

*Two-time CART  
champion and  
2003 Indy 500 winner*

The one that really sticks out in my head is the 2001 Penske/Reynard-Honda. We spent the 2000 season with Penske working on the Reynard. The team had a whole bunch of ideas of how we wanted to develop the car.

They built all their own suspension and we had a different aero package and all of those things came together on the 2001 car. That, without question, is the best Indycar I've ever driven.

It was a great car in every respect. It looked beautiful and was superbly finished, like all Penske cars. It was a Reynard built by Penske with the Penske level of quality, fit and finish. That car looked nice standing still. It made me proud to drive it. I was very proud to drive for Penske and Honda, but that was the epitome of it all.

On road courses it was a great combination of a really well-balanced car with a very smooth engine and very consistent Firestone tyres. It was a fantastic combination and something I really enjoyed. We won the title with that car in 2000 and 2001 and set a world record in qualifying for the 2000 California 500, at more than 241mph.



## The fastest-ever racing cars

Gordon Kirby recalls the Reynards that set a circuit racing speed record at the California Speedway

The fastest laps ever achieved by a race car were set in 1997 and 2000 by Mauricio Gugelmin and Gil de Ferran at the high-banked, two-mile California Speedway. In qualifying for the 1997 California 500 Gugelmin lapped his PacWest Reynard-Mercedes at 240.942mph. Three years later de Ferran qualified his Penske Reynard-Honda on pole for the same race at 241.428mph, establishing the closed-course speed record for a race car.

Over the next few years an increasing series of restrictions on aerodynamics and engines forever changed the face of Indycar racing by substantially reducing horsepower, speeds and the spectacle. Today, it seems unlikely that the speeds achieved by de Ferran and Gugelmin will ever be equalled or even approached. Gugelmin says, "I feel lucky we lived through an age when Indycars got to that level."

De Ferran's record lap, set on October 28 2000, was the product of Honda and Penske doing everything possible to take pole and earn with it the additional point de Ferran needed to help wrap up that year's CART title. In those days CART boasted four engine manufacturers (Honda, Mercedes-Benz, Ford/Cosworth and Toyota) and five chassis constructors (Reynard, Penske, Lola, Eagle and Swift), and was much closer to F1 in spirit and

investment than is today's Dallara de facto spec car. The California 500 was the last of 20 races that season and de Ferran went into it with a five-point lead over Adrian Fernandez, who had kept himself in the title hunt by scoring points in all but three races. De Ferran sealed the first of two consecutive CART titles by finishing a conservative third in the race, two places ahead of Fernandez.

"Leading up to the race Penske did a lot of work on the aerodynamics to make sure our Speedway car was the best it could be and Honda came up with this stonker of an engine," says de Ferran. "It made over 1000bhp. It was a qualifying engine with very little mileage. I recall its limit was 50 miles. So basically you could do two runs in the morning and then your qualifying run.

"When we went to qualify they put the qualifying map on the engine, which was a bit extra. The thing was a rocketship, and without the turbulence from other cars to disturb it, the car was just stuck on the ground.

"You're running so little downforce that you can easily overdo it on the tyres. There are no tyre warmers in Indycar racing and I brought it up [to speed] really slowly and got it just right. I knew exactly what speed I was [doing] on the exit of every turn.

"When I did that 241 qualifying lap

the car was perfect. I remember feeling everything through my hands. Going into Turn 1 I was telling myself, 'Don't lift! Don't lift!' You've just gotta believe in the car because on a big oval, if you wait to feel that the grip is there, it's too late.

"As soon as I crossed the start/finish line they said over the radio, 'You've got pole!' At the time the most significant thing was getting pole and the point that went with it, because we were fighting for the championship. The record was great but at the time it didn't seem very important to me. But as the years have gone by it's changed. I think it was pretty cool we were able to make that record under racing conditions. A lot of record attempts are done in special conditions away from a race weekend. As far as accomplishments go, that is one of which I'm very proud."

But Gugelmin points out that in practice prior to his 1997 record qualifying run he turned a lap at 242.333mph. "The unofficial record is still mine," he says. "That's the fastest lap ever, I guess."



Taken from the September 2009 issue of *Motor Sport*

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## 1997 REYNARD 971



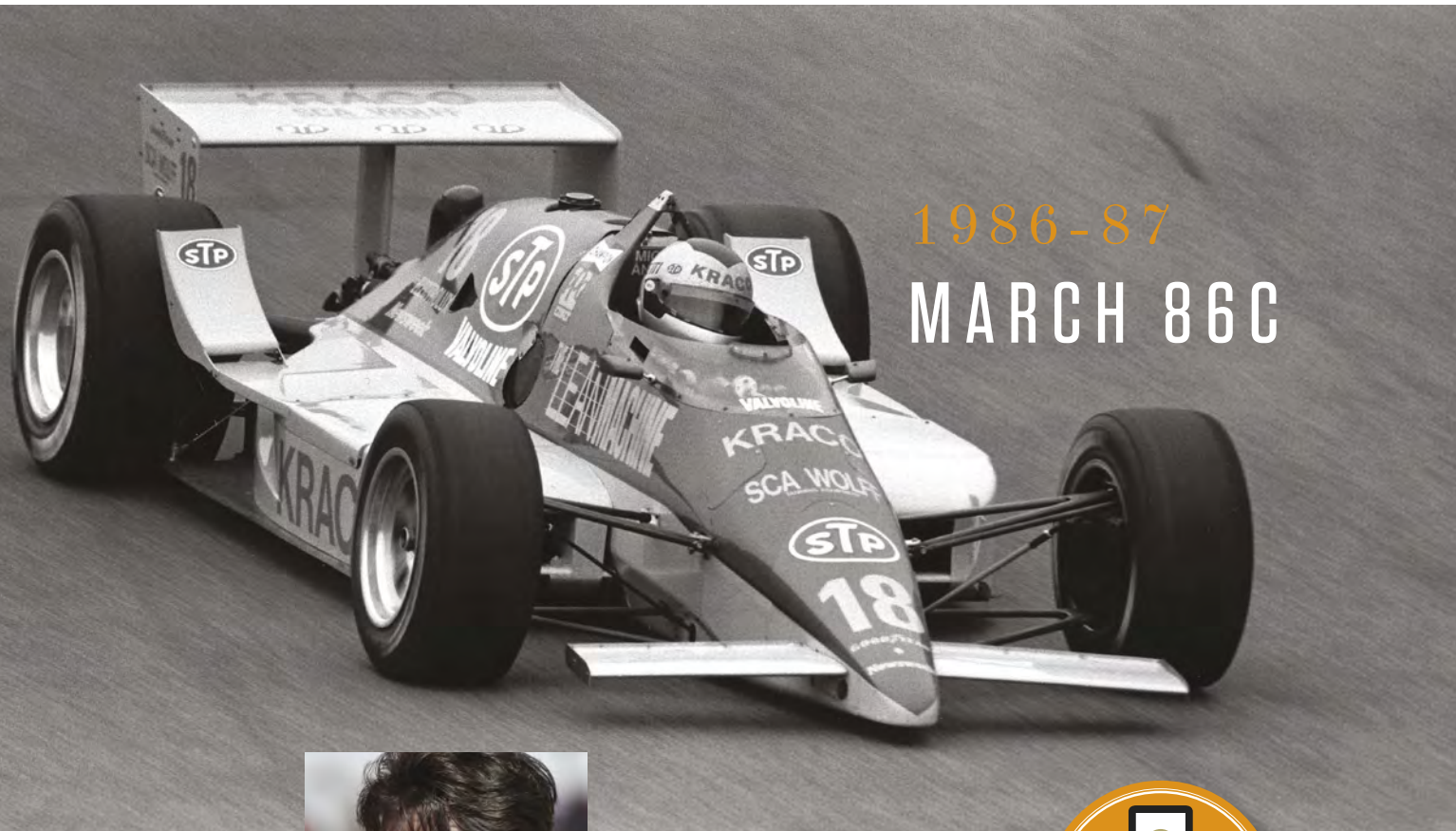
**ADRIAN REYNARD**  
*Experienced racer, designer  
and constructor*

For all the cars that we designed and built at Reynard, I was always of the impression that once they were done I wanted to move on to the next one immediately. The 1997 Indycar was the peak of what we designed and built in that era. We had come in to Indycar with all guns blazing and took a debut win at Surfers Paradise in 1994, courtesy of Michael Andretti and Ganassi.

The '97 car was really well designed by Malcolm [Oastler] and it had excellent reliability, which at that era of Champ Car was not always the case. The gearboxes were terrific, we used Xtrac and they did a fantastic job. Jacques [Villeneuve] won our first title in '95,

and then Jimmy [Vasser] won the title in '96 before Alex [Zanardi] made it a hat trick, which was fantastic because we had known him for years and he was part of the Reynard family.

Anyone in this game will tell you that to win consistently is the hardest part. We had Penske and Swift trying to knock us off our perch in 1997, then Lola came back rejuvenated just after and to deliver all that success was very satisfying. The 1997 car was possibly the peak of Champ Cars performance. Speed records seemed to be broken every weekend and to do it with that level of opposition from those constructors... Well, you don't really get that in racing these days, do you?



1986-87  
MARCH 86C



### MICHAEL ANDRETTI

*1991 Indycar  
champion, 42 wins*



The 1986 March Indycar that Adrian [Newey] designed was a great car. He designed it and Adrian and Peter Gibbons engineered my car that year and we dominated almost every race. We just didn't finish many of them.

But that car was ahead of its time and we had a really good team that got the best out of it. It was really good at any type of track – street circuits, road courses, big ovals, short ovals. You name it. That car was quick everywhere.

It made a lot of downforce, more than the Lola at that time, and you could just tell that it had Adrian's fingerprints on it. He would come up with some wild ideas on set-up and normally they worked. That car really worked and we tried a lot of different things that made it even better.

It was just too bad that we didn't finish many races. We led more laps than anybody that year but Bobby [Rahal] beat us to the championship by eight points. 🏁



## Adrian Newey & Bobby Rahal

Gordon Kirby on the friendship that would influence the career of arguably F1's greatest designer

In 1984 Nigel Bennett designed an all-new Lola Indycar, the T800, and Mario Andretti swept to that year's CART championship driving one for Newman/Haas. "The '84 March was quite a big car and the '84 Lola was definitely the car to have that year," Rahal recalls. "But over the course of the year Adrian [Newey] re-engineered the March and that's where our relationship started. Adrian and I developed a very strong relationship on and off the track. On the track he practically knew what I was going to say before I said it, so we were able to work together to improve the car and make it better and better."

"On the basis of that development Robin Herd put me in charge of designing the '85 March," says Newey. "That brought its own pressures because that meant I had to ferry backwards and forwards across the Atlantic, doing the dual tasks of running Bobby and developing the '84 car, and starting to lay out the '85 car." Newey designed a new, smaller March for 1985. "The '85

car was where you could really begin to see Adrian's influence," Rahal observes. "He just had that touch to try to make the car smaller and more efficient."

Rahal finished third in the '84 CART championship and was third again in '85. "Adrian, myself and the team developed a lot over those years," Rahal says. "I'd like to think that Truesports gave Adrian a lot of insight into running and racing the car. It's easy to design a car, but it's another thing to understand how it works in the real world and how easy it is or isn't to maintain. Can the mechanics get at stuff? Is it workable rather than just a piece of engineering art? Is it user-friendly?"

Newey agrees with Rahal's assessment. "Bobby was very good to work with and reasonably quickly we developed a very good working relationship," he says.

"We got to the point where we could actually translate what each other was saying. It wasn't actually the words you used, it was the intention of what you were trying to achieve that became the real way of operating.

"It's great when you achieve that. I think in reality I achieved that with very few drivers, probably with Bobby more completely than any other driver. I could translate what Bobby wanted without him actually having to go into every detail in what he was trying to describe."

Rahal believes one of Newey's biggest strengths is having an open, enquiring mind that's rooted in reality rather than theory. "I think what makes Adrian who he is, is not just his brilliance as a designer and his creativity and imagination, but he's also looking at which way the wind's blowing," Rahal observes. "He's not one of these engineers — and there are lots of them around — who just bury their heads in the computer. They don't look up from the computer and see what's going on out there."

But despite the strong relationship with Rahal, Newey quit Truesports for the Kraco team in a move he admits today was largely motivated by money. Another factor was Ferrari's politically

inspired proposal for Truesports to run a Ferrari Indycar in 1986. To this end Rahal and the team tested an '85 March at Fiorano and Ferrari offered Newey a job as their chief Indycar designer. "I turned it down because I was happy at March and I wasn't convinced that Ferrari was the right long-term career move for me." It wouldn't be the last time he'd turn down Ferrari...

Newey warmly recalls his time in Indycars during CART's heyday. "It was a very stimulating four years," Adrian says. "I learned a lot through those years. Mario [Andretti] was another driver I had that special working relationship with, and Michael to a lesser extent. I would say the strongest relationship was with Bobby and then Mario, but Michael and I started to get a good understanding. It's ironic that of the five drivers that I would say I achieved that with, three were drivers I engineered in Indycars."

He won't name the other two. "I should probably keep that to myself," Adrian grins. Newey moved on in 1988 to design Leyton House's F1 cars, and then make his big move to Williams, Rahal expanded his retinue in 1992 to become a team owner as well as driver. In that first year he won the Indycar crown again, the only owner/driver to achieve the feat since AJ Foyt in 1975 and 1979.

In 1993 Rahal struck a deal with Honda to lead the Japanese manufacturer's entry into Indycar racing and Bobby talked to Newey about joining his CART team in Ohio. They met at the Canadian Grand Prix in Montréal, and Adrian and his wife flew to Ohio to visit Rahal's shop. "Bobby offered me a shareholding in the team, which was obviously very attractive, and I gave it a lot of thought," Adrian relates. "But in the end I decided that F1 was technically where the biggest challenge was."



Taken from the December 2012 issue of *Motor Sport*

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# 1992

## LOLA T9200



### BOBBY RAHAL

*Three-time Indycar champion,  
1986 Indy 500 winner*

I think my favourite car that I raced was probably my '92 Lola. I won on three of the mile tracks and should've won Milwaukee where I was on pole, led the race and got caught out by a yellow. We were quick everywhere in that car on short ovals, big ovals, road courses and street circuits, and we won the championship.

When you have a car that's good on the ovals those tracks can be so much fun to drive. That year I led every lap at Phoenix and Michael [Andretti] and I had a good tussle at New Hampshire, but I lapped him during that race and was the only guy on the lead lap.

It was just one of those years where we were totally in sync with the car. It was a year whenever you went to a track you were really looking forward to it because you knew you were going to be right there every time you were on the track. We had a great understanding of that car and a great set-up. It all worked everywhere we went. It was very cool. 🏁











# 1994


## PENSKE-MERCEDES PC23 500i



**ROGER PENSKE**  
*Legendary US  
team owner*

My favourite Indycar is our 1994 Penske-Mercedes-Benz we raced at Indianapolis with a 209 cubic inch, rocker arm Mercedes-Benz engine they called 'The Beast'. Quietly, we took advantage of the stock-block rule for the Indy 500 which had been dominated by the Buick V6 turbo stock-block type engine running 55 inches of boost which was seven inches more than the standard, four-camshaft V8 racing engine most of us were using.

We saw we could build our own engine to those rules and we worked on it very quietly for a year and surprised everyone when we rolled out the engine for the start of practice for the Indy 500. We sat on the pole and dominated the race with our cars and won with Al Unser Jr and that engine. That was a great day for our team and company and it established my relationship with Mercedes-Benz like the Porsche 917/30 had done with Porsche.

Following that our dealership business with Mercedes-Benz expanded worldwide and I sold the Detroit Diesel engine manufacturing business to Mercedes. 

1988

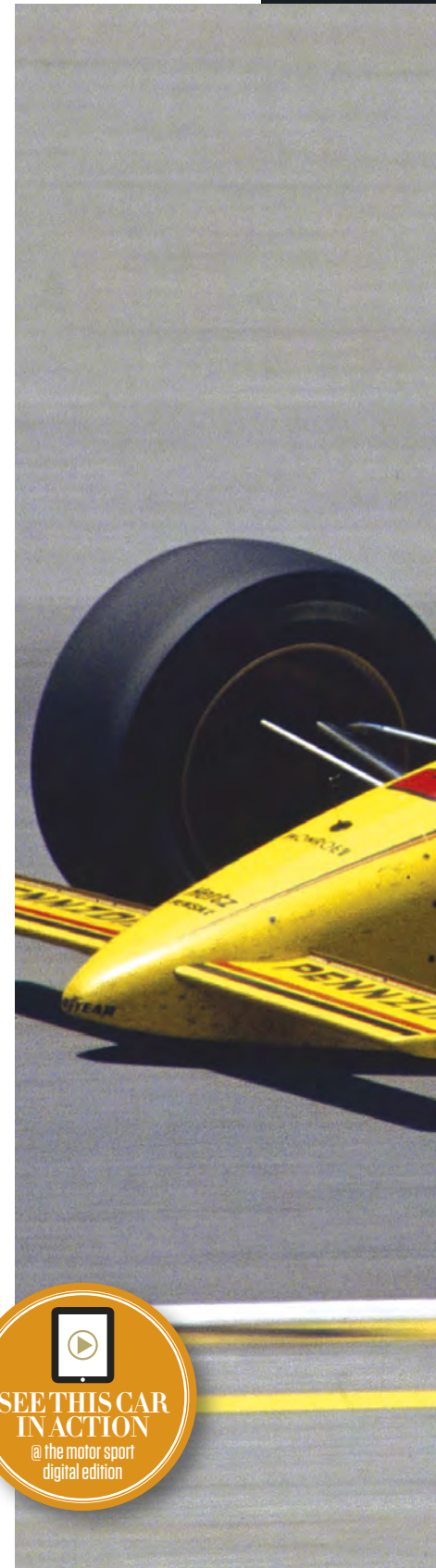
## PENSKE PC17

**RICK MEARS***Four-time Indy 500  
winner*

The 1979 and '82 Penskes are both favourites, but the other one that comes to mind was Nigel Bennett's first Penske Indycar, the PC17, in 1988. It was such a nice-looking car. It had the right lines, the right shape and the right aero. Nigel did a great job of bringing style to functionality. It looked right and it was a beautiful-handling car.

That was a few years after I broke my feet and everybody was pointing to my feet as being a problem for me on road courses. But the first time we ran that car at Long Beach on a street circuit we had quick time in the first practice session. Some people asked, 'What are you doing different?' And I said, 'Nothing. It's because the car is working and doing what I'm asking of it.'

I won my third Indy 500 with that car and my teammate Danny Sullivan won the championship in 1988. So without doubt, that was a great car. 🏁🏁🏁









## 2007

# PANOZ DP01



**SEBASTIEN BOURDAIS**  
*Four-time Indycar  
 champion from 2004-07*

I think my sweetest moment in a race car was probably in the Panoz DP01 Champ Car at Road America in 2007. It was magical! You dream of driving a car that is perfectly balanced and for me that was the moment, to the point that the car was so embarrassingly quick I had to fake a problem inside the car to make sure they weren't going to throw a yellow flag at us and let the field close up to us. The car was so strong that day and responded to whatever I wanted it to do.

“Whenever you get a good qualifying lap at Road America it's a very sweet moment and that was definitely one of the sweetest moments I've enjoyed in my career. We were 20 seconds quicker than a Daytona Prototype around Elkhart that year! A Daytona Prototype is not the quickest car in the world, but it's not slow either. I was only a second off the fastest time they had done a few years earlier in CART with a thousand horsepower. That was just mega. It was probably my finest moment behind the wheel of a race car.

That car was really strong on all the road courses. It was close to making 6000 pounds of downforce and was the right tyre combination for the right downforce, and on that given day it had just the right balance. It was one of these very rare moments when the car was just perfect. You just put the cherry on the cake and took a picture.

GREAT RACING CARS

**RALLY**





# CARS

Some say the skills needed by a rally driver outweigh those of a Formula 1 pilot. That's a debate that will never be settled, but it's a fact that there was a time when a rally car could out-accelerate a Grand Prix machine. Some of the choices here celebrate that blood-curdling Group B era when technology talked louder than safety; some revel in what high-intensity engineering can do with a car out of today's showroom. But even though rules have reined in performance a forest stage remains a fearsome test – and there's at least one current F1 driver who'd love to take it on. »

*Essential info***Audi Quattro****Entrant** Audi Sport**Notable drivers** Hannu Mikkola,

Stig Blomqvist, Walter

Röhrl, Michèle Mouton

**Debut** 1981 Monte Carlo**Rally Achievements**

23 wins

**Constructors'****Championships** 2 (1982, 1984)**Drivers' Championships** 2

(1982, 1984)





## 1982

# AUDI QUATTRO




**MICHÈLE MOUTON**

*1982 WRC runner-up,  
FIA Women in Motorsport  
Commission president*

A car for me is like a dress – you like it for different reasons but it's also important that it gives you confidence. I have driven many great cars: for example I love the Alpine, because it was the very first car I drove and it suited my driving style of not sliding. I also loved the Lancia Stratos, even though I drove it only once. Then there was the Porsche, which I also loved because of the noise.

But the car that gave me the most confidence was the Audi Quattro. I drove Audi Quattros for five years and of course you get used to it and get the confidence. But it was also a fantastic car to drive with the new four-wheel-drive technology.

It wasn't especially easy to drive at the beginning, and there was a lot more torque in the later Quattros but the car gave you so much confidence that you thought you could fly.

Of course I enjoyed a lot of success driving Quattros so I guess it was a combination of the success and what I felt driving this car. 



## *Röhrl back the years*

Rally legend Walter Röhrl recalls the 1984 Monte Carlo Rally – and his ultimate test against Stig Blomqvist

A union with Audi seemed unlikely since a tense test in '80. The relationship had been more than strained, sports boss Walter Treser getting all personal in the press back then. But finally, in '84, Röhrl and Audi were allied — uneasily at first.

“Stig [Blomqvist] was one of the main reasons I signed the contract,” he says. “Stig was the only one I'd never competed against in the same car. All the rest — Mikkola, Waldegård, Alen, Vatanen — I had been in the same car at the same time. I wanted to know, because everyone said Stig was the fastest man with four-wheel drive, the fastest on snow. It was a big motivation for me. I said to Audi, I will help you and one of your pilots to be World Champion. But in Monte Carlo I want to show who is chief!”

He had won the Monte three times already. But four-wheel drive was a new challenge.

“The first time I drove [the A2] I was

shocked because the turn-in was so bad and everybody told me you must play with left-foot braking. I had never done it in my life and I didn't believe it was necessary. It took me six weeks to understand I had to learn it otherwise it wouldn't work. In the first few weeks I had many very funny situations...

“The biggest mistake I made was that I was always trying to increase the pressure on the brake pedal. It took me a long time, but I found out you have to put constant, very light pressure on the brake pedal and then you have to play with the throttle. Then it works.

“On the other side, I'd never driven a car with so much traction, because it was 50-50. The grip was unbelievable.”

And so to the Monte. The showdown.

“Stig had done the tyre testing and I had done suspension testing. At the service the team said OK, the next stage is 80 per cent wet snow. Stig and Hannu said we must use tyre number four. OK,

we'll put all three cars on number four. After the stage, I was thinking I was quick, but Stig was 30 seconds faster. Oh Mamma Mia!

“The second stage was a long one, over three cols — around 50km. The same situation, talking tyres and saying that all three cars would be on the same. And then I said to my co-driver ‘ask on the radio what Stig's time is’. He was 1min 34sec faster than me. I was thinking I should just stop and kill myself!

“We had a long road section to get to the next service. One of my best friends was spectating on the second stage and he took a more direct route to the service. I got out of the car and he said ‘you are the greatest!’. Yeah, sure — but I'm one and half minutes slower than Stig. He said ‘on the stage, I watched you. You looked so much faster than anybody else’. I said to Christian that something must be wrong. What could it be?

“I had a good connection with one



mechanic — because I was new to the team. I said, 'Hans, if you lie I kill you! What's happened here?'. He said 'once you start, the others change tyres'. Before the next stage I said to the team chief [Roland Gumpert], 'Listen. If this happens once more I'm going to the next ditch and pushing the car into it'. On the next stage I was one minute faster, on the same tyres as the others!"

Röhrl went on to defeat Blomqvist by over a minute. Mission accomplished. The rest of the year was disappointing, a string of retirements blighting his limited programme. But it didn't really matter to Röhrl. Audi and Blomqvist had their titles and he'd conquered four-wheel drive.



Taken from the June 2010 issue of *Motor Sport*

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## JARI-MATTI LATVALA

2010 WRC runner-up,  
works Volkswagen driver

I have to say the Audi Quattro for the feeling when you are changing up through the gears and you hear the turbo spinning and you hear the wastegate going 'swooooosh' letting the pressure out when you are changing up through the gears.

It's hard work with the Audis but the feeling you get back is amazing. I've recently bought my own Quattro rally car to go with the road car and converted ones. It's a Group 4 car from 1981 but with updates to make it a 1982 car.

It's not the best car for the Tarmac – you want to have a Porsche or something – so it's a car that really needs to be driven on the gravel. Although we are very busy with the schedule I plan to do one rally on gravel in Finland. While it's great to have cars on display everybody wants to see the car in life. That brings more emotions than having the car standing there in the garage. 





1978

## FORD ESCORT MK2

**MALCOLM WILSON**

*1994 British rally champion, ex-works WRC driver, boss of M-Sport team*

It was versatile, so easy to maintain and run but, most importantly, it was just an absolute pleasure to drive. The sensation and the feeling that you got through the steering wheel was something else and then there was the noise from that two-litre engine. I'm still passionate about that car today and I don't think in 30 years there's been a rally car that sounds as good when being driven properly: there was no better music.

I think I'm the only person in the world to have driven every single model of World Rally Championship Escort, from the 1300 right up until the last World Rally Car.

The first ex-factory car that I got from

Borcham was a Billy Coleman car, with which I won the national championship, so that obviously meant a great deal to me. And then we built up a car at M-Sport to win the Roger Albert Clark Rally in 2008.

We finished it on the morning of the start and did the rally with no shakedown or anything like that, which you could never do with a modern car. There was just the knowledge from my guys and me in terms of what needed to be done to the car – it helps that it's such an easy car to drive. In fact, I still don't know why I had so many accidents in Mk2 Escorts. Maybe I was more on the limit in those days. 🏁



**SEE THIS CAR  
IN ACTION**  
@ the motor sport  
digital edition

# 2005

## FORD FOCUS RS WRC 05



**MIKKO HIRVONEN**

*Four-time WRC runner-up, M-Sport World Rally Team driver*

The Mk2 Escort with the BDA engine was awesome, fantastic to drive, but then the 2005 Focus with those active differentials was amazing. If we had that car with this year's suspension and the tyres we had at the time, then it would be the perfect rally car.

We could go so fast in that car and I remember once in Greece, in 2005, when I was

a privateer. We did really well in that rally. At some places I didn't realise that we'd already gone through the corners – it was just amazing how it could work.

But after 2005 we started to reduce the technology and we no longer had so many options to change things like the differentials from inside the car.



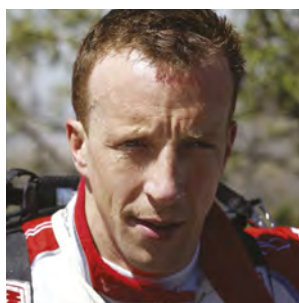






## 1986

# MG METRO 6R4



**KRIS MEEKE**

*2009 IRC champion, factory Citroën driver in the WRC*

Colin [McRae] was driving the zero car on the McRae Stages in his Mk2 Escort, but the gearbox did itself the day before the rally. I was living with Colin's family at the time and that night Colin said 'Go and pull the Metro out of the shed, wipe the cobwebs off and we'll use that'.

At one in the morning he said 'Let's see if this thing is still going', so I strapped myself into the passenger seat for an hour on the roads around Lanark, which is an experience I will never forget. It was my first time in something as raw as a Metro and with a driver as raw as Colin at the wheel, it was poetry in motion. **»**

## *A little belter*

Writing in *Motor Sport* in the 1990s, Tony Pond gave some insight into the short international competition life of the MG Metro 6R4

The MG Metro 6R4 was an incredibly exciting car to drive but it really needed a longer life if we were ever to get the best from it. When Group B rally cars were banned from the world stage, the 6R4 simply ran out of time.

The early versions started life without wings and we soon found that the aerodynamics were crucial to the car's performance. Without the wings the car didn't function at all – and it was only adequate with them. But the biggest problem with the car was the V64V engine. In the early days it was unreliable, throwing cam belts, and in the end we discovered a massive hole in the power band. The drivers had been complaining about this all along, there was just nothing at about 5000rpm, but the engine guy thought it was only a minor dip. The problem didn't show up on the dyno and it wasn't until Austin Rover built a new one, where the engine could be run with the exhaust system attached, that we saw where the problem came. I guess that the ex-works cars, ones worked on since Group B was scrapped, are actually better than the ones we had, but ours had all the problems of a turbocharged engine without the grunt. And given that the whole idea of using a normally aspirated engine was to get over that exact problem, you can see where we were struggling. There's no doubt that, had the engine worked as it should, it would have been the way to go because it had masses of torque and loads of revs, up to 10,000rpm on the early cars until the cambelt problems occurred.

But when the car was working it was incredibly quick. I once got a 0-60mph time of 2.8 seconds out of it and something equally phenomenal when we tried the 100-stop time.

The original cars were done at Williams and, as they were hand built, they were the best handling cars we ever had, really stiff. Once we had to go the production route at Longbridge and build the 200 homologation cars, things weren't quite so good.

I don't miss the car, although when it was going well it was really great fun to drive. They were difficult to set up, noisy and smelly, but great fun. But I didn't really get the results with the car and it seemed that it



took a lot of work to get very little back, unlike the TR7 that came before.

I don't know how we ever managed to get the car built. It took so long to make it happen. When the first car was ready, Patrick Head said that by then we should already be working on the evolution version. But that was the problem with such a big company and that's why small units like Prodrive are successful nowadays. There was such a small window of opportunity for us in those days and, had it not been for the fact John Davenport and Harold Musgrove were at the company at the same time, I doubt it would ever have happened. But it was fantastic while it lasted.



Taken from the July 1997 issue of *Motor Sport*

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### *Essential info*

## **MG Metro 6R4**

#### **Entrant** Austin Rover

**Notable drivers** Tony Pond, Malcolm Wilson, Per Eklund, Harri Toivonen, Jimmy McRae, Didier Auriol

**Debut** 1985 RAC

**Rally Achievements**


0 wins

**Constructors' Championships** 0

**Drivers' Championships** 0

I got to drive a 6R4 quite often at the rally school where I worked, in Ireland. There is absolutely nothing filtering the senses. It's pure 500-600 horsepower straight through to your right foot. The car would just laugh at you if you drove it slowly.

The sensation of driving that car with the noise and the pleasure of being able to manhandle it and for it to start to work when you wrestle it into submission... It's brilliant.

It's something I want to do more, but I've obviously got other priorities. I do get to watch the video of me doing a demonstration in a 6R4 on Donegal stage of Rally Ireland in 2009. It's even on YouTube. 



*Essential info*

**Lancia Delta HF  
Integrale**

**Notable entrants** Lancia,  
Jolly Club **Notable drivers**  
Juha Kankkunen, Miki  
Biasion, Markku Alén, Didier  
Auriol, Carlos Sainz, Bruno  
Saby, Tommi Mäkinen  
**Debut** 1987 Monte Carlo  
**Rally Achievements**  
44 wins **Constructors'**  
**Championships** 6 (1987-92)  
**Drivers' Championships** 4  
(1987-89, 1991)

1987-93

**LANCIA DELTA  
HF INTEGRALE**



**ROMAIN GROSJEAN**

*Lotus F1 driver,  
GP2 champion*

I loved the Lancia Delta Integrale when I was a kid. My Dad had all the evolutions of the road car and of course when I saw them rallying it made it all very special. It is like when you are a kid and you taste something nice, you want more and more.

There was also a top Swiss team called Scuderia Filoncore that did very well on the rally scene and my father did some legal work for them, so we had some links to the car. Of course I loved the colours and the fact that Didier Auriol was competitive in one in 1992 when he won lots of rallies but just missed out on the title. I was crying in front of the TV because he deserved to be champion that year for sure.

I haven't driven one but would absolutely love to one day. It is the car I want to have in my garage one day definitely, but for now being a new father there is no chance!



GREAT RACING CARS

RALLY CARS LANCIA DELTA HF INTEGRALE



## The ultimate Delta: the fearsome S4

A close encounter with the monster of all rally cars, recorded by Matthew Franey back in 1997

Not only is the Delta S4 the most powerful rally car ever built, it is also the machine that claimed the life of Henri Toivonen, Lancia's world champion in the making, on the 1986 Tour de Corse.

The Italian marque's riposte to its hi-tech rivals, the Audi Quattro and Peugeot Turbo 16, the Delta S4 was unveiled to the media at the end of 1984, a year before its spectacular but brief entry on the world stage. Four-wheel drive with a unique in-line four-cylinder 1.7-litre engine that had both a supercharger to produce formidable low-end power and a KKK turbo to provide the high-rev grunt, the Delta was developed throughout 1985, making a brilliant debut on the RAC Rally that November. Britain's world championship round was usually an event that Lancia avoided, and the Delta arrived in the United Kingdom among rumours of fragility and concern about its handling and power. It was classic Italian sandbagging. In the hands of Toivonen, the S4 swept to a convincing one-two as its rivals fell away.

The Delta's success lay in the radical route that Lancia had taken at the new car's conception. Gone were 20 years of monocoque-based Lancias, the S4 being built around a lightweight tubular spaceframe with the engine, unlike the Audi, mounted amidships, giving the four-wheel-drive brute greater poise and considerably less understeer than its rivals. Suspension came in the form of wishbones front and rear, the latter using twin dampers to improve poise, with power transmitted through a five-speed Hewland gearbox to the centre differential from where the driver could adjust the power distribution. Pulling tight the six-point harness as I contemplate what lies ahead of me, the interior of the S4 is stark, functional but curiously antiquated. Ridiculous images of film footage from early space missions flash through my mind. Aluminium reflective foil lines the dividing wall



between my neck and the 500bhp behind it and a grey alloy dash sweeps across the cabin, punctuated only by large square red warning lights which seem to have no purpose other than decoration. Just one ominously large dial commands your attention, a rev counter that enters its yellow stage at 8500rpm, a red line at 9000. To the right of the leather wheel, now worn shiny with use, sits a switch numbered one to four indicating the variations in available turbo boost – boost that you know is set to redefine your opinions on what constitutes real acceleration.

Carbon sheets line the cockpit walls, joining the spaceframe tubing, and it quickly becomes clear that this is more a purpose-built race car with body panels haphazardly dropped on top than a simple rally car. Reaching for the ignition it dawns on me that the Delta S4 has just one purpose to go as fast as possible from A to B.

Only one man really tamed the S4, wrung more from it than any other Lancia driver: Henri Toivonen. The Finn could do things which made his colleagues shake their heads in disbelief; but eventually even he was unable to control the Delta on the frighteningly quick Tour de Corse. Toivonen's fatal accident shook the rallying community and rang the death knell for Group B. Earlier in the year catastrophe had already struck in Portugal when a Ford RS200 flew into the crowd killing several spectators. The second fatal accident of the year was one too many for the sport's governing body, who banned the supercars for the 1987 season.



Taken from the October 1997 issue of *Motor Sport*

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1998

## SUBARU WRC98

**MADS ØSTBERG***Winner of one WRC event,  
works Citroën driver*

During my professional career I've driven some Subarus, the Ford Fiesta and now the Citroën DS3, which was designed for Sébastien Loeb and is a really amazing car. But I'm quite a straightforward guy so I would say my favourite car of all time, just by looking at it and driving it, is the Subaru Impreza WRC of 1998, the first World Rally Car I drove.

OK, I've never competed in it – but my dad let me drive it when I was 13! I was not flat out, but I was allowed to drive it on a test on snow in Norway.

I'd learned how to drive a car very quickly when I was young. My dad was sitting next to me and I was allowed to do some drifts and it was a fantastic feeling. After I was a bit older and knew how to drive a WRC car, I tested it again. We sold it to another Norwegian guy and he asked me test the car with him, so I did one test day in the car. I got lucky again. 🍀








# 2013-14 VOLKSWAGEN POLO R WRC



**SÉBASTIEN OGIER**  
*2013 World Rally  
Champion, works  
Volkswagen driver*

The best car I have driven is the one I have at the moment. I feel so comfortable in it and it's a fantastic car.

This car does everything I want it to do, it's really good, but on some very fast rallies I would love to have some more power by mixing the fantastic chassis of the Polo with the two-litre engine of two years ago.

The Volkswagen engine is really powerful but with these regulations we are not allowed to have more turbo pressure. It would be a good idea to adjust it like in the WTCC, with a bigger restrictor. They are closer to 400bhp and that would be nice as well. 





## The driving force behind the Polo

In 2013 Simon Arron met the 'new' Sébastien. Some say Ogier could be even better than Loeb...

Namesake Loeb might have broken most World Rally Championship records, but there are some who believe Sébastien Ogier's potential to be greater still. Comparisons are inevitable — given their shared forename, nationality and speed — but Ogier doesn't mind. "There's no escape," he says, "because people keep talking about it."

After this interview took place, Ogier claimed world rallying's main title for the first time, five years after he clinched the Junior WRC. In his first season at the wheel of a works Volkswagen Polo R, he took a clutch of victories to repay the faith originally shown by French motor sport's governing body, the FFSA.

In 2005 Ogier won an FFSA scholarship that earned him a drive in the following season's Peugeot 206 Cup. He took the title in 2007 and was promptly promoted to the global stage, driving a Super 1600 Citroën C2 in the JWRC. He won his class first time out in Mexico, clinched the title in Corsica and was given the opportunity to try a full WRC-spec Citroën C4 on the Rally GB. He led for a while, too, before crashing. "Things have moved incredibly quickly," he says. "The FFSA scholarship enabled me to compete and results soon came, so much so that I was contesting the Junior WRC within two years. I won that, so progress was pretty rapid. Things only

really slowed down in 2012, when I decided to join Volkswagen and had to take a sabbatical to develop the car. I think that was a good decision, though, as recent results have proved. Success has opened other doors, too..." That's why, earlier in 2013 he contested the Porsche Supercup race supporting the Monaco Grand Prix... as, too, did Loeb, whose racing credits include second place in the 2006 Le Mans 24 Hours. Both ran in midfield, but Ogier had fractionally the upper hand in both qualifying and the race.

"I drove a Ferrari in the French GT championship at Paul Ricard two years beforehand," he says, "but this was only my second circuit race. A few years ago I would never have thought I'd get a chance to compete on the streets of Monte Carlo. You get a fantastic sensation of speed, with the barriers and buildings being so close, but it's true that it felt quite wide compared with my normal environment." Mostly, though, this was a light-hearted diversion from the day job. "My season with VW has been much better than we'd dared to imagine," he says. "We reached a very high level incredibly quickly, with three wins and a second place in the first five rallies. It might look relatively easy from the outside, but that's never the case. We have work to do, though. We can still improve things for certain conditions."

"At the start of the season everyone said we'd been disingenuous, that we hadn't told the truth about our speed, but in Monte Carlo it was a pleasant surprise to see that we were on the pace. Until then we genuinely had no idea where we stood."

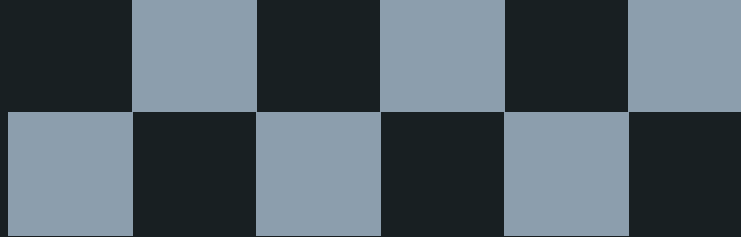
Does he harbour any regrets about his sport's evolution and the absence from the world championship of rallies such as the Safari? "Not really," he says, "because everything changes in life. There's not much I can do about when I was born! I've just had to deal with my own era. The very fact I became a professional driver is a dream come true — my hobby is my job. There's no point saying the old days were better. You simply have to move with the times."



Taken from the November 2013 issue of *Motor Sport*

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GREAT RACING CARS



# ODDS 'N SODS

For every Lotus 72 or Ford Escort Mk2 that tugs an emotional cord, there will also be a litany of Hawkes, Van Diemens, Pallisers, Royales and suchlike, fragments of an age when the world – and Britain in particular – was ripe with racing artisans, small enterprises building competition cars for an almost entirely free market. And then one-make racing's invention snuffed most of them out. Many of our interviewees made fond reference to the cottage-industry stepping stones that helped launch their careers, and a select few put them top of their list... »



1973

## MERLYN MK11A



## DAVID KENNEDY

*FF1600 champion, British F1 runner-up,  
Mazda endurance stalwart*

Merlyn isn't particularly widely known as a marque today, but that Mk11A was my second racing car and enabled me to understand the dynamics of driving – something with which I'd previously struggled.

I took it to the Bishopscourt circuit, a converted airfield with lots of fast, fourth-gear corners, and could suddenly see what an older driver had meant when he described my previous Lotus 51 as a 'bucket of crap'.

I thought the Lotus was a normal racing car, but it turned out to have seized rear shocks, toe-in on one wheel but toe-out on the other and so on. It hadn't been an ideal way to cut my teeth, so I stepped in to a front-running, second-hand Merlyn and it was just perfectly balanced. I've driven lots of racing cars but can't think of any other that had the same

neutral handling, with a touch of understeer just slightly moving to oversteer at corner exits. It enabled me to run at the front of the field against some of the latest kit, even though the car was perceived at the time as being of ancient vintage.

One Kirkistown race stands out, when I outbraked all the leading runners at the end of a long straight then threw the car sideways to get through. Not fully understanding the mechanics of racing, I hadn't twigged that you needed to exit a corner quickly to be fast along the next straight. I just assumed my engine was useless! I did eventually work out that you needed to get the power on early.

My performances earned me the Star of the Year award, a first tick of acknowledgement, so my heart goes out to Merlyn.



# 1968 FERRARI DINO 166 F2



**ANDREA DE ADAMICH**  
*GP, sports and saloon  
star of the '60s & '70s*

I raced an incredible number of cars, 43 to be precise, and I won in 13 of those, but this is the one I love more than any other. I signed for Ferrari in September 1967, dealing personally with Enzo Ferrari, without any lawyers, and it was a big thing for my career. Every racing driver loves a winning car, of course, but for me the Dino F2 is a special one.

I had been out of racing for eight months

after my big crash at Brands Hatch in 1968, but at the end of the year I won the Temporada Championship in Argentina with my dear Ferrari Dino. I loved the car then, and I love it now. When I look at the pictures of the Temporada, beating Jochen Rindt in the third race there, I remember the excitement, the adrenaline of winning again. It was so good to prove that I was still quick, and competitive, after such a long time in convalescence after the crash at Brands.

The Dino was an easy car to drive, especially on the fast circuits and in the fast corners. The car gave me a lot of confidence, it had a very good feeling, and the chassis responded very



well to any changes in the balance. The rear wing, mounted centrally on the engine, was very efficient, giving lots of downforce. This I did not expect because it was quite a small wing, but it was good aerodynamically and helped me a lot to find the perfect balance for my kind of driving.

The Dino always had some understeer, in fast and slow corners. I liked this, however, because after my crash at Brands Hatch the understeer gave me a very safe feeling in the car, and more confidence to be fast.

It was nice to be back in the F2 Dino at Fiorano for Ferrari's 60th anniversary and it brought back many happy memories.



1983

## VAN DIEMEN RF83

**JOHN BOOTH**

*Serial FF1600 front-runner, Marussia F1 team principal*

It wasn't the best-looking Formula Ford car of all time, but I won 23 races that season – including the Champion of Champions event at Brands Hatch, which brought all the leading regional drivers together for an end-of-season one-off. Despite nursing a slipped disc, I won from about eighth or ninth on the grid. I think that race is on YouTube somewhere, with Murray Walker commentating: 'There's John Butcher Booth – and we call him that because he *is* a butcher...'

When I started out in 1979, I knew nothing at all about cars. I was a butcher and my chief mechanics were my brother-in-law and a mate who was a heating engineer.

By 1983 we'd probably learned a bit about the game: we had a good car with a good engine and knew how to look after it, so everything just came together. I think the RF82 was probably a nicer car to drive, but you remember the wins, don't you?



## 1978 CHEVRON B42



**DEREK DALY**  
*Former F1 driver,  
49 GP starts*

My favourite race car would be a Chevron B42 Formula 2 car with a 2-litre Hart engine in 1978. At Mugello that year I won a race against the March-BMW factory team with Bruno Giacomelli, Marc Surer and Manfred Winkelhock. My Chevron was almost a match for the BMWs. It wasn't the fastest car but I could pound over the kerbs and arrive at a corner sideways and knew exactly what the car was going to do.

At Mugello I took the lead at the first corner and all three factory BMW cars hounded me for every single lap, but I managed to win. It was one of those great times. We had a great sponsor in ICI and the car was three different shades of green. Mugello was such a wonderful place and we won unexpectedly because the Hart engine wasn't a match for the BMW. The headline in *Motoring News* said 'Daly beats the Marches' because it was so unusual.

The following week we had the engine rebuilt and Brian Hart wrote on each of the four exhaust ports, 'Same again please DD'. We went to Vallelunga and Giacomelli was leading in the factory March, but he had some sort of radiator problem and with two laps to go I caught him and passed him and won again. So we won two races in a row and were leading the championship.

That car became one of my favourites, because of the way you could drive racing cars in the old days. You could pound over the kerbs and go faster. You could mash the power and get it sideways and go faster. It was the end of that era and one of the last cars you could drive that way. It was right before the ground-effect era where you had to be completely smooth. It was also the last car Derek Bennett designed, so it was perfect that I was able to win a couple of races in that car for him. 