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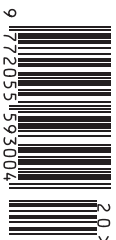
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race retro

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Protect and Preserve

WE are coming up to the day and month when Bentley Motors will be celebrating its centenary, having been formed soon after the end of the First World War hostilities. While the motor vehicle had come into existence around 30 plus years ago, it really came into its own in the 1920s. While the vehicles were rudimentary to begin with, basically having four wheels and tyres, an engine and gearbox, the basic essential format has not fundamentally changed since that time. Now, though, things are changing. An interesting article on the FIA website in mid-January really put this into context.

Called Protect and Preserve, it sets out how since its foundation in 1904, the FIA has followed and helped influence the development of the automobile in all its road and racing forms. “However, at the end of the second decade of the 21st century, the automobile stands at a crossroads. The world of mobility is changing with stunning rapidity as alternative energies affect the nature of the vehicles we drive – and as the development of autonomous vehicles calls into question the very need to drive at all.

“Weighed down by the opprobrium being heaped upon the internal combustion engine due to its environmental legacy, and dismissed as the pastime of either moneyed dilettantes or fusty enthusiasts, the history of the automobile as societal game-changer, technical marvel and object of desire is in danger of being subsumed by the very desire the car first engendered – to keep moving forward.”

In order to raise awareness of the deep history that exists within the Federation and to celebrate the preservation of automotive heritage, the FIA turned to its Founding Members’ Club (FMC). As the name suggests, the club harks back to the

origins of the FIA and the early years of the automobile’s rise to dominance.

More than a century later, the 13 clubs (or their successors) from Austria, Belgium, Denmark, France, Germany, Great Britain, Holland, Italy, Portugal, Russia, Spain, Switzerland and the US that came together in Bad Homburg constitute the members of the FMC, with the club’s primary goal being the preservation of automotive heritage.

“In a world where we are constantly talking about change, about the arrival of increasing hybridisation and the rise of autonomous cars, it is incredibly important to celebrate where we came from, to properly mark the evolution of the automobile, its pioneers and to keep alive the historic vehicles still in existence,” says FMC president Carlos Barbosa, also president of the Automóvel Club de Portugal (ACP).

“In today’s automobile world it is justifiable and important to look at heritage and the history of the car,” adds FMC vice-president Franz Graf zu Ortenburg, also vice-president of Germany’s Automobilclub von Deutschland e V (AvD).

I have a four-year old grandson who just loves his toy cars and trucks. My real worry is that by the time he’s old enough to drive, driving them will be outlawed as will racing them. I understand the importance of having clean air quality, but wouldn’t it be sad if everything running or racing by an engine was banned altogether, and sadly I can see that coming. **HRT**

William Kimberley
Editor



BELOW Nelson Piquet's Williams FW11 is one of the many cars on show at Race Retro

Roger Dixon

Race Retro to mark motorsport history

RACE RETRO is set to impress crowds with a strong selection of cars from all different disciplines of racing on show at Stoneleigh.

One of the main focuses of this month's event will be a celebration of the legacy of Le Mans, with a display of iconic vehicles that have competed at what is one of the most famous motor races in the world. Over its 95-year history, fans have enjoyed some incredible moments featuring remarkable machinery on the part-road course. From the very early days when the 'Bentley Boys' enjoyed success, through famous battles between Ford and Ferrari, Porsche's period of

dominance, to the monsters of the LMP1 class, the French endurance round has always featured some spectacular machinery.

In celebration of this legendary race, visitors to Race Retro will have the chance to admire an exciting line up of Le Mans racers, including the Audi R8C, one of the cars that formed Audi's initial tilt at the Le Mans 24 Hours in 1999.

"The Le Mans 24 Hours is a motor race like no other" said acting show director, Lee Masters. "With a history stretching back almost 100 years it sits at the very pinnacle of motorsport, which is why we are very proud to be celebrating its legacy at this year's show."

The show is also set to pay tribute to Formula 1's turbocharged era. In order to mark the 40th anniversary of the first victory by a turbo car in F1, Race Retro will feature a display of turbocharged racers including the Williams FW11 which was driven to championship victory by Nelson Piquet in 1986. Although Piquet's drivers' title would have to wait until 1987, his and Nigel Mansell's performance in the 1.5-litre FW11 were enough to clinch that season's constructors' title.

The honour of the first win by a turbocharged F1 car went to Renault's RS10, which was driven to victory by Jean-Pierre Jabouille at the French Grand Prix of 1979, two years after Formula 1's first turbocharged car, the Renault RS01, debuted. In qualifying trim the RS10 made around 1,400 bhp out of its twin-turbocharged V6, and featured a six-speed manual gearbox and full ground-effect chassis. It proved to be so successful that it would qualify on pole five times out of nine races in that year.

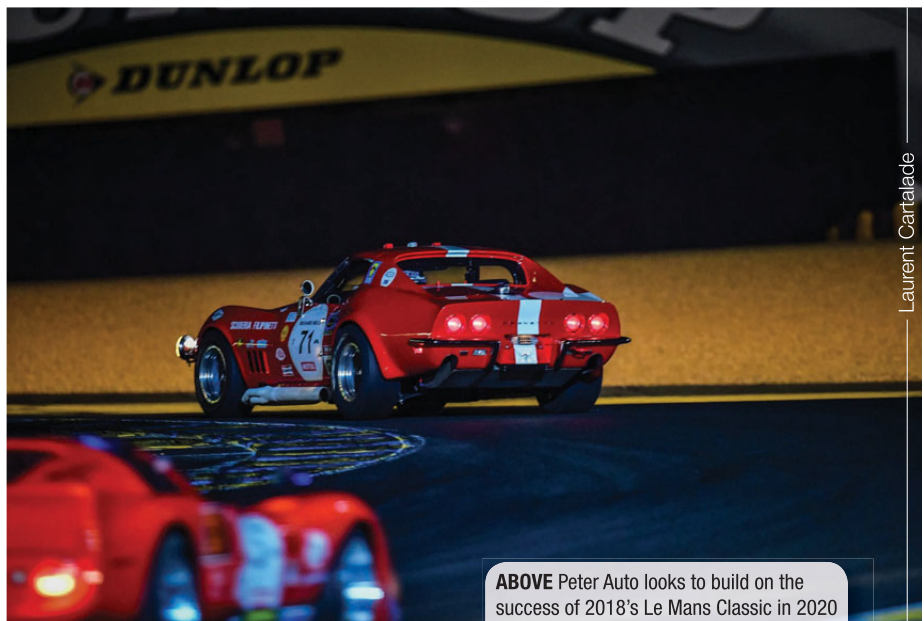
"The turbo era was an amazing time for race fans" continued Masters. "We are thrilled to be able to celebrate it at this year's Race Retro, 40 years on from that first win in Formula 1. We can promise visitors a very special display in celebration." **HRT**

Peter Auto reveals dates for 2020 Le Mans Classic

THE dates for the 10th running of the biennial Le Mans Classic have been announced by Patrick Peter, the founder of Peter Auto which organises the event.

The celebration of endurance racers is set to take place on July 3-5 2020, running as usual on the Grand Circuit 24 Hours of Le Mans.

Next year's event will seek to build on the success of the 2018 running of the Classic, which saw 195,000 spectators make their way to Le Mans to enjoy watching more than 700 race cars battle it out on the track. It attracted over 8,500 vintage cars from more than 200 clubs, celebrating 60 marques. **HRT**



Laurent Cartalade

ABOVE Peter Auto looks to build on the success of 2018's Le Mans Classic in 2020

HSCC unveils Dunlop Saloon Car Cup

THE Historic Sports Car Club has launched a new series set to cover three distinct groups of saloon and touring cars, called the Dunlop Saloon Car Cup.

The new series will feature Group 1, Group A and Super Touring/S2000 cars battling it out across eight races at four high-profile historic racing events. Each of the categories in the series will have a dedicated podium after the event.

After listening to feedback from its

competitors, the HSCC launched the new series as a replacement for the Super Touring Car Cup. As well as Dunlop replacing Hoosier as the control tyre for all entrants, the earlier Group 1 cars, from 1970-1982, will now be able to run on either slicks or treaded Dunlop tyres as mandated at the Goodwood Members' Meeting. Additionally, the format of the races has also been tweaked so competitors can now enjoy more, shorter

races, compared to the fewer, longer races of the Super Touring Car Cup.

Each of the three categories in the new series will be divided into classes, while each group will also have its own identity within the overall cup. There will also be an invitation class for cars of special interest.

The Dunlop Saloon Car Cup will take in Britain's most prestigious venues, with the season starting at Silverstone in May, Donington Park and Brands Hatch in June and Oulton Park in August. Grids are expected to cover a wide array of cars ranging from Group 1 Ford Capris and Rovers, through to Super Touring Cars from manufacturers like Nissan, Honda and Audi.

"I am delighted to unveil the Dunlop Saloon Car Cup for 2019," said Andy Dee-Crowne, the HSCC's CEO. "It will be home to a fabulous array of period racing saloon and touring cars and we are keen to ensure that each group of cars has its own identity within the overall Cup." **HRT**



ABOVE The Dunlop Saloon Car Cup will feature a mixed grid from all different eras of Touring Car racing

Lola set to be feature marque at Classic Daytona

LOLA, the British racing car manufacturer with a long history in sports car racing, will be the featured marque at this year's Historic Sportscar Racing Classic Daytona presented by IMSA, which will take place for the fifth time at the Daytona International Speedway in November.

Lola is set to take centre stage at the event, which takes place 50 years after Mark Donohue and Chuck Parsons took the Chevrolet-Powered Sunoco Team Penske Lola T70 to overall victory in the 1969 24 Hours of Daytona.

That winning car is expected to feature alongside the participating Lolas in an entry list of a number of T70 coupes and spyders of a similar vintage, as well as retired Lola drivers. As is the case at many historic sports car races, Lolas are always well represented at the Daytona Classic. Last year's event attracted a healthy collection of cars from the marque including several T70s, a T165 Can-Am car from 1969,

a 1973 T294 sports racer, a 1989 Lola T89/90 Sports 2000, a 1999 Lola B98/10 LMP1, a Judd-powered Lola B07/18 LMP1 Car from 2000, and several Lola B2K/40 SRP11 cars from the late '90s and early 2000s.

"Lola has been a major part of sports car racing history for the last 50 years and will be the ideal featured marque at the 2019 HSR Classic

Daytona presented by IMSA," said HSR president David Hinton. "We have seen a great showing of Lolas from all over the world for our HSR Classic Daytona events and expect 2019's feature status to bring even more entries. In addition to the on-track schedule, our plans also call for some off-track and behind-the-scenes promotional events showcasing the Lolas." **HRT**



ABOVE Lola will be the featured marque at this year's HSR Classic 24



ABOVE Bentley has a number of events lined up to celebrate its 100th year

Bentley reveals plans for centenary

BENTLEY has announced a year of events to celebrate its centenary.

In 1919, Walter Owen Bentley founded a company which had a simple objective: to build “a fast car, a good car, the best in its class.” In the first years of existence Bentley made three cars, starting with EXP 1 (EXPerimental Number 1) at New Street Mews off Baker Street. This machine was then cannibalised to make EXP 2 at Bentley’s new workshop in Cricklewood and later

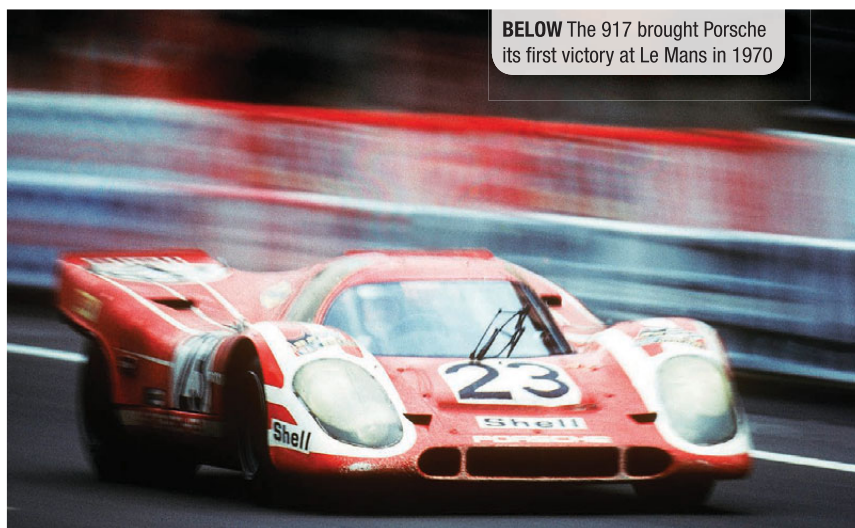
EXP 3, better known as ‘The Cab’, which became W.O. Bentley’s personal car.

EXP 2, which is powered by a three-litre four-cylinder engine, is the oldest surviving Bentley, having made its debut at the Olympia Motor Show in 1919. It is also the first Bentley that was ever taken racing, with the company’s development engineer, Frank Clement, securing the marque’s first victory in the car at the Junior Sprint Handicap at Brooklands on May 16 1921.

It is this historic car that will be central in Bentley’s celebrations of its centenary. As well as its appearance at Retromobile in Paris in early February, the legendary car is also due to be shown off at a litany of prestigious events. They include the Mille Miglia, the 24 Hours of Le Mans, and the Pebble Beach Concours d’Elegance.

This summer’s Silverstone Classic will celebrate Bentley’s 100th birthday with a special anniversary race dedicated to honouring the illustrious British car maker. **HRT**

Porsche to celebrate 917’s 50th



PORSCHE is due to celebrate the 50th anniversary of the 917 at its museum at Porscheplatz, Stuttgart Zuffenhausen, as well as at events across the world.

The 917, one of Porsche’s most iconic racing cars of all time, was revealed to the public for the first time at the

Geneva Motor Show in 1969, just one year before the incredible racer brought home the first of the 19 gold medals that Porsche has won at the 24 Hours of Le Mans. The car’s maiden year of competition was however far from problem-free, with the 917’s Le Mans

debut in 1969 tarnished by the tragic death of privateer driver John Woolfe, which may have been contributed to by the high-speed instability of the early 917s, caused by a lack of downforce at the rear.

This problem was quickly solved when British team manager John Wyer effectively took over the running of the Porsche works team, and subjected the car to further aerodynamic testing. In the following two years, 1970 and 1971, these changes helped make the 917 a truly dominant racer.

Celebrating this legendary model, the Porsche Museum is set to feature 10 917 models on display in one of its biggest ever exhibitions: “Colours of Speed – 50 Years of the 917”. The display will allow fans of the car to get up close and personal with the first 917 ever built, chassis number 001, which has been meticulously restored by Porsche’s team to take it back to the condition that it was first shown in all those years ago. **HRT**



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ABOVE The Ford Capri's 50th will be celebrated at the Silverstone Classic

Ford Capri turns 50

THE Ford Capri will celebrate its 50th anniversary this year.

As part of the festivities, tin-top hero Gordon Spice will present a special trophy to the top-performing Capri in the Historic Touring Car Challenge at

the Silverstone Classic. Spice, the most successful Capri race driver, took top class honours in the British Saloon Car Championship for five straight seasons, between 1976 and 1980.

"The Capri was very important to me,"

he said. "It was by far the easiest car I ever raced, there was absolutely nothing complicated about it – the rear-drive chassis was simple to tune so it handled really, really well. Just a brilliant motor car."

The Mustang-esque fastback was first unveiled at Brussels Motor Show in 1969. Almost two million of the cars were made before the model's demise at the end of 1986. Throughout its life, the Capri also proved popular in motorsport, where the model dominated Britain's touring car scene after larger-engined muscle cars were banned at the end of the 1975 season.

As well as the special trophy, the Silverstone Classic will also hold a parade for the Ford Capri, which will be fronted by the last Capri to ever roll off the production line in Cologne – a limited edition 280 'Brooklands' model owned by Ford's heritage workshop. **HRT**

Mini celebrates diamond jubilee

THIS year will also mark the diamond jubilee of the justly-revered Mini.

This special anniversary will also be celebrated at the Silverstone Classic, where a pair of on-track showdowns organised by Masters Historic Racing will see huge numbers of Mini racers competing for the Mini Celebration Trophy. The enduring popularity of the car for racing means that this celebration is likely to create the world's biggest ever grid of Minis.

First launched in 1959, the diminutive car penned by Alec Issigonis became a British style icon during the 1960s. As well as revolutionising small car design thanks to the transverse mounting of its four-cylinder engine and front wheel drive layout, which freed up the maximum amount of space possible for passengers and luggage, the Mini also shone in competition. Its nimbleness earned it success in three famous Monte Carlo rallies, as well as many other races both on and off-road.

"Absolutely everybody who loves cars loves the Mini, so we are really thrilled to be celebrating this major milestone in its illustrious history with

two fabulous races at the Classic," said Silverstone Classic CEO Nick Wigley.

Ron Maydon, founder and president of Masters Historic Racing, added that Minis were very close to his own heart, "and in their 60th anniversary year it only seems right that we should be showcasing a spectacular grid of infamous FIA-spec pre-66 Minis at such a great British historic racing festival." **HRT**



ABOVE The Mini is set to celebrate its 60th birthday in 2019



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ABOVE The McLaren Mercedes MP4-13 at the very wet Italian Grand Prix in 1998, the year before it set the record at Goodwood

Goodwood reveals theme for 2019 Festival of Speed

THE Goodwood Estate has revealed that the theme for this summer's Festival of Speed is 'Speed Kings – Motorsport's Record Breakers' in a bid to celebrate the drivers and cars that have, according to Goodwood, gone further than their contemporaries in pursuit of Glory'.

It will, says the estate, "bring together the most celebrated and successful racing machines, which raised the bar in their respective fields. Not just individual speed records, but those who, over the course of a career, have set the

benchmarks which the next generation aspire to surpass."

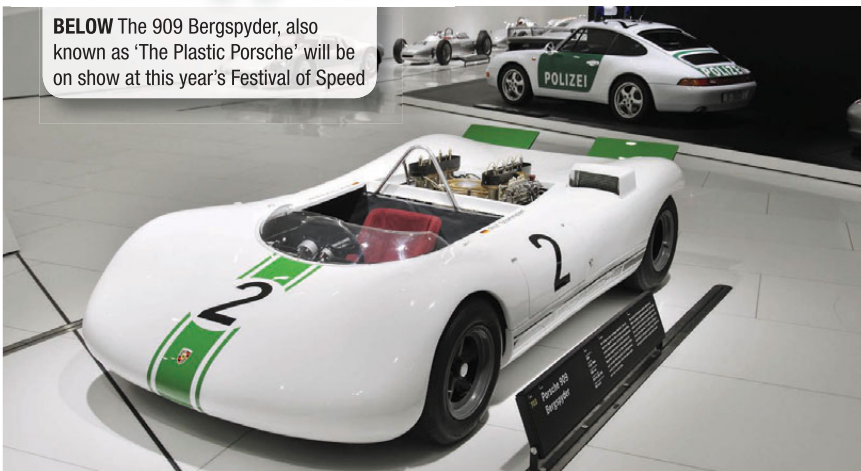
The theme coincides with the 20th anniversary of the record-holding run up the hill, which has stood since Nick Heidfeld climbed the 1.16-mile course in 41.6 seconds in a McLaren MP4-13. That benchmark still stands despite the challenge of another record-breaker, the electric Volkswagen I.D. R Pikes Peak car, which, fresh after setting the pace on the Colorado hillclimb, came to take the crown at last year's event.

"We are delighted with this year's

theme, as it offers an opportunity to celebrate the ultimate heroes of motorsport past, present and future," said Will Kinsman, head of motorsport content at Goodwood. "The team are working hard to ensure the paddocks are bursting with the most talented drivers and riders alongside the most iconic road and race machines in the world. They are also delving into the more obscure corners of the motorsport world to ensure the Festival of Speed maintains and enhances its reputation as the greatest motorsport show on earth." **HRT**

Lightest ever Porsche to appear at Goodwood

BELOW The 909 Bergspyder, also known as 'The Plastic Porsche' will be on show at this year's Festival of Speed



ONE of the most interesting racers set to appear at this year's Festival of Speed is the lightest competition Porsche ever made.

The car, the 909 Bergspyder, will leave its usual home at Porsche's museum in Stuttgart to run up the famous hill. The car was built by Porsche in 1968 to take part in the race car category in the European Hillclimb Championship. The featherweight prototype tips the scales at a meagre 384 kg thanks to its thin plastic skin, aluminium frame, beryllium brake discs and spherical fuel tank. This incredible gram-management means that the 275 hp two-litre flat eight engine is reportedly able to accelerate the car up to 60 mph in less than two seconds.

The 909 Bergspyder was entered in the 1968 European Hillclimb Championship in the Race Car class, but it only competed in two races, finishing second and third. **HRT**

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THE CAR THAT WAS GOING TO CHANGE THE WORLD!

William Kimberley reports on the painstaking restoration of an Indycar conceived to change racecar aerodynamics forever – but which ended up being rescued from the garbage skip

ONE of the most intriguing cars to be seen at the 2018 PRI Show was the 1972 Parnelli VPJ-1 Indycar that could be found on the Aurora Bearings stand. Now owned by Chuck Jones, an avid collector who spends much of his spare time rescuing and restoring interesting single-seater race cars, this car has been brought back to life after facing virtual elimination.

Vel's Parnelli Jones Racing, commonly referred to simply as Parnelli or VPJ, was formed in 1969 by former USAC racer Parnelli Jones and his business partner Velko "Vel" Miletich. Success came quickly with their driver, Al Unser, winning the Indianapolis 500 in 1970

move for the Englishman, however, as Lotus boss Colin Chapman was extremely unhappy to lose his star designer and so made him work out his notice period to the last day of his contract. The result was that it caused him to delay working on the new car – the Parnelli VPJ-1 – until September of 1971... and by April of 1972 the cars needed to be built and race-ready.

However, that did not stop him from pushing forward some new design programmes that were really very innovative. For example, the first iteration of the car featured giant unique dihedral – upswept – wings next to the driver. With the two front wings, two mid wings and rear wing combined, the

“**The Parnelli was very complicated. There were times when I thought I might not make it to the other side”**

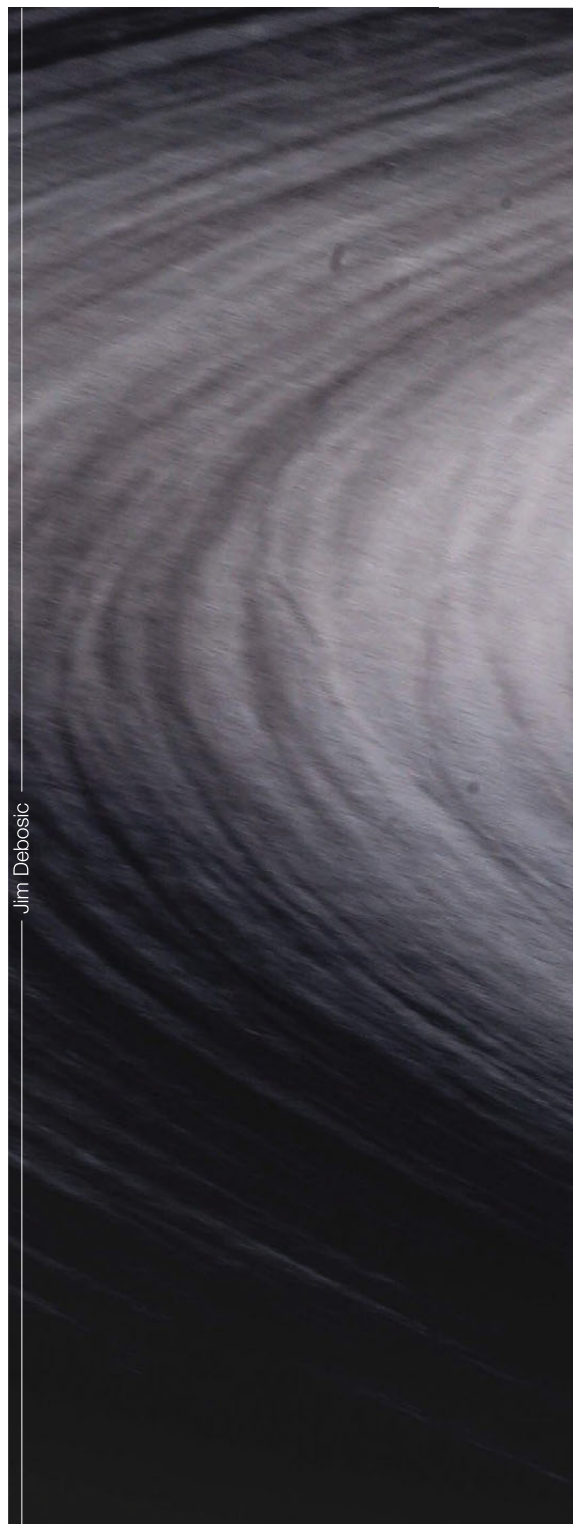
driving a VPJ Colt and also claiming that year's USAC championship. Unser again triumphed in the Indy 500 the following year but team-mate Joe Leonard won that season's championship. A step change was taken in the team's strategy for 1972, though, with the outfit's decision to design and build its own car, the Parnelli VPJ.

Part of the process involved recruiting renowned Formula 1 designer Maurice Philippe from Lotus. It wasn't an easy

VPJ-1 must own the record for the widest wingspan and greatest total surface area for any winged Indycar. However, while the dihedral design is a common design on aircraft, perhaps reflecting Philippe's early career as an aviation engineer at De Havilland, it had not been seen on a car.

As reported in the December 1972 issue of *Motor Sport* magazine, Philippe stated that, "In the first few days of testing with the car we were running

Jim DeBosis



at a certain speed and we didn't seem to be able to make the cars go any quicker, so I thought it would be a good idea to try with the dihedrals off, because we were having this peculiar handling problem. Thus I instigated them being taken off one car and it started a bit of an epidemic and, before we could stop them, they were off all

three cars. Actually they never went any quicker without the wings."

Other innovations included the raised front suspension's upper rocker arms – which were shrouded with bodywork to curve the air and meet the leading edge of the mid wings with a cleaner flow – rear rising rate suspension and inboard rear brakes. The oil tank was

configured above the gearbox, with two catch tanks on either side of the Offenhauser four-cylinder engine. With the necessity to leave free and clear space beneath the mid wings to generate downforce, another innovative solution was widening the bottom of the car next to the cockpit and placing the radiators within the ►



ABOVE Commitment to the cause: The project might have taken four years to complete, but Jones was still brave enough to find that the car could spin the wheels in all four gears!



chassis just aft of the fuel tanks.

As reported by Marshall Pruett in the Indianapolis Motor Speedway blog, the VPJ-1's stacked packaging – curved fuel cells, fed by NACA ducts, made way for the radiators – were one of many indicators that Philippe was unafraid to try new things with the car. The mid wings even had engine ancillaries built into the design: openings for oil coolers.

PUSHING THE BOUNDARIES

The three-car team entered the opening race of the season at Phoenix International Raceway in PJ-Colt Offenhausers as the Parnellis were still unfinished. However, they were taken to Trenton, New Jersey for a shakedown test and the second race of the season. It turned out, though, that the dihedral wing concept was not successful. They were removed from the car and never seen again, the package evolving into

the Mark 2 for the Indy 500. By now it featured the addition of canard wings at the nose and rear of the car while the oil tank was also repositioned, but otherwise it was just an evolution of the Mark 1. Supported by engineers George Bignotti and Johnny Capels, Joe Leonard took the car to a third place finish.

The car was then updated to the Mark 3 version in mid-season. This featured an Eagle-type rear suspension, so there was rising rate suspension on the front and a conventional Eagle-type suspension on the rear but the brakes were moved outboard. The changes helped Leonard to win the Michigan 200, the Pocono 500 and the Milwaukee 200, enabling him to win the championship that year.

Fast-forward 45 years and enter car restorer and enthusiast Chuck Jones, whose first restoration was an upright championship Dirt car that Mario

Andretti had driven for Andy Granatelli in 1970. From there he went to the complete opposite end of the spectrum with a 1993 Lola Indycar, followed by a 1962 Watson roadster.

His most recent restoration was a 1982 Gurney Eagle, one of the BLAT (Boundary Layer Adhesion Technology) ground effect cars. “The sweetspot I have settled into is the early 1960s to the early ‘90s,” Jones explains. “One of my unofficial rules is that if the car requires a laptop to start it, I’m not interested.”

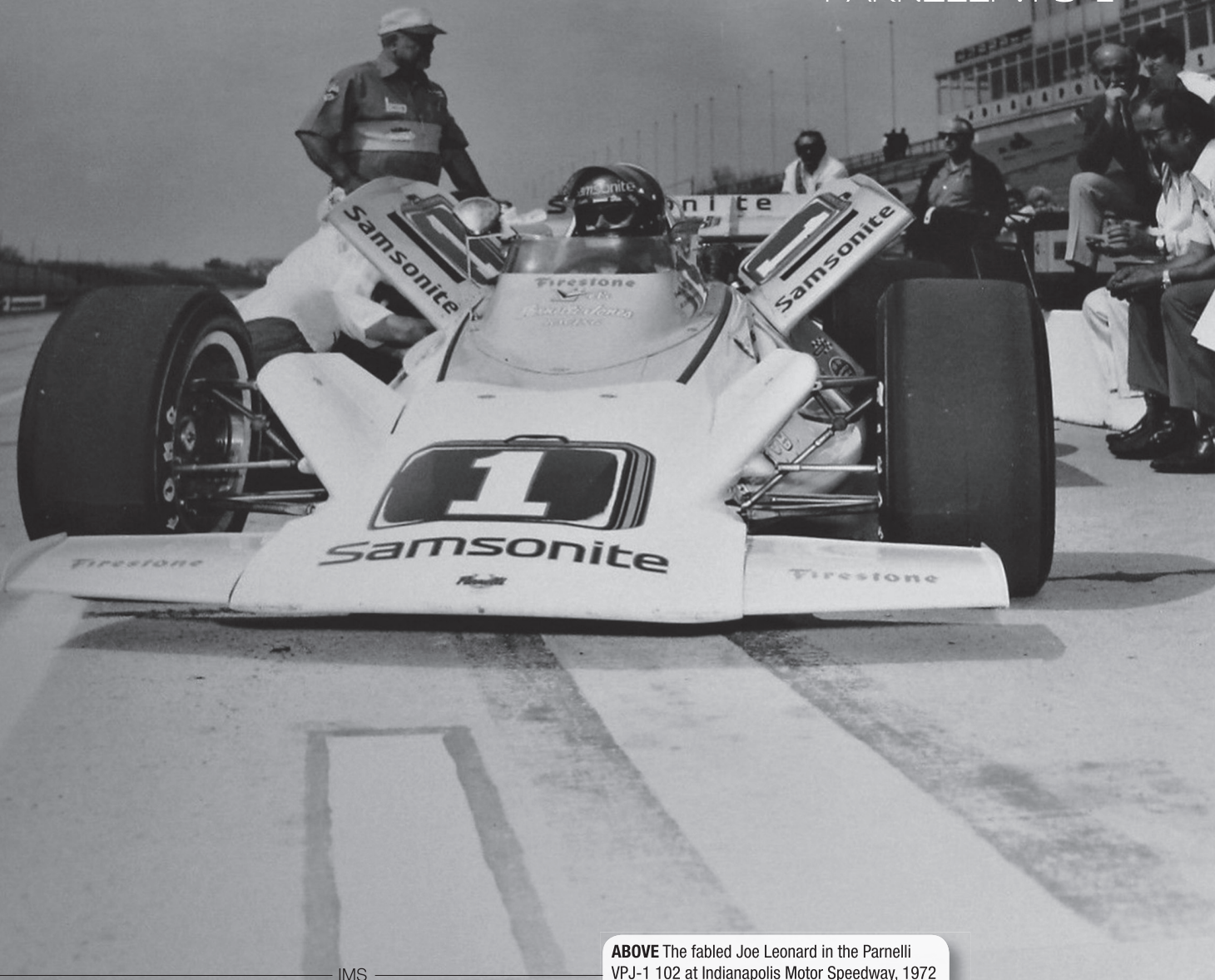
Jones had originally gone to purchase a different car for his latest project and the gentleman who owned it took him into a large warehouse. “I was actually looking at a different Parnelli but up in the rafters of the 30-foot building I saw this car, the VPJ-1, standing up on end. I immediately recognised it as a 1972 Parnelli VPJ-1,” he recalls.

“What I discovered later and was

Richard Deming



ABOVE Maurice Philippe's faith in the dihedral wings was inspired by his early career as an aviation engineer at De Havilland. He never got them to work on the VPJ-1, though



ABOVE The fabled Joe Leonard in the Parnelli VPJ-1 102 at Indianapolis Motor Speedway, 1972

IMS

“While the dihedral design is common on aircraft, it had not been seen on a car”

able to piece together from Johnny Capels and others from the VPJ crew at the time, was the car had been badly damaged in the Firestone tyre testing session just a few weeks before the final race of the season in 1972. There had been a right front suspension failure that led to Joe completely wiping out the entire right side of the car. The car was then taken back to Torrance, California where they got as far as reskinning the right side of the tub before realising that they didn't have enough time to complete the repairs. The car was then put off to the side as they had a Viceroy-sponsored back-up car, which they painted yellow for Joe's Samsonite sponsor, and this is the car that Joe drove in the very last race.

“At the end of the season, the team

was already working on the 1973 Parnelli, the VPJ-2. My understanding was that the tub of Joe's damaged VPJ-1 ended up in a dumpster sometime in the Eighties, only being rescued by a very enterprising employee who fished it out. It was this car that had immediately caught my eye and I knew I wanted it. However, there followed several months of haggling before I was finally able to acquire it, but I was successful in the end.

“The person I bought the car from had a fairly extensive collection of Parnelli parts and pieces and so I ended up getting quite a number of components. For example, the rear canard wing that was on the car had been in the Phoenix test accident. Although half bent, it was in the pile, as were pretty much all the

left side suspension and components, but nothing from the right side. The damaged front subframe – what is known as the longhorn, which basically carries the front suspension – was also in the pile. I would say that when I acquired the car in sundry parts, it was probably 70 per cent of what I needed. The rest was either acquired from other sources or fabricated as required.”

“MILLION TUPPERWARE BOXES”

One of the things that was very helpful to the project was the fact that Jones was able to obtain a fairly complete set of part drawings for the VPJ-1. “Maurice Philippe had drawn every single part, including every little spacer and washer, and everything had a part number,” he says. “So I spent four months with this pile of parts and about a million Tupperware containers. Every time I could match a part to a drawing, I would ▶

HRT

assign it the part number from the drawing and put it in a container.

“After that process I then got into the actual restoration. I do a great deal of the work myself, but I have been helped by an ex-McLaren chief mechanic, Alec Greaves, who was instrumental in reconstructing the front longhorn – which was almost like building a car in itself! It’s a very complex structure. Alec’s help and guidance on the project was invaluable. Quite simply, I couldn’t have finished the car without him!”

The other person who was instrumental in the project was John Capels, the original crew chief for Joe Leonard during the 1972 season, who helped Jones understand how the car evolved and also confirmed that it was chassis 102. “We found little things,” Jones notes. “As we got into the restoration, we found the tub had been wrecked and repaired. When we sanded the tub down for paint, we

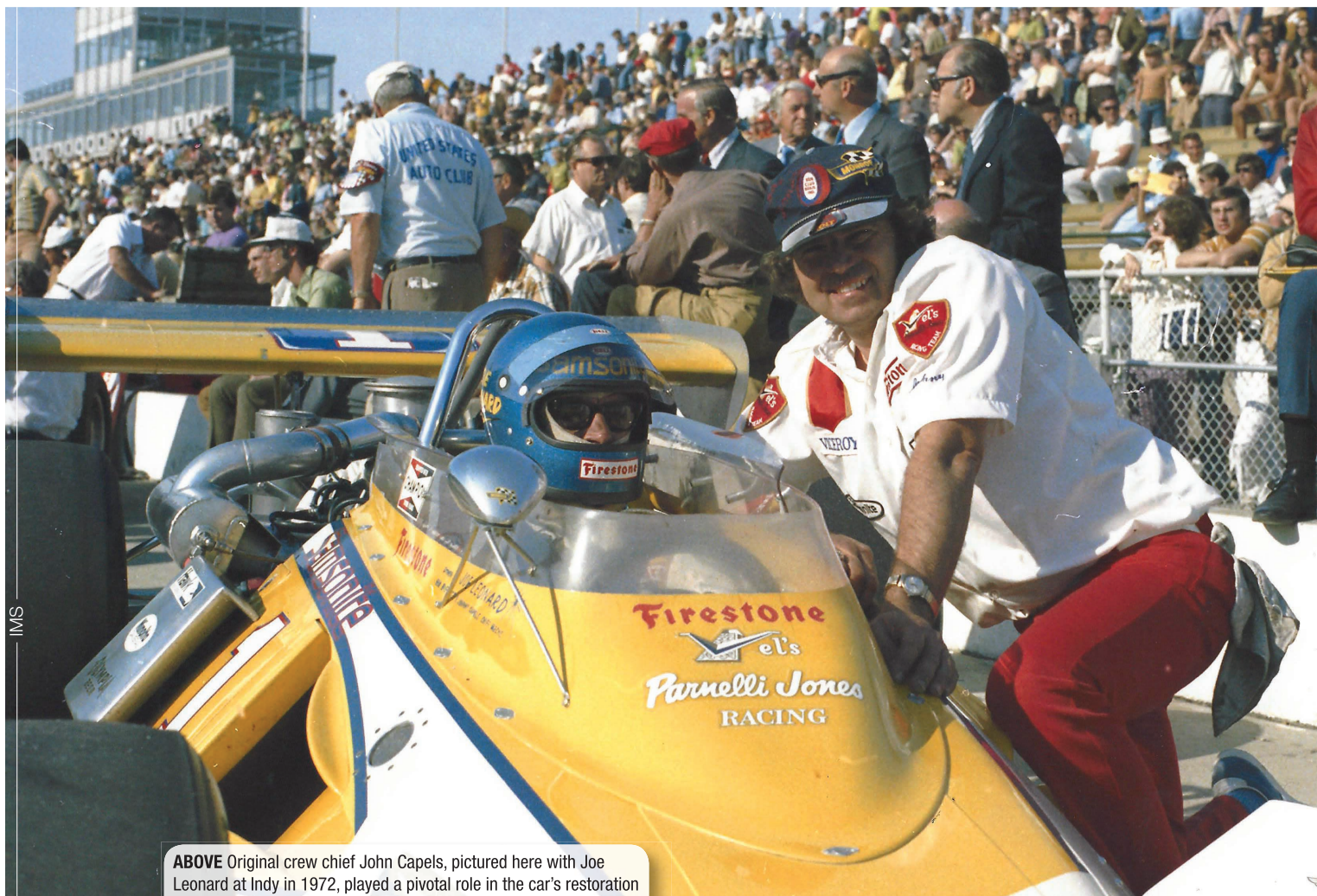


BELOW The VPJ-1 has been incredibly well received, by fans and judges alike

found lettering under the coat of paint that was on the car on the left side, but nothing on the right side because that was all new material. We had drawings that we could go from but we also had the complete left side of the car to help us recreate suspension components for

the right side. This allowed us to use as many original parts as possible.

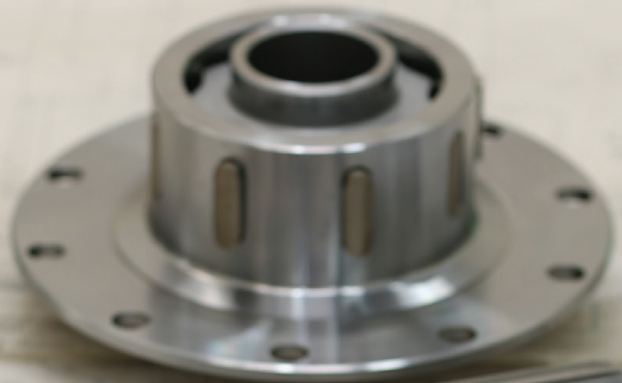
“We found that a key difference in the other two team cars is they utilized a Spalding battery magneto while my car ran a Mallory magneto. Because it was quite long, John Capels had ▶



ABOVE Original crew chief John Capels, pictured here with Joe Leonard at Indy in 1972, played a pivotal role in the car’s restoration



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ABOVE Jones reports that the car has no shortage of mechanical grip and is rewarding to drive

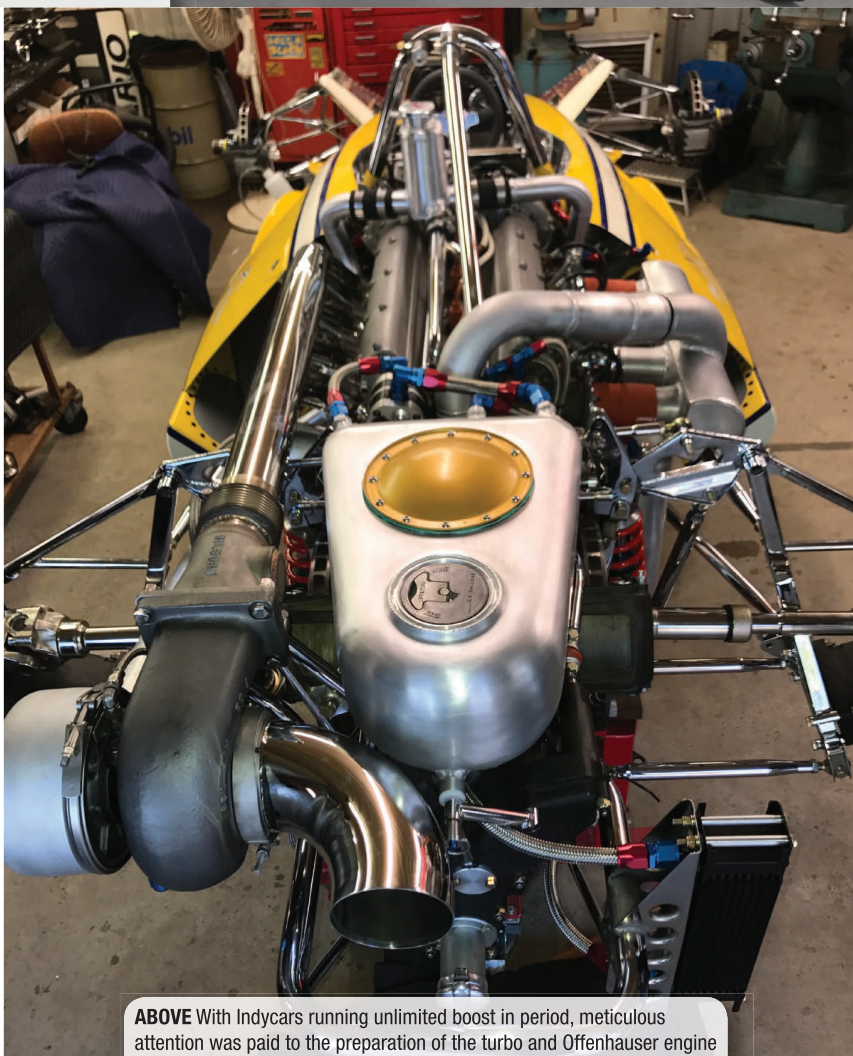
—Jim DeBosis

to make modifications to the back of the tub to accommodate it. We found the modifications but couldn't make sense of why it had been done and it certainly didn't match the drawings of the car. However, Johnny was able to explain that they had used a different magneto setup and had made certain modifications to the car."

One of the conundrums Jones had when restoring the car was picking a point in time to restore it to, as there were three different versions. "Many people remember the canard wing version, but very few recall the dihedral experiment," he says. "So what I chose to do was pick the Mark 1 version as most people just don't remember it. It was also the way that Maurice Philippe originally intended the car, and I believe it's the purest design."

It was approximately a four-year project. "This is only my hobby," he explains. "My 'day job' is designing surgical robots. Saturday is shop day from 7.00 am to 7.00 pm and Sunday is family day. So basically I had one day a week working on the car, but with the help of Alex and John, we were able to get it back together as accurately as possible.

"The engine was sourced from AI ▶



ABOVE With Indycars running unlimited boost in period, meticulous attention was paid to the preparation of the turbo and Offenhauser engine

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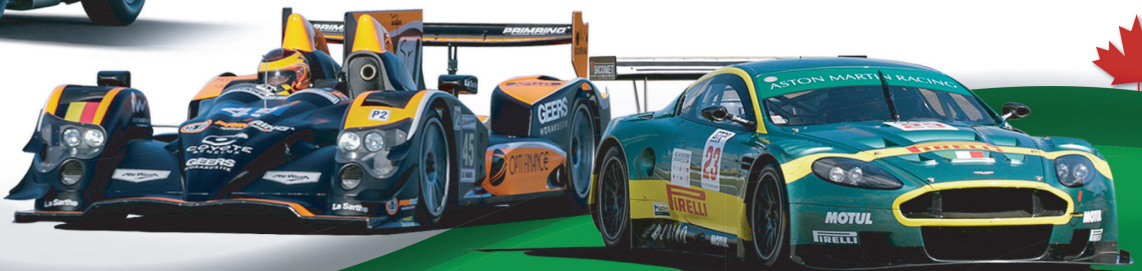


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Unser Senior who drove one of the team cars, so it's a period correct, 36-degree turbo Offy and was one of the R&D engines that had been assembled by Dick Jones of Champion spark plugs. It was an honour to be able to find the engine and reunite it with the chassis. The gearbox is a Hewland LG MkII, the correct gearbox for the car. When the cars were built they made slight modifications to

the side covers of the gearbox to accommodate the inboard rear brakes."

The engine has a period Hilborn turbo flange and an AirResearch turbo which is fairly indicative of what they ran in the late Sixties and early Seventies when boost was unlimited, the boost being adjusted by the wastegate. "One of the things that was always important was to make sure the turbo was trouble-free, so we've completely gone through and

rebuilt this one with new bearings and seals with everything to spec," he says. "It's the heart of why the engine is able to put out such horsepower."

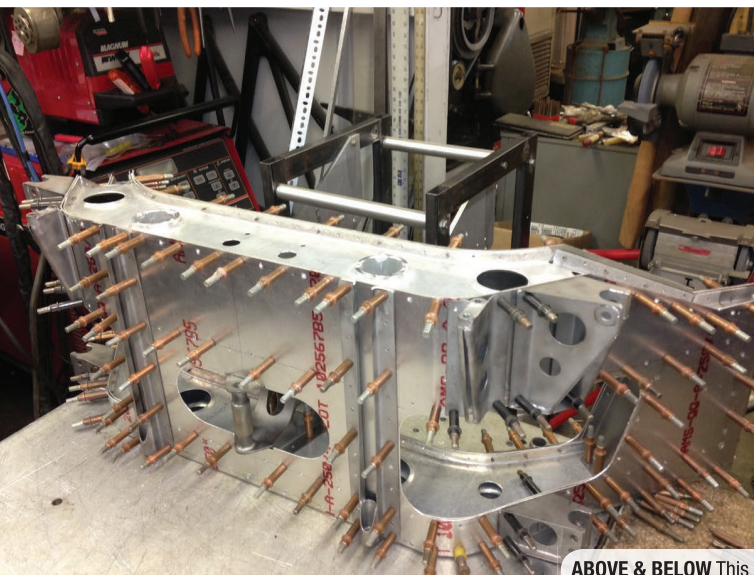
TOUGHEST REBUILD

Jones has restored nine vintage Indycars to date, but the Parnelli was definitely the most complex, he says. "I have done everything from front engine

Doug Burress



ABOVE It is testimony to the quality of the rebuild that the car has so far completed two full race distances trouble-free



ABOVE & BELOW This was by far the most complicated of the nine vintage Indycars Jones has restored



“ One of my unofficial rules is that if the car requires a laptop to start it, I’m not interested ”

roadsters to cars from the ‘80s and ‘90s, but the Parnelli was very complicated. There were times going into the project when I thought I might not make it to the other side and complete it, but we did and I’m pleased because the car has been amazingly well received. We won the race car category at Amelia Island in 2018 and it was very gratifying to see how the crowd responded to the car. They loved it!

“When we first ran it, John Capels came out to the track in mid-2017 and personally set the car up to make sure it started, ran well and performed well on the track. The car is very predictable, has tons of mechanical grip and is rewarding to drive.

“The first time I drove the car I was

on the back stretch at Indianapolis. I had started racing when I was eight, starting with karts and then graduating to Midgets and Sprint cars, so I knew that at some stage I had to find out what the car would do. So I got it aimed on the straight and then nailed it. What I found was that the car would spin the tyres in all four gears. When it comes on, it comes on *hard*!

“The engine puts down around 1,300 hp which comes on all at once. You can see that it has a huge turbocharger on it.

“We ran it at Indianapolis in May, 2018 for the Indy Legends day and also at the Indy SVRA event. We’ve also run the car at the Vintage Indy Registry at Gateway Speedway. What I’m thrilled to say is that this has been the most

trouble-free car for me. I have currently put two full race distances on the car with no mechanical issues.

“I have never been a fan of people who buy these cars and put them away in private collections, never to be seen again. I remember the excitement I felt, because I was a kid when this car was built, and I remember seeing it and being blown away by it, but I never thought in a million years that I would ever own one. It is wonderful to share it with future generations, which is why I get the car out as much as I can at every event. It is also important to remind future generations of the amazing accomplishments in 1972 of Joe Leonard, John Capels, Parnelli Jones and Maurice Philippe and the entire VPJ team.

“However, the thing that I am most proud of is that only two people have driven this car – Joe Leonard and I, which is quite an honour.” **HRT**

WHY UNLEASHING YOUR INNER TARQUINI IS CHEAPER THAN YOU'D IMAGINE

Chris Pickering examines the rebuild of a car from touring car racing's most evocative era

THE prospect of racing '90s Super Tourers in historic events seems to be met with equal parts of excitement and trepidation. On one hand, these cars undoubtedly deserve historic status (even the youngest is now older than the Bugatti Type 35 was when the Vintage Sports Car Club was formed). On the other hand, they are often associated with

a step change in cost and complexity compared to earlier historic.

There's certainly an element of truth to those concerns. The latter part of the Super Touring era saw manufacturers ploughing huge amounts of money into increasingly sophisticated purpose-built racing cars. Ford, for instance, is rumoured to have spent £12 million on its British Touring Car Championship



ABOVE An unusual driveshaft arrangement helps to reduce torque steer



Jeff Bloxham

(BTCC) campaign in 2000. Along with the increased budget came a different mindset, with engineers from Formula 1 backgrounds casually designing one-off parts and choosing exotic materials. And yet it might surprise you how affordable these iconic machines can be to buy and run, particularly when it comes to the earlier examples.

"As a general rule, I'd say someone who pays a team to look after something like a Lotus Cortina could comfortably afford to race one of these cars," comments Alan Strachan, owner of AWS Engineering. He's uniquely qualified to comment, not only as the owner and driver of a works-spec



ABOVE In a neat twist to the tale, the car's owner and driver, Alan Strachan, was actually lead mechanic for Kelvin Burt's car in Rouse's works Mondeo team in period

Super Tourer, but also as someone who worked on these cars in-period.

Strachan was the lead mechanic for Kelvin Burt's Ford Mondeo in 1995, part of the works team entered by Andy Rouse Engineering. By the end of that season the car you see here was beginning to take shape in the workshop. It was originally destined to be one of the works entries for 1996, using a new four-cylinder engine in place of the existing V6.

"The view at the time was that the V6 engine, as good as it is, was just too heavy. It used to eat front tyres," comments Strachan. "We got as far as testing a four-cylinder Burton Power

engine in one of the V6 cars. On a qualifying lap, the V6 was quicker because of its power advantage, but the car looked after its tyres a lot better in four-cylinder form, which made it quicker and more consistent over a full race distance."

Things were looking good, but in the end Ford decided it wanted to keep the V6 and the contract went to West Surrey Racing instead. That left the Rouse team with a part-built car, which was promptly converted back to 1995 spec, complete with a six-cylinder engine, and sold to Ford Rasino Brno in the Czech Republic. It was raced successfully by Josef Kopecký in the Czech Republic

Touring Car Championship for a number of years, before it ended up in France, used for hillclimbing. When the car finally returned to the UK in 2013 it was offered as a contender for the Historic Sports Car Club's rapidly-expanding Super Touring Car Trophy. And that was when Strachan acquired the car.

RESTORATION

"Touring cars have always been a passion of mine, particularly Super Tourers, and there was also a personal connection there to this particular car," comments Strachan. "Like every second-hand competition car it was ▶

“It wouldn't be beyond the capabilities of a competent amateur mechanic to look after their own car”

'race ready' when it was sold, but we already had plans to restore it. After we bought the car we just gave it a few basic checks and then took it up to Bruntingthorpe for a shakedown.”

Nothing untoward materialised and the restoration was soon in full swing, with the shell stripped back to the bare metal. This was done using a shot blasting process rather than acid dipping, Strachan notes, in order to protect the integrity of the welded-in roll cage.

What's perhaps surprising, given the Super Touring era's rather exotic reputation, is just how much of it is still standard Ford Mondeo. At least, in theory. The body panels came off the regular production line, but they were specially pressed with the thinnest steel allowed under the regulations. Next, the body in white was assembled during factory maintenance time at the Ford plant in Genk, Belgium, with all the panels

seam-welded and all the non-essential brackets and fixings omitted.

“It wouldn't be that difficult to build a replica of one of the motorsport shells, but you'd struggle to get it down to the same weight,” says Strachan. “The structural strength of the competition car largely comes from the roll cage, so everything else was pared back as far as we could go under the regulations. That said, it's still a lot more conventional and a lot more robustly built than some of the later Super Tourers, which were like single-seaters with saloon car bodies on.”

Here, virtually all the body panels remain steel. The rear wing and the



Jeff Bloxham

ABOVE Super Tourers are often associated with a step change in cost and complexity, but running the cars doesn't have to be as onerous as you might expect

splitter are the only composite parts visible externally. Inside, the door cards, the dashboard and the rear bulkhead are carbon fibre, as is the filler neck and parts of the fuel cell structure, but generally it's good old-fashioned steel.

The bodywork that you see here is the standard 1995 aero package and the only aerodynamic devices on the car are the wing and the front splitter, both of which are non-adjustable, as per the Super Touring rules. At the time, the design of the rear wing was essentially unconstrained, providing it fitted inside a pre-defined volume. Rouse carried out extensive wind tunnel testing at MIRA and there were even discussions



ABOVE The carbon fibre airbox has carbon trumpets inside and slide throttles



ABOVE The levers for the cockpit-adjustable anti-roll bars

with Ford about building an 'RS' Mondeo as a homologation special with additional louvres, along the lines of the Sierra Cosworth RS500, although these never came to fruition.

After it was stripped, the shell was thoroughly inspected, with the hard points measured to ensure that everything was square. It turned out to be in remarkably good condition for a car that had survived two decades in the hands of touring car drivers.

In the interest of protecting the car's heritage as much as possible, the original lightweight exterior panels were placed into storage, while a set

of replacement items were sourced from a Mk1 Mondeo road car. This has increased the weight by something in the order of 50 kg, Strachan estimates, but it means it won't be a drama if it sustains a bit of panel damage.

Next, the car was sent off for paintwork. The decision was taken to put it into the Valvoline livery, used by the Rouse-prepared works cars in 1995. Strachan is keen to point out that the intention was never to pass it off as one of these cars, but rather to tap into the rich seam of nostalgia associated with them.

While everything was in bits, many ►

of the components were reverse engineered and drawn up in CAD. In some cases, 2D CAD files actually existed from the period, so these were saved for future reference. "It's something I'd urge anyone with a car like this to do," comments Strachan. "When you've got parts off the car, sit down and draw them, even if it's only a basic hand-drawn sketch and a few measurements."

CHASSIS SETUP

Under the Super Touring regulations, the standard suspension layout had to be maintained, so the Mondeo uses a MacPherson strut configuration on both ends (with trailing arms to provide additional location at the rear, as per the road car). It even retains the production subframe on the rear (albeit somewhat strengthened) while there's a special fabricated structure at the front.

The rules allowed the mounting

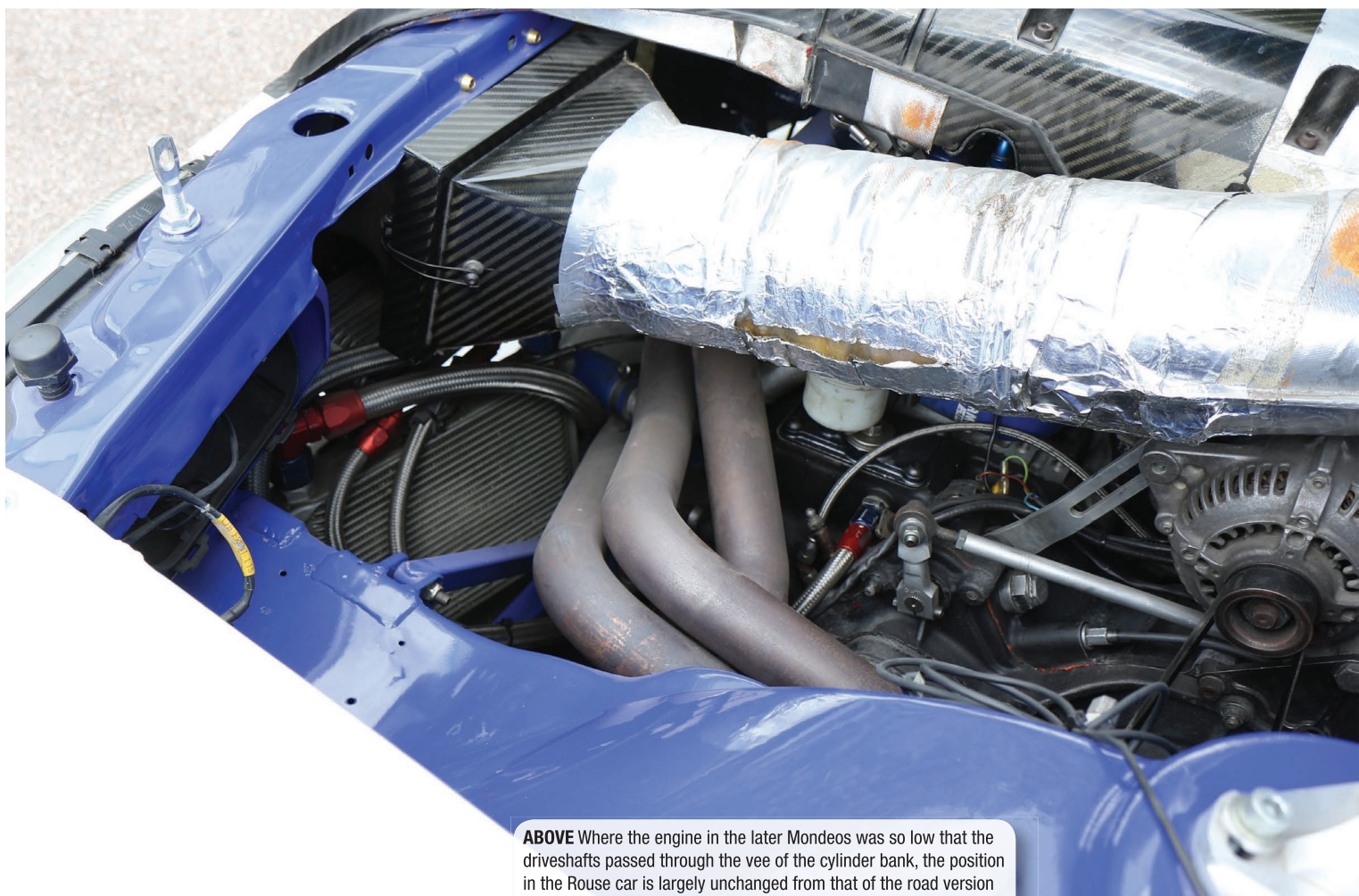
“ Many of the components were reverse engineered and drawn up in CAD ”

points to be moved up to 20 mm in any direction, so there was some freedom to tweak the geometry to provide additional castor and camber, but it remains broadly the same as that found on the production models. Unlike some of the more extreme Super Tourers, the engine position is largely unchanged from the road car. The later Prodrive-built Mondeos famously set the engine so low that the driveshafts passed through the vee of the cylinder bank. Likewise, Strachan recalls that the first time he saw one of the TWR Volvos he assumed there was no engine in it, only to find that it was so far back that it was obscured by the scuttle panel when looking down through the windscreen!

The transmission follows a similarly conventional layout, although there is more to the driveline than meets the

eye. The output from the gearbox is offset, as it would be on a normal front-wheel drive road car. However, instead of using unequal length driveshafts, a short intermediate shaft runs behind the engine, extending the inboard end of the right-hand driveshaft out to the same position as that on the left. These equal length driveshafts help to reduce torque steer, with the same torsional 'wind-up' characteristics on both sides (and no deflection to speak of in the short intermediate shaft).

"Driven at seven-tenths you'd struggle to tell whether it was front-wheel drive or rear-wheel drive. It's only when you start to push on a little bit that it starts to become more demanding," says Strachan. "The back end feels quite light and you need to remind yourself to get on the throttle when it starts to ▶



ABOVE Where the engine in the later Mondeos was so low that the driveshafts passed through the vee of the cylinder bank, the position in the Rouse car is largely unchanged from that of the road version



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ABOVE In spite of the exotic nature of the Super Tourers, the front splitter and rear wing are the only composite parts visible externally

oversteer, which it does frequently. You've got to really drive it through the corners and let it drag itself round. It takes a while to get your head around."

The car originally struggled on the historic series' Hoosier control tyres, Strachan notes. Running extra camber on the rear improved the situation by generating more tyre temperature, while softening the suspension also helped. Typically, we're told, the front wheels run without any toe, while the castor angle is in the region of three to four degrees, with a similar amount of camber. In the dry, the front spring rates are around 1,000 lb/inch and the rears run at about 675 lb/in, while the cockpit adjustable anti-roll bars tend to be run quite stiff. The original Proflex remote reservoir dampers are used on all four corners, freshly rebuilt at the company's Lincolnshire HQ.

A variety of different braking setups were used by Rouse in-period, including single six-pot callipers and a water-cooling system. These days it runs dual AP Racing four-pot callipers with grooved and vented discs on the front (circa 380 mm), while on the rear there is just a single pint-sized twin-

“ There is more to the driveline than meets the eye ”

pot calliper behind each of the Dymag magnesium alloy wheels. “The rear of the car doesn't do a great deal under braking, because there's so little. We don't even run vented discs on the back,” notes Strachan.

ENGINE

The car still has one of the original Rouse engines. Manufacturers could use any engine from their extended range, which is how the BTCC Mondeos came to use a V6 well before there was a road-going version available. What's more, the engine in the competition cars was based on that found in the Ford Probe, while the road cars went on to use a Mazda derivative of the same unit.

The major castings are much the same as those found on the road cars, Strachan explains, barring a few bits that have been machined off. Originally, the heads were supplied as blank castings with specialist porting

and combustion chamber geometry (originally carried out in-house by Rouse and later by Cosworth).

As part of the restoration, the engine was treated to a full rebuild. This tends to be one of the more expensive jobs on any car, not least a Super Tourer, but it proved to be far less onerous than expected, Strachan explains: “All that was really required was to polish the crank, hone the bores and give it a new set of bearings and piston rings. The original titanium valves were in good condition, so we kept those, along with the other internals and indeed the camshafts.”

The car still runs its original Zytec engine management system – much to the amusement of the engineers at Gibson Technology (as the company is now known) who pointed out that the computer required to access it would now be a museum piece.

“It should be easy enough to replace that with a modern ECU when the time comes,” comments Strachan. “You'd probably get a bit more power, thanks to the improved controller accuracy, but while it's still working as intended we see no reason to change it. We don't ▶



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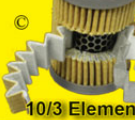
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ABOVE It says much of the era that the original car benefited from extensive wind tunnel testing at MIRA. There were even discussions with Ford about an 'RS' homologation special

run a different map for wet conditions or anything like that."

Later on, the heads of the valves began to deteriorate – as is not uncommon with titanium – so the decision was taken to replace them with forged stainless steel items. The feeling was that these would be more than adequate for the series' 8,500 rpm rev limit (the same as the Super Tourers ran in-period) and they would reduce the rebuild costs considerably. "We

wanted to build a degree of longevity into the car," comments Strachan. "We didn't want to be putting new valves into it every season."

Power is sent to the front wheels via a six-speed Xtrac sequential gearbox, with an ignition cut to allow full-throttle clutchless upshifts. "You'd think that it would preserve the gearbox, but actually the dogs seem to wear quicker if you use the clutch for the downshifts," notes Strachan. "The straight cut gears

are fairly robust, the only thing to keep an eye on is the bearings."

Generally speaking, the car runs much as it did in-period. The only real changes have been for the sake of safety. Alongside an OMP seat and a Lifeline fire suppression system, the car now features HANS-compatible harnesses. For convenience, the original bladder tank has also been replaced by a foam-filled aluminium tank, fabricated in-house, which sits inside the original double-layered carbon fibre and honeycomb casing.

COSTS

By 1995, things were starting to ramp up somewhat in the BTCC arms race. Most of the cars used bespoke gearboxes, for example, to enable the increasingly extreme engine positions. In other areas, though, they retained off the shelf parts. Strachan gives the example of wheel bearings, which are around £800 for a full set on the Mondeo, whereas the bespoke precision-ground items for some of the later Super Tourers could be £1,000 for a pair.

Even the more exotic cars are less expensive to run than a lot of people might expect, he points out: "Yes, they are quite labour-intensive and they



ABOVE The Valvoline livery taps into the nostalgia associated with the period

can be a little temperamental, but they aren't subjected to anything like the same amount of work as they were in-period. Back then, we'd have had a minimum of two people, seven days a week on each car (not including the engine or transmission). But they covered maybe three times as much mileage in a single day of testing as we do in an entire race season now. The level of detail remains the same, but it's nothing like as intense on an historic

schedule. It wouldn't be beyond the capabilities of a competent amateur mechanic to look after their own car either – there are people who do that.”

There are no laptops to start it and no teams of engineers required for this particular car. The pre-race warm up routine simply consists of getting the engine up to temperature and then running the car through the gears a few times while it's up on stands.

The upfront cost of unleashing your

inner Rickard Rydell or Gabriele Tarquini isn't as steep as you might imagine, either. Race-ready Super Tourers start at around £50,000, while Strachan reckons £80,000 would be enough to purchase a competitive car and have it professionally run for a season. That's hardly throwaway money, but neither is it exorbitant in the context of historic racing. And it opens up a fast, fascinating and hugely exciting chapter in the history of motorsport. **HRT**

— Jeff Bloxham



ABOVE The car initially struggled on the historic series' control tyres

GURNEY'S 'YANK TANK' ROLLS BACK INTO ACTION

A huge ex-police Chevrolet Impala, in the expert hands of a works F1 driver, made a big impact when it crossed the water to take on the all-conquering Jaguars in the UK in 1961. Now it's back. **Andrew Swift** reports

IT'S a slice of British motor racing trivia which had been lost in the mists of time until very recently: the influx of 'Yank Tanks' into the British Saloon Car Championship during the early 1960s wasn't wholly attributable to the mighty Ford Galaxie.

In 1961, Dan Gurney was a works Porsche driver in Formula 1 but still made time to attempt to topple the hitherto all-conquering Jaguars at Silverstone. His weapon was an unlikely one: a big block Chevrolet Impala. While today's historic racing audiences are rather accustomed to this kind of machinery, one can only imagine the incongruity of the vast machine bellowing among the home-grown Rileys, Austin

Minis and Sunbeam Rapiers.

In 2018, Gurney's Impala returned ceremonially to Silverstone – but its journey back to its spiritual racing home is a somewhat unlikely one.

The Impala competed just once in the British Saloon Car Championship, with Gurney on pole and leading for much of the race before wheel failure put him out, allowing Graham Hill through to win. To offer some sense of the talent at the front of the grid, the podium was completed by Mike Parkes and Bruce McLaren.

Gurney's searing pace caused some disquiet among the regulars and his entry to the July meeting at Silverstone was scratched after homologation issues. Perhaps some skulduggery



LEFT Where it all began: two cultures collide as Gurney's Impala takes on the Brits in their own backyard at Silverstone in May '61

“It wasn't right to turn it into a modern historic racing car. I wasn't prepared to do that to Dan Gurney's car”

from Lofty England was afoot; Gurney had already ordered beefier, NASCAR-spec wheels to avoid a repeat of the International Trophy failure. After this, the American seemed to lose faith in the project and, in spite of vague plans for use as a touring car for the European race season, the Impala was sold to Australia where it competed in a handful of club-level events before disappearing.

Current owner Ed Foster was unaware of the car until it was described to him during a meeting at Goodwood, where he is deputy head of motorsport content. While the team was spitballing ideas for 'a fun car for the St Mary's Trophy', one colleague suggested an Impala, revealing Gurney's Silverstone exploits. This set Foster onto a

research trail which lasted a week before chancing upon the very car on a Chevrolet chat forum, being sold by Chevrolet expert Verne Frantz.

POWERLESS TO RESIST

Being a keen historic racer already (he also races a works MGB), Foster was powerless to resist purchasing the big Chevy himself and set the wheels in motion. The car had been moved from Australia to America, where it was believed it might prove easier to sell.

At this stage, it was Foster's intention to race the car in that year's St Mary's Trophy, so time was very much of the essence. In spite of this, he undertook the necessary due diligence and Chris ▶

BELOW Driven by Dario Franchitti – his wife being shuttled unceremoniously along the bench seat – the Impala was restored in time to lead the cars out for the St Mary's Trophy at the Goodwood Revival



Jeff Bloxham

“ Instead of chasing the last tenth around the lap, the primary concern of the build became authenticity”

Keith-Lucas of CKL Developments put him in touch with local experts to carry out the necessary inspections, numbers check and review of the authentication letter from Gurney himself.

Satisfied the car was as purported, a deal was negotiated and Foster became the proud owner of a Chevrolet Impala – and several boxes of miscellaneous Impala pieces. That rapidly became two Chevrolets: his first task was to initiate a left-hand drive conversion, done before the car even left the States. Foster picks up the story: “I bought a rotting 1961 Chevy Biscayne donor car for \$1,700 – it was a bit of a shed to be honest – for the conversion. It’s still over in America somewhere, though I’ve no idea where!”

BACK TO GURNEY SPEC

The Impala had been swapped to right-hand drive when it arrived in Australia, but Foster felt it was important the car was as close to Gurney specification as possible and the lanky American had raced from the

left-hand seat. In July, one American land yacht, now with steering wheel on the left, duly landed in the workshops of Jordan Racing Team, the stable of Mike and Andrew Jordan. The father and son duo were Foster’s favoured destination, having built an enviable reputation for race preparation – particularly 1960s saloon cars, with their Lotus Cortinas providing the category benchmark.

It was at this stage that the first problem revealed itself: the Impala’s sheer size. Mike Jordan mischievously nicknamed it the USS Nimitz in reference to the enormous warship of the same name. Ten centimetres both longer and wider than a Ford Galaxie, the Impala became a sizeable, and occasionally inconvenient, guest in the JRT works during its restoration. Resident mechanic on the project, Liam Yates laments that it took up the space of two Austin A40s – more usual JRT fare.

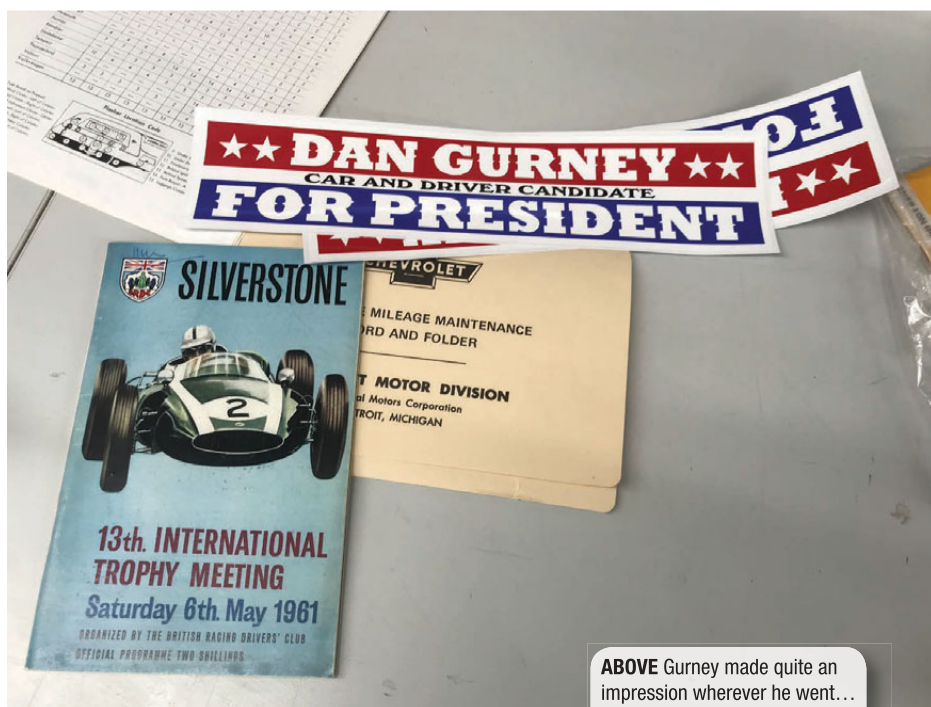
It was at this stage that Jordan and Foster had to have a difficult conversation, as Jordan attests: “Ed was adamant that he wanted it to be



a race car for the St Mary’s Trophy. After inspecting it, I realised that it wasn’t right to turn it into a modern historic racing car. To rebuild it to the specification we expect would have been wrong and I wasn’t prepared to do that to Dan Gurney’s car.”

A typical Jordan Racing Team build would involve every measure required – within the regulations – to win in the big races. Jordan deemed that process simply too invasive for a car with such a visible, transparent and important history. Fortunately – in spite of his enthusiasm for seeing original cars raced – Foster was persuaded, and so the project took a different turn, with JRT to rebuild the car as closely as possible to the specification in which Gurney drove it at Silverstone.

Foster arranged that, instead of racing the car in the St Mary’s Trophy at the 2018 Revival, Dario Franchitti – a close friend of the Gurney family – would demonstrate the car immediately before the race. That



ABOVE Gurney made quite an impression wherever he went...



ABOVE & BELOW Described as an “unbelievable find”, the Impala was in surprisingly good condition when it was tracked down in the US

decision set the timescales for the build; the Impala still needed to be ready for September.

Instead of chasing the last tenth around the lap, the primary concern of the build became authenticity. This in itself threw up problems and Yates is at pains to explain the unique challenge of the machine: “The cars changed each year and trying to figure out specific items for a 1961 Impala was tricky. We also originally thought it was an SS model, which was introduced during 1961. As we progressed, we discovered that, although it has a 409 engine and four-speed manual transmission, like the SS, it was actually a regular car with similar upgrades.”

111 SEPARATE PARTS

Virtually all the parts required for the build came from the States, with Foster grimacing as he recalls having to order 111 separate parts to keep things moving. The only saving grace was ►



ABOVE Mike Jordan spent a long time contemplating the Impala before arguing that it shouldn't be turned into a modern historic racecar

HRT

their remarkable value compared to similar pieces for European machinery.

A parts catalogue from Show Cars in the US became Yates' bible during the build but even then issues were frequent. A replacement window seal kit was ordered and the seals themselves were a perfect fit but unseen ancillary parts were found not to be included and had to be ordered separately. This is a key aspect of the project which Yates believes would be more efficient in future builds. To gain familiarity with the cars, particularly their iterative annual changes, will reap rewards if the team completes another Impala.

SINKING FEELING

Foster managed to obtain the original engine, including some unique 1961 cylinder heads, as part of the deal when he bought the car. This was a story in itself: at some point during its time in Australia, the original V8 was removed and replaced with a straight-six. The V8 was said to have been installed in a powerboat which subsequently



ABOVE The biggest challenge? Just finding space for it in the workshop!

sank and was presumed lost forever. Thankfully that wasn't the case and the engine was returned to the car prior to being shipped to Australia.

However, Foster was reluctant to race it. "I couldn't risk a rod going through the block of such an important engine," he says, so he commissioned a new build. A UK specialist was found to simply be too expensive, so Foster subcontracted the work to Jack Gibbs of 409 Chevy Performance in the States.

A crated 409 cubic inch V8 was delivered to JRT for installation. It is actually a 1962 block but built to exactly 1961 specification with a single inlet carb. It delivers a frankly terrifying 450 bhp and 450 lb/ft or torque – not bad for a saloon car now almost 60 years old. Foster does describe it as "a little racy for a road car and it does get a bit hot in traffic" but otherwise confirms that it is perfectly capable on the road, even if the noise on straight- ▶



ABOVE & BELOW The JRT premises are no stranger to state-of-the-art British tin-top challengers!



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through pipes is deafening.

Yates confirms that the installation of the big V8 was remarkably simple. The engine builder specified the radiator, which Foster ordered from the States for only \$325, and the cooling system installation involved little more than ordering the requisite hoses.

The charging system, though, proved troublesome as the Impala originally ran an external regulator. There wasn't time to obtain an operable period regulator, so a 1962-type alternator was fitted. This meant the fabrication of bespoke brackets and a new loom. Occasionally the Goodwood Revival deadline did influence small decisions concerning absolute adherence with the period specification.

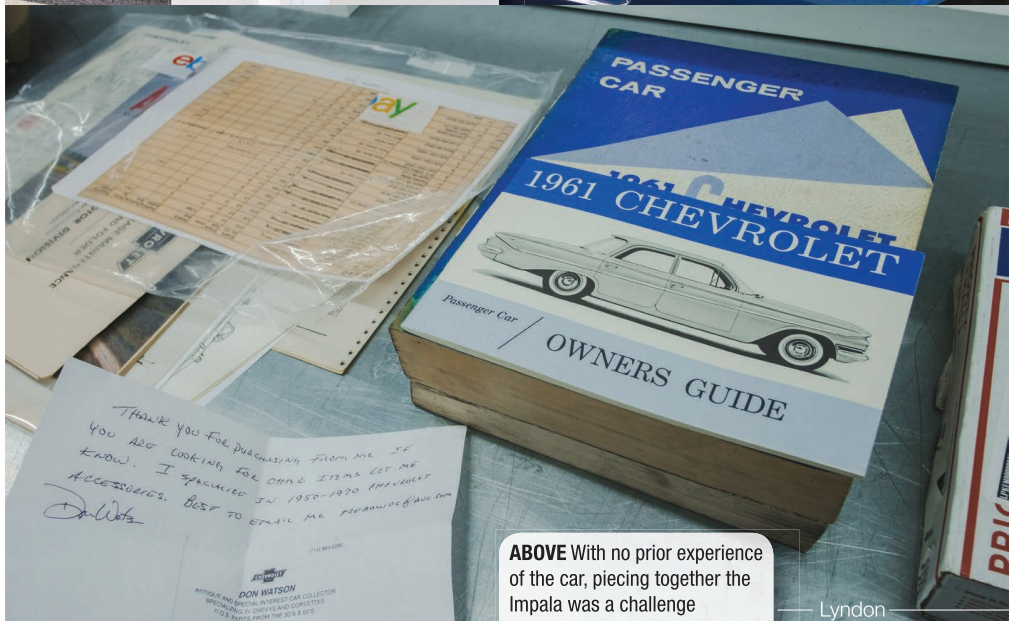
HARD TO WORK ON

Meanwhile, Yates laughs when describing the ergonomics of working on the vast car: "For something so massive, it's incredibly difficult to work on. The engine is set very low and right up against the bulkhead. I suppose that is a good thing for a racing car, but you had to reach miles across the radiator to work on anything." Foster corroborates with a grin, suggesting, "You could fit an aero engine in there!"

Lyndon



ABOVE A 'what have I done?' moment. Foster inspects the new arrival



ABOVE With no prior experience of the car, piecing together the Impala was a challenge

Lyndon



ABOVE The first task was to initiate a left-hand drive conversion

It seems that the Chevrolet engineers bundled all the components into the same space in the engine bay. Foster had ordered new exhaust manifolds to original specification and they were found to clear the steering column by less than 2 mm when cold. With the engine running, thermal expansion meant they were suddenly in contact and Yates found himself filing bolt heads down to allow everything to fit together on the evening before the Revival.

Gurney had bought an Impala in police specification. That meant beefier springs but elsewhere the level of engineering proved surprisingly light. The damper rods appeared to be hopelessly spindly and out-of-character with controlling such mass, while the propshaft – responsible for transferring 450 lb/ft of torque to the rear axle – is ▶



ABOVE The Impala stunned the opposition at Silverstone in '61. Asked about Jaguar's attempts to block the Chevrolet's return, Gurney simply shrugged and replied, "Why fight City Hall?"



ABOVE & BELOW The 409 cubic inch V8 delivers 450 bhp and 450 lb/ft of torque – not bad for a car now almost 60 years old. The installation was surprisingly straightforward



thinner than that on a Lotus Cortina. Yates also identifies the wheel studs and stud pattern as totally out of proportion for a car which otherwise seems so Brunelian in its approach.

Little Gurney touches are apparent elsewhere. He fitted a stiffer front anti-roll bar and a rear ARB to tame the back end; the front drum brakes were fed by additional ducting. The

big block engine had been stripped and balanced by Bill Fowler but was otherwise unmodified.

Inside, the cabin benefited from a rev counter mounted to the steering column. This wasn't a Chevrolet fitment at the time but did follow on subsequent Impala road cars; a little-known Gurney legacy, perhaps? Sadly, the original item no longer worked but

a replacement of the same type now rests in its place while the original is to be sent off for restoration.

The rest of the car benefited from a gentle overhaul by JRT. 95% of exterior chrome was retained and given a light polish. The paintwork retains its original patina, though Yates identifies the black bulkhead as an area for attention in the future:



ABOVE & BELOW JRT specialises in historic machines with a modern twist, built to be out and out racecars, but the ambition for the Impala took a number of twists as the project unfolded





ABOVE Fifty-seven years on from its retirement in Gurney's hands at Silverstone, Foster's Impala finally completed the remaining two laps of the Northamptonshire track

it should match the blue hue of the rest of the car. The underseal remains intact. Jordan, meanwhile, winces when describing the white race number roundels on the doors. They had evidently been fitted at the racetrack and were rather too large, clumsily straddling the chrome trim running along the Impala's flanks. "They are a bit rough but that's how

being concertinaed by the lack of adjustment from the bench seat. He cites only the "astonishing" fuel consumption (think 8 mpg!) and din from those open pipes as compromises to road use: "The truth is that I will get far more use from it as a road car than as a race car. You can easily use it to go to the pub; the fuel consumption probably precludes any

Dan always beamed when describing the car. One can only hope that a Gurney can finally slide back onto the bench seat in the near future.

With this important and influential slice of Americana now consigned to country pub conveyance (!), one wonders whether we will see an Impala debuting in historic saloon car racing. Foster cites homologation as a potential hurdle. It was an issue for Gurney's team in period and the lack of recent precedent would either present an open goal or a legislative headache.

Yates reckons a full build would be exciting but couldn't be genuinely competitive without a typical JRT ground-up restoration. That would mean interior strip, acid-dipped shell, full cage, race engine and suspension, disc brakes, as well as wider wheels and tyres to match the Galaxies. A lack of set-up data might handicap it initially but the prospect of another of the GM giants hassling the Minis and A40s in historic saloon car races around Silverstone is a mouth-watering one; just don't mention the potential fuel bills. **HRT**

“ The Chevrolet engineers seemed to have bundled all the components into the same space in the engine bay”

the car ran at Silverstone so that's how we had to fit them," he mourns, JRT's usual attention to detail being forced to take a back seat.

In order to get the car to Goodwood, Foster decided, rather ambitiously, to drive it from the JRT base in the Midlands – via its spiritual home of Silverstone. This would be its first proper run post-restoration. In spite of a slightly compromised seating position, the journey was a success – Foster's 6'7" frame

lengthy European trips, though the boot is enormous.”

Foster had originally hoped to share driving duties at Goodwood with one of Dan Gurney's sons before the decision had been taken not to compete with the car. Dario Franchitti demonstrated the car on the Saturday and Sunday of the event – a fitting driver for such an occasion, given his close relationship with the Gurney family. The restoration has the Gurney family's full blessing and they were pleased to report that

REVIVING THE GREATEST HITS

Setting quicker lap times is tough work but resisting the urge to go faster can be harder still. **Alan Stoddart** finds out why

DUNLOP is among the motorsport companies with the best pedigree. Last year the firm celebrated its 130th anniversary, and during that period it has been part of many of the most momentous events in the growth of racing.

Dunlops were used by the victor of the 1902 Paris to Vienna race and shod the single British entry, a Bentley 3.0 Litre Sport, at the very first 24 Hours of Le Mans in 1923, where it also erected the first iteration of the now famous Dunlop Bridge. Dunlop was there throughout the 1950s and 1960s in the nascent Formula 1 Championships, enjoying success at the hands of legends such as Graham Hill, Jim Clark, John Surtees and Jackie Stewart.

The wins kept coming, with Dunlop Tyres a continual feature on victorious sports cars from Ferrari and Porsche in the '60s, '70s and '80s, through to the present day via DTM, V8 Supercars and the BTCC among many

other series. Throughout, it retained its dedication to Le Mans, where it has won more than any other tyre maker.

It's an impressive back catalogue, and with historic racing more popular than ever before, Dunlop has decided to give fans what they want and is re-releasing many of its greatest hits, allowing drivers to keep running cars on the tyres they were made for. In fact, it is committing to historic racers with such vigour that it has increased its period range by 50 per cent since 2017, and now lists more than 55 different tyres, broadly covering cars from the '20s to the mid-'70s, and even including some particular specifications from more recent years.

From the outset though, Dunlop was adamant that it had to be done right. Part of this was a result of the

company's commitment to its heritage, and a reverence for the decades of history that have shaped the brand into one of the world's most recognised tyre manufacturers. It was critical that the re-released tyres closely replicated the originals from the past.

There were also more prosaic reasons for ensuring that the tyres replicated those that had success in all those legendary races. For one, the tyres needed to meet the standards of the FIA's Appendix K, which explicitly states that 'a devotion to the cars and their history' is paramount, rather than it simply being 'another formula in which to acquire trophies'. To be able to race, Dunlop's tyres had to be identical in performance to the period tyres from which they were derived. Unusually

ABOVE Dunlop's Sport Classic tyre: advanced technology customised for classic cars



for a motorsport company, this meant resisting the urge to make them better.

“At Dunlop, we could build a tyre that could go much faster,” says Mathias Kipp, Dunlop’s car motorsport manager. “We could put on another compound, and sometimes it’s a little bit frustrating in a way, but it is not what we are looking for. The history and legacy linked to how the tyre was built in the past is the most important factor, because that’s what the customer wants. The authenticity is what is most important.”

More pragmatically, there is also an issue of sensitivity, and being mindful of the car as a whole. Increasing the grip of a tyre originally designed in 1925 would be easy, but it could also be potentially dangerous because of the additional forces that would be placed on all of the other 94-year-old components. The extra loads on the brakes, suspension, and wheels for

“ We could build a tyre that could go much faster, but authenticity is what is most important ”

example could far exceed what they were originally designed to handle, and cause significant mechanical problems.

Fortunately though, having so many years of history made reissuing the tyres a relatively simple process. Dunlop could look back through its archive and check all the specifications and the components and almost “copy and paste” what was done in the past, says Kipp. “We just kept what we did in the past and duplicated it today.”

Of course, there were a few hurdles along the way. In some instances, some of the raw materials originally used had been banned at some point since the tyres were originally manufactured, meaning that substitutes had to be found. In keeping with Dunlop’s philosophy though, even when a change in materials was necessitated, it couldn’t have an impact on the tyre’s performance.

“In fact, that sometimes put us in a



ABOVE & BELOW The famed Dunlop Bridge at Le Mans typifies the manner in which the manufacturer’s DNA is woven throughout motorsport history



really difficult position,” Kipp adds. “It has sometimes been difficult to come back to the same performance as was on offer in the past, and make sure the new element has not improved performance.

“But that was our target, so we said to the R&D teams ‘we want the same performance and the same grip’ and then they had to deliver that, taking into account all the material changes compared to the materials used in the past.”

Another potential area of difficulty for Dunlop was to do with the actual manufacture of the tyres. It isn’t only materials that have changed over the last 100 years, but also the manufacturing processes and techniques, and when making an exacting product that is set to be subjected to all sorts of abuse on

the track, ensuring the tyres were correctly manufactured was paramount. Somewhat fortuitously Dunlop actually had the answer within its own ranks: an experienced member of the technical team, or a “guru from history” as Kipp refers to him, was able to offer his expertise to ensure that the same techniques were used as were originally practised in period.

The team making the tyres today was then able to put the lessons of his experience into action, and offer customers a historic tyre that was not only made to the original specification, but also made using the original techniques and process. All of this work into ensuring the tyres performed identically to those of the past was finally put to the test in the one place ►



it really matters: on the track. Using its network of contacts, Dunlop was able to thoroughly prove the tyres, checking that all the fastidiousness involved in their design and manufacture had paid off and the performance of the new tyres matched known performance from the original tyres.

Dunlop's commitment to its historic customers is also ongoing. As well as the aforementioned expansion of its range up to 55 individual products, the company is also bringing in new products to enable more drivers to enjoy its historic tyres. In the near future, for example, Dunlop is set to bring back tyres for some pre-war cars from the 1920s and '30s originally used by cars like ERAs, Alfa Romeos and even some of the early Le Mans-winning Bentleys. The introduction of some 13-inch tyres is also imminent, to suit '70s sports cars like the Lolas and Matras, for example. Even some cars which are positively cutting edge by historic standards are able to take advantage of the Dunlop range – important when some historic racing series accept very new runners, the Masters Endurance Legends USA accepts entrants from as recently as 2016, for example.

“We are offering tyres for some modern cars which are starting to become ‘historic’, which now basically includes even four-year-old cars,” Kipp explains. “So two tyres in 19-inch sizes have been reintroduced, and obviously the ex-LMP1, LMPC and LMP2 tyre specifications up to 2016 are available, their specs have been frozen and we will keep supplying them.”

With a past as illustrious as Dunlop's, it would be easy for a company to simply look back with a self-congratulatory smile, mark anniversaries as they come and move on, but instead, Kipp insists

that all of Dunlop's history actually brings with it the weight of responsibility.

“We need to maintain that history,” he states. “We have an obligation to keep the authenticity, and in fact, we have the need, the commitment to do that for the motorsport industry, because Dunlop is part of that history.

“We always get lots of questions about Le Mans and the bridge and all that, because it's all part of the story, it's part of everything we do, and we want to maintain it.

“That's why the Historic market is very important for us.” **HRT**



ABOVE & BELOW Dunlop's ongoing commitment to categories like touring cars, in which it was a major player in-period, was demonstrated by the announcement that it is to sponsor a new series for the popular historic tin-tops





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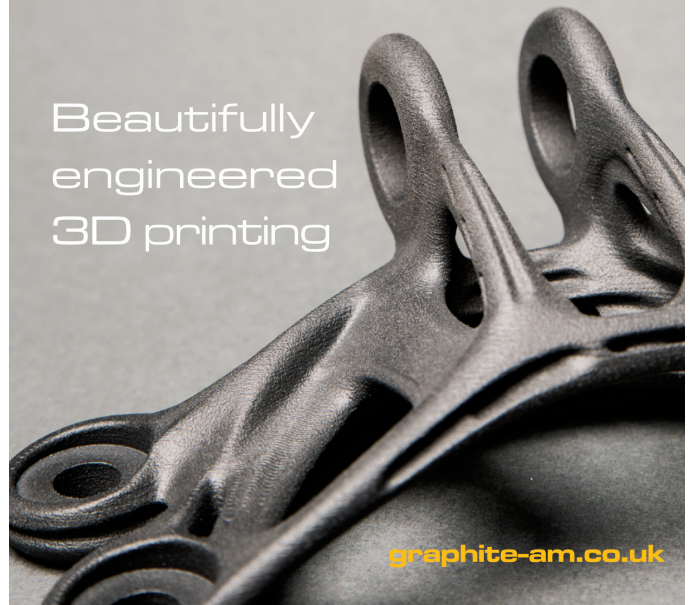
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“THE HOLY GRAIL GARAGE FIND”

One of the most iconic film cars ever has recently been honoured by the Historic Vehicle Association in the US, as **William Kimberley** reports

THE most recent addition to the National Historic Vehicle Register is one of the most iconic cars in all of cinema: the 1968 Ford Mustang that was featured in the Steve McQueen film *Bullitt*.

“If ever there were a Holy Grail garage find, this was it: one of the most iconic cars in American film, out of the public eye for nearly half a century, in the metal,” suggests HVA president and director Mark Gessler of his first view of the car. “When the cover came off, we were awestruck.”

The car’s entry has been underwritten in the programme in part through the generous support of Shell and Pennzoil. The relationship between the HVA

For those who don’t know, McQueen’s character, detective Frank Bullitt, drove a Highland Green mildly modified 1968 Ford Mustang Fastback on the streets of San Francisco in a heated chase with a 1968 Charger. The nine-minute and 42-second chase took weeks to film and featured massive realism with actual speeds approaching 110 mph. Driving was done by Steve McQueen himself but many of the more dangerous scenes were handled by famed motorcycle racer Bud Ekins, and stuntmen, Loren Janes and Bill Hickman.

“There are certain projects that are truly once-in-a-lifetime opportunities, and there’s no doubt that the return of

“**The car and the chase scene became part of the American automotive folklore. The cultural impact of the ‘Bullitt’ simply can’t be understated”**

[Historic Vehicle Association] and Shell is now into its fourth year. The first car to be honoured was the Shelby Daytona Coupe. This was followed by the 1911 Marmon Wasp, the first winner of the Indianapolis 500, a 1932 Ford V8 roadster, the quintessential roadster, and now the Mustang Bullitt.

As recounted in the HVA website, two 1968 Mustang Fastbacks were purchased for the film with sequential VIN numbers – 8R02S125558 and 8R02S125559. Mustang ‘558 was used for the destructive stunts, such as the jumps. The car featured here, ‘559, was used primarily as the hero car for beauty shots while Steve McQueen was driving.

the ‘Bullitt’ is the perfect example of that,” says Mark Henry, North America marketing manager, Shell Lubricants. “The car and the chase scene became part of the American automotive folklore and we were, of course, excited to help present this extraordinary example of our automotive heritage to as many enthusiasts as possible. The cultural impact of the ‘Bullitt’ simply can’t be understated and we’re proud of the role Shell played in helping shape this truly unique American cultural heritage.”

“The process to enrol the Mustang started in late 2016 where we engaged with Sean Kiernan, the car’s owner, and ▶





ABOVE & BELOW One of the most iconic cars in American film, the Bullitt had been out of the public eye for nearly half a century before its rediscovery



Photos courtesy of HVA



ABOVE Documenting the Bullitt was described as one of those “once in a lifetime” projects

BELOW The HVA's selected cars are displayed on the National Mall in Washington DC, attracting around half a million people



wanted to reach out to various folks at Ford to let them know that the car was legit,” says Gessler. “There have been rumours and all this stuff, but working with Shell, we engaged with some senior folks at Ford and within a couple of weeks we had a project underway. It was a secret project that we unveiled at the 2018 Detroit auto show and it turned out to be the star of the event.”

OUT OF THE LIMELIGHT

After its film career, the car was repaired and repainted by Precision Auto Body in Hollywood, CA for \$920.16. It was then sold to a Warner Brothers employee, Robert Ross, who registered the car in California and drove it. In 1970 he sold it to detective Frank Marranca of New Jersey, who had it shipped by rail to the East Coast. He used the car sparingly until 1974 when he sold it to purchase a Chevrolet Vega station wagon for his wife.

It was spotted in *Road & Track* in

October 1974 by the late Bob Kiernan, father of Sean Kiernan, the current owner. It was the family's only car and most of the time Sean's mother Robbie drove it to a parish every day where she taught third grade.

As described on the HVA's website in an article written by Sean Kiernan, "Bullitt wasn't a second car – it was their only car. Dad took the train every day to the World Trade Center where he worked in insurance. Mom drove Bullitt to St Vincent's parish where she taught third grade. The car was never modified – it has a straight exhaust and shook the pavement. God only knows what those kids must have thought. Mom must have been pretty cool.

"On weekends, it was the family car and was driven to Maine and upstate New York numerous times. It must have been deafening. There was no sound-proofing because it had been removed for the movie. The trunk had a huge cut-out for a smoke machine. When it ►

“ My dad got a call from Steve McQueen, who wanted the car. McQueen was not a guy who was used to hearing the word ‘no’, but my dad told him ‘no thanks’ ”



ABOVE & BELOW The seats, interior, boot space and camera mounts remain unaltered from the car's movie life





ABOVE The Historic Vehicle Association's aim is to safeguard the future of America's automotive past

ROLL OF HONOUR

The cars included on the National Historic Vehicle Register

- 1964 SHELBY COBRA DAYTONA COUPE CSX2287, HAER Number: PA-650
- 1964 MEYERS MANX "OLD RED", HAER Number: CA-2312
- 1938 MASERATI 8CTF "THE BOYLE SPECIAL", HAER Number: IN-112
- 1918 CADILLAC US 1257X, HAER Number: WA-225
- 1947 TUCKER 48 PROTOTYPE "THE TIN GOOSE", HAER Number: PA-652
- 1940 GM FUTURLINER NO 10, HAER Number: IN-114
- 1954 MERCEDES-BENZ 300 SL, HAER Number: PA-194
- 1940 FORD PILOT MODEL GP-NO.1 (PYGMY), HAER Number: AL-213
- 1909 WHITE MODEL 'M' STEAM CAR, HAER Number: MA-175
- 1962 WILLYS 'JEEP' UNIVERSAL MODEL CJ-6, HAER Number: CA-2320
- 1911 MARMON WASP, HAER Number: IN-115
- 1907 THOMAS FLYER, HAER Number: NV-49
- 1920 ANDERSON SIX, HAER Number: SC-44
- BUICK Y-JOB, HAER Number: MI-417
- 1967 CHEVROLET CAMARO, HAER Number: KS-11
- 1932 FORD V8 ROADSTER (MCGEE ROADSTER), HAER Number: CA-2327
- 1951 MERCURY SPORT COUPE (HIROHATA MERC), HAER Number: CA-2328
- 1964 CHEVROLET IMPALA (GYPSY ROSE), HAER Number: CA-2329
- 1933 GRAHAM 8 SEDAN "BLUE STREAK", HAER Number: PA-654
- 1896 BENTON HARBOR MOTOR CARRIAGE, HAER Number: PA-655
- 1968 FORD MUSTANG FASTBACK (BULLITT - '559), HAER Number: TN-53
- 1985 MODENA SPYDER (FERRIS BUELLER "FERRARI"), HAER Number: MD-192
- 1927 FORD MODEL T TOURING (fifteen-millionth Ford), HAER Number: MI-419
- 1984 PLYMOUTH VOYAGER (MAGIC WAGON NO. 1), HAER Number: MI-420



ABOVE The Shelby Daytona Coupe was the first car to be honoured

rained, I have no idea how the luggage stayed dry. We recently discovered the rear seatbelts hidden with Gaffer Tape. I guess my sister Kelly was never buckled in. Dad installed a pair of speakers in the back that are still there. With no air-conditioning, windows rolled down and the blaring AM radio, those Bullitt road trips in the 1970s must have been thrilling.

McQUEEN REBUFFED

"In 1977 my dad got a call from Steve McQueen. Steve had tracked down the prior owner, who gave him our phone number. McQueen wanted the car. He was a guy that was not used to hearing the word 'no'. But my dad told him: 'No thanks, we are not interested in selling.' McQueen followed up with a letter reiterating his interest, saying he wanted the car back and offered a trade or something as long as it wasn't 'too much monies'. Dad never answered that letter. Bullitt was part of our family.

"I was born in 1981 – about the last time the Bullitt moved under its own power. Dad was an executive and had a company car. Mom was driving something more practical – a Plymouth Horizon – and I had a seat belt. ▶

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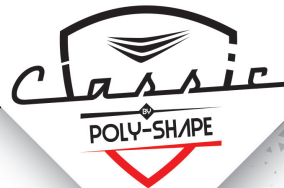
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SHARING AMERICA'S AUTOMOTIVE HERITAGE

William Kimberley outlines the Historic Vehicle Association's mission

FOUNDED just 10 years ago, in 2009, through the philanthropic support of Hagerty in the US, the Historic Vehicle Association (HVA) has become the designated North American representative of FIVA (Fédération International des Véhicules Anciens), the international federation of historic vehicle organisations. In that short time it now boasts an annual membership totalling more than 375,000, the world's largest historic vehicle owners' organisation. Its mission was and is simple: "to share America's automotive heritage with the American people".

It aims to achieve its mission by:

- Documenting and recognising historically important vehicles in a National Historic Vehicle Register.
- Establishing and sharing best practice guidelines to ensure that authentic examples of America's automotive past will be available for future generations.
- Promoting the historical and cultural significance of the automobile through media and events.
- Protecting the future of America's automotive past through affiliations with museums and academic institutions, educational programmes, and support of legislative action.

Four years after its creation, it entered into a collaboration with the US Department of the Interior, in March 2013, to explore how vehicles important in American and automotive history could be effectively documented and recognised. This project was the first of its type to create a permanent archive of significant historic automobiles within the Library of Congress, along with support from the American Motorcyclist Association.

The first vehicle recorded under the federal programme to identify and preserve important engineering marvels was a 1964 Shelby Cobra Daytona Coupe.

Since that time, 24 cars have been

documented that have been recognised as icons in American automotive history. Interestingly, though, the vehicle does not need to be US manufactured.

For example, a 1938 Maserati, serial number 3032, known as the Boyle Special, is part of this unique club, selected on the four criteria.

It is the most successful automobile to compete at the Indianapolis 500, having won twice, finished third twice and fourth once. Furthermore, it is associated with significant persons in automotive and American history. They include: Wilbur Shaw, a successful and prominent American racing car driver and former Indianapolis Motor Speedway President; Michael Boyle, an important American labour leader and race team owner; Ted Horn, Indianapolis racer and AAA National Championship winner; and Harry W "Cotton" Henning, chief mechanic for Boyle Racing headquarters, who oversaw the

mechanical preparation and attention for multiple Indianapolis-winning cars including the Maserati 8CTF.

The Boyle Special also features significant design and construction value: its engineering prowess proved itself on the Indianapolis race track for longer than most cars, and is representative of the work of Ernesto Maserati and the builders at Officine Alfieri Maserati SA. The car also offers informational value as one of the few race cars of the era to retain many of its original materials, components and craftsmanship. The period of significance for the Boyle Special was during its competition history at the Indianapolis 500 Mile Race from 1939 to 1953.

Recognition on the National Historic Vehicle Register is a completely honorific award, the car remaining in the hands of the owner, but there is a new reference around these vehicles that have been selected. They are displayed on the National Mall in Washington DC every year for around a month, attracting around half a million people. **HRT**



ABOVE & BELOW The Marmon Wasp (above) and Boyle Special (below in the hands of Wilbur Shaw in 1940) are both synonymous with Indy 500 success

“By the time it was parked, our family had put 46,000 miles on the car.”

The family moved to a small farm near Nashville in the mid-1990s, the car coming with them with the idea that it would one day be rebuilt, but that never happened due to the pressure of work on the farm. When father and son decided that it really was time to work on the car in around 2012 or so, illness struck Bob who then passed away in 2014, meaning that the project came to a halt.

“Over the past two years, I’ve worked alone in that same garage to return Bullitt to the condition it was when it was my parents’ daily driver,” says Sean Kiernan. “The engine was rebuilt, aging carpets were replaced, and a new steering wheel added similar to the one used in the movie. Aside from that it is pretty much the way it was, with the evidence of our family road miles, and the gentle patina that comes from years of storage.

“The paint has never been changed. Some wish it was shinier. It never was. In the movie, all the badges were



removed and the paint was scoured with Scotch-Brite pads to make it dull. After the movie, it received a generous application of Bondo (to hide the damage), and a single-stage respray in its signature Highland Green colour.

“The seats, interior, trunk space and camera mounts remain unaltered and consistent with its prior movie life. When originally prepared for resale, the antenna was returned to the right front fender and the movie rear-view mirror

was replaced with a stock unit. The Hurst shifter had been installed by the former owner and we never replaced it.

“The front bumper is new and so is the front valance. These were damaged when my grandfather backed into the car in the 1970s. No artificial ‘patina’ has been added – all the new parts can be plainly identified. The car is honest and that’s the way I wanted it.

“The workmanship is all mine, as it was mine to do alone as homage to my father and the family secret I had internalised.” **HRT**

ABOVE & BELOW Film star or family runaround (above, Robbie Kiernan is pictured with the family dog, Gatsby, alongside her daily drive in 1977), the Bullitt has always commanded attention



FOLLOWING IN FANGIO'S WHEELTRACKS

It might seem bizarre, but American cars from the 1930s rule the roost in long-distance rallying. **Chris Pickering** discovers why

WHAT are the most successful long-distance rally cars? If that question conjures up images of Mk2 Escorts or Mini Coopers, then think again. Out in the Mongolian Steppe or the Moroccan desert it's 1930s American cars from the likes of Ford and Chevrolet that rule the roost.

For many European enthusiasts, the first time they became aware of these tough, simple cars was when David Williams won the Peking to Paris Challenge at the wheel of a Chevrolet

coupe in 2007. Since then, they almost seem to have appeared overnight, but they are by no means a modern concept. The great Juan Manuel Fangio was one of the first to realise the potential of these cars, cutting his teeth in long-distance races along the dirt roads of South America. His specially-modified 'Fangio Coupe' set the template that Williams and others went

on to follow some 70 years later.

"David [Williams] did his research and looked at what was a competitive car in-period on desert roads and realised that the Chevrolet was the weapon of choice," recalls Simon Ayris, managing director of Rally Preparation Services (RPS). "They were designed to drive on dirt roads in 1930s America, so all the ingredients were right."

A similar car went on to win the next two runnings of the event in 2010 and 2013, and from there a bit of a movement started to form. RPS alone put over 20 pre-war American coupes on the startline for the last Peking to Paris in 2016. So, what is it about these cars that makes them such a success in long-distance events?

"Like any form of motorsport, the key thing is getting to the finish," comments Ayris. "The Chevy Coupes and the other cars of this type are very tough and they're generally very simple to fix if something does go wrong. They're also great fun to drive on the long-distance

RIGHT Fangio's Chevrolets of the 1930s provide the unlikely template for modern-day desert raiders



events. If you want to go and drive around the cones on an autotest they don't make any sense at all, but out in the desert they're brilliant."

Ayris recalls working on the Peking to Paris in 2010, running one of the speed control events in Mongolia when he witnessed one of these 1930s cars barreling across the sand: "We saw this plume of dust coming over the horizon and initially assumed it was one of the organisers in a modern pickup truck due to the speed it was carrying. When the owner stopped the car he fell out laughing like a child, saying it was the most fun he'd ever had in his life."

There are numerous variations on the theme, but the two most popular choices tend to be the Chevrolet Master Coupe of the late 1930s with its inline-six 'Stove Bolt' engine and the Ford coupes of the same era, powered by the iconic Flathead V8.

"The temptation of going down the Flathead Ford route is the extra power of the V8," comments Ayris. "The downside is that engines can be a little bit more fragile. The Fords also tend to run with a single transverse leaf spring at the front – much like a Model A or a Model T – which limits the suspension travel a little bit compared to individual

cart springs on the Chevy."

Sourcing the donor cars can be an irksome process, he says, but there are still plenty around if you know where to look. Generally they come from America, where RPS has a couple of spotters keeping an eye out for potential candidates. Ultimately, though, you never entirely know what you've got until the container turns up, Ayris explains, so the first step is usually to carry out a full restoration: "You've got to have a good, solid road car before you can build a rally car. If someone's already done the work to bring it up to spec then that's a bonus, but these are the sort of cars that often ended up forgotten in sheds or barns. A lot of the work goes into conventional restoration before we even think about the rally modifications." ►

“Simplicity is the key, followed by over-engineering: whatever you think is about right, multiply that by three!”





ABOVE A lot of work goes into conventional restoration before the rally modifications can take place

BUILT TO LAST

The heart of any car is its engine. And while outright power may not be the first priority in endurance rallying, a lot of time is still spent on the powerplants. The aim for the Chevrolet straight six is around 130 to 140 bhp, once bored out to 3.8 litres. That's a healthy increase from the theoretical 85 bhp in standard form, particularly when you bear in mind that the engine has to cross deserts and mountain ranges in this state of tune. Without this safety factor we're told it's possible to get around 200 bhp.

"We build the engines to a long-distance endurance specification. The fundamentals were already significantly over-engineered, but it's a case of taking care of the details so you can harness that potential," says Ayris. "Beyond that, it's just really a question of getting them to breathe properly – getting the right manifolds on the car and the right carburettors then setting them up."

Typically, a twin fuel tank setup is used

with a combined capacity of around 150 litres, with 90 litres in one tank and 50 litres in the other. In the more remote areas it's not uncommon to pick up bad batches of fuel, so this allows the crews to swap over easily, with drains fitted to remove the offending batch.

A similar policy of redundancy is seen throughout the car. Twin coils are standard with much of the electrical system duplicated – often including a spare sub-loom.

"When we build a car we completely swap the wiring loom and all of the electrics as a matter of course," explains Ayris. "The looms are all handmade with British Standard wiring colours, so they can generally be understood by mechanics anywhere in the world."

One of the few concessions to modernity in the electrical system comes with the lighting. The headlights are converted to H4 halogen bulbs, with a set of spotlights to provide extra illumination.

Another key area – particularly where reliability is concerned – is the

transmission. As such, RPS tends to swap the original passenger car gearbox and back axle for truck units.

"You are sat essentially in a car body on top of a pickup truck, but that's more or less what Chevrolet did when they built them," Ayris points out. "The chassis went off the line and they went one way to become a car or the other way to become a pickup truck."

Period-spec Muncie gearboxes are often used, but the technical regulations are relatively relaxed in this area. It's not unusual for people to drop in later five-speed options, including the venerable Borg Warner T5 and various Tremec designs.

BESPOKE SUSPENSION

The fundamentals of the chassis are kept unchanged, but RPS reinforces key areas, such as the suspension mounting points. One of the more noticeable changes is the addition of telescopic dampers – often not fitted in period – which help to absorb the ►

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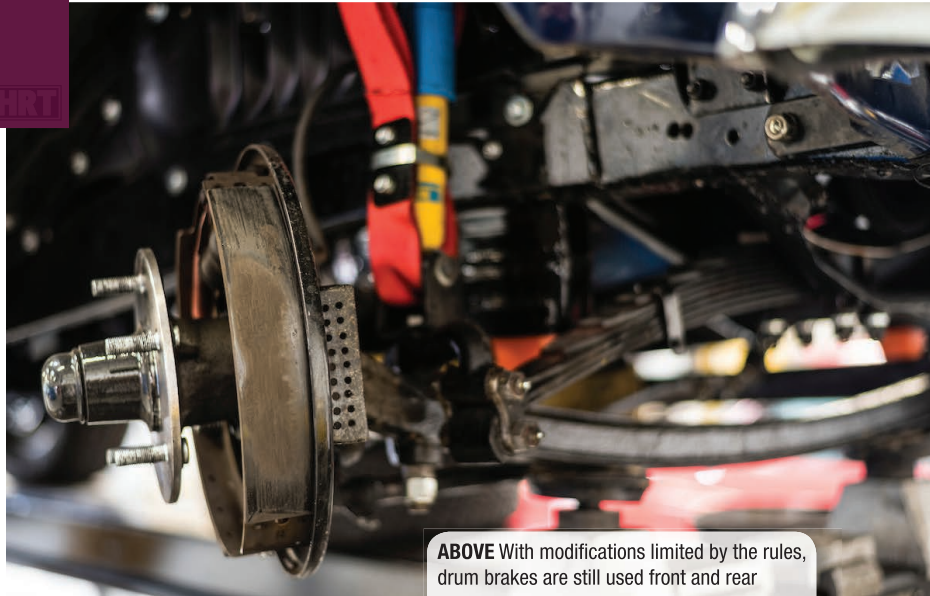


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ABOVE With modifications limited by the rules, drum brakes are still used front and rear

worst of the desert surface. “We tend to go down the Bilstein route,” notes Ayris. “We have them valved according to our own specification.”

Some of the later cars were offered with coil spring suspension, but RPS prefers to avoid going down this route.

“Simplicity is the key, followed by over-engineering: whatever you

think is about right... multiply that by three,” Ayris jokes. “If you rock up to the blacksmith’s shop in a Mongolian village with a broken leaf spring, there’s a good chance they could make you something to do the job. If you have a car on coil springs, it’s very unlikely they’d have the right one.”

The regulations don’t allow too

much modification to the brakes, so drums are still used front and rear. Rumour has it that some teams have experimented with hiding disc brakes inside the drum assembly, but Ayris’s opinion is that these are ineffective (as well as contrary to the regulations). For the sake of safety, however, the drums are converted to hydraulic operation, plus RPS has developed a special lining material.

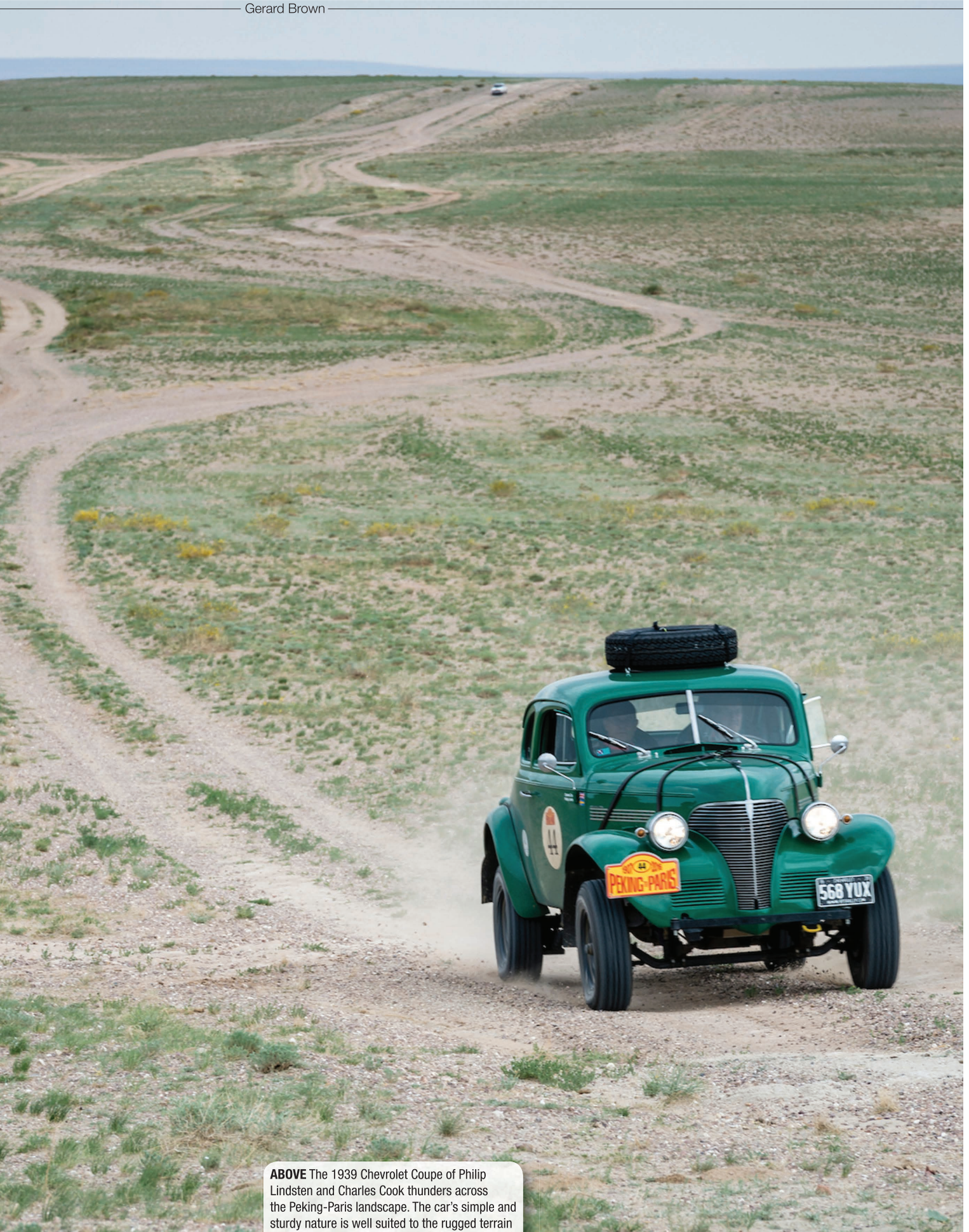
“Finding the right brake material wasn’t easy,” comments Ayris. “We wanted something with a bit of bite, but although the cars carry spare brake linings we didn’t really want to change them part-way through a 10,000-mile event.”

With inhospitable terrain and such vast distances to cover, tyre choice is predictably important. The solution that RPS found came in the form of the Falken Wild Peak, which is normally aimed at mixed on/off-road use on ▶



ABOVE Carburettor tuning is an important part of the development process

Gerard Brown



ABOVE The 1939 Chevrolet Coupe of Philip Lindsten and Charles Cook thunders across the Peking-Paris landscape. The car's simple and sturdy nature is well suited to the rugged terrain

modern SUVs.

“Tyres are always difficult for these events,” says Ayris. “You want something that’s going to last the distance, something that will be puncture-resistant and something that provides a decent amount of grip, all at the same time. Typically people go for truck tyres, because they have stiffer sidewalls with a multi-ply construction. The problem there is that you tend to end up with a generic van tyre that’s designed principally for longevity rather than grip. We work quite closely with a couple of local tyre suppliers who ordered in a selection of potential candidates for us to inspect and the Falkens were a bit of a eureka moment. Just looking at the tread pattern you could tell it would have grip and when we trialed it the results were outstanding. We used them on the last Peking to Paris and they were everything we could have hoped for plus a bit more.”

LIGHT FANTASTIC

One of the first things that Fangio did when modifying his Chevrolet coupes was to put them on an almost Chapmanesque weight loss regime: the running boards were removed, the wings were cut back to a bare minimum and the boot lids were replaced with fabric covers. As a result, even with the vast quantities of spares that these cars carry, they still only tip the scales at around 1,500 kg.

Typically a spare tyre, or a complete wheel and tyre assembly, will be mounted on the roof, as per Fangio’s designs. While this may cause circuit racers to grimace at the notion of raising the centre of gravity height it’s often the most convenient location, although Ayris says they can also fit them on the back of the car.

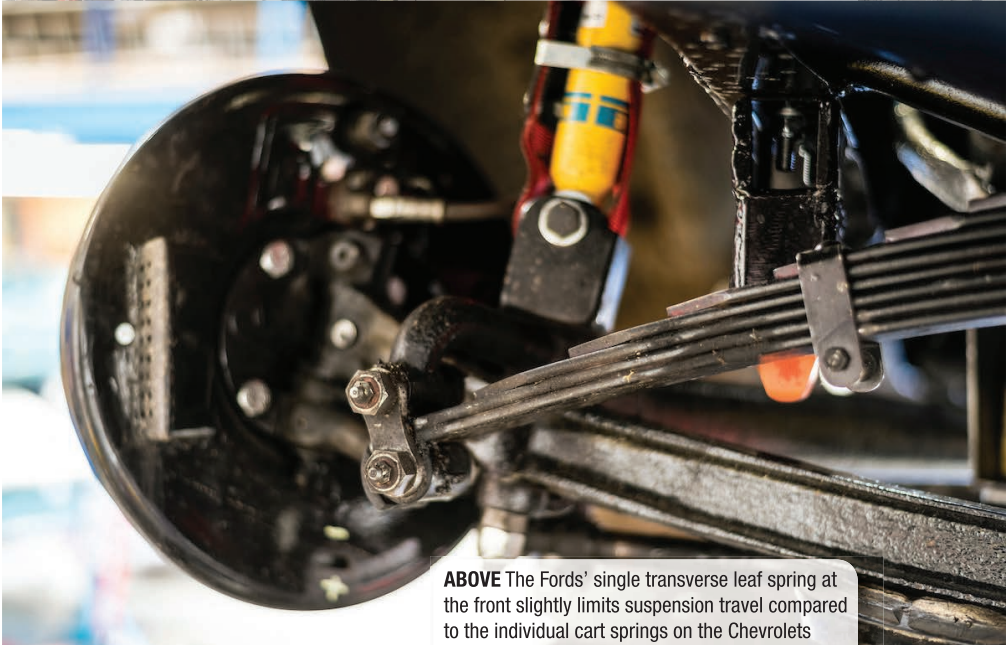
The original chrome bumpers are replaced by spare main leaf springs on the front and rear (again following Fangio’s template). In a neat touch, RPS makes special mounts that incorporate the shackle pins, so there is a complete spare spring assembly ready to fit if these need to be called into action. ▶



ABOVE Most of the cars run multiple trip computers to enable crews to monitor different parameters on individual devices



ABOVE Ensuring the viability of running repairs, here to a leaf spring during the Peking to Paris, is a crucial part of the gameplan



ABOVE The Fords’ single transverse leaf spring at the front slightly limits suspension travel compared to the individual cart springs on the Chevrolets



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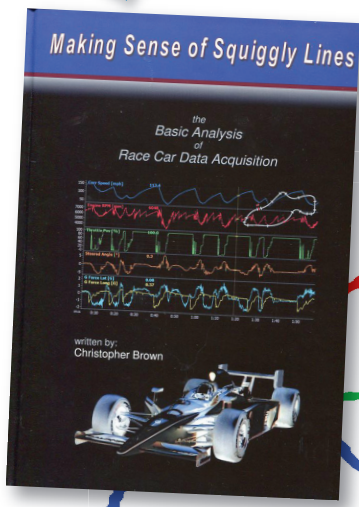
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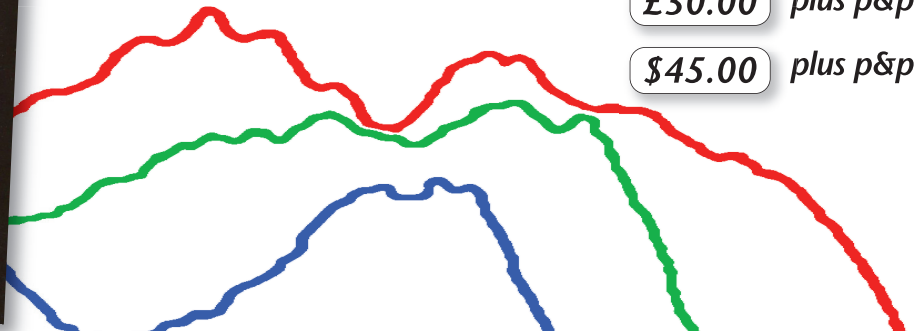


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ABOVE & BELOW Rally Preparation Services is well-versed in sourcing and preparing these preferred mounts for long-distance rallying



Gerard Brown

Inside, the cockpits are kept minimalist and functional. RPS has a favoured type of Recaro seats that it uses in its builds, along with a specific four-point harness system made to the company's own specifications by TRS. The headlining on the pre-war American cars – typically made of a Velour-type material – is notorious for attracting sand and dust, so that is removed as a matter of course and replaced with a vinyl version.

A good modern heater with a suitably classic appearance is generally fitted, although Ayris isn't a big fan of retrofitted air conditioning systems that are sometimes used ("it's generally unnecessary and it's another thing to go wrong," he notes). Storage is also useful, with various cubbyholes to accommodate things like pens, route books and drinks bottles.

As a minimum, RPS fits a roll hoop with two backstays to the fixed head cars it prepares – even the pre-war coupes where this is not strictly required by the rules. Wherever possible they try to encourage people to fit a full cage ("it's not unknown for these cars to go over and we've never once had anyone hurt," he notes). The rules do stipulate that all cars must use a laminated windscreen, but RPS fits laminated glass on the rear and side windows too.

NAVIGATION

Aside from reliability, the other major area where endurance rallies are won and lost is navigation. Most of the cars run multiple trip computers – allowing the crews to monitor different parameters on individual devices

rather than flicking backwards and forwards on one.

Ayris says his personal preference is for the Monit trip computers, although Brantz, Halda and Gauge Pilot are all popular options: "We're tending to see people using a Monit as the basic trip computer – possibly one for the driver and one for the navigator – plus a Gauge Pilot for more detailed information and a separate timing device on top of that. On the long distance events you might also need a GPS device to find waypoints across the desert. We've got two or three Garmin products that tend to be our go-to for that sort of thing."

RPS has worked with Monit to develop some of their sensors, he explains: "In 2010 we found we were having a high failure rate with inductive probes so we worked with them to redesign the probes. We've since deliberately put some of them in the most horrible places to put them through a tough time and they've performed brilliantly."

For short-distance events the accuracy of a traditional trip computer is still beneficial, but for the long-distance events crews are increasingly relying on GPS-driven devices. On these marathon events, where the next turning could be 100 miles down the road, a couple of metres of drift makes very little difference; what's more, removing the physical probes eliminates the risk of component failure. It is possible for these devices to lose satellite reception, but most of them use a physical probe to provide a degree of redundancy and to serve as a backup until GPS coverage is restored.

The other major factor vying for space inside an endurance rally car tends to be spare parts. Wherever possible, Ayris says, they try to include one of everything that could conceivably require replacement. That includes wheel cylinders, brake shoes and wheel bearings. Specialist or model-specific parts like engine gaskets are also worth including in case some more substantial work needs to be carried out, as are spare inlet and exhaust valves with the associated springs and collets. In the case of cars with mechanical ignition

“ Finding a spare distributor for a 1930s Chevrolet in the middle of the Gobi Desert can be problematic”

Ayris urges people to carry “copious” sets of points, citing one Peking to Paris competitor who ran out before leaving Beijing. Finding a spare distributor for a 1930s Chevrolet in the middle of the Gobi Desert can also be problematic, he points out, so these are on the list too.

With such a vast parts inventory, packing everything efficiently and securely becomes crucial. Even if a

particular repair is beyond the skill of the crew, it’s important that they can locate the parts for a local mechanic or a member of the support team.

Perhaps more telling is what gets left out: starter motors and alternators, for instance, are usually fairly easy to source on the event, while push-starting or swapping batteries with another competitor provides a

temporary solution. For running repairs, Ayris is also a big fan of K-Seal, a sealing product that relies on ceramic microfibres and copper particles to plug cracks or holes in things like water pumps, radiators and cylinder heads. “I’ve kept cars going from Turkmenistan to Paris on that stuff,” he notes.

In case you’re wondering, that’s around 3,500 miles. In the context of Peking to Paris, however, that’s barely more than a third of the event distance. No wonder it takes a special type of car – and a good deal of preparation – to win an endurance rally. **HRT**



ABOVE Chevrolets and Fords are the weapon of choice for endurance rallying

Formula 1

Car by Car 1980-90

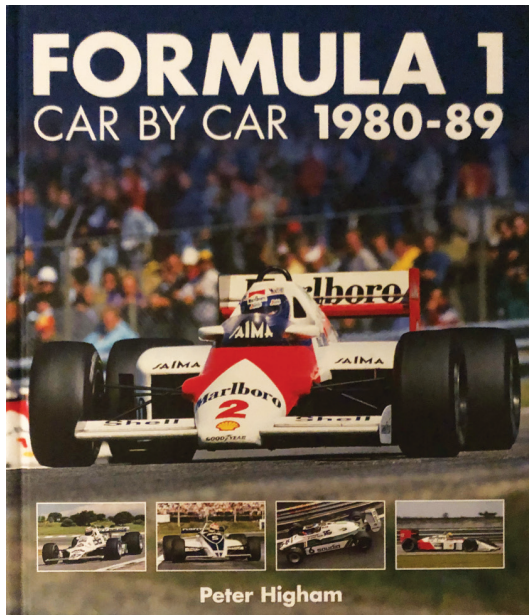
Peter Higham

Published by EVRO Publishing

ISBN 978-1-910505-23-6

304 pages

£50.00



WHEN such a heavy reference book lands on your desk and it has been penned by Peter Higham, you know you are in for a treat. It's a veritable goldmine of anecdotes on some long-forgotten cars, backed up by wonderfully evocative images.

This book covers the 1980-90 era, which to many enthusiasts was the golden era of Formula 1. There was so much diversity in the cars. The harsh regulations that were subsequently introduced to contain costs, but which made the cars so uniform in appearance, were no more than a small cloud on the horizon at this point.

This is also the period when McLaren and Williams dominated the World Championship: Niki Lauda, Alain Prost and Ayrton Senna in McLarens, and Alan Jones, Keke Rosberg and Nelson Piquet for Williams, ruled the decade.

The book contains over 600 photos, most of which have not been seen before, so it has been a real labour of love for the author to identify them and select them, but they ensure that you cannot put down what is a heavy book.

As you would expect, the book is divided into years, so if you start of the beginning you do get a very good narrative that takes you through the decade.

The book also evokes long-forgotten memories such as Spirit Racing, the Skoal Bandit team, Team Haas, Leyton House, Osella Squadra, RAM Automotive and many more.

Each chapter is backed up by comprehensive information, including the results, race winners and the drivers' and constructors' championships.

At £50 the book is not cheap, but since it contains such a wealth of information, it is worth every penny. **HRT**

BELOW LAT's excellent photo archive provides many fantastic images of the period for the book, such as this shot of Elio de Angelis beating Keke Rosberg's Williams to the flag by just five hundredths of a second in the 1982 Austrian GP. It was Lotus's last win before the death of Colin Chapman



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Bugatti Type 35

1924 onwards (all models)

Owners Workshop Manual

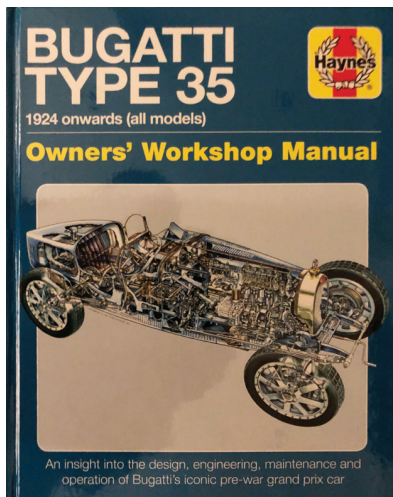
Chas Parker

Published by Haynes Publishing

ISBN 978-1-78521-183-6

172 pages

£22.99/\$36.95



THIS is another book in the Haynes Owners' Workshop Manual series that cover their subjects so well. Author Chas Parker delves into the design, engineering, maintenance and operation of this iconic pre-war grand prix car. As engineer Malcolm Curry says in his part of the book, the Type 35 was the first purpose-made racing car, one of the very first that you could actually buy. It was not a modified road car or even derived from one. Its purpose was clear: win races.

Chapter One concentrates on the well-known Bugatti story and is a trot through its history as a scene setter, including pen portraits of the drivers. It is the next chapter, though, where the Type 35 comes into its own. It is filled with invaluable information, including some superb images, to help the reader understand just why this car was so competitive.

The author delves into every part of the car, describing it piece by piece. For example, in a section on the front suspension he labels instances of the Type 35's engineering excellence and then proceeds to explain their brilliance. Every section of the car is also beautifully illustrated with really detailed pictures with some good, comprehensive captions so you know what you are looking at.

An intriguing part of the book is a section devoted to the engineer's view of the car, which makes fascinating reading. There are also chapters on the driver's view as well as that of some owners.

According to the notes provided by Haynes quoting the author, the model won 1,045 races in Europe in 1925-26 alone, so it is a truly significant racing car. Parker and Haynes have done a really great job in publishing this book to ensure that the memories of such cars are not forgotten. **HRT**

Formula One

The Illustrated History

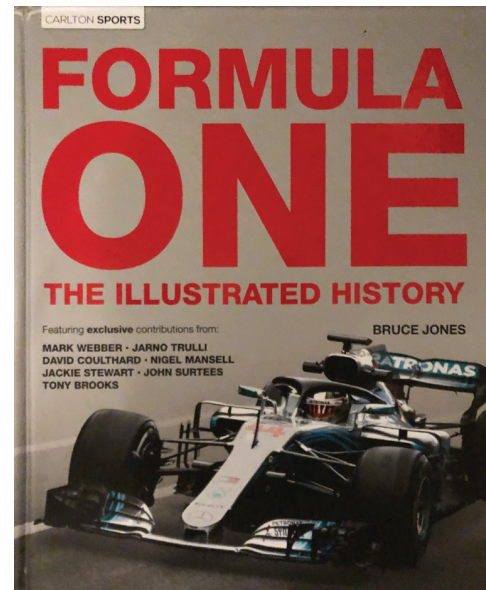
Bruce Jones

Published by Carlton Books

ISBN 978-1-78739-142-0

360 pages

£30.00



WHERE the Peter Higham book focuses on just one decade, Bruce Jones has written a potted history of Formula 1, and it is not a bad effort. Naturally he cannot get down to the sort of level that Higham reaches, but it is still a good read anyway.

Again, there are some great pictures throughout the book, the earlier black and white ones from the 1950s and '60s being the most evocative.

As the author writes in his introduction to the book, since the first Formula 1 World Championship in 1950, the cars, drivers and tracks have changed out of all recognition, which this book helps to show. Where it was a bunch of basically amateur sportsmen driving cars that were often constructed in the back of a shed, many killing themselves in their pursuit of glory, it has evolved into a highly structured, efficient engineering challenge where the drivers are almost as much a passenger themselves. Of course, that is an over-emphasis as they do still make a difference, but the margins to do so are so much tighter.

As the book enters the most modern era, the 'teens' as the chapter is labelled, the story becomes a little less interesting. Whether it's because we tend to know it anyway, or it is when the cars began to lose their individual identity, it is hard to say, but there is definitely a sense of weariness by then.

However, if you want a good, thorough, well-researched potted history of Formula 1, then this book is for you at a price that does not break the bank. **HRT**



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ABOVE Legacies are built on days like this, with Frank Clement behind the wheel of the first racing Bentley at Brooklands

A DRIVE DOWN MEMORY LANE

With a number of big birthdays coming up this year, **Alan Stoddart** reflects on how best to mark an occasion

AS detailed in the News section of this magazine there are a number of significant anniversaries being celebrated at historic racing events this year, while more still including Citroën's 100th, the MX-5's and Lexus' 30ths and Abarth's 70th will all pass by before the year's end.

What though is the material significance of these dates? A cynic might look at celebrations for Mini's 60th and wonder whether the legacy of an incredibly innovative car best-loved for its plucky performances on snowy Alpine roads may have been tarnished by later models, which although popular and no doubt excellent, have created a range of clumsy niche-fillers leaning a little too heavily on goodwill towards the classic.

It's a similar story with Bentley. Although Bentley itself is celebrating its centenary, one might wonder how much lineage exists between the caddish Bentley of Le Mans and Brooklands fame, piloted by people with names like Woolf, and driven up staircases in ultra-posh London hotels, and the Volkswagen-owned firm that offers a diesel 4x4, running on a common VW platform and using Audi switchgear. Again, a brilliant car, but one it is hard

to imagine the Bentley Boys enjoying (although admittedly it would likely be excellent on stairs).

Other manufacturers deal with a legacy in different ways. With the Capri, Ford simply pulled the plug in 1986, a crying shame you might argue, but its popularity was fading and at least it never had to endure the humiliation that its American cousin, the Mustang, faced in its third and fourth generations. With the MX-5 meanwhile, although a relative spring-chicken, you would struggle to make a case that Mazda isn't doing an excellent job of embracing, without sullyng the roadster's original charm.

However, perhaps the most successful way of all that companies can celebrate

their history is the one picked by Jaguar and Aston Martin among others. Both make terrific modern cars that may or may not be to your tastes, but they are undoubtedly great contemporary offerings that meet the needs of both governments and customers who, demanding as they are, require things like sat navs and airbags.

Instead of trying too hard to pretend that these modern cars are the same as their beloved cars from the '50s and '60s however, they just went down the route of remaking those icons. The new Jaguar D-Type continuations give Jaguar an avenue to shout about its proud racing heritage and its traditional craftsmanship and engineering abilities, without having to falsely shoehorn some gimmick into a new electric soft-roader. It's a way to sidestep the need to celebrate an anniversary with a special 'Tetre Rouge' edition I-Pace which comes in unique red paint, features wooden detailing on the dashboard and possibly a fin behind the driver.

Best of all it means that nobody has to compromise, people who care about the heritage can go to classic events and watch the newly minted historics race as they weren't able to in period, getting up close to them and revelling in Jaguar's craftsmanship, while families that just want a safe modern car don't have to endure some bizarre relic of the past for the sake of celebrating some anniversary they have no interest in.

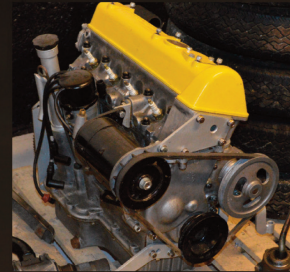
So, Bentley, instead of your 'Centenary Specification' package with the engraved treadplates, 'Centenary Gold' Bentley 'Bs' and special stitching on the leather, prove that your heritage really does live on and bring back a few of the cars that built your reputation. **HRT**



ABOVE Left & Right: Treadplates and D-Types, two different ways of embracing the past

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