

SPORTS CAR CHAMPIONSHIP

ANTHONY
PRITCHARD



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By the same author

THE MOTOR RACING YEAR

Anthony Pritchard

*Sports Car
Championship*



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Contents

	<i>page</i>
<i>Acknowledgments</i>	9
<i>Introduction</i>	11
1 The New Contenders	15
2 1968: Ford Versus Porsche—The Battle Is Renewed	26
3 New Cars For 1969	58
4 1969: Porsche Almost all the Way	69
5 The Giants Prepare for Battle	102
6 1970: The Power of the Porsche Onslaught	119
7 1970: Le Mans—And After	150
8 1971: The Waning of Porsche Power	173
<i>Appendix</i> 1: Results of the Sports Car Manufacturers' Championship	218
2: Specifications of Leading Sports Cars and Prototypes	228
3: The Evolution of the Porsche 917	232
<i>Index</i>	235

Illustrations

	<i>page</i>
1 The third-place Porsche 907 in the 1968 B.O.A.C. race at Brands Hatch.	32
2 The ill-fated Ford P68 coupé with Cosworth 3-litre engine.	32
3 The Howmet TX gas-turbine coupé at Brands Hatch in 1968.	33
4 The 3-litre Porsche 908 at Spa in 1968.	33
5 The Marcos Mantis with 3-litre Repco V-8 engine at Spa in 1968.	48
6 The long-tail Porsche 907 driven by Steinemann and Spoerry at Le Mans in 1968.	48
7 The Ford GT40 driven to a brilliant victory by Pedro Rodriguez and Lucien Bianchi at Le Mans in 1968.	49
8 The 2-litre Alfa Romeo 33/2 driven by Ignazio Giunti and 'Nanni' Galli at Le Mans in 1968.	49
9 The Matra MS630 coupé entered at Le Mans in 1968 and driven by Servoz-Gavin and Pescarolo.	64
10 At the 1968 Le Mans race this Alpine A-220 with Mauro Bianchi at the wheel, crashed and burst into flames.	64
11 The line-up of 25 4.5-litre Porsche 917 cars for inspection by the Commission Sportive Internationale.	65
12 The Porsche 908 <i>Spyder</i> driven to victory in the 1969 B.O.A.C. '500' race by Jo Siffert and Brian Redman.	65
13 The Lola T70 entered by the Scuderia Filipinetti in the 1969 Targa Florio.	80
14 The 312P V-12 3-litre Ferrari at Spa in 1969.	80
15 The Mirage M2 seen on its debut at the 1969 B.O.A.C. race.	81
16 Another view of the B.R.M.-powered Mirage - the car driven by Ickx and Oliver at Spa in 1969.	81
17 The winning Porsche 908 <i>Spyder</i> in the 1969 Nürburgring 1,000 Km race.	96
18 The Porsche 917 driven in the 1969 Nürburgring event by David Piper and Frank Gardner.	97
19 This Porsche 917, driven by Vic Elford and Dickie Attwood, led the 1969 Le Mans race for many hours.	97
20 In the 1969 Le Mans race the GT40 of Ickx leads Herrmann's Porsche.	112
21 At the 1969 Le Mans race this Porsche <i>Spyder</i> was entered for Siffert and Redman.	113

	<i>page</i>
22 The Ferrari entry at Le Mans consisted of a brace of 312Ps with coupé tops.	113
23 The later open M3 version of the Mirage with Cosworth V-8 engine.	128
24 For the 1969 Can-Am series Porsche developed this open version of the 917.	128
25 The Porsche 917 in original long-tail form and decked out in Gulf livery.	129
26 At Sebring in 1970 the Ferrari 512S of Andretti and Merzario laps a Chevron.	129
27 At the 1970 Le Mans Practice Week-end Porsche produced this new long-tail version of the 917.	144
28 This works Ferrari 512S was driven at Brands Hatch in 1970 by Ickx and Oliver.	144
29 A Tipo 33/3 Alfa at Brands Hatch in 1970.	145
30 The MS650 Matra driven by Pescarolo and Servoz-Gavin at Brands Hatch in 1970.	145
31 Four of the Gulf-Porsche 917s in the spacious J. W. Automotive workshops at Slough.	160
32 The winning Porsche 917 of Siffert and Redman in the 1970 Spa race.	161
33 Brian Redman, who partenered Jo Siffert during the 1970 season.	176
34 Vic Elford, fastest member of the Porsche Salzburg team.	176
35 John Wyer and Rico Steinemann at Le Mans in 1970.	177
36 David Yorke, the J. W. team manager.	177
37 The Ferrari 512S of Bell/Peterson roars through the Esses at Le Mans in 1970.	192
38 Victory at Le Mans in 1970 went to this 4.5-litre 917 Porsche entered by the team's Austrian subsidiary.	193
39 A very well deserved victory was scored in the 1971 B.O.A.C. 1,000 Km race by this Alfa Romeo 33/3.	193
40 The winning Gulf 917 Porsche of Rodriguez and Oliver in the 1971 Spa race.	208
41 The Ferrari 312P flat-12 car at Spa in 1970.	208
42 The Scuderia Filipinetti Ferrari 512M of Manfredini and Gagliardi at Spa in 1971.	209
43 The Porsche 908/3 driven by Elford and Larrousse in the 1971 Targa Florio.	209

LINE DRAWINGS

1969 Porsche 917 Tails	68
A 917 <i>Kurz</i> of the Gulf-Porsche team	110-111
The 1970 Ferrari 512S 5-litre	114-115

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Introduction

This is intended as a book of record, a record of four years of fast and spectacular motor racing during which the power of Porsche and of John Wyer's J.W. Automotive Engineering team rose in a gradual crescendo.

Shortly after the 1967 Le Mans race, which the 7-litre American Fords had won for the second year in succession, the Federation Internationale de l'Automobile, the governing body of motor sport, announced that from 1968 onwards there would be a new Sports Car Manufacturers' Championship, more properly titled *le Championnat International des Marques*, which would impose a maximum capacity limit of 3 litres for Group 6 Sports Prototypes, i.e. one-off 2-seater cars complying with the detailed and complex regulations of the Commission Sportive Internationale (for full details see the *F.I.A. Year Book* published annually by Patrick Stephens). As far as Group 4 Competition Sports Cars were concerned, that is cars of which not less than fifty examples had been built, these would be allowed to compete alongside the Prototypes provided the engine capacity did not exceed 5 litres. This was intended as a concession to small manufacturers like Lola and to the owners of such cars as the Ferrari 250 LM and the Ford GT40. For homologation purposes manufacturers were allowed to include in their total cars with engines of both greater and less capacity than 5 litres, but, of course, only cars of up to 5 litres could be raced in Championship events. It was a matter of a couple of weeks before the further announcement was made that the American Ford company was withdrawing from racing.

The F.I.A.'s announcement came as a terrible shock to most competitors in Sports Car racing and it gave the teams very little time in which to prepare new cars for the coming season. It was widely felt that Ford had intimated their intention of retiring before the decision to enforce the new regulations was made. For the Ford company was a concern that the F.I.A. would be most reluctant to offend. The F.I.A. has headquarters in Paris and is very strongly French-influenced. It seemed that the principal motive behind the change in the regulations was to protect the interests of the French constructors, Alpine and Matra. Both of these concerns were working on 3-litre Prototypes out of expediency rather than choice, for the Alpine engine was merely a 'doubled-up' version of the existing 1,500-cc Renault unit designed by Amédée Gordini and Matra would be using their new V-12 engine which had been designed to comply

with the 3,000-cc Grand Prix Formula. As it happened, neither of these teams achieved worthwhile success.

The change in the regulations resulted in the retirement from racing of both Ferrari and Chaparral and for a while it seemed as though Sports Car racing would become moribund through a lack of serious competitors. The 1968 season was fought out between the cars of the German Porsche team in 2.2 and the new 3-litre forms and the elderly Ford of John Wyer's Gulf-sponsored team—and the Fords won both Le Mans and the Championship.

For 1969 the number of cars necessary for homologation in Group 4 was reduced to 25, a move intended to facilitate the homologation of certain small capacity cars such as the Alfa Romeo Tipo 33/2 and the Porsche Typ 910, a fair number of which were in the hands of private owners. Almost in opposition to the wishes of the F.I.A., and certainly in opposition to its intentions, Porsche now saw the possibility of building a batch of 5-litre cars that would be overwhelmingly superior to the opposition and although the cost was enormous, it was to a certain extent mitigated by the fact that the design principles, general layout and even certain components of the existing 908 3-litre car could be used. Initially even the cylinder dimensions of the 908, giving a capacity of 4.5 litres, were adopted and it was not until 1970 that a full 5-litre version was raced.

Throughout 1969 the 917s displayed tremendous speed, but their handling was abominable and it took a brave man to tame a 917. Porsche were again defeated at Le Mans and in October it was announced that in 1970 the Porsche works cars would be prepared and entered by John Wyer. The union of the two most powerful names in Sports Car racing resulted in a spectacle of high-speed racing spread over two seasons that will not be matched for a very long time.

In answer to the Porsche onslaught, Ferrari raced the 3-litre 312P Prototypes in 1969 and then for the following season followed in Porsche's wheel-tracks with the introduction of the 512S 5-litre Competition Sports Car which came close to defeating the 917s in several races and actually did so in the Sebring 12 Hours event. However the Maranello team lacked an organization to match that of John Wyer and, apart from Jackie Ickx, the drivers were not of the same calibre as those of the Porsche team. After one very expensive and largely unsuccessful season Ferrari abruptly ceased development of the 5-litre cars and switched to a new model, the 312P flat-12 car. This was derived from the team's Grand Prix cars and its 1971 season was aimed at testing and developing it for the coming year when the 5-litre cars are banned. Despite the considerable promise shown by the new Ferrari and by the successes of the much improved 3-litre Alfa Romeo Prototypes which won the B.O.A.C. 1,000 Km race, the Targa Florio and the Watkins Glen race, 1971 was still very much a Porsche year.

1971 was the last year in which the 5-litre cars were allowed to race

in Sports Car Championships events. Although some pressure was exerted on the Federation Internationale de l'Automobile to allow the cars to run in 1972 (but without being eligible for Championship points), this was refused and the 917S and the 512M are now relegated to Interserie and other less important events.

Sports Car Racing entered a new era with the banning of the 4-litre Ferrari and 7-litre Ford and Chaparral Prototypes at the end of the 1967 season and it is with this era, dominated by Porsche and the John Wyer team and memorable for the 5-litre Ferraris that came so close to usurping Stuttgart supremacy, that this book is concerned.

I *The New Contenders*

The sweeping changes made to the Prototype and Sports Car regulations for the 1968 season had eliminated from racing the immensely fast, technically interesting Chaparral 2F cars with their high-mounted rear aerofoils, Ford of America had already announced their decision to withdraw from racing and Ferrari also retired from the Prototype category now that his 4-litre P4 Prototypes had been rendered obsolete. Throughout the 1967 season the Porsche team, racing Prototypes of 2 and 2.2-litre capacity, had always been in the hunt and had scored outright victories in the Targa Florio and at the Nürburgring. For the German team the change in the regulations could only increase their chances of success and it was expected that Zuffenhausen would completely dominate the year's racing. And it was from Porsche that most of the new technical innovations were expected.

GERMANY

Porsche of Stuttgart

Ever since the first appearance of the Porsche team at Le Mans in 1951, this specialist sports car manufacturer whose works are situated in the suburb of Stuttgart known as Zuffenhausen had pursued an energetic and very efficient competitions programme. Initially Porsche raced modified versions of the original rear-engined production cars, in late 1953 came the first of a range of purpose-built racing sports cars powered special four-cam engines and there had then followed a whole line of Prototypes and Competition Sports Cars. These cars, with the engine mounted ahead of the rear-axle line, were powered by developments of the 4-cylinder 2-litre *Carrera* unit, 6-cylinder engines evolved from those used in the 911 production cars and 8-cylinder engines that could be traced back to the units used in 1962 Porsche Grand Prix cars. Readers interested in further information about earlier Porsche competition cars are referred to this writer's book, *Porsche*, published by Pelham Books in 1969.

During the 1967 season Porsche had raced a rather mixed bag of 6- and 8-cylinder cars. At Daytona that year there had appeared the 910 Prototype with 1,991 cc 6-cylinder four-cam engine. This engine was of 911 ancestry and the chassis was a development of the 906 '*Carrera 6*' Competition Sports Car built in limited numbers

for sale to the public since 1966. The 910 had a lighter chassis than the 906, the body was much lower and 13-inch magnesium wheels were fitted. Two months later at the Le Mans Test Weekend another new competition Porsche appeared. This was the 907, based on the 910 chassis, but with a completely new, much narrower and more aerodynamic body; the driver sat close to the centre of the car, there was a narrow, very deep windscreen, and an elaborate double-decker wiper system; large louvres were incorporated in the very sloping rear window for air extraction, and the cars were raced with both long and short tails. The cars that appeared at the Sarthe circuit had 6-cylinder engines, but in the Targa Florio and at the Nürburgring Porsche fielded 910 cars with 2,195 cc 8-cylinder engines and a flat-8 907 ran in the B.O.A.C. race at Brands Hatch at the end of July. It was on these two models that the 1968 Porsche attack was based and, with one very notable exception, the full range was revealed to the press by Competitions Manager Huschke von Hanstein at the Hockenheim circuit in December, 1967.

907: Although these cars had been raced in 1967 mainly with 6-cylinder 2-litre engines, the Porsche team was aiming for outright victory with 907s powered by the four overhead camshaft flat-8 2,195 cc (80 x 54 mm) engine which with Bosch fuel injection and a 10.2:1 compression ratio developed 270 bhp at 8,600 rpm. The crankshaft ran in nine bearings and Bosch transistor ignition was fitted. Fuel capacity was 110 litres. Transmission was by a 5-speed and reverse gearbox in unit with the final drive. Tubular steel space-frame construction was used for the chassis with suspension at the front by double wishbones and MacPherson struts and at the rear by single links, reversed wishbones and radius arms. The sleek glass-fibre body had gull-wing doors and lighting was by two quartz-iodine units enclosed by plexiglass covers in each front wing. Unusual for a racing Porsche, the 907 had right-hand drive steering. The weight of the 907 was 600 kg and its estimated top speed was in the order of 180 mph.

907 Langheck: This was the long-tail version of the 907 for use on really fast circuits such as Daytona and Monza. As shown at Hockenheim, it was fitted with a 6-cylinder 2-litre engine developing 220 bhp which gave it a maximum speed of 185 mph. It was, however, to be raced with the flat-8 2.2-litre unit in which form it was good for close to 200 mph. The long, tapering tail was squared off at its extremity and the exhausts emerged through the bodywork. Surmounting the tail was a full-width adjustable spoiler.

907 Berg: Porsche had produced this lightweight (450 kg) car specifically for the European Mountain Hill Climb Championship. This model was fitted with a flat-8 engine in 1,981 cc form and in sprint tune it developed a fantastic 272 bhp at 9,000 rpm. The body was a skimpy *Spyder* with an adjustable spoiler at the rear. It was this model that inspired the 908 *Spyder* that dominated the 1969

season. In the Hill Climb Championship these cars were overwhelmingly successful and Gerhard Mitter, with victories in seven of the eight rounds, was almost undisputed Champion. Porsche's success was marred, however, by the death of Lodovico Scarfiotti at the wheel of one of these cars in practice for the German Rossfeld hill climb in June.

908: This was the important model *not* announced by Porsche in December, which did not appear until the Le Mans Test Weekend and was first raced in the Monza 1,000 Kilometres event in April. The chassis was similar to that of the 907, but with heavier springs and dampers and in long-tail form it weighed 700 kg. The engine was a flat-8, but developed from the 6-cylinder cars rather than the old Grand Prix unit. It had a light magnesium alloy crankcase and titanium crankshaft and con-rods. In its original form capacity was 2,924 cc (84 x 66 mm), but by Le Mans this had been increased to 2,996 cc (85 x 66 mm). The twin overhead camshafts per bank of cylinders were driven by gears and chains from the front of the engine (on the 907 they were driven by a shaft and bevel gears), Bosch fuel injection and transistorized ignition were featured and in its original form the 908 engine developed 310 bhp—by 1969 this had risen to 350 bhp at 8,400 rpm. Although Porsche standardized on having the multi-plate wet clutch mounted between the engine and gearbox, the team experimented in 1968 with having a four-plate clutch mounted on the extreme end of the gearbox in accordance with former Ferrari Prototype practice. ATE disc brakes were fitted at the hubs and there were 15-inch cast magnesium wheels.

910: Although it was only raced by private owners in 1968, the 910 was also displayed to the press in December, 1967. At Hockenheim this model, which had a slightly narrower track than the 907, was fitted with the flat-8 2.2-litre engine, but the cars raced during the 1968 season had the 6-cylinder 2-litre engine.

911R: Not contributing to Porsche's Championship efforts, but, nevertheless, of considerable interest was this very special version of the 911. With two triple-choke Weber carburetters, power output was 210 bhp at 8,000 rpm. The tank had a capacity of 100 litres, there were twin fuel pumps and the usual 5-speed gearbox and disc brakes all round. The weight was 850 kg and the model had a top speed of 150 mph.

For the 1968 season Porsche had signed up a very impressive team of drivers: Jo Siffert (who drove Formula One cars for Rob Walker and was to win the 1968 British Grand Prix with Walker's new Lotus 49); Vic Elford (winner of the Monte Carlo Rally in 1968); Rolf Stommelen; Gerhard Mitter; Lodovico Scarfiotti (one-time Ferrari works driver who had finished second, co-driving a Ferrari P4, at Le Mans in 1967 and was to drive Grand Prix Coopers in 1968); Hans Herrmann (a real old timer who had driven for Porsche

since 1953, and in 1954 had also been a member of the works Mercedes Formula One team); and Jochen Neerpash.

FRANCE

Alpine of Dieppe

Sponsored by Renault and using engines designed by Amédée Gordini who had raced his own Grand Prix and sports cars up until 1957, the Alpine team had been fielding Prototypes with engines of up to 1,500 cc since 1963. In long-distance races the team had a fine record of successes with the smaller cars and at Montlhéry in 1967 the Alpine concern had introduced the A-211 model with a V-8 3-litre engine designed by *le Sorcier*. This car was based on the older A-210 chassis as used with 1,500 cc engines, but with heavier-gauge chassis tubing. This chassis had been designed by English freelance designer Len Terry and was a multi-tubular space-frame based on a large number of fully triangulated small-diameter tubes. Front and rear suspension were by wide-based double wishbones with co-axial coil springs and de Carbon dampers. This chassis design was five years old and it was thoroughly out-dated compared with the majority of its rivals.

The Gordini power unit was a V-8 based on two of the original 1,500 cc engines on a common crankcase. Capacity was 2,986 cc (85 x 66 mm), there was a cast iron block, aluminium cylinder heads and twin chain-driven overhead camshafts per bank of cylinders. Power output was said to be 315/320 bhp, but in truth the original output was under 300 bhp! Transmission was by a 5-speed ZF gearbox. The Prototype took a fairly encouraging seventh place in the Montlhéry 1,000 Km race and Alpine pressed on with an improved version for the coming season. This was the A-220 with stronger suspension, larger ventilated disc brakes and larger radiators mounted on either side ahead of the rear wheels. One of the best features of the Alpine was the sleek, low and very aerodynamic body, but although this had helped bring the 1,500 cc cars success in earlier days—and continued to do so—it could not compensate for the 75 to 100 bhp power deficit that the A-220 suffered in comparison with its 3-litre rivals. French enthusiasts held out great hopes for the Alpine, but they were destined to be disappointed.

Matra of Vélizy

In France there was, however, one really bright hope for Prototype success, the Matra MS630, built at Vélizy on the outskirts of Paris by Engins Matra, the French aerospace company. The Matra stemmed from the René Bonnet Prototypes with Renault engines and Renault sponsorship built at Romorantin, forty miles to the south of Paris. Lack of success had resulted in the loss of Renault sponsorship and, with a factory that had greater production capacity than the

firm could ever hope to fill, René Bonnet found itself in dire financial straits. In October, 1964 the company was acquired by Engins Matra whose plastics division supplied the glass-fibre bodies for the production cars.

The new owners re-organized the company under the name, Matra Sports, and set up a competitions department in the Louis Breguet aircraft factory in the south of Paris—this was later transferred to temporary wooden buildings adjoining the Matra administrative and research headquarters at Vélizy. Although Matra has achieved much greater success with single-seater racing cars, since 1966 the team has strived to develop a race-winning Prototype. In 1966 there appeared the MS620 with a V-8 2-litre B.R.M. 'Tasman' engine. This unit was installed in a strong multi-tubular space-frame chassis with wishbone and coil spring suspension front and rear. Transmission was by a ZF 5-speed gearbox in unit with the final drive and the car was fitted with magnesium-alloy wheels and Girling disc brakes. The coupé body was rather angular in appearance, but aerodynamically very efficient and the result of extensive wind tunnel tests in the Breguet works. Throughout 1966 success eluded the MS620 and the following year there appeared the MS630 with new glass-fibre bodywork of more aesthetically pleasing lines and with modified suspension, lighter chassis tubing and twin water radiators mounted on either side, just ahead of the rear wheels. During the year the team also produced V-8 4,727 cc Ford-powered versions of both the 620 and 630. Nineteen hundred and sixty-seven proved another unsuccessful year for Matra Sports and no successes were gained.

Matra was by no means discouraged by these failures and for 1968 the team developed a new version of the MS630 powered by the team's V-12 Grand Prix engine. This 2,999 cc (79.7 x 50 mm) engine, which had been financed by a long-term loan from the French government, featured twin overhead camshafts per bank of cylinders and four valves per cylinder and had the exhausts in the vee of the engine. In the form used for Prototype racing the power output was probably around 375/380 bhp at 9,000 rpm. The V-12 version of the MS630 was only raced at Spa, Le Mans, and Montlhéry, but Johnny Servoz-Gavin drove a Ford V-8 powered version in a number of minor French races and scored a total of five victories.

GREAT BRITAIN

Ford and Alan Mann Collaborate

Although the American Ford company had withdrawn from Prototype racing, the British Ford set-up commissioned an entirely new car designated the P68 F3L and designed by Len Bailey who had worked on the Ford GT40 project and had been responsible for the evolution of the 1967 Mirage based on this. The new P68 was

constructed in Alan Mann's workshops at Byfleet, and Mann, who had at one stage been entrusted with a team of GT40s, was responsible for the car's racing programme.

The P68 was advanced and brilliantly conceived and it had very considerable potential, but its career was ill-fated from the moment it first appeared on the race track. The design was based on a very elaborate monocoque constructed from riveted and bonded light alloy panels. All the panels were stressed apart from the nose and the tail and the outside skin of the car was made from a malleable aircraft alloy with a thickness of only a thirtieth of an inch. The body was low, sleek and graceful with a long tail that was vortex-creating, which meant that it was designed to have the same aerodynamic effect as if it were much longer still. The wheelbase of the first car was only 7 ft 3 in—shorter than that of any Grand Prix car using the same Cosworth DFV 3-litre engine—and the result was an exceptionally cramped cockpit.

The Cosworth 2,993 cc (85.7 x 64.8 mm) engine with twin overhead camshafts per bank of cylinders and Lucas fuel injection developed in its 1968 form 420 bhp at 9,000 rpm and exactly the same engine was fitted to the P68 as used in the Lotus, McLaren and MS10 Matra Grand Prix cars. It was, however, a sad, but inescapable fact that no Prototype powered by a Grand Prix engine achieved substantial International success. Transmission was by a 5-speed ZF or Hewland gearbox and suspension, very much in accordance with normal Formula One practice, was by double wishbones and coil springs at the front and by lower reversed wishbones, upper straight tubular links, twin radius arms and coil springs at the rear. Braking was by 11.5 inch Girling discs mounted three inches inboard of the suspension uprights so as to achieve good heat dissipation and these were driven from the hubs by short axles.

Although the P68 weighed some 200 lb more than an equivalent Cosworth-powered Grand Prix car, its aerodynamics were so good that it was estimated to be capable of reaching 200 mph on a long straight. For the 1968 season two cars were built, the second with a slightly longer wheelbase to give better cockpit accommodation, and both were finished in Alan Mann Racing colours of red with a central gold stripe. It was intended that 1968 should be a year of testing and development and that the full Championship series would not be tackled until the following season. The early events of the 1968 season brought such disastrous results, however, that Ford were forced to withdraw the cars from racing after the Spa 1,000 Km event.

John Wyer and the GT40s

Under the rule that permitted Competition Sports cars of up to 5 litres capacity to compete against the 3-litre Prototypes, the faithful old 4,736 (101.6 x 72.9 mm) cc Ford GT40 could carry on racing and a fair number of these cars were entered by private owners. The most serious entrant of these heavy, but very reliable cars was John

Wyer's team which continued to race with sponsorship from the Gulf Oil Corporation. During 1967 Wyer had fielded the Mirage Prototypes with 5 and 5.7-litre engines which had been modified versions of the GT40 and these cars had scored victories at Spa, Monthéry and Kyalami. Wyer had commissioned Len Terry to design a new Mirage, the M2, to be powered by the V-12 B.R.M. engine but this was not ready to race until 1969 and in the meanwhile one Ford-powered Mirage was converted back to GT40 specifications (chassis 1074) and a new GT40 was built up. At first these were raced in the usual 4.7-litre form with Gurney-Weslake cylinder heads, but later in the season versions stroked to 4,942 cc were fielded. The Gulf cars had improved brakes, modified engine and gearbox lubrication systems and the glass-fibre panels were strengthened by reinforcing carbon filament. In Le Mans trim maximum speed was 205 mph.

By dint of exceptionally careful preparation work, superb team control in the hands of former Vanwall racing manager David Yorke and a fine team of drivers, the Gulf team was a thorn in Porsche's side throughout 1968 and at the end of the year snatched from their grasp victory in the most prestigious of all races. Fastest driver in the Gulf team was young Belgian Jackie Ickx, who was also a member of the works Ferrari Grand Prix team, and he was well backed up by Lancashire driver Brian Redman, Australian Paul Hawkins (who also raced his own red-painted GT40) and Surtees' former protégé, David Hobbs. Hawkins' own car was one built by Alan Mann Racing in 1966, chassis AMR2, converted back to Group 4 trim and with a Hewland gearbox. During the year enormous 14-inch rear rims were adopted and in some non-Championship races the car ran with an ex-Mirage 5.7-litre engine.

The Lola T70

At the 1965 Racing Car Show in London Eric Broadley had introduced his T70 Group 7 or 'two-seater racing' car and the following year John Surtees won the Can-Am series of races with one of these cars which had sold well both in Britain and in the United States. For 1967 Broadley produced a Sports Prototype version with coupé body known as the Mk 3GT. Surtees Racing ran these cars with 5-litre Aston Martin engines at the Nürburgring and Le Mans without success and this team and others also fielded Lolas with Chevrolet V-8 push-rod units. When the new regulations for 1968 came into force, the Mk 3 scrapped by as a Competition Sports Car because the F.I.A. was prepared to take into account for homologation purposes cars built with engines of both greater and less than 5 litres.

The Mk 3GT, like the Group 7 versions, had a monocoque chassis constructed from sheet aluminium braced by steel bulkheads and with load-bearing sections at suspension mounting points. The lower part of the body was given its shape by two large side pontoons with curved outer skins and these contained the fuel tanks. Suspension at the front was by double wishbones with an anti-roll bar and coil

spring/damper units, while at the rear there were single top links, reversed lower wishbones, twin radius arms, an anti-roll bar and coil spring/damper units. In its 1968 form the Chevrolet engine was of 4,995 cc capacity (76.2 x 102.1 mm), tuning of this production unit was largely the monopoly of Traco Engineering and the cars were raced with twin Holley carburettors, four twin-choke Weber instruments or Lucas fuel injection. Power output varied considerably from engine to engine, but was usually in the order of 420/430 bhp. Transmission was by a Hewland 5-speed gearbox.

No works Lola team was fielded, but the cars were sold to a number of well known privateers, including Sid Taylor whose car was usually driven by Denis Hulme. Although the Mk 3 was more than a match for the GT40 in terms of acceleration, top speed and handling, it was sadly lacking in reliability and little success came the model's way. With Taylor's car, Hulme won both the Tourist Trophy at Oulton Park and the Martini Trophy at Silverstone, but, alas, neither of these races was of International importance. One of the Lolas most consistently raced in 1968 was Bonnier's car which was that with an Aston Martin engine driven by Irwin/de Klerk at Le Mans in 1967. It now had a Bartz-tuned Chevrolet engine.

Chevron of Bolton

The diminutive works of Derek Bennett Engineering at Bolton were turning out a steady stream of Chevron B8 cars with multi-tubular space-frame chassis with steel-monocoqued sills and bulkheads, a B.M.W. 2-litre engine developing around 180 bhp, a Hewland gearbox and an exceptionally neat and effective coupé body. These cars achieved a great deal of success in British National races—for which they were conceived—and enough was built for the B8 to be homologated in 1968 as a Competition Sports Car. There was no real intention of building a serious Group 6 Prototype for International racing, but keen amateur John Woolfe decided to commission a Chevron to his own requirements.

Although the whole project did not really meet with Bennett's approval, John Woolfe was a popular and sincere person and Bennett agreed to let him have the car built up in the Chevron workshops. This 'one-off', designated the B12 had a lengthened engine bay and the wheelbase increased by 2.5 inches to 7 ft 10.5 inches, ventilated disc brakes were fitted and the car had 15-inch Brabham Formula One wheels. The power unit was a single cam per bank Australian-built Repco type 740 that had been used in Brabham Grand Prix cars during 1966-7. This 90-degree V-8 unit of 2,996 cc (89 x 60 mm) had its origins in a discontinued General Motors cylinder block, but in fact all components were specially made in Australia. With Lucas fuel injection the power output was 330 bhp at 8,800 rpm. Throughout its short career the B12 was plagued by cylinder head gasket failure and after the 1968 Le Mans race, Woolfe lost interest in this project.

Marcos of Bradford-on-Avon

Another very promising British project and, again, using the Repco engine was the Marcos Mantis built by Jem Marsh of Marcos whose production cars were famed for their wooden chassis, their superlative styling and their Volvo engines. In this case, however, it had originally been intended to use the B.R.M. V-12 engine which had first appeared at the 1967 Canadian Grand Prix, but it seems that the high cost of the Bourne-built unit caused Marsh to look for something rather less expensive. The most striking feature of the Mantis was the angular bodywork with large 'green-house' (i.e. cockpit area) which had been designed by Dennis Adams who was responsible for the styling of production Marcos cars. Once again stressed plywood monocoque construction was used. Generally, this car looked rather flimsy and impractical. It made one racing appearance, at the Spa 1,000 Km event, but after that Marcos were too busy trying to recover from a flood at their Wiltshire works to race the car again.

ITALY

Autodelta and the Alfa Romeo Tipo 33

In December, 1965 the Autodelta concern with premises at Settimo Milanese near Milan and sponsorship from the Alfa Romeo factory was formed to build high-performance versions of the Alfa Romeo range. Since 1965 Autodelta, headed by ex-Ferrari engineer Ing. Carlo Chiti, has raced Giulia saloons with considerable success and in 1967 there emerged the first model built purely for competition purposes. This was the Tipo 33 with a 1,995 cc (78 x 52.2 mm) 90-degree V-8 engine designed by Alfa engineers Satta and Busso. There were twin overhead camshafts per bank of cylinders and Lucas fuel injection and power output was a very competitive 260 bhp at 9,000 rpm.

The most novel feature of the new car was the chassis which consisted of two large-section light alloy main side-members, cylindrical in shape, linked by a similar main cross-member, running across the car to the rear of the cockpit area. These three main members also served as fuel tanks. At the front there was an intricate magnesium-alloy casting which provided attachments for the steering and suspension and the engine was mounted between two projecting manganese-alloy members at the rear. These members were linked by a fabricated sheet-metal section which carried the rear suspension. At the front, suspension was by wishbones and links and a similar layout incorporating radius rods was used at the rear. Transmission was by a 6-speed gearbox, ventilated disc brakes were fitted (those at the rear being mounted inboard) and the body was an open 2-seater with a very large curved windscreen.

Throughout 1967 the new cars were plagued by mechanical failures, two drivers—Jean Rolland and Leo Cella—lost their lives in

testing crashes that were never satisfactorily explained and the team missed many of the season's races while it struggled to sort out its problems. The only success gained was a victory in the very minor Bettojia Trophy race on the Vallelunga circuit at Rome.

Despite all these troubles Chiti was well satisfied with the engine and transmission of the Tipo 33 and there had been no problems with the H-section chassis. So these features were retained on the new Tipo 33/2 introduced for 1968, but the car was modified in most other respects. Stronger front suspension was fitted, both front and rear track were increased and the oil and water radiators were transferred from the front to new positions on either side of the body in front of the rear wheels. The *Spyder* body was scrapped and its place was taken by a new and attractive coupé of sleek, but conventional styling. The cars were raced in 1968 with both long and short tails and with and without the roof sections in place. Autodelta also produced an enlarged 2,500 cc engine (78 x 64.4 mm) with a power output of 315 bhp at 8,800 rpm, but this was used in only a few races. In addition to the works cars, a number of 33/2s were sold to private owners and cars were regularly fielded by the Belgian V.D.S. Racing Team. During 1968 a total of 28 of these cars were built by the works and at the end of the year they became homologated as Competition Sports Cars. Although the 33/2 is usually known at the works as the *Daytona*, because it was first raced at that circuit, it was in fact homologated as the '33 *Spyder*'.

UNITED STATES

The Howmet Turbine

Although Rover gas-turbine cars had run successfully at Le Mans in 1963 and 1965, the idea of a jet Sports Prototype was still a novelty. The Howmet, designed by Ray Heppenstall was the first and is still the only jet Prototype to have raced and although the team withdrew from racing at the end of the 1968 season, on occasions the cars showed real promise. The TX, as the model was known, was fast and it did not seem to be unduly hampered by the problems arising from its lack of engine braking and its very slow throttle response. Its very heavy fuel consumption, necessitating refuelling stops every 45 to 50 minutes was, however, a serious handicap.

Powering the Howmet was the Continental TS325-1 shaft turbine engine designed for use in helicopters and under the rules laid down by the Federation Internationale de l'Automobile it worked out as being the equivalent to a car of 3 litres' capacity. This engine, which weighed only 170 lb, had one centrifugal stage and one axial stage compressor followed by an annular-type combustor, a two-stage gas generator turbine and a single-stage free-power turbine. Between the gas generator turbine and the power turbine a wastegate valve was added and this improved throttle response by varying the hot

gas flow to the power turbine. In the Howmet's early days this valve gave a lot of trouble and caused the car to crash at Daytona. The gas generator ran at 57,500 rpm and the power turbine at 44,000 rpm, but the 330 hp was developed after reduction gearing at 6,789 rpm.

The chassis of the Howmet was built by the McKee Engineering Corporation and was a simple multi-tubular space-frame based on a fairly successful Can-Am design. At the front suspension was by double wishbones and coil springs and at the rear there were lower wishbones, single upper links and radius arms with coil springs. The Howmet Corporation was a specialist alloy supplier and as well as supplying the turbine blades used for the engine, also supplied the aluminium panelling used for the coupé body. This body was distinguished by roof-mounted intakes for the gas-turbine. After tests at Daytona in late 1967 when the TX (standing for Turbine Experimental) lapped the banked circuit at 176.58 mph, the team decided to press on with a full season's racing. Although the Howmet eventually appeared at only four of the season's Championship races, it also won a 25-lap race at Huntsville in Alabama and the 300-mile Marlboro race in Maryland.

Although it had at one stage seemed that Prototype and Sports Car racing would be very poorly supported in 1968, with six strong teams competing with a wide variety of cars there were prospects of exciting and varied racing.

2 1968: Ford Versus Porsche— The Battle Is Renewed

A dull Daytona

During the early part of the 1968 season Prototypes with the maximum permitted engine capacity of 3 litres were conspicuous by their absence and at the first round in the Championship series, the Daytona Continental 24 Hours race at the beginning of February, the only car to meet this definition was the new Howmet gas-turbine coupé.

From Porsche came a strong entry of four of the sleek, white *Langheck* 907 coupés with 2.2-litre flat-eight engines. In December the team from Zuffenhausen had carried out intensive testing with one of these cars at Daytona, but these tests had come to an abrupt halt when the 907 was crashed badly by Jochen Neerpasch. Nevertheless team manager von Hanstein was satisfied that a great deal had been learned from these tests on a circuit of which the team had only limited experience. Not all the drivers agreed, however, for in official practice the 907s were proving rather unsteady under braking and several drivers commented that they would have preferred to drive the older, less streamlined, but better balanced 910 cars raced by the team the previous year. The 907s were driven by Jo Siffert/Hans Herrmann (car distinguished by a green nose panel), Vic Elford/Jochen Neerpasch (yellow panel), Jo Buzzetta/Jo Schlessler (blue panel) and Rolf Stommelen/Gerhard Mitter (red panel) who were third fastest in practice with a time of 1 min 57.31 sec.

The works Porsche entries were backed up by a private 907 2-litre entered by Squadra Tartaruga and driven by Rico Steinemann and Dieter Spoerry. This was the actual car with which Siffert and Herrmann had finished fifth and won the Index of Performance at Le Mans the previous year. This private set-up was on excellent terms with the works who had agreed not to enter 2-litre cars themselves and leave their representation in this class to the Swiss drivers. Squadra Tartaruga had also acquired an ex-works 2-litre 910 car.

It had not been expected that the old Group 4 cars would be able to put up much in the way of opposition to the lighter Prototypes, but this was a notion quickly dispelled in practice by the John Wyer team. At the wheel of a brand new GT40 4.7-litre car Ickx and Redman were fastest in practice in 1 min 54.91 sec and second fastest, just over two seconds slower, were their team-mates Paul Hawkins and David Hobbs at the wheel of a Mirage converted back to GT40 specification. Another GT40 at this race was the private car of Edward Nelson which he was sharing with Mike Hailwood.

Although the battle for the lead was clearly going to be fought out between the 907s and the Fords from Slough, the most interesting cars in the race came from other teams. The Howmet, making its race debut, was suffering from teething troubles and during the first day's practice bearing failure caused the engine to blow up. Fortunately the team had brought along a spare car and a runner was built up from components of the two. In qualifying on the Friday the Howmet was seventh fastest in 2 min 1.19 sec.

To this race the Autodelta team had brought a grand total of five of the new and purposeful-looking Alfa Romeo Tipo 33/2 coupés. One of these was crashed during unofficial practice by 'Nanni' Galli, but it did not matter too much as Ing. Chiti had entries for only three cars. These were distinguished by differently coloured left-hand front wings and were driven by Udo Schütz/Nino Vaccarella (white wing), Mario Andretti/Lucien Bianchi (blue wing) and Mario Casoni/Gianpiero Biscaldi (yellow wing). Fastest of the Milan entries in practice was that of Schütz/Vaccarella which turned in a time of 2 min 2.21 sec. Chiti was more than a little anxious about the durability of his new cars and although the V-8 engines peaked at 9,200 rpm, in the interests of reliability he limited his drivers to 8,300 rpm.

It is an unfortunate fact about American motor racing—especially in the Southern States—that they cannot simply get on with the job in hand. Instead the race was preceded by prayers and then in rather phoney Indianapolis fashion the invitation, 'Gentleman, start your engines' was extended. The revving engines of the 62 other starters were topped by a harsh, whistling shriek of the Howmet and after film star James Garner had dropped the flag at the end of one and a half paced laps, the field was away, led by Hawkins, Siffert, Ickx and Elford. By the second lap the two Fords of Ickx and Hawkins were holding station ahead of the quartet of 907s which were running in the order Siffert, Mitter, Elford and Schlessler. This neat formation was broken up at the end of lap 3 when Hawkins came into the pits because of a loose plug lead. The stop cost him a full lap and at the end of the first hour he was in sixth place.

Although it had been showing a good turn of speed along the straights, the Howmet had looked far from happy through the corners, wavering badly and rarely on the same line. Right from the start Lowther had been worried by throttle trouble and on lap 35, at the left-hand bend leading off the road circuit on to the banking, the throttles failed to close and the car slammed into the retaining wall. The TX was retired with smashed suspension and a twisted chassis. As darkness was closing in on the circuit, Redman abandoned the leading GT40 out on the circuit and walked back to the pits to report gearbox failure. But the situation was not too bad for the Wyer team, as Hawkins had been making up ground after his unscheduled pit stop, he now took the lead and after three hours' racing he was a clear lap ahead of the second-place 907 of Siffert and Herrmann.

Forty minutes later right in front of the pits and in full view of the pits staff there occurred an incredible and horrifying accident. On the shallow banking opposite the pits a Ford Mustang had blown up its engine and left a trail of oil along the road. As Mitter approached, the 907 travelling at close on 170 mph, he braked at the usual point mid-way round the banking, but because of a deflating tyre began to lose control. The 907 struck the trail of oil, shot on to the grass in front of the pits, rolled over on to its roof and slithered and scraped its way on up towards the next corner in a shower of sparks that lit up the sky. As he saw the sparks, Masten Gregory, pressing on with the N.A.R.T. Ferrari 250 LM, braked hard, right on the trail of oil, spun into the wall, the car reared up into the air and landed on its tail, completely wrecking the rear end and engine area. Next on the scene was Vic Elford, who succeeded in avoiding the carnage, but then Dieter Spoerry with the Tartaruga 907 rammed the spinning Andretti/Bianchi Alfa which had managed to reduce speed and the Porsche hit the retaining wall. None of the drivers involved suffered any injury, but all were badly shaken and the same could be said for many of the onlookers!

Now Hawkins had only three 907s behind him, in fifth place was the Andretti/Bianchi Alfa, its body patched with masking tape, and in sixth place came the Ford GT40 of Nelson and Hailwood. After six hours' racing this Ford was in the pits with a broken gear-change bracket and was eventually repaired with a part 'borrowed' from the abandoned Gulf car. At midnight the Wyer Ford dropped back to third place because of a long pit stop to change the brake backing plates—the car had worn right through the pads and the metal had been badly burred. Through the early hours of the morning Hobbs and Hawkins regained much of the lost ground, but at 7.30 am when the car was refuelled, a large puddle formed underneath and it was pushed away into retirement with a split fuel tank.

With 907s in the first three places, the Porsche team was unassailable, but even the Stuttgart cars were not without their troubles. Throttle trouble on the Siffert/Herrmann car and a burnt-out dynamo on that driven by Buzzetta/Schlesser allowed the Elford/Neerpasch car to come through into the lead. This car was shared by Stommelen, now that his own car was out of the race, and during the last two hours it was also driven by Siffert and Herrmann. This brought about the incongruous result that the latter pair were listed as finishers in both first and second places!

Although the latter stages of the Daytona race had turned into a rather boring Porsche procession, there was no doubt that the GT40s were very much a match for the German cars and that the season was likely to see some close and exciting battles. Fourth place went to the Trans-Am Ford Mustang of Titus and Bucknum, but the Alfas which finished fifth, sixth and seventh had displayed an excellent reliability that augured well for Autodelta's chances during the year and but for frequent stops to patch the body Andretti and

Bianchi would almost certainly have taken fourth rather than sixth place.

Sebring—the story is the same

To the second of the Championship rounds the Porsche team sent four 907s, basically similar to those that had dominated Daytona, but with short tails, minor changes to increase brake power and novel, but apparently very effective driver cooling systems; on each car a large ice block was housed in a receptacle beside the left-hand headlamps with an electric pump that forced cool water through fine plastic capillary tubes in special underclothing worn by the drivers. This was the only race in which Porsche used this cooling system! Although two Howmets had been entered, it was decided to exhibit one elsewhere and so only a single car appeared in the hands of Thompson and Lowther. One Alpine, the original A-211, was entered for Mauro Bianchi and Henri Grandsire, but it was so uncompetitive in practice that it seemed hardly worth the team travelling so far to race. The Gulf team entered the same two GT40s and there were four private Lola-Chevrolts.

Practice was largely uneventful and amongst the top ten qualifiers, there were four different marques:

- | | | |
|-----|---|-----------------------------|
| 1. | J. Siffert/H. Herrmann (Porsche 907) | 2 min 49.4 sec (110.71 mph) |
| 2. | J. Ickx/B. Redman (Ford GT40) | 2 min 50.4 sec |
| 3. | R. Thompson/E. Lowther (Howmet TX) | 2 min 50.6 sec |
| 4. | S. Patrick/D. Jordan (Lola T70) | 2 min 50.8 sec |
| 5. | G. Mitter/R. Stommelen (Porsche 907) | 2 min 50.8 sec |
| 6. | V. Elford/J. Neerpasch (Porsche 907) | 2 min 51.4 sec |
| 7. | P. Hawkins/D. Hobbs (Ford GT40) | 2 min 51.6 sec |
| 8. | L. Scarfiotti/J. Buzzetta (Porsche 907) | 2 min 51.8 sec |
| 9. | M. de Udy/H. Dibley (Lola T70) | 2 min 52.8 sec |
| 10. | J. Bonnier/S. Axelsson (Lola T70) | 2 min 54.4 sec |

When the flag fell for the Le Mans-type start at 10 am, Siffert led the sprint across the track and was away first, Ickx made a slow start and the Howmet, delayed while the revs built up, was one of the last to leave. At the end of the first lap the order was Siffert—Elford—Mitter, followed by the Lolas of de Udy and Patrick. By the time the cars came round again Scooter Patrick had forced his American International Racing Team Lola into third place; at the end of lap 3 he was alongside Elford and after another circuit he was in second place and right on Siffert's exhausts; de Udy was fourth ahead of Mitter and Scarfiotti and then came Hawkins, Ickx and Bianchi with the Alpine which was running much better than it had in practice. Steinemann stopped at the pits with a smashed nose on his Squadra Tartaruga 907 and Thompson brought the Howmet in with a broken throttle cable—the gas-turbine lost a lap and a half before it rejoined the race. Patrick was still trying hard to pass the leader and giving Siffert a very worrying time. On lap 9 the Lola

turned in the fastest lap of the race in 2 min 49.0 sec (110.76 mph) and went by the Porsche into the lead. Both Mitter and Scarfiotti had made pit stops with their 907s and de Udy brought his Lola in with loose exhaust pipes.

At the end of the first hour Patrick, the Lola sounding superb, led from Siffert, Hawkins, Ickx and Elford. Bianchi was holding on to seventh place behind the Nelson/Piper GT40 and, as a result of his pit stop, Mitter was back in ninth place. Not long afterwards the Alpine was retired with engine trouble. Early in the afternoon the pale blue Lola came to a halt out at the hairpin and Patrick returned to the pits to collect tools and then went back to work on the Lola's steering. So the 907s of Siffert/Herrmann and Elford/Neerpasch led from the Ford of Hawkins/Hobbs. Already the white Porsche coupés of Mitter/Stommelen and Scarfiotti/Buzzetta were out with broken engines caused by over-revving and the Ickx/Redman Ford, many laps in arrears because of an oil leak, was soon to be abandoned behind the pits with clutch failure.

The Patrick/Jordan Lola had rejoined the race only to succumb to piston failure and the other three Lolas all retired with an assortment of ailments. As for the Howmet, fuel system trouble had necessitated a pit stop for refuelling every thirteen laps and when a couple of excursions on to the grass broke two engine mountings, the car was retired. Then the Steinemann/Spoerry Porsche 2-litre 907 which had risen to third place came into the pits with camshaft trouble and after abortive work was abandoned. Hawkins had pushed the surviving Gulf Ford into the lead ahead of the 907s, but with eight hours' racing behind him Hawkins collided with a Porsche 911 which had swerved to avoid a Rambler driven by 22-year-old Liane Engeman and the blue and orange car crawled into the pits with damaged front suspension. The Australian commented, 'It was not the Porsche's fault. It was those bloody girls in a Javelin. They drove like they were going to a funeral!' And as the Javelin had been slowest in practice apart from a Triumph Spitfire, it seemed fair enough comment!

So the battered Ford was pushed away and after nine hours' racing the 907s of Siffert/Herrmann and Elford/Neerpasch were firmly entrenched in the first two places. When the chequered flag fell at 10 pm the leading 907, distinguished by a green nose-patch, had covered 237 laps—only one less than the winning 7-litre Ford the previous year—and Elford/Neerpasch were eleven laps behind. Third place went to a Ford Mustang driven by Mark Donohue and Craig Fisher. So far in 1968 everything had gone Porsche's way...

An exciting B.O.A.C. race

In 1967 the B.O.A.C.-sponsored '500' race at Brands Hatch had been held at the end of July, but it was now brought forward to April, the date that was to be its regular place in the racing calendar. Notwithstanding the title '500', it was a six hours race. Although

there were only 36 entries (plus five reserves) and 35 starters the quality of the competitors could not have been higher and entries were received from all the important teams except Matra and Alpine.

Heading the entry in the Prototype class were three of the 907s as fielded at Sebring and these were driven by Siffert/Herrmann, Elford/Neerpasch and Scarfiotti/Mitter. The team also had a spare car, which was just as well, for Neerpasch crashed it in practice. A single Howmet was again entered, but at this race Dick Thompson was partnered appropriately enough by B.O.A.C. pilot Hugh Dibley. Perhaps the most exciting cars entered in the Prototype class were the two new P68 Cosworth-powered Fords from the Alan Mann team which had now sprouted rear spoilers. Right from the outset luck was not on the team's side. It had been intended that the prototype car that had been used for testing and had a ZF gearbox should be driven by Mike Spence and Jochen Rindt, while Graham Hill and Jim Clark had the newer car with longer wheelbase and Hewland gearbox. Because of their tyre contracts with Firestone, Hill and Clark were unable to appear and, instead, drove Lotus Formula Two cars at Hockenheim. And it was at this Hockenheim race that Clark so tragically lost his life. So Bruce McLaren and Denis Hulme substituted for the Lotus drivers. After the earlier Ford broke its engine in practice, the sole starter was driven by McLaren and Spence.

In the Group 4 Competition Sports Car class a total of five Ford GT40s were entered, but only one of these was a Gulf car, driven by Ickx and Redman. Paul Hawkins had entered his own bright red Castrol-sponsored car for himself and David Hobbs. Facing the GT40s were three Lolas and two Ferrari 250 LMs, including David Piper's car which was driven by Pedro Rodriguez and Roy Pierpoint. There were three Porsche 910s running in the 2-litre class and one of these was driven by Steinemann and Spoerry who were now racing under the banner of the Hart Ski Racing Team of Zurich. From Autodelta came three of the latest Tipo 33/2 coupés and after a re-shuffling of drivers before the start these were handled by Attwood/Vaccarella, Bianchi/Schütz and Galli/Baghetti. To accommodate Schütz' considerable height, the roof panel had to be removed from his car. The team had also brought a spare car with them. At the first practice session on the Friday all four cars were plagued by faulty clutch lining bondings, they lacked the speed expected of them and were only marginally faster than the private 910s and slower than the private Ferrari Dino of Tony Dean and Mike Beckwith.

At Brands Hatch the cars were released from a 'Grand Prix'-type grid and below are the first five rows, the first-named driver being the one who took the first spell at the wheel:

Mitter/Scarfiotti
(Porsche 907)
1 min 35.6 sec

McLaren/Spence
(Ford P68)
1 min 35.4 sec

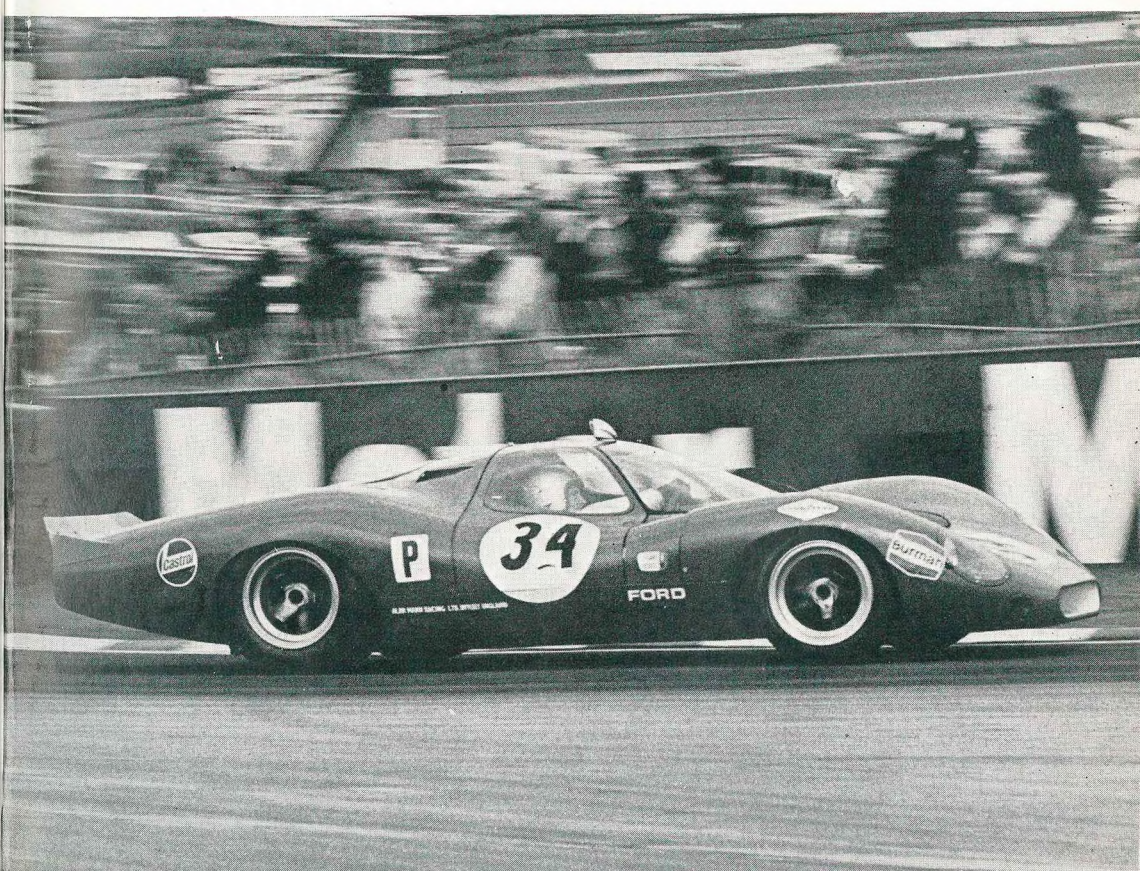
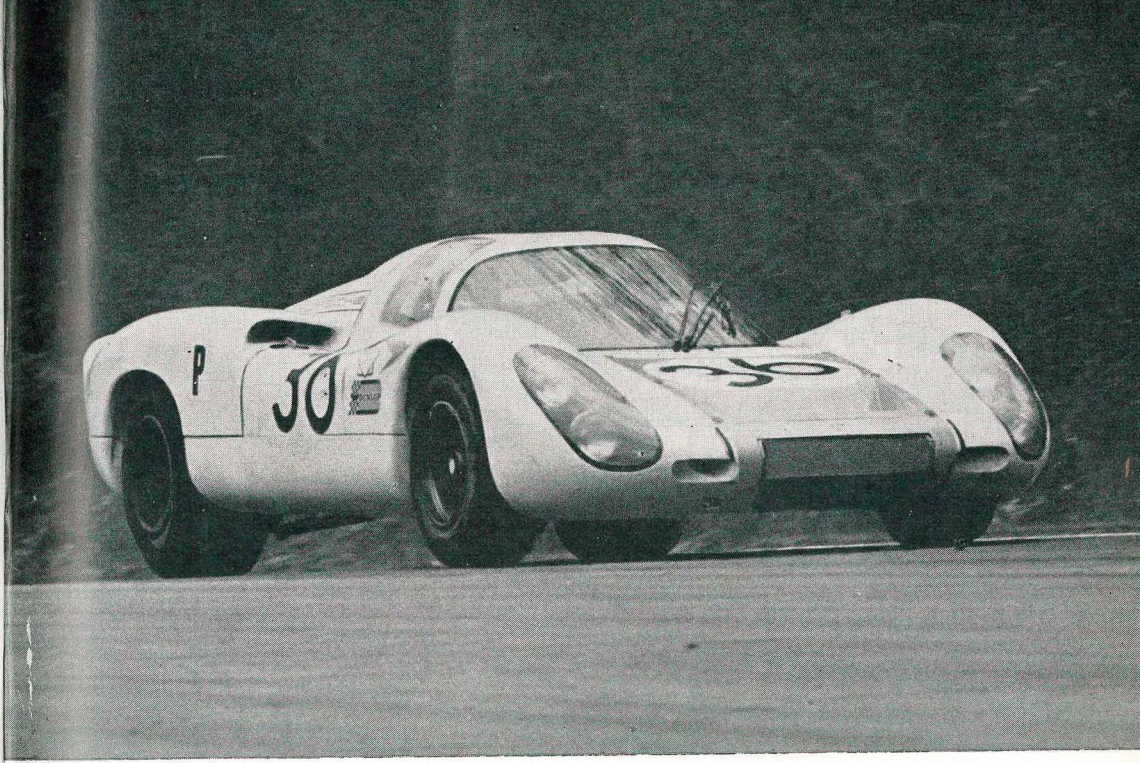
Siffert/Herrmann
(Porsche 907)
1 min 34.6 sec

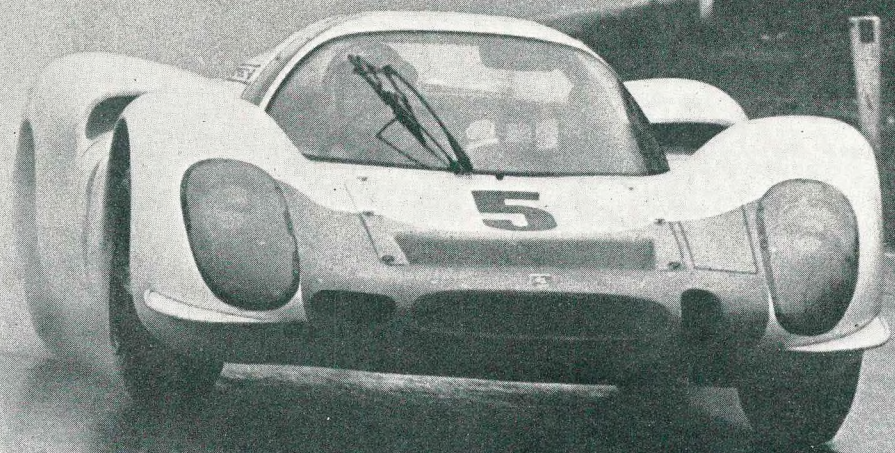
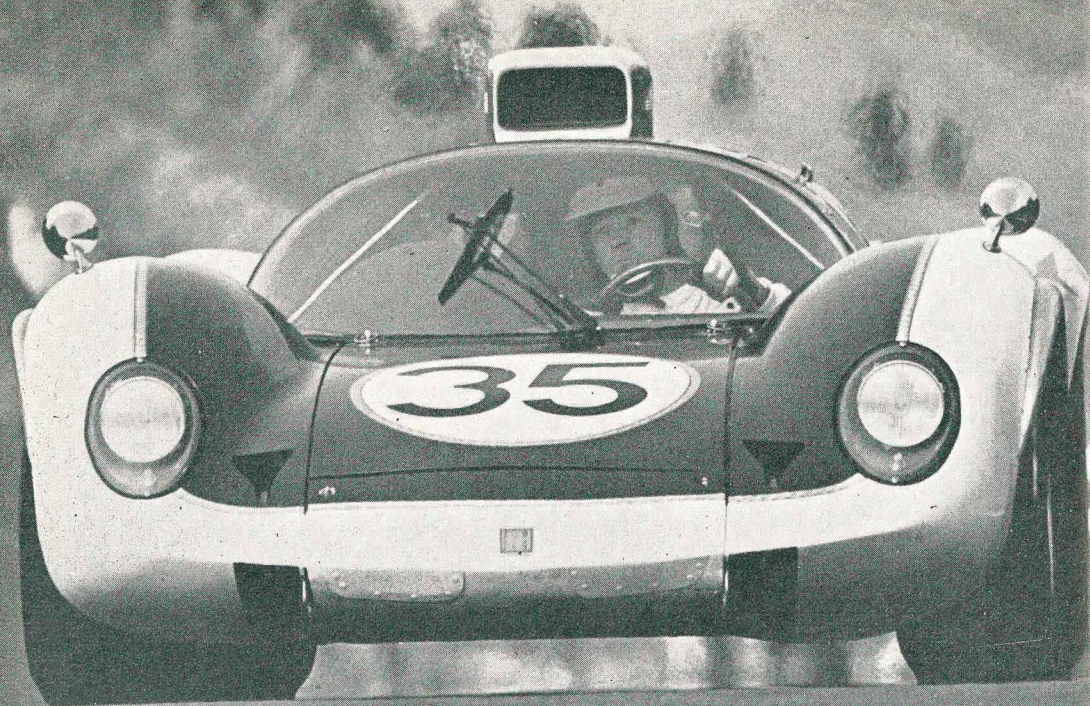
Ickx/Redman (Ford GT40) 1 min 36.8 sec		Elford/Neerpasch (Porsche 907) 1 min 36.2 sec
Charlton/Fisher (Lola T70) 1 min 39.2 sec	Bonnier/Axelsson (Lola T70) 1 min 38.4 sec	Thompson/Dibley (Howmet TX) 1 min 37.0 sec
Dean/Beckwith (Ferrari Dino) 1 min 39.4 sec		Rodriguez/Pierpoint (Ferrari 250 LM) 1 min 39.2 sec
Hawkins/Hobbs (Ford GT40) 1 min 40.4 sec	Oliver/Miles (Lotus 47) 1 min 40.4 sec	Taylor/Budge (Lotus 47) 1 min 40.2 sec

When the flag fell for the start, McLaren, who was in fighting mood, accelerated straight into the lead, then the Ford fell back with a loss of fuel pressure, and the three 907s went ahead followed by Ickx with the GT40. On lap 3 McLaren moved up into fourth place ahead of Ickx, screamed past Mitter and started to worry the 907 of Elford. On two successive laps the red and gold Ford pulled alongside the Porsche, only to fall back into third place as the cars braked for Paddock bend. Then on lap 6 McLaren went ahead through Paddock only to be re-passed under braking for Druids corner at the top of the hill. On the following lap the throttles of the Howmet, which was in sixth place, jammed open at Druids and the car rammed the bank, its turbine screaming for seconds after the impact.

It was not until lap 11 that McLaren succeeded in getting clear of Elford and he now started to chase the leading 907 of Siffert which had pulled out a comfortable lead. By lap 18 McLaren was in front and all the way round the circuit, lap after lap, the two white 907s hounded the Ford, their tails wagging under acceleration out of Druids. So the battle continued until lap 33 when McLaren hesitated momentarily before lapping the Lolas of Bonnier and Charlton. 'Seppi' did not hesitate and with Elford behind him accelerated so that the two 907s boxed the Ford in behind the Lolas. By the time the three leaders had pushed and shoved their way past Bonnier who was doing a fine piece of baulking, the Ford had dropped to third place. McLaren was soon back in front of Elford again, and then re-passed

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- 1 In the early part of the 1968 season Porsche continued to race the 907 flat-eight 2.2-litre cars. This 907, driven by Elford and Neerpasch, took third place behind the winning Ford GT40 in the B.O.A.C. race at Brands Hatch. (*Nigel Snowdon*).
 2. Making its debut at the B.O.A.C. race was the ill-fated Ford P68 coupé with Cosworth 3-litre engine. Although it led the works Porsche 907s in the early stages of the race, it succumbed to a broken drive-shaft coupling. (*Nigel Snowdon*).





Siffert—and there was no doubt that the Ford had speed in hand compared with the 907s which were being driven right on the limit.

With just over an hour and a half's racing behind him, McLaren brought the Ford in to refuel and have the front brake pads changed. Siffert stopped to hand over to Herrmann, but Elford carried on in the lead, and Ickx moved up to second place. Not long after Spence had taken over the Ford, he came to a halt opposite the pits. The inner drive-shaft coupling on the left-hand side had broken and the shaft had flailed its way through the exhaust pipe and had damaged the rear chassis bulkhead. Despite all the troubles that lay in store for the P68, few cars have shown a more promising debut and the Alan Mann team was well satisfied with this performance.

Elford stopped at just after 2 pm and handed over to Neerpasch, who rejoined the race without losing the lead, and Redman relieved Ickx. Then started Porsche's braking troubles which had been more than a little provoked by the efforts of the 907 drivers to stay with McLaren. Neerpasch came in and lost thirteen minutes while the brake pads were changed and then in came Herrmann with the same trouble. Siffert took the wheel, but found that the car was handling atrociously round Druids and Bottom Bend and returned to the pits via the slip road from Bottom Straight. The pads were checked, nothing amiss was found and 'Seppi' rejoined the race. When he reached Bottom bend again Siffert found that the brakes were almost non-existent, almost lost control and returned to the pits yet again. This time the trouble was traced to a cracked brake disc. The mechanics started to change this, but after twenty minutes' work—by when the 907 was right out of the running—it was decided to retire the car.

Out in front the GT40 of Ickx and Redman led from the 907s of Scarfiotti/Mitter and Neerpasch/Elford, the latter a lap in arrears. In the Group 6 2-litre class the Steinemann/Spoerry 910 led by five seconds from the similar car of Foitek/Lins and none of the Alfas was going well. The Galli/Baghetti car had developed an incurable misfire and on lap 125 Bianchi crashed his car at Dingle Dell. After four hours the Gulf Ford had pulled out a lap's lead over the two surviving 907s and the Hobbs/Hawkins Ford was in fourth place. The race leader was due in the pits and when Ickx pulled out just in front of Mitter, both cars were on the same lap—but the 907 had one more pit stop to make before the finish.

Gradually Mitter closed the gap on the leader and at 4.34 pm took

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- 3 A single Howmet TX gas-turbine coupé was fielded at Brands Hatch for Dick Thompson and Hugh Dibley, but it retired when the throttle jammed open and Thompson hit the bank at Druids. (*Nigel Snowdon*).
 - 4 The new 908 Porsche 3-litre cars were not fully sorted by the Spa race at the end of May, 1968 and the sole finisher, driven by Herrmann and Stommelen, took third place. (*Motor Sport*).

the lead. Less than half an hour later Mitter brought the 907 in for its final refuelling stop. Scarfiotti took the wheel and rejoined the race 45 seconds behind the young Belgian. With only an hour's racing left, Scarfiotti steadily clipped a second a lap off the deficit, but it seemed that the Porsche would be unable to catch the Ford before the flag fell. Suddenly the gap was reduced by ten seconds to a mere 27 seconds—a sudden bout of gear-selection trouble had virtually brought the Ford to a halt, then Jackie found the ratio he wanted, accelerated away and managed to maintain the gap at a steady twenty seconds.

When the race came to an end the Ford was still comfortably in front and the 907s finished in second and third places. Fourth was the GT40 of Hawkins and Hobbs and fifth place went to Rodriguez and Pierpoint with Piper's immaculate Ferrari. Victory in the 2-litre class was won by the Hart Ski 910 which finished seventh after a smooth and consistent race. Only one Alfa was running at the finish, that of Galli and Baghetti which was way down the field in fourteenth place. The other Autodelta entry driven by Attwood and Vaccarella had retired with engine trouble but under the race rule that a car was classified as a race finisher if it had covered 70 per cent of the class winner's distance, it was awarded twentieth place.

The same weekend the Testing Session had been held at Le Mans and the new Ford chicane to slow the cars before they reached the pits area was used for the first time. To Le Mans the Gulf team sent the other of their two GT40s and Ickx flew across on the Saturday to drive it. He set fastest lap of the weekend in 3 min 35.4 sec (139.86 mph), all of 8.7 seconds faster than Rolf Stommelen at the wheel of the new 908 3-litre Porsche. Another new car to make its debut at Le Mans was the 1968 A-220 version of the Alpine with more robust chassis. The car arrived in time for the last couple of hours' practice on the Sunday after a testing accident in which it had shed its engine cover.

Another Ford victory at Monza

For the fourth round of the Championship the teams travelled to Monza where the 1,000 kilometres race was held on the combined road and banked track circuit. Practice was held on the Tuesday and Wednesday afternoons and the race itself on the Thursday which was an Italian National holiday. Once again there were prospects of a close fight between the Porsche and Gulf teams, but Zuffenhausen's hand been strengthened by the entry of two of the new 3-litre 908 models.

The two new cars were entrusted to Siffert/Herrmann and Scarfiotti/Mitter, while a 907 *Langheck* was also fielded for Stommelen/Neerpasch. An additional Porsche entry in this race was a 911T running in the Group 3 Gran Turismo class for ski star Jean-Claude Killy and very able French driver Jean Guichet. The Hart Ski 907 was entered for Steinemann and Sperry, but non-started

after Spoerry crashed it during the first practice session. In addition a total of five 910s were privately entered.

From Alpine came two of the 3-litre cars. The original A-211 was driven by Depailler and de Cortanze, while the new car that had first appeared at the Le Mans Test Weekend was handled by Mauro Bianchi and Henri Grandsire. In the first practice session Bianchi had a very nasty moment when the new Alpine, which had been grounding on the bumps, rubbed a hole in one of its fuel tanks and spun off on its own fuel. Fortunately the damage was limited to a shattered tail and the car was soon repaired. Autodelta decided to give Monza a miss and the only 33/2s entered were the private cars of the V.D.S. Team driven by Pilette/Biscaldi and Gosselin/Trosch.

Apart from the two Gulf cars driven as usual by Ickx/Redman and Hawkins/Hobbs, there were a total of five other GT40s entered. Despite the fact that the Gulf drivers were complaining that the cars were rather unstable on the straights—probably because of the bumpy surfacing—Ickx was fastest in practice in 2 min 57.0 sec and although neither Hawkins nor Hobbs knew the circuit, they had soon acclimatised themselves and were second fastest in 2 min 59.7 sec. The Porsche team was far from happy, for both the 908s were plagued by gearbox trouble and by race day the four-plate clutch mounted on the rear of the gearbox had been adopted on both cars.

Initially the two 908s took the lead, Siffert heading Scarfiotti, with the Fords of Ickx and Hawkins in hot pursuit. The 907 lacked the speed to stay with the leaders and Stommelen was battling for sixth place with the private GT40s of Piper and Mairesse. On lap 3 Ickx passed both 908s to take the lead and on the following lap Hawkins brought a gasp from the crowd as he whisked out of Scarfiotti's slipstream and passed all three leading cars on the straight. Siffert fought back and by the end of the next lap Hawkins had been pushed back to third place behind Ickx and Siffert. As Ickx began to draw away, Hawkins was left to fight it out with the two 908s and the battle continued until lap 19 when Siffert shot into the pits, smoke pouring out of the tail of the 908 accompanied by an acrid, burning smell. When the long engine cover was lifted, a tangled mess of burnt plastic revealed itself. The wire-wound flexible tube that carried air from the tail scoop to the left-hand rear brake had detached itself and become entangled in the half-shaft. This had flailed it through the oil pipes and the mechanics were faced with a terrible mess to sort out.

The second 908 driven by Scarfiotti came in with a rough-sounding engine on lap 27, the race was to all intents and purposes over and the Gulf GT40s appeared to be in complete command of the situation. But then there was a bang from the leading Ford as it came past the pits and when it stopped next time round it was discovered that a left-hand exhaust pipe had broken on the sharp bend just after the exhaust port. So Hawkins led from Piper (with the Ford entered by Strathaven Ltd) and then came Stommelen with the works 907.

The 907, now with Neerpasch at the wheel, moved up to second place again at the first round of routine pit stops, and Salmon (who had relieved Piper) had only done a couple of laps when he was forced to abandon the GT40 with loss of oil pressure. This allowed the Alpine of Depailler and de Cortanze to move up into third place. Redman, the GT40's exhaust patched with wire and asbestos, rejoined the race and started to pick up places. Both 908s also rejoined the race, but Herrmann (who had relieved Siffert) came back after only a lap because the mechanics had failed to notice a split oil union and Mitter (relieving Scarfiotti) returned to the pits when the clutch cable broke.

Although the edge had gone off the engine of the leading GT40, it still thundered round in the lead completely unchallenged. Hobbs had to come in for fuel three laps sooner than intended when the engine cut out momentarily and the Gulf pit staff were caught unawares. While the car was being refuelled, Redman came into the pits unexpectedly, the rear of the Ford battered from a spin at Lesmo and the exhaust broken once more. After a quick inspection it was decided to retire the car. In the Porsche pit confusion and near despair reigned. The second-place 907 had stopped to be fitted with a second replacement battery and the Mitter/Scarfiotti 908 was back again—this time with the clutch-toggle mechanism falling off.

In the closing stages of the race Hawkins had to make another stop for fuel, as the consumption of the GT40 had proved heavier than expected, but at the chequered flag he was almost two minutes ahead of the second-place 907. For Porsche the race had been a chaotic disaster. The 907 had been unable to match the speed of the GT40s, the team's Group 3 entry had been thrashed by the similar privately entered car of Glemser and Kelleners and the 908s had given nothing but trouble. Even on the last lap the Scarfiotti/Mitter car, which finished eleventh, punctured a front tyre and crawled to the finish, while Siffert, who with Herrmann finished nineteenth (27 laps behind the winner!) had to make a late pit stop because a front wheel had worked loose and was almost falling off! It was a very unhappy Porsche team that returned to Stuttgart to try to explain away yet another failure.

Of the other Prototypes, the Alpine of de Cortanze and Depailler finished third, while the newer car retired early in the race with handling problems—after its accident in practice there had been insufficient time to set it up properly to suit the circuit. Both of the private Alfas had retired early, the Pilette/Biscaldi car with a blown-up engine and that of Gosselin/Trosch after grounding through an oil pipe on the banking and leaving a long trail of oil.

Porsche redeem themselves in the Targa Florio

As he lacked a suitable car for the arduous conditions of the Targa Florio, John Wyer decided to give the Sicilian race a miss. So it was the Autodelta team of Alfa Romeos that provided the strongest opposi-

tion to Porsche. From Zuffenhausen came a total of four superbly prepared 907 8-cylinder cars driven by Hans Herrmann/Jochen Neerspasch (blue nose panel), Jo Siffert/Rolf Stommelen (green panel), Vic Elford/Umberto Maglioli (yellow panel and with a hole in the roof to accommodate the tall Maglioli) and Lodovico Scarfiotti/Gerhard Mitter (orange panel). Veteran Italian driver Maglioli had been included in the team for this one race because of his vast experience of the Targa Florio which he had won in 1953 with a solo drive in a Lancia and in 1956 co-driving an RS Porsche with von Hanstein. In addition to the works cars a total of four 910s were privately entered in 2-litre class.

The Alfa contribution consisted of a 2.5-litre Alfa Tipo 33/2 driven by Nino Vaccarella (winner of the race in 1965) and Udo Schütz and three 2-litre cars driven by Giancarlo Baghetti/Gianpiero Biscaldi, Lucien Bianchi/Mario Casoni and 'Nanni' Galli/Ignazio Giunti. Like the works Porsche entries, the Autodelta cars had differently coloured nose patches for identification purposes, whereas the cars of the V.D.S. team driven Teddy Pilette/Rob Slotemaker and Taf Gosselin/Serge Trosch had differently coloured right-hand front wings. At this race the Autodelta cars (but not those of the V.D.S team) had the oil radiators in the nose with a duct sunk into the bodywork and the hot air released through the wheel arches.

Official practice on the Friday was enlivened by a dust-up between Vaccarella and Scarfiotti. The 907 caught up the Alfa and when Nino displayed a distinct reluctance to move over and let the faster car pass, 'Lulu' decided to shunt the Tipo 33 out of his way. Unfortunately, the Sicilian came out of the set-to on top and it was Scarfiotti who disappeared among the trees. As a result of this accident the Porsche mechanics had to put in some hard work to bring the spare car up to race standard. Shortly after this incident Vic Elford stopped to see if his team-mate was all right—and on this lap, from a standing start, Elford's time was 36 min 47.7 sec, over ten seconds faster than Herbert Müller's lap record set in the 1967 race with a Ferrari P3/4.

At the start the cars left at twenty-second intervals and first away were the smallest cars of all, with the over 2-litre Prototypes leaving last. While the pit staff waited for the cars to come round at the end of the first lap—and Porsche having the advantage of short-wave radio communication with their outpost at Bivio Polizzi in the foothills of Monte Caltavuturo—one of the 907s was already in trouble. Just after Cerda, only a few miles from the start, the centre-lock nut on the right-hand rear wheel of Elford's car had worked loose; 'Quick' Vic stopped to tighten the nut with a socket spanner carried in the nose of the car and when he reached the Bivio Polizzi depot, a new wheel nut was fitted. But this was not the end of his troubles, for the new nut on the same hub worked loose again on a fast bend and because of the sudden loss of drive, Elford hit a rock with the right-hand front wheel and burst a tyre. Determination rather than natural

skill has made Elford a great driver and he had no intention of throwing in the towel so early in the race. He fitted the spare wheel and with the tools rattling on the passenger seat made his way back to the pits. Here he found that he was not the only Porsche driver in trouble—Siffert's car was there already, the mechanics feverishly changing the right-hand front upright and hub assembly because the outer taper roller-race had seized up. By the time Elford had rejoined the race, he was eighteen minutes behind schedule, but determined to set a new lap record even if it seemed that all chance of victory was lost.

At the end of that first lap Scarfiotti led on time from Vaccarella, with the 2.5 Alfa, and Herrmann. Scarfiotti increased his lead on the second lap and Giunti was leading the 2-litre class (and holding third place overall) from the 910 of Steinemann and Lins, a works-loaned car entered in the name of the Valvoline Racing Team. David Piper, at the wheel of Paul Vestey's Ferrari 250 LM had come in very late at the end of the first lap and lost a lot of time while the mechanics replaced a broken throttle cable; half-way round his second lap the steering of this beautiful dark blue car failed and the Ferrari shot down a hillside, rolling end over end to come to rest a battered wreck.

Scarfiotti stopped to refuel and to hand over to Mitter at the end of lap 3 and as Porsche pit work was rather faster than that of the Autodelta team, the 907 gained a little more time over the 2.5 Alfa which was now driven by Schütz. On his third lap, Elford set a new record of 36 min 2.3 sec (nearly a minute faster than the old record) and instead of stopping at the end of the lap carried straight on. About fourteen kilometres after the start there was a very bad patch of loose gravel and Vaccarella had forgotten to warn Schütz about this; on his first lap at the wheel Schütz lost control at this point and smashed the Alfa into a wall. On that same lap Mitter stopped to examine the rear of the car and then pulled in at Bivio Polizzi to report that the right-hand drive-shaft rubber 'doughnut' had split, the outpost radioed the news to the pits and when Mitter came in at the end of the lap, the pit staff were all set to fit a new drive-shaft. The work was carried out so swiftly that by the end of lap 5 Mitter was still three minutes in front of the Alfa and behind Giunti/Galli came Casoni/Bianchi, Herrmann/Neerpasch, Steinemann/Lins (the 910 had been slowed by an inoperative limited slip differential) and Elford/Maglioli had risen to seventh place.

But at the end of that lap Mitter stopped at the pits yet again, complaining of a loss of power and sticking front brakes. The brake trouble was quickly cured, but the loss of power was traced to an exhaust flattened by the broken drive-shaft on the previous lap and to fit a new tail-pipe on the hot, expanded exhaust system was a slow and painful job. While the 907 was stationary in the pits, the Alfa Tipo 33s of Galli/Giunti and Casoni/Bianchi moved up into the first two places and the Herrmann/Neerpasch 907 was handling so

atrociously that there was nothing its drivers could do to answer the Alfa challenge. Although Scarliotti rejoined the race with his car, the flattened pipe had caused the engine to over-heat and damage itself and the car retired out on the circuit near the village of Cerda.

After the refuelling stops at the end of lap 7, the Casoni/Bianchi Alfa had temporarily taken the lead from team-mates Galli/Giunti, with Herrmann/Neerpasch third and the Elford/Maglioli 907 had now climbed back to fourth place. Bianchi was forced to ease back because of a loss of oil pressure on his Alfa, Giunti re-took the lead, but Elford, back at the wheel, really had the bit between his teeth, turned in two fast and consistent laps, within two seconds of each other, and by the end of lap 9 he was clearly in the lead. For all Giunti's hard driving, there was nothing he could do to hold off the determined Elford and the Steinemann/Lins Porsche had taken third place from Bianchi. Elford cruised round on the last lap to score Porsche's eighth Targa victory, but it was a near run thing and the Alfas had been very close to victory.

Galli/Giunti took second place and after the Steinemann/Lins 910 had retired on the last lap with a broken drive-shaft, the Casoni/Bianchi Alfa finished third, with Pilette/Slotemaker fifth and Baghetti/Biscaldi sixth. For Autodelta the results were very encouraging. Of the other works Porsche entries, Herrmann/Neerpasch came home in fourth place and after their long pit stop early in the race, Siffert/Stommelen climbed back through the field to finish eighteenth. With five rounds in the Sports Car Championship over, Porsche had a clear lead of 39 points to the 18 of Ford and 9 scored by Alfa Romeo.

The 908s to the fore

The first Nürburgring 1,000 Kilometres race was held over the difficult, testing 14.17-mile Nordschleife circuit in 1953 when it was won by Alberto Ascari and Giuseppe Farina at the wheel of a 4.5-litre Ferrari. An interval of three years passed before the next of the series was held, but since 1956 the race has grown in interest, importance and quality of entry until it and the Spa race are among the pre-eminent events in the Sports Car calendar and have almost eclipsed Le Mans, for so long the high spot of the racing year.

As usual a strong Porsche entry was received; for the first time the team fielded the short-tail version of the 908 and two of these cars were driven by Siffert/Elford and Mitter/Scarfiotti. Since Monza a great deal of intensive development work had been done to sort out the 3-litre cars and although the Siffert/Elford car was plagued by fuel injection trouble in practice, the 908s were generally running well. To back up these faster cars Porsche entered two of the familiar 2.2.-litre 907s for Herrmann/Stommelen and Neerpasch/Buzzetta. As these cars had a rather better fuel consumption than their larger capacity stable-mates, there was every chance that they would be very much in the hunt. Four 910s were entered privately and once

again the most competitive was that of Steinemann/Spoerry, running at this race under the Hart Ski banner.

Facing the Porsche onslaught were the usual two cars from the Gulf team and entries from the Alan Mann, Alpine and Alfa Romeo teams. Alan Mann Racing had sent along two of the P68 coupés and these were in almost identical trim to the car raced at Brands Hatch. A newly built car was entered for Pedro Rodriguez and Chris Irwin, while the second car (i.e. the Brands runner) was driven by Frank Gardner and Richard Attwood. Alpine brought along two cars, a new A-220 to be driven by Mauro Bianchi and Henri Grandsire and the older A-211 model in the hands of Gerard Larrousse and Patrick Depailler. The Autodelta cars were entered in the name of Alfa Romeo Deutschland and the team had brought along two 2.5-litre cars and two with 2-litre engines. Eventually Chiti decided to scratch one of the 2.5s and the sole starter was driven by Udo Schütz/Lucien Bianchi; the 2-litre cars were handled by Vaccarella/Schültze and Galli/Giunti.

Since Monza the John Wyer team had welded wire along the exhausts of its GT40s to strengthen them, the ride height had been increased to suit the 'Ring and larger oil radiators were fitted. Because Brian Redman had not driven at the circuit previously, it was decided to pair Paul Hawkins with Ickx—thereby, it was hoped, ensuring the best chance of victory—and Redman with David Hobbs. Through-out practice on both the Friday and Saturday rain fell for much of the time, the track was never dry and it was not possible for David Yorke to judge whether the team arrangements were satisfactory. In the race, however, it became clear that Redman had learnt the Nürburgring very rapidly, while Hawkins could not maintain the pace set by Ickx. If (and there are always plenty of ifs in motor racing) the usual driver pairings had been retained, it is possible that Gulf would have won the race. Another very competitive Ford in the race was the Strathaven car driven by David Piper and Mike Salmon.

In such atrocious conditions, with hail falling at times, practice was a thoroughly miserable affair, made even more miserable by two bad accidents and several less serious prangs. On the Friday Irwin was out with his P68 and having turned in a really fast lap of 8 min 40.4 sec on a damp track, the car went out of control at the bump at the Flugplatz and rolled over and over, finally coming to rest in a ditch with the engine still running. Poor Chris Irwin suffered terrible head injuries, but thanks to speedy medical attention and an emergency brain operation at Bonn hospital, he recovered from the accident, though he has never again raced. Another bad accident wrote off the latest Alpine A-220. With Grandsire driving, the car took off on the bump on the straight, and smashed itself to pieces, the wreckage spread for a hundred yards down the track. By some miracle Grandsire escaped unscathed apart from cuts on the arms and legs. Herrmann/Stommelen were fastest in practice in 8 min 32.8 sec with Ickx five seconds slower. Although the time was almost certainly set

by Siffert while he was waiting for his own car to be sorted out, third fastest practice lap was credited to the 908 of Mitter and Scarfiotti.

Race morning dawned wet and grey, but the track had almost completely dried out by the start. At the end of the first lap the 908s of Mitter and Siffert sandwiched the 2.5 Alfa of Schütz which was going magnificently. Jackie Ickx had been slow away at the start because of time lost in fastening his safety harness and at the end of the first lap he was in seventh place. Already Attwood was in trouble with the P68 and he came straight into the pits. The right-hand front brake caliper had fallen off complete with the pads. After a delay the car rejoined the race, but on the second lap the driver's door blew open and the air pressure distorted it and in addition a rear tyre punctured. After losing a lap in the pits, Attwood went out to do battle again, but the car finally expired out on the circuit with engine failure.

By the end of lap 3 an apparent Porsche superiority had asserted itself and the 908s of Siffert and Mitter led the 907s of Herrmann and Neerpasch with Ickx fifth and Schütz sixth. These positions remained unchanged until lap 6 when Mitter stopped at the North curve behind the pits, examined the front suspension and then carried on. By the end of the lap he had dropped to fifth place and he came into the pits to complain that the car darted sideways every time the brakes were applied. After work on the suspension the car rejoined the race several laps in arrears, but the trouble persisted, the car stopped again, more suspension parts were changed without noticeable improvement and the car was eventually retired with a suspected broken chassis.

Ickx passed Herrmann to take second place, but he was unable to make any impression on Siffert who was motoring faster and faster and on lap 9 set a new Prototype record of 8 min 33.0 sec. Although the 2-litre Alfas were running well, Schütz had brought the 2.5 in with a mis-firing engine, a new battery was fitted, but soon the trouble started again, another battery was substituted and eventually the trouble was traced to a faulty alternator which was changed. After these delays the Autodelta entry began to motor really well again and spent the remainder of the race picking up places. When all the first refuelling stops had been completed, Elford (relieving Siffert) led from Stommelen (relieving Herrmann) ahead of Hawkins (who had replaced Ickx). The Galli/Giunti Alfa was in fourth place and American Jo Buzzetta who had taken over from Neerpasch lay fifth. After a poor start the Hobbs/Redman Ford, now with the Lancashire driver at the wheel, was in eighth place and Redman was lapping faster than either Hobbs or Hawkins.

As the race drew on to half-distance Elford led Stommelen by the best part of a minute, Hawkins in third place had dropped to around four minutes behind the leader and Buzzetta with the fourth-place 907 was getting closer and closer. The Galli/Giunti Alfa was now fifth, but still on the same lap as the leader. When Hawkins, still losing

ground was called in prematurely for Ickx to take over, the Gulf Ford lost its third place to Buzzetta, but regained it when Buzzetta made his stop to hand over to Neerpasch. Although Ickx strived hard in the closing laps of the race to come to grips with the 907 of Herrmann and Stommelen, it was to no avail. At the chequered flag the 908 of Siffert and Elford, which had combined a completely trouble-free run with an impressive speed, was three minutes ahead of the 907 which in turn led the Ickx/Hawkins Ford across the line by the comfortable margin of fifty seconds. Fourth place went to the Neerpasch/Buzzetta 907 and the second GT40 of Hobbs and Redman was a poor sixth. Particularly impressive were the Alfas; Galli/Giunti retained their fifth place to the finish, the 2.5-litre car of Schütz/Bianchi had climbed back to seventh place and Schültze/Vaccarella finished tenth. The sole Alpine to start the race was a rather hopeless ninth, three laps behind the winner.

Gulf supreme at Spa

Held only a week after the Nürburgring race and the same day as the Monaco Grand Prix, the Spa race attracted one of the strongest and most varied entries seen so far in 1968. From Porsche came a total of four cars, but only three were entered. There had been some doubt as to whether the long or short-tail version of the 908 would be best suited to the Circuit National de Francorchamps. Practice soon revealed the long-tail car to be very unstable through the bends and so this was not raced. Short-tail 908s were driven by Herrmann/Stommelen and Neerpasch/Elford and a short-tail 907 by Mitter/Jo Schlessler. In practice Porsche also tried—and abandoned—rear spoilers. Because of the Monaco race neither Scarfiotti nor Siffert was available to drive at Spa and as at earlier races in the season team manager Huschke von Hanstein was conspicuous by his absence.

There were four other 3-litre Prototype marques at Spa and, interesting though they were, it was unlikely that any could provide much in the way of opposition to the Porsche team. The surviving Ford P68 from the Nürburgring was entered and because Attwood was busy driving for B.R.M. at Monaco, Frank Gardner was partnered by German driver Hubert Hahne. Likewise Alpine brought along their Nürburgring survivor, the A-211, which was driven by Mauro Bianchi and Henri Grandsire (who still had one hand bandaged). From Matra came the first of the MS630 coupés with the new V-12 engine and this was driven by Pescarolo and young French driver Mieuisset. Like other teams, Matra suffered because of Monaco where both Beltoise and Servoz-Gavin were driving Formula One cars. In practice the Matra ran with a very tired hack engine that had been used for testing, but a new unit was substituted for race day. Finally, and arriving only on the Saturday was the new Repco-engined Marcos Mantis. Originally Formula Two exponent Robin Widdows had been nominated to drive the Marcos with constructor Jim Marsh, but as the car had been only tested briefly at Castle Combe

and Goodwood, he thought that it was too untried for a circuit as difficult as Spa and his place was taken by GT40 owner Ed Nelson.

For the first time one of the John Wyer GT40s was fitted with the 4.9-litre engine which possessed better torque and flexibility, but was no more powerful than the 4.7 engine; apart from the fact that the car was bump-steering badly over Spa's weather-eroded surface, Hobbs and Hawkins thought that the bigger unit was down on power and so the usual 4.7-litre job was substituted for the race. It was lucky for Wyer that Ferrari had not entered the Monaco race and Ickx was free to share a car with Redman as usual. The Hobbs/Hawkins GT40 was a brand new car—their usual ex-Mirage was being overhauled. Out of seven other GT40s entered the most competitive were the Strathaven car shared by Piper and Salmon and the yellow-painted Ecurie Francorchamps car driven by 'Beurlys' and former Scuderia Ferrari team member Willy Mairesse.

Although there seemed little likelihood of it lasting the race, the times put up in practice by the P68 with Frank Gardner at the wheel were incredibly quick and not even Ickx could match the Australian's speed:

1. F. Gardner/H. Hahne (Ford P68)	3 min 36.3 sec (144.04 mph)
2. J. Ickx/B. Redman (Ford GT40)	3 min 40.3 sec
3. W. Mairesse/'Beurlys' (Ford GT40)	3 min 43.7 sec
4. V. Elford/J. Neerpasch (Porsche 908)	3 min 44.7 sec
5. H. Herrmann/R. Stommelen (Porsche 908)	3 min 45.7 sec
6. G. Mitter/J. Schlessler (Porsche 907)	3 min 48.7 sec
7. H. Pescarolo/Mieusset (Matra MS630)	3 min 48.9 sec
8. P. Hawkins/D. Hobbs (Ford GT40)	3 min 50.9 sec
9. M. Salmon/D. Piper (Ford GT40)	3 min 51.1 sec
10. G. Koch/R. Lins (Porsche 910)	3 min 59.1 sec

It was so very typical of the Ardennes climate that Sunday should dawn wet and stay wet and at the time of the start heavy rain was still falling. In these conditions there were only two drivers who were truly happy, local Belgians Jackie Ickx and Willy Mairesse, both of whom knew the circuit intimately. But despite these atrocious conditions the thirty-seven starters were not allowed to do a warming up lap because, said the organizers, the drivers could see perfectly well what the conditions were like and the marshalls, already stationed round the course, would not know what was happening.

While some drivers—with good reason—'pussy-footed' away at the start, Ickx surged through the spray with tremendous élan and by the end of the first 8.716-mile lap had already pulled out a lead of several hundred yards over Elford, Mitter and Herrmann, with Hawkins in fifth place with the other Gulf GT40 and German driver Karl von Wendt an incredible sixth with his Porsche *Carrera 6* Sports Car. While the Fords and the Porsches, their electrics well coated with jelly to keep the rain out, motored on happily, one by

one all the new Prototypes stopped at the pits with their electrics thoroughly soaked. The Ford P68 came in at the end of lap 1 in tenth place, and after a futile attempt to dry out the engine, it was pushed away into retirement. The Matra stopped with the same trouble and both the Alpine and the Marcos came in to sort out wiper blade problems. After the Matra had been dried out, the starter refused to operate and the soaked mechanics crawled under the car to change the unit.

On lap 3 as Elford approached la Source hairpin, the throttle linkage broke on the 908 and Vic made his way back to the pits on tick-over. By the time the 908 had been repaired, Elford had dropped right down the field to twentieth place. Hawkins made a very quick pit stop to replace the wiper blade and arm assembly which had fallen off and the Alpine eventually got away after having its wiper motor replaced. Ickx was steadily drawing away from the rest of the field, by the end of lap 4 he had pulled out a lead of 1 min 29 sec over the 907 of Mitter and by the end of lap 12 he had lapped the entire field apart from Mitter and Herrmann. By the end of lap 21 the young Belgian had lapped the two German cars and already there was a feeling of elation in the Gulf pit. After a string of pit stops, including one to have a hole cut in the floor to let the water run out, the Marcos retired after a total of thirteen intermittent laps, with oil leaks and alternator trouble. The two V.D.S. Alfas were running well—while they were going—but like so many other cars were having to stop so often to dry out the electrics.

Despite the terrible conditions in which the race was run, the first crash did not come until Mike Salmon rolled the Strathaven Ford at Eau Rouge, fortunately escaping without injury. On lap 25 Ickx stopped to refuel and to hand over to Redman who rejoined the race without losing the lead. Schlessler took over the second-place 907 from Mitter, Stommelen the third-place 908 from Herrmann and Elford, bringing his 908 through to fourth place ahead of Hawkins, then handed over to Neerpasch. By lap 34 Redman caught the slower Gulf car, now with Hobbs at the wheel, for the second time and as the two blue and orange GT40s lapped in convoy they came up behind Neerpasch with the 908. Seeing the Fords in his mirror, Neerpasch strived to hold off Hobbs and as the 908 came out of Malmedy and on to the Masta straight, it suddenly went into a vicious spin. On the streaming wet road the white coupé spun round and round for nearly a quarter of a mile with Hobbs trying to avoid Neerpasch and Redman trying to keep clear of Hobbs; eventually the Porsche went off the road, bouncing off banks and markers until it came to rest, a shattered wreck, the driver injured, but nowhere as badly as might be expected after such a lurid accident.

While the Fords lumbered round in first and fourth places, another GT40 was rapidly making up ground after a poor start and now 'Beurlys' brought the Francorchamps car through into fifth place. Then the Belgian driver lost control at Blanchimont on the run back

to the pits area, the big Ford spun into the ditch and collided with a saloon car left there from the Coupe de Spa, the race preceding the main event of the day. The Ford was badly damaged and 'Beurlys' suffered a broken arm. Ickx took over from Redman for the final 25 laps of the race and Hobbs handed over to Hawkins. Although the second-string Gulf car made it to the finish, the oil pressure was falling and seven laps from the finish Hawkins stopped to complain about failing brakes. There was nothing that could be done and he rejoined the race with instructions to carry on as best he could. As the circuit at long last dried out, banks of steam rising from the trees, Ickx took the chequered flag, a clear lap ahead of the 907 Porsche of Mitter and Schlessler; Herrmann/Stommelen took third place with their 908 and the ailing Ford of Hawkins/Hobbs managed to retain fourth place. That so consistent pair, Steinemann/Spoerry, finished fifth and gained a class win with their Hart Ski 910. In this race the Porsche team had been beaten fair and square by the speed of the Ford GT40 in the wet and the outcome of the Sports Car Championship was still very open.

First race at Watkins Glen

The postponement of the Le Mans race until the end of September because of strikes in France meant that the eighth round in the Championship was a new addition to the series, the Watkins Glen Six Hours race on 14th July, and the interval between races meant that several teams competed that otherwise would not have bothered to cross the Atlantic.

From Porsche came four short-tail 908s driven by Siffert/Elford, Herrmann/Attwood, American private Porsche driver Scooter Patrick and Tetsu Ikuzawa (a successful Japanese driver) and Americans Buzzetta/Follmer. Since the cars' last appearance an air scoop had been added on top of the left-hand front wing to cool the oil cooler mounted behind the road wheel on that side. Rear stabilizer flaps, as used on the 907 *Berg*, were fitted for this race; these were pivoted on rods attached to the body above and behind the rear suspension and each was linked to the lower suspension arm by a short, horizontal arm and a long, vertical rod. The stabilizers were raised at an angle of 35 degrees along the straights (in which position they acted purely as spoilers) and on corners the stabilizer above the outside rear wheel was raised so that air pressure on this flap was increased and the stabilizer above the outside rear wheel lowered so as to reduce pressure on that side. Vic Elford, who was now unofficial number two driver in the Porsche team, said that although the stabilizers were no use at all on slow bends, they probably did some good on fast, sweeping bends. In practice the Porsche drivers tried out the ice-cooled underwear used at Sebring but this gave trouble and was not used in the race.

From Gulf came two GT40s as usual, but these were both fitted with 4,942 cc engines having the usual Gurney-Weslake cylinder

heads. The Fords were driven by Belgians Jackie Ickx and Lucien Bianchi and Hobbs/Hawkins, the latter pair once again having the ex-Mirage. Brian Redman was out of the team because of his crash with a Cooper-B.R.M. at Spa. The only Lola entered was Bonnier's which he was down to share with Sten Axellson, but for no apparent reason Chuck Parsons took over as co-driver on race day, although he had not practised. For the first time the Howmet team entered both of the TX gas-turbine cars and these were driven by designer Ray Heppenstall/Dick Thompson and Hugh Dibley/Bob Tullius. Making its International debut in the hands of owner John Woolfe and David Piper was the Chevron-Repco. No works Alfas were entered, but a single private 33/2 was driven by Kwech/Martino, and Chinetti entered a N.A.R.T. Dino for Ricardo Rodriguez (no relation to Pedro) and Kolb.

In hot, humid conditions, practice was dominated by the 908s and the Gulf GT40s. During the first of the three sessions Siffert took pole position for Zuffenhausen with a time of 1 min 10.2 sec (117.95 mph) and Ickx joined him on the front row of the two-by-two grid with a time of 1 min 10.8 sec. The remaining cars of the Porsche team took the next three places on the grid and, according to the official timekeepers, the Bonnier Lola was sixth fastest in 1 min 12.4 sec. This was rather suspect as both Hawkins and Hobbs had been timed by the Gulf pit at under 1 min 12 sec—and when one time is suspect, so are they all. The Howmets were surprisingly troublefree in practice, but not conspicuously fast, taking eighth and ninth places on the grid with times of 1 min 13.6 sec and 1 min 14.6 sec. Despite a crash in practice, which necessitated a front suspension rebuild, the Chevron was tenth fastest in 1 min 16.95 sec.

The weather was still close and humid when the rather small field of 28 starters lined up for the rolling start. Ickx took the lead initially, but he was passed on the first lap by Siffert and the other 908s were in third, fourth and fifth places with the first of the Howmets lying sixth. Siffert managed to hold Ickx off for twelve laps, then the pale blue and orange Ford thundered into the lead, but only by the narrowest of margins. A lap later Follmer missed a gear on his 908, the revs soared, the engine broke and the car was out of the race. Two other retirements followed in quick succession; the private Alfa Tipo 33 blew up its engine—something that the works drivers rarely achieved—and the Chevron-Repco was eliminated after pumping out all its water through a blown cylinder head gasket, a trouble that plagued this car throughout its short career.

After a poor start Bonnier began to make up ground with his Lola and with half an hour's racing behind him he was in fourth place ahead of the second Gulf car with Hobbs at the wheel. Herrmann's Porsche was running raggedly and fell back to seventh place. Siffert was still struggling to re-take the lead from Ickx and on lap 37 he eventually managed to get past. The Porsche lead was short-lived, two laps later Ickx was in front again, from this point onwards the

Porsche challenge gradually faded and the Fords began to command the race.

Just as the first hour came up, Siffert brought the second-place 908 into the pits with front wheel bearing failure and while the mechanics were changing the bearing, Herrmann stopped with alternator trouble and Patrick arrived at the pits to stagger out of the car overcome by heat. With three cars stationary in the pits, the Porsche team was in a state of complete confusion. Attwood was sent out in Patrick's car and it was decided that Ikuzawa should partner Herrmann. Next in trouble was Elford, another victim of bearing failure, and the British driver attributed these failures to the fact that there was a bump slap in the middle of one of the fastest corners which threw an excessive strain on the left-hand front wheel. The car that was originally entered for Herrmann/Attwood, but was now being driven by Herrmann, Ikuzawa and Siffert, had its run interrupted by a series of pit stops for battery changes and to sort out throttle linkage trouble.

When Bonnier's fast Lola lost the use of all gears except top, the race as such was over, the Hawkins/Hobbs Ford held a comfortable, safe, second place behind its stable-mate and the steadily running Howmets were third and fourth. Although the oil pressure on the leading Ford was falling off badly on corners, the second of the two cars was signalled to hold station and did so until Bianchi came into the pits because of a puncture. When Ickx took the wheel again, he raised the pace considerably, setting fastest lap of the race at 116.48 mph, putting himself back on the same lap as the Hawkins/Hobbs car and re-taking the lead half-an-hour before the finish. Of the Howmets, the Thompson/Heppenstall car survived until the chequered flag despite a stop to change the starter and voltage regulator, and the Dibley/Tullius car came into the pits with differential failure only 45 minutes before the finish; a repair was bodged and this TX eventually rejoined the race to finish twelfth.

With the Fords first and second, the Porsche team had been soundly trounced and the sole surviving 908, the Herrmann/Ikuzawa/Siffert car, was a rather hopeless sixth. Zuffenhausen still led the Sports Car Championship with 42 points to Slough's 40 and as the Austrian race was a 500-kilometre event counting only for half-points, the outcome would not be known until after Le Mans.

A dull Zeltweg

Held on the bleak, bumpy, unattractive Zeltweg airfield circuit, the Austrian race was a dull Porsche procession. Both Alan Mann Racing and the John Wyer team withdrew from the race, the former because the P68 was still not considered raceworthy and the latter so that all the team's resources could be concentrated on Le Mans. So the only really competitive cars came from Porsche who entered four short-tail 908 coupés for Siffert, Elford, Herrmann (but Formula Two driver Kurt Ahrens was also to be given a go at the wheel of this car) and Neerpasch who was to be relieved by Austrian Rudi Lins.

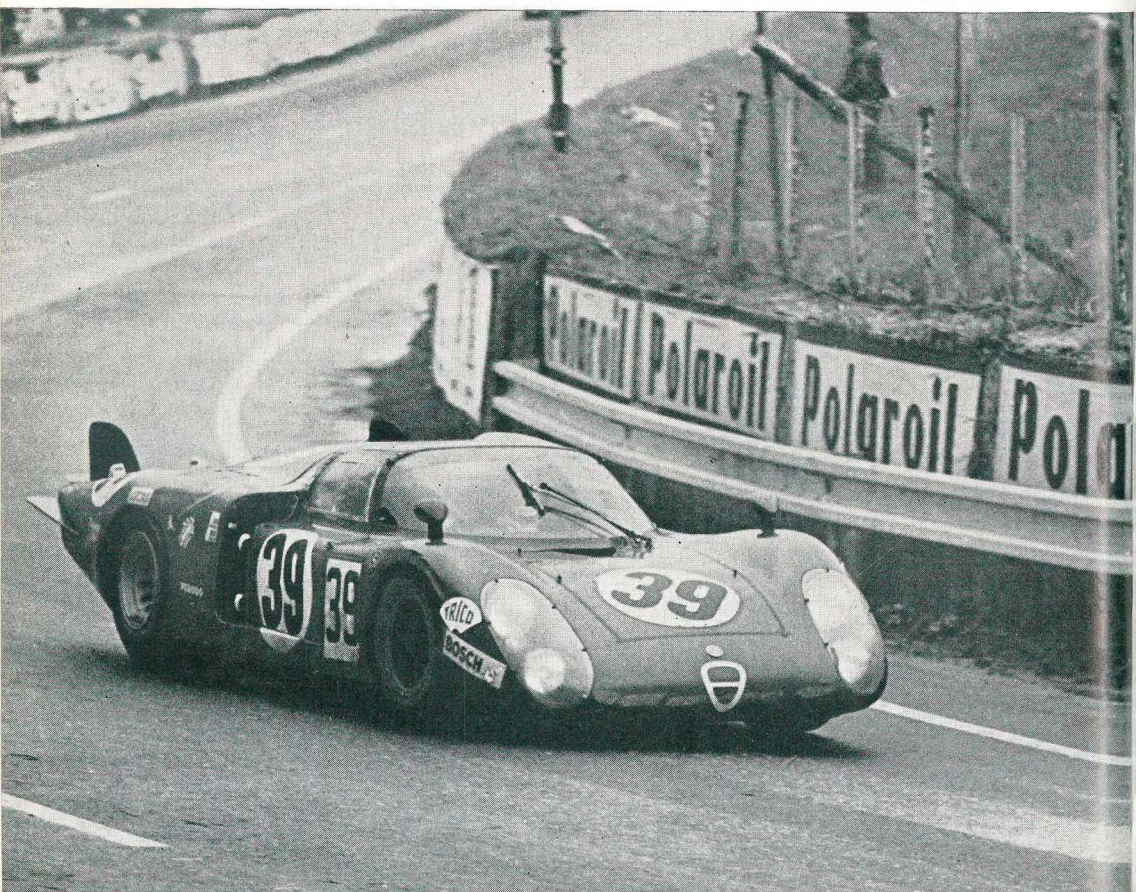
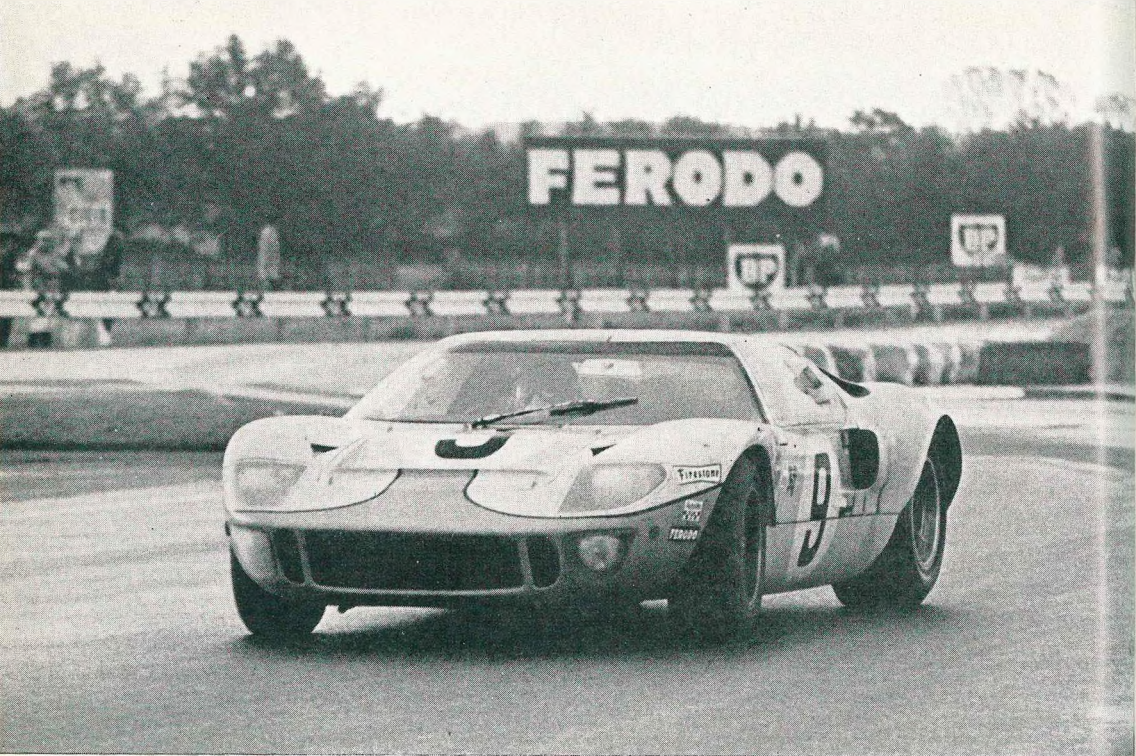
For this race the 908s appeared with larger wheel bearings packed with a special grease. A single Alpine A-220 (a brand new car, chassis no 1731) was entered by the Dieppe team for Mauro Bianchi. Paul Hawkins fielded his red Ford, Bonnier was at the wheel of his Lola and of the two V.D.S. Alfas, Pilette's car was fitted with a 2,500 cc engine. Because of the short distance over which the race was held, no co-driver was necessary and only used in a very few cars. Practice was dominated by the 908s, but the three fastest cars were joined on the front row of the grid by Bianchi's Alpine, while Neerpasch, mainly because of time wasted while the alternator was changed, was back on the third row of the grid.

When the flag fell at the start, it was surprisingly enough Bianchi who was away first, but by the end of the first lap Elford and Herrmann were running in close company, with Siffert a little way back in third place after a bad start. On lap 7 Siffert swept into the lead, but Neerpasch was trailing behind Bonnier and Hawkins. Once again Porsche's strongest opponents were to prove to be their own mechanical weaknesses. Elford was forced to stop because the control rod between the slide rod and the injection unit broke. The car eventually rejoined the race, but had to stop again with the same trouble. Siffert and Herrmann appeared unassailable in the first two places, Bonnier had no hope of catching them and was having to fight hard to hold off Hawkins with the red Ford. Quite clearly all was not well with the engine of Neerpasch's 908 and he was passed by Bianchi and Pilette. It was not long before the throttle linkage broke on the trailing 908. Neerpasch repaired it with a piece of wire and made his way back to the pits. By the time a proper repair had been completed this 908 was even further behind than Elford's.

For the remainder of this race the first three places were unchanged, while lower down the field there was retirement after retirement. Pilette moved up into fourth place when Bianchi brought the badly smoking Alpine into the pits—the trouble was traced to a leaking union between the engine and the oil tank and after an abortive effort to cure the trouble, the car was pushed away into retirement. At half-distance Siffert stopped to refuel, allowing Herrmann to move into the lead, but when Herrmann stopped to refuel and to hand over to Ahrens, 'Seppi' went in front again. On the same lap that Hawkins brought his Ford into the pits to refuel, a petrol-soaked Bonnier came in with his Lola. The trouble was a split fuel bag and Jo, wisely deciding that the money to be earned for

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- 5 An interesting British project was the Marcos Mantis with 3-litre Repco V-8 engine, but its only race was at Spa in 1968 where it was plagued by wet electrics. (*Motor Sport*).
 - 6 After the works 908s ran into mechanical troubles, this long-tail Porsche 907 driven by Steinemann and Spoerry and entered by Squadra Tartaruga took second place at Le Mans in 1968. (*Nigel Snowdon*).





a class 'second' did not justify the discomfort, retired the T70. When Rudi Lins relieved Neerpasch, his lap times were only too obviously much slower than those of his team-mates, he spun at the hairpin bend and after the throttle linkage again broke, it was decided to retire this 908.

After 157 laps of rather dull racing the two leading 908s crossed the line just over twelve seconds apart, Hawkins took a fine third place for Ford despite oil surge problems in the latter stages of the race and Pilette's fourth place was the best that the V.D.S. team achieved in 1968. At the finish Elford had risen to eighth place. A cursory glance at the tachometer 'tell-tales' of the 908s after the race revealed that both Siffert's and Elford's cars had been taken up to 9,100 rpm (the red-line marked on the tachometer was at 8,500 rpm), while the Herrmann/Ahrens car had soared up to 10,500 rpm without apparent harm!

Before the final clash of the Porsche and Gulf teams at Le Mans, there were a couple of minor races that brought some consolation for teams that had been over-shadowed in the season's major races. Although victory in the Preis der Nationen at Hockenheim went to Herrmann with a works 908, David Piper, whose 4.4-litre Ferrari P3/4 Prototype was no longer eligible for Championship events, came home in second place and might have won had the aluminium rear spoiler not come adrift. Paul Hawkins finished third and Pilette with the 2.5-litre Alfa of the V.D.S. team was again fourth. The same weekend was held the 500-kilometre Shell Cup race at Imola and here the works Tipo 33/2s took the first three places. The opposition was negligible, but this victory and the team's win in the Circuit of Mugello the previous month gave Chiti and the boys at Autodelta some much-needed encouragement.

Climax to the season—Le Mans

The postponement of the Le Mans race until 28th-29th September gave the teams an opportunity to have a rest between races and left plenty of time for full and adequate preparation of the cars. While the John Wyer team concentrated on getting right all those little details that are essential to long-distance reliability, Porsche worked unceasingly to iron out the many major problems that had plagued the still very new 908s. There is always mist in the morning at Le Mans and the likelihood of this lasting for a much longer period than

7 At Le Mans in 1968 this John Wyer-entered Ford GT40, seen here at the new Ford Chicane, was driven to a brilliant victory by Pedro Rodriguez and Lucien Bianchi. (*Nigel Snowdon*).

8 The 2-litre Alfa Romeo 33/2s ran with speed and consistency in the 1968 Le Mans race. The car shown here was driven by Ignazio Giunti and 'Nanni' Galli and finished fourth overall. Note the long-tail bodywork used at the Sarthe circuit. (*Nigel Snowdon*).

in June was one of the biggest worries that faced drivers. In addition the night was much longer and there would be a much greater strain on electrical systems. For this reason the Automobile Club de l'Ouest, the race organizers, took the unprecedented step of allowing a battery change during the race. Another innovation was to bring the start forward until 3 pm (it is usually at 4 pm) and the main advantage of this was that it would allow the crowds to disperse from the circuit after the race before darkness fell.

The Entry

Porsche—works cars entered by Porsche System Engineering: A total of four 908 long-tail coupés with twin fixed vertical rear fins, a fixed aerofoil and suspension-operated rear flaps as at Watkins Glen and Zeltweg. These cars had the enlarged 2,996 cc engine, the selector gear forks in the gearbox were made from a different alloy and all the cars were new ones built for the race. They were driven by Siffert/Herrmann, Mitter/Elford, Neerpasch/Stommelen and the American pair Buzzetta/Patrick. At this race von Hanstein was again in charge of Porsche affairs.

Porsche—private cars prepared at the works and works-assisted: Almost indistinguishable in appearance from the 908s, three of the 2.2-litre flat-8 907s with long-tail bodies and having rear fins and a fixed aerofoil (not adjustable flaps) were entered. These cars had 5-speed gearboxes (6-speed on the 908s) and 13-inch wheels (15-inch on the 908s). Although entered in the names of private teams, the works regarded these as 'back-up' cars should the 908s fail. They were entered and driven as follows:

Squadra Tartaruga: drivers Rico Steinemann and Dieter Spoerry

Alex Soler-Roig: drivers Soler-Roig and Rudi Lins

Philippe Farjon: drivers Robert Buchet and Herbert Linge

In addition a 910, a *Carrera 6* and four 911Ts (running in the Group 3 GT class) had been entered by private owners.

Ford—GT40 cars entered by J. W. Automotive Engineering Ltd: For this race Wyer fielded three blue and orange GT40s, all with 4,942 cc engines. Two of the cars had Sullivan profile flat-tappet camshafts and all three were running with Gurney-Weslake heads and on carburettors. All three engines had run for 24 hours on the test-bed with simulated gear-changes and braking and they were said to be developing around 415 bhp. For this race a special 'dry-deck' version of the Ford GT40 engine was flown from Dearborn, i.e. an engine with the block water passages welded up, and this was used in the Rodriguez/Bianchi car. For this race the Wyer team set a rev limit of 6,000 rpm in the lower ratios, but 6,500 rpm was frequently used in top. Wider 10-inch front rims were fitted and the wet sumps had additional baffles to prevent surge under hard braking. With the loss of Redman by his crash in the Belgian Grand Prix and now Ickx who had broken his leg in practice for the Canadian Grand Prix, the team was rather short of drivers. The pairings were arranged as

Pedro Rodriguez/Lucien Bianchi, Paul Hawkins/David Hobbs and Brian Muir/Jack Oliver. 'Yogi' Muir had driven for the Gulf team at Le Mans the previous year and Jack Oliver was the new recruit to the Formula One Lotus team.

Ford—GT40 private cars: To a certain extent backing up the Gulf team were two privately entered GT40s, both of which had been prepared at Slough. One was the Strathaven car, not raced since Salmon rolled it at Spa, and this driver was now partnered by Eric Liddell. The other car was that of Claude Dubois which was driven by ex-Ferrari man Willy Mairesse and 'Beurlys' whose real name was Jean Blaton.

It was clear that the main battle would be between the 908s and the GT40s, but there were plenty of other interesting and competitive cars entered:

Lola T70 Mk 3 coupés: two of these were accepted (although many more were entered) and these were the Sports Cars Unlimited car of Ulf Norinder, co-driven by Sten Axelsson, and Jackie Epsteins' car which was co-driven by Edward Nelson.

Howmet TX: both of the gas-turbine cars were fielded and they were driven as at Watkins Glen by Thompson/Heppenstall and Dibley/Tullius. These were geared for the Mulsanne straight (there was only the one gear) and this made it difficult for the cars to negotiate the slower corners.

Matra MS630: the V-12 version with new and neater tail was driven on its second race appearance by Johnny Servoz-Gavin and Henri Pescarolo. As the V-12 engine, developing something approaching 400 bhp, was in full Grand Prix trim it seemed very unlikely that the Matra could survive for 24 hours.

Alpine: in addition to smaller capacity Prototypes, Société des Automobiles Alpines had entered four of the 3-litre A-220 cars which were driven by Mauro Bianchi/Patrick Depailler, whose entry was sponsored by Ecurie Savin Calberson (a name virtually unknown outside France, but the company is the French equivalent of the British Pickfords haulage concern), Larrousse/Grandsire, Guichet/Jabouille and de Cortanze/Vinatier.

Chevron: the Repco-powered B12 car of John Woolfe was entered for the owner and Digby Martland.

Ferrari: for the first time in many years there was no competitive Ferrari entry. The North American Racing Team fielded their 250 LM that had won the 1965 race for Gregory/Kolb and similar cars were entered for Roy Pike/Paul Vestey, Herbert Müller/Jonathan Williams (a Filipinetti car) and David Piper/Richard Attwood. The N.A.R.T. and David Piper cars were fitted with Campagnolo magnesium-alloy wheels.

Alfa Romeo: both Autodelta and the V.D.S. team decided to run 2-litre cars only and for this race they were fitted with long tails surmounted by fins. The four Autodelta cars were driven by Spartaco

Dini/Carlo Facetti, 'Nanni' Galli/Ignazio Giunti, Giancarlo Baghetti/Nino Vaccarella, and Mario Casoni/Gianpiero Biscaldi. The V.D.S. cars were in the hands of the driver pairings, Rob Slotemaker/Teddy Pilette and Serge Trosch/Karl von Wendt.

At the Test weekend there had been complaints from the drivers that the new Ford chicane to slow the cars as they passed the pits was rather too tight and the corner had now been eased a little. One result of the chicane was that it gave the 908s a slight advantage over the Fords as their acceleration was better. Fastest in practice were:

1.	J. Siffert/H. Herrmann (Porsche 908)	3 min 35.4 sec
2.	R. Stommelen/J. Neerpasch (Porsche 908)	3 min 35.8 sec
3.	G. Mitter/V. Elford (Porsche 908)	3 min 39.3 sec
4.	P. Rodriguez/L. Bianchi (Ford GT40)	3 min 39.8 sec
5.	J. Servoz-Gavin/H. Pescarolo (Matra MS630)	3 min 41.8 sec
6.	P. Hawkins/D. Hobbs (Ford GT40)	3 min 41.8 sec
7.	J. Buzzetta/S. Patrick (Porsche 908)	3 min 43.2 sec
8.	M. Bianchi/P. Depailler (Alpine A-220)	3 min 43.4 sec
9.	B. Muir/J. Oliver (Ford GT40)	3 min 44.6 sec
10.	G. Mairesse/'Beurlys' (Ford GT40)	3 min 49.8 sec

Heavy rain fell before the start of the race and the track was still wet when the flag was lowered. First away was Casoni's Alfa, but the three fastest 908s, wagging their long tails as they slid on the rain-soaked surface, moved off together and by the time the field had reached the Dunlop bridge just round the first bend after the start Stommelen led from Siffert and Mitter. While the hares of the race, the Porsche 908s roared into the distance, setting the pace, the tortoises, the Fords which would run to a tightly planned schedule, were away slowly as their drivers did up their seat harnesses before moving off. One leading contender was eliminated on that very first lap. Mairesse had made an excellent start with the Dubois Ford, but he failed to shut the driver's door properly and this blew open on the Mulsanne straight. Travelling at over 150 mph, Mairesse struggled to shut the door, lost control and the car disappeared off the track and into the trees. The car was a complete write-off, but Mairesse was lucky to escape with cuts and bruises. The Matra stopped at the end of the first lap for attention to the wipers. Another retirement came on lap 7 when the engine of the Alfa driven by Trosch blew up at White House.

Siffert had taken the lead on lap 4, three laps later Rodriguez pushed his Ford through into fourth place ahead of Buzzetta and then on the next lap Hawkins brought his Ford in with a badly chunked rear tyre. Dry-weather tyres were fitted to all four wheels and after another two laps Rodriguez was brought in to have his tyres changed. Of the Fords, only Muir was now on the same lap as the leading 908s, but on lap 12 the Australian found himself in difficulties while braking for Mulsanne corner and embedded his GT40 in a sand-

bank. Muir struggled to reverse the car out and then began to dig it out. No help is allowed in these circumstances and it took Muir nearly three hours before he could drive the car back to the pits. The car was likely to be disqualified under the minimum distance rule and, in any case, constant reversing had badly weakened the clutch. Oliver took it out for a few laps, but it was soon retired. Muir has not again driven for the Wyer team!

At the end of the first hour the 908s were in the first four places, Guichet's Alpine was fifth ahead of the Alfa of Giunti and the Fords, after their stops, were tenth and seventeenth. Soon both the Howmets were in trouble. Dibley brought his car in with rear hub bearing failure and to change this was a three-hour job that entailed stripping the rear suspension completely. The Thompson/Heppenstall car had a faulty fuel control which meant that power was some 30 per cent down and it had difficulty in exceeding 100 mph on the Mulsanne straight! The one consolation was that this fault reduced fuel consumption and thereby cut down on the twenty-eight refuelling stops that it was reckoned the car would have to make. With barely two hours' racing over the Chevron-Repcos was out with cylinder head gasket failure.

Already cracks were beginning to show in the Porsche onslaught. Although Siffert/Herrmann and Mitter/Elford was still in first and second places after two hours' racing, Rodriguez/Bianchi and Hawkins/Hobbs were now holding third and fourth places ahead of the Buzzetta/Patrick 908 which had made a rather lengthy pit stop. The Stommelen/Neerpasch car had dropped right back to thirteenth place after a stop to sort out trouble with the engine fan. Behind the leading quintet came two of the Alpines, the Galli/Giunti Alfa and the Matra. The Buzzetta/Patrick 908 pulled ahead of the Fords again and it led the Mitter/Elford car which had lost time in the pits while the alternator drive belt was replaced. After a routine pit stop the Guichet/Jabouille Alpine refused to start, lost its sixth place and eventually rejoined at the tail of the field.

The first really serious trouble came in the fourth hour when the race leader disappeared off the charts and 'Seppi' walked in to tell the Porsche pit that either the clutch or the gearbox had failed. At once a mechanic was dispatched to have a look at the car and diagnose the trouble—it proved to be clutch failure. The Dibley/Tullius Howmet rejoined the race, but was disqualified soon afterwards under the minimum distance rule. By 7 pm, the combination of really slick pit work and steady running had brought the Fords through to first and second places ahead of the Buzzetta/Patrick and Mitter/Elford 908s. The favourite of the very patriotic crowd, the blue Matra distinguished by a green stripe across the nose, had risen to fifth place and behind it were the Bianchi/Depailler Alpine and the Giunti/Galli Alfa. It was during this hour of the race that the brakes failed completely on Grandsire's Alpine as he was slowing off for Mulsanne corner and the car shot off the road between two trees.

By 8 pm the Hawkins/Hobbs Ford had slipped in front of its stable-mate, but less than an hour later the car was in the pits with clutch trouble. At once the mechanics started to remove the gearbox and after eighty minutes of hard work the car rejoined the race. When the Rodriguez/Bianchi Ford pulled out of the pits at 9 pm after a longer than average pit stop, it had dropped back to second place behind the Buzzetta/Patrick 908 with the similar 908 of Mitter/Elford third. Both of these 908s had stopped to have the headlamps adjusted and there was a great deal of anxiety in the Porsche pit about the third-place car as it was constantly needing alternator belt replacements. The Matra had now risen to fourth place ahead of a pack of Alfas. Just before ten o'clock Thompson lost control of his Howmet at Indianapolis and rolled the car out of the race.

Because of the persistent troubles with the Elford/Mitter car, von Hanstein decided to take a gamble and in contravention of the race regulations ordered a change of alternators. Similarly, on the Buchet/Linge 907 the starter motor was changed. Both of these contraventions were reported to the race stewards and despite von Hanstein's vigorous protests the two cars were disqualified. As the swings and roundabouts of pit stops affected the order of the cars, Rodriguez/Bianchi were once again in the lead and a lap ahead after seven hours' racing. Still sounding very healthy, the Patrick/Buzzetta 908 held second place, the Matra was third, the Soler-Roig/Lins Porsche 907 fourth, the Galli/Giunti Alfa fifth and the Steinemann/Spoerry 907 sixth. When the Buzzetta/Patrick 908 began throwing alternator belts, French hopes soared, for the sleek blue Matra was now in second place. The 907s of Steinemann/Spoerry (which had made up ground) and Soler-Roig/Lins were third and fourth, trailed by a pack of four Alfas, the Autodelta cars combining reliability with a very considerable turn of speed. Down the field the Stommelen/Neerpasch 908 was galloping round to make up the time lost through its fan trouble and of the Ferrari 250 LMs, the Vestey/Pike car had been slowed by gearbox trouble, but the Müller/Williams, Piper/Attwood and Gregory/Kolb cars were twelfth, thirteenth and fourteenth. After its long pit stop, the Hawkins/Hobbs Ford had been motoring splendidly, but shortly after midnight it retired out at Mulsanne with a blown-up engine.

During the night hours the Rodriguez/Bianchi Ford pulled out an ever-increasing lead over the cars following. The Matra was still second at 1 am, four laps in arrears, the Steinemann/Spoerry 907 was third and the Galli/Giunti Alfa fourth. The Stommelen/Neerpasch 908 had now risen to eighth place. A heavy shower of rain fell at 1.45 am and although the rain did not stop, it did at least abate to a steady drizzle. It was at this point in the race that poor Bianchi spun the leading Ford at the Ford chicane in full view of team-manager David Yorke! Happily, he did not hit anything and carried straight on. The Soler-Roig/Lins 907 had been running rougher and rougher and was retired with a broken cam follower. By 2 am the

Steinemann/Spoerry 907 had dropped to fifth place because of a cracked brake disc, having been passed by both Galli/Giunti and the surviving 908. Not long afterwards the Baghetti/Vaccarella Alfa expired out on the Mulsanne straight with fuel pump trouble.

When Sylvain Garant went wide with his Chevrolet Corvette Stingray at the bend after the pits and hit the bank, the track was strewn with parts of the shattered American car and the field was reduced to walking pace; taking advantage of the delay both the Matra and the 908 stopped at the pits for wet-weather tyres to be fitted. At around 4.30 am the Matra lost its second place when it stopped at the pits with a recurrence of wiper trouble—and it seemed incredible that its 'hot' Grand Prix engine should have survived so long. The stop cost three laps while a new wiper motor was fitted. The surviving Ford now led by seven laps from the Galli/Giunti Alfa and the 908 of Stommelen/Neerpasch was only a lap behind the Matra. A spot of clutch trouble on the 908 allowed the Steinemann/Spoerry 907 to move in front again and this 2.2-litre car was being incredibly well driven. After a long spell of electrical trouble the Guichet/Jabouille Alpine was retired at around 6.30 am when the headlamps failed on the Mulsanne straight and the N.A.R.T. 250 LM was eliminated when Kolb slammed the car into a sand-bank at the Esses.

Dawn was breaking to a grey, miserable sky at around 7 am when the Matra stopped with a recurrence of its wiper trouble, but now, at long last, the rain had almost stopped. Bianchi stopped with a puncture, but was quickly back in the race, the Epstein/Nelson Lola, which had its final drive changed during the night, went out after a punctured tyre had damaged the suspension and the Salmon/Liddell Ford succumbed to gearbox trouble. The 908 stopped for new brake pads and then came back with a recurrence of its clutch trouble which took a long time to cure. By now the Matra had fought its way back to third place and was around twenty seconds behind the brilliantly driven Alfa of Galli/Giunti. Although at long last the 908 began to motor properly again, now another Porsche was in trouble, the 910 of Wicky/Hanrioud which stopped for broken rockers to be replaced and finally retired only two hours before the finish.

Just after 11 am when it seemed that the race was all over bar the shouting and the crowds lining the track on either side of the rush down to the Esses had been back at the circuit long enough to lose interest and were starting to chat and eat their sandwiches, a violent explosive sound jerked them back into consciousness. On the run down to the Esses, Mauro Bianchi had lost the brakes on his Alpine completely, the car smacked into the bank and exploded. As flames licked towards the sky and a pall of black smoke hung over the blazing Alpine, the cars still circulating were brought to a halt and when they did move off, they had to pass under a hose held aloft by beefy *pompier*s. It seemed incredible that anyone could have escaped from

the charred, twisted tubes that were all that remained of the A-220, but Bianchi suffered only slight injuries.

It was on wreckage from the Alpine that the Matra picked up a puncture and the car limped into the pits for a wheel-change. The MS630 rejoined the race, but then another tyre punctured, the car went off the road and after twenty hours of gallant effort the MS630 was out of the race with an electrical fire. At 3 pm Bianchi crossed the line to score Ford's third successive Le Mans win, a win that secured the Gulf team victory in the Sports Car Championship with 45 points to the 42 of Porsche. Just after midday, the Alfa of Galli/Giunti, delayed in the pits while a broken damper was changed, was also passed by the 908 of Stommelen/Neerpasch, but with cars in fourth, fifth and sixth places the Autodelta team had every reason to be delighted. This was the first occasion in the history of the GT40 when a standard 4.7-litre-based version completed a full 24 hours race. In the abnormally cold and damp conditions of Le Mans the 'dry-deck' engine had run exceptionally cool and it was adopted on both cars at Daytona in 1969. Le Mans, 1968 was not a great race, but, nevertheless, it ranked high in terms of the variety of cars entered and the victory of the Gulf team, whose racing programme was governed by quite a small budget, over the Porsche team delighted enthusiasts who liked to see a giant concern like Porsche stumble and fall.

Results

- 1st, P. Rodriguez/L. Bianchi (Ford GT40 5-litre), 115.29 mph,*
- 2nd, R. Steinemann/D. Spoerry (Porsche 907 2.2-litre),*
- 3rd, R. Stommelen/J. Neerpasch (Porsche 908 3-litre),
- 4th, I. Giunti/N. Galli (Alfa Romeo Tipo 33/2 2-litre),*
- 5th, C. Facetti/S. Dini (Alfa Romeo 33/2 2-litre),
- 6th, M. Casoni/G. Biscaldi (Alfa Romeo Tipo 33/2 2-litre),
- 7th, D. Piper/R. Attwood (Ferrari Tipo 250 LM 3.3-litre),
- 8th, A. de Cortanze/J. Vinatier (Alpine A-220 3-litre),
- 9th, A. le Guellec/A. Serpaggi (Alpine A-210 1.5-litre),
- 10th, J-L. Therier/G. Tramont (Alpine A-210 1.3-litre),*†
- 11th, R. Wollek/C. Ethuin (Alpine A-210 1.3-litre),
- 12th, J-P. Gaban/R. van der Schrick (Porsche 911 T 2-litre),*
- 13th, C. Laurent/J-C. Ogier (Porsche 911 T 2-litre),
- 14th, J-P. Nicolas/J-C. Andruet (Alpine A-210 1.0-litre),‡
- 15th, R. Enever/A. Poole (Austin-Healey Sprite 1.3-litre).

* Class winners

† Winner of Index of Thermal Efficiency.

‡ Winner of Index of Performance.

Although the Championship racing season was over, there were still several Sports Car races of considerable interest yet to be held. In the October Austrian races a new 3-litre V-8 Abarth Prototype with wedge-shaped bodywork and the radiator mounted high above the tail appeared and Peter Schetty won races with it at Aspern and

Innsbruck. On 13th October the Paris 1,000 Kilometres race was held at Montlhéry and although no Gulf Fords were entered, Porsche sent along three of the Le Mans 908s. The big 4.3-litre Ferrari of David Piper was, however, the sensation of the race and this, co-driven by Dickie Attwood, led until a radiator hose came adrift and the car was retired with chronic over-heating. The 908s of Herrmann/Stommelen and Elford/Lins took the first two places with the Sadler/Green Ford GT40 third and the Alpine of Guichet and Grandsire in fourth place. The Matra retired with a broken oil pipe and the third 908 driven by Buchet and Linge finished twelfth.

In November was the Kyalami Nine Hours race and victory in this went to the 5.7-litre Mirage of Ickx and Hobbs, a Gulf entry and the car with which the team had won the race the previous year. By the Cape Three Hours race, held at Killarney a fortnight later, the Mirage had been sold to Malcolm Guthrie to replace his crashed GT40. In this race it was driven by Hobbs and Hailwood, but finished second to Paul Hawkins' Ferrari P4, with 4.4-litre engine and the bodywork in open Group 7 trim. In the Lourenço Marques Three Hours race held in Mozambique, Guthrie and Hailwood scored a fine victory with the Mirage and shortly afterwards they finished second in the Three Hours race at Pietermaritzburg.

At some races in 1968 the new 3-litre Prototypes had been small in numbers, but by the end of the season they had grown in strength and speed. It seemed unlikely that the ageing Fords of the Gulf team would be able to stem the Porsche onslaught for yet another season and it was likely that most of the battles would be fought between the 908s and Ferrari's new Prototype contender.

3 *New Cars For 1969*

The 1968 season had witnessed a close and hard fought battle between the Porsche and John Wyer teams, a battle lost by Porsche despite their vast capital expenditure, their intensive development programme and hordes of cars at most races. The Wyer team, racing their ostensibly outdated GT40s, had won the Sports Car Championship with victories in five of the year's ten races including Le Mans which for both teams had assumed an importance that surpassed the other nine races in total. While Porsche, realizing that the GT40s were a match for their existing cars and were prepared to a standard that it would be difficult to attain themselves, worked on new models that would gain the victories that the team so badly wanted, Ferrari perceived that he had the means to produce at comparatively low cost a 3-litre Prototype that could match the speed of the 908s and GT40s. So the 1969 season witnessed a plethora of new models from Porsche, Ferrari, Matra and Alfa Romeo and the Wyer team raced for the first time a car of new and original concept.

GERMANY

New Variants of the 908

Once again the Porsche team booked the Hockenheim circuit to display their latest cars to the press. The reception was held in January, 1969 and as well as Huschke von Hanstein, deputising for Ferry Porsche, there was a new face present to assist in explaining the latest Stuttgart developments. This was Gianrico Steinemann, formerly editor of the Swiss magazine *Powerslide* and driver in 1968 of private Porsche 910 and 907 cars entered by Squadra Tartaruga, who had now been appointed team manager. Von Hanstein remained with the company, but had reverted to his original role of Press Officer.

Making his announcements in English, French and German, Steinemann stated that once again Porsche would be concentrating on the Sports Car Championship and the European Rally Championship (the latter with 911 cars) and that the team would not be competing in the European Hill Climb Championship. A total of six different models were shown to the press:

907: Although no longer raced by the works, a small number of

these Group 6 Prototypes were sold to private owners and raced with flat-8 engines of 2 and 2.2 litres.

908 Normal coupé: All three versions of the 908 (as well as the very similar 907) had a wheelbase of 7 ft 6.55 in. The *Normal* was the standard closed version as raced at the Nürburgring and Watkins Glen in 1968. By the end of 1968, sixteen coupé 908s had been built, but during December two of these, driven by Gerhard Mitter and Karl von Wendt respectively, had been crashed and written off during a testing session at Monza. The *Normal* had an overall length of 13 ft 2.27 in and weighed 12 cwt 108 lb. It had a claimed maximum speed of 185 mph. Although it was the intention to field this model in events held on medium-speed circuits, the new *Spyder* was so successful that the *Normal* was not raced at all during 1969.

908 Lang coupé: This was the long-tailed streamlined version of the 908 as raced at Le Mans in 1968. It had a length of 15 ft 10 in and weighed 13 cwt 40 lb. Claimed maximum speed was 200 mph and it was pointed out by Steinemann that such were the aerodynamic advantages of the *Lang* that it could lap a standard coupé in thirty laps of the Hockenheim circuit. Both versions of the coupé were fitted with 6-speed gearboxes, but a 5-speed gearbox was used at Daytona in 1969. In 1969 this model was raced at Daytona, Monza, Spa and Le Mans.

908 Spyder: This was a new version of the 908 with lightweight open body to take advantage of the relaxation in the Prototype regulations which had dispensed with minimum ground clearance, windscreen height, interior dimensions, etc. Fuel capacity was 26 gallons with the glass-fibre-covered tanks installed in the cockpit sides. The *Spyder* had an overall length of 13 ft 2.27 in and weighed 12 cwt 42 lb. The claimed maximum speed was 175 mph and the *Spyder* was to prove to be the most successful car of the year.

909 Berg: Despite the decision not to compete in hill climbs, Porsche had built this Group 7 lightweight car with 1,981 cc (54.6 x 76 mm) flat-8 engine developing 275 bhp at 9,000 rpm and directly developed from the cars that had won the 1968 Championship. The weight of the 909 was a mere 8½ cwt.

910 Not displayed at Hockenheim, this car had been homologated in Group 4 now that the minimum production for qualification had been reduced to 25. Despite the introduction of the Tipo 33/2 Alfa Romeo, in the hands of private owners the 910 still remained a force to be reckoned with in the 2-litre class.

911S: The fastest of the production cars, this model was displayed in rally trim.

911R: This lightweight special version of the 911 now had the four-cam 910 engine with a power output of 230 bhp at 9,000 rpm. Its top speed was estimated to be 153 mph.

917: Once again Porsche did not reveal their most potent contender. Now that only 25 cars had to be built in order to secure homologation as a Group 4 Competition Sports Car, it was possible, albeit

at colossal expense, to build a run of 25 5-litre cars and then field them against the 3-litre Prototypes and the 5-litre push-rod cars. Although this was certainly within the letter of the Sports Car regulations, it was hardly within the spirit, for the original intention of the 5-litre rule had been merely to permit existing designs such as the GT40, the Lola and the Ferrari 250 LM to continue to be raced so as to prevent hardship to constructors and owners. Certainly the F.I.A. had not expected a car like the 917 to be built, but there is no doubt that it and the rival Ferrari 512S which appeared the following year raised the standard of Sports Car racing to an all-time high and the truly awe-inspiring sight of these 220 mph monsters thrashing through the rain at Le Mans or screaming through the curves of Spa will not be matched for a very long time.

Although the production of these monstrous cars was an undertaking of tremendous complexity and their development into race-winning material difficult and very prolonged, there was nothing revolutionary about the design of the 917 which followed familiar Porsche design practice. The engine was based on that of the flat-8 908, but with four additional cylinders so as to give a capacity of 4,494 cc—it was only later that a full 5-litre version was developed. The air-cooled engine featured a magnesium-alloy crankcase split along the centre-line, the crankshaft having a pinion in the middle to provide drive to the two overhead camshafts per cylinder bank by a train of gears. This central train of gears also drove the usual Porsche horizontal cooling fan. There were two valves and two plugs per cylinder fired by twin distributors. Carburation was by Bosch fuel injection. Initially Porsche claimed a power output of 520 bhp (DIN) at 8,000 rpm, but after steady development work during the 1969 season it was said that this had been boosted to 585 bhp. Although it is not possible to substantiate or debunk these power output figures, they seem to err on the optimistic side and in 1970 John Wyer reckoned that the 4.5-litre unit developed around 540/550 bhp at 8,500/8,750 rpm. Transmission was by a three-plate dry clutch and a 5-speed all-synchromesh gearbox in unit with the final drive which incorporated a limited slip differential.

In general concept the chassis followed that of the 908, but a new aluminium-alloy tubing was used for the space-frame and the driving position was well to the front of the car. The fuel was carried in 60-litre tanks in the side-members and gave only sufficient for 50 to 55 minutes' racing. As on the 908, front suspension was by double wishbones and combined coil spring and Bilstein damper units with a layout at the rear consisting of wishbones, radius arms and coil spring/dampers. Large ATE Dunlop ventilated disc brakes were fitted and there were 15-inch magnesium-alloy wheels. The glass-fibre coupé body (with long tail) had an overall length of 15 ft 6 in and the 917 was homologated with rear spoilers forming an integral part of the body and actuated by rods from the rear suspension. An unusual feature of the car was the exhaust system which was very complex

with the exhausts for the front six cylinders passing through tunnels ahead of the wheel arches and those for the rear cylinders passing under the tail in the normal manner.

The 917 was exhibited at the Geneva Motor Show in March, it first ran in public at the Le Mans Test Weekend at the end of the month and it was homologated in Group 4 as from 1st May. Its racing debut was at Spa on 11th May, it finished in the Nürburgring 1,000 Km race on 1st June and it led at Le Mans later that month, but its first race victory did not come until the Austrian 1,000 Km race in August. Initially the 917 was given a price tag of £14,000, but purchasers were few and far between—and by 1971 it was reckoned that if one wanted to buy a new 917 and the factory was willing to sell it, the price had risen to around £25,000!

New drivers to join the Porsche team for 1969 were Richard Attwood, Brian Redman and Kurt Ahrens and Udo Schütz rejoined the team after a year with Autodelta.

FRANCE

Developments at Alpine

The Alpine concern continued to race the unsuccessful A-220 cars on a rather half-hearted basis, but after the team's débâcle at Le Mans in June Alpine withdrew completely from Prototype racing. For 1969 a few modifications were made to these pretty, but very sluggish coupés. Two new cars were built and one first appeared at the Le Mans Test Weekend. At the Sarthe circuit the new car had the radiators mounted at the extreme rear of the body and to balance these the oil radiator and battery were moved to the nose. A large rear spoiler integrated into the bodywork was adopted, but in testing Alpine also tried a high-mounted aerofoil of the type banned at the Monaco Grand Prix. Although Renault had tried to persuade Alpine to switch to Gordini-designed gearboxes, the ZF 'boxes were retained on the 3-litre cars, there were new rubber bag fuel tanks encased in glass-fibre in place of the original aluminium tanks and Girling disc brakes replaced the original ATE Dunlops. At most races Alpine entered a varied assortment of cars and the details of these are given in the next chapter.

Three new cars from Matra

For 1969 Matra Sports decided to entrust their Formula One programme to Ken Tyrrell who fielded the new MS80 chassis with Ford-Cosworth engines for Jackie Stewart and Jean-Pierre Beltoise. The French team temporarily withdrew from Grand Prix racing and concentrated its own efforts on Prototype racing with a rather mixed bag of cars, both old and new.

MS630: This was the original model raced at Le Mans and

Montlhéry in 1968. The team had three of these cars, chassis 02 (fitted with a Ford engine in 1968, but re-engined with a V-12 unit and fitted with a *Spyder* body for Le Mans in 1969), 03 (the 1968 Le Mans car which was rebuilt as a *Spyder* in 1969) and 04 which was a new car built for the 1969 Daytona race. The MS630 had a wheelbase of 8 ft 0.5 in, front track of 4 ft 7 in and rear track of 4 ft 9 in. Although 04 was lighter than its predecessors, it was still considered to be excessively heavy and lacking adequate braking power and it was for these reasons that Matra built two new models for the coming season.

MS640: There was some dissension at Vélizy as to whether the team should build another coupé model or concentrate on open cars now that the Prototype regulations had been relaxed. Former C.D. Prototype designer Robert Choulet who now worked for Matra favoured a coupé, while existing designer and works manager Bernard Boyer and Servoz-Gavin who did most of the team's test-driving regarded a *Spyder* as the more practical proposition. So Matra decided to build cars of both types. The 640 coupé, with exceptionally sleek and clean lines and large tail-fins reminiscent of earlier C.D. designs, was evolved in the aerospace department at Vélizy. The front coil spring/damper units were mounted horizontally and the engine was very low in the chassis. The car was not ready in time for the Le Mans Test Weekend, so the team booked the Sarthe circuit for a private testing session. Disaster struck when Henri Pescarolo was at the wheel and at the same point on the circuit where Roby Weber had crashed with fatal results at the wheel of the first MS630 in 1967; on the very same bump at Les Hunaudières on the Mulsanne straight the nose of the car lifted, the 640 went out of control and crashed. The accident was thoroughly investigated and Matra satisfied themselves that the car was aerodynamically stable—the accident was attributed to oversoft dampers which resulted in a change in suspension incidence. Pescarolo suffered injuries that kept him out of racing until the tail-end of the season, the 640 was not rebuilt and the coupé project was completely abandoned.

MS630/650: Development work on the new *Spyder* took much longer than anticipated and as an interim measure, MS630 chassis 03 was fitted with an open body. A noticeable change was that the radiator had been moved forward and occupied the space previously taken by the spare wheel which was no longer compulsory. When the car first appeared it had a rear-mounted aerofoil, but this was later abandoned. At the Le Mans Test Weekend the first of these cars was driven by Servoz-Gavin; he was second fastest to the 917 Porsche with a time of 3 min 33.9 sec and on the Mulsanne straight the 630/650 was timed at 205 mph compared with 212 mph recorded by the big Porsche and 185 mph recorded by the MS630 in 1968.

MS650: Because of a series of delays the new MS650 was not raced until the Le Mans in June. It featured a new multi-tubular

space-frame chassis and suspension similar to that of the all-conquering MS80 Grand Prix car: at the front by double wishbones and coil spring/damper units and at the rear by parallel lower links, single upper transverse links, twin radius rods and coil spring/damper units. As on all Matra Prototypes a ZF gearbox was fitted. The car was specifically designed to take much wider wheels than had previously used—it ran at Le Mans with 13-inch rims and at Montlhéry with 15-inch. During testing of the MS650 at Marigny, Servoz-Gavin crashed when a front suspension upright broke and in the frantic rush to prepare four cars for Le Mans it proved possible to get only the one MS650 ready in time. Originally, it had been the intention to race the MS650 with a rear aerofoil, but after these were banned at Monaco, Matra fielded the car at Le Mans with extended, pointed rear wings. In its 1969 Prototype form the Matra V-12 engine developed around 405 bhp.

Although Matra's 1969 Prototype season was plagued by a succession of misfortunes and bad luck, and the team's pit work was sadly inefficient, the cars were well conceived, nicely turned out and they could always be regarded as serious contenders for victory.

GREAT BRITAIN

Developments at Byfleet

After the disastrous 1968 season Ford were still persisting with the Cosworth-powered cars, but it was clear that their patience was rapidly coming to an end. For 1969 Len Bailey produced another version of the F3L known as the P69 and taking full advantage of the relaxation in the Prototype regulations. The new open body was fifteen inches shorter than that of the coupé and it was both lower and wider. The complete car, apart from a small hole at the cockpit for the driver's head, was encased in light alloy panels. Bailey had studied closely the advances made in aerofoil technology since the Chaparral team had introduced these devices to Prototype racing in 1967 and the P69 incorporated a very sophisticated system of spoilers. There were inter-connected spoilers mounted in the nose between the front wings and across the tail and these were actuated mechanically and hydraulically with the pitch angle adjusted by wind pressure.

During testing the P69 proved rather unstable both on the straight and under cornering and so, on what was intended to be its race debut at the B.O.A.C meeting at Brands Hatch, it appeared with large front and rear suspension-mounted aerofoils with the supports coming through the bodywork. The P68, now with larger brakes, was entered at the same race with an enormous suspension-mounted rear aerofoil. The P69 non-started and the P68 retired early in the race. Apart from the appearance of the P68 at a minor British event, the cars were not again raced and the team's withdrawal

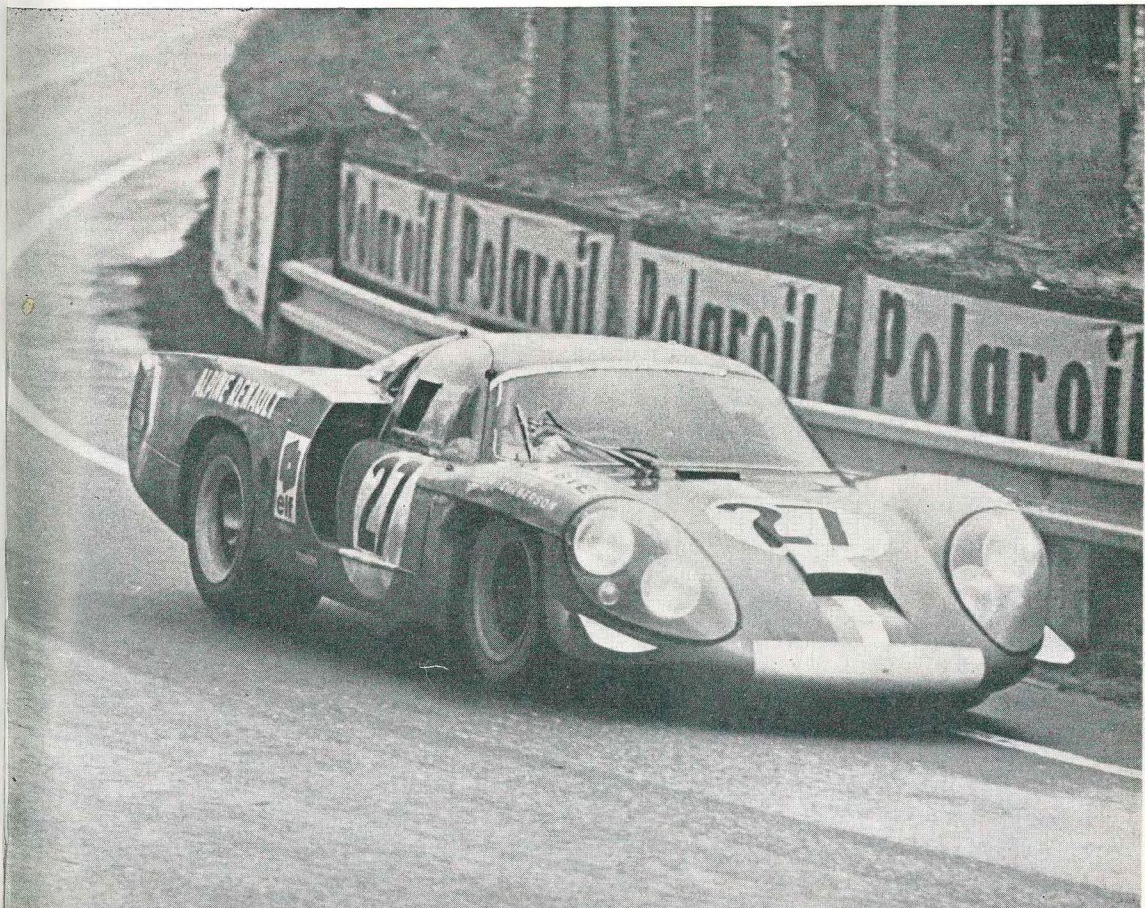
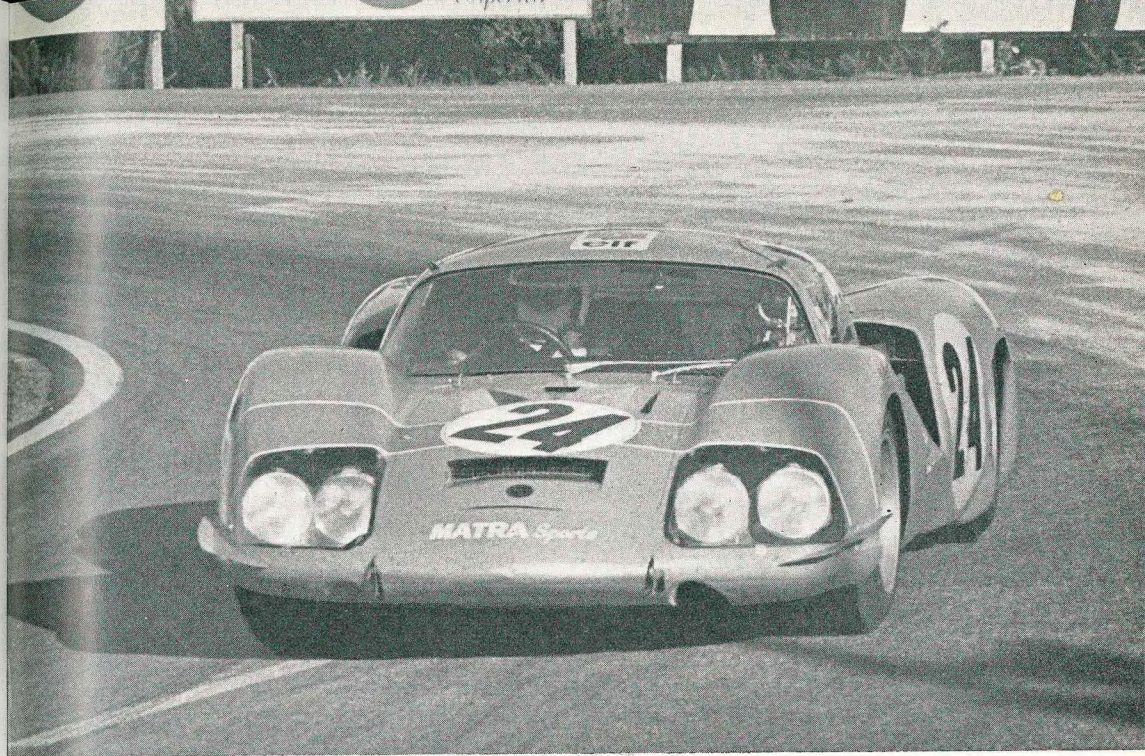
was attributed to the ban on aerodynamic aids imposed at Monaco in May by the Commission Sportive Internationale. Although it was true that the P69 had been designed with the inter-connected spoilers as an integral part of the body design and that this car could not again be raced without a major redesign, it was definitely not true of the P68 which had a conventional, streamlined body. Ford have never begrudged heavy financial expenditure on racing projects provided that they saw satisfactory results for their money. By 1969 it was clear, however, that the P68 was an inherently unstable design and to have spent further money on the project would have been to throw good money after bad.

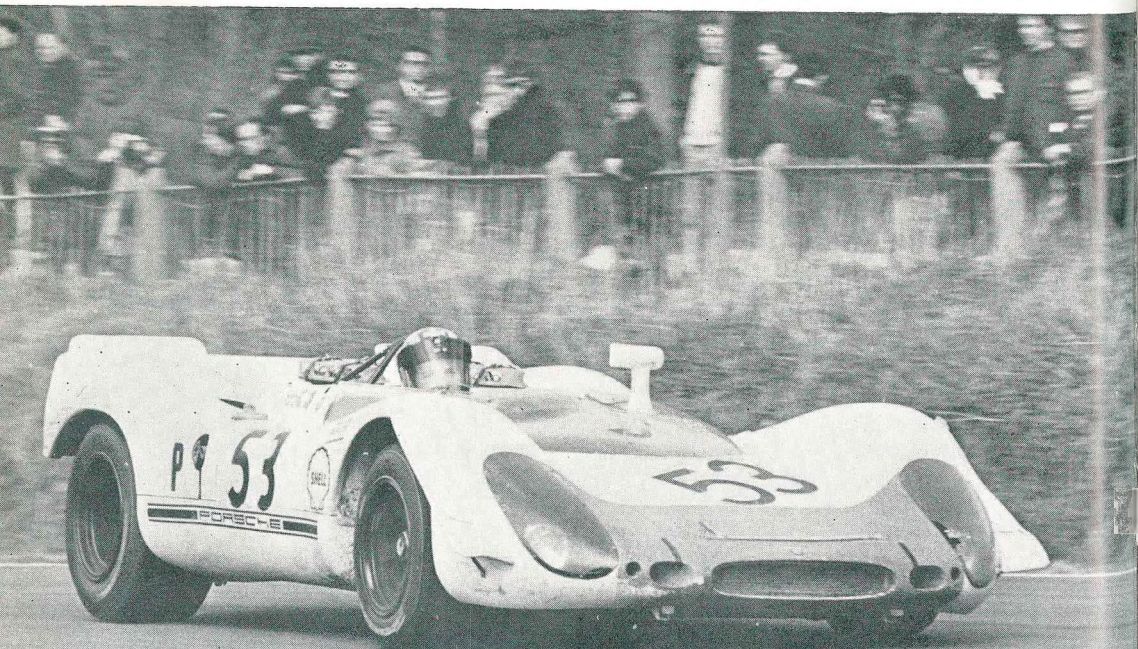
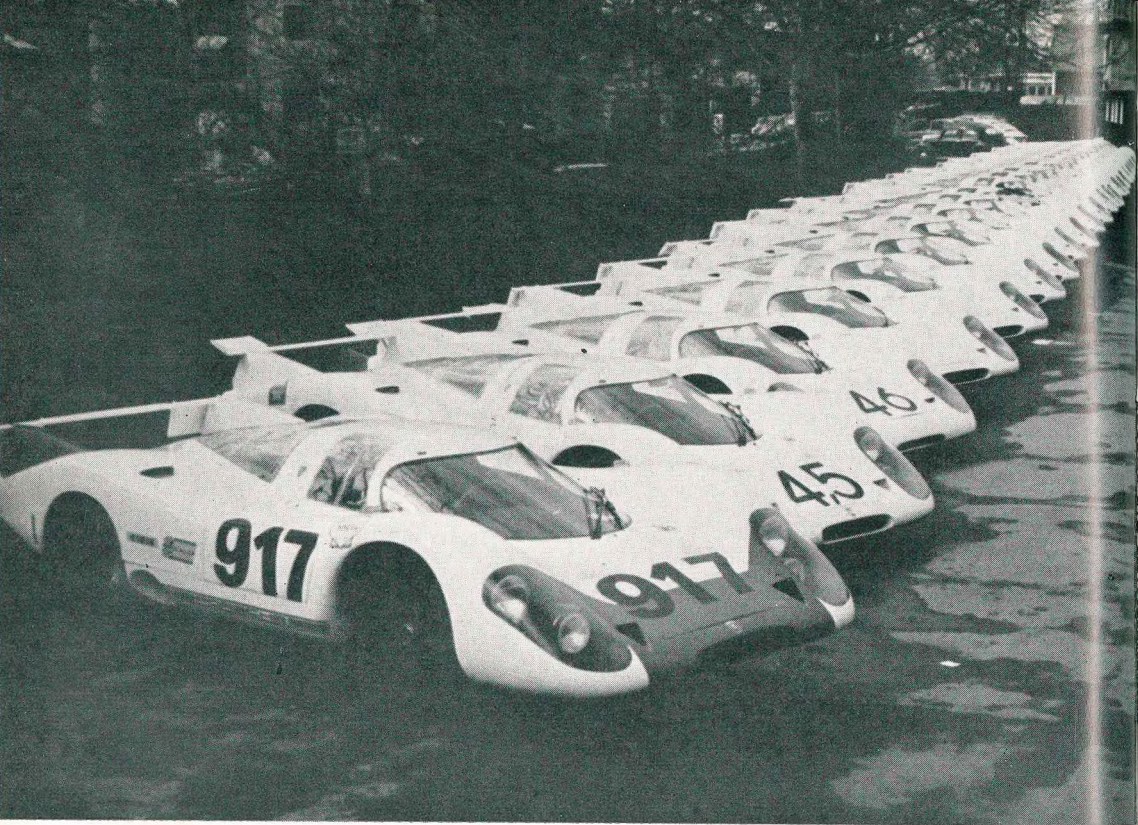
The new Mirage

Although John Wyer retained his very successful GT40 cars for the 1969 season, racing them in the first three Championships rounds and because of their reliability fielding them at Le Mans in June, the team's new Mirage Prototype made its racing debut at the B.O.A.C. meeting in April and it was on this that the team's real hopes for success were centred. The design of the Mirage had been commissioned by Wyer in 1967 and Len Terry had his drawings ready in a very short space of time. By the summer of 1968 the car was being tested, but its development was badly delayed when Robin Widdows crashed with the prototype at Snetterton in July. When Wyer took the first Mirage to Daytona to test, but not to race, in January, 1969, it had already been made obsolete by the latest changes in the Prototype regulations. For the car had been designed to comply with the 1968 regulations which imposed minimum wind-screen height, ground clearance, cockpit width and all-up weight and all these requirements had now been dispensed with, permitting the construction of much lighter and much more practical open cars. Furthermore the B.R.M. engine which originally powered the Mirage was far less powerful than anticipated.

The new M2/300 (as the car was typed to distinguish it from the 1967 Ford-based Prototypes) featured an aluminium-alloy central monocoque section with extensions running to the rear to carry the engine. Fuel capacity was 26.5 gallons carried in tanks in the side pontoons of the monocoque. At the front, suspension was by double

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- 9 Gallant effort: a single Matra MS630 coupé was entered at Le Mans in 1968 and driven by Johnny Servoz-Gavin and Henri Pescarolo. It was in second place on the Sunday when electrical trouble caused its retirement. (*Nigel Snowdon*).
 - 10 The Alpine A-220 had superbly aerodynamic lines, but its 3-litre engine was hopelessly deficient in power output. At the 1968 Le Mans race this car, with Mauro Bianchi at the wheel, crashed and burst into flames. (*Nigel Snowdon*).





wishbones and coil spring/damper units, and at the rear by single top links, lower parallel links, twin radius arms and the usual coil spring/damper units. In its original form the front suspension of the M2 incorporated 'anti-dive' geometry. As on the Matra Prototypes transmission was by a ZF 5DS-25 5-speed all-synchromesh gearbox in unit with the final drive.

Although probably less powerful than those used in B.R.M. Formula One cars, the 60-degree V-12 engine was ostensibly identical and had a capacity of 2,999.5 cc (73.81 x 57.15 mm). There were chain-driven twin overhead camshafts per bank of cylinders and, in original form, two valves per cylinder. With Lucas fuel injection power output was around 375 bhp. The body was a rather bulky coupé, distinguished by twin radiators mounted either side ahead of the rear wheels and, as usual, finished in Gulf blue and orange colours.

Despite the cars' many deficiencies, John Wyer persevered with them, striving to reduce weight and to make them both faster and more reliable. At the Nürburgring two new versions of the M2 appeared. Realizing that the B.R.M. engines might well prove unsatisfactory, Wyer had taken the precaution of ordering a new Cosworth DFV Grand Prix engine and this, driving through a Hewland DG300 5-speed gearbox, was fitted to one of the cars at the German race. To accommodate the wider Cosworth engine it was necessary to redesign the rear end of the chassis. The rear of the monocoque was strengthened by riveted box-section members and there was a new space-frame extension leading back to the rear suspension. The other car was fitted with the latest and more powerful 48-valve version of the B.R.M. engine which was claimed to develop around 450 bhp. This engine had been loaned by the works and this was the only race at which it was used by the Wyer team.

The next development was the M3/300 car which at first appeared at Watkins Glen. This was basically similar to the earlier cars, but the combined roof and tail-section had been removed and the result was a neat-looking *Spyder* of lower weight and with greatly reduced frontal area. The Cosworth engine and Hewland gearbox were again used. The M3 was a vast improvement on its predecessors, it led the Austrian 1,000 Km race before retiring and at the end of the season

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- 11 In order to secure homologation of the new 4.5-litre Porsche 917, the Stuttgart company hastily assembled a line-up of twenty-five cars for inspection by members of the Commission Sportive Internationale. Afterwards they were dismantled and carefully built up again as and when required.
- 12 Another new Porsche model for 1969 was the 908 *Spyder*. This car was driven to victory in the 1969 B.O.A.C. '500' race by Jo Siffert and Brian Redman. (*Nigel Snowdon*).

with Ickx at the wheel it scored a victory in the non-Championship Imola race.

An Improved Lola

At the 1969 Racing Car Show an improved version of the Lola, the Mk 3B, was introduced. Apart from detailed changes to improve the handling and to make the cars easier to work on, the 3B had lighter bodywork with conventional front-hinged instead of gull-wing doors. Nineteen hundred and sixty-nine was the last year in which the T70 was produced and the complete 3B with 5-litre Traco-developed engine had a price tag of £7,450. At the beginning of the season a Mk 3B entered by Roger Penske scored a very unexpected victory at Daytona, but thereafter success eluded these cars. They were plagued by suspension wishbone failures at the B.O.A.C. race and Paul Hawkins, the leading Lola privateer, lost his life when he crashed his 3B in the Tourist Trophy race at Oulton Park in May. During 1969 Lolas were raced by Joakim Bonnier's Ecurie Bonnier, Ulf Norinder's Sportscars Unlimited team, Scuderia Filipinetti, Team Elite (driver Trevor Taylor) and Sid Taylor amongst others.

ITALY

A New Prototype from Autodelta

Encouraged by the successful season enjoyed in 1968 by the 2-litre cars, Carlo Chiti's Autodelta team went ahead with the development of a new 3-litre Prototype, designated the Tipo 33/3, which made its debut at Sebring in March, 1969. In almost every respect the Tipo 33/3 was new and it bore only a superficial resemblance to the earlier cars. The H-section chassis had been abandoned and its place was taken by a conventional monocoque constructed from sheet-alloy and tubing with large side-boxes containing foam-filled rubber fuel bags. The suspension was similar in general layout to that of the 2-litre cars, but was largely constructed from titanium for which Autodelta have their own extensive welding facilities.

The engine of the new car had been installed in a Cooper Grand Prix chassis in 1968 and extensively tested, but, initially, it proved one of the least reliable features of the Tipo 33/3. It was again a 90-degree V-8, but with a capacity of 2,993 cc (86 x 64.4 mm), of light alloy construction throughout and with twin overhead camshafts per bank of cylinders, four valves per cylinder, Lucas fuel injection and a claimed power output of 390/395 bhp at 9,000 rpm. A 6-speed gearbox was used in the early part of the 1969 season, but a 5-speed unit was later substituted. There were twin water radiators just ahead of the rear wheels, the rear disc brakes were again mounted inboard and the open glass-fibre bodywork was made in the Autodelta works. In all six of these cars were built during 1969.

The Tipo 33/3 made its debut at Sebring where all three cars

retired early in the race with failure of the glue-assembled radiators. Initially Autodelta tackled this problem by using a different type of adhesive and at the same time took the opportunity of increasing the size of the radiators. By the Imola race in September, however, a much revised cooling system had been adopted. After Sebring Autodelta fortunes went from bad to worse. At the Le Mans Test Weekend, Lucien Bianchi, the 1968 Le Mans winner, at the wheel of a new version of the 33/3 with a longer tail crashed with fatal results. The cause of the accident was never satisfactorily resolved. During testing the engines were proving hopelessly unreliable, Autodelta scratched from most of the season's important races and in the Targa Florio had to field the old Tipo 33/2 cars with 2.5 and 2-litre engines. The cars ran in a few minor events—at Hockenheim in July a new coupé version appeared—but the team's only respectable performance of the year was at Imola where Giunti took second place to Ickx at the wheel of the Mirage, and then only after the Porsche 908s in second, third and fourth places had spun off the rain-soaked track.

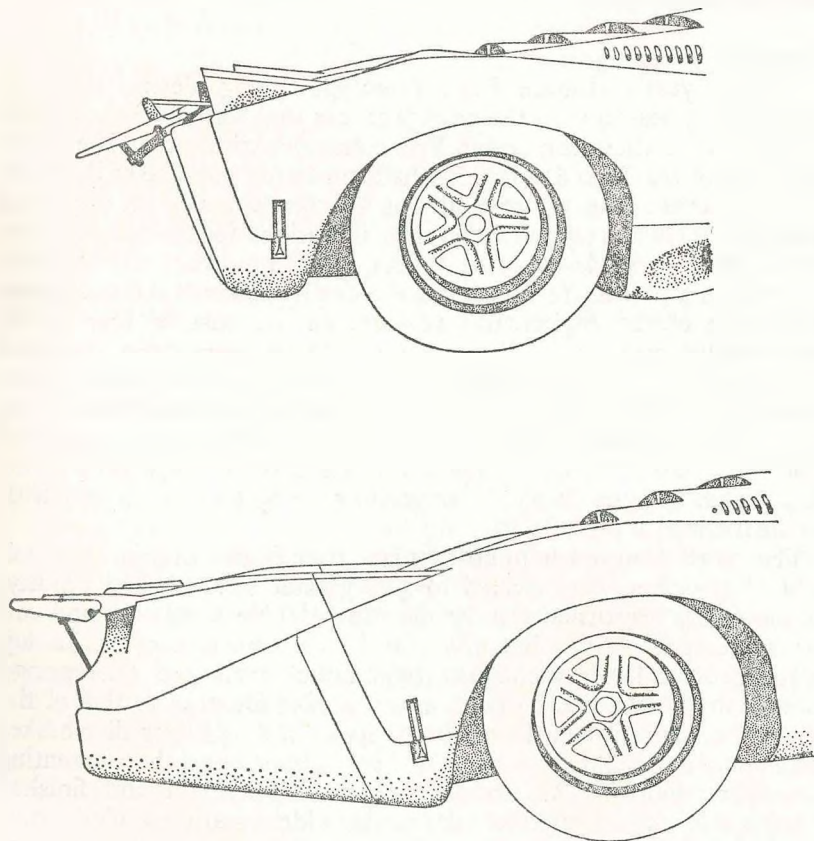
Maranello Tries Again

After a year's absence from Prototype racing Ferrari returned for the 1969 season with the new 312P car that combined the engine of the current Maranello Grand Prix contender with a chassis evolved from that of the Tipo 612 car that had run in the last race of the 1968 Can-Am series. The power unit was the 60-degree V-12 engine of 2,989 cc (77.1 x 53.5 mm) that had in various forms been used in Grand Prix Ferraris since the start of the current Grand Prix Formula in 1966. In its 1969 form the engine featured the inlet ports in the vee of the engine, the exhausts on the outside, four valves per cylinder and single plug ignition. There were twin overhead camshafts per bank of cylinders chain-driven from the nose of the crankshaft. With Lucas fuel injection and a compression ratio of 11:1, 420 bhp was developed at 9,800 rpm which was more than enough to make the car competitive. Transmission was by a twin-plate clutch and the usual Ferrari-made 5-speed gearbox in unit with the final drive.

The 312P featured a multi-tubular space-frame chassis to which light alloy panels were riveted to give greater strength and rigidity. At the front, suspension was by the usual double wishbones and coil spring/damper units, while the rear layout consisted of single top links, reversed lower wishbones, twin radius arms and coil spring/damper units—the rear suspension was almost identical to that of the Grand Prix cars. When the car first appeared, the Girling disc brakes were mounted inboard at the rear, but conventional hub-mounting was later adopted. The wheels were beautifully cast and finished Campagnolo 15-inch used in various rim widths and these alone must have cost a small fortune. When the prototype was first shown to the press, the very sleek, compact open body with wedge-shaped nose

was panelled in aluminium, but glass-fibre panels had been substituted by the time the car was raced.

Throughout the 1969 season Ferrari repeated the mistake that he had already made in Grand Prix racing of taking on the opposition at most races with only a single car. Only at Monza and Le Mans were two cars entered. Nevertheless with a fine selection of drivers that included Chris Amon, Mario Andretti, Pedro Rodriguez and David Piper, the cars were always in the running for victory and Ferrari was unlucky not to defeat the Porsche 908s at least once. Few technical changes were made during the year. At Spa a slightly lighter gearbox was introduced and the two cars fielded at Le Mans—Ferrari's last Prototype race of the season—had exquisitely pretty coupé bodywork. After Le Mans the two coupés were acquired by the North American Racing Team, one was run in a couple of Can-Am races that year and they ran in several Championship races under the N.A.R.T. banner in 1970.



1969 Porsch 917 tails—*Lang und Kurz*

4 1969: Porsche Almost all the Way

Surprise result at Daytona

Since 1967 the first round of the Championship had been the Daytona Continental 24 Hours race held on the combined banked track and road circuit with a length of 3.8 miles. In 1969 the race took place on 1st/2nd February and at such an early date in the season certain teams, notably Ferrari and Autodelta, were not yet ready to compete. Nevertheless the race attracted a reasonable entry and heading the list were a grand total of five works-entered Porsche 908 *Lang* coupés, fitted with 5-speed gearboxes and driven by Jo Siffert/Hans Herrmann, Richard Attwood/Joe Buzzetta, Vic Elford/Brian Redman, Gerhard Mitter/Udo Schütz and Rolf Stommelen/Kurt Ahrens. As usual, for identification purposes the cars were distinguished by differently coloured panels on the nose and tail-fins. As was to be expected, the 908s were substantially faster than the 907s fielded by Porsche the previous year and in practice Elford/Redman were fastest in 1 min 52.2 sec (122.25 mph) compared with a best Porsche practice lap of 1 min 57.31 sec in 1968.

John Wyer was still forced to rely on the elderly GT40s, although the 3-litre Mirage was present for testing purposes, and the blue and orange cars were unable to improve on their 1968 times. In that year Ickx/Redman had set fastest practice lap in 1 min 54.91 sec, but the best that Ickx, partnered by Oliver, could manage in 1969 was a lap in 1 min 54.5 sec which was only eighth fastest. The other John Wyer car was driven by David Hobbs and Mike Hailwood. The Competition Sports Cars that were competitive in practice were the Lola T70s of which a total of four were entered. From Roger Penske Racing came a brand-new 3B which had been delivered a month before the race. Since then Penske's mechanics had spent an average of eighteen hours a day in stripping it down and rebuilding it to his exacting standards. This metallic blue car running with a Traco dry sump engine fitted with fuel injection and said to develop 460 bhp was to be driven by Mark Donohue and Ronnie Bucknum; Bucknum had broken a finger in a motor-cycling accident and as it was paining him badly, his place was taken at the last moment by veteran driver Chuck Parsons. Ulf Norinder also had a new 3B, but with a Traco engine running on carburettors, which he had entered for himself and Joakim Bonnier as the latter was still awaiting delivery of his car. Bonnier and Norinder were very old friends and as long ago as 1958 Norinder had tried out Bonnier's Maserati 250F in practice for the Italian Grand Prix. The other Lolas were from film star

James Garner's American International Racing team. Neither had been raced since the 1968 Sebring event and one was the car that Surtees had driven with an Aston Martin engine at Le Mans in 1967. These cars, with Traco wet sump engines running on carburettors, were driven by Scooter Patrick/Dave Jordan and Ed Leslie/Lothar Motschenbacher. The Penske Lola was second fastest in practice with a lap in 1 min 52.7 sec. Matra had entered a brand-new MS630 for Servoz-Gavin/Pescarolo, but this non-started after Pescarolo had rolled it during night practice.

When the flag fell for the start of the race after 1½ paced laps, the 908s of Elford and Siffert took the lead from the Lolas of Donohue and Bonnier. However, Porsche supremacy was soon established and after an hour's racing the long white coupés were in the first five places. The two fastest Lolas were both in trouble; Donohue had been forced to make the first of many pit stops because the engine was cutting out—the pumps would not pick up the last few gallons in the tanks—and he rejoined the race in seventh place. Bonnier had lost time through a collision with two slower cars and then shortly after Norinder had taken the car over, he swiped the retaining wall on the banking and the car was retired with shattered bodywork and bent suspension upright and drive-shaft.

Still the Porsche domination continued, but towards the end of the third hour Redman came into the pits and over-shot. The mechanics tried to explain to him that under the race regulations he had to push the car back to the pit himself. It was then realized that the Lancashire driver was almost unconscious from exhaust fumes and a quick check of the car revealed badly cracked exhaust pipes. Twenty minutes were lost while the pipes were changed and no sooner had this car re-joined the race than Ahrens came in with the same trouble. As there was not an unlimited supply of spare pipes, Steinemann set the mechanics on to welding up those that were cracked. Out in front Siffert led from Buzzetta, but Donohue had now climbed back with the Lola to third place and in fourth spot came the first of the Wyrer GT40s driven by Ickx and Oliver.

The next Porsche in trouble was the leading car of Siffert and Herrmann and 21 minutes were lost while the cracked pipes were changed on this. When Mitter brought his car in with the same trouble, he collapsed as he climbed out and had to be taken to hospital for oxygen treatment. After five hours' racing Attwood/Buzzetta led from Hailwood/Hobbs, Mitter/Schütz (Schütz was at the wheel and scheduled to be relieved by Attwood), Ickx/Oliver and Donohue/Parsons. At 10.30 pm, with seven and a half hours of racing completed, the Penske Lola came into the pits, belching flames from the exhausts. Just as on the 908s, the Lolas exhaust system had cracked badly and it was patched with stainless steel welded into place. When the car rejoined the race, it had spent 1 hour 19 minutes in the pits and it was now over 40 laps in arrears and, apparently, right out of the running.

Just after midnight the 908 of Attwood/Buzzetta was still leading the race, three laps ahead of the Hobbs/Hailwood Ford, with teammates Ickx/Oliver in third place, pursued by the other four 908s which were striving to make up lost ground. Now the leading car came into the pits with what was at first believed to be a broken alternator belt. After this had been changed, the car refused to fire and the trouble was eventually traced to a broken intermediate gear between the crankshaft and the camshaft. Barely had this car been pushed away into retirement when Elford reached the pits on foot to announce that after vibrating badly for three laps, his car had expired out on the circuit with the engine covered in oil. The symptoms may have been different, but the diagnosis was the same and as the night progressed, all remaining three cars expired with the same trouble. Even before the last of the 908s had retired, the leading GT40 of Hobbs/Hailwood was out with over-heating caused by a block cracking down one bore. By dawn the surviving GT40 of Ickx/Oliver was also over-heating badly and not expected to last much longer. It came almost as a relief when Ickx lost control coming off the banking, scraped the car against the retaining wall and damaging it badly. Although the Ford caught fire, the blaze was quickly extinguished and Jackie was unhurt apart from singed eyebrows!

So leading the race on the track was the Penske Lola of Donohue and Parsons, but another ninety minutes elapsed before it had exceeded the distance covered by the Ickx/Oliver Ford before its retirement. As the race dragged on, all excitement now lost, the Penske car lapped well within its limits, the team confident in the knowledge that it could not be caught by the Pontiac Firebird and Porsche 911s that occupied the next three places. The Motschenbacher/Leslie Lola, which had also spent a long time in the pits, gradually overhauled the slower cars in front of it and two hours from the finish it slipped into second place. So in this disappointing race of mechanical carnage Lolas took the first two places—it was the only Championship race to be won by a T70 in five seasons of racing—and the Pontiac Firebird of Ward and Titus took third place. Victory in the Prototype class went to the diminutive 1600 cc Lancia Fulvia Zagato—a modified production car—driven by Claudio Maglioli and Rafaele Pinto which finished eleventh overall.

New contenders at Sebring

At the Florida airfield circuit, scene of the second round in the Sports Car Championship, three new Prototypes made their racing debut. From Porsche came five of the 908 *Spyders* with the driver pairings Siffert/Redman, Buzzetta/Stommelen, Ahrens/Herrmann, Mitter/Schütz and Elford/Attwood. Since Daytona the team had overcome the exhaust and camshaft drive failures by changing the firing order of the flat-8 engine to obtain smoother running and by substituting steel intermediate idler shafts in the camshaft drive train for the original alloy components. When the cars first practised,

they were fitted with suspension-connected, roll-compensating twin rear flaps, but these were abandoned after the drivers had reported that they could not tell when the flaps were operative and when they were disconnected.

Ferrari had originally intended to field two of his new 312P cars, one in his own name and one in the name of the North American Racing Team. When it became clear that it would be a tremendous rush to have two cars ready in time, the N.A.R.T. entry was scratched and a single car (chassis No. 0868) was fielded for Chris Amon and Italo-American driver Mario Andretti. Since its announcement the 312P had been fitted with outboard rear brakes, trim tabs on the front and a rear spoiler. The 312P was superbly turned out, shatteringly fast and during practice needed almost no attention from the mechanics. That Porsche had problems besides their own mechanical weaknesses became only too obvious when the 312P turned in fastest practice lap in 2 min 40.14 sec (116.39 mph).

In contrast sheer chaos reigned in the Autodelta team. Although they had attended a practice weekend at the circuit a fortnight previously, the cars had only been out for a couple of hours and they had come from Italy without proper testing. Now Autodelta desperately tried to catch up and in the early mornings and late at night the Tipo 33/3s were dashing up and down a deserted runway. Although the team had arrived with three dozen personnel to look after the cars and had two lorry-loads of spares, there was a chronic shortage of replacement engines and Chiti was nearly frantic in case an engine blew up in practice. John Surtees had agreed to drive for the team, but he had a tyre contract with Firestone and the Alfas were running on Dunlops. When a telegram was received by team manager Roberto Bussinello making it quite clear that the American concern objected to Surtees driving for Alfa, Mario Casoni was substituted and the driver pairings were shuffled so that Andrea de Adamich partnered Casoni, Nino Vaccarella co-drove with Lucien Bianchi and 'Nanni' Galli shared a car with Ignazio Giunti. In practice the Alfas were hopelessly uncompetitive and the best lap that the team could manage was tenth fastest by Casoni/de Adamich in 2 min 45.64 sec.

Once again the John Wyer team was forced to rely on the GT40s; Ickx and Oliver had the older car driven at Daytona by Hobbs/Hailwood, but now fitted with a new engine prepared by Dan Gurney's All-American Racers team and claimed to develop 460 bhp. The 'new' car prepared for the 1969 season was driven by Hobbs/Hailwood. To prevent a recurrence of the over-heating troubles suffered at Daytona the team had abandoned the 'dry-deck' engines. Relying on the cars' consistent running rather than their speed, the team was well aware that it could only do well if the fastest cars ran into trouble. In practice Ickx/Oliver were twelfth fastest in 2 min 47.43 sec and Hobbs/Hailwood were three tenths of a second slower. The Lolas were the same as at Daytona, except that the Penske car was now running on carburettors, as it was thought to be more reliable in this form.

In practice Donohue and Bucknum turned in second fastest lap in 2 min 40.92 sec.

When the flag fell for the Le Mans start of the race at 11 am on the Saturday morning, Jo Siffert made a brilliant start and headed the field away, while poor Chris Amon with the Ferrari was left waiting for the fuel pressure to build up. At the end of the first lap Siffert still led, followed, by Mitter, Elford, Herrmann, Donohue, Stommelen and Amon and as Giunti tried to press his Alfa past the Ferrari, the Tipo 33 shed a back wheel! The Alfa rejoined the race, but within an hour and a half of the start all three Autodelta entries were out of the race. After only fifteen laps Patrick's A.I.R. Lola retired with engine trouble and the Bonnier/Norinder Lola was another early retirement when a radius rod pulled away from the monocoque.

The Porsche 908s continued to hold the lead and after an hour's racing the order was Porsche—Porsche—Porsche—Ferrari. The first of the 908s in trouble was the Elford/Attwood car which lost forty minutes in the pits while a damaged wing was repaired. Then Amon seemed to be having trouble with the Ferrari and indicated to his pit that he intended to stop. He was having difficulty in selecting gears, but instead of coming into the pits, he stopped the car out on the circuit and thumped the gear-lever firmly into reverse. This cured the trouble and he rejoined the race in a matter of seconds. When the leading 908s of Siffert and Herrmann made their routine pit stops, the Penske Lola moved up into the lead. Within ten laps Redman (who had relieved Siffert) was back in front of Donohue and Amon was in a comfortable third place.

Redman lost the lead when he stopped at the pits for a steering link to be attended to and Bucknum then led with the Lola from Amon and Ahrens. Now Amon pushed the 312P into the lead, but fell back to second place behind the Mitter/Schütz Porsche when he spun in avoiding a rubber marker cone thrown up by the back wheels of another competitor. The Herrmann/Ahrens Porsche was the first of the Stuttgart cars in serious trouble and after four and a half hours' racing it was retired with a large crack in the chassis at a point just beneath the gearbox. Soon afterwards the Penske Lola was retired with a radius arm pulled away from the monocoque as on the Norinder car and the Hobbs/Hailwood Ford stopped at the pits for a broken suspension ball-joint spindle to be replaced; as the cockpit was overheating, a window was removed and the car rejoined the race after forty minutes. All the hard work by the Gulf mechanics was in vain and the car retired out on the circuit later in the race when the suspension again failed and the car lost a wheel.

At half-distance the Mitter/Schütz Porsche still led from the Ferrari with Siffert/Redman third, Buzzetta/Stommelen fourth and the Ford of Ickx and Oliver in fifth place. Schütz brought the leading 908 into the pits to have a bent steering arm straightened and he rejoined the race in a matter of seconds. Now struck the trouble that was to cost the Ferrari victory. On the back straight the 312P

sucked into its air-intake a large chunk of glass-fibre from the tail-section of a Chevron that had blown off and disintegrated. By the time the Ferrari had reached the pits, it was over-heating badly, time was lost while the intake duct was repaired and topping up the radiator caused air locks in the water system which the mechanics tried without success to cure later in the race.

As Andretti lapped at reduced speed, the Ferrari throwing out clouds of white smoke on the over-run and the Ferrari pit struggling to keep the car in the race, car after car of the Porsche team was running into serious trouble. The Siffert/Redman car was retired with a cracked chassis; the Stommelen/Buzzetta 908 also suffered the same trouble, but Steinemann decided that it should be repaired and it rejoined the race after thirty-five minutes with steel reinforcing bars bolted to the frame; the leading 908 of Mitter/Schütz came in with the same trouble and it too was repaired; and the Elford/Attwood car split its oil tank and rejoined the race after the component had been replaced. While all these troubles were disrupting the Porsche team, the Ickx/Oliver Ford stopped at the pits with a smashed nose after the throttles had jammed open and Ickx had run into the marker cones. Now the Ferrari, apparently running well once more, took the lead, but the 312P stopped again at the pits, ten minutes were lost while the mechanics struggled to clear air-locks and the tortoise of the race, the slow, but steady running Ford of Ickx and Oliver took the lead for the first time. While the blue and orange car thundered round the circuit, the glow of its brake discs visible in the dark, its exhausts spitting flames, running with all the lumbering nonchalance that had brought the GT40s so many successes in 1968, the sick, rough-running Ferrari was lapping slower and slower, losing ground at the rate of three seconds a lap. Despite a panic in the closing stages of the race when a tyre punctured, at the chequered flag the Ford was a lap ahead of its Italian rival.

The 908s finished third (Stommelen/Buzzetta), fifth (Mitter/Schutz) and seventh (Elford/Attwood). So far the season had gone sadly awry for the Porsche team and it was a very chastened band of technicians and mechanics that returned to Zuffenhausen, for the team had been confident that the latest cars would be reliable as well as fast. For Ferrari the race had been very encouraging, it is rare indeed for a new car to win on its first outing and the *Commendatore* had every reason to expect his latest device to come home in front at least a couple of races during the season.

In 1969 the Le Mans Test Weekend was held on 29th–30th March. Although the sessions were dominated by the Porsche 917 driven by Rolf Stommelen, with the new Matra 630/650 a good also-ran, there was plenty of interest among the slower cars. The sole 312P Ferrari missed the earlier part of the Saturday session because of a holed radiator and it was quite clear to more perceptive observers that when the Maranello car did run, it was not being fully stretched. On the Saturday Amon was fifth fastest in 3 min 37.8 sec (138.33

mph), but the following day Formula Two driver Tino Brambilla was nearly twenty seconds slower on a damp track (Amon was driving at Silverstone).

Apart from the smaller capacity A-210 cars, Alpine produced a total of three of the A-220 3-litre cars. Two of the cars had the usual pair of radiators ahead of the rear wheels and a rear spoiler, while the third featured radiators at the rear of the car and incorporated in the spoiler. The only competitive British car was Paul Hawkins' new Lola which had not previously turned a wheel. It appeared with a choice of two tails, the standard configuration and one having the cockpit sides extended backwards in 'peaks' and a flat tail with a spoiler on the end. In dry conditions on the Saturday, Hawkins was third fastest in 3 min 35.2 sec. Throughout the weekend the 3-litre Alfa ran far from well; apart from a lack of sufficient speed to satisfy Ing. Chiti, on the Saturday the car lost its tail cover and on the Sunday Lucien Bianchi crashed with fatal results.

Porsche win at last

Only thirty-six starters are allowed on the rather narrow, tortuous Brands Hatch circuit and for the third B.O.A.C. '500' race—still a six-hour event—such a strong entry was received that the organizers could pick and choose the runners. Heading the runners in the Prototype category were four Porsche 908 *Spyders*, beautifully prepared, with road registration numbers on the tails and with differently coloured 'day-glow' patches on the nose for recognition purposes. These were driven by Jo Siffert/Brian Redman (green nose), Gerhard Mitter/Udo Schütz (red nose,) Vic Elford/Dickie Attwood (blue nose) and Hans Herrmann/Rolf Stommelen (yellow nose). It seemed that there were only two cars likely to offer a serious challenge to the Porsche onslaught. From Ferrari came a single 312P immaculately decked out in Ferrari's usual colours of red with gold wheels. Since Sebring the 312P had sprouted additional tabs just above and to the front of the front wheel arches in addition to the trim tabs either side of the nose and the rear spoiler seen at Sebring. At this race the car (chassis no 0870) was driven by Chris Amon and Pedro Rodriguez, a well matched and very fast pair of drivers. Two Ferraris had been entered, but team manager Franco Gozzi said that only one had been brought to this race because the team was concentrating its efforts on Monza. After a successful 'shake-down' at Thruxton a week or so before, John Wyer sent along the Mirage on its race debut and this was driven by Jackie Ickx and Jack Oliver.

Although Alan Mann Racing had entered both the new P69 Ford and the older P68 coupé, after the former broke its engine in practice, only the earlier car, driven by Frank Gardner and Denis Hulme, started the race. Also running with the large-capacity Prototypes were two ex-works Porsche 907s with 2.2-litre engines entered by the German BG Racing Team for Dechent/Koch and Kauhsen/Lins. The most interesting car in the 2-litre Prototype class was

the very new Lotus 62, derived from the old 47 model, but with a Vauxhall-block 1,922 cc engine developed by Lotus. With four valves per cylinder, belt-driven twin overhead camshafts and Tecalemit-Jackson fuel injection, the new engine developed around 240 bhp. Transmission was by a ZF 5-speed gearbox. Although not as stable aerodynamically as had been hoped and fitted at Brands with a plethora of flippers, flaps and spoilers, this new car, which was driven by John Miles and Brian Muir, ran well in practice and was the fastest of the 2-litre cars.

To make up their entry to two cars the John Wyer team brought along a Ford GT40 for David Hobbs and Mike Hailwood. Three other GT40s were privately entered and there was a grand total of eight Lolas including the very fast red Scuderia Filipinetti Mk 3B car driven by Joakim Bonnier and Herbert Müller, and Paul Hawkins' car which was co-driven by Jonathan Williams. Prominent among the 2-litre Group 4 cars were the Alfa Romeo Tipo 33/2 coupés of the V.D.S. team that had backed the works team up so well in 1968. These were driven by Pilette/Slotemaker (blue right-hand front wing) and Gosselin/Bourgoignie (yellow wing).

Fastest in practice were:

1. J. Siffert/B. Redman (Porsche 908)	1 min 28.8 sec (107.43 mph)
2. C. Amon/P. Rodriguez (Ferrari 312P)	1 min 30.0 sec
3. J. Bonnier/H. Müller (Lola T70)	1 min 31.6 sec
4. V. Elford/R. Attwood (Porsche 908)	1 min 32.0 sec
5. G. Mitter/U. Schütz (Porsche 908)	1 min 32.2 sec
6. H. Herrmann/R. Stommelen (Porsche 908)	1 min 33.2 sec
7. D. Hulme/F. Gardner (Ford P68)	1 min 33.2 sec
8. T. Taylor/H. Dibley (Lola T70)	1 min 33.6 sec
9. P. Hawkins/J. Williams (Lola T70)	1 min 34.2 sec
10. P. Revson/S. Axellson (Lola T70)	1 min 34.4 sec

Perhaps the most revealing aspect of these practice times was the fact that after a year without any real development, the Ford P68 was no longer a match for the Porsche 908s in their latest form. The Mirage was eleventh fastest in 1 min 35.4 sec.

Just before the flag fell on the Sunday, there was a panic on the grid as mechanics bustled round the Siffert/Redman Porsche which had suddenly gone off-song. There was trouble with the transistor ignition and no time to cure it, so the car started the race with only one set of the twin plugs firing. This meant a deficiency of some 600 rpm and twenty bhp.

When the flag fell, Amon made a brilliant start with the 312P, but despite the ignition trouble Siffert was with him all the way round that first lap. On lap 5 'Seppi' whistled by into the lead and from this point on the race was a complete Porsche benefit. The Ford P68, its aerofoil loose and flapping, was retired with low oil pressure after less than half an hour's racing and the Mirage was well down the field after a bad start. While the Porsche 908s, Siffert's

car on Firestones, the rest of the team on Dunlop tyres, were free from the plague of punctures that affected many of the runners, Amon punctured a tyre after 38 minutes' racing and after a wheel-change he rejoined the race in seventh place. With one hour's racing over Siffert led by 80 seconds from Elford and Mitter, Amon was fourth (but a lap in arrears), then came Herrmann who was unable to maintain the pace of his team-mates, Hawkins and Ickx, who was still making up ground, but with a car that was handling far from well.

By the two-hour mark the Siffert/Redman 908 had pulled out a clear lap's lead over Attwood/Elford, with Schütz/Mitter, Amon/Rodriguez and Stommelen/Herrmann all two laps in arrears. The Hawkins/Williams Lola was running like a train in sixth place, the Craft/Liddell Lola was seventh and Ickx/Oliver with the Mirage had slipped back to eighth place. Not long afterwards the Wyer car coasted into retirement with a broken drive-shaft. When the 908s were making their second round of refuelling stops, rain began to fall and the rubber-coated, oil-slicked circuit soon became like a skating rink. For a while many of the runners found themselves indulging in unintended slides and spins, but the circuit soon dried out and at the end of the third hour the first six places remained unchanged. The red Lola of Hawkins/Williams was running magnificently, but most of the other Slough-built cars had had trouble of one sort or another and there was more to come. The Piper/Pierpoint Lola lay in seventh spot and the Gulf Ford of Hobbs/Hailwood—clearly no longer a match for its more modern rivals—was clinging on to eighth place.

Still the Ferrari was battling hard, it snatched a place from the Schütz/Mitter 908 and when Elford had a wild spin at the exit to Clearways, Amon went by into second place as Elford shot back on to the track. When the Ferrari made its next routine pit stop, the Porsche went back in front again. Already Norinder's Lola had spent a long time in the pits having a broken rear wishbone replaced and now Hawkins' Lola, with Jonathan Williams at the wheel, had the same trouble; the wishbone broke as Williams was roaring down Pilgrim's Drop at peak revs in top gear, the car performed an enormous high-speed double spin, luckily without hitting anything, Williams succeeded in regaining control and the car crawled back to the pits and retirement.

With the 908s and the Ferrari having completed their final refuelling stops and just over an hour's racing left to the flag, the outcome was a foregone conclusion. Although Amon, taking the last stint at the wheel, was still pressing on as hard as ever, the car began to lose speed because of a stretched throttle cable. It was at this point in the race Joakim Bonnier at the wheel of the Filipinetti Lola which had been badly delayed by over-heating, began to drive with tremendous élan, passing cars left and right, into and through corners and rushing into Paddock bend, leaving his braking right until the last moment. Then the inevitable happened. As the Lola thundered through

Bottom bend, Bonnier ran wide for some reason, the car careered off the safety bank and rolled over and over along the Armco barrier behind the pits. The T70 came to rest a completely shattered wreck—and Bonnier stepped out of the wreckage, shaken and cut, but otherwise uninjured. Immediately Eric Broadley asked the team managers of other Lolas still in the race to call their cars to have the rear wishbones checked. On two cars, those of Piper and Trevor Taylor, hairline cracks in the wishbones were discovered and both cars were withdrawn.

Stommelen's Porsche punctured a tyre and its fuel tank on the wreckage of Bonnier's Lola, losing 22 minutes and fifth place to the Gulf Ford while these were changed. The Schütz/Mitter Porsche swept past the ailing Ferrari and so at the chequered flag the order was Porsche—Porsche—Porsche—Ferrari—Ford—Porsche. It had been a gallant effort by Maranello and the team now set its sights on Monza where with a two-car team its chances of victory would be much greater. Despite a multitude of problems—driver John Miles reckoned that the car was not capable of covering even one more lap—the Lotus 62 finished thirteenth and won its class. This car, decked out in Gold Leaf red, white and gold colours, was intended as a test bed for the new engine rather than as a serious competition car with a full racing programme ahead of it and Colin Chapman was well satisfied with its performance.

Monza: a gallant Ferrari effort

The 1,000 Kilometres race at Monza, which prior to 1970 was held on the combined 6.214-mile road and banked track circuit, usually provided one of the best speed spectacles in the year's motor racing and this was especially true in 1969 when a strong team of 908s almost met their match. For this race chicanes were erected before each banking to reduce speed—a cautionary measure because of the very rough state of the concrete surfacing on the banked track—but, even so, the fastest cars were reaching speeds of around 170 mph as they passed the pits on the outer lane of the two at this point on the circuit. Although the Gulf team was forced to miss the race because of a shortage of serviceable engines for the Mirage cars (the GT40s were no longer considered fast enough for this course) and the Autodelta team was too busy sorting out its many problems to race, a strong entry was received from other teams.

Porsche entered four of the long-tail 908 coupés, two new cars and two rebuilt after Daytona and these were driven by Siffert/Redman, Mitter/Schütz, Elford/Attwood and Herrmann/Ahrens. Opposing the strong Porsche entry and the one team that Porsche really feared was S.E.F.A.C. Ferrari with two of the exquisitely styled 312Ps, cars that in contrast to their German rivals were uncluttered by fancy stabilizers and since Brands even the two sets of tabs at the front had been removed. Pedro Rodriguez, signed by Ferrari for all the Championship races, and Peter Schetty, who represented Ferrari

in the European Hill Climb Championship with the new and very interesting Tipo 212E flat-12, car drove chassis no 0868. The other 312P (chassis No. 0870) was entrusted to Chris Amon and Mario Andretti. The Ferrari team was managed jointly by Franco Gozzi and Mike Parkes and the whole team was working together efficiently in a happy atmosphere.

Unless there was an unexpected degree of mechanical carnage, the winner would be one of these six cars. Nevertheless there was plenty to interest the enthusiast amongst the rest of the entry. Matra Sports fielded the MS630/650 *Spyder* that had appeared at the Le Mans Test Weekend. It had elongated rear wings, bridged by a spoiler, there were red identification side-flashes and front intake and it looked the most purposeful Matra Prototype yet built. The drivers were Johnny Servoz-Gavin and Jean Guichet. From Alpine came three of the sluggish A-220 cars. Jean Andruet/Henri Grandsire drove a 1968 car with side-mounted radiators (but the car non-started after the engine blew up in practice), while André de Cortanze/Jean Vinatier and Patrick Depailler/Jean-Pierre Jabouille had the new cars with the radiators in the tail which had appeared at the Le Mans Test Weekend. The Porsche works had been selling off the 907s now that these were superfluous to their needs and five of these were entered. Running with the usual 2.2-litre flat-8 engine were cars for Rolf Stommelen/'Sigi' Lang, Alex Soler-Roig/Eugenio Baturone and Hans-Dieter Dechent/Gerhard Koch. The Soler-Roig car was in fact a last-minute non-starter because of injection pump trouble. The other 907s had 1,981 cc engines and were driven by Nicodemi/Facetti and Manfredini/Vittorio Brambilla. Now that the Tipo 33/2 Alfa had been homologated, the 907 was the fastest available 2-litre Prototype and for several years was a favourite car with private entrants. Both of the V.D.S. Alfas were entered, Pilette/Slotemaker using the 2.5-litre engine and Bourgoignie/Gosselin the 2-litre version. The list of serious entrants was completed by five Lolas (including Bonnier's own car substituted for the Filipinetti car he had crashed at Brands) and the very competitive Ford GT40 of Kelleners/Jöst.

Practice was largely uneventful and Porsche spent much of the first session carrying out comparative tyre tests between the products of Firestone and Dunlop—the Firestones seemed to be worth around a second a lap, but they also ran much hotter. Despite lacking the very sophisticated aerodynamics of the 908s, the Ferraris were a match for their German opposite numbers as the first five rows of the grid, set out below, indicates:

Andretti/Amon
(Ferrari)
2 min 48.2 sec

Siffert/Redman
(Porsche)
2 min 48.7 sec

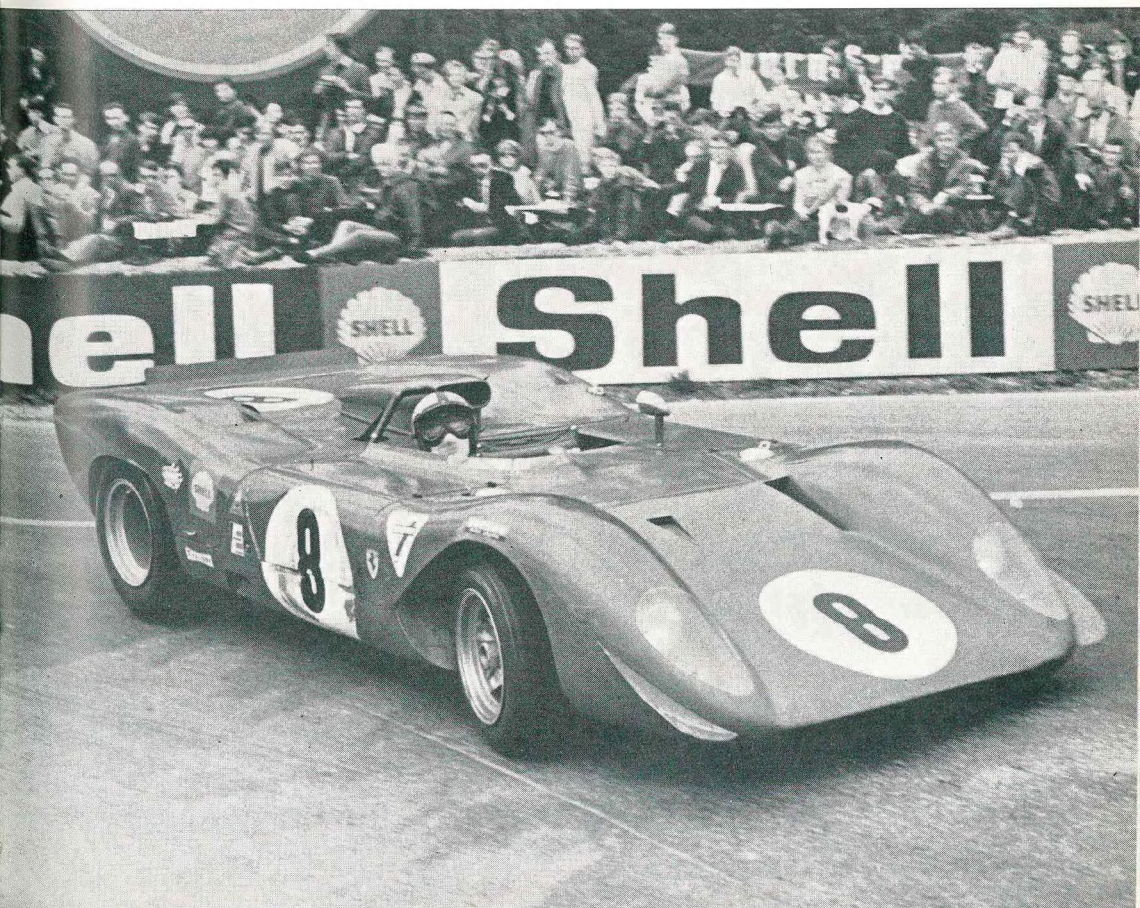
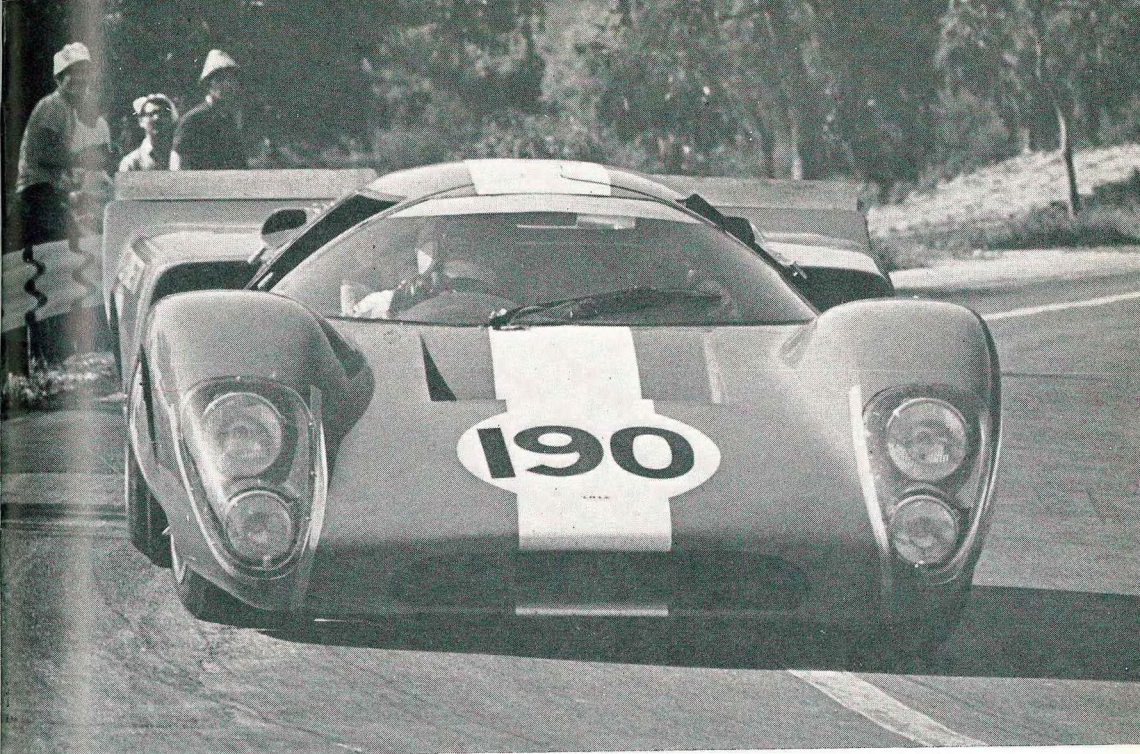
SPORTS CAR CHAMPIONSHIP

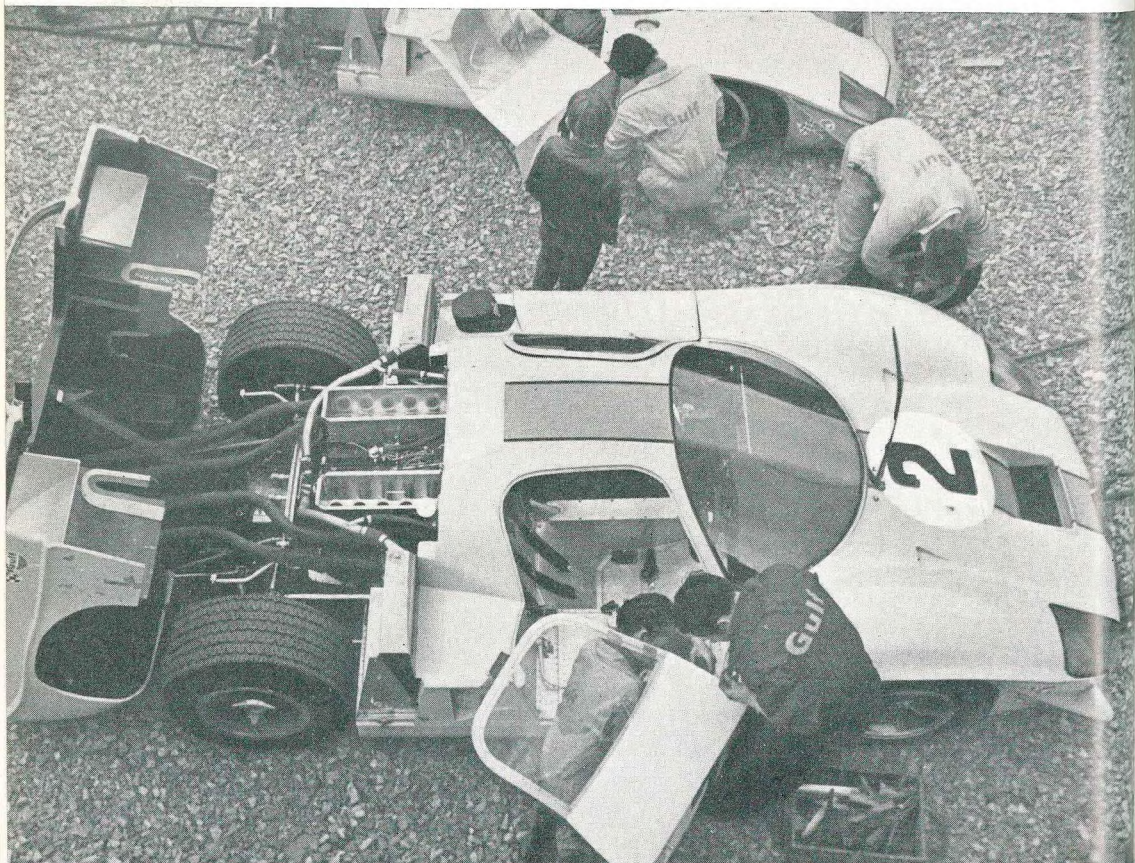
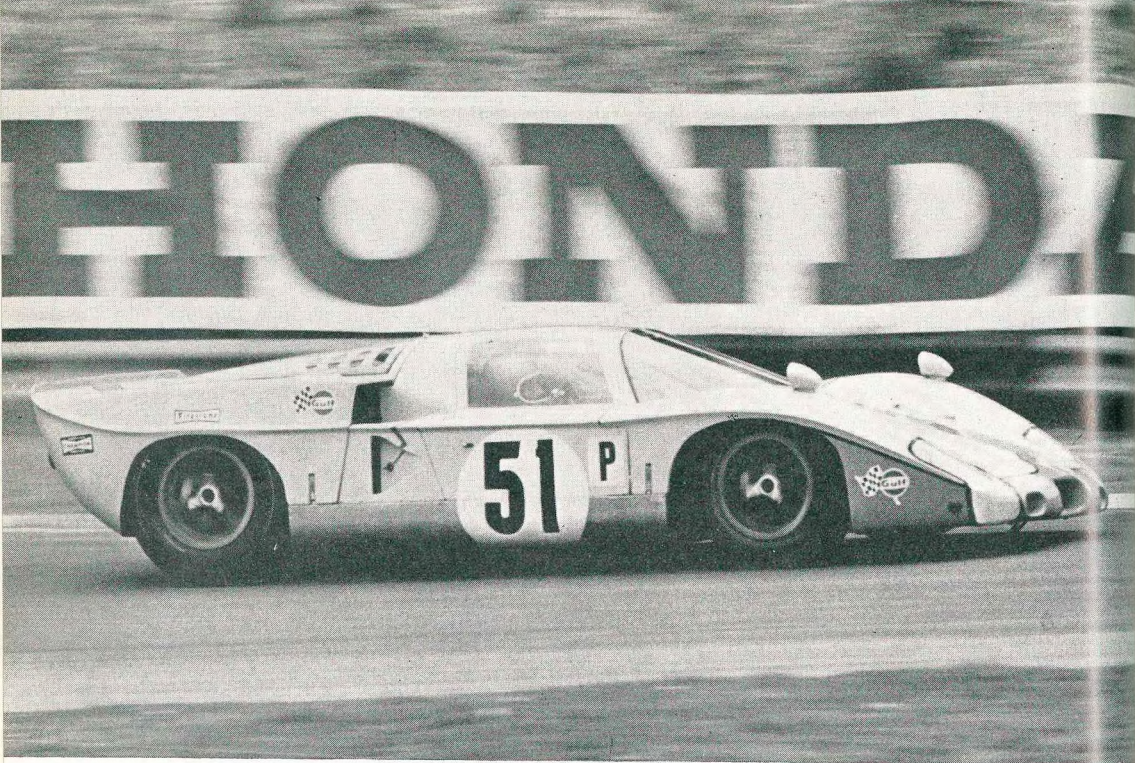
Rodriguez/Schetty (Ferrari) 2 min 50.6 sec	Herrmann/Ahrens (Porsche) 2 min 51.9 sec
Servoz-Gavin/Guichet (Matra) 2 min 53.0 sec	Elford/Attwood (Porsche) 2 min 53.2 sec
Schütz/Mitter (Porsche) 2 min 53.6 sec	Bonnier/Müller (Lola) 2 min 56.0 sec
Widdows/Norinder (Lola) 2 min 58.9 sec	Gardner/de Adamich (Lola) 2 min 59.5 sec

The cars lined up on a dummy grid and then moved forward to the grid proper. While the cars waited for the fall of the flag, the revs rising and falling as the drivers blipped the throttles, the high pitch scream of the Maranello V-12s contrasted sharply, piercingly with the deeper, harsher exhausts of the white 908s. As the flag twitched down, the two Ferraris screamed into the lead in front of Siffert and all the way round the first lap the two Italian and one German car battled for the lead. That the Ferraris had the legs of the 908s as far as sheer speed was concerned soon became obvious, but it was equally obvious that Jo Siffert, the greatest Sports Car driver of the last decade, was going to fight them every inch of the way.

At the end of the first lap Siffert came round sandwiched between the two 312Ps, already the next four runners, Elford, Schütz, Servoz-Gavin and Herrmann had fallen some way back and the Italian crowd was almost hysterical with excitement. Corner after corner, lap after lap Siffert waged a one-man war on the Ferrari opposition; the three cars were closely slip-streaming each other, shooting off the banking nose to tail and weaving through slower cars that got in their way. Already it seemed that Ferrari had made a tactical mistake, for it was foolish for both Maranello cars to battle for the lead and obvious that one should be playing a waiting game. Barely had the race started than mechanical troubles began; Bonnier pitted his Lola at the end of the first lap with over-heating, while of the other Lola entries,

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- 13 This Lola T70 entered by the Scuderia Filipinetti was driven brilliantly by Herbert Müller in the 1969 Targa Florio, but retired with suspension trouble. (*Motor Sport*).
- 14 Ferrari returned to Prototype racing in 1969 with the strikingly sleek and devastatingly swift 312P V-12 3-litre car. At Spa the sole car entered was driven into second place by Pedro Rodriguez and David Piper. (*Nigel Snowdon*).





Gardner brought the Sid Taylor car in to be checked after it had been rammed and Widdows came in with Norinder's car for the nose to be patched after an altercation with an Alpine. Manfredini retired his 907 with engine trouble and with only ten laps gone Schütz brought his 908 into the pits with the gear-lever jammed in second. The trouble was eventually cured and the car resumed the race with Mitter at the wheel.

On lap 12 Siffert out-braked Rodriguez into the chicane and before the Mexican had pushed through to the front again, Andretti was crawling back to the pits with a flat tyre. The wheel was changed, the opportunity was taken to top up the fuel tanks and Andretti resumed the race, having lost only three places. Behind the two leaders the order was now Elford—Servoz-Gavin—Herrmann—Andretti; the French car was soon in trouble and made the first of several pit stops because of fuel starvation. The Alpines of Depailler and de Cortanze were seventh and eighth, but the latter's car retired shortly afterwards with a blown-up engine. The first refuelling stops came just after quarter-distance and Rodriguez stopped to hand over to Schetty who rejoined the race without losing the lead. Schetty was lapping faster than Redman who had relieved Siffert and now Andretti regained third place by passing Elford.

The fuel-feed trouble on the Matra had resulted in over-heating and a cracked cylinder head and this car, which had run well in practice and the early laps of the race, came in to retire. Paul Hawkins retired his Lola with a seized front wheel bearing and the similar cars of Craft/Liddell and Widdows/Norinder were out with transmission and engine trouble respectively. The Schütz/Mitter Porsche had still been plagued with gear-selector trouble after it rejoined the race, a missed gear caused the revs to soar and damaged the engine and after plugging round at the back of the field, it came in to retire.

Ferrari's hopes of victory began to evaporate on lap 37. On that lap a tyre punctured on the leading car and Schetty came in for a wheel-change. When Schetty tried to re-start the car, the engine refused to fire. Eventually the car was push-started and then, in accordance with race regulations, the engine was switched off and re-started by the driver on the starter motor. Schetty had now lost over a lap and Redman led from Amon. Amon closed right up on the leading 908 and then passed it just before he was due to come in to refuel. By the time the New Zealander was back in the race, the order was Redman, Attwood, Schetty and then himself. Sad to relate, Amon's Ferrari had completed less than half a lap after rejoin-

15 John Wyer's answer to the Prototype regulations was the Mirage M2 seen here on its debut at the 1969 B.O.A.C. race where it was driven by Ickx and Oliver. (*Guy Griffiths*).

16 Another view of the B.R.M.-powered Mirage. This car was driven by Ickx and Oliver at Spa in 1969. (*Nigel Snowdon*).

ing the race before the engine blew up. When he reached the pits Amon was heard to comment, 'Why can't you build an engine that lasts?' Attwood brought his 908 for the fan driving belt to be replaced and this took a long time to sort out. Although Redman now led by almost a lap from Schetty, the Ferrari team was still far from beaten and the fight continued.

Slowly, but surely, Schetty closed the gap between himself and Redman and then another burst tyre reduced all his hard work to nothing. When the 312P rejoined the race, Pedro Rodriguez was at the wheel, determined to drive at his hardest. Trying a little too hard, 'Mexican Pete' lost the Ferrari at Parabolica while avoiding a slower car and spun the car into a guard-rail. Both nose and tail of the 312P were shattered, but when he reached the pits, Rodriguez waited only for a new wheel to be fitted and rejoined the race without giving Mike Parkes any explanation as to what had happened. Very quickly he closed up on the second-place 908 of Herrmann/Ahrens and then, while the Ferrari was travelling at around 170 mph, the complete tail-section disintegrated, a direct result of the earlier accident. The car went out of control into a high-speed spin, smacked backwards into the guard-rail and careered on, rear suspension completely wrecked, until it came to rest some four hundred yards down the track. And Pedro stepped from the shattered remains shaken, but otherwise unhurt.

Now all the 908s had to do to win was to cruise on gently. An hour before the finish a tyre punctured on Elford's 908 at the Vialone curve and the car wrote itself off against the guard-rail—but yet again, the driver stepped out of the wreckage completely unhurt. After five hours of some really exciting motor racing the 908s of Siffert/Redman and Herrmann/Ahrens took the first two places ahead of the 2.2-litre 907 of Koch and Dechent. Fourth place went to the smoothly driven GT40 of Kelleners and Jöst and this car also won the Group 4 class. On the last lap Gardner, at the wheel of Sid Taylor's Lola, collided with the Alpine of Depailler as the two cars battled for fifth place and despite the Frenchman being carried off to hospital in an ambulance, he and his co-driver were classified sixth!

Porsche push-over in the Targa Florio

Prior to the 1969 race Porsche had already won the Targa Florio eight times (and their score now stands at ten victories), a distinction matched only by the pre-war exploits of Alfa Romeo. As in 1968 no works Ferraris and no cars from the Wyer team were entered, and as the 3-litre Alfa Romeos were still not raceworthy, the only opposition faced by Porsche came from a team of the older Tipo 33/2 Alfas.

As usual Porsche had given a great detail of thought to the little details that make all the difference between victory and failure. An armada of six 908 *Spyders* was entered, basically as raced at

Sebring and Brands Hatch, but running on Dunlop tyres with extra-thick sidewalls to cope with the rough going and bulges on the noses revealing the mounting position of the spare wheel not usually carried. The cars were road-registered and for identification purposes were distinguished by differently coloured noses, spoilers and tail-panels. The cars sported the longer trim-tabs either side of the nose first seen at Brands Hatch and the headlamps were partially blanked over. These six cars were driven by Vic Elford/Umberto Maglioli (blue markings), Brian Redman/Dickie Attwood, Gérard Larrousse/Rudi Lins, Gerhard Mitter/Udo Schütz, Karl von Wendt/Willibert Kauhsen and Rolf Stommelen/Hans Herrmann (all white, no identification markings). Siffert was not in the team because the race clashed with the Spanish Grand Prix. Porsche also entered a 911R Group 6 version of their production car with lightweight glass-fibre panels and the four-cam 910 engine for Dieter Spoerry and Pauli Toivonen (the latter a rally driver). Four 907s were also privately entered.

From Autodelta came three Tipo 33/2 cars; Nino Vaccarella and Andrea de Adamich drove a version with a 2,500 cc engine and the normal 2-litre cars were handled by Ignazio Giunti/'Nanni' Galli and Mario Casoni/Spartaco Dini. In practice Dini crashed this Tipo 33/2 and so co-driver Casoni shared the wheel of Antonio Zadra's privately entered car. Another private Alfa was the car in Group 6 trim of Giorgio Alberti/Enrico Pinto. Very much a dark horse and not likely to stay the course was the Scuderia Filipinetti Lola driven by Joakim Bonnier and Herbert Müller. For this race the car had been strengthened as much as possible—especially so far as the suspension was concerned.

The 908s dominated practice and the Stommelen/Herrmann car turned in quickest lap in 36 min 22.2 sec (twenty seconds slower than the lap record set by Elford in the 1968 race), and the Filipinetti Lola was the fastest of the opposition (fifth fastest overall) with a time of 37 min 8.7 sec.

As so often happens at the Targa Florio, the start was delayed from 8 am and the first of the cars did not get away until twenty-five minutes later. A very orderly departure list had been prepared by the organizers, but in fact the cars were sent off in untidy gaggles and all 79 starters were away in only six minutes. The first car to leave was Vaccarella's Alfa, but by the town of Cerda, a mere eight kilometres from the start, Elford led the race on time, followed by Mitter, Stommelen, Vaccarella, Attwood and Koch (2.2-litre 907). Because of the bunched start, there was a great deal of pushing and shoving and some rather dicey over-taking on that first lap and in these conditions the performance of Müller with the Filipinetti Lola was all the more remarkable. Having lost two minutes at the start because of ignition trouble, Müller carved his way past sixty cars on the first lap to hold third position on time behind the 908s of Elford and Mitter which had enjoyed a fairly clear run.

On the second lap the mechanical carnage began. Elford lost his

lead because of a stop for the alternator belt to be changed (an almost perennial Porsche weakness) and Müller suffered a puncture on the Lola. By the time he had crawled back to the pits on the rim, all the time he had made up on the first lap had been lost. Bonnier now took the wheel, but it seemed that the suspension had been damaged, the car was handling appallingly and after a very hairy moment at around 200 mph on the bumpy straight Bonnier came in to retire at the end of lap 3. Lins brought his 908 in with gear-selector trouble and when it was finally cured, Larrousse took the wheel.

As the leaders pressed on with their third lap of the 44.7-mile course, Mitter/Schütz led from the well-driven 2-litre Alfa of Giunti/Galli and with the Herrmann/Stommelen Porsche in third place. Fourth was the 2.5-litre Alfa of Vaccarella/de Adamich. While holding twelfth place, the 911R Porsche caught fire and Toivonen was forced to abandon it. On lap 4, Elford, pressing on as hard as possible to make up lost ground, caught up with Galli's Alfa. After trying to edge past at several points, 'Quick' Vic decided to waste no further time and on a hairpin bend simply shoved the Alfa out of his path and the Italian car hit a wall and punctured two tyres. Although Galli rejoined the race, the rear suspension of the Tipo 33 had been damaged and the car crashed on the next lap. So the 908s were now in the first three places and the fourth-place Alfa of Vaccarella/de Adamich was falling back with a sick engine. On lap 6 the 2.5 Alfa retired with engine failure and on the following lap Attwood abandoned his 908 out on the circuit with drive-shaft failure. Another Alfa retirement was Zadra's car which caught fire after Casoni glanced off a tree and hit a wall.

Now the race was a Porsche landslide, but even at the start of the last lap Elford and Maglioli who had been driving as brilliantly to make up lost ground as they had the previous year, were still hoping to pull a win out of the hat. At the beginning of lap 10 Elford was just under 4½ minutes behind team-mate Mitter and at the chequered flag he was still 2 minutes 40 seconds in arrears. For Porsche the race had been a magnificent demonstration of speed and reliability, but it would have been a much more exciting and closely fought affair if only Ferrari had entered the 312Ps.

The full results were:

- 1st, G. Mitter/U. Schütz (Porsche 908), 72.99 mph,*
- 2nd, V. Elford/U. Maglioli (Porsche 908),
- 3rd, H. Herrmann/R. Stommelen (Porsche 908),
- 4th, K. von Wendt/W. Kauhsen (Porsche 908),
- 5th, E. Pinto/G. Alberti (Alfa Romeo 33/2),*
- 6th, G. Koch/H-D. Dechent (Porsche 907 2.2-litre), 9 laps,
- 7th, C. Manfredini/L. Selva (Porsche 907 2.2-litre), 9 laps,
- 8th, E. Bitter/H. Kelleners (Abarth 2000S), 9 laps,*
- 9th, R. Aaltonen/S. Munari (Lancia Fulvia HF 1.6-litre), 9 laps,
- 10th, E. Ostini/'Nomex' (Porsche 911T 2-litre), 9 laps,*

*Class winners.

Spa: Siffert is again supreme

With only seventeen days encompassing the Monza, Targa Florio and Spa races, any team competing in all three needed a large number of cars and vast financial resources—and the only team with resources on this scale was Porsche who brought to the Belgian race a mixed bag of 908 and 917 cars. In 1969 the Belgian Grand Prix at Spa-Francorchamps was cancelled on safety grounds and although the Royal Automobile Club of Belgium, the organizers of that race, had acceded to pressure from the Grand Prix Drivers' Association, the same considerations did not apply to the Royal Automobile Club of Spa, organizers of the 1,000-kilometre race, for most Sports Car drivers positively like the circuit.

For the first time Porsche entered two of the brutally powerful 917 cars in long-tail form and these were to be driven by Siffert/Redman and Schütz/Mitter and although only two long-tail 908s had been entered for Stommelen/Herrmann and Elford/Ahrens, two spare cars were brought along in case the 917s should prove less competitive than anticipated. Right from the start of practice—which was wet throughout—the 917s proved a real handful, twitching badly along the straights and using all the road through the corners. Obviously a lot more development work was needed before the 917 would be a race-winning proposition; it was decided to run only one car for Mitter/Schütz and Siffert/Redman transferred to a 908. Backing up the works cars were two 2.2-litre 907s entered by the BG team for von Wendt/Kauhsen and Dechent/Koch.

Originally Ferrari had entered two of the beautiful 312Ps, but Rodriguez's accident at Monza had made it impossible for the team to get two cars ready. The sole entry (chassis No 0870) was driven by Rodriguez and David Piper. Chris Amon was unwell and the choice of Piper for a place in the team meant that this privateer who had raced Ferraris for so many years was at last getting some recognition from the works. The John Wyer team now produced two of the rather disappointing Mirage coupés. Chassis No 2, the car used at Brands Hatch, was driven by Ickx/Oliver and had a two-pipe exhaust system with megaphones devised by Gulf engineers, while a new car, chassis No 3, was driven by Hobbs/Hailwood and this had a four-pipe exhaust system evolved by Weslake Engineering. Matra Sports had originally entered two cars, but the entries were scratched after a fire in the engine testing shop, and so the only wearers of the blue were a trio of Alpines. Jabouille/Grandsire and de Cortanze/Vinatiers had 1969 cars with the radiators mounted across the tail and Andruet/van Lennep drove a 1968 car. The V.D.S. team fielded their two Alfas with 2.5-litre engines for the usual driver pairings, Pilette/Slotemaker and Bourgoignie/Gosselin. Apart from the sole 917, the Group 4 cars were very thin on the ground at this race, but there were a total of three Lola T70 Mk 3B cars, Hawkins' red car which he shared with David Prophet, the Scuderia

Filipinetti car driven as usual by Bonnier and Müller and Troberg's car which was co-driven by Rothstein.

Although a very brave Siffert had set fastest lap in practice with the 917 in 3 min 41.9 sec, this was discounted when he and Redman opted to drive the 908 and the fastest official practice times were as follows:

1. P. Hawkins/D. Prophet (Lola T70)	3 min 42.5 sec
2. J. Ickx/J. Oliver (Mirage)	3 min 46.6 sec
3. J. Siffert/B. Redman (Porsche 908)	3 min 48.6 sec
4. P. Rodriguez/D. Piper (Ferrari 312P)	3 min 56.3 sec
5. J. Bonnier/H. Müller (Lola T70)	3 min 57.4 sec
6. V. Elford/K. Ahrens (Porsche 908)	3 min 59.1 sec
7. H. Herrmann/R. Stommelen (Porsche 908)	4 min 1.7 sec
8. G. Mitter/U. Schütz (Porsche 917)	4 min 6.1 sec

Despite rain throughout practice, race day was fine and clear and although the sky clouded over later on, the race was run in the dry throughout for the first time since 1966. The bright red Lola of Paul Hawkins went straight into the lead at the start and was still leading at the end of the first lap from Siffert, Rodriguez, Ickx and Bonnier. Already the 917 was in trouble and it came in after only a single lap to retire with a damaged engine. That Hawkins should lead was not a situation acceptable to Siffert and when he went in front on lap 3, Rodriguez followed through in his slip-stream. At the end of lap 4 Herrmann came into the pits to complain that there was something wrong with the steering. A quick check of the car revealed a piece of metal embedded in one of the rear tyres and by the time the wheel had been changed and the car rejoined the race, it had lost fifteen places.

Siffert and Rodriguez were battling furiously for the lead in a repetition of their Monza duel and at the start of lap 8 they caught up and were about to lap Karl von Wendt's Porsche 907 which was motoring serenely down the middle of the track. At the Eau Rouge bridge Siffert squeezed the 908 through on the inside, but there was not enough room for the Ferrari, the 312P hit the Porsche and while the 907 spun over a bank and wrecked itself against an advertisement hoarding, the Ferrari carried on slowly. At the pits next time round Rodriguez stopped to have the bodywork checked and lost his second place to the Lola of Paul Hawkins. The faster Mirage had been slowed by fuel starvation, Ickx stopped at the pits where the mechanics busied themselves for five minutes replacing the fuel pump, but it was to no avail and after another lap and a half Ickx retired the B.R.M.-powered car out at Stavelot.

With fifteen laps completed Siffert led by nearly a minute from Hawkins, with Rodriguez third and then came Elford, Rothstein, Koch, Pilette and Bonnier with the second of the Mirages trailing in eleventh place. After the first refuelling stops Rodriguez was back in second place behind Siffert, but was not able to catch him. Rodriguez still

stayed at the wheel after the second refuelling stop and as Redman, who had relieved Siffert, strived to keep the Ferrari at bay, he set a new lap record of 3 min 37.1 sec (145.28 mph). When Siffert resumed at the wheel of the leading Porsche at the half-distance mark, the 312P was 47 seconds behind. Rodriguez stopped on lap 47 to refuel and for Piper to take over and it soon became obvious that the British driver could not maintain the pace set by his Mexican team mate. Now Elford, holding third place ahead of Hawkins, was rapidly closing up on the Ferrari and Zuffenhausen was clearly aiming for a 1-2 finish. When Siffert lapped Elford, 'Quick' Vic tucked into his team-mate's slip-stream and he began to get dangerously close to the Ferrari. Only a lap and a half before the finish poor Paul Hawkins lost all oil pressure on the Lola and had to abandon the car out on the circuit, with the result that the fifth-place Lola of Bonnier and Müller won the Group 4 category. Elford closed within eleven seconds of Rodriguez, but was then baulked by slower cars and, when Siffert took the chequered flag at the end of 71 very fast and furious laps, had not been able to make up the deficit. With Siffert/Redman winning at record speed (141.20 mph) and the other 908s of Elford/Ahrens and Stommelen/Herrmann in third and fourth places the race was yet another triumph for Porsche. But one could not help wondering how well the team would fare without the services of that maestro of Sports Car racing, Jo Siffert. This was the third victory that Siffert and Redman had scored so far in 1969 and there were two more yet to come. The rather slow Mirage of Hobbs and Hailwood finished seventh, but it was all of six laps in arrears.

Racing at the Ring

Porsche had won the Nürburgring 1,000 Kilometres race in both 1967 and 1968 and the team was all set to make it a hat-trick with only a solitary Ferrari standing between them and victory. At this race Zuffenhausen entered a total of six of the 908 *Spyders* and these are best summarized as follows:

No 1: Porsche had now introduced a new version of the *Spyder* that became known in due course as the 908/2. The body was generally much smoother, with a slightly raised glass-fibre panel round the cockpit, instead of a windscreen, and a faired-in cockpit. The body of this car had been designed for use with fully operative flippers as on the 908 coupés, but since the C.S.I. ban on moveable aerodynamic devices, small fixed spoilers had been substituted. It was also intended to race the 908/2 on some circuits with a longer tail, fully enclosing the mechanics. No 1 was one of three of the new cars at the Nürburgring and was to be driven by Siffert/Redman. Practice revealed that the 908/2s were not as stable as the earlier version and after Siffert had crashed his car in unofficial practice on the short Sudschleife circuit, the spare Porsche Konstruktionen Salzburg car was substituted. This

- was painted in the Austrian team's colours of white with the tops of the wings in red, but the spoilers and trim-tabs were painted in the usual Siffert/Redman identification colour of green.
- No 2: This was a normal works 908 driven by Mitter and Schütz with red nose and spoilers for identification purposes.
- No 3: This was another of the new 908/2s entered by the works for Elford/Ahrens. Elford crashed the car in practice on the Friday so the pair took over the team's own spare standard car.
- No 4: This was the one 908/2 which did start the race and it was driven by Herrmann/Stommelen. It was painted white with a red patch on the bonnet.
- No 5: An ordinary 908 entered by the works for Kauhsen/von Wendt. Neither of these drivers really justified a works drive and one wondered whether von Wendt had been favoured in spite of or because of his antics at Spa.
- No 6: This ordinary 908 was entered by Porsche's Austrian subsidiary for Attwood/Lins. Porsche Konstruktionen Salzburg was a concern about which a great deal more was to be heard in 1970; this car was finished in the Austrian team's red and white colours.
- No 61: To this race Porsche had brought along just the one 917 and no one was very keen to drive it. The manager of the B.M.W. Formula Two team, Steinmetz, had agreed to release Hubert Hahne and Dieter Quester to drive the car, but when the B.M.W. directors heard this, the very idea that such valuable property as their drivers should handle an unproven brute like the 917 horrified them and they vetoed the decision. At the last moment David Piper and Australian Frank Gardner flew from London to drive the car.

Number 7 in the entry list was the rather lonely 312P Ferrari (chassis No 0870) which was driven by Chris Amon and Pedro Rodriguez. The John Wyer team had entered two Mirages to different specifications described in the preceding chapter. The completely new Cosworth powered car was driven by Ickx and Oliver, while the version with a 48-valve B.R.M. engine was handled by Hobbs and Hailwood. Three private 907s were fielded, a 2.2-litre version driven by Koch/Dechent and 2-litre cars by Manfredini/Biscaldi and Nicodemi/Moser. Despite a successful testing session at the circuit, Alfa Romeo decided against running the Tipo 33/3 3-litre cars and instead there appeared three of the familiar 2-litre models entered in the name of Alfa Romeo Deutschland. These were driven by de Adamich/Vaccarella, 'Nanni' Galli/Giunti and Schültze/Facetti.

Apart from the prangs of the Porsche drivers—and several near misses when 908s went temporarily out of control after taking off on the bumps—practice was happily incident-free. The lap record, set in April, 1969, stood to the credit of Jackie Stewart with a Formula Two Matra in 8 min 5.3 sec (105.26 mph), but this was bettered in

practice by four runners. Fastest of all was Siffert who turned in a sizzling 8 min 0.2 sec and Amon was only a tenth of a second slower with the Ferrari. Gardner and Piper had their initiation with the 917 in Saturday's wet practice. Neither motored quickly, both complained about the brakes and Gardner was particularly unhappy about the roadholding and directional stability. Nevertheless they were both the sort of driver willing to 'have a crack' and their *sang froid* made the reluctant members of the Porsche team look rather abashed.

A rolling start was adopted and the cars were led round the South curve, down to the North curve and back on to the pits straight via the loop road behind Juan Fangio in a Mercedes convertible and then released. The drivers could not see the flag clearly, several hesitated, Amon was completely blocked in and Siffert shot through into the lead. By the end of the first lap the 908s of Siffert and Mitter led Amon, Elford, Attwood and Stommelen. Early retirements were the Alfa of Giunti/Galli with a blown-up engine and the 2.5-litre V.D.S. Alfa which Pilette crashed. Amon was working hard to get to the front, he passed Mitter on lap 4 and began to chase after 'Seppi'. The 917 was rumbling round in fourteenth place, followed by the Chevron of John Hine which was completely over-shadowed by its bulk.

From the rolling start Siffert had set a new Sports Car lap record of 8 min 29.4 sec and lap after lap he and Amon turned in quicker and quicker times. When Redman took over from Siffert and Rodriguez relieved Amon, it seemed likely that the Ferrari would be able to catch the Porsche. Instead, however, Redman increased the 908's lead. Ahrens and Herrmann moved up a slot to third and fourth places when Schütz brought his 908 in with a seized left-hand front wheel bearing. The mechanics started working on the stricken 908 and it rejoined the race after a stop lasting forty minutes. Oliver had brought the Ford-powered Mirage in to have the steering tightened up and now the two Slough-entered cars were lapping in convoy. Hail started to fall and most of the drivers sensibly adjusted their speed to suit the slithery conditions. Now serious troubles struck the Wyer team. Oliver was forced to abandon his car out at Karussel with collapsed rear suspension and Hailwood's car spluttered to a halt with loss of fuel pressure. The Motor Cycling Champion did not know how to open the engine cover to investigate the trouble and despite a desperate plea for help from the Wyer pit given out over the public announcement system, the car had to be abandoned.

When Redman stopped at half-distance to refuel and to hand over to Siffert, he had pulled out a lead of nearly two minutes. The Ferrari was as out of luck as it had been in earlier races during the season. At its pit stop a front and rear tyre needed changing, the car was stationary for more than a minute and when Amon rejoined the race, he had dropped to fourth place behind the 908s of Herrmann and Ahrens. Amon pressed on as hard as possible and caught and

passed Elford (who had now relieved Ahrens), but he was then forced to stop at the pits again because of a very bad front end vibration. The other front tyre was changed, the car rejoined the race and Amon, really in the groove, turned in what was to prove to be the fastest lap of the race—a new record of 8 min 3.3 sec (106.70 mph). On lap 29 the Ferrari came to a halt out on the circuit at Wippermann, four miles from the pits. The cause was electrical trouble and Chris set to work with a pair of pliers and wire. Eventually he managed to start the car, but he had travelled only a short distance before the trouble recurred and he was forced to abandon the 312P.

As so often happened in 1969, the race turned into a Porsche procession. Siffert and Redman went on to score yet another victory, followed across the line by the cars of Stommelen/Herrmann, Elford/Ahrens, Attwood/Lins and Kauhsen/von Wendt. In sixth place and winning the Group 4 class was the very well driven GT40 of Kelleners/Jöst and the Alfa of Facetti/Schültze finished seventh and won the 2-litre Group 4 class. And what of the 917? Perhaps the most complimentary thing to be said about this unwieldy beast was that it was still running. After a slow, difficult race Gardner and Piper brought it home in eighth place, four laps behind the winner. And many pundits were wondering whether Porsche had bitten off more than they could chew and doubted if the car would ever win a race.

Le Mans: the fall of the mighty

Restored to its usual place in the racing calendar, the second weekend in June, the 24 hours race at the Sarthe circuit attracted an enormously strong entry. Apart from works cars from Porsche, Ferrari, Matra and Alpine and the John Wyer entry, the first 917 in private hands was entered and there was a new and rather special Ford GT40. The principal contenders were (practice times are given in parentheses):

Entered by J.W. Automotive Engineering Ltd:

No. 6: Ford GT40: J. Ickx/J. Oliver (3 min 37.5 sec)

No 7: Ford GT40: D. Hobbs/M. Hailwood (3 min 39.5 sec)

It was only too obvious that the Mirages were neither reliable enough to last 24 hours nor fast to be worth entering one as a front runner in the early hours of the race. So the faithful GT40s had been refurbished with Ickx/Oliver at the wheel of chassis No 1075 (the 1968 Le Mans winner) and Hobbs/Hailwood driving chassis No 1076. Extensive engine tests had been made at the Maidenhead works of Vandervell Products where there were exceptionally good testing facilities—one of the engines had been run for 45 hours—and it was indicated that power output was now 450 bhp compared with 412 bhp of the 1968 cars. The weight of the GT40s had risen since 1968

because of the installation of automatic fire extinguisher systems.

Entered by the Woolfe Racing Team:

No 10: Porsche 917: H. Linge/J. Woolfe (3 min 35.8 sec)

This was the first 917 to pass into private ownership, although in fact it had come from Stuttgart in a works transporter and was being looked after by the works mechanics. It had been originally intended that this car should be driven by Woolfe's fellow Chevron enthusiast Digby Martland, but after two rather hair-raising laps in practice which culminated in a collision with a crash barrier just before the Mulsanne straight, Martland wisely decided that discretion was the better part of valour and it was arranged that Woolfe should be partnered by veteran Porsche driver Herbert Linge. The practice time credited to this car had in fact been set by Kurt Ahrens.

Entered by Porsche System Engineering:

No 12: Porsche 917: V. Elford/R. Attwood (3 min 26.7 sec)

No 14: Porsche 917: R. Stommelen/K. Ahrens (3 min 22.9 sec)

Despite the ban on moving aerodynamic aids passed by the Commission Sportive Internationale at the Monaco Grand Prix in May the 917s had arrived at Le Mans with fully operative rear flippers. Porsche argued that the cars had been homologated in this form and that tests at Hockenheim had shown conclusively that the cars would be dangerous without them. To prove his point Steinemann sent Stommelen out with a 917 having the flaps fixed, the car did look horribly unstable (something not difficult to achieve in a car having over 500 bhp at its disposal) and as a compromise the 917s were allowed to practice with the flaps operative. Matra threatened to withdraw from the race if the 917s were allowed to run in contravention of the latest C.S.I. ruling and a petition sent round by Steinemann seeking support for his argument was not signed by either Joakim Bonnier or Franco Gozzi (for Ferrari). The final decision was a great victory for Steinemann, the 917s were allowed to run with their flaps operative and the 908s had to run with them fixed (and in any case Steinemann had not sought any special concessions for the Prototypes).

No 20: Porsche 908 *Spyder*: J. Siffert/B. Redman (3 min 29.9 sec)

The fastest of the Porsche drivers had elected to drive the *Spyder*, as he considered that its superior handling, braking and good acceleration (resulting from its low weight) more than compensated for its lack of top speed and this was a view that Brian Redman was happy to go along with. The car was the 908/2 version with the longer tail which at this race was surmounted by two tall tail fins.

- No 22: Porsche 908 *Lang* coupé R. Lins/W. Kauhsen (3 min 32.6 sec—time set by Siffert)
 No 23: Porsche 908 *Lang* coupé: U. Schütz/G. Mitter (3 min 35.6 sec)
 No 64: Porsche 908 *Lang* coupé: H. Herrmann/G. Larrousse (3 min 35.6 sec)

With this vast entry of six highly competitive cars of three types Porsche appeared to have thrown everything into the ring to achieve success and it was estimated that the entry cost something in the order of £300,000!

Entered by S.E.F.A.C. Ferrari S.p.A.:

- No 18: Ferrari 312P chassis No 0870: P. Rodriguez/D. Piper (3 min 35.5 sec)
 No 19: Ferrari 312P chassis No 0868: C. Amon/P. Schetty (3 min 35.6 sec)

For this race the 312Ps appeared with the very handsome coupé tops, the results of tests at Monza and Modena. So good were the aerodynamics of this new body shape that no trim tabs were used and there was only a very small spoiler at the rear. Both cars had the heavier gearbox designed for Group 6 racing and not the lighter 'box tried on one of the cars at Monza. The car driven by Amon/Schetty had the anti-dive characteristics eliminated. Although every effort had been made to prepare the cars for long-distance reliability, there were grave doubts as to whether the full Grand Prix engines would be able to survive the distance.

Entered by Société des Automobiles Alpines:

- No 28: Alpine A-220: A. de Cortanze/J. Vinatier (3 min 44.9 sec)
 No 29: Alpine A-220: P. Depailler/J-P. Jabouille (3 min 45.6 sec)
 No 30: Alpine A-220: H. Grandsire/J-C. Andruet (3 min 47.2 sec)
 No 31: Alpine A-220: J. P. Nicolas/J. L. Therier 3 min 45.0 sec)

Three of the cars were the 1969 version with tail-mounted radiators, but No 31 had the 1968 side-radiator layout. No 29 was nominally entered in the name of Ecurie Savin Calberson and as the practice times reveal, none of the cars was competitive.

Entered by Equipe Matra Elf:

- No 32: Matra MS630: J. Guichet/N. Vaccarella (3 min 44.6 sec)
 No 33: Matra MS650: J. P. Beltoise/P. Courage (3 min 37.5 sec)
 No 34: Matra MS630/650: J. Servoz-Gavin/H. Müller (3 min 36.4 sec)
 No 35: Matra MS630/650: 'Nanni' Galli/R. Widdows (3 min 43.8 sec)

A very mixed bag—and as indicated in the preceding chapter not really the entry that Matra had intended to field. Backed by very heavy sponsorship and publicity from the state-owned Elf oil concern, Matra Sports were taking Le Mans very seriously and their entourage included five caravans and 105 personnel.

Other large-capacity contenders:

No 2: Lola T70 Mk 3B-Chevrolet: J. Bonnier/M. Gregory (3 min 36.2 sec)

This was the Scuderia Filipinetti entry, distinguished by its immaculate red paintwork, and the only Lola in the race following the withdrawal of the quasi-works entry after Paul Hawkins' death in the Tourist Trophy. The power unit was a dry sump Traco. Masten Gregory had co-driven to victory with Jochen Rindt at the wheel of a N.A.R.T. Ferrari in 1965 and while it lasted, this car was likely to be very competitive.

No 8: Ford GT40: P. Sadler/P. Vestey (3 min 57.7 sec)

No 9: Ford GT40: F. Gardner/M. Guthrie (3 min 42.7 sec)

No 68: Ford GT40: H. Kelleners/R. Jöst (3 min 51.1 sec)

The Gardner/Guthrie car was a very special GT40 prepared and entered by Alan Mann Racing on Guthrie's behalf. The chassis was said to be ex-Holman and Moody, but the chassis No. was given as 1009 which made it the car raced by Peter Sutcliffe in 1965-6. Running with Gurney cylinder heads and Tecalemit fuel injection, power output was around 465 bhp and the suspension had been rebuilt to include a number of Mk 2 (7-litre) components. The Kelleners/Jöst car was that sponsored by the German magazine *Deutsche Auto Zeitung* and already in 1969 it had won its class at Monza and the Nürburgring.

Because of the French Presidential elections the start of the race was brought forward from 4 pm to 2 pm. For the last time the traditional Le Mans start was used and while other drivers sprinted to their cars, Ickx, making a mute protest at what he considered to be the unnecessary dangers of this type of start, strolled to his car and carefully did up his seat harness before driving off. First away was his team-mate Hobbs, but in a fraction of a second the blue and orange Ford had been engulfed by a flotilla of white Porsches.

At the end of the first lap the 917s of Stommelen and Elford led the 908s of Siffert, Schütz and Herrmann and the Lola of Bonnier. Seven more cars passed and there was then a long, eerie interval. A thick pall of smoke could be seen hanging over White House corner. Well up with the leaders on the first lap, yet not really experienced enough to handle such an unwieldy piece of machinery, John Woolfe had been pressing on with his 917. At the curves before White House

he put two wheels on to the grass, the car swerved into the crash barrier, over-turned and careered down the road on its roof before breaking into two. Woolfe was thrown out of the wreck, but he was terribly injured and died in the helicopter taking him to hospital. Immediately behind the 917 was Amon's Ferrari; the New Zealander was unable to avoid the blazing fuel tank of the Porsche which wedged under the Ferrari's nose. Amon pulled off the road, pressed the automatic fire extinguisher button on the Ferrari and abandoned it. Wreckage from the crashed 917 blocked the road and the rest of the entry was forced to wait until the track was cleared.

Because of this accident it was many laps before the field settled down to a regular pattern and after the first refuelling stops—the big 917s would only run for just under an hour between stops—the Siffert/Redman 908 took the lead. Already the 917 of Stommelen and Ahrens was in trouble. Shortly after Ahrens had taken the car over, he brought it back because of a crankcase oil leak. This was the beginning of the end for this 917, for although it rejoined the race, several more pit stops were necessary, oil worked its way into the clutch, the car was plagued by exhaust trouble and it was finally retired on the Sunday morning.

With a twelfth of the race over, the order was: 1st, Siffert/Redman (32 laps); 2nd, Elford/Attwood; 3rd, Herrmann/Larrousse; 4th, Schütz/Mitter; 5th, Lins/Kauhsen; and 6th, Servoz-Gavin/Müller with the first of the Matras. Rodriguez/Piper were tenth with the surviving 312P and the highest placed of the Fords was the Hobbs/Hailwood car in eleventh spot. Already the Gardner/Guthrie Ford had stopped with drive-shaft doughnut trouble and this was replaced. It seemed that they had a faulty batch of components and after another doughnut had failed, the car was retired. The Pilette/Slotemaker Alfa with 2.5 engine had crawled into the pits; the flapping rubber of a punctured tyre had torn the bodywork and broken an oil pipe which had caused engine damage and so the car was retired. Müller brought a badly weaving MS630/650 in with collapsed front suspension and by the time this had been repaired and the car had come back into the pits for the mechanics' handiwork to be checked, the car was completely out of the running.

Just before the four hour-mark came up Siffert retired the very swift 908 *Spyder* with gearbox trouble and so now the race was led by the Elford/Attwood 917, the Ickx/Oliver Ford had risen to seventh place and the Ferrari had dropped back because of an 18-minute stop to repair the gearbox—fifth gear was jumping out. Shortly afterwards Widdows found himself in difficulty at the Esses when he selected first instead of third gear, spun and damaged the tail of his Matra against the bank. The Matra made a pit stop for the tail to be patched and later, during the night, this car was delayed again by fuel pump trouble. The surviving V.D.S. Alfa, with 2-litre engine, spun at the Ford chicane and was retired with bodywork battered front and rear. Now two of the Porsche 908s were in trouble;

the Lins/Kauhsen car lost third gear and despite two pit stops the trouble could not be cured, and the Herrmann/Larrouse car suffered a seized front wheel bearing, the stub axle assembly on that side was replaced and the car rejoined the race after losing half-an-hour in the pits.

At 10 pm, with eight hours' racing over, Elford/Attwood still led with the 917 followed by the 908s of Schütz/Mitter and Lins/Kauhsen, and the Fords were in fourth and fifth places. The Matras were sixth, seventh and eighth and the Ferrari a precarious ninth—the Maranello car had developed a voracious thirst for oil and every 25 laps two gallons of oil was poured into the tank! Already the Alpine of Andruet/Grandsire was out with a broken oil pipe and a blown cylinder head gasket and the cars of de Cortanze/Vinatier (broken oil pipe) and Nicolas/Therier (blown gasket) retired shortly after midnight. An hour later Matra's troubles started in earnest. Müller retired his car out at Arnage with electrical trouble and the MS650, with Courage at the wheel, was hit by a Porsche 911 that pulled across its path. A lot of time was wasted while the bodywork was taped and during the night hours all the surviving Matras had lengthy pit stops to change the brake discs.

At half-distance Porsche still held the first three places, but now their real worries were just about to begin. At 2.45 am Schütz foolishly chasing after the leading 917, tried to lap team-mate Larrousse at the kink in the Mulsanne straight; the two cars collided and while Larrousse carried on, the bodywork of his 908 slightly bashed, Schütz car rolled, broke up and caught fire—but the driver escaped without serious injury. The very sick Ferrari that had never really been in the running finally succumbed to its gearbox and oil consumption troubles at 5.20 am. At 6 am, with the race two-thirds over, the order was: 1st, Elford/Attwood, 253 laps; 2nd, Lins/Kauhsen, 248 laps; 3rd, Ickx/Oliver, 245 laps; 4th, Herrmann/Larrousse, 242 laps; 5th, Hobbs/Hailwood, 241 laps; 6th, Guichet/Vaccarella, 241 laps; 7th, Beltoise/Courage, 239 laps. Just before 6.30 am the last of the surviving A-220 Alpines ran its bearings and Alpine started to pack up their equipment—one of the transporters was well on its way back to Dieppe even before the race was finished!

Still the Porsches thundered on in first and second places, although the engine of the leading 917 was now sounding very flat and the car laying a thick smoke trail. The 917 made a long, unscheduled pit stop while the mechanics worked on the transmission. Oil was leaking into the clutch from a split gearbox housing, but the car still staggered on, lapping in around 4 min 35 sec. Then suddenly Kauhsen abandoned the 908 at Mulsanne with clutch failure. It was almost 11 am exactly when the 917 pulled into the pits for the last time and after a quick look at the transmission the car was pushed round into the paddock and retirement. The improbable had happened; the Porsche onslaught had almost completely disintegrated, the Ford of Ickx/Oliver was in the lead, but with the surviving second-

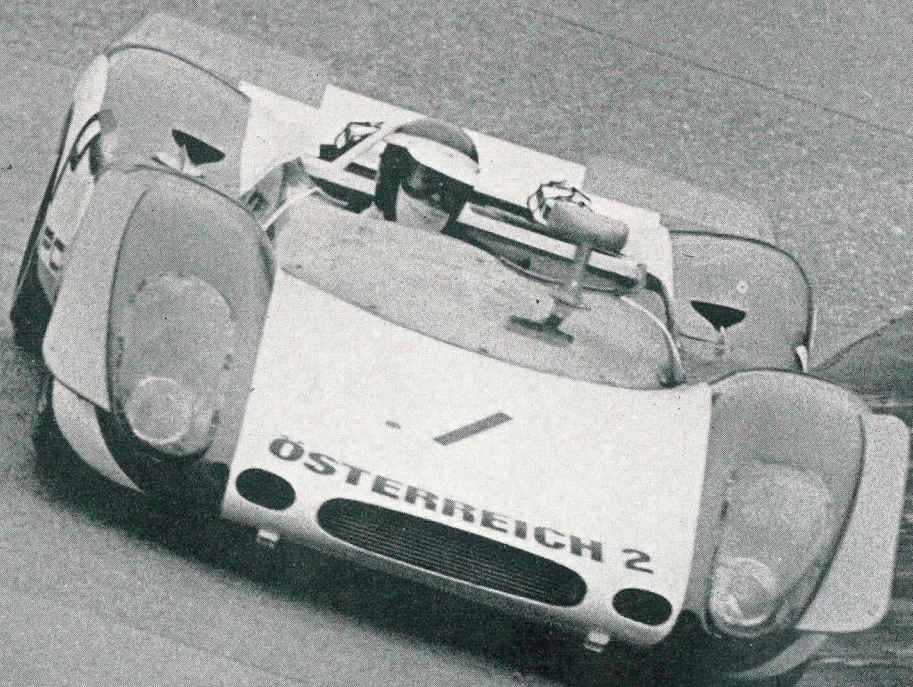
place 908 of Herrmann and Larrousse on the same lap. When Ickx stopped to refuel at 12.30, the 908 slipped by into the lead. In the Gulf pit there prevailed remarkable calmness as Ickx remained in the driving seat while the car was refuelled. When the 908 stopped a few minutes later, the pit stop was fractionally longer and the Ford thundered through the pits in the lead just as Herrmann rejoined the race.

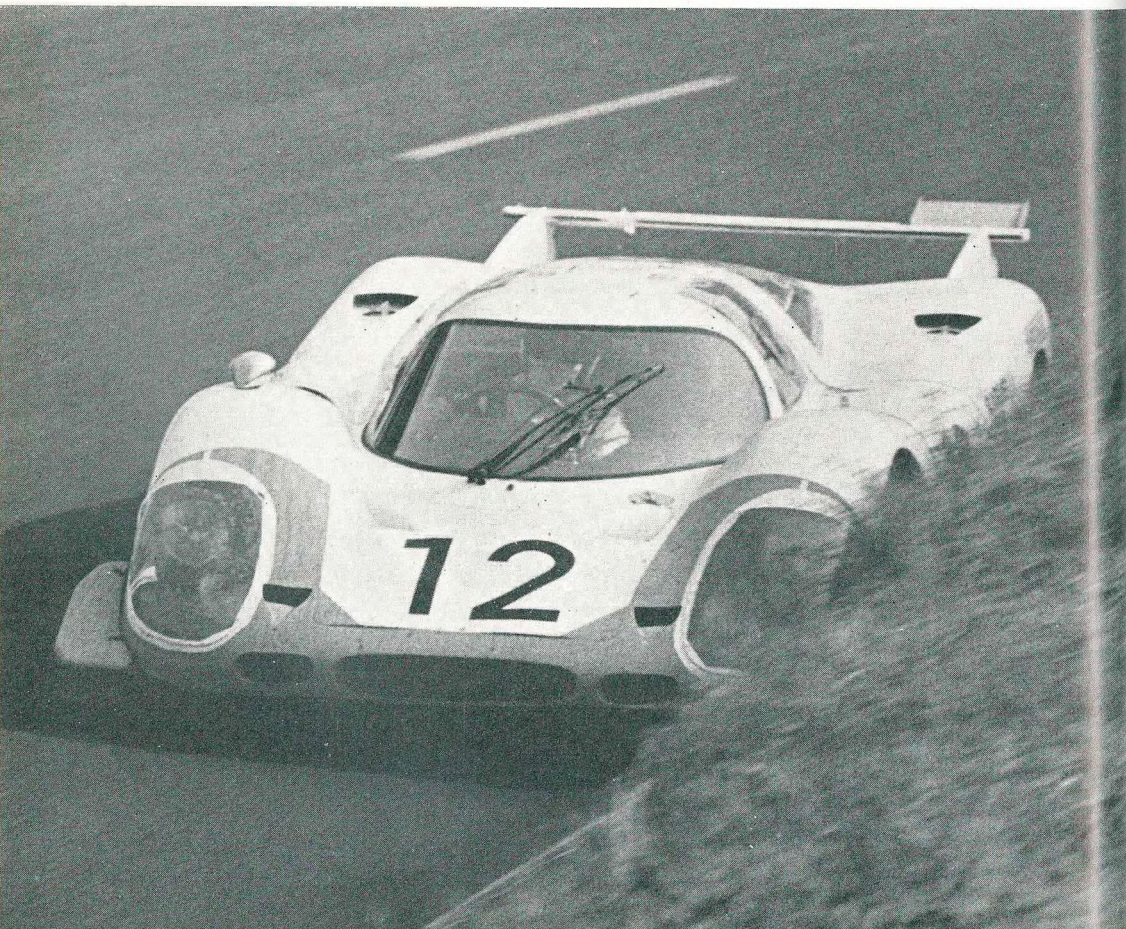
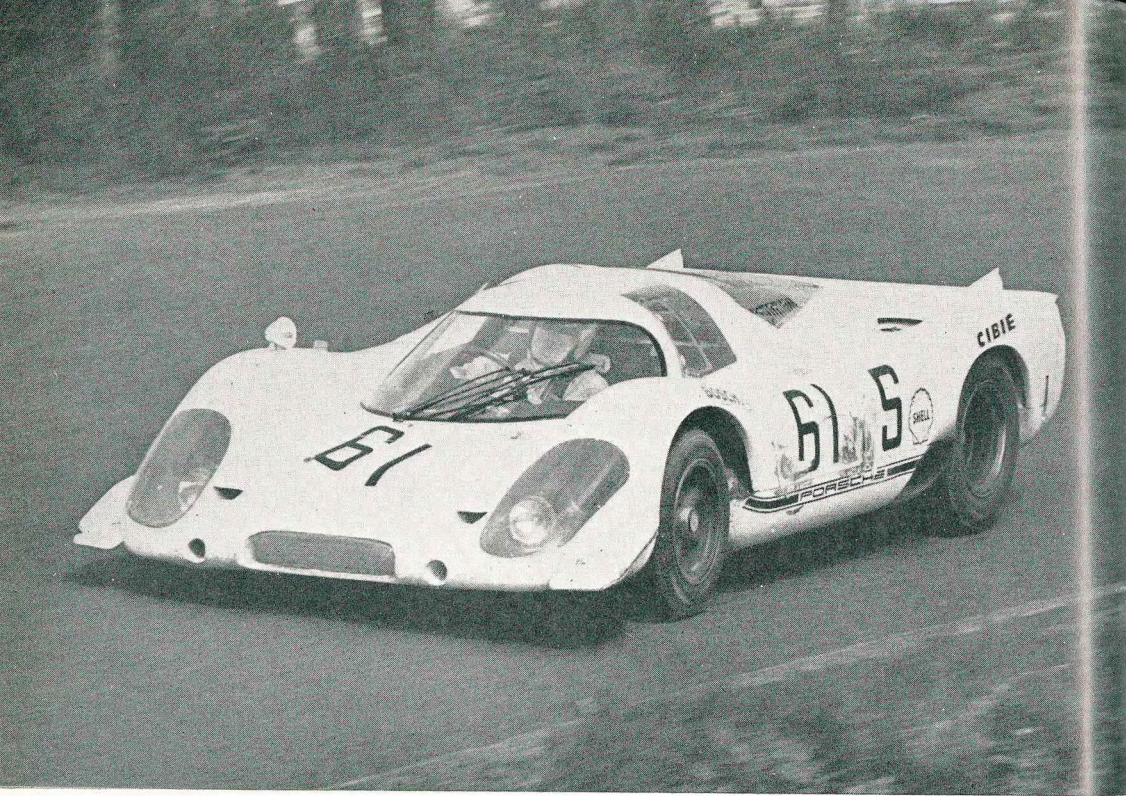
Throughout the early part of the race, the Ford had been driven with a strict observance of a 6,000 rpm limit, but now Ickx was taking the GT40 up to 7,000 rpm. The Porsche was a faster car, but it was mechanically sick and off-tune. There was well over an hour's racing left and the battle was waged furiously until the flag fell at 2 pm. Just after 1 pm the Porsche sneaked into the lead, but the next time round Ickx was in front again. More excitement came when the two leaders caught up with the second of the Gulf Fords driven by Hailwood. At the Ford chicane Hailwood let Ickx through in front, but Herrmann had to follow him all the way round to the Mulsanne straight. These baulking tactics nearly went awry when Hailwood's Ford spluttered as it drained its main tank, it was almost rammed by Herrmann as Hailwood fumbled for the reserve switch and then an angry fist-waving Herrmann shot in front.

During the last hour of the race the two leaders were constantly swapping places, but Ickx had realized that if he let Herrmann take the lead on the Mulsanne straight, he could pass the 908 again under braking for Mulsanne corner. And on the very last lap of the race Ickx put these tactics into effect, the plan worked, the Belgian led out of Mulsanne and now there was no point on the circuit at which Herrmann could re-pass before the finish. After twenty-four hours of exciting and furious motor racing the GT40 took the chequered flag for its second successive victory in the race. Herrmann was a mere hundred yards behind, with the Hobbs/Hailwood Ford third. After so much effort, so much expenditure and so many hopes, defeat in the race that Porsche wanted to win more than any other came as a hard blow indeed. The full results were:

- 1st, J. Ickx/J. Oliver (Ford GT40 5-litre), 125.44 mph,*†
- 2nd, H. Herrmann/G. Larrousse (Porsche 908 3-litre),*
- 3rd, D. Hobbs/M. Hailwood (Ford GT40 5-litre),
- 4th, J-P. Beltoise/P. Courage (Matra MS650 3-litre),
- 5th, J. Guichet/N. Vaccarella (Matra MS630 3-litre),
- 6th, H. Kelleners/R. Jöst (Ford GT40 4.7-litre),
- 7th, R. Widdows/N. Galli (Matra MS630/650 3-litre),
- 8th, T. Zeccoli/S. Posey (Ferrari 250 LM 3.3-litre),§

17 The winning car in the 1969 Nürburgring 1,000 Km race was this 908 *Spyder* finished in the red and white colours of Porsche's Austrian subsidiary and driven by Jo Siffert and Brian Redman. (*Nigel Snowden*).





- 9th, C. Poirot/P. Maublanc (Porsche 910 2-litre),
 10th, J-P. Gaban/Y. Deprez (Porsche 911S 2-litre),*
 11th, C. Ballot-Lena/G. Chasseuil (Porsche 911S 2-litre),
 12th, C. Ethuin/A. Serpaggi (Alpine-Renault A-210 1.0-litre),*‡
 13th, C. Laurent/J. Marche (Porsche 911T 2-litre),
 14th, P. Farjon/J. Dechaumel (Porsche 911S 2-litre).

* Class winners.

† Winner of Index of Thermal Efficiency.

‡ Winner of Index of Performance.

§ This was the elderly Ferrari of the North American Racing Team which had won at Le Mans in 1965!

Watkins Glen

After Le Mans the Porsche team announced that it was withdrawing from Sports Car racing for the remainder of the year, but in fact it did nothing of the sort. Although the company was trying to interest potential buyers in placing an order for the 917 and began to sell off the 908 *Spyders* to private owners, it entered cars in the names of Porsche Salzburg and certain private owners in the remaining two Championship races and these were driven by the usual works team-members.

At Watkins Glen three 908 *Spyders* were entered; the 908/2 of Siffert/Redman and the ordinary 908 of Lins/Buzzetta were entered in the name of Porsche Salzburg and finished in that team's red and white colours, while the third car, driven by Elford/Attwood was entered in the name of British privateer Tony Dean. From Matra came an entry of two cars, the MS650 that had finished fourth at Le Mans was driven by Johnny Servoz-Gavin and Pedro Rodriguez, while the seventh-place MS630/650 was handled by Robin Widdows and Jean Guichet. At this race the new open M3 version of the Mirage with Cosworth engine was fielded for Ickx and Oliver. The only other competitive cars entered at 'the Glen' were the Filipinetti Lola of Bonnier/Müller and the surprisingly successful GT40 of Kelleners/Jöst.

Following the usual pattern of 1969 races, Siffert leapt into the lead at the rolling start, hotly pursued by Servoz-Gavin, Elford and Bonnier. The Mirage was handling atrociously and was already trailing in fifth place, but ahead of Buzzetta and Widdows. Rain began

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- 18 The second race for the new 917 Porsche was the 1969 Nürburgring event. Only one car was entered and it proved a tremendous handful. David Piper and Frank Gardner did well to bring it home in eighth place. (*Nigel Snowdon*).
- 19 At Le Mans the 917 ran with a full-width rear aerofoil with adjustable flaps. This car, driven by Vic Elford and Dickie Attwood, led the race for many hours, but eventually retired with a broken gearbox. (*Nigel Snowdon*).

to fall after only nine laps and one of the first to stop to fit wet-weather tyres was Ickx and he rejoined the race two laps in arrears. The second-place Matra was handling badly on the wet track and Elford forged by into second place without difficulty. Already the usual Porsche domination was asserting itself and when Servoz-Gavin stopped at the pits with a sheared fuel pump drive, a Porsche win was a foregone conclusion. After a stop lasting 27½ minutes the Matra rejoined the race with Rodriguez at the wheel and it was now in twentieth place.

When the Mirage stopped to refuel, Oliver took the wheel, but the car was handling worse than ever, weaving badly and generally giving the driver an unhappy time. Oliver brought the car back into the pits, the front suspension was checked, but the mechanics could find nothing wrong. Jack took the car out again, completed only a single lap and returned to the pits. After a ten minute delay the Mirage was back in the race with a new coil spring/damper unit and Ickx at the wheel. But it was to no avail, for the Cosworth engine lost its oil pressure and Ickx was forced to retire. The next to go was the Matra of Guichet/Widdows which retired with clutch trouble and the Filipinetti Lola was eliminated by a broken con-rod.

As the 908s lapped steadily and reliably, Rodriguez was rushing through the field, making up lost time, and when he brought the Matra back for Servoz-Gavin to take over, he had risen to fourth place. While the French car was stationary the white Ford of Kelleners and Jöst slipped in front again, but 'Servoz' had brought the car back to fourth place by the time the flag fell on this rather dull, Porsche-dominated race. The following day the Group 7 Can-Am race was held on the same circuit and several contestants from the Six Hours race ran in this. Although they could not match the speed of the 7-litre McLarens and Lolas, Siffert finished sixth with a 908, Bonnier was seventh (having slipped a 5.9-litre 'Chevvy' engine into the Filipinetti car overnight) with Servoz-Gavin eighth, Tony Dean who had now taken delivery of his 908 ninth and Rodriguez with the MS630/650 Matra in tenth place.

First victory for the 917

There was one more round to come in the Sports Car Championship, the Austrian 1,000 Kilometres race held on the newly opened, picturesque and difficult Österreichring adjacent to the old Zeltweg airfield circuit. With its succession of blind corners and fast curves, this circuit ranks as one of the most interesting in Europe and so well does it blend with the pine-clad countryside, that it gives the impression of being a true road circuit and not an artificial course built especially for racing.

Once again the Porsche équipe, through nominees, was out in force. Two 917s with short-tail bodywork, wider 15-inch rear rims (12-inch rims had been used previously), better ventilated brakes and with the anti-dive eliminated from the front suspension were driven

by Siffert/Ahrens and Attwood/Redman. These cars were entered in the names of David Piper and Karl von Wendt, both of whom were potential 917 purchasers. Three 908 *Spyders* were entered in the name of Porsche Salzburg; long-tail 908/2s with tail fins were driven by Kauhsen/von Wendt and Larrousse/Lins, but the third entry with the original body, to be driven by Herrmann/Stommelen, was withdrawn and the car was used purely as a practice hack. In addition three 908 *Spyders* were privately entered.

Against this formidable array of Porsche strength were only five Prototypes. From John Wyer came the Mirage driven by Ickx and Oliver and since Watkins Glen this had been fitted with a new exhaust system, lowered rear body section and lowered scuttle to improve vision. In practice Ickx was fastest in 1 min 47.6 sec (124.04 mph). Early in the second practice session on the Saturday Oliver spun the Mirage at the slow left-hand bend behind the pits; while the car was straddling the road, it was rammed by the 917 of Ahrens who had no opportunity to take evasive action. Both cars were badly damaged, but they were repaired in time for the race. Matra Sports fielded the MS650 that had run so well at Watkins Glen for Servoz-Gavin and Rodriguez and at long last the Autodelta team had decided to tackle another Championship race—three of the 3-litre cars were entered for Giunti/Galli, de Adamich/Vaccarella and Casoni/Zeccoli. The only competitive Group 4 car entered was the Filipinetti Lola of Bonnier and Müller which was second fastest in 1 min 48.2 sec. In practice Siffert tried every quasi-works Porsche entered, but failed to achieve his usual mastery with any—at the wheel of Ahrens' 917 he was unofficially second fastest in 1 min 48.1 sec.

Ickx was first away at the start and he succeeded in holding off Siffert's 917 for three laps and then the big red and white 917 went ahead. The Belgian and the Swiss continued to battle on for the lead and Ickx went in front again on lap 24 and gained ground when the thirstier German car stopped to refuel. As the race progressed the Mirage drew further and further away from the rest of the field, while the 917 lost ground and after the second bout of refuelling stops it had dropped to fourth place behind the Matra and the Filipinetti Lola. None of the Alfas was in the picture; Casoni collided with a Porsche 906 early in the race and the car was retired with wrecked bodywork and now de Adamich crashed as the result of brake failure. Shortly afterwards Guinti retired the last of the Alfas with a blown-up engine. But not only the Alfas were in trouble, for at the end of lap 99 Ickx brought the leading Mirage into the pits and it was retired with a broken steering column bracket.

So Servoz-Gavin with the very healthy-sounding and very quick Matra led from the 917 of Siffert and the Filipinetti Lola. A mere four laps later Servoz-Gavin made one of those silly mistakes that are only too easy to perpetrate, but for which a driver can never forgive himself. At the same corner where de Adamich had crashed the blond Frenchman missed a gear-change and while fumbling with the

gear-lever accidentally switched off the ignition; without thinking what he was doing, he switched the ignition on again and the sudden rush of power in mid-corner caused the car to spin off into the guard-rails. The driver was unhurt, but the car was a wreck with shattered glass-fibre strewn over the road.

When Siffert brought the 917 in for its next pit stop, Bonnier with the Lola went in front. But despite difficulty in starting the 917, once back in the race Ahrens quickly regained the lead when the Lola made its pit-stop. Now the Lola would run through to the finish, but the 917 had one further stop to make. Ahrens speeded up his pace and drew out a lead of a hundred seconds, more than enough for a quick refuelling stop. When Siffert resumed at the wheel, the car fired at once, much to the relief of the Porsche pit staff, and at the chequered flag was 1 min 7 sec ahead of the red T70.

So ended the 1969 Sports Car Championship with Porsche the clear victor with 45 points to the 25 gained by Ford. After failures early in the season, the 908 had won a total of six Championship races and the 917 had at last proved itself with a victory in the Austrian race. But success in the one race that meant so much had eluded the Porsche team and that was a bitter pill for Zuffenhausen to swallow.

There were still a number of lesser races before the season came to a close. On 14th September was the Imola 500 Kilometres race which attracted entries from Porsche Salzburg, John Wyer, Auto-delta and Abarth. One of the new wedge-shaped 3-litre Abarths, typed the 139 and developing 350 bhp at 8,200 rpm non-started because of tyre troubles in practice and the other, driven by Merzario, retired with tyre trouble in the race. Ickx led the race from start to finish to score the Mirage-Cosworth's one and only race victory. The 908 Porsche *Spyders* holding second, third and fourth places all spun off on the soaking wet track and at the flag second place went to the Alfa of Ignazio Giunti. The Alfa of de Adamich was retired with engine trouble—the mechanics did not even bother to lift the engine cover to have a look—and Galli's car was plagued by brake troubles. Despite the presence of five private 908 *Spyders*, Matra dominated the Paris 1,000 Kilometres race held on home ground at Montlhéry and Beltoise/Pescarolo (MS650) and Rodriguez/Redman (MS630/650) took the first two places. By the Kyalami Nine Hours race in November David Piper had taken delivery of his 917. Already efforts had been made to improve the stability of the 917 and Piper's car, running in short-tail trim, had no rear flaps and the tail was angled upwards, rather like that of a Lola. This was in fact the first time the new Wyer tail was used. During practice the 917's engine had developed a cracked crankcase, but this was welded up in time for the race, and Piper, co-driving with Attwood, scored a fine victory at 92.37 mph.

One other interesting Porsche development was seen in 1969. In August Porsche revealed a car built for the Can-Am series of races. Known as the 917PA (the letters stood for Prototype America),

the new car featured a sleek open *Spyder* body based on a modified chassis and it was claimed to have a power output of 590 bhp it weighed 1,650 lb and ran on 10.5-inch front rims and 15 or 17-inch rear rims. This very graceful car was financed jointly by the Audi division of Volkswagen and American Volkswagen importer Paul von Neumann. With Jo Siffert at the wheel the car made its debut in the fifth round of the series at Lexington, Ohio where he finished fifth. At Elkhart Lake, the engine blew up when Siffert failed to engage fifth gear. After that the PA's fortunes improved and Siffert took a third at Bridgehampton, a fourth at Michigan, a fifth at Laguna Seca, was black-flagged at Riverside for dropping oil and rounded the series off with a fourth place in the Texas race which gave him fourth place overall in the Can-Am Trophy. At Riverside the 917PA had appeared with a new glass-fibre cover over the existing nose in an effort to reduce understeer and keep the car's nose more firmly glued to the track. Throughout the Can-Am series the car was managed by former Ferrari, B.R.M. and Honda driver Richie Ginther, but Rico Steinemann looked in at a couple of races to see how things were going.

5 *The Giants Prepare for Battle*

The union of two famous names

Throughout 1969 it had been only too obvious that John Wyer's Gulf Oil Corporation organization was by far the most efficiently run of all Sports Car teams; the cars were meticulously prepared, the team developed its own refinements and 'tweaks' to improve reliability and efficiency, the cars raced to a strict schedule and were precisely controlled from the pits by David Yorke; the drivers chosen were amongst the best available and not chosen merely for their speed, but for their consistency and sense of responsibility—such is the discipline engendered by mutual respect within the team that it is almost unknown for a driver to contravene instructions from the Wyer pit.

Apprenticed with the Sunbeam company, John Wyer joined Monaco Engineering at Watford in post-war days and it was there that he developed a special lightweight version of the Singer-powered H.R.G. sports car that won its class at Le Mans in 1949 and 1950. Even at this early stage it was clear that the dour yet commanding John Wyer had a remarkable flair for development, an intuitive sense that experience has strengthened and sharpened so that a mere glance at a car is sufficient for him to diagnose its faults and form a view as to what improvements should be made. Among the first to recognize Wyer's peculiar and remarkable talents was David Brown who had acquired the moribund Aston Martin and Lagonda concerns and had ambitions to build successful sporting cars. When Wyer joined David Brown, the staff consisted of four mechanics, a foreman and himself. Under the aegis of Wyer the Aston Martin DB2, powered by the Lagonda 2.6-litre twin-cam engine designed by W.O. Bentley, was evolved into Britain's finest production sports car. It won its class at Le Mans in 1950 and 1951 and variations of the original DB2 design remained in production until 1959.

From the DB2 there was evolved the DB3 sports/racing car with tubular chassis designed by Doctor Eberan von Eberhorst of Auto Union fame. Raced from the 1951 Tourist Trophy until the 1953 Mille Miglia, the DB3 was considered too heavy and early in 1953 there appeared the lighter, faster, better handling DB3S with more streamlined body and the 3-litre engine that had first been used at Monaco in 1952. Under Wyer's talented management the DB3S won the 1953 and 1955 Goodwood Nine Hours races and works cars finished second at Le Mans in both 1955 and 1956. It was at Le Mans in 1956 that Astons introduced the new DBR1 with much

more powerful engine, space-frame chassis and the gearbox in unit with the final drive. For 1957 veteran racing driver Reg Parnell was appointed Aston Martin Racing Manager and John Wyer became Technical Director. The brilliantly successful DBR1 won the Nürburgring 1,000 Kilometres race three years in succession, 1957-9, scored a long hoped-for victory at Le Mans in 1959, was second in the Sports Car Championship in 1958 and won it the following year.

In 1959 Aston Martin had entered Grand Prix racing with the unsuccessful DBR4/250 Grand Prix car—unsuccessful because it had been conceived a couple of years previously and was already outdated when it was first raced. Astons pulled out of Grand Prix racing in the latter part of the 1960 season, but the team was not finished with racing altogether. Apart from running the production DB4GT cars in Grand Touring races, Astons built the Project 214 and 215 cars that ran at Le Mans in 1962 and 1963. In both years the cars displayed a tremendous turn of speed, but at the end of 1963 the team announced that it was withdrawing from racing.

It was in August, 1963 that Wyer received an invitation to join Ford's new GT40 project. Ford Advanced Vehicles Limited was formed with new premises at Slough and the set-up was managed by Wyer. Throughout 1964 Wyer was responsible for the racing programme of the GT40, but at the end of that year Ford decided to hive off the racing activities which were split between Carroll Shelby and Kar-Kraft, a new Ford racing subsidiary at Detroit. Wyer and the Slough works were to be responsible for the development of the existing model and in due course were to build production cars. During 1966 Wyer prepared a team of GT40s raced under the banner of the Essex Wire Corporation and in the latter part of that year Ford sold the Advanced Vehicles set-up at Slough at a very reasonable price to John Wyer and Ford dealer John Willment. A new company known as J. W. Automotive Engineering Ltd was formed and this assumed responsibility for the production of the homologated Group 4 version of the GT40 and road-going Mk 3 of which only a handful were made.

During 1967 J.W. raced a version of the GT40 known as the Mirage sponsored by the Gulf Oil Corporation who in fact owned the cars. The Mirage had modifications evolved by Len Bailey, one of the original GT40 design team, and these included certain chassis changes and a new roof section with sharply sloping sides. These cars were raced with 4.7, 5-litre and finally 5.7-litre engines. When large-capacity Prototypes were banned at the end of the 1967 season, Gulf continued to support the John Wyer team of Ford GT40s and the success that these gained during the years 1968-9 matched that of Ford themselves in the three preceding years. Already outdated in 1969, there was no possibility of achieving further success with the Ford GT40 and the team was none too optimistic about the chances of the Mirage, despite its victory at Imola at the end of the year.

Although Wyer is responsible for the overall direction and control

of the Gulf team, so well organized is the whole set-up and so ably backed up is its chief that when family illness prevented Wyer from attending at Le Mans in 1969, he was able to sit back at home, watching the race on television, confident in the knowledge that the team did not suffer in his absence. Wyer frequently attends races, but the team manager directly responsible for the cars and mechanics at the circuit was David Yorke, one-time R.A.F. Wing Commander who did his own racing at the controls of a Hawker Hurricane. Yorke had known the great British driver Peter Whitehead since pre-war days and when Whitehead started racing again after the war, he invited Yorke to act as team manager. Yorke accepted the proposition and under his control during the next few years were a wide assortment of cars, including the first 1,500 cc supercharged Grand Prix Ferrari in private ownership, an Alta Formula Two car, Whitehead's C-type Jaguar and his Cooper-Jaguar sports cars.

Yorke first met Tony Vandervell in 1951. Whitehead drove the 'Thin Wall Special' for Vandervell in that year's British Grand Prix and Yorke looked after the pit at this race. Vandervell clearly formed a healthy respect for Yorke's ability and this strengthened with the passing of time. During the year 1955 Yorke was invited to manage the Vanwall Grand Prix team and after an unsuccessful season in 1956, Vanwall became the first British team to break the Italian stranglehold on Formula One racing. In 1957 with Stirling Moss and Tony Brooks as drivers, joined in mid-season by Stuart Lewis-Evans, the British cars won the European, Pescara and Italian Grands Prix. The following year Vanwall won the newly introduced Manufacturers' World Championship on the strength of victories in the Dutch, Belgian, German, Portuguese, Italian and Moroccan races. Vandervell withdrew from Grand Prix racing at the end of 1958 because of ill-health, but Yorke stayed with the company and new cars under the Vanwall name were built and occasionally raced in 1959, 1960 and 1961.

Yorke left the Vandervell set-up in 1962 and lost contact with racing until 1966 when he was contacted by John Wyer. Wyer asked Yorke if he would be interested in managing the Essex Wire Corporation cars and Yorke accepted with alacrity. During his season with this team Yorke worked from an office in the J.W. works at Slough and for the following season he was invited to manage Wyer's own team racing with Gulf sponsorship. Since then the tall, lean Yorke has controlled the racing of the world's most successful Sports Car team. He enjoys excellent relations with the drivers who trust him completely. Initially he presents a rather hard, cynical exterior to the world, an appearance that is rather forbidding to strangers, but this hard outer shell soon cracks, a broad grin opens up on the sun-tanned face and Yorke is full of friendliness and help.

The third 'arm' of the managerial side of J.W. is John Horsman who has worked with Wyer since 1959. Horsman, now 36, spent two years in the R.A.F. after leaving school, then went to Cambridge

where he graduated with a B.A. in engineering. At this point his career took a crucial turn. He entered into a graduate apprenticeship with the David Brown organization, working in the tractor and transmission sides of the business before joining Aston Martin at Newport Pagnell in 1959. Following an interview with Wyer he started work in the drawing office and later became a project engineer concerned with development work on the Aston Martin DB4 and the Lagonda Rapide. In 1961 Horsman was appointed Wyer's personal assistant and he worked on the Aston Project 214 and 215 cars. When Wyer left Aston Martin, Horsman went too, but he completed a nine-month business administration course at the London School of Economics before joining Wyer at Slough. After Gulf gave the J.W. team full backing for their 1967 racing programme, quiet, slim, academic-looking Horsman was appointed Executive Director, working on the preparation and development of the cars at Slough. In 1969 John Horsman was appointed Deputy Managing Director.

Ability and acumen at the top is not sufficient to stay at the forefront of the motor racing world and a good team of mechanics is of equal importance. Over the years Wyer has drawn together a band of mechanics unsurpassed for hard work, efficiency and love of motor racing. When everything went wrong, when late hours before the race had brought nothing but a succession of mechanical troubles and David Yorke's frown was at its heaviest and darkest, it was chief mechanic Ermanno Cuoghi who kept the boys cheerful. Cuoghi, born in Modena, first started working on cars when he joined Maserati in 1954. He was then on the production side, but later he worked for Stanguellini, on the B.R.M.-powered Scirocco Grand Prix project and for Shelby American when they were running Cobras in Europe. When Shelby packed in his European Cobra racing programme, the mechanics were offered jobs at Slough. Cuoghi accepted and at first he filled the role of a general odd-job man, but his talents were soon recognized, he became a regular mechanic and was finally appointed chief mechanic in 1967.

By the end of 1969 the J.W. team had achieved a tremendous record of success spread over two seasons, but although they were the acknowledged masters of the Sports Car scene, they desperately lacked a really competitive car. Porsche, on the other hand, were the leaders of technological development in racing and had the fastest and the most successful cars racing at that time, the 917 and the 908. But their racing organization was no match for John Wyer's, their standards of preparation work were inferior and their pit work slower and less efficient.

Porsche were well aware of the weaknesses in their racing organization and as early as March of 1969 tentative approaches were made to Wyer to see if he would be interested in running a full team of 917s on behalf of the works during the remaining two years of the 5-litre Sports Car formula. It was a proposition with the obvious advantage that J.W. would have the fastest and most modern cars,

but ones that would need a great deal of sorting if they were to become consistent race-winners, and the same time it would mean that the team would have to forfeit much of its independence.

Eventually a deal was worked out that was satisfactory to both Wyer and Porsche—and to the Gulf Oil Corporation which would continue to sponsor the team. The cars would be painted in the usual Gulf pale blue and orange colours and would be entered as Gulf-Porsches. At most races the team would enter two cars, but three would be fielded at Le Mans. Although J.W. Automotive would accept full responsibility for chassis maintenance and race preparation work, all major work on the 917 flat-12 engines would be done at Stuttgart. Porsche themselves would field no works cars in 1970—although a team did race under the banner of Porsche Konstruktionen Salzburg. J.W. sold off the B.R.M.-powered Mirage cars, but the Cosworth-engined M3 was retained.

Of the new arrangement and Porsche's defeat at Le Mans in 1969, the director of development and research at Porsche, 32-year-old Ferdinand Piëch commented in an interview published in the Continental magazine, *Virage-Auto*: 'A good engineer is not necessarily a good organizer. With four of the best drivers in the world, victory can cost us less, and discipline is easier to impose over a reduced team than over ten drivers who are inevitably rivals.' As far as the last comment is concerned, Piëch no doubt had very much in mind the driving of Schütz at Le Mans in 1969 which resulted in one of the 908s being written off!

Although the 917 in long-tail form with fully operative flaps was displayed to the press in full Gulf livery and a similar car was exhibited at the London Motor Show, Wyer's mind was already at work, endeavouring to cure the car's stability problems. Wyer did not come into contact with the 917 until a test session at Zeltweg in October. He quickly realized that the handling problems stemmed from deficiencies in the aerodynamics and not from the suspension and suggested a short cutaway, uplifted tail not dissimilar to that of the Lola T70, and a square nose. Immediately crude, but effective modifications were made to the body on the spot by the use of aluminium sheeting. The effect of these body modifications was to achieve more downthrust and expose the air intakes and injection system of the engine. Following tests at Sebring NACA ducts were added to cool the rear brakes. After the Daytona race the front wings were strengthened by alloy framework and alloy sheet stoneguards were fitted. Following the Zeltweg tests new glass-fibre body moulds were made and this version raced throughout 1970 became known as the 917K (Kurz for short). The Porsche factory, however, persisted with the long-tail version and a new body with curvacious lines and high tail fins appeared at the 1970 Le Mans Test Weekend. By the Le Mans race in June this version had the fins bridged by a flat member with a bracing strut. Factory-prepared 917 *Lang* cars were entered in this race by the Porsche Salzburg and Martini teams.

The Wyer team made few major modifications to the cars raced by them, although lots of small changes were made in the interests of reliability and efficiency. A Borg and Beck clutch was fitted instead of the original Fitchel and Sachs product and the team switched to Girling disc brakes. Throughout 1970 the Wyer team raced the cars in 4-speed form, as it was considered that first gear was only needed at Le Mans, Sebring and Spa and even at these circuits its absence proved no real handicap. The Salzburg team and several private owners usually raced the cars with 5-speed gearboxes.

On the Wyer cars automatic fire extinguisher systems were fitted, many of the Bosch electrical components were replaced by Lucas, and all the nuts and bolts, together with the road springs and the hollow anti-roll bars were made from very expensive titanium alloy in order to reduce weight. After the failures at Sebring, the hubs were redesigned and the new components were made so as to take Girling 11½-inch disc brakes of the type used on the Ford GT40 instead of the original ATE brakes. These gave a harder brake pedal. When the cars were used in 4-speed form, first gear was merely blanked off and the Wyer team evolved a modified catch to prevent accidental selection of this ratio, but the catch was designed so that the cars could be quickly changed to 5-speed form if required. As built, the 917s used the chassis tubes to carry the oil and this caused cockpit overheating which Horsman obviated by running separate oil pipes. Cold air ducts to the cockpit were also added. After gearbox trouble at Spa, Porsche engineers produced new input shafts of stronger metal with a smaller diameter oilway and first and second gears not drilled for lubrication so as to increase their strength. These gearbox improvements and the brake modifications were also adopted on the Salzburg cars.

In the early part of the 1970 season the team relied on the original 4,494 cc engines and as supplied by Zuffenhausen these usually developed 540/550 bhp at 8,500/8,750 rpm. In the latter part of 1969 an enlarged 4,907 cc (86 x 70.4 mm) engine was homologated, but this did not become available until the 1970 Monza race. These larger engines developed 575/590 bhp at 8,400 rpm and their prime advantage was their better torque characteristics. Wyer soon found that the crucial rev limit for the 917 was around 9,000 rpm and if this engine speed was exceeded, something was likely to break. It was Porsche's main aim during 1970 to increase this rev limit to 10,000 rpm. Generally the 917s were slightly lighter than the Ferraris, had better air penetration at speed and were equally powerful.

A total of seven 917 chassis were supplied to the Wyer team, although it was rare indeed for all seven cars to be in the Slough works at the same time. While two cars and a spare were away racing, another three cars would be undergoing preparation for the next race and would probably have left the works before the other three returned. The cars run by the Wyer team in 1970 were as follows:

Chassis Number:

- 004 Driven by Siffert/Redman at Brands Hatch (crashed), Rodriguez/Kinnunen at Spa (retired), Siffert/Redman at Le Mans (retired) and then loaned to Solar Productions for the making of the Le Mans film.
- 009 Driven by Siffert/Redman at Sebring (retired), Siffert/Redman at Monza (12th) and spare car at Zeltweg.
- 013 Spare car at Daytona, driven by Rodriguez/Kinnunen at Sebring (4th), loaned to Solar Productions and written off in a crash with David Piper at the wheel.
- 014 Driven by Siffert/Redman at Daytona (2nd), Siffert/Redman at Spa (1st), Siffert/Redman at Watkins Glen (2nd).
- 015 Driven by Rodriguez/Kinnunen at Daytona (1st), spare car at Sebring, Brands Hatch, Monza, Spa and Watkins Glen.
- 016 Driven by Rodriguez/Kinnunen at Brands Hatch (1st), Rodriguez/Kinnunen at Monza (1st), Rodriguez/Kinnunen at Watkins Glen (1st), Rodriguez at Imola (crashed) and Rodriguez/Kinnunen at Zeltweg (retired).
- 026 Driven by Hobbs/Hailwood at Le Mans (crashed), Siffert at Imola (1st) and Siffert/Redman at Zeltweg (1st).

The Wyer team and Gulf had been hoping to retain the services of Jackie Ickx which could have meant Gulf sponsorship on a more limited scale for the Grand Prix team for which he drove. It seems that it all boiled down to money in the end and although Ickx would have liked to stay with J.W., the financial inducement from Ferrari was too big to refuse. Even so Wyer succeeded in signing an impressive trio of drivers. The fastest member of the Gulf team was not in fact contracted with the team, for Jo Siffert made his own arrangements direct with Porsche. For many years entered at the wheel of Rob Walker's Grand Prix cars (and he won the 1968 British race for this entrant), Siffert was equally faithful to Porsche. Siffert was the fastest Sports Car driver of the last decade, his successes were innumerable, and his 1970 season with Wyer completely overshadowed the depressing time he was having with the March Grand Prix team. To partner Siffert the Wyer team signed up Lancashire driver Brian Redman who had driven works Mirages in 1967 and Wyer Fords in 1968 before switching allegiance to Porsche for 1969. Redman is one of the most honest and intelligent drivers in racing. He enjoyed a very close relationship with Derek Bennett of the comparatively small Chevron concern and in 1970 when he was offered a place in the Tyrrell team as replacement to the retiring Servoz-Gavin, he refused it because of his commitments to Chevron.

To head his second pair of drivers Wyer signed up Pedro 'Mexican Pete' Rodriguez, one of the brightest and most friendly characters in the motor racing world. Few drivers had enjoyed a more chequered Grand Prix career than Rodriguez who signed up with Cooper for

1967, B.R.M. in 1968, was given a couple of drives by Ferrari in 1969 (and handled a N.A.R.T.-entered Grand Prix Ferrari in the Transatlantic Grands Prix) and returned to B.R.M. for 1970. At the wheel of one of the Bourne cars he won that year's Belgian Grand Prix. Rodriguez was almost as fast as Siffert, but rather more persistent and at times it seemed that Yorke had difficulty in controlling the two stars of the team. Certainly there was a great deal of rivalry between Siffert and Rodriguez, but it never reached unmanageable proportions.

Finnish driver Leo Kinnunen who had impressed Wyer with his drives at the wheel of a private 908 *Spyder* in the Nordic Cup series of races in 1969 was signed up to partner Rodriguez. Although Kinnunen performed magnificently for such a comparatively inexperienced driver, he tended to be a little slower than Rodriguez (except in the Targa Florio where he was much faster) and although a friend always accompanied him to interpret, his lack of English proved a serious handicap. For Le Mans only stalwart J.W. drivers of past years David Hobbs and Mike Hailwood were included in the team.

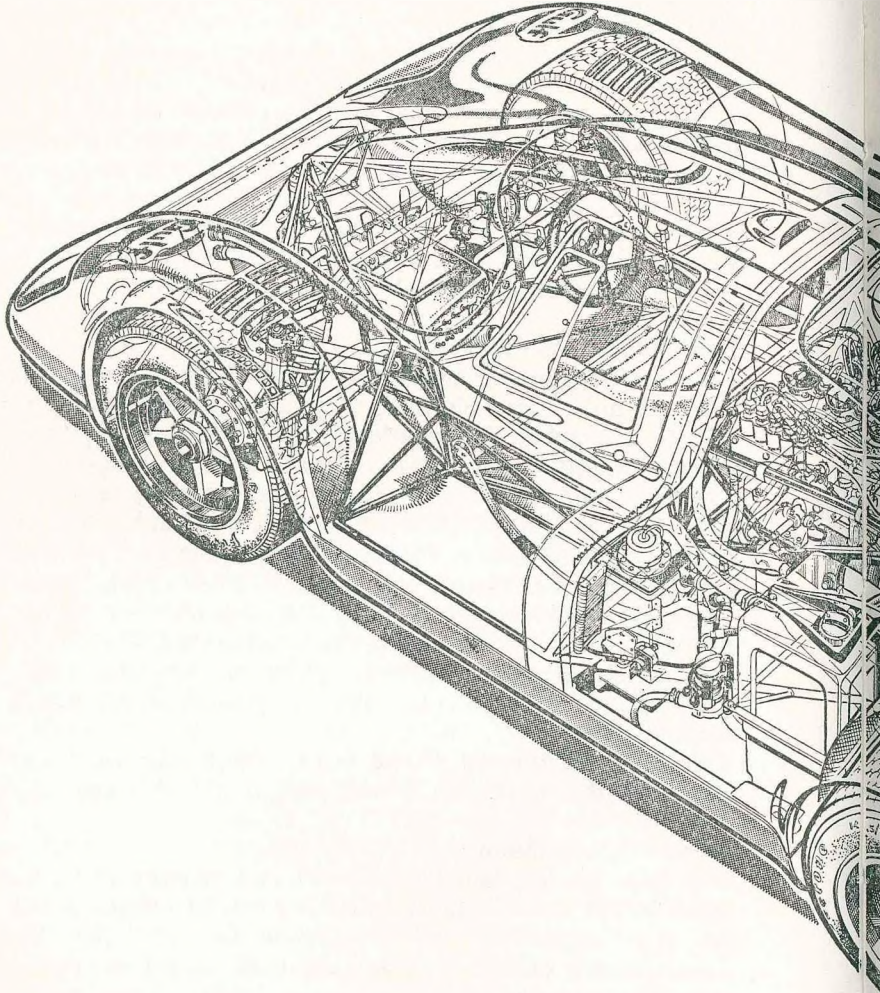
The Porsche 908/3

As the Porsche 917 was an inherently unsuitable car for the difficult 44.7-mile Targa Florio course, Zuffenhausen developed a special model, the 908/3, for this race and it was subsequently used at the Nürburgring. The 908/3 was a 3-litre Prototype based on the 909 *Berg* hill climb car introduced for the 1969 season, but never used in competitions. This car featured an aluminium multi-tubular space-frame into which Porsche squeezed the familiar 908 flat-8 3-litre engine. The existing 909 gearbox and final drive were retained. The 908/3 was characterized by the very compact, simple, smooth body style and a driving position well to the front of the car. Thirteen-inch wheels were fitted. It was lighter and handled better than any of its 3-litre rivals in 1970. The dimensions of the 908/3 were as follows:

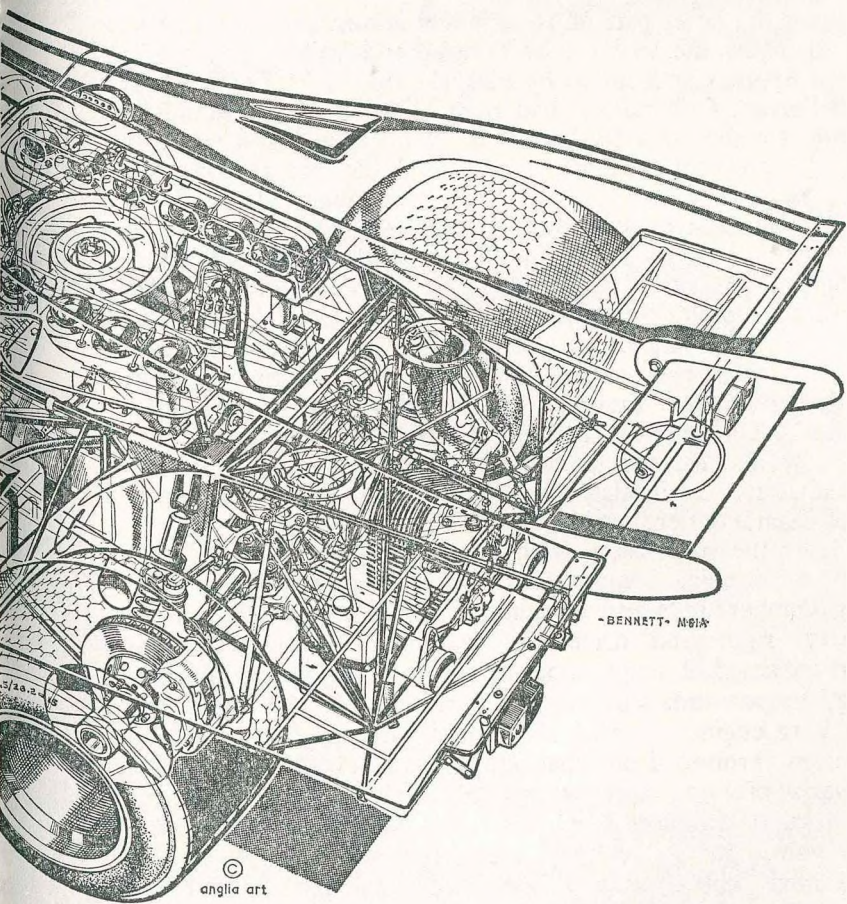
Wheelbase: 2,300 mm. *Front track:* 1,542 mm. *Rear track:* 1,510 mm. *Length:* 3,540 mm. *Width:* 1,950 mm. *Weight:* 550 kg.

Porsche Konstruktionen K.G.

Despite the fact that Porsche were not racing a works team themselves in 1970, the Salzburg subsidiary fielded a single 917 at Daytona and the Targa Florio and two cars at the remainder of the year's Championship races and these were to all intents and purposes works cars. The Austrian company also possessed a very strong team of drivers and the usual pairings were Vic Elford/Kurt Ahrens and Hans Herrmann/Dickie Attwood. These were all drivers who had appeared for the works team in 1969. The cars fielded after the Daytona and Sebring races were chassis No 020 which was painted in blue and white stripes running from nose to tail and 023 which appeared at Brands Hatch painted white, but was later painted in



A 917 *Kurz* of the Gulf-Porsche team.



- BENNETT - MGA/A

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orange and white stripes. At Le Mans the team fielded a works-loaned long-tail car, chassis no 042. Although these cars were generally beaten by the Gulf entries, it was in fact the Austrian team that scored Porsche's most prestigious success of the year.

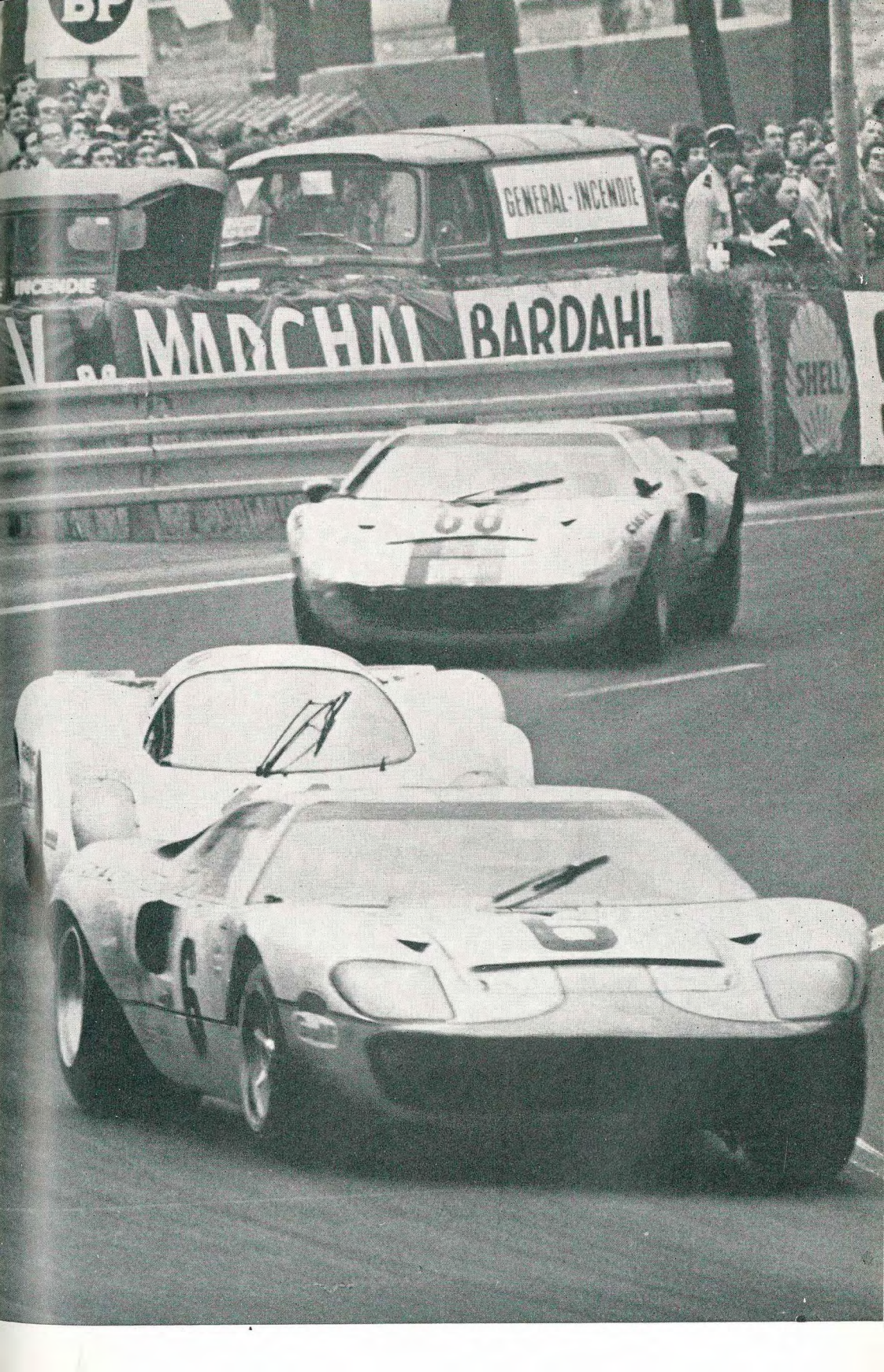
Apart from David Piper, whose car had first appeared in 1969, a number of other private owners fielded 917s in 1970. These included the car driven by Nuhaus and Kelleners and sponsored by the Gesipa Rivet concern and Finnish Aarno-Wihuri's A.A.W. Team car (chassis No 021), while the Martini International Racing Team, who ran 908 *Spyders* all season, were loaned a works long-tail car (chassis no 043) for Le Mans.

Maranello returns in force

Throughout the latter part of 1969 it was known that Ferrari was intending to follow the lead set by Porsche and build a full 5-litre Competition Sports Car financed by Fiat who now held a 51 per cent interest in Ferrari. Originally it had been hoped that this would be ready in time for the 1969 Kyalami Nine Hours race, but it was first shown to the press in November, 1969 and did not appear until Daytona in 1970. The new car, typed the 512S, followed traditional Ferrari design practice in a number of respects and it also incorporated many of the lessons learnt from the 312P and the 612 car fielded in the 1969 Can-Am series. The basis of the car was a multi-tubular space-frame constructed from mild steel tubes extended back to the rear of the engine to provide mounting points for this and to locate the rear suspension. The front of the engine was attached to tubes immediately behind the firewall. The centre-section of the body, forming the cockpit and the fuel tanks, consisted of stressed alloy while the nose and the enormous tail which bulged over the rear-mounted radiators were in glass-fibre. The body of the prototype was the work of Cigarla & Bertinetti of Turin.

At the front the suspension, which was stronger than that of the 917, was by the familiar arrangement of unequal-length wishbones and coil spring/damper units and an anti-roll bar was fitted. As on the Porsche 917, right-hand drive was featured. The rear suspension layout consisted of single upper arms, lower reversed wishbones, coil spring/damper units and, again, an anti-roll bar was fitted. The 60-degree V-12 engine mounted ahead of the rear axle was a typical Ferrari design, evolved from that used in the Can-Am cars, and with a capacity of 4,994 cc (87 x 70 mm). With twin overhead camshafts per bank of cylinders chain-driven from the nose of the crankshaft, four valves per cylinder and Lucas fuel injection, power output was claimed to be 550 bhp at 8,500 rpm. Single plug ignition was

20 In the closing stages of the 1969 Le Mans race the Gulf GT40 of Ickx leads Herrmann's Porsche and the similar Ford of Kelleners/Jöst. The 1969 race had the closest finish since 1933. (*Guy Griffiths*).



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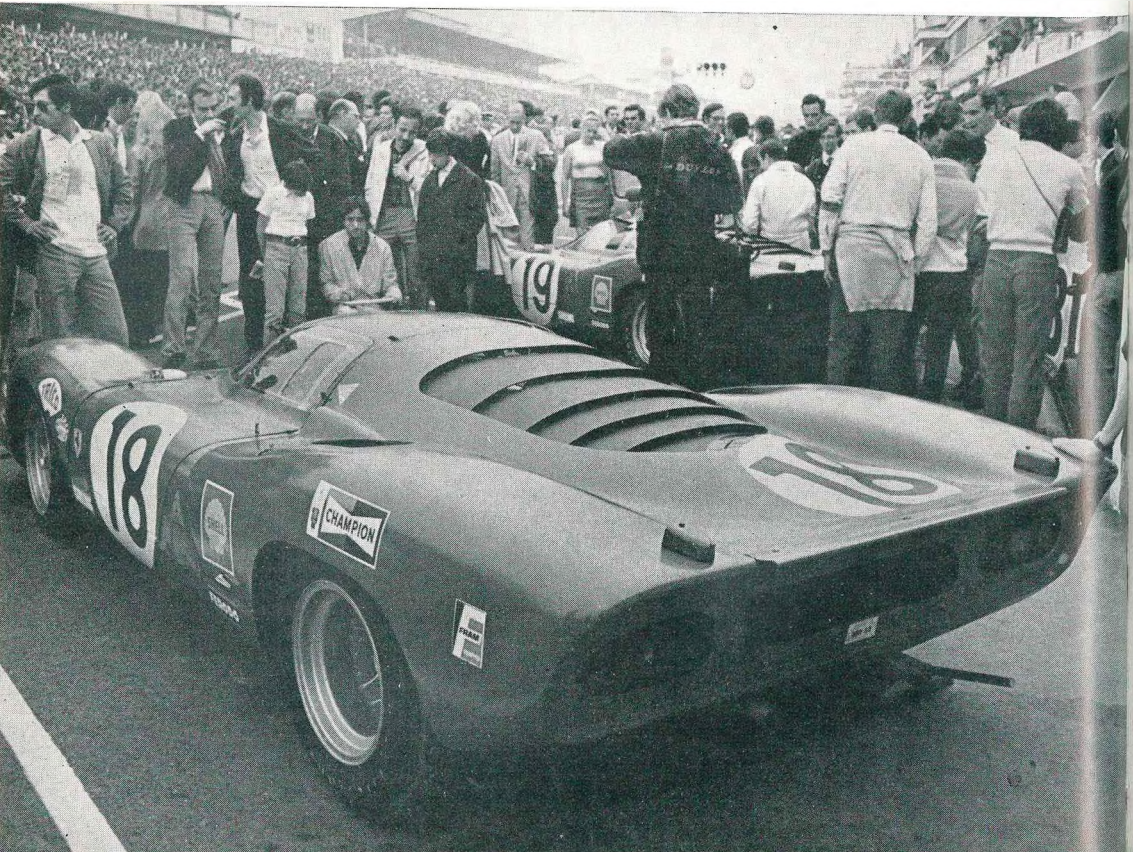
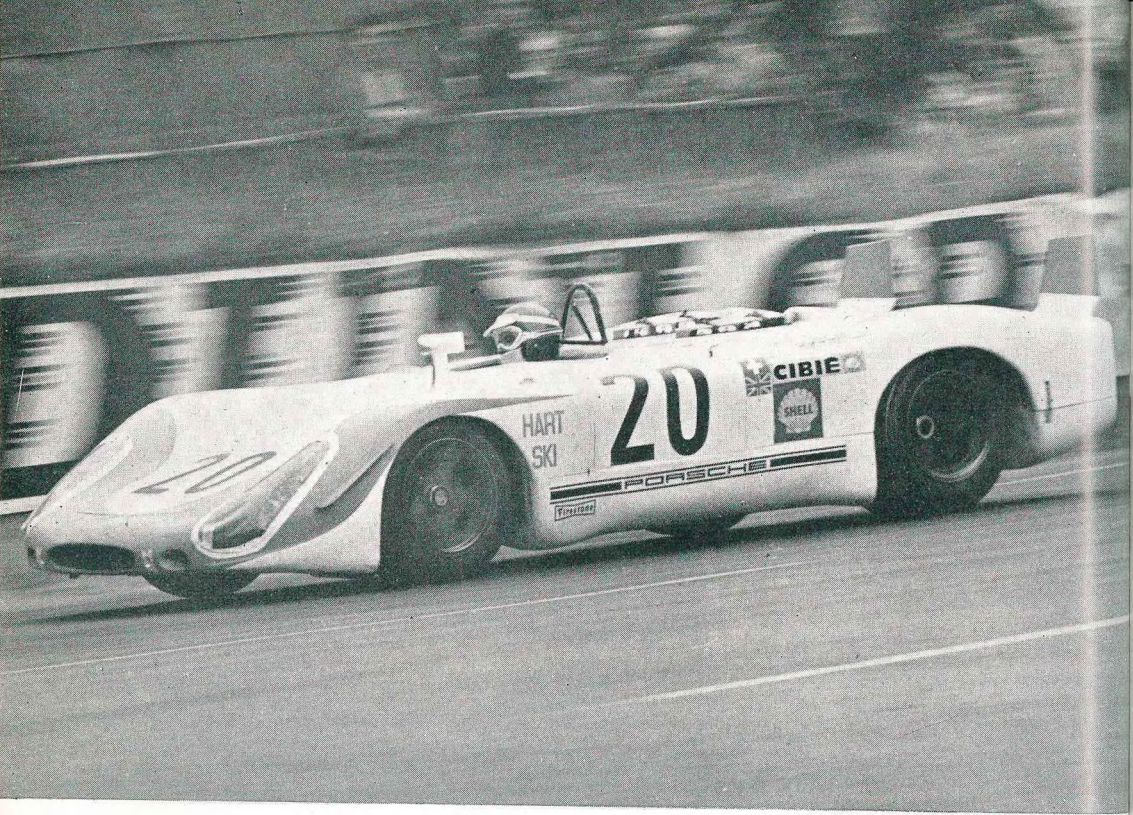
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featured with the single distributor unit driven from the rear of the inlet camshaft of the left-hand cylinder block. The inlet ports were in the vee of the engine, the exhausts on the outsides and each bank of cylinders had a single camshaft cover. Transmission was by a 5-speed gearbox in unit with the final drive. The exhausts consisted of paired individual pipes for each cylinder feeding into twin pipes for each bank of cylinders, the lower stopping short of the upper.

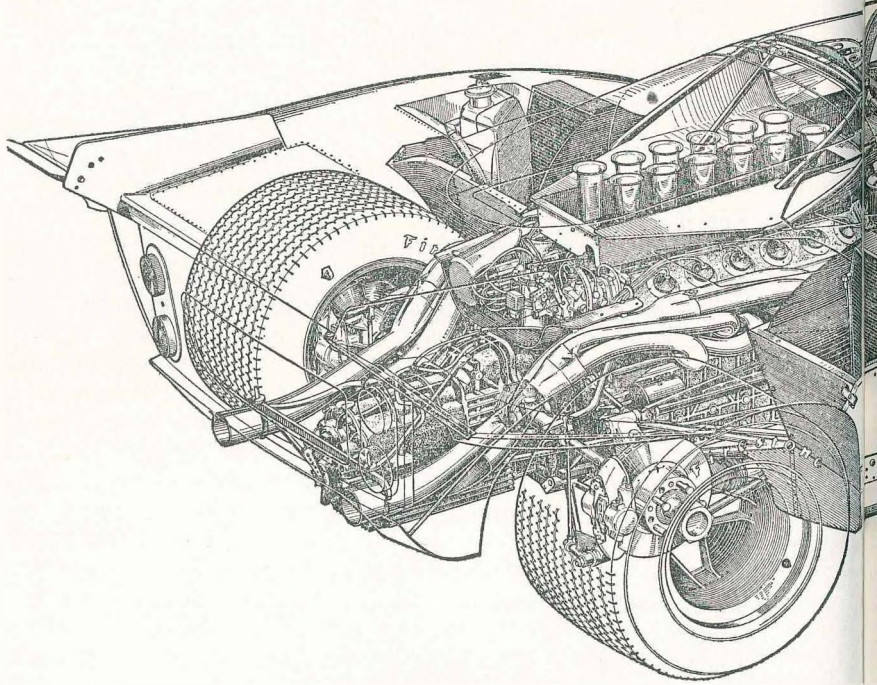
Girling cast iron ventilated disc brakes were hub-mounted and there were beautiful Campagnolo 5-spoke cast magnesium wheels. The frontal appearance of the 512S when it first appeared was dominated by two square spot lamps in the centre of the nose. There were grilles at the front for brake cooling, twin fuel fillers either side of the scuttle, the two side-mounted radiators had fillers on either side of the rear of the roof and the oil filler was on the left-hand side behind the radiator. The spare wheel was housed in the nose (on the 917 it was in the tail). Although the body shape of the 512S followed the general style of the earlier 312P all that model's delicacy of line had been lost and the new car looked big, brutal and ugly. But it also looked—and was to prove—a very potent and effective piece of machinery. Of the 512S, Ferrari engineer Mauro Forghieri said on many occasions, 'It is heavy, it is slow, but it is reliable.'

When the new model first appeared at Daytona in 1970, it was fitted with coupé bodywork, but at Sebring Ferrari entered a new open *Spyder* version with squarer nose without spoilers and in this form the car was lighter and possessed better front-end adhesion. A longer tail configuration was tried at the Le Mans Test Weekend and this was adopted on the works cars for the race in June. At Spa the ribbed cover over the engine was replaced on the works cars by a plain perspex cover. The final 1970 version of the 5-litre Ferrari was the car raced at Zeltweg in October; the body was much lighter, the open tail was similar to that of the Porsche 917 and the nose was slimmer—this model formed the basis of the 1971 512M version.

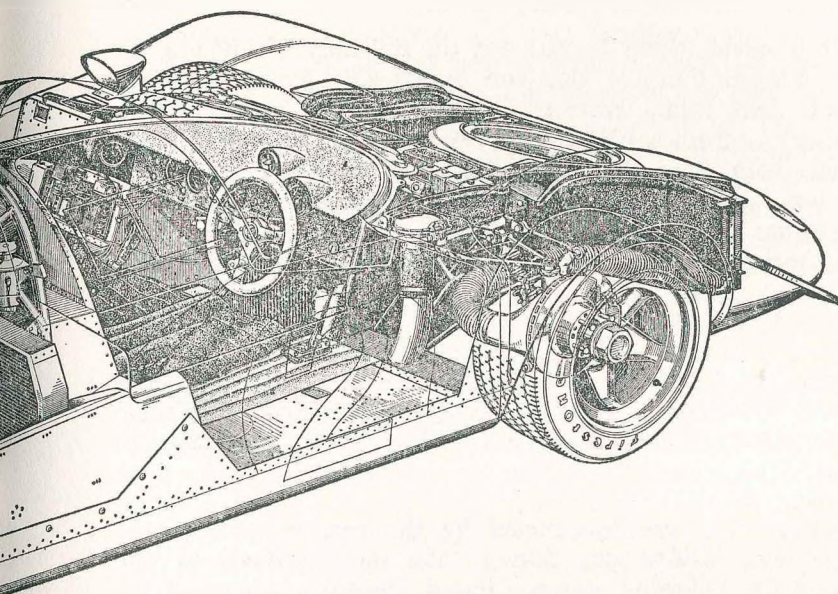
Apart from Jackie Ickx who was a match for any of his rivals, Ferrari lacked drivers of the calibre of the Gulf quartet and this was one of the several reasons that resulted in a comparatively unsuccessful season. Mario Andretti, probably as fast as Ickx on most circuits, was too heavily committed to U.S.A.C. races in the States to appear for

21 At the Nürburgring there had appeared the 908/2 version of the Porsche *Spyder* with more aerodynamic bodywork and one of these cars with long tail and tall tail-fins was entered at Le Mans for Siffert and Redman. Although it led the race at one stage, it too was a victim of gearbox trouble. (*Nigel Snowdon*).

22 The Ferrari entry at Le Mans consisted of a brace of 312Ps with coupé tops. This photograph shows to good advantage the distinctive rear window slats and the shapely curved tail. (*Nigel Snowdon*).



The 1970 Ferrari 512S 5-litre.



the team except at Daytona and Sebring. Although all three drove with considerable determination, Ignazio Giunti, Nino Vaccarella and Arturo Merzario were simply not fast enough to match the Porsche opposition. It is doubtful whether Peter Schetty was of sufficient calibre to handle such a potent car and one feels that he is much happier in his present successful role of Ferrari team manager. Because of driver difficulties Ferrari was forced to invite drivers outside the team for certain races and Chris Amon, John Surtees, Jack Oliver, Derek Bell and Ronnie Peterson all handled works cars on occasions.

Another problem facing Ferrari was the difficulty of dividing his resources between Formula One and Sports Car racing. As Wyr commented, 'No team, however wealthy or well-endowed with engineers and mechanics, can support two major formulae and expect to win them both. Poor old Forghieri must have been going mad at times.' Before Le Mans Ferrari achieved little success in either category and it was only after Le Mans and the virtual cessation of his Sports Car racing activities that the Grand Prix cars began to achieve substantial success.

Having had to build twenty-five of the 512S cars, Ferrari, like Porsche, was anxious to sell them to suitable private owners. Cars were supplied to the North American Racing Team, Scuderia Filipinetti, Jacques Swaters' Ecurie Francorchamps team, Scuderia Picchio Rosso, George Loos' Gelo Racing Team and the Escuderia Montjuich.

Matra Sports

The Matra team was encouraged by the performances of the MS630/650 and MS650 cars during 1969 and continued to race these during the following season. Gérard Ducarouge, head of the Prototype racing section at Vélizy, was only too well aware of the handicap that the team faced in having to race 3-litre cars against the 5-litre products of Porsche and Ferrari and Matra thought—and with good reason—that the odds had been loaded against them most unfairly.

Technical developments at Velizy were few, mainly because the team was busy racing its own V-12 Grand Prix cars once more. In the early races in the Argentine, Matra fielded the MS630/650 cars and two of the later, 'pure' MS650s were fielded at Daytona, Sebring, Brands Hatch and Monza. These cars were raced in both short and long-tail forms, at the beginning of the year they used the 1969 central-exhaust engines, but gradually a switch was made to the latest and more powerful engines with the inlet ports in the vee of the engine and, in sprint form, a claimed power output of 450 bhp at 11,000 rpm. At different races various aerofoils were tried out, but none proved completely satisfactory.

After Monza the team did not race again until Le Mans and concentrated on development work on the new MS660, one of which was

entered at the Sarthe circuit. In general layout the MS660 followed the earlier Prototypes, but the chassis was a monocoque with the engine acting as a structural member and weight was some 40 kilogrammes lower. For the Le Mans race, the one event in which Matra was particularly anxious to do well, special engines were built with the emphasis on reliability. The Le Mans cars ran with long-distance pistons and were detuned to give a little under 400 bhp at 9,200 rpm.

For 1970 Matra signed up an impressive team of drivers. Apart from the usual French trio of Jean-Pierre Beltoise, Henri Pescarolo and, until his retirement from racing, Johnny Servoz-Gavin, Jack Brabham agreed to drive for Matra (and Dan Gurney deputised for him at Sebring) and during the year Francois Cevert became a regular member of the team. Although it in fact never cost them a race, Matra pit work was the least efficient of all the teams competing in Sports Car racing. Only too often Matra would call both cars in for refuelling simultaneously, the mechanics would trip over each other in their confusion and then because of an oversight the Matra drivers would be signalled the next time round to come into the pits again because the staff had forgotten to check the oil. Nevertheless the sight of a sleek blue Matra and the deep-throated shriek of its V-12 on full song are an inescapable part of the Sports Car scene.

Autodelta

When the writer visited the Autodelta works in late 1969, it soon became clear that the many set-backs suffered by the team during that season had in no way diminished the enthusiasm of either Carlo Chiti or racing manager Roberto Bussinello. And for the time being at least Autodelta still had the full support of Alfa Romeo, although the continued failures of the 3-litre cars was beginning to sap the confidence of the Milan manufacturers.

Chiti was very unhappy about the 'loophole' in the regulations that had permitted the production of such cars as the Porsche 917. Autodelta neither wanted to, nor could afford to build a run of such cars themselves, yet for the next two seasons the team faced the handicap of giving away two litres to the Porsche and Ferrari teams. The main aim of the Autodelta team at this time was to continue the development programme of the Tipo 33/3 with a view to making the cars both faster and more reliable and although little success came the team's way during 1970, by the end of the season those aims had largely been fulfilled. It was not until 1971 that Chiti's policy of persistency paid real dividends. In the main Autodelta concentrated on races held over slower courses where the cars were at less of a disadvantage.

Although many minor changes were made to the Tipo 33s for 1970, there were few obvious modifications. A lot of hard work was put into reducing the weight of the cars and as the season progressed more and more titanium components were incorporated in both the chassis and the engine. Power output in later 1970 was a genuine

430 bhp at 9,000 rpm and although the Alfas were still a little heavier than their Matra rivals, at most circuit the lap times of the two marques were closely matched. The 1970 version of the Tipo 33/3 had the rear brakes outboard and the bodywork was neater. Depending on the circuit at which the cars were being raced, they ran with either short 'chopped' tails or with long aerodynamic tails topped with small rear fins linked by a spoiler.

Ignazio Giunti had left Autodelta to drive for Ferrari, but Chiti managed to retain a first class team of drivers. New recruits were British driver Piers Courage (before his death in the Dutch Grand Prix with the de Tomaso), Rolf Stommelen and veteran American driver Masten Gregory, while Andrea de Adamich and 'Nanni' Galli both remained with the team.

6 1970: *The Power of the Porsche Onslaught*

A dummy run

Before the first of the rounds in the 1970 Championship there were two races held in January at the Buenos Aires Autodrome. There had been no serious International motor racing in the Argentine since 1960, but it was hoped that if all went well with the 1970 races, a full-scale Championship event could be staged the following year. Originally it had been intended that these South American races would be run to Formula Two rules, but the problem of whipping up a sufficiently strong entry was rendered even more difficult by the new International requirement that this category of single-seater must be fitted with bag-type fuel tanks, a modification that necessitated structural changes to the cars. So Juan Fangio and his fellow race organizers switched the races to events for Group 5 Sports Cars (as the category was now known) and Group 6 Prototypes.

Although John Wyer's Gulf-Porsche team decided against making the long trek to South America and concentrated on preparation for the first round of the Championship at Daytona, two works teams were represented. Following a hard winter of testing and development work on the Alfa Romeo Tipo 33/3s, Autodelta sent two of the now much improved and rather more reliable 3-litre cars for Andrea de Adamich/Piers Courage and 'Nanni' Galli/Rolf Stommelen. Apart from mechanical improvements under the rear engine cover, the Alfas had revised suspension geometry and the bodywork was now much tidier. Matra Sports, encouraged by their victory the previous October at Montlhéry, sent a single car for Jean-Pierre Beltoise/Henri Pescarolo. However, the team from Vélizy had reserved their MS650 *Spyders* for the Daytona race at the end of the month and their Argentine entry was one of the interim cars that combined the old MS630 chassis with the later *Spyder* body.

Race favourite was without doubt the white-painted Porsche 917 belonging to David Piper, still the only one of these cars in private ownership, and with the fleet Brian Redman as co-driver. An interesting entry was the locally built Berta LR Prototype with a strong, but rather crude space-frame chassis and a Cosworth 3-litre Grand Prix engine. The latest version of the McLaren-chassied Serenissima 3-litre was entered for Jonathan Williams and Maurizio Montagnani, but it had been very badly prepared and most of the other entrants considered that the team had a bit of a cheek to turn up with the car in such a tatty state. In any case, before the first race, the Serenissima had blown up in practice both its original engine and the team's

only spare unit! The real back-bone of the entry—but not likely to provide a race-winner—consisted of eight privately entered Porsche 908 *Spyders* and ten Lola T70 Mk 3 and 3B cars.

The 4.2-mile Buenos Aires circuit incorporated two long straights and only one really slow corner and the first—and most important—race was over a distance of 1,000 kilometres. Practice and the early part of the race itself were dominated by the Porsche 917. There were 24 cars in the rolling start on 11th January and the Porsche with Redman at the wheel assumed a lead that it gradually increased until lap 22 when a rear tyre burst. The German car stopped at the pits and Beltoise with the blue Matra then moved up into the lead, ahead of the two works Alfas. Redman rejoined the race, anxious to make up lost ground, but after setting a new lap record of 1 min 53.1 sec (121.08 mph), he was delayed by further tyre failures and the car was finally eliminated in a collision with a Lola which damaged the 917's rear suspension. The Matra had already lost the lead when Beltoise spun, regained it again when de Adamich stopped to hand over to Courage and then the French car, now with Pescarolo at the wheel, lost the lead yet again when Courage swept by with the Alfa. But this was not to be an Autodelta race and shortly after Courage had handed the leading car back to his Italian team-mate the Tipo 33 developed an incurable mis-fire and dropped back to finish sixth. At the end of this 164-lap race the French V-12 car was a clear lap ahead of the private Porsche 908 of Jochen Rindt and Spaniard Alex Soler-Roig.

The second of the two races held a week later was divided into two 100-mile heats. The Porsche 917 retired soon after the start of the first heat with gear-selector trouble, a recurring fault in the early part of the 1970 season. Piers Courage snatched a lead with his Alfa which he retained until the chequered flag, while team-mate Galli struggled to hold off the opposition. Eventually Beltoise forced his chunky, blue Matra past the second of the Autodelta entries, but he then threw away any chance of an overall victory for the Vélizy team by spinning off and dropping back to ninth place. At the end of the first 100-mile heat Courage was well ahead of the field, but Galli had fallen back behind the Porsche 908 *Spyder* of veteran American Masten Gregory and the Berta of di Palma.

Andrea de Adamich took the wheel of the lead Alfa in the second heat and Galli's place was assumed by Rolf Stommelen. Henri Pescarolo was at the wheel of the Matra. Gregory leapt into the lead at the start, de Adamich screamed ahead and then Gregory scabbled by into the lead again under braking. But the Alfa had the edge on power and de Adamich soon assumed a lead that was as convincing as had been his team-mate's in the first heat. Now Pescarolo came up to challenge the private Porsche and for lap after lap the Frenchman and the American swapped the lead. But Masten Gregory's determination takes some beating and he eventually shook off the pursuing Matra and by the chequered flag had built up a ten-second advantage.

It was on the strength of this performance that Gregory was invited to join the Autodelta team. In this heat the Berta, driven by Carlos Marcinovitch, was delayed at the pits with electrical trouble and then crashed when the rear of the bodywork blew off at speed. On aggregate Courage/de Adamich won by over a minute from Gregory, with the Matra third and Jack Oliver in fourth place with Ulf Norinder's Lola. The safety and success of these two races ensured that there would be an Argentinian round in the 1971 Sports Car Championship.

Championship opener

The first clash of the two giants, Gulf-Porsche with cars that had first appeared almost ten months previously and Ferrari with the new and completely untried 512S model, came in the Daytona 24 Hours race held at the end of January. But neither team arrived at the Florida road and banked track circuit with much confidence, for John Wyer had received two of his 917 cars only three weeks before the race and was not satisfied that they were as yet *au point*, and bad weather in Italy had seriously delayed development testing of the Maranello monsters. In addition to the two cars entered for the usual driver pairings of Jo Siffert/Brian Redman and Pedro Rodriguez/Leo Kinnunen, Wyer had brought a spare 917 to Daytona. For Kinnunen the race was a special test, as it was his first at the wheel of a front-line works car. Two other 917s were entered; there was a single entry from Porsche Konstruktionen K.G. of Salzburg, to all intents and purposes a works car proper from a team that was to increase in strength as the season progressed, and this was driven by Kurt Ahrens/Vic Elford; the fourth 917 was David Piper's car which he entrusted to Tony Dean and Pete Gregg, but this blew up its engine in practice, just one entry in a long catalogue of troubles that plagued Piper's 1970 season.

In numbers the Ferrari entries were one stronger and five of the rather stubby, insect-like 512S cars were fielded. Works coupés were driven by Jackie Ickx/Peter Schetty, Mario Andretti/Arturo Merzario and Nino Vaccarella/Ignazio Giunti. From the North American Racing Team, so long a staunch supporter of Ferrari racing activities, came a car for Dan Gurney/Chuck Parsons and a completely private entry was the Scuderia Picchio Rosso car driven by Gianpiero Moretti and Corrado Manfredini. Additional 'back-up' entries from N.A.R.T. were the exquisitely styled Ferrari 312P coupés that had run as works cars at Le Mans the previous year and these were driven by Mike Parkes/Sam Posey (the car crashed by Amon on the first lap of the Le Mans race and now with a bulge in the roof so as to accommodate Parkes' considerable height) and David Piper/Tony Adamowicz. N.A.R.T. entered another two, but less competitive cars from their prodigious Ferrari stable: the venerable 250 LM model that had won at Le Mans in 1965 for Luigi Chinetti, jnr (son of *le patron*) and Greg Young and a brand-new production 'Daytona'

coupé for Masten Gregory and Wilbur Pickett. The production car had not yet been homologated as a Group 4 GT car and had to run as a Group 5 Sports Car.

Principal contenders in the 3-litre Prototype class were two of the 1970 space-frame Matra MS650 *Spyders*, fitted for this race with long streamlined, tails. The French cars were driven by Jack Brabham/Francois Cevert and Jean-Pierre Beltoise/Henri Pescarolo. Although four Porsche 908 *Spyders* were entered, only two arrived, the Finnish A.A.W. Team car for Hans Laine and Gijs van Lennep and the Ecurie Evergreen car driven by Alain de Cadenet and Argentinian Jorge del Rio.

In practice the fastest time was set by the Ferrari of Andretti and Merzario in 1 min 51.6 sec, but the Porsche of Siffert and Redman was only just over a second slower and it seemed that the rival giants were very closely matched in terms of speed. Although the race was to prove an unqualified Gulf-Porsche triumph, every major contestant except the winner was plagued by mechanical troubles, troubles from which the Gulf-Porsche team emerged unscathed, but which almost annihilated the Ferrari opposition. Andretti and Siffert were side-by-side on the first lap of this 24-hour grind, but then the two Gulf cars pulled ahead of their red opponents, Andretti and Gurney held third and fourth places for Maranello and Ahrens with the Salzburg 917 was taking it easy, conserving his car and avoiding the 'thrash' out front.

The first retirement came when a tyre punctured on Giunti's Ferrari, he almost lost control of the 512S as he swept off the banking and on to the road section of the circuit, the car went sideways and its tail smashed into the retaining wall. This red car, bodywork shattered, a rear suspension upright broken, crawled back to the pits; after two hours of desperate, but vain work, the first of the works Ferraris was pushed away. When a tyre punctured on Redman's Porsche after three hours' racing, a tread flailed through a brake-line, seventeen minutes were lost in the pits whilst the trouble was cured and the Gulf car rejoined the race in eighth place.

Both Matras—which had otherwise been running well—were delayed by failure of the plastic rotor arms and later in the race the Brabham/Cevert car was held up with distributor and starter motor troubles. Time lost while faulty rear lights on Andretti's Ferrari received attention in the pits enabled the Rodriguez/Kinnunen Porsche to draw out a five-lap lead. While Andretti had been playing the Ferrari 'hare', the 'tortoise' of the team was Jackie Ickx who had been holding a cautious eleventh place with a great deal of speed (and reliability) in hand. But a tyre punctured on the Belgian's car, the sudden loss of adhesion caused Ickx to hit the retaining wall and another Ferrari was out of the race because of damaged rear suspension. Team Manager Mauro Forghieri immediately switched Ickx to co-drive with Andretti in place of the rather slow and inexperienced Merzario.

While fingers were crossed in the Ferrari pit in the hope that the surviving 512S would keep going for the rest of this long and perhaps rather tedious race, cool confidence now reigned in the Wyer pit and with six hours' racing under their tyres Siffert and Redman had hustled back to second place behind their team-mates. The other 917 of the Salzburg team was running steadily, but lost eleven minutes while a broken shock-absorber was changed and by midnight had dropped back to eighth place.

A little after midnight, with nine hours' racing over, Ferrari troubles started in earnest. Sixteen minutes were lost by the third-place car of Ickx and Andretti while the brake discs were changed and just after one o'clock the N.A.R.T. 512S of Gurney and Parsons collided with the other private 5-litre Ferrari of Manfredini and Moretti. This car had been slow in practice, equally slow in the race and formed a moving chicane that had already given several drivers cause for complaint. The N.A.R.T. car suffered damaged bodywork and steering, a long time was spent in the pits while the steering rack was changed and the bodywork patched, but the body still caused trouble at speed and several more pit stops were necessary before it had been properly patched. As if this were not trouble enough, the 312P 3-litre car of Parkes and Posey, which had been battling for the lead in the Prototype class with the Matras, developed a water leak and had to stop at the pits for the radiator to be changed.

An hour later Porsche troubles started, but not as yet with the J.W. entries and the two blue and orange cars were still thundering through the night. The Salzburg 917 had dragged its bodywork on the ground earlier in the race when the shock-absorber had failed and this had caused a fuel cell to leak. Efforts were made to patch this, but then the cell started to leak again and the car had to be retired.

By half-distance the Rodriguez/Kinnunen Porsche led from its stable-mate by the comfortable margin of fourteen laps and Siffert and Redman temporarily lost their second place to the hounding Ferrari of Andretti and Ickx when a shock-absorber failed and ten minutes were spent in the pits while this was changed. Just before dawn the rather sluggish Ferrari of Manfredini and Moretti succumbed to suspension failure and so there were now just two representatives of each of the major contenders left in the race. Serious trouble did not strike the John Wyer team until a little after seven on the Sunday morning when the Siffert/Redman 917 crawled into the pits with clutch failure. David Yorke decided that the complete clutch unit should be changed, the car was pushed away into the paddock and under the scrutiny of the race stewards the mechanics set to work. While the J.W. boys were battling to get the car back in the race, the battered 512S of Gurney and Parsons, then holding third place, was abandoned out on the circuit with gearbox failure. After eighty minutes of intensive work the Siffert/Redman Porsche rejoined the race in fourth place, moving up to third when the 312P

of Parkes and Posey stopped for body repairs after striking a guard-post.

With six hours to go to the chequered flag the supremely reliable 917 of Rodriguez and Kinnunen led by fifteen laps and Siffert and Redman were all of 41 laps behind the second-place Ferrari of Andretti and Ickx. Hopes of Siffert and Redman making it a Gulf 1-2 were slim indeed, but then the Maranello car ran into trouble yet again. Ickx brought the Ferrari into the pits with a broken rear chassis cross-member (the one running under and supporting the gearbox). After 45 minutes the car rejoined the race, but it was handling atrociously and returned to the pits where it spent another 32 minutes. When the car did finally get under way, one rear wheel was sadly askew, it was unable to lap in under two minutes (ten seconds slower than in practice) and the Siffert/Redman 917 was now only five laps behind.

Redman was steadily making up ground and with the 917 only four laps behind the Ferrari, he came into the pits to hand over to Siffert. 'Seppi' is the world's fastest Sports Car driver and he now began to throw the 917 round the circuit with almost gay abandon. The suspension of the Gulf 917s was set up for the banking as opposed to the road part of the circuit and it was on these curves that Siffert made up the most time. So exciting had the race become, so tense was the atmosphere that even the official time-keepers became confused and lost track of the exact state of the race. With just over two hours' racing still left Siffert surged by into second place. Redman now took over for a spell, but he scraped the wall and damaged the bodywork of the 917. Fifty minutes from the finish the Lancashire driver was back in the pits, the glass-fibre was patched and Siffert resumed at the wheel, once again a lap behind Andretti. While Rodriguez cruised on gently to a certain victory, Siffert screamed round Daytona in hot pursuit of the Ferrari—on a circuit coated with rubber and oil from 24 hours' racing he turned in an unofficial lap record of 1 min 48.7 sec—and four minutes before the chequered flag the flat-12 was again in front of the V-12.

So Gulf-Porsche scored a magnificent and overwhelming victory and the fact that the timekeepers later admitted to a mistake and stated that at the flag Siffert was in fact three clear laps ahead of Andretti could not detract from the excitement that had gripped the circuit during the closing minutes of the race. Fourth and fifth places overall and the first two places in the Prototype category went to the N.A.R.T.-entered 312Ps of Parkes/Posey and Piper/Adamowicz. Their rivals, the 3-litre Matras, had eventually consumed all the spare rotor arms, the mechanics had glued the broken plastic together and the cars had then completed a final lap at the end of the race to finish tenth (Brabham/Cevert) and eighteenth (Beltoise/Pescarolo). For Ferrari the race had proved a great disappointment, but the 512S was very new, the suspension trouble which had caused excessive tyre wear and hence the punctures on the cars driven by Giunti

and Ickx could be easily cured and there were prospects of exciting battles between the two marques at later races in the season.

The Second Round in Florida

Two months later the second round of the Championship was also held in Florida, at the Sebring airfield circuit. Instead of shipping the three Daytona cars straight back to England and sending out a complete team of new cars for Sebring, John Wyer's team took the Daytona cars to the Gulf Oil Corporation's works in Pennsylvania. Here the team was able to settle down to a steady programme of development and preparation work and only one new car was brought across the Atlantic for the second race in the series. By Sebring all the 917s had new solid brake discs and the Gulf cars were fitted with a new type of hub with bigger bearings, no stub axle as such and the bearings located at their inner ends by four bolts and a steel plate. On the strength of their Daytona victory the Gulf-Porsche team arrived at Sebring full of confidence.

After the Daytona race the Salzburg 917 was shipped back so that development testing could continue in Europe. This car was written off in a testing crash in Sicily while a mechanic was at the wheel and so both Austrian-entered cars at Sebring were new. These were painted in distinctive blue and white, and orange and white stripes respectively and they were driven by Vic Elford/Kurt Ahrens and Hans Herrmann/Rudi Lins. To finance this entry the Austrian team had obtained support from Porsche-Audi, the American concessionaires for the marque.

Facing the four 917s were a similar number of the blunt, brutish, red Ferrari 512S cars. Since Daytona these had been improved in many ways. The suspension had been strengthened, the chassis were lighter and power output had now been boosted to 575 bhp. All four Ferraris had new, squarer noses (without spoilers) to assist in keeping the front end more firmly glued to the road at high speed. Of the three works cars, two were new and lighter open versions driven by Andretti/Merzario and Ickx/Schetty, while Giunti/Vaccarella had one of the Daytona coupés. The fourth car was entered by the North American Racing Team for Sam Posey and Ronnie Bucknum. N.A.R.T. also fielded their pretty and still very effective 312P coupés for Mike Parkes/Chuck Parsons and Luigi Chinetti, jnr/Tony Adamowicz.

Two other works teams were represented at Sebring. Matra Sports entered the same two MS650 *Spyders* that had run at Daytona, but these now had short tails chopped off behind the rear wheels. Because the Formula One Race of Champions was held at Brands Hatch the same weekend, Matra Sports faced driver difficulties. One car was handled by Pescarolo and Servoz-Gavin, while the other was entrusted to Francois Cevert, soon to take Servoz-Gavin's place in the Tyrrell Formula One team, and Californian Dan Gurney. Auto-delta entered a trio of their now much improved Tippo 33/3 cars

in short-tail form for Piers Courage/Andrea de Adamich, Rolf Stommelen/'Nanni' Galli and Masten Gregory/Toine Hezemans. It was in this race the previous year that the Tipo 33/3 had made such a disastrous debut and team chief Carlo Chiti was keeping his fingers crossed and hoping for a change in the team's fortunes. Three other 3-litre Prototypes were entered, all Porsche 908 *Spyders*, and the most notable of these was the car entered by Solar Productions for film star Steve McQueen and Peter Revson. McQueen had broken his left foot in a motor-cycling accident shortly before the race and he drove with it in an enormous plaster cast.

Prior to the 1970 race the fastest lap at Sebring stood to the credit of Chris Amon who had recorded 2 min 40.14 sec (about 116 mph) with the Ferrari 312P in practice for the 1969 race. In unofficial practice a couple of weeks before the 1970 race de Adamich with an Alfa 33/3 had lopped five seconds off this time and Redman with the big 4.5-litre 917 Porsche had lapped in a shatteringly fast 2 min 32.7 sec. In official practice Redman's time, which had been achieved under rather artificial conditions, was not matched, but Andretti pushed his Ferrari round in 2 min 33.5 sec and again the Siffert/Redman 917 was only a second slower. Of the Prototypes, the fastest was the Matra of Gurney/Cevert which recorded a fine 2 min 37.44 sec.

For the first time since the inception of the Sebring race in 1952 the Le Mans start had been abandoned in the interests of safety and the cars were lined up two-by-two to depart in a rolling start. As the cars moved off, Andretti just succeeded in out-dragging Siffert and the Ferrari then held off the Porsche until its first stop for fuel after only forty-seven minutes of racing. Slicker pit-work when Siffert stopped resulted in the Porsche going ahead of the Ferrari which was now driven by Merzario and the 917s of Elford/Ahrens and Rodriguez/Kinnunen moved into second and third places. Heading the Prototype class was Dan Gurney at the wheel of his Matra. The first of the 917s in trouble was the slower Salzburg entry. Shortly after veteran Hans Herrmann had handed this over to Rudi Lins, his team-mate over-revved and blew up the engine. A few laps later race-leader Brian Redman brought his 917 into the pits with a loose ignition wire and ten minutes passed before the car was back in the race.

The order was now Kinnunen leading from Ahrens, but Andretti was back at the wheel of the 512S and both he and Ickx surged past the 917s to take the first two places. By quarter-distance the Giunti/Vaccarella Ferrari had moved up to make it a solid Maranello trio at the head of the field and it seemed that on this circuit the Italian cars had the legs of their German rivals. Now Porsche troubles came thick and fast. The remaining Austrian-entered 917 with Elford at the wheel collided with a very slow car that moved directly into its path; with shattered bodywork and battered suspension the 917 started to limp back to the pits. Then a wheel fell off, causing further

damage to the chassis and suspension. Although the 917 eventually reached the pits and the mechanics tried to sort out the mess, the damage was too extensive and the car had to be retired.

Already well down the field, the Siffert/Redman 917 now came into the pits with broken wheel bearings on the right-hand front upright. After thirty-five minutes the car rejoined the race with a suspension upright transferred from the team's spare car. Next in trouble was the Rodriguez/Kinnunen car with, not surprisingly, exactly the same fault. The upright from the Siffert/Redman car had now been repaired, this was fitted and Kinnunen rejoined the race only to collide with a Ford Mustang as he crossed its path and the impact shattered the 917's tail. The J.W. mechanics tried to repair the glass-fibre with wooden splints, but it proved a hopeless task and eventually the complete tail section from the spare car was fitted. Soon after this 917 accelerated away, the Siffert/Redman 917 shed its large horizontal cooling fan which spun through the air and over the Martini bridge straddling the circuit, and the car arrived at the pits with the engine smoking furiously.

Still the three Maranello cars were pounding round at the front of the field, the Gulf 917s were struggling to make up lost ground, the Matras were plagued with mechanical troubles (broken rotor arms once again on the Gurney/Cevert car and overheating and electrical problems on the Servoz-Gavin/Pescarolo entry) and fourth place overall and the lead in the Prototype category had been assumed by the private Porsche 908 *Spyder* of Revson and McQueen. Although one 312P was out with fuel pump failure, the other driven by Parkes and Parsons was in fifth place and on the same lap as the 908.

As darkness began to envelope the circuit, so Ferrari troubles started. The N.A.R.T. 512S, already delayed for bodywork repairs after a shunt with a slower car, was delayed further by fuel-feed trouble and then withdrawn because of a defective clutch. The Ickx/Schetty car, firmly entrenched in second place, stopped suddenly, the engine almost red hot, and after the race the trouble was traced to cylinder head gasket failure. Four hours from the finish the Giunti/Vaccarella car punctured a tyre and driving it back to the pits on the rim damaged the rear suspension. In twenty-four minutes the suspension unit was changed and the car rejoined the race. When Andretti handed the lead 512S over to Merzario, he said that he felt that the gearbox would not last much longer—sure enough, with only eighty minutes' racing still to go, the Ferrari stopped out on the circuit and a very unhappy Merzario appeared at the pits on foot. Andretti was later switched to the Giunti/Vaccarella car.

Of the Gulf 917s, the Siffert/Redman car had been retired with a recurrence of the bearing failure and Rodriguez had been joined at the wheel of the survivor by the Swiss driver. This car, too, was forced to stop yet again with bearing trouble, it rejoined the race in fourth place, moved up a slot when the leading Ferrari retired

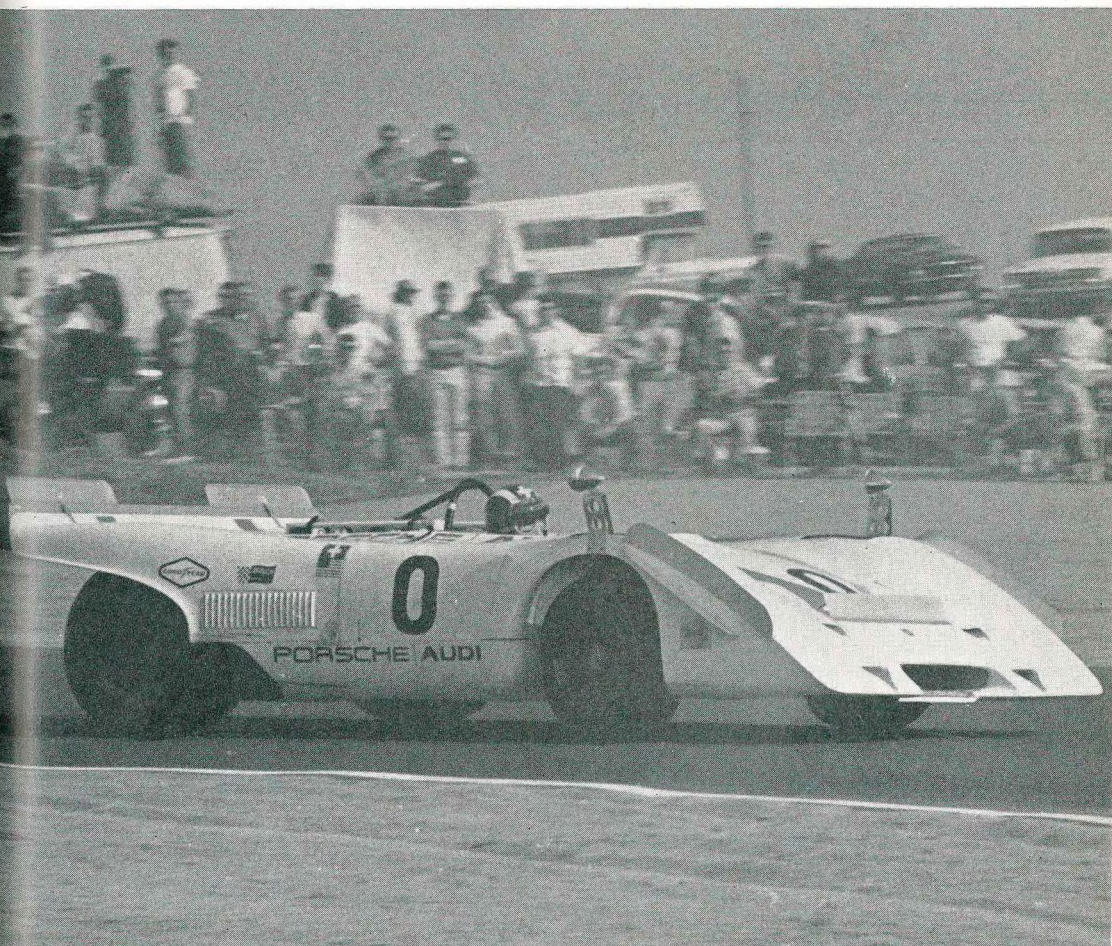
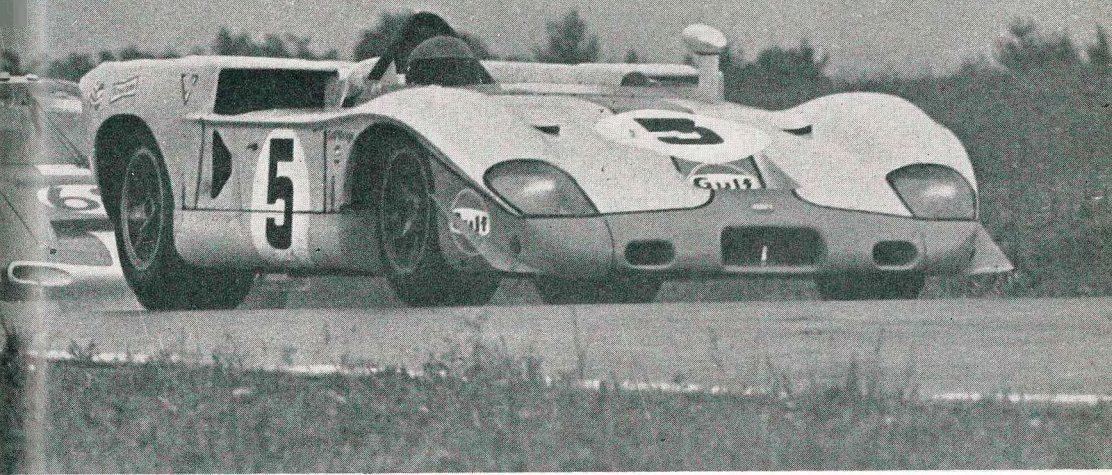
and then swept past the Alfa of Gregory/Hezemans and the 908 of Revson/McQueen to take the lead once again. While it seemed as though the John Wyer team would repeat their Daytona victory, Andretti was fighting back through the field at the wheel of his new mount.

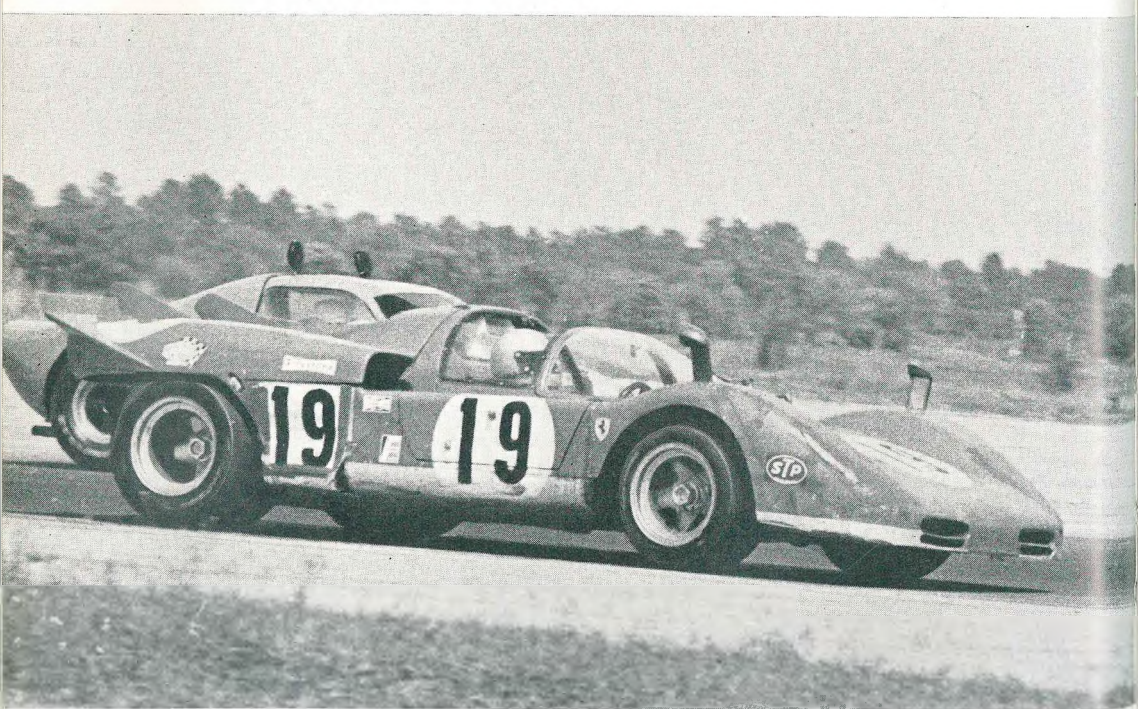
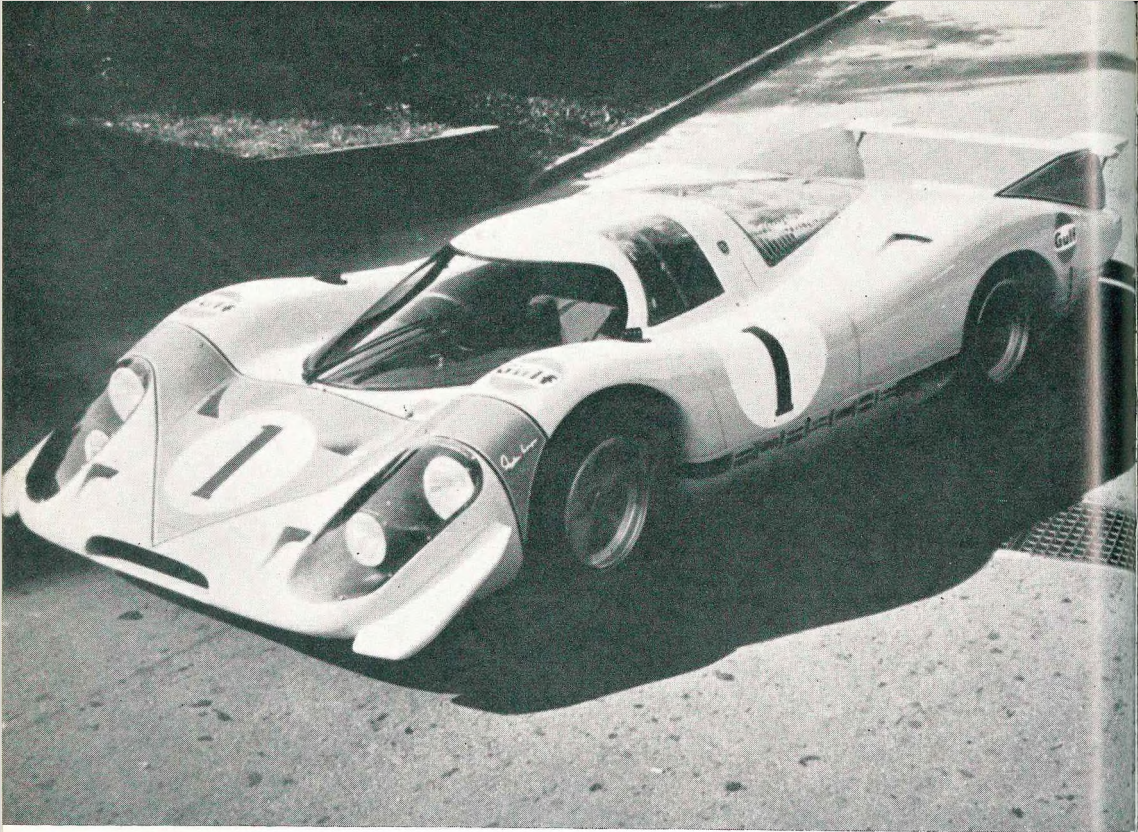
With a mere twenty-two minutes to go to the chequered flag Andretti snatched second place from Revson at the wheel of the Porsche *Spyder*. Only a matter of seconds later Rodriguez brought the leading Porsche into the pits with yet another failure of the right-hand front hub bearings. Although the JW pit-work was so slick that the car was back on the track in less than ten minutes, the race had been lost and the Ferrari team scored its first Sports Car Championship race victory since Monza in April, 1967. Film star McQueen partnered by Revson took second place and won the Prototype category and in third spot came the most reliable of the Alfas driven by Gregory and Hezemans. Rodriguez and Siffert took fourth place, four laps behind the winner. The highest placed Matra was that of Pescarolo and Servoz-Gavin which finished fifth. A collision with a rubber cone course marker damaged the radiator of the 312P driven by Parkes and Parsons and at the finish this was in sixth place.

Rain-soaked B.O.A.C. race

The first round of the Championship to be held in Europe was, as usual, the B.O.A.C. race at Brands Hatch, now run over a distance of one thousand kilometres (235 laps). All five of the leading teams turned out for this race and there were excellent prospects of a fast and closely fought race. Five 917s faced four 512S cars. From Wyer's Gulf-Porsche team came two 917s for the usual driver pairings of Siffert/Redman and Rodriguez/Kinnunen and these were unchanged from Sebring apart from a slight reduction in weight and a reversion to the original pattern of hub. As usual the cars were immaculately prepared and an aura of quiet confidence reigned in the Gulf pit, despite the Sebring misfortunes and despite the fact that in practice on the Friday the cars suffered gear-selector problems. The Porsche Salzburg team was not quite so well organized. Kurt Ahrens had crashed while testing a new long-tail version of the 917 at the Volkswagen track at Wolfsburg and his injuries had temporarily put him out of racing. So his place was taken by former World Champion Denis Hulme who shared with Vic Elford a new car, painted all-white,

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- 23 From the original Mirage, John Wyer developed this open M3 version with Cosworth V-8 engine. It is seen in the Watkins Glen Six Hours race in which it retired with suspension trouble. (*Motor Sport*).
- 24 For the 1969 Can-Am series Porsche developed an open version of the 917. Note the chisel-nose which was mounted on the existing rounded bodywork to reduce understeer. Jo Siffert is seen at the Riverside race. (*Pete Lyons, Autosport*).





to replace the one written off at Sebring. Denny had definite reservations about the 917's handling until he actually drove it and then he was pleasantly surprised to find that it was not the uncontrollable monster that he had expected! The second of the Austrian entries was driven by Hans Herrmann and Dickie Attwood. The fifth 917 entered at this race was David Piper's car, now painted orange and fitted with special wheels similar to those he had used on his Ferraris. Unfortunately a camshaft broke in practice and the car, due to be co-driven by David Hobbs, non-started.

Maranello had originally entered three cars, but only two, both exactly to the same specification as raced at Sebring, arrived at the circuit. Jackie Ickx co-drove with Jack Oliver (deputising for Andretti who was engaged in a U.S.A.C. race) and Chris Amon returned to the team to share a car with Merzario. The spare Ferrari entry was filled by the Scuderia Filipinetti who entered an older Daytona-style 512S with coupé top, the original, more rounded nose and 'cocked-upwards' tail for Herbert Müller and Mike Parkes. Because of Parkes' height it proved necessary to cut a hole in the roof—in fact the whole car had been set up for the much shorter Swiss driver and the lanky Parkes was very uncomfortable all the time he was at the wheel. A fourth Ferrari was the private 512S of the Gelo Racing Team driven by George Loos and Jonathan Williams. This very slow car was withdrawn when it became clear that the race would be run on a rain-sodden track and that there would be insufficient time to have a set of wet-weather tyres fitted.

From Matra came two of the MS650 *Spyders*; the faster and rortier of these featured the latest centre-induction V-12 engine said to be developing over 450 bhp, a low aerofoil across the nose and a high rear aerofoil. It was driven by Brabham and Beltoise, it was fourth fastest in practice and was strongly tipped for victory should the race be run in wet conditions throughout. The other Matra had the older centre-exhaust engine, no aerofoils and was driven by Servoz-Gavin and 'Pepsi' Pescarolo. Autodelta fielded a single 33/3 3-litre car with truncated tail (as at Sebring) and now with Lockheed (instead of ATE) brakes for Andrea de Adamich and Piers Courage. There were four Porsche 908 *Spyders* entered—but one was written off in practice by Tony Dean—and the 3-litre Prototypes were completed by the very interesting McLaren M8E Can-Am car with Ford Cosworth DFV Grand Prix engine driven by Chris Craft and Trevor Taylor. It was tried by Bruce McLaren in practice, but he declined to handle it in the race.

25 The Porsche 917 in original long-tail form and decked out in Gulf livery. The body was much modified before the cars were raced by the Gulf team.

26 At Sebring in 1970 the Ferrari 512S of Mario Andretti and Arturo Merzario laps a Chevron. This car led the race for nine hours, but retired with gearbox failure. (*Pete Lyons, Autosport*).

Practice was complicated by the fact that the Le Mans Test sessions were the same weekend and both Jackie Ickx and Brian Redman practised at Brands Hatch on the Friday, flew to Le Mans on the Saturday and then flew back for the 1,000-kilometre race on the Sunday. The Le Mans tests were also marred by rain and the only innovations were body changes by both Porsche and Ferrari. The German team revealed a new version of the 917 with more flowing, curving lines and a long, extended tail surmounted by large fins. This car was driven by veteran Herbert Linge, but in his hands its lap times were unimpressive. The Ferrari team produced a new, longer tail configuration and used the tests to settle the axle ratio to be used in the race in June. For the John Wyer team the Le Mans weekend was inconclusive and in June they found that they had backed the wrong horse and after the first practice session were forced to fit higher axle ratios.

At Brands Hatch race day dawned grey and wet, as noon and the start of the race approached the track was awash and it was clear that wet-weather tyres would be necessary. In the paddock there was a rush to change the tyres, several teams failed to make it in time and although the Gelo Racing Ferrari was withdrawn for this reason, a couple of cars started the race on dry-weather tyres. Ickx nosed ahead at the fall of the flag, but then Elford surged in front and at the end of the first lap the white 917 was still leading. As the field of thirty-four starters splashed and slithered round the narrow Brands Hatch circuit, it seemed impossible that the entry could complete a single lap unscathed. Although the faster cars kept clear of trouble, the green Lola of the Sid Taylor team, with Barrie Smith at the wheel and still on dry-weather tyres, aquaplaned and went out of control on the top straight; with a resounding crash it collided with the Armco barriers in front of the press box and the track was littered with shattered glass-fibre. The driver was unhurt, but the car was a complete write-off.

While the yellow danger flags were out because of this accident, Pedro Rodriguez, who had started from the third row of the grid, was still weaving through the field, picking up places. As a result the Mexican was black-flagged, came into the pits for a reprimand from Clerk of the course Nick Syrett and rejoined the race in sixth place (losing only one place during the stop) behind Ickx, Elford (who had been passed on lap 2), Siffert, Courage and Amon. No sooner had Rodriguez rejoined the race than Siffert's 917 collected a puncture and already things were beginning to look rather gloomy for the Wyer team. On lap 4 Courage lost control of the Alfa on the top straight and slid backwards into the barricades. The car suffered minor body damage and after a pit stop for the Alfa to be checked over, Courage rejoined the race well down the field. He then began to pick up places again, rising to fifth spot before a tyre punctured. De Adamich then took over, but the car was eliminated when the

Italian repeated his team-mate's crash on the top straight and the rear of the chassis was too badly damaged for the car to continue.

Although it seemed that bad luck was ruining Gulf-Porsche chances of victory, it was the many minor misfortunes suffered by the Ferrari team combined with Rodriguez' fantastic driving on the streaming wet track that ensured a Wyer win. Ickx led the field for Maranello, but Rodriguez was throwing the blue and orange car round the tight Kent circuit, oblivious of the rain and mist, skillfully manoeuvring round slower cars and he was soon in fourth place and right on Amon's tail. When Ickx stopped at the pits to complain about wiper trouble, Rodriguez was poised to pass Amon and with frightening skill he swept by into second place under braking for Paddock bend. At Clearways Rodriguez pulled alongside the now leading Porsche of Vic Elford, in an enormous cloud of blinding spray they roared side-by-side along the top straight, the Mexican had the inside line at Paddock bend and surged into the lead. Now the direct battle between the rival teams was over. Elford dropped further and further back, and while the Ferraris were constantly in and out of the pits, Rodriguez battled with the elements and indulged in a virtuoso display of wet-weather driving that has rarely been matched.

Ickx had stopped again with wiper trouble and wet electrics, the Filipinetti Ferrari, never in the picture, had the same problems and Amon collided with the Chevron driven by Twaites. The New Zealander crept back to the pits with a flat tyre and after the wheel had been changed, Merzario took the car over. Brabham was in third place with the steady-running Matra, but Siffert, who had rejoined the race in twentieth place after his wheel-change, was now fourth and with just over an hour's racing gone, he swept into third place. After another hour Rodriguez had lapped Elford and, not long afterwards, slicker work in the J.W. pit allowed Siffert to move into second place ahead of the Austrian Porsche which was now driven by Denis Hulme. A combination of mechanical trouble and inefficient pit-work had resulted in the Matras dropping down the field. The Beltoise/Brabham car was suffering from clutch trouble and fuel-feed problems and every time the mechanics wanted to look at the engine, they had to remove the rear aerofoil. As a result, after 100 laps, the faster of the Matra entries was back in seventh place, while Rodriguez had a two-lap lead over Siffert/Redman.

The maximum period for which a driver was allowed to stay at the wheel was three and a half hours and three minutes before this limit came up, Rodriguez handed the leading 917 over to team-mate Kinnunen. With four hours' racing over, the track was beginning to dry out and Ickx, whose car was still way down the field, came in for intermediate tyres to be fitted. When Attwood passed Merzario, the 917s were first, second, third and fourth and not long afterwards van Lennep with his 908 snatched fifth place from the Ferrari. After only a very short spell at the wheel, Kinnunen brought the lead

917 in and Rodriguez resumed at the wheel. Ickx was steadily making up ground with the 512S and set an unofficial fastest lap of 1 min 33 sec. The Servoz-Gavin/Pescarolo Matra retired out on the circuit with a blown-up engine and its stable-mate with the latest version of the V-12 engine was still in and out of the pits with clutch and fuel pump troubles. While Amon, having relieved Merzario and pressing on to make up lost ground, was lapping in close company with the second-place 917 of Redman, the Lancashire driver lost control at Westfield and crashed. Although the bodywork of the 917 was rather bent and the car was out of the race. Redman was unhurt, but he was quite unable to offer any explanation for the accident—it seems quite likely, however, that a tyre burst.

Amon caught and passed the fourth-place 908 of Laine/van Lennep, but the other Ferraris were still in trouble, the Filipinetti car was now slowed by fuel-feed problems and after Oliver had collided with the Nomad-B.R.M. Prototype driven by Tony Lanfranchi, he had to stop for the body to be patched. Amon snatched third place from the rather slow 917 of Hans Herrmann, but then his Ferrari too was slowed by fuel-feed trouble—as on the Filipinetti car the pumps were not picking up the last few gallons in the tanks—and he came into the pits to take on extra petrol. After this unscheduled stop the car had dropped back to fifth place. Amon re-passed the A.A.W. Team-entered 908 and then slowed off yet again with the same trouble. He succeeded in coaxing the 512S back to the pits, took on five gallons and before the flag fell he completed a final lap of the race to finish fifth. Of the other 512S cars in the race, Ickx' and Oliver's entry was eighth, all of twenty-two laps behind the winner, and the Filipinetti car was classified thirteenth. The surviving Matra MS650 driven by Brabham and Beltoise took twelfth place.

For Rodriguez the race represented a wonderful personal triumph, but not only the Gulf team had cause to celebrate that night. With Elford/Hulme and Herrmann/Attwood in second and third places, the Porsche Salzburg team had combined consistency with reliability and the fourth place of the 908 *Spyder* entered by the A.A.W. Team was a magnificent effort by a private team. For Ferrari the race had been an unmitigated disaster; apart from Ickx no driver had been able to match the wet-weather efforts of the Gulf team; the cars were in and out of the pits throughout the race with minor mechanical troubles; Ferrari pit-work was vastly inferior to that of the Gulf team; and both cars had wasted time through repairs caused by collisions. It was a very chastened Ferrari team that returned to Maranello to sort out their problems before the next round of the Championship at Monza.

High-speed sprint at Monza

In past years the Monza 1,000 Kilometres race had been run on the full banked track and road circuit, but the concrete banking had now sunk to such a state of disrepair that it needed completely re-

surfacing and was no longer safe for racing. So the road circuit only—as used for the Grand Prix in September each year—was the scene of the 1970 race. In fact speeds over the road circuit were considerably higher and one of the reasons for this was that the very bumpy state of the track had necessitated the use of chicanes to slow down the cars. The Monza race is held on Independence day—the National holiday celebrating the liberation of Italy in 1945—and in 1970 this fell on 25th April, the day before the *Daily Express* Trophy race at Silverstone. As a result some drivers again faced the problem of attending two meetings at the same weekend.

Towards the latter part of 1969 an enlarged 4,907 cc (86 x 70.4 mm) version of the 917 had been homologated and this now made its first racing appearance. In practice one of the new engines was fitted to the John Wyer entry for Siffert and Redman, but this developed an oil leak that could not be cured in time for the race and so a normal 4.5-litre unit had to be substituted. The other Wyer entry for Rodriguez and Kinnunen was fitted with the smaller engine. Once again there were two cars from Porsche Salzburg; the white 917 that had gone so well at Brands Hatch was driven by Vic Elford and Kurt Ahrens who had now fully recovered from his testing shunt, and the blue and white car was again entrusted to Attwood and Herrmann. Elford and Ahrens were provided with one of the larger engines and although this too developed an oil leak, the team was luckier and the trouble was sorted out before race-day. Backing up this powerful onslaught of four cars were an additional three 917s entered by private owners. Since Brands Hatch David Piper's car had been fitted with a new engine and the car was shared by successful American driver, Tony Adamowicz; from the Gesipa Rivet-sponsored team there came a new blue and yellow 917 for German drivers Jürgen Neuhaus and Helmut Kelleners; and finally the Finnish A.A.W. team had also taken delivery of a new car which was painted in their usual yellow colour finish and driven by Gijs van Lennep and Hans Laine.

Because of burns suffered in the Spanish Grand Prix when his 312B flat-12 Ferrari caught fire after a collision with Oliver's B.R.M., Jackie Ickx was out of racing for the time being. To strengthen his team Ferrari turned to two former Maranello drivers, John Surtees who was a Ferrari man between 1963 and 1966 and having his first outing for the team since then, and Chris Amon who had raced Ferraris between 1967 and 1969. Coupé versions of the 512S were handled by Amon/Merzario and Surtees/Schetty, while a third car with open body was entered for Giunti/Vaccarella. As at Brands Hatch, the Filipinetti car, still with the old nose configuration, was driven by Mike Parkes and Herbert Müller; the Scuderia Picchio Rosso produced a new car to replace the one that had been destroyed in a fire a fortnight before and this was handled by Gianpiero Moretti and Corrado Manfredini; the ranks of the 512S entries were comp-

leted by the hopelessly uncompetitive car of Gelo Racing for George Loos and Franz Pesch.

Although Monza is a high-speed circuit and therefore one at which the 3-litre Prototypes were not expected to do well, there was a very strong entry in this class. From Autodelta came a quartet of brand new cars with long-tail bodywork for de Adamich/Courage, Gregory/Hezemans, Galli/Stommelen and Facetti/Zeccoli. These cars were fitted with Lockheed brakes as tried at Brands Hatch, stiffer suspension and Chiti was now claiming that power output was around 425 bhp. In direct opposition to the Italian cars were two Matra MS650 *Spyders* with long-tail bodies and as usual these were driven by Beltoise/Brabham (they had driven the very same car at Brands) and Servoz-Gavin/Pescarolo. Both cars had the latest centre-induction engine and although Matra had abandoned the fancy aero-foils used in the British race, both now had additional rear trim tabs. To complete the 3-litre Prototype class there were two 908 *Spyders* from the Martini team. Gérard Larrousse and Rudi Lins drove a 908/2 with a long Le Mans-type tail and an ordinary 908/1 was entered for Hans-Dieter Dechent and Gerhard Koch.

In practice for this race the Porsche drivers were far from happy. The Siffert/Redman car was again suffering from gear-selector trouble and both the 917s and the Ferraris were under-steering badly. Despite these troubles Siffert, using the 5-litre engine, turned in fastest lap in 1 min 25.21 sec—only a hundredth of a second slower than the lap record set by Beltoise with a Matra MS80 in the 1969 Italian Grand Prix. In Friday's practice Merzario had lost control of his 512S in the Lesmo curves and battered it against the guard-rails. It was typical of the favouritism shown to Ferrari by Italian race organizers that practice was stopped so that the Maranello team could recover the car and start on the repairs. As a rather niggled John Wyer commented, 'It's the usual principle—if Ferrari can't practise, no one else is allowed to either.' Nevertheless it was a pretty remarkable effort by Ferrari that repairs to the badly damaged car had been completed by the end of the four-hour practice session. But Ferrari had other problems as well, for the 512S was displaying a voracious appetite for tyres and using the normal compound of rubber, it would have been necessary for the cars to have had their front tyres changed every 37 laps of this 174-lap race. Ferrari tried different trim tabs and different tyre compounds, finally settling for a harder compound than that used usually, but the cause of the trouble was not clearly established.

Despite all these troubles Merzario, inexperienced in comparison with his team mates but very much at home on the Monza curves which he knew so well, had set second fastest time overall on the Thursday in 1 min 25.78 sec. Fastest of the 3-litre Prototypes was the Alfa of de Adamich and Courage which recorded 1 min 27.88 sec (tenth fastest overall). The ineptly driven Gelo Racing 512S failed

to qualify as a starter under the rule that each runner must achieve at least 90 per cent of the fastest practice time in the class.

When the flag fell for the start of the race, Giunti surged through from the second row of the two-by-two grid and at the end of the first lap he led narrowly from Rodriguez, Siffert, Elford, Amon and Surtees. In his efforts to stay with the leaders Laine clipped a guard-rail with the A.A.W. 917 and a pit stop to have the car checked dropped him right down the field. On lap 5 Rodriguez went in front for the Gulf team, two laps later Siffert shot past this team-mate, but in his slip-stream went Giunti to hold second place for Ferrari. Now it was Elford who turned on the pressure and three laps later the white 917 sped past both Rodriguez and Giunti. As usual, the slow-moving Alfa and Porsche saloons were providing a serious hazard for the fastest drivers and when a slower car crossed Siffert's line at Lesmo on lap 11, he spun and clouted the guard-rail which broke the lower right-hand wishbone of the Porsche and damaged the chassis tubing. The Gulf-Porsche crawled back to the pits and by the time the Swiss driver had rejoined the race, he was sixteen laps in arrears.

Out in front Elford was slowly, but surely, opening up a gap between himself and Rodriguez who had now re-passed Giunti. By lap 25 the white Porsche led by ten seconds and the Mexican was five seconds ahead of the Ferrari. After the confusion of the first refuelling stops had sorted itself out, Elford still led from Rodriguez and then came the Ferraris of Vaccarella (in place of Giunti), Merzario (who had relieved Amon) and Schetty (in place of Surtees) and the Porsche of Herrmann. On lap 62 the leading Porsche of Elford, which was still being driven as though it was competing in a ten-lap sprint, set a new outright circuit record of 1 min 24.8-sec (151.68 mph). Three laps later Elford stopped to refuel and to hand over to Ahrens, and Rodriguez moved up into the lead. When 'Mexican Pete' stopped at the end of lap 71 to hand over to Kinnunen, the John Wyer pit work was so slick that the Finn rejoined the race without losing the lead. But neither car nor driver possessed the speed to hold off the 5-litre Porsche and on lap 82 Ahrens was back in front.

Ten laps later disaster struck for the Salzburg team. As Ahrens entered the Curva Grande, the first and very fast curve after the pits, the left-hand rear tyre burst. Ahrens lifted off the accelerator at once, but the flapping rubber and casing lashed at the bodywork, rending the glass-fibre, wrecking the suspension and holing the oil tank. Ahrens was forced to abandon the car and now Kinnunen with the vivid blue and orange Porsche headed the field. But it was not a secure lead, for Giunti, back at the wheel of the second-place Ferrari, was rapidly making up ground and on lap 104, just before he shot into the pits to refuel, he went ahead of the Porsche. For the second time in this race all three works Ferraris were called into the pits to refuel at the same time and complete chaos reigned while the Ferrari

pit did its best to throw away its chances of victory. Three laps later Kinnunen stopped to refuel, Rodriguez took over and any hopes that Ferrari might have had of re-taking the lead completely evaporated.

When Giunti came in on lap 137 to refuel for the last time, Mauro Forghieri decided that Amon should relieve him. Even this rather belated attempt at team tactics literally mis-fired. When Amon started up the 512S, fuel beneath the car ignited and by the time the blaze had been put out and the windscreen cleared of foam, the Ferrari was over a lap in arrears. For the remainder of the race Amon sat on Rodriguez' tail, a lap behind, but faintly hoping that the Mexican would make a mistake. Just before the finish Amon slipped by Rodriguez to put himself on the same lap and at the chequered flag, after 1,000 kilometres of exciting and sometimes very close racing, he was only 1 min 25.9 sec behind the winner. In the closing laps of the race the Surtees/Schetty car was delayed by a puncture, but still finished third, a lap in arrears. Fourth place went to the other works Ferrari of Amon and Merzario and so Maranello had at least given a superb display of reliability.

Of the other 917s in the race, Neuhaus/Kelleners finished tenth, Laine/van Lennep were eleventh and the Gulf-entered car of Siffert/Redman had climbed back through the field to twelfth place. Between the two private 512S Ferraris the duel was won by the Filipinetti car which finished eighth, one place ahead of its Scuderia Picchio Rosso rival. The battle in the 3-litre Prototype class was won by the Matras which had displayed a fine reliability that contrasted strongly with the team's efforts at Brands Hatch. Brabham/Beltoise took fifth place ahead of Pescarolo/Servoz-Gavin—an order that had been reversed in the closing laps when a leaking fuel tank had caused Pescarolo to make an unscheduled refuelling stop. Of the four Alfas, the highest placed was that of Galli and Stommelen in seventh spot; Courage had spun the car he was sharing with de Adamich at the Curva Grande at around 170 mph while trying to keep out of the way of a works Ferrari. The car lost its engine cover and smashed its exhaust system. It rejoined the race many laps in arrears and eventually finished thirteenth. The Facetti/Zeccoli car retired out on the circuit with electrical trouble and although the Gregory/Hezemans entry had blown up its engine, it had covered sufficient laps to be classified eighteenth. Ferrari had lost yet again, but there was a lesson to be learnt. If Ferrari could only improve their pit work and team tactics, another defeat of the Porsche 917s was well within their reach.

The Targa Florio

Just over a week after the Monza race the fifty-fourth Targa Florio was held over eleven laps of the rugged, tortuous 44.7-mile Little Madonie circuit in Sicily. On this tight, bumpy, car-bending, driver-testing course the big 5-litre cars would obviously be at a

disadvantage and so, for this particular race, Porsche had evolved the new, lightweight 908/3 3-litre Prototypes. John Wyer had some experience of the Targa Florio, for he had been responsible for the entry of a single works Aston Martin DBR1 in the 1958 race, he had fielded an open Ford GT40 in 1965 and he had looked after the Ford-France GT40 the following year. Even so, his experience was slight compared with that accumulated by Porsche over the years and he and David Yorke were perfectly content to let the works personnel headed by Engineer Ferdinand Piëch assume control of the 1970 entry.

Three of the new cars were entered in the name of Gulf-Porsche and one in the name of Porsche Salzburg. Details of these cars were as follows:

Drivers and Car

- J. Siffert/B. Redman: Finished in the usual Gulf pale blue with two broad orange arrows running either side of the cockpit from just ahead of the engine to low down on the nose, a green intake for the oil radiator and a diamond on the right-hand front wing. This car was chassis No 008.
- P. Rodriguez/L. Kinnunen: As above, but the car was distinguished by a single arrow on the left-hand side, an orange intake and a club on the wing. This car was chassis No 009.
- R. Attwood/B. Waldegaard: As above, but the car was distinguished by a full-width orange arrow-head across the nose, a blue intake and a spade on the front. This was chassis No 011.
- V. Elford/H. Herrmann: This was the Salzburg entry; it was painted white with orange stripes across the nose and a heart on the right-hand front wing. This was chassis No 007.

In addition the team had brought along for practice the original 909 *Bergspyder* on which the design of the 908/3 was based, the 908/3 prototype and the blue and white Salzburg 917 which was to be used for comparison testing purposes only.

Ferrari, however was in the difficult position that he did not have a suitable car to enter in the Targa Florio. The *Commendatore's* way out of this problem was to send along a single open 512S for local hero Nino Vaccarella and Ignazio Giunti and have a note inserted in the race programme to the effect that he did not hope to win with the 5-litre, but he had sent it along because he had promised the Sicilian a drive in the race which he had won once already. Vaccarella himself added the comment that Porsche would have to look to their laurels the following year when the new Ferrari Prototype would be ready—in fact Maranello gave the race a miss in 1971!

So the net result was that the most serious opposition to the 908/3 came from the Autodelta team which entered three beautifully prepared Tipo 33/3 cars for Courage/de Adamich, Maglioli/'Nanni' Galli and Gregory/Hezemans. These cars were heavier and bulkier

than the 908/3s and since they had first appeared in 1969 their record of reliability had been poor indeed. For practice the Autodelta team brought along a spare 3-litre car and two production Alfa Romeo GTA coupés. Apart from the entry of two 3-litre Abarth cars with wedge-shaped bodies (one of which was written off in practice), the 3-litre Prototype class was made up by a brace of private 908s. The Finnish A.A.W. car was driven by Laine/van Lennep and there was a Martini-entered 908/2 for Larrousse/Lins.

Practice for the Targa Florio is usually on the Friday before the race, but in 1970 this was Labour day, a national holiday, and so practice was brought forward to the Thursday. The rest of the entry was completely over-shadowed by the magnificent sound of the 512S on full song over the mountain roads and by Vaccarella's furious and brilliant driving. Weaving all over the more twisting parts of the circuit and pressing on regardless of what was in his way, Nino recorded third fastest practice time in 34 min 46.0 sec (Siffert was fastest in 34 min 10.0 sec). This was all very well, but when Vaccarella found himself baulked by Gregory with a works Alfa, he simply shunted him out of the way. The Autodelta entry was forced off the road and too badly damaged to take part in the race—the team's spare car had to be substituted. And because of this incident there was an incredibly vociferous argument in the pits that nearly came to blows!

Race day dawned grey, wet and thoroughly depressing. As the 908/3s were driven to the start from the Porsche headquarters at Cefalu, they were sliding badly on the greasy main road that formed the only real straight in the entire circuit—but at least the team had the consolation of knowing that in these conditions the big Ferrari would handle twice as badly! Traffic congestion building up as thousands of spectators made their way to vantage points round the circuit caused acute congestion and in the long traffic jams that extended for a couple of miles several drivers and many of the officials were trapped with no hope of making the start in time. Initially the start was postponed from 8 am until 8.30 am, but in fact it was not until 9.30 am that the last of the competitors was flagged away.

All the way round the 44.7-mile course the road surface was wet and treacherously muddy from the passage of spectators' cars. The first two cars to leave the start were the Filipinetti Ferrari driven by Herbert Müller and the works 512S with Vaccarella at the wheel and on their first lap these cars were driven gingerly, throwing up showers of muddy spray and the spectators who had encroached on to the course only falling back and opening up a narrow corridor of road when the Ferraris were almost on top of them. But several other drivers did not complete that first lap and among these were the two men who had co-driven to victory in the 1968 race. A mere twelve kilometres from the start Elford swerved to avoid a rock lying in the road, hit the kerb which damaged the suspension and the white 908/3 went out of control at the next corner and crashed. Umberto

Maglioli hit a wall with his Alfa and the Abarth of Merzario retired at the end of the first lap with gearbox trouble. At this point the race was led on time by Larrousse, driving magnificently in the Martini 908, and then came Siffert, Kinnunen, van Lennep, Courage and Hezemans with Vaccarella in seventh place.

The Ferrari was handicapped by having to refuel every two laps and at the end of the second lap Vaccarella came in and Giunti took over without losing seventh place. On the following lap both Siffert and Kinnunen stopped to refuel at the Porsche depot out in the mountains and at the end of the lap Hezemans handed over to Gregory, Larrousse to Lins, van Lennep to Laine and Courage to de Adamich. This gave the Ferrari the lead on the road if not on time, but both Giunti and Siffert were making up ground now that the track had almost completely dried out and at the end of lap 4 the order was Kinnunen—Siffert—Giunti—Laine. Rudi Lins had failed to maintain the pace set by team-mate Larrousse and had fallen back to sixth place. A brilliantly quick pit stop by the works Ferrari at the end of that lap put Vaccarella comfortably ahead of the Siffert/Redman 908/3 and the Ferrari was rapidly making up time on the leading German car, now with Rodriguez at the wheel.

By the end of lap 6 Rodriguez, who seemed very off-form in this race, had been passed by both Vaccarella and Laine and the Sicilian crowd were in a frenzy of excitement. The leading Ferrari, sounding as magnificently raucous as ever, was flicking lithely through the bends in a manner that seemed impossible for such a big and bulky car and it was obvious that the Porsche team would have to pull out all the stops if they hoped to win the race for the fifth successive time. Already the Alfa team was out of the picture, for another car had dropped out on lap 5 when Gregory collided with a wall and the surviving 33/3 of Courage/de Adamich was back in fifth place and barely a match for the private 908s.

On the next lap Redman found his second wind and caught up with the Ferrari on the road which put him back in the lead on time by a margin of fourteen seconds—but try as hard as he could, he was unable to find a way of pushing his Porsche in front of the brutish, red Ferrari that at places round the circuit filled the almost complete width of the road. At the end of lap 7 Rodriguez was called in and Kinnunen put back in the car with instructions to make up as much time as possible. Redman was still unable to pass the Ferrari, but both cars came into the pits at the end of lap 8; Porsche pit-work was slicker and Siffert led away with Vaccarella in hot pursuit. On this lap the last of the Autodelta entries was eliminated when Courage hit a tree.

Kinnunen had brought his 908/3 through into third place by the end of lap 9 and on the following lap trouble struck the private Porsche *Spyders* which had been motoring so superbly. The Larrousse/Lins car, in sixth place, retired with drive-shaft trouble and Laine at the wheel of the A.A.W. car lost a wheel on the main

straight. The Finn found, however, that by carrying on at a steady 7,800 rpm (145 mph), the air pressure kept that side of the car clear of the road, he cornered gently on the brake disc and when the car reached the pits a new wheel was fitted and the car was back in the race within $4\frac{1}{2}$ minutes! It was on this same lap that Vaccarella struck a rock, damaging the front suspension of the 512S; this set up a bad steering judder and caused the car to drop back in the closing laps of the race.

At the end of lap 10 the Ferrari made its final pit stop and set off again with Giunti at the wheel. Unfortunately, the steering judder was now so bad that the Italian was forced to take it very easy and on this last lap of the race he lost second place to the 908/3 of Kinnunen. Although the works 908/3s finished first, second and fifth with the private 908 of Laine/van Lennep fourth, the Ferrari had been the real sensation of the race. At the finish both of its drivers had badly blistered hands from throwing this monster of a car over the mountain roads and although Vaccarella is recognized as the accomplished master of the Targa, it was Giunti who had proved the faster driver with a best lap in 34 min 39 sec—three seconds slower than the new lap record set by Kinnunen.

Speed show at Spa-Francorchamps

Heavily industrialized, criss-crossed by a multitude of heavily trafficked roads with indifferent surfaces, Belgium is, perhaps, one of the less attractive of Continental countries. But that part of Belgium to the east, in the shadow of the Ardennes mountains, the gentle curves of the hills clad with pine trees, the fields lush, the earth fertile and rich from strong sun and frequent rain showers, is in complete contrast to the rest of the country. Here lies the Circuit National de Francorchamps, the fastest road circuit in Europe which runs for 8.76 miles of straights, curves that are deceptively difficult and a tight hairpin bend just before the pits.

The circuit is made up of public roads, specially closed for practice and the race and although it is no longer used for Grand Prix racing because of its dangerously fast corners, it is still a favourite with sports car drivers who revel in its high speeds, its exacting demands on their judgment and because lap times are so quick that even a 1,000-kilometre race is over in four hours! Drivers do not like long races and that is why Le Mans and Daytona are the most detested of all events in the racing calendar.

As usual the John Wyer team had entered two 917s for Siffert/Redman and Rodriguez/Kinnunen. Both cars were fitted with the full 5-litre engines, but the team had no spare should a unit break. Otherwise the cars were unchanged from their last appearance at Monza. Porsche Salzburg entered their white 917 with 5-litre engine for Elford/Ahrens and the blue and white car with 4.5-litre engine was driven by Dickie Attwood/Hans Herrmann. In addition to these works cars, there were two private entries, the A.A.W. yellow-painted

car driven by Laine/van Lennep, now with a new engine as the original had developed an incurable crankcase oil leak, and the Gesipa car driven by Kelleners/Neuhaus. David Piper had very much wanted to run his car for himself and Tony Adamowicz, but he could not come to terms with the organizers over starting money—which was rather a pity, as this car was being raced far less than it should.

From Ferrari came three 512S coupés; a brand new car was driven by local hero Jackie Ickx and John Surtees who had set the existing lap record with a Honda in the 1968 Belgian Grand Prix—and of the Ferrari drivers, only this pair could be said to be capable of taking on the John Wyer team on equal terms; the other two cars had both been raced at Monza and these were driven by Arturo Merzario/Peter Schetty and Ignazio Giunti/Nino Vaccarella. For this race Chris Amon was not available because of qualifying at Indianapolis. One private Ferrari was entered, the brand new Ecurie Francorchamps yellow-painted 512S coupé at the wheel of which *le patron* Jacques Swaters had partnered Derek Bell (who had not previously driven a Group 5 car) with Hughes de Fierlant. Swaters had been supporting Sports Car racing since 1953 (with Jaguars he had himself finished fourth at Le Mans in 1954 and third in 1955) and any car entered by him would be very well prepared, well managed and well driven and this private 512S was very much in the hunt at Spa. Since Monza a number of minor modifications had been made to the Ferraris and the most notable of these was a small lip running right across the bottom of the nose in an effort to improve high-speed stability.

Making up the Group 5 Sports Car class were three of the now obsolescent Lola T70 Mk 3B coupés and these were driven by Jo Bonnier/Reine Wisell, Teddy Pilette/Taf Gosselin (the V.D.S. car) and Morand/Pillon. On this fast circuit Group 6 Prototypes were conspicuous by their absence. Autodelta had not yet recovered from the carnage of Monza and the Targa Florio and the French Matra team was concentrating on getting the new MS660 monocoque car ready for Le Mans. So the only 3-litre Group 6 cars entered were the 908 *Spyders* fielded by the Martini team for Dechent/Marko and Lins/Larrousse (the latter pair had the 908/2). An interesting Prototype running in the 2-litre class was the new Mazda rotary engine-Chevron B16 of Deprez and Vernaevé—a car rather more conspicuous by the raucous shrill of its exhaust than by its speed.

During the first practice session on the Friday the Gulf team was plagued by serious tyre trouble. The team was using 12.5-inch front rims and on these the tyres were slipping and deflating at speed Siffert twice experienced blow-outs when travelling flat-out on the Masta straight and Redman had the same thing happen at the fast right-hand bend known as La Carrière on the back leg of the circuit. Although it was all a bit hectic at the time, the drivers succeeded in retaining control and bringing the cars safely to rest. Overnight the trouble was cured by reverting to 10.5-inch rims which as a precau-

tion had been metal-sprayed. On the Saturday Rodriguez tried out a new tail with the central trough filled and with a low-angle spoiler—these changes were the result of tests at the Motor Industry Research Association establishment. With the car in this trim the Mexican lapped in 3 min 22.6 sec on a crowded track and then on a clear track he turned in a fantastically quick lap of 3 min 19.8 sec—over ten seconds faster than the outright lap record and eighteen seconds faster than the Sports Car record. For the race the J.W. team decided to use the new tail configuration, but without the spoiler.

Things were not so happy in the Salzburg pit because the Elford/Abrens car was handling badly on the Friday when a 4.5-litre engine was fitted and even worse on the Saturday by when the car had a 5-litre unit. The result was the slow practice time of 3 min 40.5 sec. The Attwood/Herrmann car was just plain slow and was eighth fastest overall in 3 min 32.2 sec. On the 5-litre car a cracked chassis was suspected and by pumping air through the tubular frame under pressure the mechanics located a crack at the front of the chassis. This was repaired in time for the race.

In comparison the Ferraris were relatively trouble-free—they were tending to under-steer rather more than the drivers cared for and there was a 'twitching' tendency at around 70 mph, but as Jackie Ickx commented, if the driver kept his foot hard down, the twitching disappeared! Ickx had the engine blow up early in Saturday's practice, but the previous day's time of 3 min 24.4 sec put the Ickx/Surtees car on the second row of the grid behind the J.W. cars and alongside the Gesipa car which had been credited with the improbably fast time of 3 min 29.7 sec. The private cars that really were fast were the Belgian Ferrari (all the credit here was due to Derek Bell) and the A.A.W. 917 (Laine, who had not raced at Spa before, was quicker than van Lennep) and these were joint sixth fastest in 3 min 31.6 sec.

As so often happens at Spa, a grey mist hung over the circuit on race morning and heavy rain saturated the track—only to be driven away by warm sunshine not long before the start and the cars went out for an exploratory lap on the track that was still rain-soaked, but rapidly drying. When the cars reached the grid, some were changed to intermediate tyres and Ferrari chief Mauro Forghieri—despite the protests of officials who said that he was in breach of the regulations—went round ensuring that his cars were topped up to the brim with fuel.

At the start the two 917s of Siffert and Rodriguez were side-by-side as they entered the Eau Rouge kink at the bottom of the downhill pits straight, the two 5-litres kissed each other's glass-fibre and Siffert edged in front. Right behind them was Ickx with the 512S and the three cars, reaching 200 mph along the Masta straight, roared round in close company, their headlamps ablaze. One car had been left at the start, the V.D.S. Lola which had refused to fire. A mechanic had left the carburetter covers in place and just before the

flag fell, he rushed on to the grid to remove them. By this time the carburettors had flooded and the Lola, popping and banging, staggered away after the rest of the field had left. Early in the race Kelleners spun the Gesipa 917 at the exit to Stavelot corner and rather shamefacedly he brought the blue and yellow car into the pits at the end of the lap to be checked over.

On lap 2 Ickx forced his way past Rodriguez, then the Mexican went in front again and behind this battling trio came Giunti, Elford, Laine and Attwood. Rodriguez passed Siffert to take the lead and Elford with the white 917 shot past Giunti. Each lap the circuit was drier and the leaders again and again shattered the circuit record. On lap 5 Ickx re-passed Siffert and was right on the exhausts of Rodriguez as the 917 and the 512S braked right down to a crawl for La Source, the hairpin before the pits. And what *sang froid* it must take for John Wyer to sit so calmly in the Gulf pit, watching his drivers battle so hard and so closely for the lead. Now Siffert recaptured the lead and Giunti was trying everything he knew to re-pass Elford's Porsche. Poor Schetty who had started the race on wet-weather tyres had dropped back to ninth place because his car was handling badly and he came into the pits for a complete wheel-change. Then the Ferrari pit called Giunti in for the wheels to be changed and the battling quartet of Laine, Bell, Pilette (who had made a splendid recovery after a bad start) and Attwood all moved up a place.

While Rodriguez fought to hold off a very determined Ickx, Siffert was able to open up a few seconds' lead. After only thirteen laps Elford, in fourth place, came in for his first refuelling stop, but a lot of time was lost while all four wheels were changed. Then one by one the rest of the big bangers made their stops, but with the 917s having a distinct advantage over their Italian rivals. Because of a misinterpretation of the race regulations the Ferrari team had thought that gravity hoses were not permitted at this race and they were refuelling the cars from churns. When Siffert brought his 917 in at the end of lap 14, the stop was a long one, taking all of 83 precious seconds. Both Rodriguez and Ickx stopped at the end of the next lap, but despite its handicap the Ferrari pit was exceptionally quick; Rodriguez was away in 48 seconds, Ickx only a few moments later and these drivers now held first and second places ahead of Siffert, Laine, Pilette, Giunti, Elford and Larrousse (the latter leading the Prototype class).

Ickx has an intimate knowledge of the Spa circuit and he was trying everything he knew to stay with Rodriguez, but to no avail. Rodriguez's left-hand rear tyre started to throw chunks of tread; he rushed into the pits for a wheel-change and caught the pit staff napping. Ickx assumed the lead, Siffert moved up into second place and 'Mexican Pete' rejoined the race in third spot. At the end of lap 29 Ickx stopped to refuel and to hand over to Surtees. Ferrari pit work was really shining that day and Surtees was out of the pits quicker than Redman who relieved Siffert on the same lap. But Surtees

is not the driver he was in his great days with Ferrari; he could not maintain the pace set by his younger team-mate and Redman rapidly caught the Maranello car. In the space of five laps Redman erased a 14-second deficit and took the lead, and Rodriguez moved into second place on lap 37.

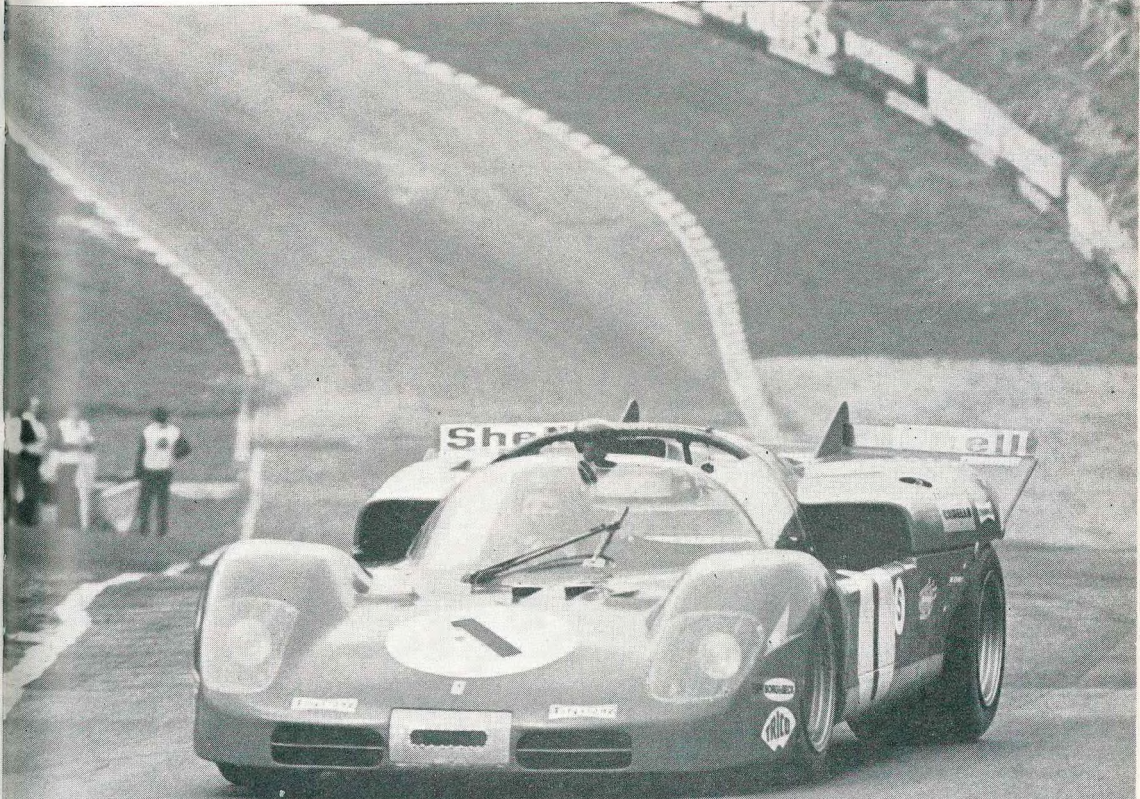
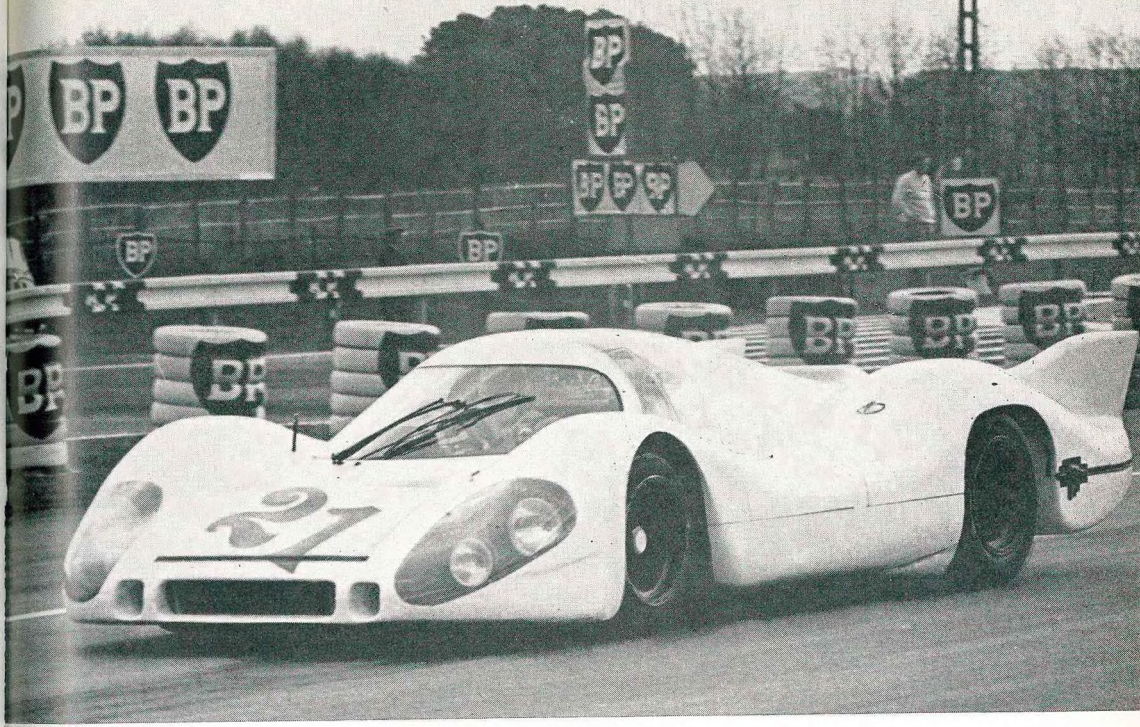
Now the race had reached a crucial stage when tactics were all-important and the right decision by Forghieri could have swung the race back in Ferrari's favour. Immediately after passing Surtees, Rodriguez came into the pits to refuel and to hand over to Leo Kinnunen who had not so far driven. By comparison with Rodriguez, the Finn was a slow driver and not likely to maintain the Mexican's pace over the difficult Spa circuit. Furthermore Ickx could lap Spa quicker than Redman and stood a good chance of catching him. When Surtees came in to refuel, instead of replacing him with the Belgian, Mauro Forghieri sent him out again and by this decision threw away all chance of winning the race.

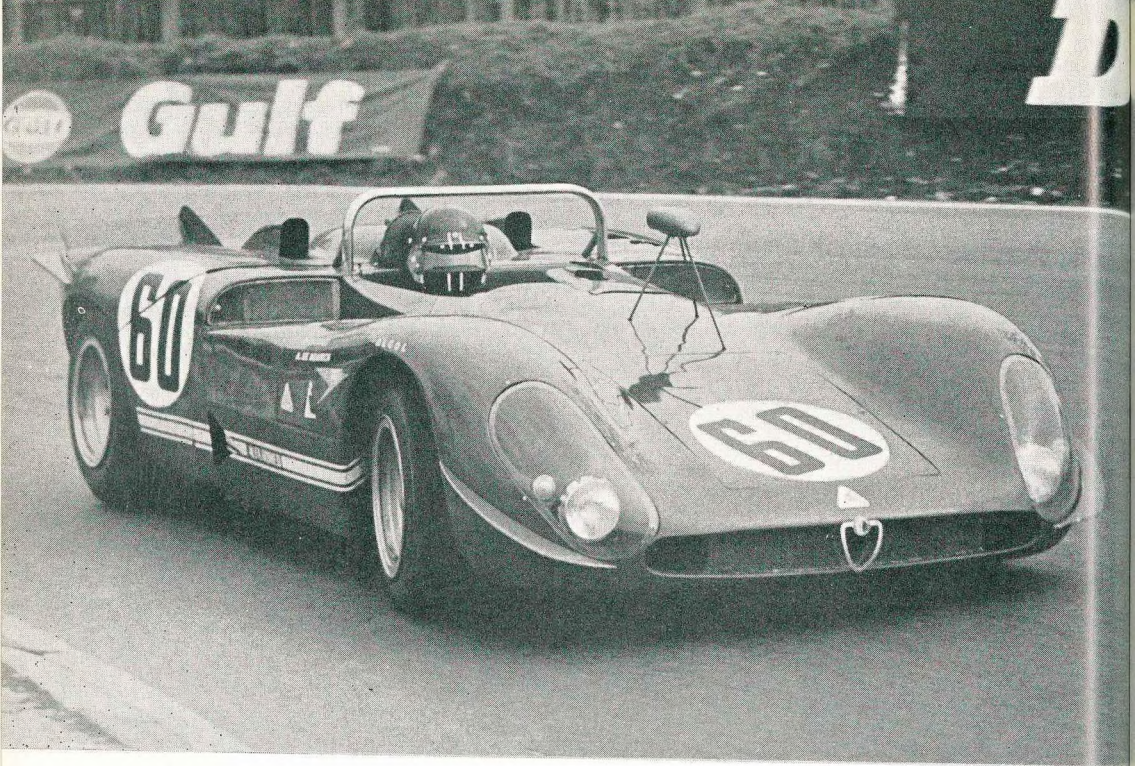
So Redman and Kinnunen passed Surtees when he stopped, but the Gulf 1-2 lasted for only a short time. On lap 44 the second-place 917 of Kinnunen came to a halt out at Stavelot with a seized gearbox caused by the melting of a plastic oil pipe. Now the Ecurie Francorchamps Ferrari came into the pits to refuel; a lot of petrol was spilt and when Derek Bell started the engine, there was a tremendous whoosh, in seconds the car was enveloped in flames and photographers and pit staff fled as fuel running down the pits road ignited. The interior door wire had broken and Bell was trapped in the car until the fire was brought under control. It was all over in less than a minute, a mechanic opened the door and Bell jumped out, unharmed apart from singed eyebrows. The car was dusted down, the windscreen cleaned and Bell was back in the race before anyone had time to think how lucky his escape had been.

Out in front Redman was steadily drawing away from Surtees, mainly because he was more adept at lapping slower cars, and he had soon extended his lead to over two minutes. Thirteen laps from the finish the Gulf car made its final refuelling stop and a very happy 'Seppi' Siffert resumed at the wheel. After just under four hours and ten minutes of an exciting spectacle of speed and brilliant pit-work by both the Gulf and Ferrari teams, Siffert took the chequered flag to win the race at the incredibly high average of 149.42 mph. Ickx

27 At the 1970 Le Mans Practice Week-end Porsche produced this new long-tail version of the 917. By the windscreen there was a small post attached to the front suspension and used to measure body lift on the Mulsanne straight. (*Motor Sport*).

28 Ferrari was completely out of luck at Brands Hatch on 1970. This works 512S, seen in practice, was driven by Ickx and Oliver, but it was plagued by a succession of mechanical troubles and finished a poor eighth. (*Guy Griffiths*).





had taken over the second-place Ferrari and at the chequered flag the 512S was 3 min 35 sec in arrears. Third place went to the Porsche Salzburg entry of Elford/Ahrens, Ignazio Giunti and Nino Vaccarella were fourth and particularly creditable was the fifth place of the private 917 driven by Laine/van Lennep. Of the other serious Group 5 contenders, Attwood/Herrmann finished sixth, Merzario/Schetty seventh and Bell/de Fierlant eighth. The sole survivor of the Lolas was the Bonnier/Wisell car in tenth place, one place behind Group 6 winners Lins/Larrousse with the private 908 *Spyder*.

Salzburg wins at the Nürburgring

Prior to the Nürburgring 1,000 Kilometres race on 31st May, the Porsche factory had carried out an intensive series of comparison tests at the circuit between the bulky, but immensely fast 917s and the much lighter and so very lithe 908/3s to determine which would be the more suitable for this race. The tests showed conclusively that the 908/3s were by far the more suitable cars (a view already formed by the Porsche engineering staff). Apart from the fact that they were faster over the bumps and through the bends, they needed one refuelling stop less than their larger stable-mates and it was clear, even before the start of practice, that the outcome of the race was settled and that there was very little point in the Ferrari team even bothering to turn up!

Once again the 908/3s were prepared at the works, but this time they were controlled in the race by the individual teams, to each of which two cars had been allotted. The details of the 908/3s were as follows:

- No 20: entered by Gulf-Porsche and driven by Siffert/Redman. This was chassis no 010, a previously unraced car, with two parallel orange arrows running from behind the cockpit and down the nose, and the grille for the oil cooler picked out in green.
- No 21: entered by Gulf-Porsche and driven by Rodriguez/Kinnunen. This was chassis no 011, the car driven in the Targa Florio by Waldegaard/Attwood, with a single orange arrow running along the left-hand side and an orange grille.
- No 22: entered by Porsche Konstruktionen and driven by Elford/Ahrens. This was chassis no 008, the car driven in the Targa by Siffert/Redman, but it was now painted white.

29 First introduced in 1969, the Tipo 33/3 Alfa achieved no real success until 1971. At Brands Hatch in 1970 the only car entered was retired after it had been crashed by both Courage and de Adamich. (*Nigel Snowdon*).

30 The Matra Sports team was equally unlucky at Brands Hatch. This MS650 car driven by Pescarolo and Servoz-Gavin retired with a blown-up engine. (*Nigel Snowdon*).

No 15: entered by Porsche Konstruktionen and driven by Attwood/Herrmann. This was chassis no 003, the spare car at the Targa Florio, now painted yellow.

As might be expected, the Prototype class was well supported by privately entered 908 *Spyders* and in all six of these were fielded. The most notable were the two Martini cars, a 908/2 (distinguished by the entry number 1 and a red, yellow and blue nose) driven by Larrousse/Marko and a similar car for Lins/Kauhsen. The A.A.W. team entered their 908 with original body for Laine/van Lennep as usual. The ranks of the 908s were completed by cars entered by the Gesipa, BG and Asahi Pentax teams.

Although the Matra team scratched their single entry because the development programme with the MS660 car was way behind schedule, there was a single Tipo 33/3 from the Autodelta team (in place of the three originally entered) and this was shared by Rolf Stommelen and Piers Courage. It was yet another new car, built as light as possible, with new wheels and extensive use of titanium for both engine and chassis components that saved over 150 pounds in weight. In addition the car had revised suspension geometry. It looked well prepared and was completely troublefree in practice. Another interesting Prototype entry was the Argentinian Berta car which had run at Buenos Aires early in the year. It was making its sole European appearance and it was driven by Luis di Palma and Carlos Marcinovitch.

From Ferrari came three open 512S *Spyders*, as raced at Brands Hatch earlier in the year. These were to be driven by Ickx/Giunti, Surtees/Schetty and Vaccarella/Merzario, but Ickx arrived at the circuit with the unfortunate news that he had fallen downstairs and sprained a wrist and he was clearly unable to drive. The problem was resolved in a far from satisfactory manner late on Friday's practice when Schetty spun at around 120 mph in the wet on the fast stretch of the course after the Adenau bridge, the 512S disappeared into the trees and was eventually retrieved as a complete wreck. So the Ferrari attack was reduced to two cars, and the drivers were paired Surtees/Vaccarella and Giunti/Merzario. After missing the Spa race the Filipinetti car re-appeared with its usual drivers, Parkes and Müller.

With so many 908s in action, the 917s were only two in number, but, as those who had seen Gardner and Piper battling with the works car in the 1969 race would agree, this was probably just as well. The A.A.W. car was entered for Toivonen and Axelsson, but non-started after the crash of the team's 908. So the only 917 runner was the Gesipa car and with the team's 908 it was nominated three drivers, Neuhaus, Kelleners and Dieter Basche who proposed to play musical cars with the two entries. Another non-starter was the V.D.S. Lola of Pilette and Gosselin which broke its gearbox in practice.

Practice, which was dry on the Friday except for the last few

minutes and almost completely wet on the Saturday, was dominated by the 908/3s and the times of the two categories of cars makes only too obvious the handicap under which Ferrari was labouring:

Prototypes

Siffert/Redman	7 min 43.3 sec*
Rodriguez/Kinnunen	7 min 44.2 sec
Elford/Ahrens	7 min 48.2 sec
Herrmann/Attwood	7 min 57.1 sec
Courage/Stommelen	8 min 00.5 sec
Larrousse/Marko	8 min 21.5 sec†

* This practice time was twenty seconds faster than the Group 6 lap record set by Amon (Ferrari) in the 1969 race.

† This was 21.3 sec slower than Siffert had lapped with a similar car in practice for the 1969 race.

Sports Cars

Surtees/Schetty	7 min 57.1 sec§
Giunti/Merzario	8 min 01.7 sec
Surtees/Vaccarella	8 min 12.3 sec
Müller/Parkes	8 min 15.9 sec
Neuhaus/Kelleners	8 min 17.0 sec

§ This time was set by Surtees on the Friday before the car was crashed by Schetty!

Just as Saturday's practice was coming to an end, there occurred one of the most horrible motor racing accidents in a very long time. Hans Laine, an exceptionally promising young Sports Car driver, was scrubbing in some new tyres on the A.A.W. 908 which had lost one of its front spoilers. Although the car was travelling comparatively slowly, it took off on the bump at the bridge on the main straight and, probably because the driver did not keep the steering dead straight, landed on one wheel and rolled sideways along the track before coming to rest. The driver struggled to escape from the up-turned car, but no sooner had marshalls come to his assistance than the car burst into flames and Laine perished in the inferno. This was a tragic blow to Sports Car racing, but of those on the scene, none was more affected than his close friend. Leo Kinnunen. His fellow-Finn was so deeply upset that he was probably in no fit state to drive in a motor race.

Although heavy rain on the night before the race had soaked the track, it had almost completely dried out by the start at 10 am. Now that Le Mans-type starts had been banned, the 54 cars formed up for a rolling start behind a Mercedes-Benz, they followed this round the South curve, down past the back of the pits to the North curve, through a link road and then the pace car pulled off and the field roared away with all the drivers jockeying for position. After the complete field had left, Porsche veteran *pilote* Herbert Linge did a lap in a Porsche 914/6 to see that everything was all right and that there had been no hold-ups or accidents.

Rodriguez was first off the mark from Siffert, but then Giunti forced his big red Ferrari in front of 'Seppi' at the North curve. While Rodriguez whistled into the distance, Galli formed a moving road-block that no one, for the time being at least, could get past. On the second lap Siffert, who had been snapping at Galli's heels all

the way round the first 14.2-mile circuit went into second place and the Ferrari expired out on the circuit on lap 3 with failure of the fuel metering unit. Elford moved up into third place ahead of Surtees who was being worried every inch of the way by Stommelen with the Alfa.

By lap 6 Rodriguez and Siffert were lapping in close formation, Elford had fallen all of 35 seconds behind and Stommelen was still trying to pass Surtees. The Berta expired out on the circuit with a broken engine—the cause was over-heating resulting from a burst water hose—and at the end of lap 7 Surtees came into the pits because of a broken steering wheel. Vaccarella took over after the car had been re-fuelled as well as repaired, but the stop had cost 4 min 45 sec and the car rejoined the race in twelfth place. Another early retirement was the Gesipa 917; Kelleners had stopped for all the wheels to be changed, but at the South curve one of the newly fitted wheels came off. Although the wheel was replaced and the car limped back to the pits, it was retired. After only two laps Vaccarella brought the 512S back in, complaining that it was handling atrociously on the straights and weaving all over the road. The car rejoined the race with new tyres and Surtees back at the wheel and once again the Ferrari started to climb back through the field.

With eleven laps of this 44-lap race completed, the two Gulf 908/3s and Elford's car made their first refuelling stops. For some reason the Wyer team had called both cars in at the same time—it may be quite simply that it had not been anticipated that at this stage of the race they would be so close together on the road. Both Gulf and Salzburg had two gravity hoses and while one hose per car was used in the Gulf pit, the Austrian team could use both hoses on Elford's car, as Herrmann was not expected for another couple of minutes. This was one rare occasion on which the Gulf team came unstuck, for although Kinnunen was away first, Ahrens was right behind him and Redman left in third place after some difficulty in inducing his car to fire. Just after half-way round on his first lap at the wheel, poor Kinnunen lost concentration at one of the bumps, landed askew and wrecked the car against the bank. Happily the Finn was unhurt, but it seems that this accident may well have contributed to Wyer's decision not to sign him up again for the coming season.

Steadily Redman overhauled Ahrens, Attwood was third with the second of the Salzburg cars and Courage was in fourth place with the Alfa—but after only another couple of laps the rear suspension collapsed on the Italian car and although Courage tried to bring it back to the pits, the sump was scraping on the track and he was forced to abandon the Tipo 33. Within two laps Redman was right on Ahrens' tail and at the end of lap 13 he was back in the lead. Now the Filipinetti Ferrari was fourth and the works car held sixth place and was poised to pass the Larrousse/Marko Porsche 908.

When Redman brought the leading 908/3 in for its second routine stop at the end of lap 22, he had built up a minute's lead. The car

was refuelled, a vast quantity of oil was poured in and Siffert nipped into the driving seat and pressed the starter. Nothing happened. 'Seppi' pressed the starter again. Again nothing happened. By now the Salzburg Porsche of Ahrens was in the pits and being refuelled. While the mechanics changed the battery, Elford had rejoined the race in the lead. Still the Gulf car would not fire. Then as Elford came round to lap the blue and orange 908, the mechanics were joining up a secondary battery in series and after ten minutes' delay, the eight cylinders of the 908/3 crackled into life. Siffert rejoined the race in third place behind the two Salzburg entries, but at Hocheichen, only three kilometres after the pits, the engine seized up and the car was out of the race.

Now the two Salzburg cars had only to cruise to victory and at the chequered flag Elford/Ahrens were over five minutes ahead of team-mates Herrmann/Attwood. Surtees and Vaccarella finished third, which after their earlier delays and in view of the unsuitability of the car was a most commendable effort. 'Big John' had driven magnificently and with all the skill that had gained him victories at this circuit in the 1963 and 1964 German Grands Prix. Fourth place went to the Filipinetti car of Müller and Parkes.

With seven of the ten rounds of the Sports Car Championship over, Porsche had scored six wins and Ferrari only one. The German successes broke down into four victories by the Gulf 917s and two by the 'works' 908/3s. Even though Porsche had already scored a clear victory in the Championship and Ferrari had been soundly thrashed, there remained Le Mans, the most prestigious event of the season and a Ferrari victory in this would cancel out the team's earlier failures. It was on the 24 hours' race that Maranello now concentrated and that all eyes were now focussed.

7 1970: *Le Mans—And After*

A bare thirteen days elapsed between the Nürburgring race and Le Mans, but for the Gulf-Porsche mechanics—and those of most other teams—the break was even shorter. The John Wyer entourage, consisting of a transporter, the team's Ford Cortina estate car and David Yorke's white Ford Mustang, left Slough on the afternoon of Monday, 8th June to take the overnight ferry from Southampton to Le Havre. Disembarkation at Le Havre was delayed after the ferry misjudged its berthing manoeuvres, graunched the wooden jetty and sunk two fishing boats at their moorings. An impatient, anxious-to-be-on-the-move Yorke passed the time by joking with the mechanics and at last the team disembarked. After refuelling at a Shell filling station (!), the convoy ground its way slowly across the sunlit French roads, running at a steady 40 to 50 mph, the transporter and the Cortina occasionally swapping the lead to avoid the tedium that can arise from constantly following another vehicle.

With a third of the journey over, Yorke sped away in the Mustang to the team's headquarters at the Hotel de France at La Chartre, about 25 kilometres to the south of Le Mans itself. Wyer has brought his teams to La Chartre since Aston Martin DBR1 days; here the team is warmly welcomed, carefully attended to and on practice days the mechanics are served a late dinner regardless of the hours—for the team there was a special 'Menu Gulf-Porsche'. In the days before the race the hotel is a mecca for other drivers, the press and knowledgeable enthusiasts. The workshop is set up in the Garage Central in the Rue Francois Coudreux almost next door to the hotel and the drivers have their quiet retreat in a large house just round the corner from the hotel and fronting on to the river.

On reaching the hotel, the mechanics faced a long stint unloading the 917s and setting up the equipment. When Yorke heard late on the Monday evening that the Firestone tyre team had arrived, he decided that the 917s should at once be put on wide rim wheels and 12.30 am on the Tuesday morning the small square of La Chartre, brightly lit by generator-powered lamps, reverberated to the chatter of a pneumatic wrench. At La Chartre the team met up with a second transporter that had come straight on from Germany.

Tuesday was scrutineering and in accordance with usual Wyer practice the three 917s were driven to the circuit on the road by the mechanics, the cars proceeding in convoy at a fair lick headed by the chief mechanic. Despite the twists and turns of the road, the

indifferent road surfaces and checks when the cars passed through villages on the way and met other traffic, the 917s were perfectly tractable and docile. But the trip was not repeated, for on the way was a stretch of road under repair and this meant that the cars had to traverse a quarter-mile of bumps and holes liberally coated with sand—and the sand worked its way into the undertrays of the cars.

Now for the first time the full array of contenders could be seen and in all thirty competitive Group 5 Sports and Group 6 Prototypes were entered. The full list of potential winners was made up as follows:

Entered by J.W. Automotive Engineering Ltd

No 20: Porsche 917 4,907 cc chassis no 004 driven by Jo Siffert and Brian Redman. As always with the Gulf-sponsored cars, there was the usual predominant pale blue background with orange markings, but the exact colour finish varies from car to car. On No 20 there was an orange stripe edged with black running from the tail to the top of the windscreen and then starting again below the number on the nose and fanning across the nose and along the bottom of the sides of the car; the air intake in the nose was picked out in green and the identification lights on the sides of the car were green. Redman wore an open helmet because he found it too hot with the enclosed Bell-type helmet.

No. 21: Porsche 917 4,907 cc chassis no 016 driven by Pedro Rodriguez and Leo Kinnunen. This car had an orange stripe edged with black running from the tail to the top of the windscreen and the nose below the intake which was plain blue. There was no orange colouring on the sides of the car and the identification lights were red.

No 22: Porsche 917 4,494 cc chassis no 026 driven by David Hobbs and Mike Hailwood. This was a brand new car which had been given a shake-down at Goodwood the previous Friday and its role in this race was to be that of the steady runner, coming through, it was hoped, if and when faster cars had retired. This car was all-blue apart from the roof, the middle of the tail section and the rear spoiler which were orange. It had yellow identification lights.

At this race all three Gulf cars ran with the small angled spoiler at the end of the tail that had first been seen in practice at Spa. On each car this was painted orange. For this race the Wyer drivers had instructions not to exceed 8,400 rpm, 500 rpm lower than the usual limit.

Entered by the Martini International Racing Team

No 3: Porsche 917 4,907 cc chassis no 043 driven by Gerard Larrouse and Willibert Kauhsen. After a successful season with

their 908 *Spyders*, Hans-Dieter Dechent's team had been loaned a *Lang* 917 by the works who had also been responsible for its preparation. When the car first appeared in practice, it was painted white with mauve whorls, a very insipid finish, but in fact painting had not been completed and the addition of bright green paint over the white gave an unusual and impressive appearance.

- No 27: Porsche 908 *Spyder* 2,996 cc driven by Rudi Lins and Helmut Marko. This was the 908/2 driven in the 1970 race by Siffert and Redman, and it once again appeared with tail fins.
- No 28: Porsche 908 *Spyder* 2,996 cc driven by Dieter Spoerry and Alain de Cortanze.

In practice Spoerry moved over at the slight kink just after White House to let Brabham through with his Matra, but the two cars touched, the Porsche shot off the road and disintegrated against the bank; while the engine flew down the road in one direction and the front suspension and steering in another, Spoerry was left strapped in what remained of the chassis and even though the remains caught fire, escaped with a cut leg!

Entered by the Racing Team V.D.S.

- No 4: Lola T70 Mk3B-Chevrolet 4,995 cc driven by Teddy Pilette and Taf Gosselin. This was the familiar maroon Belgian-entered car running with a Bonnier-Morand engine on carburettors and claimed to develop 492 bhp. Another Mk 3B was entered for David Prophet and Robin Orme, but Orme was unable to qualify and the car non-started.

Entered S.E.F.A.C. Ferrari S.p.A.

- No 5: Ferrari 512S 4,994 cc chassis no 1038 driven by Jackie Ickx and Peter Schetty.
- No 6: Ferrari 512S 4,994 cc chassis no 1044 driven by Nino Vaccarella and Ignazio Giunti.
- No 7: Ferrari 512S 4,994 cc chassis no 1026 driven by Derek Bell and Ronnie Peterson.
- No 8: Ferrari 512S 4,994 cc chassis no 1034 driven by Arturo Merzario and Clay Regazzoni.

In this quartet of identical, superbly prepared Maranello cars, all with coupé bodies, lay the most serious opposition to the German cars. As a result of the tests at Le Mans in April and subsequent testing at Monza, all four cars had reverted to the original rounded noses, but had long tails surmounted by small fins. For this race engineer Forghieri had been concentrating on reliability rather than sheer speed and despite detailed work on the exhaust manifold and modifications to the camshaft profiles and injection trumpets, power output was still around 580 bhp. None of the cars was new, two

having appeared previously at Monza and two at Spa. Of the Ferrari drivers only Ickx was in the same class as Porsche men Siffert and Rodriguez and Ferrari had experienced some difficulty in scraping together enough drivers. Amon was too busy racing the new March Can-Am car to appear for Ferrari and Surtees had declined the invitation. So the newcomers to the team at this race were Bell and Peterson. Bell had driven for Ferrari in 1968, but had been brought back into the team on the strength of his performance with the Francorchamps car at Spa. All four cars were as usual painted a rather drab red set off by gold wheels and white tail fins. Only the works cars had ventilation louvres in the front wings.

Entered by Escuderia Montjuich

No 9: Ferrari 512S 4994 Chassis no 1002 driven by José Juncadella and Juan Fernandez. This was a very early ex-works open car with short tail and was probably one of the cars fielded at Sebring. It was painted yellow with a green stripe running from the tail and forming an arrow head at the front. It was one of the slowest Ferraris in practice and both drivers seemed rather apprehensive about its very considerable performance.

Entered by the North American Racing Team

No 10: Ferrari 512S 4,994 cc chassis no 1018 driven by Helmut Kelleners and George Loos. This was Loos' private Gelo Racing car with coupé body, short tail and painted red with gold stripe, gold nose-band and front fins.

No 11: Ferrari 512S 4,994 cc chassis no 1014 driven by Sam Posey and Ronnie Bucknum. This was the original N.A.R.T. car fielded at Daytona and still in coupé form, but rebuilt at the works and fitted with the latest long tail. This car was painted red with a central dark blue stripe with a white stripe either side of it. There was a small bulge on the driver's side of the roof—a legacy from the lanky Gurney's drive with the car at Daytona.

No 39: Ferrari 312P 2,997 cc driven by Tony Adamowicz and X.
No 57: Ferrari 312P 2,997 cc driven by X and X. That was how the two N.A.R.T. 312Ps appeared in the entry list. Both looked decidedly tatty and only one started, No 57, the car with the bump in the roof and driven by Parkes at Daytona. At Le Mans it was handled by Adamowicz and Chuck Parsons.

Entered by Ecurie Francorchamps

No 12: Ferrari 512S 4,994 cc chassis no 1030 driven by Baron Hughes de Fierlant and Alistair Walker. This car too had been prepared at the Ferrari works and featured the latest long tail. As with all this team's cars, it was painted yellow; the usual roof-top mirror was supplemented by wing mirrors.

Entered by Scuderia Filipinetti

- No 14: Ferrari 512S 4,994 cc chassis no 1008 driven by Joakim Bonnier and Reine Wisell. Another car with long tail, this car had been prepared by the Filipinetti team themselves and was considerably heavier than No 15. It was an early car, probably loaned by the works. The colour finish was red with a white nose, lower side panels and central stripe, but down the middle of the central stripe there was a narrow turquoise blue line.
- No 15: Ferrari 512S 4,994 cc chassis no 1016 driven by Mike Parkes and Herbert Müller. This was the usual Filipinetti car which had been prepared at Maranello and had long-tail bodywork. The colour finish was as above.
- No 16: Ferrari 512S 4,994 cc chassis no 1032 driven by Corrado Manfredini and Gianpiero Moretti. In fact the Scuderia Picchio Rosso car, this 512S together with its usual drivers had been taken under the wing of Filipinetti for this race. Like No 9, it had large louvres in the rear wings.

Entered by David R. Piper

- No 18: Porsche 917 4,494 cc chassis no 021 driven by Gijs van Lennep and David Piper. Aarnio-Wihuri had taken over Piper's entry and fielded the A.A.W. team yellow and orange 917 driven by Laine and van Lennep at Monza and Spa. This car had been prepared in the Porsche works.

Entered by Porsche Konstruktionen K.G.

- No 23: Porsche 917 4,494 cc chassis no 023 driven by Hans Herrmann and Richard Attwood. This was the car driven earlier in the season by Vic Elford/Kurt Ahrens/; originally painted white, it was now finished in orange and white stripes.
- No 24: Porsche 917 4,907 cc chassis no 020 driven by Rico Steinemann and Dieter Spoerry. This car, painted in blue and white stripes, was the one driven earlier in the season by Herrmann/Attwood. At Le Mans it was in effect the team's spare car, the idea was that Steinemann should merely qualify (he had to telephone his wife to dig out a pair of his old racing overalls) and that if the car should start, it would be driven by Spoerry who would then be relieved by a driver from a car that had retired. Spoerry failed to pass a medical after his accident and so the car non-started.
- No 25: Porsche 917 4,907 cc chassis no 042 driven by Vic Elford and Kurt Ahrens. This was another long-tail car loaned by the works and it was painted white with red flashes on the tops of the front wings and on the tail fins. The gear ratios of this car had been worked out by computer and it was calculated that the car should be capable of attaining 236 mph. Unfortunately the programmers had failed to make allowance for power absorbed by the tyres and after a change of axle ratio the

drivers reckoned its true maximum was around 220 mph. Except for this car and the Martini 917, all of the 917s running in 4-speed form. At the same time this car represented one of Porsche's strongest hopes for victory and one of the Gulf team's strongest opponents.

Entered by Solar Productions Ltd

No 29: Porsche 908 *Spyder* 2,996 cc driven by Herbert Linge and Jonathan Williams. This was the camera car for the making of the Steve McQueen film, 'Le Mans'. It was painted dark blue and had bulges front and rear to accommodate the cameras. The car had been prepared at Zuffenhausen, allegedly free of charge because in the film the winner was to be a 917!

Entered by Equipe Matra-Elf

No 30: Matra MS650 2,993 cc chassis no 03 driven by Jean-Pierre Jabouille and Patrick Depailler. This car had a short tail and was running on 15-inch rear wheels. For identification purposes this car had dayglow red rear spoiler, side panels and front intake surround.

No 31: Matra MS660 2,993 cc chassis no 02 driven by Jean-Pierre Beltoise and Henri Pescarolo. The new and previously unraced monocoque car featured a long tail with a rear aluminium aerofoil having trim tabs. For identification purposes this car had white side panels and intake surround.

No. 32: Matra MS650 2,993 cc chassis no 02 driven by Jack Brabham and Francois Cevert. A long twin-boom tail as used at Le Mans in 1969 was fitted to this car and it had a small rear aerofoil and 13-inch rear wheels. For identification purposes the side panels and intake were coloured yellow.

All three Matras were fitted with the latest central-induction V-12 engines which had been specially prepared for long-distance reliability. The cars were painted the usual French racing blue with white panels in front of the cockpit. Purely as a source of spares the team had brought along 01, the first of the MS660s, which had successfully completed two 24-hour stints at Marigny. At the last moment the team flew over Australian Tim Schenken as a spare driver, but his services were not used.

Entered by the Donald Healey Motor Co

No 34: Healey-Repco 2,995 cc driven by Roger Enever and Andrew Hedges. This was the Climax-powered SR coupé that had run in the 1968 and 1969 races, now rebuilt with open bodywork and a single cam per bank Repco Grand Prix engine used with a Hewland DG300 gearbox. In practice it proved hopelessly uncompetitive.

Entered by Autodelta S.p.a.

- No 35: Alfa Romeo Tipo 33/3 2,993 cc chassis no 007 driven by Rolf Stommelen and 'Nanni' Galli.
- No 36: Alfa Romeo Tipo 33/3 2,993 cc chassis no 010 driven by Piers Courage and Andrea de Adamich.
- No 37: Alfa Romeo Tipo 33/3 2,993 cc chassis no 014 driven by Toine Hezemans/Masten Gregory.
- No 38: Alfa Romeo Tipo 33/3 2,993 cc chassis no 009 driven by Teodoro Zeccoli/Carlo Facetti.

All four of the superbly prepared Tipo 33/3s were to the same specification and incorporated certain of the modifications that had appeared on the car that was raced at Nürburgring, including the lighter wheels and radiators. The cars featured long tails with small rear vertical fins (an apparent reversion to a fashion of the mid-fifties). They looked incredibly neat with tinted windshields, the mirrors mounted just to the left on the scuttle on a spindly tripod (right-hand drive is featured), the doors forward-mounted and swinging upwards, a panel in the nose section fixed by screws to reveal brake and clutch fluid reservoirs and the external filler caps for the side-mounted radiators protruding just behind the substantial roll-over bar. For identification purposes the cars had different colourings on the nose, rear vertical fins and roll-over bar; these were: yellow (No 35), white (No 36), turquoise blue (No 37) and green (No 38). As usual, Carlo Chiti, bulging out of his trousers and surveying the world through thick-lens glasses was managing *les affaires* Autodelta, assisted by the genial and helpful Roberto Bussinello.

While the Gulf team returned to La Chartre after scrutineering, the Ferrari team, which had come direct to the circuit from Maranello, made its way to its headquarters in the Rue Jean Macé opposite the abbatoir in the centre of Le Mans. Here Ferrari set up their equipment in a vast, spacious, but rather shadowy garage and the brutish V-12 took up the space normally occupied by the V-8 Unic lorries of *Transports René Evenisse*. The mechanics worked by artificial light and although there was a frenzy of activity, after the first practice session Mauro Forghieri pronounced himself well pleased with the cars and it seemed that all the team's calculations resulting from the Test Weekend had proved right. Round the walls of the garage was stacked an enormous collection of spare body parts, spare noses with and without louvres and both long and short tails.

Matra's headquarters were at a large Elf garage on the outskirts of Le Mans and the team had two large service bays at its disposal. In one bay the spare MS660 stood on a hoist and in the other bay work proceeded on the three cars entered. The team had brought a host of mechanics, all clad in green overalls.

Practice

Practice was divided into two sessions, between 6 pm and 11 pm on the Wednesday and between 6 pm and 10 pm on the Thursday, although in fact both sessions ran later than scheduled to give additional night practice. The shriller shriek of the Ferraris, high-pitched and harsh enough to tingle the ears to the point of pain as the cars accelerated from the pits, was easily distinguishable from the deeper bellow of the 917s. At Wednesday's practice the Siffert/Redman 917 was driven only by 'Seppi' and it was quickly discovered that the car was under-gearred, as it was attaining 8,800 rpm on the Mulsanne straight. At once the car was taken into the paddock and the mechanics started to change the axle ratio. As Redman commented later, he was slightly surprised that this detail had not been settled at the Test Weekend.

The 4.5-litre 917 of the Gulf team was achieving around 208 mph on the Mulsanne straight, compared with the 212/215 mph of the 5-litre, but the real advantage of the bigger engine lay in its improved acceleration. After higher axle ratios had been fitted, the drivers felt that the cars were perhaps a little slower, but the ratios were retained in the interests of reliability. On the Thursday the Siffert/Redman 917 suffered transistor ignition failure and Pedro Rodriguez was complaining about poor brakes. All the Gulf drivers had complained about a weaving tendency under braking for Mulsanne corner and this was cured by increasing the front castor angle from 3 to $3\frac{3}{4}$ degrees. Nor was the Salzburg camp completely free from troubles, for the computer error in selecting the wrong axle ratio for the Elford/Ahrens car had necessitated a change of back cogs. On the Wednesday Herrmann and Attwood had complained about excessive brake pedal movement, but nothing had been done about this by the following day and instead, protested Attwood, all that had been done were some unnecessary cockpit alterations.

The Ferraris suffered similar weaving problems to those of the Gulf cars and because of the problem of braking from very high speeds for Mulsanne corner, Forghieri was concerned about gearbox reliability. Some special components were dispatched from Maranello and on the Wednesday night the Ferrari mechanics built up a gearbox with stronger bearings for the Ickx/Schetty car. Poor Jackie Ickx was still in pain from the petrol burns suffered at Jarama in April; he walked with a limp and his left hand was badly scarred. In practice he contented himself with only a few laps, concentrating on scrubbing in new tyres and bedding in the brakes. Before the Wednesday practice the tachometer drive broke on the Bell/Peterson car and then the replacement broke as well. Young Peterson, winding up the 512S magnificently, was turning in some very fast laps when the engine broke—a rod went through the side of the block—almost certainly because he had inadvertently over-revved. The Autodelta team spent most of the practice with the cars parked in

front of the pits, but the only real trouble was the need for a gearbox change on the Zeccoli/Facetti car.

The fastest twenty in practice were:

1. V. Eford/K. Ahrens (Porsche 917 5-litre)	3 min 19.8 sec (150.94 mph)
2. N. Vaccarella/I. Giunti (Ferrari 512S 5-litre)	3 min 20.0 sec (150.65 mph)
3. J. Siffert/B. Redman (Porsche 917 5-litre)	3 min 21.1 sec (149.82 mph)
4. A. Merzario/G. Regazzoni (Ferrari 512S 5-litre)	3 min 21.3 sec
5. P. Rodriguez/L. Kinnunen (Porsche 917 5-litre)	3 min 21.9 sec
6. J. Ickx/P. Schetty (Ferrari 512S 5-litre)	3 min 23.1 sec
7. D. Bell/R. Peterson (Ferrari 512S 5-litre)	3 min 23.4 sec
8. M. Parkes/H. Müller (Ferrari 512S 5-litre)	3 min 25.4 sec
9. J. Bonnier/R. Wisell (Ferrari 512S 5-litre)	3 min 28.7 sec
10. D. Hobbs/M. Hailwood (Porsche 917 4.5-litre)	3 min 29.1 sec
11. G. van Lennep/D. Piper (Porsche 917 4.5-litre)	3 min 29.4 sec
12. G. Larrouse/W. Kauhsen (Porsche 917 5-litre)	3 min 30.8 sec
13. S. Posey/R. Bucknum (Ferrari 512S 5-litre)	3 min 31.2 sec
14. H. Herrmann/R. Attwood (Porsche 917 5-litre)*	3 min 31.5 sec
15. J. Brabham/F. Cevert (Matra MS650 3-litre)	3 min 32.2 sec
16. H. Herrmann/R. Attwood (Porsche 917 4.5-litre)	3 min 32.6 sec
17. C. Manfredini/G. Moretti (Ferrari 512S 5-litre)	3 min 33.0 sec
18. N. Galli/R. Stommelen (Alfa Romeo Tipo 33/3 3-litre)	3 min 33.8 sec
19. H. Kelleners/G. Loos (Ferrari 512S 5-litre)	3 min 35.6 sec
20. P. Courage/A. de Adamich (Alfa Romeo Tipo 33/3 3-litre)	3 min 35.7 sec

The first-named driver is the one who started the race.

* This was the blue and white car that non-started.

Although none of the drivers, except probably Vaccarella and Bell, were really trying their hardest, these times made the 3 min 22.9 sec (148.43 mph) lap of Rolf Stommelen with a 917 (then a much inferior handling car) in practice for the 1969 race look very brave indeed.

The drivers relax

Friday was a free day and although the drivers had a chance to relax, the mechanics were still hard at work. Both Gulf-Porsche and Ferrari had driver conferences and John Wyer, who had followed the team over, maintained a saturnine expression throughout an interview with A.B.C. television. Because of their associations with the Wyer team, several other drivers stayed at La Chartre. Among these was Jackie Ickx, whose Boss Mustang in the car park on the town square over-shadowed the 911 Porsche cars supplied by the works to the Gulf and Salzburg drivers, and Dickie Attwood. In the evening Baron Huschke von Hanstein dropped in at the Hotel de France to wish the Gulf team good luck.

It was now that the drivers could relax and unwind for a short

while. Mike Hailwood, dressed in slacks and flowered shirt, commented that, 'Le Mans is a bit of a bore really.' His basic instructions were to take it easy and save the brakes. He found the 917 a pleasant car with a good driving position. Unlike some drivers he thought that most of the slow cars kept out of the way of the fast boys and his only real worry was the mist in the morning. Hailwood is a stolid, unemotional character, quite unmoved by the high speeds achieved by the 917, not at all bothered about night driving and he claims that he never thinks about the possibility of accidents. By his own admission he infinitely prefers single-seaters, mainly because he does not like long-distance racing.

On this day of rest in the soft French sunshine David Hobbs relaxed in shorts. Hobbs was very enthusiastic about the 917. He found it comfortable to drive, it was well ventilated, not too noisy and the vision good. On the debit side he thought that it tended to weave about a bit too much. Like Hailwood, Hobbs regarded Le Mans as 'a bloody bore'. He was rather anxious about the speed differential between the fastest and slowest cars, but even more so by the driver differential. 'It's often not the slow car's fault, although sometimes the slowest cars have the worst drivers.' For Hobbs the circuit had no particular problems, but he regarded White House as especially difficult, as it was a 170 mph bend with no margin for errors. The former Lola driver does not give accidents much thought, but he considered that one of the biggest dangers at Le Mans was the possibility of the completely unforeseen, such as a piece of bodywork on the track which in the dark no driver could possibly see. Hobbs was all in favour of scrapping 24 hour races; 'Le Mans makes too many demands on everyone; it does not help technical innovations and you've got to be fantastically lucky to win—so many things can go wrong.'

Perhaps the most communicative and intelligent of the Gulf drivers, Brian Redman thought the 917 was an extremely good car on fast circuits. He considered the 5-litre engine to be worth eight to ten seconds a lap at Le Mans. He was full of praise for its stability at high speed but thought that it was not so good on medium speed 80 to 90 mph corners. Although the driving position was comfortable, Redman found problems with the exhaust resonance in the race, a 'twanging' in the ears. As far as slow cars were concerned, Redman commented, 'They have got their own problems. The driver of a faster car requires only that they do nothing unexpected, such as jamming on the brakes.' Redman was another driver among many who dislikes Le Mans, in his case mainly because of the worry about something on the car breaking. He is a driver who is concerned about accidents—and he has had several serious crashes. He knows that accidents are quite likely to happen and simply hopes that when he does have an accident that nothing serious goes wrong, a sort of driver's euphemism for the hope that he will not be badly hurt. Redman particularly likes the Nürburgring, although he regards it as being almost as dangerous as Spa, and he considers it presents the greatest challenge of all the

European circuits. About the Nürburgring Redman commented that one of the real problems was the lack of advance warning of hazards, such as water on the track. 'It's a nice feeling when you take off on the jumps, although there is no time lost if the car does not take off. You lift your foot off the accelerator and momentarily everything goes quiet.' Redman tries to avoid forming dislikes for circuits, as they can prejudice later performances, but does confess that he is not very keen on Brands Hatch.

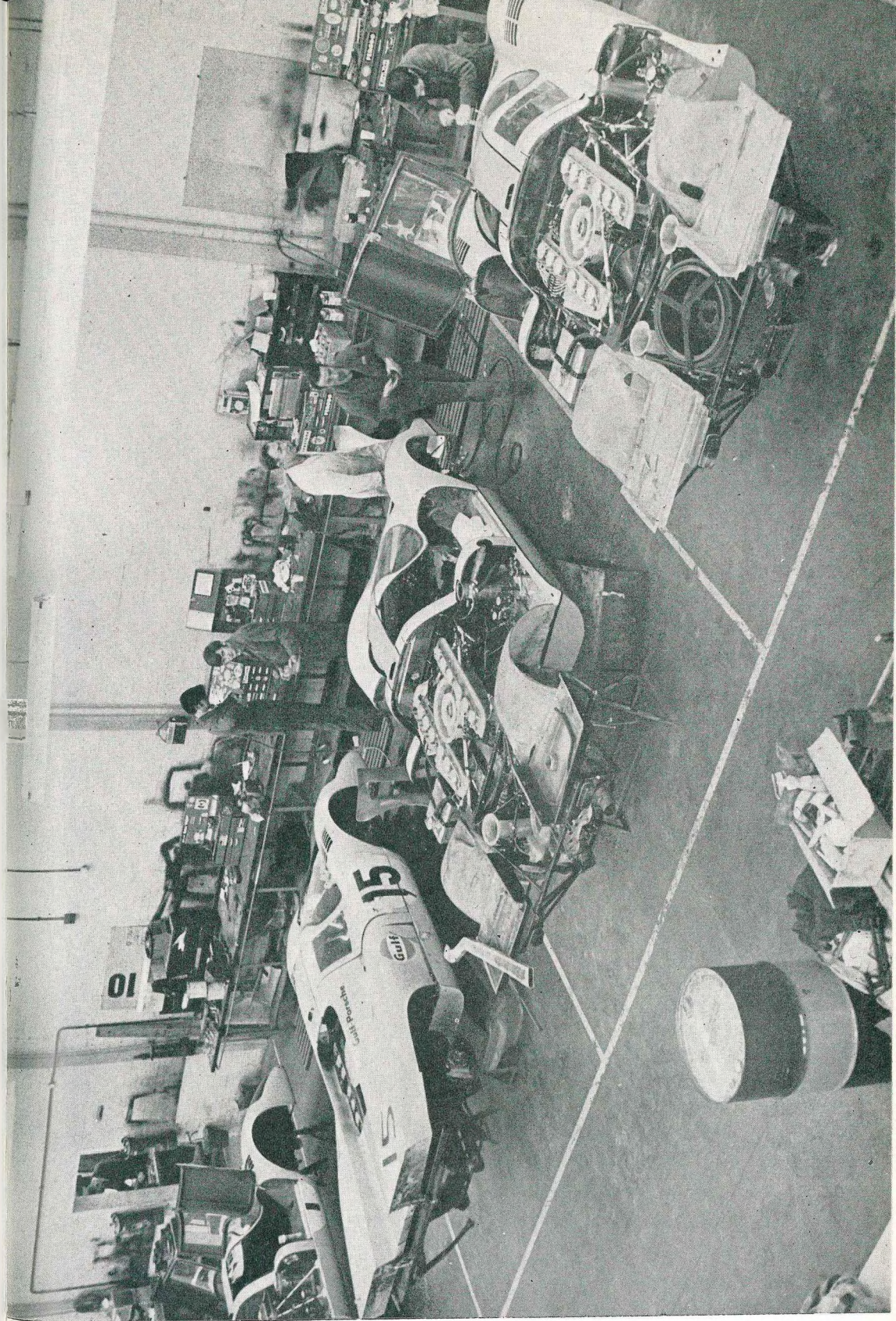
The race

Saturday morning dawned to explosive thunder claps and heavy rain. A little after nine the rain petered out, but the sky was heavily overcast and two hours later the rain returned with renewed vigour. At noon the rain stopped again, but the sky menaced that more rain was still to come. The mile upon mile of traffic jams that had become thicker and thicker as the morning progressed ground slowly on and as the time of the start approached all the spectator enclosures were tightly jammed. An hour and a half before the start the band began playing and at 2.55 pm the third-place Ford in 1969, now sold to Solar Productions and with the roof cut off and camera equipment mounted at the front, completed a solitary lap.

Dr Ferry Porsche mounted the starter's rostrum and a hush fell over the starting area, the pits and the packed spectator areas. The traditional Le Mans start had been abandoned and the entry was now lined up in a shallow curve, the drivers seated in their cars with their safety belts done up and the engines switched off. At exactly 4 pm Ferry Porsche dropped the flag, there was a momentary silence, then 51 engines roared into life and 51 cars accelerated diagonally across the track.

4 pm to 5 pm: At the start Elford and Siffert were away first, the Gulf driver blocking in Vaccarella's Ferrari as he accelerated across its bows. At the end of the first lap the white long-tail 917 roared through the pits, already clear of the Gulf 917s of Siffert and Rodriguez. Then came Merzario, Vaccarella, Hobbs and Müller. At the end of the first lap Galli's Alfa shot into the pits and rejoined the race at once—the car had missed the chicane and had stopped to avoid a penalty. Merzario brought his 512S through ahead of Rodriguez, but then the Italian stopped at the pits to have the suspension checked and rejoined the race in thirteenth place. Bell brought his Ferrari in with a punctured tyre and rejoined the race in nineteenth place. After only five laps Hezemans crawled into the pits to retire his Alfa with engine trouble. With typical Autodelta frankness the trouble was ascribed to a stone sucked in to the injection system. Next in trouble was Vaccarella who crawled into the pits to retire his 512S

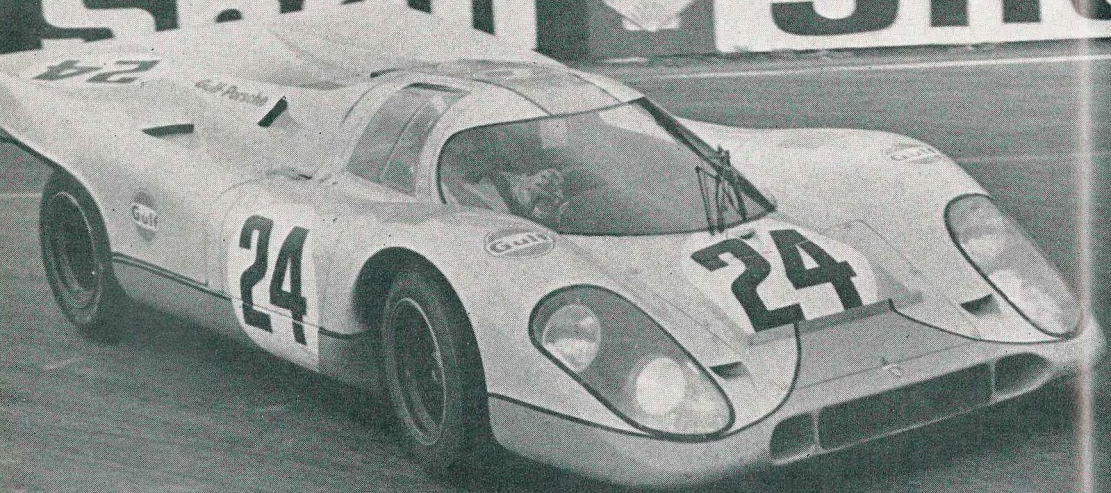
31 A view of four of the Gulf-Porsche 917s in the spacious J.W. Automotive workshops at Slough. In all the Wyer team had seven of these cars in 1970. (*Nigel Snowdon*).



Gulf



Shell SHELL She



with a rod through the side and already the Ferrari challenge was disintegrating. Twice Pescarolo stopped at the pits to have the front of his Matra's bodywork secured and Müller lost three laps while an electrical fault was cured. After fifteen laps and 54 minutes of racing the fastest cars were making the first refuelling stops and with the first hour's racing completed the order was: Elford—Siffert—Rodriguez—Hobbs—Merzario (about to pass the 4.5-litre 917)—van Lennep—Ickx—Kauhsen.

5 pm to 6 pm: Siffert had now closed right up on Elford and on several laps tried—unsuccessfully—to pass the leader. On lap 22 came the first really significant retirement when Rodriguez' 917 stopped at Arnage with a broken fan drive-shaft. As the second hour and the second round of pit stops approached, light rain began to fall. When Siffert came into hand over to Redman, the J.W. pit work sparkled as usual and Redman pulled out of the pits with a 10.5 seconds lead over Ahrens. Regazzoni (who had relieved Merzario) was in third place, Hailwood was fourth and Schetty (who had relieved Ickx) was fifth; in sixth place was the A.A.W. Porsche with van Lennep at the wheel. After handing over to Hailwood, Hobbs commented, 'I have never known a road get so slippery so quickly. As soon as the first drops fell there seemed to be spinning cars everywhere.'

6 pm to 7 pm: Slowly, but surely Redman was pulling away from the white 917 Lang of Ahrens and soon he had a lead of twenty seconds—then the Gulf car fell back to second place again when a balance weight fell off and Redman's unscheduled stop caught the Gulf pit napping. At 6.35 pm disaster struck the Ferrari team. Wisell had eased off in the Filipinetti Ferrari because of lack of vision through an oil-covered windscreen and as he approached White House, he was caught by the battling Ferrari trio of Bell, Regazzoni and Parkes. Bell swerved round the Filipinetti car, Regazzoni who was travelling at around 150 mph rammed it and Wisell's car was pushed into a crash barrier and then rebounded on to the centre of the track where it and Regazzoni's spinning car were rammed by Parkes. Parkes' car caught fire and the driver was lucky to escape with a burnt leg. In the confusion of the moment Bell missed a gear, the revs shot into the red and he crawled back to the pits to retire with a broken engine. With proper team tactics and discipline such an accident would not have occurred. In this holocaust four very competitive Ferraris had been eliminated and now the only 512S likely to offer a challenge to the 917s was the surviving works car of Ickx and Schetty. During this hour the usually very reliable V.D.S. Lola was plagued with alternator and clutch troubles, but these were eventually cured.

32 Speed supreme—the winning Porsche 917 of Siffert and Redman seen at La Source hairpin in the 1970 Spa race. The car averaged the incredibly high speed of 149.42 mph. Note that the central trough in the tail of the 917 has now been filled in. (*Nigel Snowdon*).

7 pm to 8 pm: Now the rain had increased in intensity and as the cars lapped, they were throwing up long plumes of spray. One by one all the cars came in for wet-weather tyres to be fitted and once again J.W. pit work was slicker and Redman re-assumed the lead. All three Matras were in trouble, using vast quantities of oil and leaving a thick, dense blue cloud of smoke in their wake. At 7.15 pm Facetti spun his Alfa on the right-hand curve after the pits. Two of the Italian car's wheels were wrecked and the ever-optimistic Facetti dashed back to the pits to get replacements. The yellow danger flags were out and the warning lights flashing on the approach to the curve where the stricken Alfa lay. But the conditions were atrocious and no one could blame Mike Hailwood for thumping his 917 against the Alfa's nose. So a second J.W. car was out and a doleful Hailwood strode back to the pits to explain what had happened. 'I'm bloody sorry,' says Hailwood, 'That's all right Mike,' rejoined Wyer, 'Don't ring us—we'll ring you.' Because the Armco barrier was continuous and non-detachable, the stricken cars were pushed to the side of the road until a crane could be brought to hoist them over—and the crane damaged the 917 far more extensively than the crash had! Bourdon crashed his enormous Chevrolet Corvette Stingray at the Esses and Loos spun his 512S, badly damaging the nose of the car. After a long pit stop the Ferrari joined the race with a nose loaned by the works team. With one-sixth of the race over, the order was: 1st, Siffert/Redman, 61 laps; 2nd, Elford/Ahrens, 60 laps; 3rd, van Lennep/Piper, 60 laps; 4th, Herrmann/Attwood, 58 laps; 5th, Larrousse/Kauhsen, 58 laps; 6th, Ickx/Schetty, 58 laps.

8 pm to 9 pm: The Matra MS650 of Jabouille/Depailler collided with the Armco and lost 26 minutes in the pits while body repairs were carried out. The hour passed without further drama and now the Ickx/Schetty Ferrari, which had lost time through a slow change of brake pads, was beginning to make up ground.

9 pm to 10 pm: The Ferrari of Kelleners and Loos was retired because it was handling very badly with the new nose and the surviving Filipinetti car of Manfredini lost over ninety minutes in the pits while the gearbox was changed. The Matras were running slower and slower, making more and more stops and emitting more and more blue smoke. By 10 pm Ickx/Schetty had pulled their Ferrari through to third place ahead of Kauhsen/Larrousse, van Lennep/Piper and Attwood/Herrmann. The Siffert/Redman 917 had now increased its lead to three laps.

10 pm to 11 pm: Shortly after 10 pm Piper spun the A.A.W. 917 at the curve after the pits, badly damaging the nose of the car, and 44 minutes were lost in the pits while repairs were carried out. Courage spun his Tipo 33/3 at the Esses and a quarter of an hour was lost while a new tail section was fitted. During this hour two of the Matras were retired with piston ring failure after a very disappointing performance and the third was withdrawn a little later. And '24 heures d'echos Elf', the oil company's news bulletin came round

with a pathetic little message to the effect that Matra had failed again, but would be back for another go in 1971.

11 pm to 12 pm: Rain was still falling steadily, everyone was thoroughly soaked and miserable and still the cars were throwing up bow waves as they roared through the night. Elford had lost time in the pits while his complaints about a deterioration in handling were investigated, but nothing wrong could be found and the only adjustment before the car rejoined the race in fifth place was the repair of a broken headlamp mounting. Eventually the trouble was traced to a slow puncture and the wheel was changed. At midnight Siffert/Redman led by four laps, but the Ickx/Schetty Ferrari was second (although Ickx was now desperately tired).

12 pm to 1 am: Twenty-five minutes after midnight the V.D.S. Lola was finally retired with engine failure. A few minutes later the A.A.W. Porsche, already slowed by headlamp trouble, was eliminated out on the circuit. With van Lennep at the wheel a tyre burst on the Mulsanne straight at 180 mph and the flying tread damaged the body too badly for the car to be able to continue.

1 am to 2 am: Still the sole works Ferrari with Ickx at the wheel was pounding round in pursuit of the leading 917. At 1.35 am the two leading cars were approaching the Ford chicane together and under braking Ickx lost control of the Ferrari which spun over a sandbank and killed a marshal. Whether a brake caliper had locked up or there was cockpit error was not known. Ickx was bitterly upset about this tragic accident and although the car had caught fire, he escaped unhurt.

2 am to 3 am: With only nine minutes of this hour elapsed Siffert brought the leading 917 into the pits with oil pouring out of the exhausts and at the tachometer 'tell-tale' at an ominous 9,600 rpm. It seems that 'Seppi', still driving hard despite the relaxed gait which the lead 917 could now adopt, had missed a 'snatch' gearchange. While all the Gulf mechanics sympathized with Hailwood for his crash, there was not a great deal of sympathy for Siffert who was notoriously hard on his cars. So now German-entered 917s were in the first three places in the order Attwood/Herrmann, Larrousse/Kaushen and Elford/Ahrens, while fourth overall and leading the Prototype class was the 908 *Spyder* of Lins/Marko. Another retirement was the Escuderia Montjuich Ferrari which had spun, damaging the bodywork and splitting the gearbox casing.

3 am to 4 am: There was yet another Ferrari retirement during this hour; the Manfredini/Moretti car which had already spent a long time in the pits had spun at Tertre Rouge and the bodywork had been badly damaged. The N.A.R.T. Ferrari 312P lost eighteen minutes while the fuel pump was changed. At the half-distance mark Attwood/Herrmann had a three-lap lead and the Larrousse/Kaushen *Lang* car was in second place ahead of Elford/Ahrens and the Martini 908.

4 am to 5 am: The rain now started with renewed vigour and

lightning across the track lit up the cars with an unnatural clarity. The N.A.R.T. 312P was in trouble again and had to make two pit stops, first to have the engine cover replaced and then for it to be fastened properly. As the result of electrical trouble the Larrousse/Kauhsen 917 had slowed off and was passed by the team's 908 *Spyder*.

5 am to 6 am: With 23 cars left in the race and conditions as bad as ever, everyone was driving sensibly and cautiously and the hour passed without incident.

6 am to 7 am: The Martini 4.9-litre Porsche was now running rather better and began to make up lost ground. Round the rain-sodden circuit thousands of enthusiasts were beginning to crawl out of tents and sleeping bags and the day-time bustle began to return to the circuit.

7 am to 8 am: At 7.18 am Ahrens brought the second-place 917 in to refuel and to hand over to Elford. The German driver had barely rejoined the race when he collided with a 911. Three minutes were lost in the pits while the bodywork was taped up.

8 am to 9 am: At 8.35 Elford brought the second-place 917 into the pits with engine trouble. After a quick inspection the car was pushed away into retirement with a suspected broken inlet valve. Now the 908 *Spyder* of the Martini team was in second place and very much in the running for outright victory! Shortly afterwards Galli brought his Alfa in for disqualification, the result of an earlier incident when a Firestone technician had helped to push the car.

9 am to 10 am: At long last, the roads were beginning to dry out and the second-place 908 *Spyder* came in for a change of wheels which it was hoped would cure a vibration that had plagued the car all through the night. The team had great difficulty in undoing one of the wheel-nuts and had persuaded the beefiest of the Salzburg mechanics to jump on the wheel-wrench until it had loosened.

10 am to 11 am: At 10.29 am Courage, whose Alfa had been running rougher and rougher, came into the pits and the car was pushed away into retirement. The Martini 917, its mis-fire now completely cured, was catching its smaller stable-mate at the rate of ten seconds a lap and it seemed that it would soon move back into second place. The N.A.R.T. 312P was becoming increasingly difficult to start after pit stops and after each stop it disappeared round the curve under the Dunlop bridge staggering on about five cylinders. The N.A.R.T. 512S of Posey and Bucknum was proving almost equally difficult to start.

11 am to 12 am: During this hour the 'batmobile' as the green and mauve 917 was known caught and passed the 908 *Spyder* and at the end of the hour the positions were: 1st, Attwood/Herrmann, 282 laps; 2nd, Larrousse/Kauhsen, 277 laps; 3rd, Lins/Marko, 277 laps; 4th, Posey/Bucknum, 262 laps; 5th, de Fierlant/Walker, 250 laps; 6th, Adamowicz/Parsons, 237 laps.

12 am to 1 pm: Just after midday the rain came down in torrents

again. On a near-flooded track the 908 sneaked ahead of the 917 from the same stable, but its handling was so frightening in these conditions that Lins brought it in for a set of wet-weather tyres to be fitted. There was the same pantomime in trying to remove the wheels and after ten minutes of wasted effort, Lins rejoined the race on the same intermediate tyres, angrily accelerating down the pits road with the tail snaking viciously.

1 pm to 2 pm: The N.A.R.T. Ferrari 312P rejoined the race after 45 minutes spent on the electrics. The rain stopped abruptly and the circuit dried out rapidly which meant that most of the faster surviving cars came in for yet another change of tyres.

2 pm to 3 pm: With less than two hours of racing left one of the most popular cars with the spectators, the Chevron B16 of Skales and Hines finally succumbed to fuel pump failure. Unless an accident of Ferrari magnitude occurred, the race was to all intents and purposes over with Porsche entries in the first three places.

3 pm to 4 pm: With only twenty minutes of the race left the Healey, which had been plagued by gearbox trouble and innumerable stops to patch the battered body, finally expired out on the circuit with ignition failure. So Porsche scored the victory for which they had waited so long and worked so hard, but, oddly enough, the team that had engineered most of the year's success had come sadly unstuck in this race which it had won two years in succession. Because of the atrocious conditions in which the race had run, a disproportionate number of finishers were not classified as they had not covered the minimum distance in their class. Hans Herrmann had crowned a long and distinguished career with a magnificent victory and after this race he went into a well-deserved retirement.

Results:

1st, R. Attwood/H. Herrmann (Porsche 917 4.5-litre), 119.29 mph,*

2nd, G. Larrousse/W. Kauhsen (Porsche 917 5-litre),†

3rd, R. Lins/H. Marko (Porsche 908/2 *Spyder* 3-litre),*‡

4th, S. Posey/R. Bucknum (Ferrari 512S 5-litre),

5th, H. de Fierlant/A. Walker (Ferrari 512S 5-litre),

6th, C. Ballot-Lena/G. Chasseuil (Porsche 914/6 2-litre),*

7th, E. Kremer/N. Koob (Porsche 911S 2.2-litre),*

Not classified:

H. Greder/J. Rouget (Chevrolet Corvette 7-litre),

H. Linge/J. Williams (Porsche 908/2 *Spyder* 3-litre),

C. Parsons/A. Adamowicz (Ferrari 312P 3-litre),

P. Mauroy/R. Mazzia (Porsche 911S 2.2-litre),

G. Verrier/S. Garant (Porsche 911S 2-litre),

J.-C. Parot/J. Dechaumel (Porsche 911S 2-litre),

C. Laurent/J. Marche (Porsche 911S 2.2-litre),

J. Sage/P. Greub (Porsche 911S 2-litre),

C. Swietlik/J. Lagniez (Porsche 911S 2-litre).

* Class winners.

† Winner of the Index of Thermal Efficiency.

‡ Winner of the Index of Performance.

Six hours at Watkins Glen

The results of Le Mans had surprised the motor sporting world which had expected a Gulf victory, but the Wyer team had not expected to win, merely hoped, for in a race of such a great distance luck was the vital element. Now the team set about preparation of the cars that were to compete in the Six Hours race at Watkins Glen on 11th July. A total of five 917s were entered in this race and both Gulf-Porsche and Porsche Konstruktionen K.G. fielded 5-litre cars. From Wyer there were as usual two cars for Siffert/Redman and Rodriguez/Kinnunen, while the Salzburg cars, entered at this race in the name of Porsche-Audi (the American concessionaires for the marque) were driven by Elford/Denis Hulme (at this race taking the place of Herrmann who had retired from racing) and Attwood/Ahrens. The fifth 917 at this race was a 4.5-litre car entered by the Martini team for Larrousse/van Lennep and although this was painted in the mauve and green colours used at Le Mans, it was in fact the A.A.W. team car on loan.

Facing this powerful Porsche entry were two Ferrari 512S cars entered by the works and driven by Ickx/Schetty and Andretti/Giunti and both were *Spyders* with the ordinary short tails. A third and uncompetitive Ferrari was the Gelo Racing car driven by George Loos and Franz Pesch. To complete the Group 5 Sports Cars Joakim Bonnier entered his outdated, but nevertheless still quite sprightly Lola T70 Mk 3B for himself and Reine Wisell. Only two 3-litre Prototypes were entered, a Martini International 908/2 for Lins/Marko and Tony Dean's car which was co-driven by Revlon cosmetics heir Peter Revson. In all there were only 26 starters, a disappointingly small number, and it was a shame that the Matra, Autodelta, Filipinetti, Gesipa and N.A.R.T. teams had all given the race a miss—in some cases this was because of the making of the Le Mans film.

The circuit had been re-surfaced only very shortly before the race and the folly of this was soon revealed in practice as the new surface broke up, the cars were sliding on small lumps of gravel spread all over the tracks and weaving on minor irregularities in the broken-up surface. Most of the teams decided to run on intermediate tyres. Fastest in practice were Siffert/Redman in 1 min 6.3 sec, with Rodriguez/Kinnunen and Andretti/Giunti all of three seconds slower.

After a paced lap of the 2.35-mile circuit, the cars were released in a rolling start. Andretti anticipated the fall of the flag, accelerated away and as he reached the first corner, Siffert was alongside, but on an inferior line. Now the chase was on and for three laps the red Ferrari succeeded in staying in front of its blue and orange rival, with Rodriguez third followed by Ickx, Attwood and Elford. Already the slowest cars in the race were being lapped and Rodriguez, intending to flash his headlamps as a warning of his approach, was inadvertently switching the fuel pumps on and off. Suspecting something amiss with the car he pulled to the side of the road and Ickx, Attwood and

Elford had all passed before he had realized his error. On this lap Siffert forged ahead and his superior driving in 'high-speed traffic jams' allowed him to pull out a lead. By lap 13 Rodriguez was back in third place and as Andretti's Ferrari slowed off because of over-heating of the fuel pumps, the Mexican drew closer and closer to the Ferrari, passing it on lap 27.

Rain had now started to fall and as the engine of the leading 917 began to mis-fire at high revs, Siffert somewhat naturally attributed the cause to wet electrics. In fact the real trouble was the automatic rev-limiter, a device which the Wyer team was using for the first time, and this was retarding itself. The first car to stop to refuel was Elford's 917 which also needed a new left-hand rear tyre, for this had started to chunk. Elford and Hulme were running on a British-made Goodyear mix which the drivers infinitely preferred, but in fact the Goodyear technicians had advised against using this mix with the circuit in such bad condition. As a price for ignoring sound technical advice, Elford and Hulme had to make a total of six tyre changes during the race. When Rodriguez stopped to refuel, it was decided to cut out the rev-limiter in case this too should give trouble.

Both Siffert and Rodriguez remained at the wheel after refuelling, Rodriguez was now clear of his team-mate, steadily pulled away into the lead and after an hour and a half's racing was all set to lap him. For the one and only time in two seasons of racing Wyer team discipline was thrown overboard and for what now occurred Wyer blamed Rodriguez. The Mexican was not prepared to wait for a suitable opportunity to lap his Swiss team-mate, but instead forced his car alongside and at the end of lap 80 the two 917s crossed the line abreast headlamps ablaze. On the next lap the cars collided and while Rodriguez, the cockpit of his car dented on the right-hand side roared away into the distance, Siffert crawled back to the pits to have a flat tyre changed. Redman now took over from Siffert and when Kinnunen relieved Rodriguez, the 'Flying Finn' was given instructions to take it easy. Redman had rejoined the race in third place, but he soon passed Giunti, gained a complete lap on Kinnunen and moved into the lead. Andretti, now back at the wheel of the faster Ferrari, took second place from Kinnunen and then moved into the lead when Redman stopped to refuel.

The 917 of Larrousse and van Lennep had stopped at the pits with handling problems which were eventually traced to a broken right-hand rear damper. The damper was changed, but after only two laps the car was back in the pits because the spring retaining ring on the damper broke and the left-hand rear suspension collapsed. The car eventually rejoined the race, but it had fallen right back down the field. Redman soon regained the lead from Andretti and when Rodriguez took over from Kinnunen after only a fairly short spell he had soon brought the other J.W. car through to second place. At Redman's next refuelling stop the mechanics investigated the cause of a smoke trail that the 917 had been laying for several laps. The trouble was

traced to the modified crankcase oil breather system being used for the first time in this race. The rear breather was closed off and the catch tank replaced. After this lengthy stop Siffert was all set to make up lost ground and accelerated violently down the pit road in a flurry of wheelspin, scattering the marshals.

Gulf still held the first two places, but the Andretti/Giunti Ferrari was on the same lap and still a menace to be reckoned with. When the Ferrari lost two laps while the mechanics struggled to cure the fuel pressure trouble that had plagued this 512S since the race began, the Gulf cars were uncatchable. The Ickx/Schetty Ferrari had never been in a position to challenge for the lead at any stage in the race. Rain was now falling again and the big 5-litre cars were sliding badly on the loose surface. Just before the finish both Rodriguez and Siffert stopped to take on an extra five gallons of fuel and at the chequered flag they had covered 308 laps, three more than the third-place Ferrari. The 917 of Elford and Hulme finished fourth, but on the last lap the Ahrens/Attwood car ran out of fuel because of a miscalculation, thereby losing fifth place to the Ferrari of Ickx and Schetty.

On the day following the Six Hours race the Can-Am Group 7 event was held on the same circuit. Competing against the 7 and 8-litre Chevrolet-powered McLarens and Lolas, the 917s of Siffert, Attwood and Elford finished second, third and fourth behind the winning McLaren of Denis Hulme. Fifth place went to the Ferrari driven by Andretti and van Lennep brought the Martini 917 across the line in sixth place. It is performances like this that have convinced the Porsche factory that there is a future for them in Can-Am racing!

Racing at Imola

Before the last round of the Championship at the Österreichring, both the Wyer and the Ferrari team fielded cars at Imola, a 500 kilometres race over a tortuous circuit that had recently been renamed the Dino Ferrari Autodromo (in memory of Enzo's deceased son). The Wyer entry consisted of two of the usual 917 cars for Rodriguez and Redman, both of whom were to drive single-handed throughout. Ferrari's entry was one of the *Spyders* raced at the Nürburgring and this was driven by Ignazio Giunti and Arturo Merzario. From Auto-delta came a single Tipo 33/3 for de Adamich and 'Nanni' Galli and Scuderia Zitro of Geneva entered its private 4.5-litre 917 for Dominique Martin and Nino Vaccarella.

At the start there was one of the biggest confusions seen for a long time at a major race. Just after the 30-second sign was shown to the grid, the starter raised the flag. Someone pointed out to him that the 30-second sign had only just been displayed, so he lowered the flag, the two front-row starters, Rodriguez and Merzario moved off hesitantly and then stopped, but Redman made a flying start from the second row, shooting out in front all on his own. Eventually all

the cars stopped, were pushed back on to the grid and the race was re-started! Initially, Merzario led from Rodriguez and Redman, Rodriguez succeeded in taking the lead on lap 13 and all the time Redman was trying to find a way round the big Ferrari that filled most of the track. Four laps later Redman was through into second place and on lap 20 Merzario pulled into the pits, suffering from a strained wrist caused by gear selector trouble. Giunti took over and the 512S rejoined the race in eighth place.

It looked as though Gulf now had the race sewn up, but on lap 36, while Redman was in the pits refuelling, the leading 917 disappeared off the lap charts. In avoiding the spinning Chevron B16 of John Bamford at the double left-hand bend known as Rivazza, Rodriguez had lost control, spun into the guard-rail, damaging the suspension and bodywork at the rear right-hand corner. The Mexican limped back to the pits with the 917, but after only a cursory examination, it was pushed away into retirement. Redman had an unassailable lead, enjoyed a trouble-free race and at the chequered flag he was three laps ahead of the Alfa shared by 'Nanni' Galli and Andrea de Adamich. This was the second year in succession in which the Gulf team had won the Imola race.

Porsche at Zeltweg

Twelve months previously the 917 had scored its first victory in the Austrian 1,000 Kilometres race at the Österreichring and since then it had added another six Championship victories to its score. In 1970 four 917s were entered, two each from Gulf and Salzburg. The Wyrer cars were the usual 5-litre models driven by Siffert/Redman and Rodriguez/Kinnunen. This was to be Redman's last race for Wyrer as he was emigrating to South Africa. The Salzburg cars were driven by Vic Elford/Dickie Attwood and Kurt Ahrens/Helmut Marko. This was in fact Salzburg's last race as they were withdrawing from racing and the cars were to be sold to the International Martini Racing Team. In opposition to the Gulf cars were two only of the 5-litre Ferraris. Maranello supported the race by entering the first of the new and much improved 512M cars (still known at this stage, however, as a 512S) with new and lighter nose and tail sections that had recently been tested at Imola and Modena. The new car was of much neater and more functional appearance, and with small, fixed flaps on either side at the rear. The works Ferrari was driven by Ickx/Giunti. A second 512S in this race was the very slow Gelo Racing car of Loos and Pesch.

The Austrian race in 1969 had been marked by the return of Alfa Romeo after their misfortunes with the early Tipo 33/3 cars and Autodelta appeared at the Österreichring again with a very strong entry of four cars running with short, cut-off tails and driven by 'Nanni' Galli/Rolf Stommelen, Toine Hezemans/Masten Gregory, Andrea de Adamich/Henri Pescarolo and Teodoro Zeccoli/Carlo Facetti. It was very odd that the Matra driver Henri Pescarolo should

be included in the team and the only possible—and in fact correct—hypothesis was that Autodelta were going to sign him up for 1970. The Tipo 33/3s had modified front suspension and were running on smaller 13-inch front wheels. From Martini came two 908 *Spyders*, their familiar 908/2 driven by Larrousse/Lins and an original car in the hands of Jöst/Pankl.

Throughout practice Siffert and Redman felt that their 917 was understeering excessively and roll-bar changes seemed to make no improvement. Rodriguez/Kinnunen were troubled by a stiff gear-change and the new and very potent Ferrari was suffering from fuel surge problems. Autodelta were unable to match the times during testing at the circuit a fortnight previously and de Adamich damaged a hub carrier when he was pushed against a guard-rail by a 911 that he was overtaking. When this unfortunate made a sharp turn into the paddock across the bows of Jo Siffert, he was disqualified.

Fastest in practice were:

Rodriguez/Kinnunen (Porsche 917) 1 min 40.48 sec	Ickx/Giunti (Ferrari 512S) 1 min 40.75 sec	Ahrens/Marko (Porsche 917) 1 min 41.16 sec
Elford/Attwood (Porsche 917) 1 min 41.19 sec		Siffert/Redman (Porsche 917) 1 min 42.02 sec
Galli/Stommelen (Alfa Romeo Tipo 33/3) 1 min 42.78 sec	de Adamich/Pescarolo (Alfa Romeo Tipo 33/3) 1 min 43.61 sec	Hezemans/Gregory (Alfa Romeo Tipo 33/3) 1 min 44.23 sec

Although the race was scheduled to start at 10 am, at that hour the circuit was still thickly enveloped in mist and another 35 minutes elapsed before starter Juan Fangio dropped the flag. At one time Ickx was habitually slow off the mark, but his technique was now much improved and he led away from the hounding pack of 917s. And at the end of the first lap he still headed Ahrens, Siffert, Rodriguez and Elford who was followed by the quartet of Alfa 33/3s. The new Ferrari seemed to have a definite edge over the 917s and Ickx gradually pulled further and further into the lead at the rate of a second a lap. An early victim of mechanical trouble was Pedro Rodriguez who pulled into the pits at the end of lap 5 with exhaust valve failure.

After 29 laps of this 3.67-mile circuit Ickx swept into the pits for the Ferrari's first refuelling stop and rejoined the race in fifth place. Once all the fastest cars had completed their stops, the Maranello car was back in first place, but its domination lasted only until lap 49. On that lap Austrian lawyer Helmut Marko came round in the lead with his Salzburg 917 and Ickx eventually arrived at the Ferrari pit on foot. At once the young Belgian returned to the car accompanied by two mechanics lugging a replacement battery. While the mechanics

worked feverishly to fit the new battery, Attwood brought the orange and white Salzburg 917 (the Le Mans winner) into the pits with oil all over the nose. Apparently the oil cooler had been holed by a stone flung up by the back wheels of Redman's 917 and ten laps were lost while this was changed.

When electrical power had been restored to the Ferrari Ickx brought it back to the pits to be checked over. Giunti took over, but after only four laps he came back to the pits again. It seemed that the new battery had flattened itself because an earth wire had worked loose. Marko and Redman were now many laps ahead at the front of the field and the Ferrari was so far behind that it was reluctantly retired. Only two Alfas were now left because the engine of Galli's car had blown up and Facetti had crashed. However, the Alfa of de Adamich/Pescarolo was now holding a good third place behind the two leading 917s. The fourth car of the Autodelta team was disqualified not long afterwards. When Hezemans relieved Gregory, the engine refused to fire; the mechanics push-started the car, but then instead of stopping the car and re-starting it on the motor the driver had rushed off into the race.

Out in front the lead changed, for Marko's 917 expired out on the circuit for the simple and rather foolish reason that the pit staff had miscalculated the number of laps the Austrian had covered since the last refuelling stop and the car ran out of petrol. So once again a Gulf car was out in front and the Siffert/Redman entry seemed all set for yet another victory. After its long pit stop the Attwood/Elford car was rushing round the circuit, making up lost ground and it was now in sixth place. At 3 pm, with just over half an hour's racing left, Siffert took over for his final stint with the Gulf car. He had been at the wheel a bare fifteen minutes when the 917 started to run very rough and slowed right off. The trouble was tappet failure and the only hope was that Siffert could nurse the car to the finish. The second-place Alfa with Pescarolo at the wheel was three laps in arrears and now started a desperate chase to catch the race leader. With three laps to go to the finish the Alfa was on the same lap as the sick Gulf car and then on the very next lap of the race the Alfa coasted into the Autodelta pit with a blown-up engine, oil all over the car.

Siffert took the chequered flag for Gulf's ninth victory of the season and, despite not finishing the race, the Pescarolo/de Adamich Alfa was classified second. Perhaps hoping to re-assure the Alfa Romeo directors, Chiti attributed the car's failure to ignition trouble and let Marelli take the blame! The Martini 908 of Larrousse/Lins finished third and by the fall of the flag, the Elford/Attwood 917 had climbed back to fourth place, eight laps behind the winner.

Two more long-distance races of some importance were held before the curtain finally dropped on the 1970 season. The Paris 1,000 Kilometres race was held the following weekend. Matra took the race very seriously and entered two of the MS660 cars, one of which

showed a number of changes from the last occasion on which the car was raced. A lighter Hewland DG300 5-speed gearbox was substituted for the usual ZF, a 'chopped' tail was fitted (similar to that used at Sebring and Brands Hatch) and there were special light-weight body panels. To reduce weight further the headlamps and a number of other non-essential items were deleted. This car was driven by Jean-Pierre Beltoise/Henri Pescarolo, while Jack Brabham and Francois Cevert drove a standard MS660. The main opposition came from the A.A.W. Porsche 917 driven by Larrousse and van Lennep and entered by the Martini team and the similar Gesipa car of Neuhaus and Kauhsen who had recently been appointed Porsche test driver. The Beltoise/Pescarolo Matra led almost throughout the entire race and team-mates Brabham/Cevert moved up to second place after the A.A.W. 917 had pitted with engine trouble—this was diagnosed as a bent valve and the car was retired. Kauhsen succeeded in rolling the Gesipa 917 and this is almost certainly why it was rebuilt as a *Spyder* for the 1971 Interserie races! In the closing laps of the race the leading Matra was stationary in the pits with irreparable gearbox trouble and its drivers had to sit and watch team-mates Brabham and Cevert win the race from the Escuderia Montjuich Ferrari of Juncadella and Jabouille and the Porsche 908 *Spyder* of Larrousse/Ballot-Lena. Larrousse had transferred to this car after his own 917 had retired. The Beltoise/Pescarolo Matra was classified fourth, fourteen laps in arrears.

The final long-distance race of the 1970 season was the Kyalami Nine Hours held on 7th November. The principal contenders in this was the latest works Ferrari 512M driven by Jackie Ickx and Ignazio Giunti, the Martini-entered A.A.W. 917 driven by Siffert and Ahrens and David Piper's 917 which the English privateer, no longer able to drive himself since his bad accident during the making of the Le Mans film, had entered for Attwood and South African driver John Love. The Ferrari scored a fine and morale-boosting victory and led on the road throughout the race, except during the first pit stops. In fact the car had not led on time for as long as it had led on the road because it had been penalized 60 seconds after Ickx had jumped the start. The Siffert/Ahrens 917 finished second, but the Piper-entered car (which had won the race in 1969) retired with a split fuel header tank and brake trouble.

Nineteen hundred and seventy had proved a season of magnificent and almost complete success for Porsche and for the Gulf-Porsche team in particular. With the sole victory at Sebring, the close battles witnessed at Monza and Spa-Francorchamps and the tremendous performance displayed by the 512M at the Osterreichring and Kyalami, the 5-litre Ferraris had come close to matching their German rivals and the season had been one of the most exciting and spectacular in Sports Car racing since it took its present form in post-war days.

8 1971: *The Waning of Porsche Power*

For this last year of racing in which 5-litre cars were permitted, development work on the 917 continued and changes introduced for 1971 resulted in a substantial improvement in lap times at most circuits. Porsche had conceded that they should not run cars from their Austrian subsidiary against the Gulf 917s, but the Martini team of 5-litre cars was in receipt of works assistance and at some races provided formidable opposition to the Wyer team. Although the Ferrari works team ceased to race their 5-litre cars, the much improved 512M version was extensively raced by private owners. So the mixture was much as before, with a whole host of minor changes and improvements made to the Porsche 917s, the withdrawal from Sports Car racing of Ferrari to concentrate on a new flat-12 Prototype and a much strengthened and far more successful attack from the Autodelta team.

DEVELOPMENTS AT STUTTGART

Development of the 917 was pursued in three distinct directions, to increase engine power and reliability, to improve brake efficiency and to evolve a more aerodynamic body shape without the drawbacks revealed on the long-tail cars raced in 1969 and 1970.

Engine improvements

For 1971 Porsche produced a new version of the 917 engine with a capacity of 4,999 cc with nickel-silicon alloy cylinder liners; this metal had been developed by N.S.U. for use with the Wankel rotary engine. Increasing the engine capacity, together with other development work, boosted power output to a figure in the order of 620 bhp and the new cylinder liners both reduced oil consumption and increased the racing life of the engine. The 4,999 cc engines were first used at the B.O.A.C. 1,000 Kilometres race at Brands Hatch in April. It had been intended to use the new engines at Le Mans, in conjunction with a strengthened 4-speed gearbox (see below), but eventually the decision was taken to use 5-speed 'boxes at Le Mans and it was felt that the existing 4,907 cc units were more suitable for use in conjunction with these.

A general change for 1971 was the introduction of a one-piece crankshaft machined from a single billet. Originally the crankshafts were bonded and later welded in the middle. The 1971 engines also featured lighter valve gear incorporating a number of titanium components.

Brake improvements

At the Buenos Aires 1,000 Kilometres race at the beginning of the 1971 season the 917s appeared with new brake discs made of beryllium and ventilated both radially and laterally. Except at Sebring where the discs showed a tendency in practice to crack round the perforations, these new brakes were completely successful and were both more efficient and more durable than their predecessors.

In Formula One racing Girling twin front disc brakes had been tried on the Tyrrell and at the Österreichring at the end of June a similar pattern of brake was tried on the spare Gulf car. Brakes of 12-inch diameter were used compared with 10.4-inch on the Tyrrell. Yet another experimental braking system was fitted at this circuit to a works car loaned to the Martini team. This was a very secret transistorized anti-lock system and with this it was possible to leave braking very late into the corner without the wheels locking—except on the odd occasions when the transistor system malfunctioned. When asked about the new brakes, Helmut Marko replied, 'I am not allowed to discuss them.' It seems, however, that in essence the system works on the same principles as the Dunlop Maxaret device now fitted to Jensen FF four-wheel-drive cars.

New Body Shapes:

At Daytona early in the season the spare J.W. car was fitted with a slightly longer tail section surmounted by twin tail fins reminiscent of those fitted to the 1955 Lister-Bristol sports cars. They were subsequently used on the Gulf and Martini cars at Monza and in certain other races. The main effect of these fins was to create a break-up of air turbulence and they slightly increased speed on the straight, but to the detriment of stability on roughly surfaced circuits.

It was at the Le Mans Test Weekend that Porsche revealed the completely new bodies evolved under the direction of Charles Deutsch, the French aerodynamicist who had at one time been a director of the D.B. concern whose cars won the Index of Performance at Le Mans on many occasions, had designed the Peugeot-engined C.D. cars that ran at Le Mans in the early 'sixties and had created the Bugatti circuit at Le Mans.

The first of these bodies can conveniently be described as the standard 1971 *Lang* version. At the Test Weekend the one car that appeared was a new chassis, numbered 917-20-001. The chassis was apparently slightly longer than standard and it was 35 kg heavier. The suspension components were constructed of titanium and new Bilstein dampers were used. The body featured a generally squarer, blunter nose, but rounded at the edges and with very large air exits behind the front wheels. The body was also wider, although the cockpit itself retained the minimum permitted width, and the tail was very long and smooth with the rear wheels partially enclosed, a rear end similar to that of the old 907 *Lang*, and twin tail fins bridged by an aerofoil. It was with this car that Oliver set fastest time of the

Test Weekend and this version was used by both the Gulf and Martini teams at the race proper.

The second of the body styles was seen only on this one occasion. It was based on chassis 043, the Martini-entered car that finished second in the 1970 race, and now had a short, stubby nose and a long tail with open end.

Finally there was the version based on chassis 052 that became known as the 'pig' because of its rotund, stubby lines. The short tail was surmounted by twin fins and there were enormous louvres in the tops of the front wings. In addition a single Gulf car appeared fitted out with data-recording equipment supplied by and for the benefit of Girling, this was the only car not painted white and evidently not a works car as such. The 'pig' was driven by Kauhsen/van Lennep in the Three Hours race on the Sunday and at the race proper was entered under the Martini banner for Kauhsen/Jöst.

Other changes to the 917s

Lighter body panels were fitted to the 917s in 1971 and on the *Kurz* versions at least these counterbalanced the additional weight resulting from other changes. At Brands Hatch the Gulf 917s ran with new aluminium-alloy hubs similar to the design of those used on the 908s. These were found to expand under racing conditions, however, and caused difficulty in removing the wheel. After Brands Hatch the Gulf team reverted to the original design of hub. After the failure suffered at Daytona, the Porsche engineers evolved a new and stronger, but heavier gearbox casing and this was used throughout the latter part of the season.

Changes to the 908/3

Once again the 3-litre Prototypes were raced in the Targa Florio and at the Nürburgring and changes to these were limited to weight reductions and the addition of tail fins for the same reason as they were adopted on the 917s.

Changes at Gulf

Following Brian Redman's departure from the team to emigrate to South Africa and Wyer's disinclination to renew Leo Kinnunen's contract, the team signed on Derek Bell to partner Jo Siffert and former Lotus and B.R.M. Grand Prix driver Jack Oliver to partner Pedro Rodriguez. For the Targa Florio Wyer brought into the team Brian Redman and Herbert Müller and it was his intention to include both of these drivers in the team at Le Mans as well. As a result of burns suffered when he crashed in the Sicilian race, Redman was unable to return to the team and his place at the Sarthe circuit was taken by one-time Porsche and Salzburg driver Dickie Attwood.

Jack Oliver incurred the eternal wrath of John Wyer when he found that the Austrian 1,000 Km race clashed with his commitment to drive the new A.V.S.-Shadow car at the St Jovite Can-Am race and

he put the Canadian event first. With the cryptic comment by Wyer, 'It means that he will never drive for me again, and the breach of contract won't be unnoticed by other team managers,' Oliver was summarily sacked. David Yorke went further and said, 'If a driver behaves like this and he's not established—and Oliver's not established—he's being very foolish.' Which was a very neat, if rather unkind way of snubbing a recalcitrant driver! His place in the team was taken by Dickie Attwood.

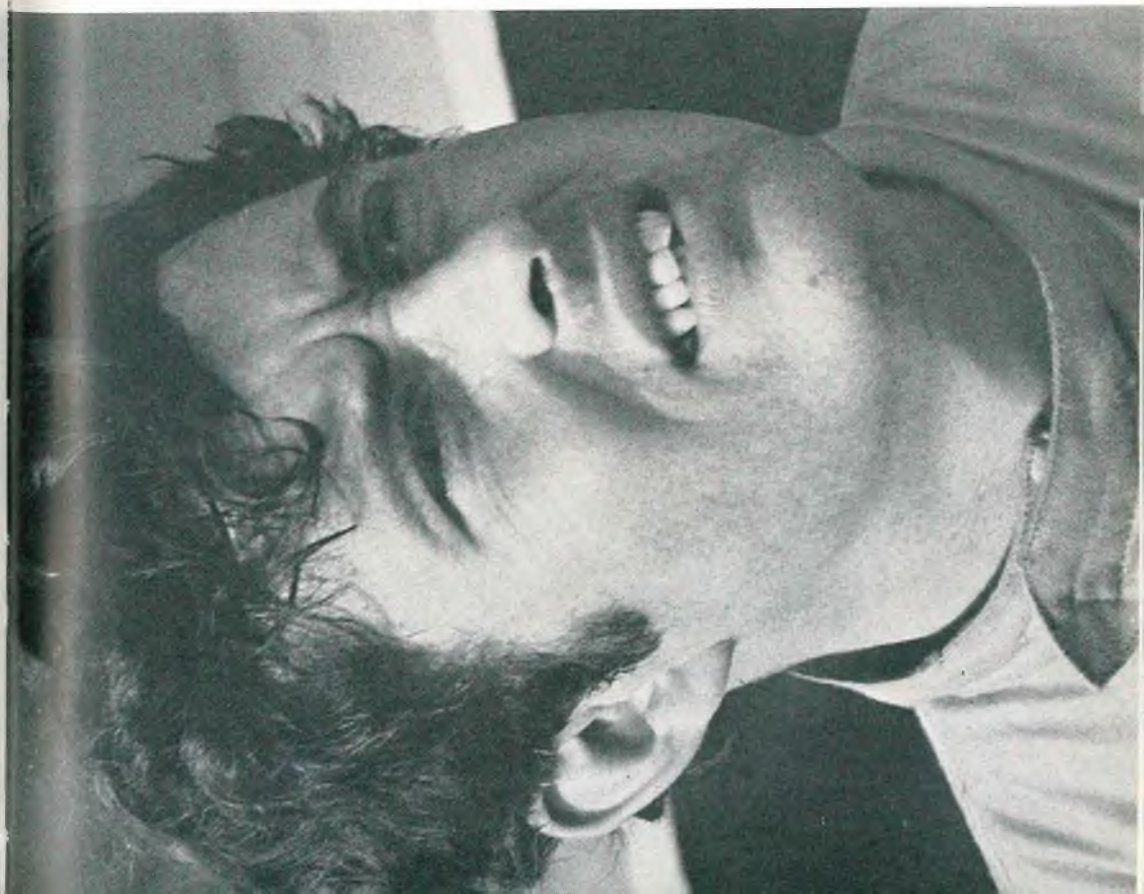
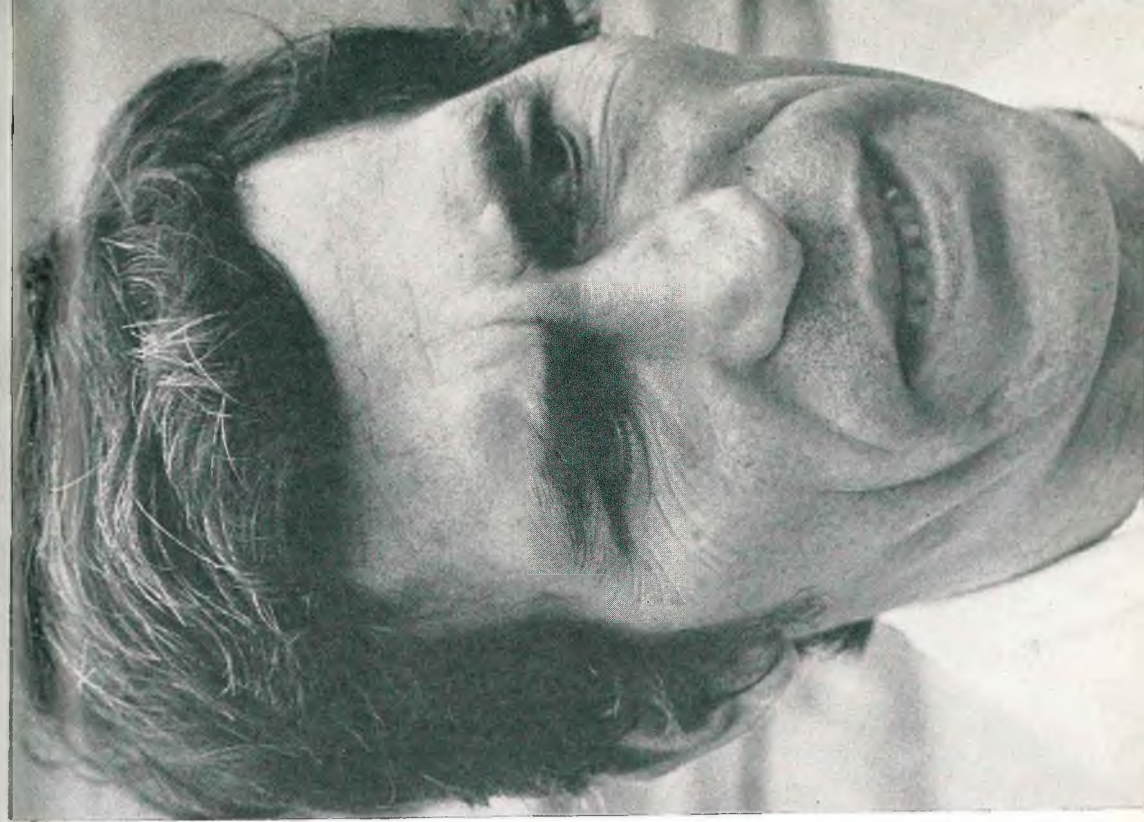
More difficulties followed when Pedro Rodriguez, one of the greatest Sports Car drivers of all time, lost his life in a crash at the wheel of a Ferrari 512M in an Interserie race at the Norisring (Nuremberg) on 9th July and his place was taken at Watkins Glen by Gijs van Lennep.

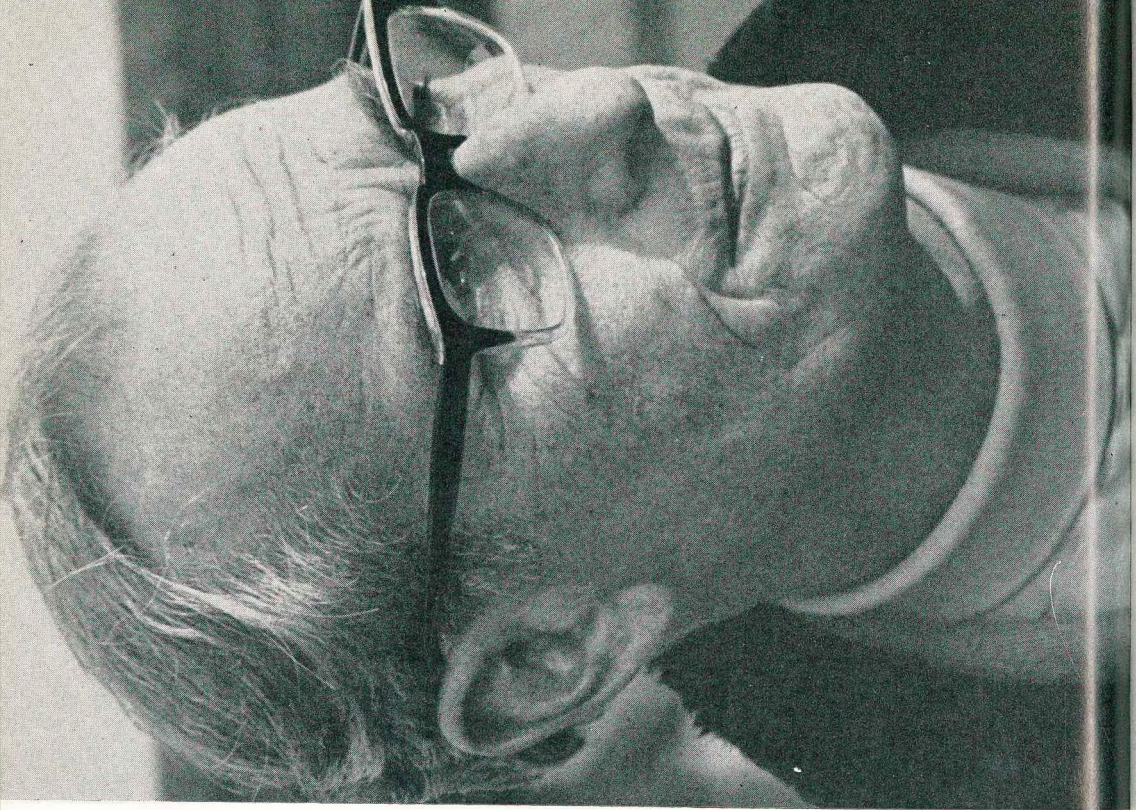
The Martini Team

For 1970 the International Martini Racing Team managed by Hans-Dieter Dechent graduated from running a team of 908 *Spyders* to fielding a full and very competitive team of 917s with sponsorship once again from the Martini drinks concern. Among the cars used by the team were the two ex-Salzburg cars. However a total of three cars was not really sufficient for a full-scale racing programme, as at least one car had to be used in successive races and was therefore not as well prepared as it should have been. Throughout the season the Martini drivers complained that their engines were down on power compared with those used by the Gulf team and as the engines were supplied to both by the Porsche works and it seemed that Zuffenhausen smiled on Martini in rather the same way as they had on Salzburg in 1970, this was inexplicable. Martini as a team was never as self-sufficient as Gulf and was very dependent on works advice—which was not always the best, notably the advice to use the tail-fin bodies at Spa. As with the Salzburg team in 1970, the fastest Martini driver was Vic Elford and other members of the team were Austrian lawyer Helmut Marko, Frenchman Gérard Larrousse, Dutch driver Gijs van Lennep, and Rudi Lins also drove for the team on occasions.

Private 917s were rather conspicuous by their absence in 1971, but Team Auto Usdau, financed by a Mannheim Mercedes dealer called Usdau fielded a car for Willibert Kauhsen and Reinhold Jöst and in addition Racing Team Zitro, financed by Bolivian tin millionaire Ortiz Patino, provided a white and blue car for his godson Dominique Martin. The Usdau car used the same rather tired 4.5-litre engine all season! Other 917s fitted with Can-Am style Spyder bodies were also raced in the Interserie events and reference is made to these later.

33 and 34 Sports Car Stars—*left* Brian Redman, who partnered Jo Siffert during the 1970 season, and, *right*, Vic Elford, fastest member of the Porsche Salzburg team. (*Nigel Snowdon*).





ITALIAN EVOLUTION

One of the biggest surprises at the end of the 1970 season was Ferrari's decision to pull out of Sports Car racing after only one season with the 512S cars and to concentrate on developing and racing a new Prototype, primarily with the 1972 season and the 3-litre capacity limit in mind. Nevertheless development work continued on the 5-litre cars which were still raced by private owners and in addition a new and very special version of the 5-litre car was developed in the United States. Ferrari developments can be summarized as follows:—

The 312P

This was Ferrari's new 3-litre Prototype of very low weight and with very compact wedge-shape body as pioneered on such cars as the Chevron B19. The power unit was a modified version of the very potent, horizontally opposed 12-cylinder unit used in the 312B Grand Prix car of 1970-1. As used in the 312P, power output was in the order of 460 bhp at 11,000 rpm. In some races the car appeared with the normal Formula One 5-speed transmission, but a stronger and more reliable, albeit heavier, transmission train was developed during the season. The flat-12 engine was mounted very low in the monocoque chassis and every effort was made to build the car as light and as aerodynamic as possible. There was a small intake at the front for brake ducting and intakes in the doors ducted air through the two-layer tail to the water radiators ahead of the rear wheels and to the oil coolers mounted over the engine. In 'sprint' form, for the short races not run in the dark, the car appeared without lighting equipment and its very low weight of 600 kg in this form gave a far better power to weight ratio than any of its rivals. The car lacked the sheer speed, however, to beat the 917s on the faster circuits.

Throughout the year the car was plagued by the most atrocious fortunes. On its debut at Buenos Aires the first car was destroyed in the crash that killed its driver, Ignazio Giunti, and a second car, built with heavier 16-gauge monocoque chassis to comply with the 1972 regulations, was delayed by a crash at Brands Hatch and eliminated in crashes at Monza, Spa and the Österreichring. Ferrari did not run at Daytona or Le Mans. Mario Andretti drove the car in the States, but the usual drivers in European races were Ickx and Regazzoni.

35 At the Gulf Press Conference before the Le Mans race in 1970, John Wyer and Rico Steinemann share a joke. (*Nigel Snowdon*).

36 David Yorke, J.W. team manager, who gained his early experience with Peter Whitehead and Tony Vandervell. (*Nigel Snowdon*).

The 512M

The 512M had first appeared at the Österreichring and Kyalami in 1970 and a large number of private 512S cars were rebuilt to its finalized specification at the Maranello works. Apart from the lighter nose and shorter cutaway tail, there were many other modifications under the skin, including a lighter chassis with less tubes and front sub-frame of much reduced proportions. Engine modifications that included chromed alloy cylinder liners, fuel injection changes and improved inlet and exhaust manifolding boosted power output to over 600 bhp. In addition the rear brakes were larger. A works 512M did appear at one race in 1971, a round in the Interserie at Imola in May. The car was the one fielded at Kyalami in 1970 and although Mauro Forghieri claimed that it was the normal 5-litre version tuned to develop 670 bhp and reduced in weight to under 700 kg, most of the pundits reckoned it had a 7-litre engine being tested prior to the Can-Am series. In fact a 7-litre Can-Am car did appear in the 1971 Can-Am series at Watkins Glen in July. Driven by Merzario the car won both heats of the Imola race with ease. The principal entrants of 512M cars in 1971 were the North American Racing Team, Scuderia Filipinetti, Herbert Müller Racing and Escuderia Montjuich.

The Sunoco-Ferrari

This Ferrari entered by the meticulous Roger Penske Racing team had started life as a 512S fielded in a few 1970 Can-Am races by Jim Adams. The car then passed to Kirk White of Philadelphia who entrusted its preparation to Penske, the constructor of the Climax-powered Zexex Special from which the whole line of Can-Am McLarens stemmed. Penske stripped the car down to the bare chassis, many of the suspension components were replaced and changes were made to the steering geometry. The riveted aluminium panelling was replaced and the car was fitted with a new body of the 512M type. A full-width rear aerofoil was fitted. The chassis was painted with epoxy paint and bristled with novel features, including a special pressurized fuel re-filling system, provision for filling the oil and water reservoirs by compressed air (both features intended to save time during pit stops) and a vacuum device on the brake master cylinders to draw the fluid back from the brakes and to pull the pistons back into the calipers so as to speed up brake pad changes. To speed driver changes the drivers wore seat buckles strapped to their waists. Two of the 5-litre Ferrari engines were sent to Traco, the Chevrolet development specialists, who carried out complete rebuilds and introduced detailed modifications that boosted power output to 600 bhp. The car was painted blue with yellow wheels having polished rims. After running the car at Daytona and Sebring (it was badly delayed in both races by accidents), it was intended to rebuild the Ferrari as a Can-Am car. Penske concluded, however, that it would not be practicable to increase the engine in capacity beyond 5.4 litres, this he thought insufficient for Can-Am

racing and so Penske took over one of the N.A.R.T. entries at Le Mans. Subsequently the car ran at Watkins Glen. The drivers of the Sunoco-Ferrari were Mark Donohue and David Hobbs and it was certainly the most potent of all Maranello cars raced in 1971 Championship events.

Autodelta improvements

Although steady development work on the Alfa Romeo Tipo 33/3 improved both the power and the reliability of these familiar cars, visible changes were few. At the front smaller 13-inch wheels were standardized and to suit these a lower nose was fitted. With a strong team of drivers, largely unchanged from 1970, superb technical resources and a combination of speed and reliability unmatched by any of the team's Prototype rivals, Autodelta won three of the year's Championship races outright and the Prototype class of every race entered except one (in other words, all races except the Nürburgring). It was estimated that Autodelta could choose their entries from a fleet of a dozen Tipo 33/3 cars neatly lined up in the works just outside Milan. There is no doubt that the Alfa Romeo directors were delighted with the results achieved in 1971.

While racing the Tipo 33/3 cars a number of new Autodelta projects were steadily developing. A new flat-12 engine was tested during the year, but did not appear in public; it is this unit that Autodelta will be relying on in 1972. The chassis to take this engine appeared in May in practice for the Targa Florio, but after practice crashes at other circuits when it was intended to run the car, it failed to make the start-line at all. This car, designated the Tipo 33/TT/3 (the TT stands for 'telaiο tubolare' or 'tubular chassis'), was clearly inspired by the Porsche 908/3 and featured a central monocoque box-section with a light alloy tubular framework. It was narrower, shorter, lower and lighter than the ordinary 33/3 and had breathtakingly simple and attractive lines. The weight was 580 kg compared with the 630 kg of the normal 33/3. As on the Porsche 908/3, the gearbox which was lighter than the normal unit was mounted ahead of the rear axle. In Italy the car was nick-named the 'Tipo Tedesco' (German type), but despite its lack of originality, it is a car of great promise. Alfa Romeo also produced a 4-litre version of the Tipo 33/3 engine for Interserie racing.

First round at Buenos Aires

Following the success of the 1970 non-Championship 1,000 Kilometres race at Buenos Aires, the following year's event was added to the Championship series. The total number of rounds in the Championship was now eleven, but originally it had been planned that there would be twelve—a Canadian round at Mosport was cancelled. The circuit used for the Argentine race, one of various permutations at the Buenos Aires Autodrome, had a length of 3.79

miles and incorporated two long straights and a mixture of fast and slow corners. It was only too obviously an artificial circuit, lacking in character, but it was fast and some of the corners were difficult. The event was organized by the YPF Club, a subsidiary of the Government-sponsored YPF petrol company and although there was some friction between the club and the Gulf-Porsche and Shell-sponsored S.E.F.A.C. Ferrari teams, in fact every car in the race ran wearing a YPF decal.

As usual there were two cars from the John Wyer team, almost completely unchanged from those raced in 1970 apart from the new beryllium brake discs and in this race all five ratios of the gearbox were operative. This was because although the circuit demanded high overall gearing, at the same time a fairly low first gear was needed for a hairpin bend. The Gulf cars were driven by what was to be the usual Gulf pairings of Jo Siffert/Derek Bell and Pedro Rodriguez/Jack Oliver.

From the International Martini team came two silver and blue 917s, both of which were running with 4-speed gearboxes, and these were driven by Vic Elford/Gérard Larrousse and Helmut Marko/Gijs van Lennep. Willibert Kauhsen had entered a 4.5-litre 917 under the name of Team Auto Usdau. This was an ex-Solar Productions car, still finished in rather tatty Gulf colours and with a message on the door, autographed by McQueen, reading, 'Finished! Thanks for staying together.' Kauhsen went down with a bout of 'flu, so his co-driver Reinhold Jöst was partnered by Argentine wine-grower Engel Monguzzi. Zitro Racing Cars of Geneva fielded a 4.5-litre 917 for *le patron* Dominique Martin and local driver Pablo Brea and Spaniard Alex Soler-Roig entered his similar car for himself and Carlos Reutemann. After Emerson Fittipaldi wrote his Alfa off in practice, he also shared the wheel of this car.

There were four 512 cars representing the marque Ferrari in the Group 5 class. From Scuderia Filipinetti came the latest 512M car, said to be developing over 600 bhp, and driven by Mike Parkes and Jo Bonnier. This team also entered a Lola T212-Cosworth FVC 1.8-litre car for Ronnie Peterson and Jorge Cupeiro and it was while Peterson was at the wheel of the 512M in unofficial practice on the Wednesday a tyre punctured and the car crashed heavily. There seemed little hope of repairing it in time for the race, but it was eventually rebuilt for the last practice session by two teams of six men working non-stop. The other 5-litre Ferraris were all of the 1970 512S type and were entered by Hughes de Fierlant for himself and Taf Gosselin, by the North American Racing Team for three drivers, Sam Posey, Nestor Veiga and Luiz di Palma, and José Juncadella with the Escudera Montjuich car for himself and Carlos Pairetti.

It was indicative of the changing face of Sports Car racing that there were no Porsche 908 *Spyders* entered and the Group 6 class was dominated by a new and staggeringly fast Prototype from Maranello. This was the new 312P flat-12 car driven by Ignazio Giunti

and Arturo Merzario. Almost equally competitive were the trio of Alfa Romeo Tipo 33/3 cars, but these were soon reduced to two. At almost exactly the same point on the circuit as Peterson had crashed, and only a matter of moments later, Fittipaldi wrote off one of the Alfas when a tyre punctured. On the Friday Stommelen slid off the road with one of the remaining cars which he was sharing with Nanni Galli. The titanium front suspension was wrecked, there were no local facilities for welding this exotic metal and the Auto-delta mechanics had to compromise by bolting everything together as tightly as possible. Matra sent a single MS660, unchanged from 1970, which was driven by Jean-Pierre Beltoise and Jean-Pierre Jabouille deputising for Cevert who had injured a shoulder in a road accident. Ecurie Evergreen entered their McLaren M8C-Cosworth for Craft and Taylor. The very promising Argentinian-built Berta that had run well in the 1970 race non-started because of engine trouble.

Practice was far from trouble-free even for the 917s. In unofficial practice on the Thursday Oliver had slid off the road and damaged the front end of the car. He freely admitted that the cause of the accident was purely and simply driver error and to get the car ready for Saturday's practice a new windscreen and other parts had to be flown from England. Rodriguez was allowed to have a spell with Siffert's car on the Friday, but the following day 'Seppi' missed a gear-change and wrecked the engine. Fortunately Gulf had a spare unit, but the Martini team was not so lucky. When the Marko/van Lennep car holed a piston, there was nothing the team could do. The car appeared at the start and completed only a single lap before retiring out on the circuit. Although Rodriguez rushed round just before the end of practice on the Saturday to snatch pole position on the grid from the Ferrari, clearly the new 312P was a very competitive car and would give the 917s a good run for their money.

THE GRID (first four rows)

Rodriguez/Oliver (Porsche 917) 1 min 52.70 sec	Giunti/Merzario (Ferrari 312P) 1 min 52.74 sec
Bell/Siffert (Porsche 917) 1 min 53.40 sec	Larrousse/Elford (Porsche 917) 1 min 53.93 sec
de Adamich/Pescarolo (Alfa Romeo Tipo 33/3) 1 min 54.43 sec	Beltoise/Jabouille (Matra MS660) 1 min 54.65 sec
Stommelen/Galli (Alfa Romeo Tipo 33/3) 1 min 55.57 sec	Bonnier/Parkes (Ferrari 512M) 1 min 55.81 sec

As is now usual practice at so many races, there was a rolling start behind Juan Fangio in a Mercedes-Benz 280SL and the cars were released after a paced lap. When the field moved off, the new Ferrari went into the lead from Rodriguez, Siffert, Elford and Parkes. Round the twisty part of the circuit Giunti and the Maranello car still led and then Rodriguez surged by with the Gulf 917, left-hand headlamps ablaze (there had been no time to repair those on the right-hand side). Six laps passed before Siffert could get by the Ferrari and all that time the 312P was laying a trail of petrol and oil that almost completely fogged the Swiss driver's windscreen. Once he was in front Siffert tried to clear the screen with his wipers, but this only made the mess worse and he was forced to stop at the pits for the windscreen to be cleaned—he rejoined the race in thirteenth place. The next to pass the Ferrari had been Elford who was really in the groove, soon closing the gap on the leader and on lap 21 he swept past Rodriguez into the lead. Elford was running on dry tyres and Rodriguez on intermediates and it seemed that for once Pedro may have made the wrong choice.

After thirty laps Elford led Rodriguez by fourteen seconds, and had set fastest lap of the race in 1 min 51.08 sec on lap 28—this new lap record was, however, to be discounted after Elford's disqualification. Rodriguez was twelve seconds ahead of Giunti and Siffert was now back in fourth place. On the next lap the Martini 917 suddenly slowed off as the engine died altogether because of fuel starvation, and by the time it had picked up again Rodriguez was a lap ahead. When the leading 917 stopped to refuel, Giunti assumed the lead. Beltoise's Matra ran out of fuel on lap 37 and there now started the chain of events that were to culminate in disaster.

The Matra was about a quarter of mile from the pits, much of the way uphill. Beltoise started to push the MS660 back to the pits; a 'dead' car is never easy to push and the car was not being kept to the side of the road. The Frenchman then began to push the car across the road to take advantage of the camber. He was passed by most of the drivers several times when he was on the left-hand side of the road. Now they were coming round the corner to find him in the middle of the road. Giunti was lapping just behind Parkes with the 512M Ferrari and at the exit to the corner, his vision completely blocked, he pulled out of the Ferrari's slip-stream to find the Matra directly in his path. The Italian had no chance to avoid the French car, he struck it with great force and the Ferrari spun up the road and burst into flames. It was two minutes before the flames had abated sufficiently for the driver to be rescued by his team-mate Merzario who had run down from the pits area. Giunti was terribly burnt and had severe head injuries and he was dead on arrival at hospital. The cars were halted by a red flag, but then one by one local drivers ignored this direct order to stop racing and the event got under way again.

Certainly Beltoise had acted in direct contravention of race regula-

tions by pushing the car, but drivers like anyone else can be carried away in the heat of the moment and it is the specific job of the marshals to control such behaviour. Beltoise paid heavily enough by suspension of his competition licence for what, however serious the consequences may have been, amounted to no more than an excess of enthusiasm. The organization at Buenos Aires was, however sadly inefficient. No attempt was made to stop Beltoise from pushing the car, yellow warning flags were not displayed promptly, the blaze was dealt with by water hoses because foam equipment was not readily at hand and to allow drivers to carry on racing despite the red flag was disgraceful. And the behaviour of drivers in ignoring this mandatory signal reveals a callousness of animal level. It seems quite wrong that the same organizers should be considered fit to run International races in the future.

After this accident the timekeeping and lap charts went completely awry. Rodriguez stopped for a wheel-change when a piece of metal tore a rear tyre to shreds. By lap 50 Siffert had regained the lead and was almost a lap ahead of Parkes with the Filipinetti 512M. Fittipaldi retired the Soler-Roig Porsche with oil leaking into the clutch and Jöst was disqualified for running out of fuel on the course. Elford's Martini 917 was still running badly and when it expired out on the course, mechanics went out to investigate the trouble—and so another disqualification followed. According to the official lap charts the order was Siffert/Bell, Stommelen/Galli, Rodriguez/Oliver and de Adamich/Pescarolo between laps 80 and 140 and while most people did not know, some people no longer cared what the order was.

The leading Gulf 917 of Siffert/Bell was suffering from clutch trouble, but in the closing laps of the race it was speeded to ensure that it was not caught by the Alfa of Stommelen and Galli. The second Gulf car of Rodriguez/Oliver was credited with second place at the finish, even though David Yorke had deliberately slowed the car down and was convinced that it was just over a lap behind the Alfa. Autodelta entered a protest, but this was rejected, and in any case the team had cause for satisfaction with third and fourth places and yet another Prototype class win.

Daytona Continental

Three weeks elapsed between the ill-fated Buenos Aires race and the next round of the Championship, the Daytona Continental race, an event which is really too long and is usually very tedious. Apart from John Wyer's Gulf-Porsche team, there were no works entries at the 1971 race. All three teams fielding Prototypes, Autodelta, Ferrari and Matra considered the banked circuit unsuitable for their cars and Carlo Chiti of Autodelta has said that special cars are needed for both Daytona and Le Mans.

From John Wyer came two 917s to the usual specification, but

with the gearboxes in 4-speed form and what were said to be slightly detuned engines in the interests of reliability. These were driven by Rodriguez/Oliver and Siffert/Bell. The team had also brought along a third car, distinguished by twin tail fins and with a lower profile; also this was slightly faster along the straights, it did not handle too well on the banking and it was not raced. The Martini cars had come direct from the Argentine, but ran with new 4.5-litre engines shipped out from Europe. These arrived late and the team missed both the early practice sessions and the first day's qualifying. The Martini cars were driven by Elford/van Lennep and Lins/Marko. Oddly enough not a single 'private' 917 was fielded at this race.

The principal opponent to the 917s was the beautifully prepared and meticulously rebuilt metallic blue Ferrari 512M owned by Kirk White and entered by Roger Penske racing. This was driven by Mark Donohue and David Hobbs and with most of the 'bugs' that had plagued the 512 in 1970 eliminated by Penske the car was very much a force to be reckoned with. The North American Racing Team fielded a trio of 512s, 512Ms for Sam Posey/Peter Revson and Greg Young/Masten Gregory and a 512S car for Ronnie Bucknum/Tony Adamowicz. In addition the team entered an old 1969 V-12 312P re-bodied after the style of the latest works car for Luigi Chinetti, junior and Garcia-Veiga. The Ecurie Francorchamps and Escuderia Montjuich Ferraris also ran in this race.

Since 1970 there had been considerable resurfacing carried out at Daytona and as a result practice times were substantially quicker. But it was an odd aspect of the regulations that qualifying for the first ten places on the grid was based on only Thursday's times and so both of the Martini 917s ended up on the sixth row of the two-by-two grid. Pole position on the grid was taken by the Penske Ferrari in 1 min 42.42 sec and the Gulf cars had no time to reply before Thursday's qualifying session came to an end. Rodriguez/Oliver were on the grid alongside the Ferrari with a time of 1 min 43.68 sec.

The Penske Ferrari snatched the lead when the forty-eight cars moved off in a rolling start, but Rodriguez was right with him and these two cars soon pulled away from Siffert and the rest of the field. In trouble early in the race was Marko with his Martini 917 which collided with an American saloon and a long time was spent in the pits while the rear suspension was rebuilt. And after only sixteen laps the Masten Gregory/Greg Young Ferrari was out with a broken con-rod. Rodriguez finally passed Donohue on lap 30, but at the end of that lap both cars came in to refuel and the Gulf stop took eight seconds longer . . .

At the next round of pit stops the Ferrari was delayed while both rear wheels were changed and the Gulf 917 now went in front, but the Penske car soon regained the lead and it was not long before Donohue had lapped the second Gulf now with Bell at the wheel. It was at the third pit stop of the very quick Ferrari that the rot

began to set in. A total of twelve and a half minutes were lost while the mechanics struggled to sort out electrical trouble on the Ferrari and by the time it had rejoined the race, it was three laps behind the Gulf 917s. Just as darkness was blanketing the circuit, a con-rod failed on Bell's Porsche as he was accelerating away from the pits. He struggled round for a complete lap so as to bring the car back into the pits, but there was nothing that could be done and the car was retired.

Now Rodriguez/Oliver had a comfortable three-lap lead, the Elford/van Lennep Porsche was lying second and the Ferrari was back in third place. Just before midnight a front tyre burst on Elford's Porsche when it was travelling at close to 200 mph, the 917 hit the retaining wall and bounced off it into the infield. The Martini car was very badly damaged and definitely out of the race. As Donohue reached the scene of the accident, he eased right back, but the reactions of the driver of a Porsche 911 GT car were not so quick and he cannoned into the Penske Ferrari. Donohue limped back to the pits with the battered 512M and well over an hour was spent patching up the body. Soon afterwards the surviving Martini 917, which had climbed back to fifth place, was in the pits with a broken drive-shaft and to replace this took over an hour and a half.

Rain fell during the night, but by daybreak the circuit was almost dry again. The Rodriguez/Oliver 917 led by the enormous margin of 33 laps—despite a leaking gasket and split exhaust—and the rather tired-sounding N.A.R.T. 512S of Bucknum/Adamowicz was in second place. While travelling flat out down the back straight, the N.A.R.T. car lost its tail-section and went into a wild spin on the banking. Bucknum made it back to the pits and after the tail-section from the Posey/Revson car which had retired with a blown-up engine had been fitted, Adamowicz took over the wheel. The surviving Martini 917 blew a tyre on the banking and it came to rest firmly wedged against the retaining wall. After the mechanics had clung like flies to the 30-degree banking while the wheels on the right-hand side were changed, the 917 limped back to the pits to retire.

At 11.30 am Oliver came into the pits unexpectedly with the leading 917. The car had jammed in top gear, but the car was so far ahead that it was decided to rebuild the gearbox. An hour passed before the sick N.A.R.T. 512M moved up into the lead and the Donohue/Hobbs Ferrari, still plagued by stops to patch the body, was holding on to third place. A little after 1 pm Rodriguez rejoined the race with the Gulf 917, now three laps behind the leader. After only 45 minutes of racing Rodriguez was back in front, rain had started again and the Porsche lost the lead temporarily while wet-weather tyres were fitted and when the flag finally fell at 3 pm 'Mexican Pete' was a lap ahead of the N.A.R.T. car. Donohue/Hobbs were third, a Chevrolet Corvette was fourth and the Ferrari 312P, the only 3-litre Group 6 car in the race, finished fifth. Once again the

Gulf-Porsche team had come out on top, but luck had been very much on their side.

Martini Sebring

Although the fate of the circuit was still not finally settled at the time of writing, it had seemed that the 1971 and twentieth race at Sebring would also be the last. The circuit was originally a purely military airfield and when the first race was held there in 1952, keen military personnel had much to do with its organization. Now the airfield is also the municipal airport for the town and the racing completely disrupts normal commercial flying. It is because of this that the organizers were told that they would not be able to use the circuit again.

As usual the Wyer team was out in force with two 917s to standard specification and with the same car as at Daytona as a spare. Both cars were running with 5-speed gearboxes. The driver pairings were as usual Siffert/Bell (chassis 026) and Rodriguez/Oliver (chassis 013). In practice the team used the specially ventilated disc brakes which had been fitted to the cars at Buenos Aires, but the combination of signs of cracking round the lateral ventilation holes and a build-up of dust on the discs from the brake pads resulted in the substitution for the race of the normal ventilated discs at the front. The damage suffered by the Martini cars at Daytona was such that the team could field only one car at Sebring, but now with a 5-litre engine and 4-speed gearbox, for Elford/Larrousse. No 917s were privately entered.

Since its Daytona misfortunes the Penske Ferrari had been rebuilt and it was now fitted with an entirely new body which had been made in California and a much larger rear wing. As at Daytona the drivers were Donohue and Hobbs. Once again the North American Racing Team was out in force. A Ferrari 512M was entered for Peter Revson/Swede Savage and the team had two 512S cars driven by Bucknum/Posey and Parsons/Weir. The re-bodied 312P was driven by Luigi Chinetti, jnr, and George Eaton and the team had also entered a 'Daytona' road-going Ferrari for Harley Cluxton and Bob Grossman. Completing the ranks of the Ferrari Sports Cars was a 512M with engine developed by Traco and this was driven by Masten Gregory and Greg Young.

Maranello had now completed a second 312P flat-12 Prototype to replace the car destroyed at Buenos Aires and the most obvious difference was the addition of lights because part of the Sebring race is run in the dark. The drivers were Jackie Ickx and Mario Andretti and this car was likely to be very much in the hunt. After missing Daytona, the Autodelta team entered a trio of Tipo 33/3 Alfas for Nino Vaccarella/Toine Hezemans, 'Nanni' Galli/Rolf Stommelen and Andrea de Adamich/Henri Pescarolo.

In all there were again barely a dozen really competitive cars in the race, but the fight between these was likely to be close. This was emphasized in practice when Donohue, despite a heavily band-

aged sprained ankle, took pole position with a lap in 2 min 31.65 sec and the Ferrari Prototype was only eight tenths of a second slower. Neither the 512 Ferraris nor the 917s were handling at all well. Siffert was complaining that his car was 'terrible' and the handling was just as bad as on the last occasion which he had driven the same chassis at the Österreichring.

As at Daytona, Donohue took the lead at the start of the race and began to pull away from the 917s of Rodriguez, Siffert and Elford. An early retirement was the 512S of Chuck Parsons; the throttles jammed open and the car buried its nose in a sandbank—although the car made its way back to the pits, the oil cooler mountings were damaged. After just over an hour's racing, when the car was just about due to come into the pits to refuel, Siffert's 917 ran out of fuel on the circuit. In contravention of the regulation that required drivers to return to the pits for fuel on foot only, Siffert 'hitched' a ride on a motor cycle. So four penalty laps were added to the nineteen lost during the enforced stop. Then Greg Young lost his 512M at the hairpin, the car slid up the slope and overturned. The marshals reacted quickly and pulled Young out of the wreckage moments before the car caught fire.

Elford had lost a lap because of a puncture and so there were only three cars left in the immediate battle, the leading Sunoco Ferrari which was lapping slightly faster than the Rodriguez/Oliver 917 which in turn was faster than the works Ferrari. But the very thirsty Penske car was stopping to refuel every 20 laps, the Gulf car every 26 laps and the Ferrari only every 30 laps. As the pit work on all three cars was quick and efficient there seemed every likelihood that the flat-12 Ferrari would prove uncatchable.

After three hours' racing the Andretti/Ickx partnership had completed ninety-one laps, the Penske car was in second place with ninety laps to its credit and the Rodriguez/Oliver 917 third and on the same lap. An hour and half later the positions were unchanged, but now the race was disrupted by an accident involving the two fastest Sports Cars. At the chicane leading on to the back straight the Penske Ferrari and the Gulf 917 collided as Donohue was trying to lap Rodriguez. In the story according to Mark, the Ferrari was already past the Porsche when Rodriguez deliberately moved over and into the Ferrari three times. Pedro's version was that he was committed to his line through the corner when the Ferrari overtook and the two cars collided. Both drivers raged and stormed in the pits while the mechanics set to work on the battered cars. Two laps were lost while the Gulf mechanics cut back the shattered right-hand wing of the 917, but the damage to the Penske Ferrari was much more serious. The fuel tank on the left-hand side was damaged, as was the breather on Penske's special refuelling system. A total of nineteen laps were lost while the Ferrari was repaired and because of the damage it had now to stop to refuel every fifteen or sixteen

laps. All this while the Ferrari flat-12 was lapping serenely in the lead, completely unchallenged.

Eventually Penske submitted three formal protests to the organizers:

- 1 that for the Porsche to run without a major portion of its front wing was against regulations—this protest was eventually rejected.
- 2 that Siffert should have been disqualified and not merely penalized for travelling back to the pits on a motor-cycle when he had run out of fuel—and on this point Penske was tartly informed that he had no right of protest in respect of a matter on which the stewards had already reached a decision.
- 3 that Siffert had failed to switch off the engine during a pit stop—in fact the stop had merely been to close the driver's door and this protest was also rejected.

The Martini Porsche was delayed when the brake pistons jammed during a pad change and while the Penske Ferrari was still being worked on in the pits, the works flat-12 expired out on the circuit with transmission trouble caused by failure of the oil cooler. So the outcome of all these troubles was that the works Alfas, running with incredible consistency and smoothness, now assumed first and second places, Stommelen/Galli leading de Adamich/Pescarolo (this car was also shared by Vaccarella after the retirement of his own). As the afternoon drew on, the Martini 917 drew closer and closer to the Autodelta entries and eventually moved into a lead that it retained until the finish. The Revson/Savage Ferrari expired with gear-selector trouble and the Rodriguez/Oliver Porsche, now back in third place and lapping with a headlamp jury-rigged on the nose-hatch, came into the pits with a broken lower front wishbone. Seven minutes and third place were lost while this was changed and at the chequered flag the battered Gulf car was in fourth place behind Elford/Larrousse and the Alfas of Stommelen/Galli and de Adamich/Pescarolo/Vaccarella. The Siffert/Bell Porsche finished fifth and the Hobbs/Donohue Ferrari was sixth. For the Martini team, the race was a well deserved triumph and the Alfas had performed with their now customary reliability to win the Group 6 class. For the John Wyer team the race was a bitter disappointment, but at once they turned their attention to Brands Hatch and the B.O.A.C. race which they had won twice previously.

Autodelta wins at last

Although it was understandable that many owners would not wish to cross the Atlantic to compete in the two North American races, it was surprising, with so many 917s and 512S and 512M cars in existence, that only five of the German cars and two of the Italian should be fielded at Brands Hatch for the fourth round in the Championship, the B.O.A.C. 1,000 Kilometres race. The Wyer team entered two of the usual 1970 Porsche 917s—those raced at Buenos Aires—and both of these featured the new brakes discs introduced in

South America and were running with 4-speed gearboxes. On the Saturday the team also ran the spare car, one of those raced at Daytona. The Gulf drivers were in the usual pairings of Siffert/Bell and Rodriguez/Oliver.

Having only three cars in all, the International Martini team was forced to bring the car raced at Sebring, still looking very battered, but fitted with a new engine. The car driven at Daytona by Marko/Lins was handled at the 'Hatch' by Vic Elford and Gérard Larrousse, while the Sebring winner was to have been driven by Gijs van Lennep/Kurt Ahrens, but for some reason Ahrens failed to arrive and so Brian Redman, having returned from South Africa after only a very short time, took his place. One of the cars was fitted with prominent 'snorkel rams' over the air intakes. The fifth 917 was the Team Auto Usdau car, now re-painted a smart yellow, driven by Willibert Kauhsen and Reinhold Jöst.

The two Ferraris were the Escuderia Montjuich car rebuilt to 512M specification and driven by José Juncadella/David Hobbs and Herbert Müller's ex-McQueen/Solar Productions film car brought up to 512M standard and shared with the inexperienced René Herzog. Two Lola T70 Mk 3Bs were also entered, but neither was passed by the scrutineers!

Heading the Prototype entry was the Ferrari 312P flat-12 car in lightweight trim, i.e. without lighting, etc.; this was shared by Jackie Ickx and Clay Regazzoni and on a comparatively slow circuit where the Gulf drivers were complaining that the 917s were sluggish and that Stuttgart should have released the 908/3s, the Ferrari was clearly the car to beat. From Autodelta came two Tipo 33/3 cars which were driven by Andrea de Adamich/Henri Pescarolo and Rolf Stommelen/Toine Hezemans. The team had won the 3-litre class of every Championship race they had entered since the 1970 Austrian event and practice revealed them to be only marginally slower than the Ferrari. The only other over 2-litre Prototype was the Auto Usdau 908/2 *Spyder* driven by Spoerry and Weigel. In the Prototype class there were a good number of under-2-litre cars amounting to four Chevrons (three of them the latest B19 *Spyders*), four Lolas, one of the new and very promising Huron cars, the Martin-B.M.W. and the Dulon-Porsche that was to acquire more than a degree of notoriety as the season progressed. The Group 5 2-litre class was dominated by Chevron B16 coupés.

None of the 917s was handling well in practice and they were all bouncing badly on the bumpier parts of the circuit and displaying excessive understeer. As a temporary measure trim tabs were added on the noses of the Gulf 917s, but by the Saturday practice these had been fitted with full-width lips similar to those used on the works Ferraris in 1970. Practice was largely uneventful apart from crashes on the Saturday involving two leading contenders. Shortly after turning in his fastest lap, Siffert, trying hard, lost control at Stirling's bend, spun and clouted the tail of the 917 against the barriers. Although

'Seppi' was able to drive the car back to the pits under its own steam, the rear chassis tubing was badly damaged. Overnight the car was fitted with a new rear body section and rear sub-frame which resulted in the understeering that had troubled its drivers being replaced by a pronounced oversteer. Juncadella lost the Montjuich Ferrari under braking for Clearways and badly damaged the front end, but this car, too, was repaired in time for the race. The Martini team decided on a change of drivers and partnered Redman with Elford and van Lennep with Larrousse

The fastest ten in practice were:

1. J. Ickx/G. Regazzoni (Ferrari 312P)	1 min 27.4 sec
2. R. Stommelen/T. Hezemans (Alfa Romeo Tipo 33/3)	1 min 27.8 sec
3. J. Siffert/D. Bell (Porsche 917)	1 min 28.4 sec
4. P. Rodriguez/J. Oliver (Porsche 917)	1 min 29.4 sec
5. V. Elford/G. Larrousse (Porsche 917)	1 min 29.6 sec
6. A. de Adamich/H. Pescarolo (Alfa Romeo Tipo 33/3)	1 min 29.6 sec
7. G. van Lennep/B. Redman (Porsche 917)	1 min 30.0 sec
8. D. Hobbs/J. Juncadella (Ferrari 512M)	1 min 31.6 sec
9. J. Miles/G. Birrell (Chevron B19)	1 min 32.0 sec
10. J. Bonnier/P. Westbury (Lola T212)	1 min 32.2 sec

(The first-named driver started the race).

For the first time there was a rolling start at Brands Hatch and the field was released after a lap behind Nick Syrett, the Clerk of the Course, in his Vita 6 Capri pace car. The track was wet, there was slight rain falling and although the Alfas and the Porsche 917s of the Martini team were on intermediate tyres, most of the entry was running on wet-weather tyres and all set to cope with miserable conditions like those experienced in the 1970 race. The first laps of the race saw the cars on intermediate tyres suffering from severe handling problems, the Ferrari searing away into the lead and the Gulf 917s in hot pursuit. On lap 5 Bill McGovern spun the Dulon-Porsche at Westfields right in front of the leading Ferrari. Ickx swerved to avoid the spinning British car, the Ferrari went on to the grass and thumped against the barrier. By the time Ickx had extricated the flat-12 from the mud and made his way back to the pits, the Ferrari mechanics had a spare nose all ready to fit. The car rejoined the race eight laps in arrears.

Now the Gulf 917s held the first two places, heading the two Alfas and the yellow 917 of Kauhsen. The two Martini 917s were called into the pits and fitted with wet-weather tyres, but they were now so far behind as to be out of contention. At this race the Gulf and Martini 917s were using a special five-churn fuel rack feeding into a single pipe and able to pour 120 litres of fuel into the cars in nine seconds. The result was that the 917s were making stops of lightning brevity, for the new system functioned perfectly and it gave

them yet another advantage over the opposition. After fifty laps Siffert and Rodriguez led from de Adamich, but the astonishingly quick little Chevron of John Miles now led Stommelen, albeit only for a short while.

On lap 58 Rodriguez disappeared out on the circuit; the trouble was a blockage in the fuel system which brought the car to a stop out at Dingle Dell. He managed to restart the car and after the trouble had been sorted out in the pits, he rejoined the race in fourth place—but not for long, for the trouble started again and the car retired out on the circuit. After two hours' racing Ickx had climbed back to tenth place with the Ferrari. Redman relieved Elford at the wheel of the Martini 917, but he soon brought the car back with fuel dripping on to the rear tyres from a leaking tank. After the mechanics had worked on the car, he took it out again, but the trouble recurred and he was soon back in the pits. When the car stopped, fuel on the under-tray ignited, Redman jumped out of the car, caught his foot in the seat harness, but actuated the automatic fire extinguisher system. The fire was very much a 'flash in the pan' and Redman drove off again, the car enveloped in clouds of smoke and coated with extinguisher powder. Team Manager Hans-Dieter Dechent was far from happy with the car running in this condition and the 917 was signalled in to be retired.

Now with Juncadella and the ninth-place 512M in his sights Regazzoni was motoring really hard, but on lap 80 the visor blew off his Bell helmet. Rather than waste more time in the pits, Regazzoni decided to press on regardless, crouching down in the cockpit as far as possible to avoid the lash of the wind. After 95 laps Siffert came in to hand the 917 and a two-lap lead to team-mate Bell. Nineteen laps later Regazzoni handed the 312P back to Ickx and it was now in fourth place ahead of Herzog with the Müller Ferrari. During the next hour Ickx continued to make up ground on the leaders and then a throttle link ball joint tightened, causing the engine to race and another unscheduled pit stop. By the time Ickx was back in the race another $4\frac{1}{2}$ minutes had been lost.

At about 4 pm Bell brought the leading 917 in to refuel and for Siffert to resume at the wheel. At this race alloy hubs, similar to those fitted to the 908s, were being used for the first time. When the mechanics tried to remove the wheels for a change of brake pads, one of the front hubs jammed and over six minutes were lost before the car was back in the race. Now the car had fallen back to third place behind the two Autodelta entries and on Siffert's first lap back at the wheel, the car lost its special Goodrich 'space-saver' deflated spare tyre and wheel. The 917 was black-flagged and in the pits an impatient Siffert waited while the problem was resolved. There was no spare 'space-saver' tyre and David Yorke initially pushed a normal wheel on to the passenger seat of the 917. The scrutineers would not allow this, so there was no alternative but to deflate an ordinary tyre and this was pushed and shoved into the space where the 'space-

saver' was normally housed. And another 6 min 12 sec had been lost by the time Siffert was furiously accelerating away down the pits road.

Still the dramas in this race were not over and just after 5 pm the leading Alfa with Hezemans at the wheel crawled down the hill from Druids in a cloud of white smoke. The engine had failed and a con-rod had gone through the side. So the surviving Alfa of de Adamich/Pescarolo led from the still battling Ferrari and the Gulf 917 of Siffert/Bell and these were the positions when the flag fell after six and a half hours of exciting, but trouble-fraught racing. The Alfa victory was a well deserved reward for all the hard work of the Autodelta team since this model had first appeared at Sebring in 1969. At one time almost everyone, including Alfa Romeo themselves, regarded the Tipo 33/3 as a dead loss, but two and a half years of intensive development had proved them wrong. For Ferrari, the situation seemed to be much the same as in 1969; the 312P was as competitive as its predecessor had been, like its predecessor it seemed plagued by bad luck and Ferrari was again making the mistake of entering only one car.

Testing at Le Mans

On 17th/18th April was the traditional Le Mans Test Weekend, but unfortunately it was the same weekend as the Spanish Grand Prix which made life difficult for some drivers. To increase the popularity of the Le Mans sessions the Automobile Club de l'Ouest also held a three-hour race on the Sunday. Apart from the new versions of the 917 described earlier in the chapter, there was nothing of interest at the Sarthe circuit and the only Ferraris were the Gelo Racing and Escuderia Montjuich cars, neither of which were particularly competitive. Fastest lap of the weekend was recorded by Jack Oliver with the 'standard' 1971 *Lang* 917 in 3 min 13.6 sec; this time, achieved on a clear track, bettered the lap record by all of nine seconds!

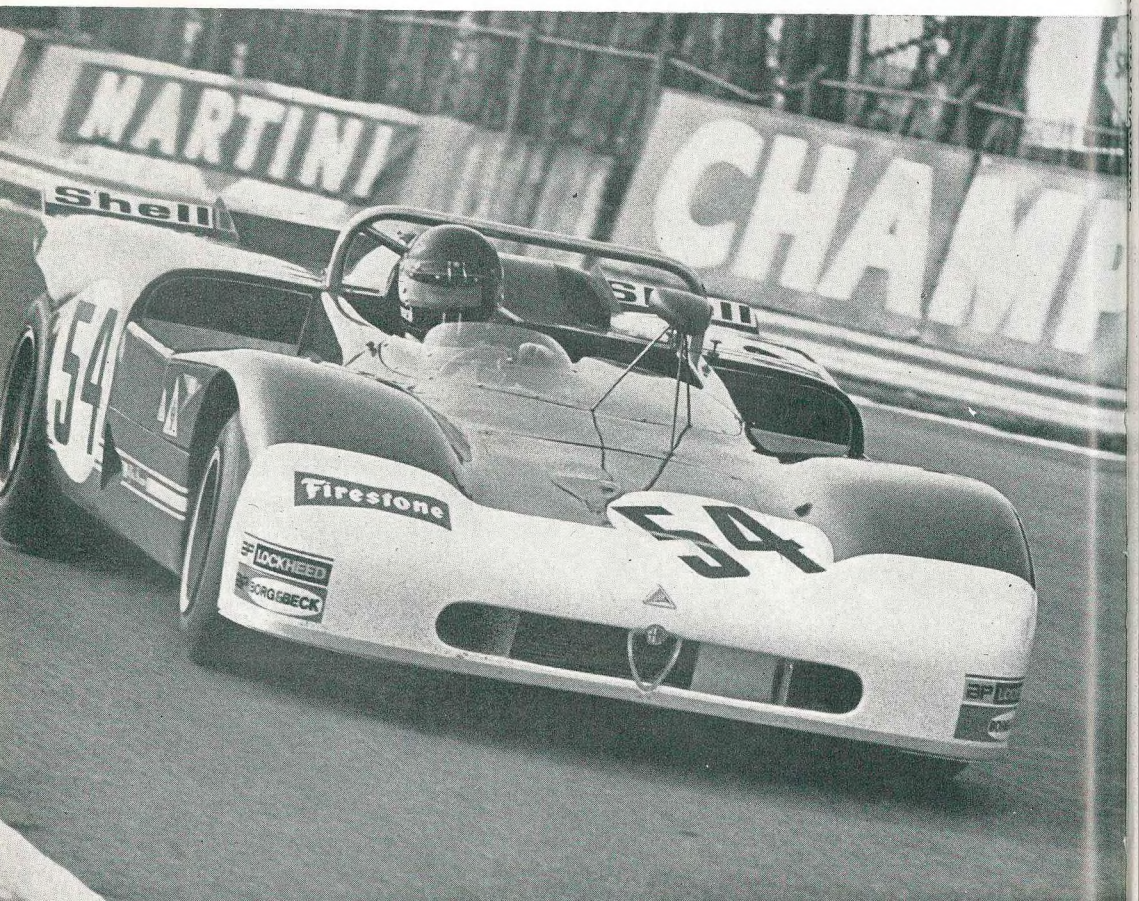
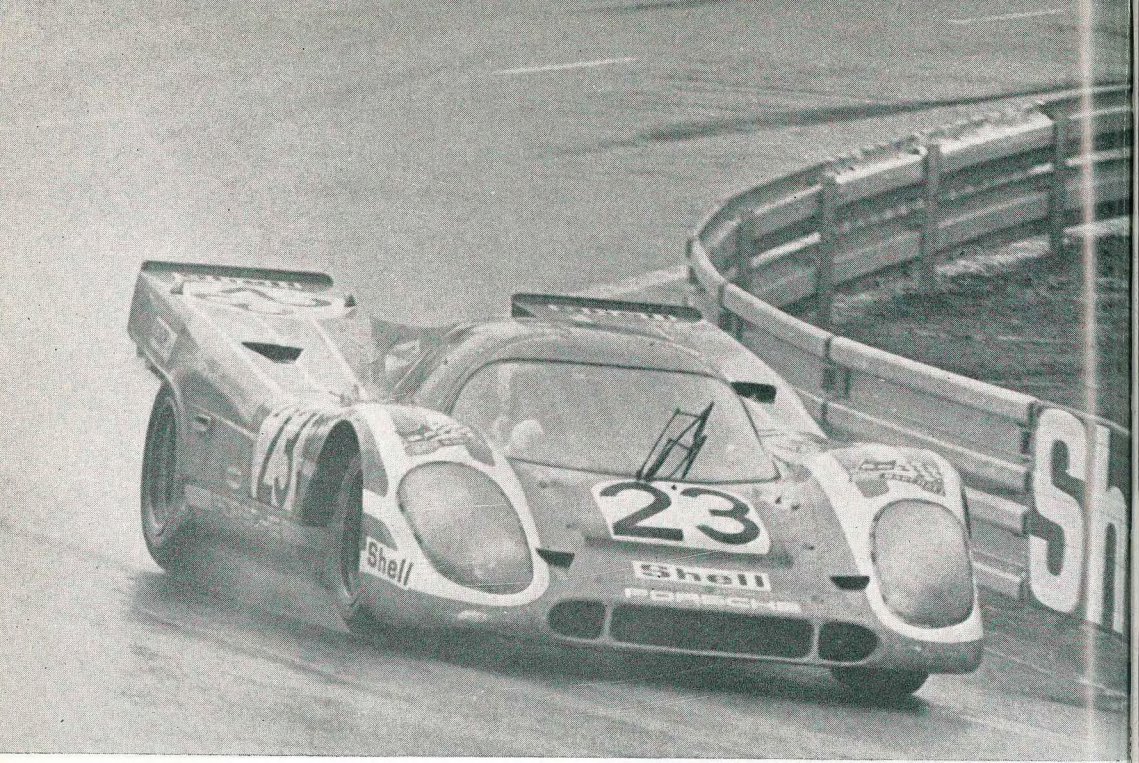
After the retirement of the Martini-entered 917 'pig' driven by van Lennep and Kauhsen, the race on the Sunday was won by Ballot-Lena and Chasseuil who shared a Porsche 908/2 *Spyder* and Guy Ligier with the latest Cosworth 3-litre-powered Ligier finished second. The race was poorly supported and the results would have been very different had other major teams supported it seriously.

Gulf recovery at Monza

For the Monza 1,000 Kilometres race held on the very fast road

37 Already the lights are on in the funfair as the Ferrari 512S of Bell/Peterson roars through the Esses at Le Mans in 1970, its spot lamp piercing the gathering gloom. (*Nigel Snowdon*).





circuit the J.W. team appeared with a brace of the usual 917s, but fitted for this race with the longer tails surmounted by twin tail fins. After the trouble experienced at Brands Hatch the alloy hubs had been abandoned. Both of the Gulf cars were running in 4-speed form. The drivers were as usual Siffert/Bell and Rodriguez/Oliver. The two Martini cars were in almost identical trim and both were looking smart after a re-spray. In practice only both Martini cars were fitted with the snorkel rams tried on one car at Brands Hatch. These air rams were said to increase power marginally, but they reduced the time between refuelling stops by a crucial five minutes. After the final wet practice session when they sucked in a great deal of water, they were abandoned. In managing the team Dechent was now assisted by former works Porsche driver Udo Schütz. The Martini cars were driven by Elford/Larrousse and Marko/van Lennep. Two private 917s were entered, the Usdau car for Kauhsen/Jöst and the Zitro car driven by Martin/Pillon.

Although not likely to provide much in the way of serious opposition, the Sports Ferraris were strong in numbers. There had not yet been time to bring the Scuderia Filipinetti 512M up to the fully modified state planned by Parkes and so he shared a 512S with Jo Bonnier. Also entered under the Filipinetti banner was the 512M of Manfredini and Gagliardi. The Escuderia Montjuich 512M was driven as usual by Juncadella, but at this race he was partnered by former Scuderia Ferrari driver Arturo Merzario. Herbert Müller Racing had entered a total of three 512s, but several of the nominated drivers had been included merely because they had helped to pay for the cars and were completely lacking in experience. Under pressure from the Monza organizers Müller scratched one of his entries and eventually sorted out the driver pairings so that he shared one car with Herzog and Gianpiero Moretti was partnered by Teodoro Zeccoli on loan from the Autodelta team. Two other 512S's non-started.

Once again the 312P Ferrari was entered and at this race it appeared with small vertical fins at the rear. It was driven by Jackie Ickx and Clay Regazzoni. As in 1970 Alfa Romeo took the Monza race very seriously and entered three long-tail Tipo 33/3s for de Adamich/Pescarolo, Stommelen/Galli, and Hezemans/Vaccarella. This category was completed by a total of four privately entered 908 *Spyders*.

Heavy rain throughout practice removed all prospects of recording good times and on the Saturday the weather was so bad that practice was terminated an hour before the scheduled time. It was during

38 After the retirement of the J.W. cars, victory at Le Mans in 1970 went to this 4.5-litre 917 Porsche entered by the team's Austrian subsidiary. The drivers were Dickie Attwood and Hans Herrmann. (*Guy Griffiths*).

39 A surprise, but nevertheless very well deserved victory was scored in the 1971 B.O.A.C. 1,000 Km race by this Alfa Romeo 33/3 driven by de Adamich and Pescarolo. (*Nigel Snowdon*).

this session that Galli's Alfa collided with a Ferrari Dino-engined 'special'. Clearly the Tipo 33/3 was too badly damaged to repair in time for the race and it seems that the scrutineers turned a blind eye when Chiti substituted one of the nine spare cars back at the works at Settimo Milanese. 'Nanni' Galli had injured an arm and was unable to drive in the race and this necessitated some complicated driver swaps. De Adamich and Pescarolo stayed with their allotted car, but Stommelen was to drive the first stint in his car and then be relieved by Hezemans, while Hezemans was to start with his car and be relieved first by Vaccarella and then by Stommelen. On race morning a policeman chased a 'trespasser' through the paddock and the moment of arrest co-incident with a collision with the Marko/van Lennep 917. One of the Porsche's tail fins was broken and the glass-fibre was hurriedly patched with aluminium.

There were only twenty-nine cars on the grid at the start of the race and Parkes made a magnificent getaway and led all the field on the first lap. By the second lap the Gulf 917s of Rodriguez and Siffert were in the first two places, Parkes was third hard pressed by Elford's 917, and the Ferrari 312P was fifth ahead of the Alfa of de Adamich. The Gulf pair soon pulled out a good lead over the rest of the field and Elford moved up to third place ahead of Parkes. On lap 11 Merzario passed Ickx to take fourth place and then at the Ascari curve he was just about to lap Meier's Porsche 907 when this driver panicked on seeing the blue flag and pulled right across the bows of the big Ferrari. Merzario glanced off the Porsche and spun and, unable to take any evasive action, Ickx slammed straight into both cars. All three of these cars together with the Usdau Porsche 908/2 were eliminated and Meier's car caught fire.

Once the flames had died down and the wreckage pushed off the road, Siffert took the lead from Rodriguez and for the remainder of the race the Gulf cars maintained an almost unchallenged supremacy. On the following lap Siffert fell back to second place because his wind-screen was accidentally doused with fire extinguisher fluid that obscured his vision. 'Seppi' decided to make a pit stop for the screen to be cleaned and at the same time the fuel tanks were topped up. At this race the team was using a 20-foot refuelling tower which could put 120 litres into the car in four seconds. Automatic cut-off fuel nozzles were used and so it was unnecessary for the drivers to get out of the cars. While Siffert was in the pits, an over-enthusiastic marshal tried to pull him out of the car and David Yorke hauled the Italian away, saying, 'For God's sake man, learn the regulations.' After only seven laps Siffert was forced to return to the pits because of a punctured tyre and although he had dropped back to eighth place by the time he rejoined the race, Rodriguez out in front was completely unchallenged.

Parkes brought in the Filipinetti 512S with con-rod failure and this was followed into retirement only a few minutes later by the other Filipinetti entry with Manfredini at the wheel and on this the

fuel pump drive had failed. Marko brought his 917 in to complain about a high oil temperature and low pressure, but he was sent back into the race, and Elford retired the team's second-place car with a bad mis-fire over 7,000 rpm. It was not long before the Marko/van Lennep car succumbed to the same trouble and was finally eliminated by a broken fuel line.

With eighty laps of the race over Siffert/Bell had brought their 917 back to second place behind team-mates Rodriguez/Oliver and the Alfas were third, fourth and sixth. When the Moretti/Zeccoli Ferrari stopped to have the clutch bled, the Alfas became third, fourth and fifth. Now the race was to all intents and purposes over and the 917s cruised to an overwhelming victory. In the closing laps of the race Rodriguez' times became slower because he had lost the use of third gear, but at the chequered flag this 917 was still three laps ahead of Siffert/Bell. A fine victory was scored by the Alfas in the Prototype category, sixth place went to the Müller/Herzog Ferrari and the 4.5-litre 917 of Kauhsen/Jöst finished seventh.

Spa: Wyer all the way

For what could be one of the last races to be held on the Circuit National de Francorchamps the organizers attracted a strong entry of Group 5 Sports Cars, a single Prototype entry from Maranello and very little else. Although the Wyer team had brought along a spare car with the slightly longer tail and fins as used at Monza, ordinary 917Ks were driven in the race by Siffert/Bell and Rodriguez/Oliver. From Martini came two cars, both with tail fins, driven by Elford/Larrousse and van Lennep/Marko. All these cars had the 4,999 cc engines, but the 'private' cars of Kauhsen/Jöst and Dominique Martin/G rard Pillon were both running with 4,494 cc engines. The yellow Usdau car was also fitted with the longer tail with fins. The Wyer team did not favour the tail-fin version at this circuit, for, although it was 400 rpm faster along the straights, it was less stable over Spa's weather-eroded surfaces. The Martini team had no choice as they had only the one type of tail with them and Zuffenhausen, erroneously, had assured them that it was best suited to this circuit.

Entered as usual in the name of Scuderia Filipinetti was the 512M of Corrado Manfredini co-driven by Giancarlo Gagliardi. Herbert M ller Racing fielded a 512M for M ller himself and Ren  Herzog and 512S for Wiesendanger and Kocher, the pair who had been dissuaded from racing at Monza. Since the Monza race the works flat-12 Ferrari had been completely rebuilt, a new engine had been fitted and it was again driven by Ickx and Regazzoni. Because of concentration on preparation of cars for the Targa Florio, Auto-delta entered only a single car for de Adamich/Pescarolo. Only a single 908 *Spyder* appeared, the series 2 car of Ballot-Lena/Chasseuil and Racing Team V.D.S. entered the Lola Mk 3B-Chevrolet for

Teddy Pilette and Taf Gosselin that they had driven regularly in 1970.

As the *Daily Express* Trophy race was held the same weekend, it was decided to hold practice at Spa on the Thursday and Friday and Saturday for competitors in the 1,000 kilometres race was a free day. Practice was dominated by the 917s which looked and sounded superb all the way round this high-speed circuit, taking the difficult Stavelot corner in exuberant power slides and looking at la Source hairpin as if they were going to hit the Armco on the outside of the hairpin through lack of sufficient road. On the Friday, while Siffert was at Silverstone, Bell took pole position on the grid with a lap in 3 min 16.0 sec and the flat-12 Ferrari's best lap was a fifth fastest 3 min 22.2 sec. It seemed unlikely that the Ferrari could gain enough time through its need for fewer pit stops to make up its only too obvious speed deficiency. On the Thursday Regazzoni was forced to abandon the 312P out on the circuit because of a puncture. It did seem rather odd that Jackie Ickx should go tramping round the circuit with the mechanics trying to find the car and when he had, and had driven it back to the pits again, that Regazzoni should resume at the wheel!

Just before the race started the news came through that rain was falling on the Masta straight. There was a frantic rush to put the cars on to wet-weather tyres—but the Gulf 917s remained on Firestone intermediates—and then when the drivers returned from their warming-up lap, they reported that the circuit was perfectly dry. So all the cars, except Elford's 917 and the Filipinetti Ferrari, were switched back to dry tyres. And then it rained! Fortunately it was only a brief shower and when the race started, the track was only slightly damp.

While Siffert and Rodriguez took the lead on the first lap, all set for a repetition of the superiority they had displayed at Monza, other drivers were far from happy. Elford stopped after only one lap for a complete change to intermediate tyres and Dominique Martin oddly enough brought his 917 in for wet-weather tyres to be fitted. He stopped again after only a couple of laps, intermediates were put back on again and Pillon took the wheel. And the very slow Müller-entered Ferrari of Wisendanger and Kocher never even left the starting area because the engine refused to fire!

Ickx held third place and Marko was hanging on to fourth spot with the Martini 917, but after only six laps the Austrian stopped out on the Masta straight with what he thought was a fuel-feed blockage. In fact the real trouble was a fuel leak, but later in the race he succeeded in restarting the car and brought it round to the pits to retire. The disappearance of this car enabled Pescarolo to move up to fourth place with the Alfa, but he was being harried all the way by Kauhsen's Porsche and Müller's Ferrari. And for much of the race these leading positions remained unchanged. Despite hard driving Ickx was falling back all the time with the Ferrari and a Gulf victory already seemed assured.

Before half-distance the Gulf drivers were instructed to ease off and when Regazzoni relieved Ickx, he was unable to match the Belgian's lap times and the Ferrari was lapped by the leaders. The Elford/Larrousse Porsche had been retired with handling problems and the Zitro car disappeared from the race at just after half-distance when a punctured tyre caused Pillon to snake past the pits and hit the crash barrier on the inside of Eau Rouge corner. The Müller/Herzog Ferrari which had been holding sixth place went out with a blown-up engine and then the Filipinetti car was eliminated by the same trouble. When de Adamich relieved Pescarolo, he lost fourth place to the 917 of Kaushen and Jöst. Then the Ferrari was eliminated in a repetition of the Brands Hatch incident. At the left-hand bend before Stavelot Ferrari's old 'friend', the Dulon-Porsche, now driven by Martin Ridelagh, cut across the front of the 312P. Reggazoni went off the road at around 180 mph and although the car was badly damaged, the Swiss driver was fortunate enough to escape without injury.

A puncture in the closing half-hour of the race cost the Usdau 917 third place and Pescarolo brought the Tipo 33/3 across the line to yet another Group 6 victory, four laps behind the Gulf cars which finished the race less than a second apart. For Gulf-Porsche, the race was another fine victory and the team's driving and pit work had been exemplary, but for the spectators the race had sadly lacked the excitement of the previous year's event when the fight between Zuffenhausen and Maranello was at its hardest and closest.

Alfa win the Targa

Only a bare week after the Spa race was the Targa Florio which witnessed a hard-fought battle between the 3-litre Prototypes of Autodelta and Zuffenhausen. Porsche took rather less control of the cars than they had in 1970 and the individual teams were left to organize their own tactics and pit work. Originally it had been intended to field four 908/3s, but only three could be prepared in time and the drivers of the missing Martini entry, Gijs van Lennep/Leo Kinnunen, were released to drive for Autodelta. Entered in the name of J.W. Automotive Engineering and painted in the usual Gulf colours were cars for Pedro Rodriguez/Herbert Müller and Jo Siffert/Brian Redman. One car was entered by the Martini team for Vic Elford/Gérard Larrousse and painted the usual and distinctive silver and blue adopted by this team. Oddly enough, after the fine showing put up by these cars in the 1970 race, not a single private 908 *Spyder* was fielded.

The Autodelta entry was strong in numbers and immaculate in appearance. Normal Tipo 33/3s were entered for Nino Vaccarella/Toine Hezemans, Andrea de Adamich/Gijs van Lennep and Rolf Stommelen/Leo Kinnunen. The fourth car was the beautiful new Tipo 33/TT/3 nominally entered for Carlo Facetti and Teodoro Zeccoli, but in fact it was driven in practice by Vaccarella and Stommelen and Ing. Chiti had no intention of letting it run in the

race. Henri Pescarolo had been excluded from the team because of his lack of familiarity with the circuit (Autodelta General Manager Roberto Bussinello reckoned that it took six weeks for a driver to learn the Little Madonie course) and 'Nanni' Galli was out of the team still because of his injury suffered at Monza. It was also the first Targa Florio for many years from which Umberto Maglioli was absent! An additional Alfa entry was the private car of the Scuderia Brescia Corse which was driven by local men Nino Todaro and 'Cordones'.

From these six works cars the winner would come and the other 76 entries were at best battling for the lower places. But likely to finish high up the field were a total of five of the Lola T210 and 212 Prototypes with Cosworth FVC 1.8-litre engines. Two of the latest T212 cars were entered by Scuderia Filipinetti for Jo Bonnier/Dickie Attwood and Mike Parkes/Peter Westbury. The other cars were entered by David Weir for himself and Alain de Cadenet, Scuderia Brescia Corse for Antonio Zadra/'Gap' and Antonio Nicodemi for himself and Jonathan Williams.

Practice, held on the Thursday as in 1970, was largely uneventful, but for the Targa Florio it does not mean a great deal as drivers rarely get the chance to do more than one full lap. The circuit had been extensively resurfaced and there was every prospect of some quick laps, but in fact no driver was within thirty seconds of the lap record. Although allowed to do as many laps as they liked in 'hack' 914/6 Porsche touring cars, the six 908/3 drivers were limited to a single lap in their race car proper and that was why the Alfas dominated the practice times. Siffert slid on a patch of oil and damaged the side of his car and Elford hit a rock at the side of the road and damaged the suspension. The two Alfa drivers who in 1970 had handled Porsches in the race, Kinnunen with a 908/3 and van Lennep with a 908 *Spyder*, both commented that they liked the handling of the Tipo 33/3, but preferred the 908s; this was because the German cars broke away earlier, but progressively, while the back ends of the 33/3s broke away in a series of rather unpredictable jerks. Although the Lolas were leaping about badly on the bumpy roads, the drivers were turning in some very quick times.

Fastest ten in practice were:

1. N. Vaccarella/T. Hezemans (Alfa Romeo Tipo 33/3)	34 min 14.2 sec
2. A. de Adamich/G. van Lennep (Alfa Romeo Tipo 33/3)	34 min 36.9 sec
3. R. Stommelen/L. Kinnunen (Alfa Romeo Tipo 33/3)	34 min 49.3 sec
4. V. Elford/G. Larrousse (Porsche 908/3)	35 min 22.4 sec
5. P. Rodriguez/H. Müller (Porsche 908/3)	35 min 48.1 sec
6. J. Bonnier/R. Attwood (Lola T212)	37 min 20.3 sec
7. R. Stommelen/N. Vaccarella (Alfa Romeo Tipo 33/TT/3)	37 min 26.7 sec*
8. M. Parkes/P. Westbury (Lola T212)	37 min 44.6 sec
9. A. Nicodemi/J. Williams (Lola T212)	39 min 19.4 sec
10. N. Todaro/'Codones' (Alfa Romeo Tipo 33/3)	39 min 35.2 sec

* Non-starter.

Although the starting order prescribed by the regulations was in ascending numerical order, this was varied to ascending order of practice times in each class which meant that Vaccarella with his Alfa was away first with a completely clear road ahead of him. The starting arrangements were, for once, smooth and efficient with the cars leaving at approximately fifteen-second intervals, but on that first lap two of the 908/3s and one of the Alfas were eliminated from the race. At Cerda, eight kilometres after the start, the transmission broke on Stommelen's Alfa and with no drive to the wheels the car skidded off the road and out of the race. Next to go was Redman; he had been far from happy with the handling of his 908/3 after it had been pranged by Siffert and, with the car understeering badly, he rammed a guard-rail and the Porsche burst into flames. Poor Brian suffered bad burns on the hands, face and neck. At Collesano further round the circuit Rodriguez hit a kerb, buckling the left-hand suspension and wheels.

At the end of the first lap Vaccarella, the 'Targa master', led on the road by forty seconds from de Adamich who was only a bare second ahead of Larrousse with the surviving 908/3. Although the Tipo 33/3s were attaining around 300 kph on the straight compared to the 270 kph of the 908/3, the Porsche was handling better on the more difficult parts of the circuit and the two marques were closely matched. On lap 2 Larrousse passed de Adamich, but the red car hounded the silver and blue and repassed it on the straight. Elford relieved Larrousse at the end of lap 2. When the Alfas stopped to refuel and to change drivers at the end of lap 3, Elford whistled past the pits into second place while the de Adamich/van Lennep car was still stationary. In fourth place was the Lola of Bonnier/Attwood and the private Todaro/'Codones' Alfa was fifth.

When Hezemans, who had relieved Vaccarella, came past the pits at the end of lap 4, he had a lead on the road of only 26 seconds, so Elford led on time by eighteen seconds and he had now set a new lap record of 33 min 45.6 sec. Throughout the next lap Elford struggled to pass Hezemans and succeeded in squeezing the Porsche in front when both drivers were baulked by a slow Porsche 911S. At the end of that lap Elford handed the Porsche back to Larrousse and Hezemans swept by to lead on the road, but still 45 seconds behind on time. On lap 4 de Cadenet had crashed and written off his Lola and shortly afterwards Todaro went off the road and crashed his private Alfa into a spectator's Fiat 500.

By the end of lap 6 Larrousse had pulled out a lead of 58 seconds and the apparent defeat of the Alfas caused an aura of gloom to settle on the thousands of spectators who had been fervently hoping for an Italian victory. At the end of that lap the Alfas stopped to refuel and change drivers. Just when it seemed that nothing could stop a Porsche victory, poor Larrousse had the misfortune to have a rear tyre puncture at Cerda. The Frenchman changed the wheel, but then another tyre punctured and the car limped on the rim to the

Wyer service depot at Bivio Polizzi where the rival mechanics fitted two new rear wheels. The car was now a lap and a half behind the two leading Alfas, but Larrousse roared on to make up lost ground, only to hit the kerb at Cerda and wreck the front suspension. Now the Alfas had only to cruise to the finish to score Autodelta's second Championship win of the season. After eleven 44.7-mile laps of this arduous circuit Hezemans took the chequered flag for his second Targa Florio victory and the similar car of team-mate van Lennep crossed the line in second place. Third place went to the well driven Lola of Bonnier/Attwood, with Porsche 911S of Chenevière/Keller fourth and the second of the Filipinetti cars driven by Parkes and Westbury fifth. Autodelta had scored a fine victory, but the results could well have been very different had Ferrari contested this round of the Championship.

A new Nürburgring

Since 1970 the 14.2-mile Nürburgring in the Eifel mountains had lost many of its dangers and much of its character as a result of the drastic changes to the circuit following the request of the Grand Prix Drivers' Association. It was estimated that 10,000 trees had been cut down, miles of Armco barrier had been installed and the famous jumps had been levelled off. The result was that many drivers were forced to learn the circuit all over again and the absence of the familiar points for braking made this particularly difficult. Although it had been expected that the circuit would prove faster in its new form, the only drivers in practice able to beat the unofficial record set in practice for the 1970 race (7 min 43.3 sec by Siffert) were Ickx and Regazzoni.

Just as at the Targa Florio, the entry list and the race was dominated by Prototypes, with strong teams from both Porsche and Autodelta, but with the addition of the familiar lone Ferrari. For this race a special pair of 908/3s were built for the Gulf team and apart from new cylinder liners to reduce oil consumption (which they did most effectively) and larger oil tanks as on the 917 (in case the team again experienced high oil consumption with this model), after the suspension failures suffered in the Targa stronger upper front suspension links were fitted. The Gulf cars were driven by Rodriguez/Oliver (No. 1 in the entry list and distinguished by an orange stripe fanning out across the nose) and Siffert/Bell (No. 2, with an orange arrow down the left-hand side of the nose).

A total of four cars were entered under the Martini banner at this race. Two of these were factory-prepared 908/3s, race No 3 driven by Elford/Larrousse (this was the car driven by the same pair in the Targa) and No 4 driven by Marko/van Lennep (the car crashed by Rodriguez in the Sicilian race). In addition the team entered a 917 which was withdrawn and the old 908/2 for Prince Ferfried von Hohenzollern and Prince Leopold von Bayern, but this car, too, non-started after Hohenzollern crashed in practice. There were,

however, four other private 908 *Spyders* entered in this race.

From Autodelta came three Tipo 33/3s plus a spare and the 33/TT/3 car which was to be run in practice only. The Italian 3-litre cars were in the same trim as they had raced in the Targa Florio. In fact the cars driven by Stommelen/Galli and de Adamich/Pescarolo were actual ex-Targa machines and the third car was driven by Vaccarella/Hezemans. The 33/TT/3 was nominally entered for Facetti/Zeccoli. After the withdrawal of the Filipinetti entries to concentrate on Le Mans, the Group 5 Sports Car class was very sparsely supported, but there were two cars from Herbert Müller Racing, the Gelo Racing 512M driven by Loos/Pesch, the Auto Usdau Porsche 917 in the hands of Kauhsen/Jöst and the familiar maroon Lola of Pilette/Gosselin.

But the sensation of the race was the lone 312P Ferrari of Ickx and Regazzoni, running with the small tail fins used at Monza and appearing at this race with a modified version of the flat-12 engine more suitable for long-distance Prototype racing. A new exhaust system was fitted, there were new inlet trumpets, reground camshafts and although the engine was less powerful, it had a better torque curve and, it was hoped, was more reliable. Since the Monza accident the monocoque chassis had been strengthened internally. In practice this car was fastest in 7 min 36.1 sec, nine seconds faster than the Alfa of Stommelen/Galli. The fastest Porsche was the Larrousse/Elford car in 7 min 46.9 sec (third fastest overall). The Gulf drivers were none too happy with the handling of their cars in practice and Siffert/Bell, the quicker pair, were only fifth fastest overall in 7 min 52.7 sec.

That the Ferrari was fastest of all the Prototypes racing in 1971 was emphasized on the first lap of this race when Ickx pulled out a 4.5-second lead over Stommelen, Elford, Siffert, de Adamich and Rodriguez. Lap after lap the Maranello dominance became greater and by the end of lap 5 Ickx had reduced his own lap record (set in the 1969 German Grand Prix) to 7 min 40.8 sec and extended his lead to 40 seconds. Just as it was only too obvious that the lithe 312P had the legs of the opposition, it seemed so unlikely that with the atrocious luck suffered by Ferrari in 1971 that the car could possibly last out the race. Stommelen was still in second place and succeeding in holding off the attacks of Elford and Siffert; Rodriguez was fifth ahead of de Adamich.

At the end of lap 6 Ickx rushed into the pits to take on extra water and by the time he had rejoined the race he was back in fourth place. By the end of the next lap the leaking radiator had lost most of its water, the car was boiling furiously, but after another stop Ickx was back in the race in sixth place, merely hoping for the best. Elford fell back to third place behind Siffert on lap 6, but then the Swiss driver dropped back again because the rear sub-frame (which supports the engine and gearbox) had broken and the car was followed by a trail of sparks. Siffert brought the car in to retire at the end of

the lap and the Gulf pit decided to switch him to partner Rodriguez. Another car in trouble was the Usdau 917 which had worn the floor through because of bottoming and the car stopped at the pits for a new panel to be riveted on. On lap 11 Elford succeeded in forcing his way past Stommelen into the lead. The cars were still close together, however, and when both stopped at the end of lap 11, Autodelta pit work was quicker and Galli (who had relieved Stommelen) was away first ahead of Larrousse (who had taken over from Elford). The Ferrari was still going magnificently despite its problems and by the end of lap 13 was back in front and had pulled out a lead of 25 seconds.

The effort of staying with the Ferrari proved too much for the engine of Galli's Alfa and at the end of lap 13 he came into the pits with oil all over the engine. And now Ickx led by 51 seconds from Larrousse, Siffert, Pescarolo and Marko. When Vaccarella relieved Hezemans at the wheel of the third of the Alfas he had been warned that the car was handling badly, but, undeterred, he had carried on flat out, frightened himself with an enormous spin and returned to the pits where he was severely reprimanded by Ing. Chiti. The car was thoroughly checked over, but the only thing found to be wrong was a missing damper rubber and the Sicilian eventually rejoined the race, lapping at a more sedate pace.

At the end of lap 15 the Ferrari made another unscheduled stop for water and Regazzoni took over the car without losing the lead. Five laps later the 312P's race was run, the car began to lay a dense trail of oil smoke and on the following lap Clay brought the very fast Maranello car in to retire. Larrousse was back in the lead and at the second round of routine pit stops at the end of lap 22 he handed the car back to Elford. The Rodriguez/Siffert 908/3 was now second, Marko/van Lennep third, de Adamich/Pescarolo fourth and Vaccarella/Hezemans fifth.

Elford handed the leading car back to Larrousse for his final stint at the end of lap 33, but Rodriguez remained at the wheel for the rest of the race. The Gulf pit stop was a slow one while new front tyres were fitted and the stop took 39 seconds to the 25 of the race leader. When van Lennep stopped to hand over to Marko, new rear tyres were fitted. During the remaining eleven laps of the race Larrousse pulled further and further away from the ill-handling Gulf car and Rodriguez was almost caught by Marko, the Mexican crossing the line only a tenth of a second ahead. The 908/3s had made up for their defeat in the Targa Florio and this was the only race in 1971 in which Autodelta failed to win the Prototype category.

Le Mans: the Ferraris fail again

Although the magic of Le Mans is beginning to pall for the more knowledgeable enthusiasts, the race still draws several hundreds of thousands of French spectators who probably never go to another motor race during the year and hordes of British spectators, attrac-

ted by its magnetic atmosphere, still take the trek across the channel and the plains of France. Despite their successes at Brands Hatch and in the Targa Florio, Autodelta gave this race a miss because they thought—and rightly—that it would be dominated by the 5-litre cars. Another team to skip the race was Ferrari and only a single Matra was entered. But despite the absence of works Maranello cars, Le Mans remained a battle between Porsche and Ferrari, but with the odds heavily in Porsche's favour. In all seven 917s were entered and these faced a total of nine private Ferraris.

This is how the two main contingents were formed:

PORSCHE

Entered by J.W. Automotive Engineering Ltd

No 17: Jo Siffert/Derek Bell.

This was a 'standard' 1971 *Lang* car of the type tried at the Le Mans Test weekend and was in fact a brand new car.

No 18: Pedro Rodriguez/Jack Oliver.

As above—it was the car driven by Oliver at the Test Weekend.

No 19: Richard Attwood/Herbert Müller.

The Swiss driver was taking the place of Brian Redman who had not yet recovered from the burns he had sustained in the Targa Florio. The car was a standard 917, but with the swept-up tail used at Monza.

All three Gulf cars and the Martini entries were using 4,907 cc engines and 5-speed gearboxes. In 1970 first gear of the 4-speed gearboxes was used only for starting from the pits and it seems that as with the *Lang* cars raced in 1970 the 5-speed gearbox was chosen so as to obtain the correct ratios overall.

Entered by the International Martini Racing Team

No 21: Vic Elford/Gérard Larrousse.

This was a 917 *Lang* loaned by the works and painted the usual Martini silver and blue colours.

No 22: Helmut Marko/Gijs van Lennep.

For this race the team had obtained a brand new short tail 917, painted plain white and running with 'cocked' tail fins. By race day certain Martini 'decorations' had been added.

No 23: Willibert Kauhsen/Reinhold Jöst.

This was the alternative high-speed body style evolved under the aegis of Charles Deutsch, that with the short, tubby lines that had resulted in it being dubbed 'the pig'. With rather heavy Teutonic humour, the car had now been painted a 'Pinky and Perky' hue and had dotted lines to indicate the 'cuts' formed by a pig's anatomy.

Entered by Zitro Racing Cars

No 57: Dominique Martin/G rard Pillon.

The standard 4.5-litre car raced rather half-heartedly by this team since the end of the 1970 season.

FERRARI

Entered by Scuderia Filipinetti

No 6: Corrado Manfredini/Giancarlo Gagliardi.

This 512M was running under the Filipinetti banner as at Monza and Spa.

No 7: Mike Parkes/Henri Pescarolo.

Originally Joakim Bonner was to have co-driven this car, but he withdrew after an accident to his son. Extensive modifications had been made to the car under the direction of Mike Parkes and it was one of the fastest, but at the same time one of the heaviest Ferraris at the circuit. The cockpit was two inches lower than standard (but retaining a bulge to clear Parkes' head) and five inches narrower. The driver sat nearer the centre of the car and the windscreen was more steeply raked. A single fuel tank was mounted on the right-hand side of the car and this was balanced by the battery, oil tank and pump on the left. A larger rear aerofoil was fitted and there were new radiators made of aluminium. To distinguish this car from its fellow 512Ms, it was informally typed the 512F (F for Filipinetti).

Entered by Ecurie Francorchamps

No 9: Hughes de Fierlant/Alain de Cadenet.

This car which had finished fifth in 1970, now brought up to the latest specification at the works and delivered to the circuit on a Maranello transporter.

Entered by the Gelo Racing Team

No 10: Georg Loos/Franz Pesch.

The familiar, slow car of this team, now also brought up to 512M specification.

Entered by the North American Racing Team

No 11: Mark Donohue/David Hobbs.

Plans to convert this 512M to Can-Am Group 7 specification had been abandoned and so Penske was able to take over one of the N.A.R.T. entries. The blue and yellow car, entered as the Sunoco-Ferrari, was making its one and only European appearance and its immaculate finish contrasted strongly with the rather tatty state of the two N.A.R.T. cars proper. This was the most competitive of all the Ferraris, but lacked the speed of the 917s along the Mulsanne straight.

No 12: Sam Posey/Tony Adamowicz.

This was a normal N.A.R.T. car to 512M specification.

No 14: Masten Gregory/George Eaton.

This was an old 512S *Spyder*. Canadian Eaton was making a welcome return to European racing after a rather unsuccessful season with the B.R.M. Formula One team in 1970.

Entered by Escuderia Montjuich

No 15: José Juncadella/Nino Vaccarella.

Another car which had been prepared at Maranello and brought up to 512M specification. It was good to see Vaccarella back at the wheel of a Ferrari.

Entered by David Piper

No 16: David Weir and Chris Craft.

Weir had bought this car used in the making of the Le Mans film, but it had now been rebuilt at the works to 512M specification and was another car to arrive at the circuit on a Maranello transporter. Weir had in fact taken over Piper's entry. This team was managed by Keith Greene who was later team manager at Motor Racing Developments for a short while.

The number of Prototypes entered was very small. Certainly the fastest of these was the Matra MS660, a car little changed from 1970 apart from slight tail and aerofoil modifications. It was driven by Chris Amon and Jean-Pierre Beltoise. In 1971 form the engine was said to develop 420 bhp. Matra had done two 24-hour stints at Castellet in practice for the race, but neither of these had been completed. At the first of these the electrics failed in the dark and Amon was lucky indeed to spin the car to rest without accident. The second run had been terminated by engine failure.

One Prototype of particular interest was the Ligier JS3, the latest development of Guy Ligier's Prototype line. In 1970 he had entered a coupé with Cosworth FVA engine and the latest version had yellow and green *Spyder* bodywork and a Cosworth DFV Grand Prix engine specially built with milder camshafts and the rev-limiter set at 8,800 rpm. Although the car had performed well in some minor French races, designer Michel Tétu had not completely eliminated the car's stability problems first observed at the Test Weekend—despite redesigning both body and suspension. Ligier shared the car with Patrick Depailler and the team was managed by Claude le Guezec who used to be with Matra.

Out of six Porsche 908 *Spyders* entered, four eventually ran. These were the Team Auto Usdau car of Haldi/Weigel, a car entered by Auguste Veuillet (he drove a Porsche on the make's debut at Le Mans in 1951) for Ballot-Lena/Chasseuil, a car entered by another Porsche supporter of long standing, André Wicky, which was co-

driven by Cohen-Olivar and finally Cosson's car which was co-driven by Leuze.

Two other less competitive, but still very interesting cars were running in the Group 5 Sports Car class. The very familiar maroon Lola of the V.D.S. Racing Team was driven by Pilette and Gosselin and a particularly interesting entry from the North American Racing Team was a Ferrari 'Daytona' as fielded by this team at Sebring and driven Bob Grossman/Luigi Chinetti jr. The car was standard apart from large ventilated disc brakes and a less elaborate and less power-absorbing exhaust system. In the original entry of 74 cars, 31 had been Grand Touring entries. And at the start there was a total of nine Porsche 911 cars with 2.4-litre engines (as adopted on the production cars for 1972) and said to be good for 160 mph on the Mulsanne straight, ten with 2.2-litre engines, two 2-litre models and two 2-litre 914/6 cars.

Generally the drivers were impressed with the handling of the long-tail versions of the 917 and Elford—who had driven the earlier *Lang* cars in both 1969 and 1970—thought that the improvement was almost incredible. On the curves between Arnage and White House, perhaps the most difficult part of the circuit, he said that he was topping 200 mph. All the 917 drivers, however, were complaining about their inability to turn in fast laps because of baulking by the very slow 911s. On the Thursday a British-entered 911 crossed in front of Siffert in the curves before White House and in avoiding the GT car, 'Seppi' lost control and spun down the road at high speed. The 917 scraped the Armco barrier without serious damage and a very lucky and very angry Siffert returned to the pits to lodge a protest. Three of the Porsche 911s failed to qualify as starters.

Fastest in practice were:

1. P. Rodriguez/J. Oliver (Porsche 917 5-litre)	3 min 13.9 sec (155.40 mph)
2. G. Larrousse/V. Elford (Porsche 917 5-litre)	3 min 14.9 sec
3. J. Siffert/D. Bell (Porsche 917 5-litre)	3 min 17.6 sec
4. M. Donohue/D. Hobbs (Sunoco-Ferrari 512M 5-litre)	3 min 18.5 sec
5. H. Marko/G. van Lennep (Porsche 917 5-litre)	3 min 18.7 sec
6. N. Vaccarella/J. Juncadella (Ferrari 512M 5-litre)	3 min 18.7 sec
7. W. Kauhsen/R. Jöst (Porsche 917 5-litre)	3 min 21.0 sec
8. M. Parkes/H. Pescarolo (Ferrari 512F 5-litre)	3 min 21.1 sec
9. C. Croft/D. Weir (Ferrari 512M 5-litre)	3 min 21.3 sec
10. H. de Fierlant/A. de Cadenet (Ferrari 512M 5-litre)	3 min 21.6 sec

For the first time the traditional line-up of cars in front of the pits was abandoned altogether and instead there was a rolling start after a paced lap behind a gold-coloured Porsche 911. Someone dropped the flag (it should have been Steve McQueen, but he failed to accept an invitation to attend) and the field was away—two minutes before the due 4 pm start. Two cars that did not get away

with the rest of the field were the Ferraris of Craft and Gregory. Craft's car needed attention to the fuel pressure release valve and joined the field late and Gregory pulled into the pits after the paced lap because of a fuel blockage.

Rodriguez screamed through in the lead at the end of the first lap, Larrousse was second for Martini and Siffert held third place. Fourth was Vaccarella with the Escuderia Montjuich Ferrari and Donohue held fifth place with the Sunoco car. Notably lacking from the early laps of the 1971 race was the usual furious battle for the lead and it seemed that Rico Steinemann's request made before the race that the Gulf and Martini teams should not drive each other into the ground had taken effect. After only two laps Posey brought the other N.A.R.T. Ferrari into the pits and complained of low oil pressure, but he was sent out again as there was nothing that could be done. Lap after lap Rodriguez steadily increased his lead, but after the first refuelling stop (with only 45 minutes of racing completed), Siffert rejoined the race ahead of Larrousse, and Donohue was away in fourth place in front of Vaccarella.

Masten Gregory had joined the race with his N.A.R.T. Ferrari at around 4.30 pm, but only completed one lap before returning to the pits. Three hours were then spent trying to sort out the fuel blockage, during the whole of this time the Ferrari completed only a very few laps and it was eventually retired with a total of seven laps to its credit. The first retirement was the V.D.S. Lola which went out just after 5 pm with piston failure. After the second round of refuelling stops the Gulf cars, still holding first and second places, carried on without driver swaps, but Elford relieved Larrousse. Because of trouble with the alloy filler cap, Rodriguez lost time during this second stop and rejoined the race 13.5 seconds behind Siffert. The Mexican soon made up lost ground, however, and took up station behind his teammate. Oliver relieved Rodriguez at the third round of pit stops and Bell took over from Siffert, but this time the race leader was delayed because of a loose condenser and rejoined the race in fourth place, a lap behind team-mates Rodriguez/Oliver. Juncadella was unable to maintain the pace set by Vaccarella and dropped back to sixth place behind the Marko/van Lennep 917. Shortly before the three-hour mark Rodriguez set a new lap record of 3 min 18.7 sec.

Two pit stops now allowed the Siffert/Bell 917 to creep back into second place. At the routine stop of the Elford/Larrousse 917 one of the rear wheels had to be changed because the tyre had 'crept' badly on the rim and put the wheel out of balance and the Sunoco car had made a normal routine stop. There now followed a succession of Ferrari troubles. The Posey/Adamowicz 512M was now well down the field, for it had run out of petrol twice and flattened its battery—and was still suffering from low oil pressure. Posey commented that the only good thing about the car was himself! Both of the Filipinetti-entered Ferraris were in trouble. The Parkes/Pescarolo car had a worrying engine knock and had stopped for the mechanical

fuel pump drive belt to be changed and the Manfredini/Gagliardi car broke its clutch. After 2½ hours of hard work the car rejoined the race, well out of the running, but sounding as healthy as ever.

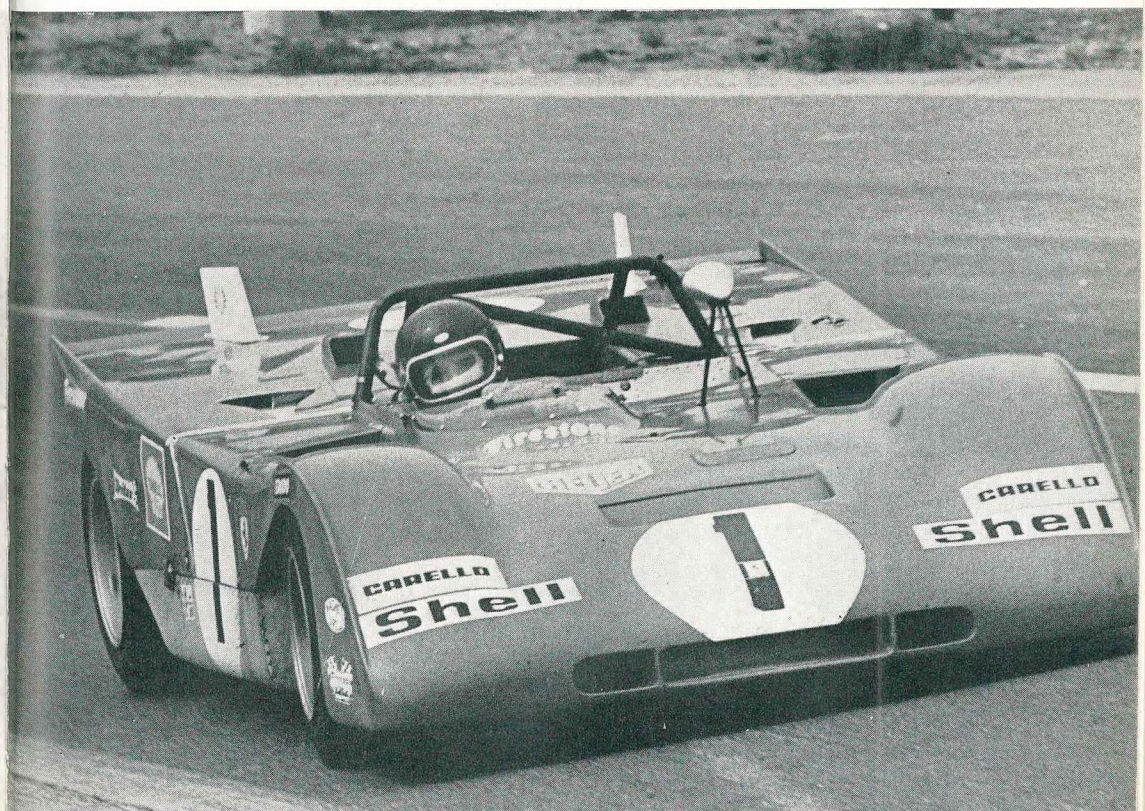
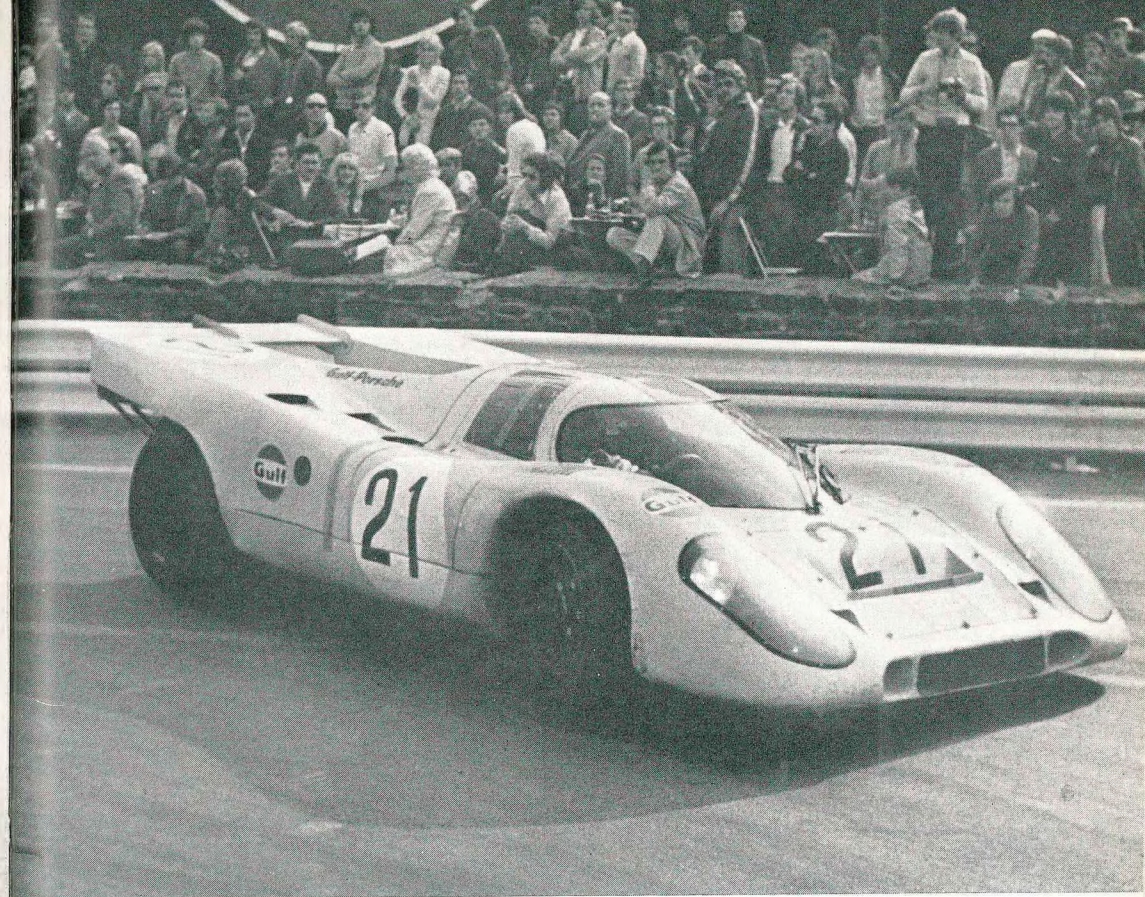
As dusk closed in on the circuit, the Sunoco-Ferrari, mainly through Penske's super-slick pit work, moved up into second place ahead of Siffert/Bell. Then the blue Ferrari was overdue and it crept slowly into the pits where Donohue reported to Penske that the engine had tightened up badly. Transmission trouble was suspected, but nothing wrong was found; Penske decided to start the car up again, but it refused to fire and it was pushed away into retirement. Almost at the same time the Elford/Larrousse 917 was retired with overheating caused by the horizontal cooling fan becoming detached and disappearing into the evening air.

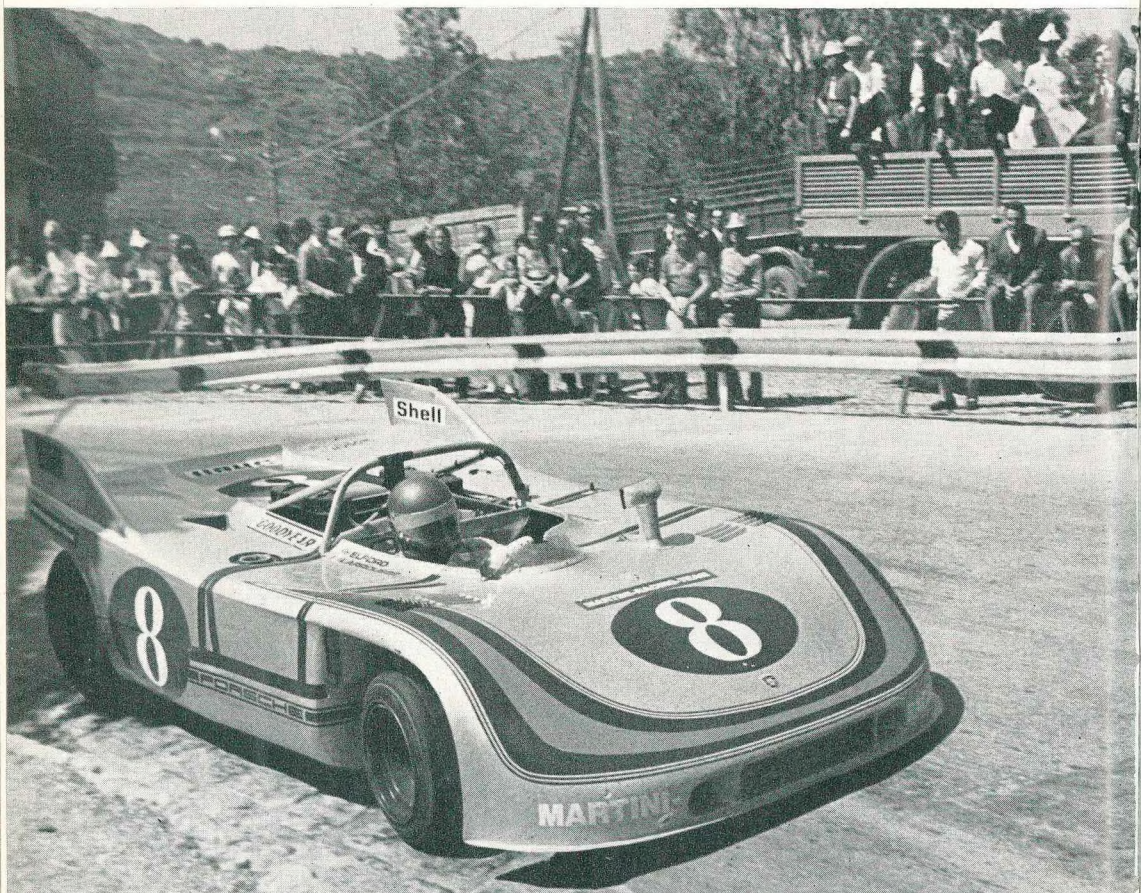
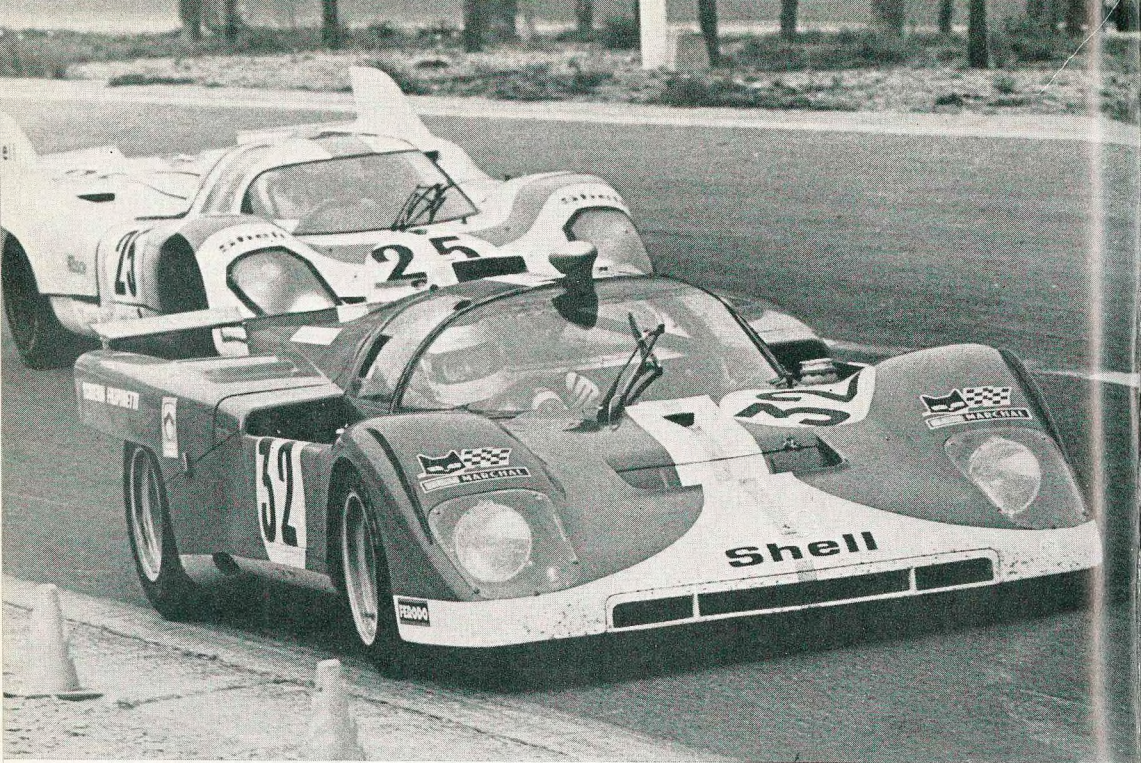
At 10 pm, therefore, the Gulf cars occupied the first three places with Rodriguez/Oliver two laps ahead of Siffert/Bell and Müller/Attwood in third place. The Vaccarella/Juncadella Ferrari was running strongly in fourth place, the 'pig' driven by Kauhsen/Jöst was fifth and the Matra of Amon/Beltoise sixth. Before long the first of the Gulf cars hit trouble. The rear suspension on the Siffert/Bell car had started to collapse and 28 laps were lost while the mechanics rebuilt it. By midnight the other Gulf cars were still in first and second places, the well driven Spanish Ferrari was third and the Martini entries of Kauhsen/Jöst and Marko/van Lennep were fourth and fifth ahead of the Matra. The Montjuich car became the sole Ferrari left in serious contention when the Filipinetti car was spun by Parkes at White House at 1 am. Contact with the Armco barrier shattered the bodywork front and rear and damaged wheels and suspension; although Parkes succeeded in limping back to the pits, the car was retired with engine trouble soon after it had rejoined the race.

A cold and bleak night was accompanied by serious trouble in the Wyer pit. Just after 3 am the two leading blue and orange cars both made unscheduled pits stops. Twenty minutes were lost while a seized hub was sorted out on the Rodriguez/Oliver car and it took twice as long to repair the gearbox trouble on the Müller/Attwood entry. So the Vaccarella/Juncadella Ferrari moved up into the lead ahead of the Marko/van Lennep 917 and Rodriguez/Oliver. Jöst crashed badly with the 'pig' at Arnage and time lost adjusting the clutch on the Spanish-entered Ferrari let the Marko/van Lennep 917 assume a lead that it was never to lose. Soon the Ferrari expired out on the circuit altogether. When the Rodriguez/Oliver long-tail 917

40 At La Source hairpin in the 1971 Spa race is the winning Gulf 917 Porsche of Rodriguez and Oliver. (*Nigel Snowdon*).

41 The Ferrari 312P Flat-12 car lacked the speed to challenge the leaders at Spa and was eventually eliminated in a crash with the British Dulon 2-litre Prototype.





succumbed to engine trouble just after 4.30 am, it was pushed away into retirement and the Matra moved up into fourth place. The order behind the leading 917 was now Amon/Beltoise with the Matra (five laps down), Attwood/Müller, Posey/Adamowicz with the ailing N.A.R.T. Ferrari, and the Weir/Craft Ferrari, which had been steadily picking up places all through the night hours, and then the Siffert/Bell car in sixth place.

But not only was the N.A.R.T. Ferrari running badly, for the Matra had a bad mis-fire believed to be caused by a blown gasket and the Siffert/Bell Porsche was laying a dense trail of oil smoke from a cracked gearbox housing. Bell retired the long-tail 917 after struggling so very long with gearbox trouble and at 8.45 am Amon stopped at the signalling pits and abandoned the Matra with what was later diagnosed as broken fuel injection-drive. Although there was a fair chance that the Müller/Attwood 917 could catch the leader, in accordance with the Porsche request that the two teams should work together, it was deliberately held back and this took much of the excitement out of the closing hours of the race. The Ferraris of Posey/Adamowicz and Craft/Weir were third and fourth and the latter car had lost all hope of catching the American-entered 512M when clutch trouble necessitated a long pit stop. In fifth place was the yellow and green Ligier-Cosworth, now running well after a long pit stop during the night to replace a broken rear cross-member, and the beautiful Ferrari 'Daytona', running as smoothly as ever, was in sixth position. The Francorchamps Ferrari went out with transmission trouble and a similar fate afflicted the Martin/Pillon Porsche.

The race now drew to a close with the four leading positions unchanged, but the 'Daytona' moved into fifth place while the Ligier spent three hours in the pits having its Hewland gearbox rebuilt. Although the French car rejoined the race at 1.35 pm, lapping very slowly, it had covered insufficient distance to be classified as a finisher. In the closing couple of hours there was anxiety in the Martini pit as the race leader was tending to jump out of fifth gear on the Mulsanne straight, but the fears proved groundless and at the chequered flag the white car was still two laps ahead of its blue and orange rival. Just before the finish the very sick N.A.R.T. Ferrari staggered out of the pits to do a slow lap to finish third, its race completely run. Le Mans was still a magnificent spectacle of speed and endurance, but the absence of strong Ferrari opposition and the failures of the Gulf

42 At Spa in 1971 the Scuderia Filipinetti Ferrari 512M of Manfredini and Gagliardi leads the yellow-painted Porsche 917 of Kauhsen and Jöst. (*Nigel Snowdon*).

43 Targa Failure: in the Sicilian race all three Porsche 908/3s retired. This car was driven by Elford and Larrousse. (*Nigel Snowdon*).

cars during the night hours had robbed the race of much of its interest.

Results

- 1st, H. Marko/G. van Lennep (Porsche 917 5-litre), 138.11 mph,* ‡
- 2nd, R. Attwood/H. Müller (Porsche 917 5-litre),
- 3rd, S. Posey/T. Adamowicz (Ferrari 512M 5-litre),
- 4th, C. Craft/D. Weir (Ferrari 512M 5-litre).
- 5th, L. Chinetti, jnr./R. Grossman (Ferrari 365 GTB4 4.4-litre), †
- 6th, R. Tourol/A. Anselme (Porsche 911S 2.4-litre),*
- 7th, W. Brun/P. Mattli (Porsche 907 2-litre),*
- 8th, R. Mazzia/J. Barth (Porsche 911S 2.4-litre),
- 9th, J. Mesange/'Gedehem' (Porsche 911S 2.3-litre),
- 10th, N. Koob/E. Kremer/G. Huber (Porsche 911S 2.4-litre),
- 11th, G. Verrier/G. Foucault/J. Decoster (Porsche 911S 2.3-litre),
- 12th, P. Vestey/R. Bond (Porsche 911S 2.4-litre),
- 13th, B. Waldegaard/B. Chenevière (Porsche 911S 2.4-litre).

* Class winners.

† Winner of the Index of Thermal Efficiency.

‡ Winner of the Index of Performance.

Gulf back on form at Zeltweg

Although only a small entry appeared at the Österreichring for the Austrian 1,000 Kilometres race, what it lacked in quantity, it possessed in quality and there were cars from the Gulf, Martini, Autodelta and Ferrari teams, as well as three private Ferraris.

As usual Gulf fielded two 917s, which were fitted with the 4,999 cc engines, and these were driven by Siffert/Bell and Rodriguez/Attwood (the latter replacing Oliver who had gone absent without leave). At the start of practice one Gulf 917 was fitted with the 'Monza'-type tail with vertical fins, but, as at Spa, this resulted in a degree of instability and the older, short tail with adjustable spoilers in the trough was substituted. The Girling twin-disc brakes were tried out on a spare car driven mainly by Attwood and Bell, but one of the problems was that the adjusters did not give enough movement and these were modified for the second practice session. Apart from Attwood, the only person interested in the new brakes was the sole Girling representative—in strong contrast with the Martini car around which a whole gaggle of engineers huddled every time it came into the pits. The Rodriguez/Attwood car was fitted with wider front rims and so as to accommodate these, strips were attached to the front wheel arches. Originally the Martini team had entered two cars, but instead they turned up with one car 'with 'Monza' tail' loaned by the works and hastily painted in the team's usual colours over a white background. This was driven by Marko and Larrousse and neither driver was happy with the new transistorized anti-lock braking system. For this car there was a large complement of works mechanics and at least four spare engines.

Autodelta was out in strength with three of the usual Tipo 33/3s for de Adamich/Pescarolo, Stommelen/Galli and Vaccarella/Hezemans and the team had also brought along for training only the Tipo 33/TT/3 lightweight car. Chiti was more than a little upset at Saturday's practice when Galli crashed the TT car and then went out in his normal car and collided with the rather slower Vaccarella! By dint of overtime by the mechanics the team was able to field all three cars in the race. A private Tipo 33/3 was entered for Reisch/Facetti. The Ferrari 312P, driven as usual by Ickx and Regazzoni, was running on new lower profile front tyres and was its usual nimble self in practice to record second fastest time to the Rodriguez/Attwood 917. Private 512M Ferraris were entered by Escuderia Montjuich for Juncadella/Soler-Roig and by Herbert Müller Racing for Müller/Herzog. Gregory/Wiesendanger were entered with Müller's old 512S car, but this non-started after blowing up its engine during the last practice session. A third Ferrari 512M was driven by Italians Marsilio Pasotti and Mario Casoni. In all there were only 23 cars on the starting grid made up of the ten mentioned above, the Edwards/Enever Lola T212 and eleven private Porsches, most of them Group 3 GT cars.

With a grey sky and slight drizzle falling Rodriguez went off into the lead at the start, but Siffert muffed his start and almost burnt out the clutch of his 917. Steadily Rodriguez drew away from Ickx at the rate of two seconds a lap, but Siffert was having to fight to hold off Müller and Marko, and spent a lot of the time in fifth place. Early retirements were Müller whose left-hand front suspension began to break up, the private Alfa which blew up its engine and the Montjuich Ferrari which Juncadella crashed after colliding with Stommelen who was lapping him.

Shortly before he was due to make his first routine refuelling stop, Rodriguez came into the pits with loss of fuel injection pressure caused by a flat battery. By the time the trouble had been located and the battery changed, Rodriguez had lost three laps and he re-joined the race in seventh place. After all the Sports Cars had completed their refuelling stops, Ickx led by 45 seconds from Marko, Siffert and the three Alfas. Then Siffert stopped at the pits because of a puncture and when he restarted, the clutch damaged on the starting grid objected to the strain and the car was retired after another two laps. Marko passed Regazzoni (who had relieved Ickx on lap 44) to take the lead, but when Marko stopped to refuel on lap 68, the Ferrari went ahead again. Rodriguez was slowly making up ground and David Yorke had decided that he should stay at the wheel for the full 3½ hours permitted by the regulations. When Regazzoni came in to refuel at the end of lap 88, he was replaced by Ickx, and while the car was stationary in the pits Pedro Rodriguez (now back in third place ahead of the Alfas) put himself back on the same lap as the leader. Rodriguez stopped at the end

of lap 99, but Attwood stayed at the wheel for only twelve laps before Rodriguez took over again and resumed the chase.

Now the Ferrari was over a lap ahead of Larrousse and almost two ahead of Rodriguez. Soon Rodriguez had reduced his deficit to one lap, Pescarolo retired his fourth-place Alfa with a blown-up engine and the Mexican moved up into second place when the Martini car had a tyre burst on lap 123. This happened on a fast stretch and the white 917 spun into the guard-rail, wrecking the rear end. Larrousse drove back to the pits on the rim and although the mechanics succeeded in repairing the car, it was retired after only one more lap because the handling was so atrocious, The Ferrari made its third and final refuelling stop at the end of lap 132 and Regazzoni took over again from Ickx. Three laps later Rodriguez made a fifteen second stop for fuel and he rejoined the race a little over two minutes in arrears. It was clear there was a chance, albeit a slim one, of Rodriguez catching and passing the Ferrari in the remaining 35 laps of the race. On lap 146 the Mexican put himself back on the same lap as the leader and then he set a new lap record of 1 min 39.35 sec.

But the thundering blue and orange 917 gained the lead much quicker than expected; on lap 148 Regazzoni lost control of the 312P on an uphill right-hand bend and the car wrecked itself against the guard-rail. Although Regazzoni attributed the crash to brake troubles, it seems that the front suspension broke. Now Rodriguez was completely unchallenged and in response to a signal from the Wyer pit eased his lap times to around the 1 min 50 sec mark. 'Mexican Pete' took the chequered flag for Gulf's fifth victory of the season, two laps ahead of the so consistent Alfas of Vaccarella/Hezemans and Stommelen/Galli.

Another Autodelta victory at Watkins Glen

By the eleventh and final round of the Championship at the American Watkins Glen circuit, the Wyer team in particular and Sports Car racing in general had suffered a tragic loss. On 11th July Rodriguez drove one of Herbert Müller's Ferrari 512M cars in the Interserie race held on the Norisring circuit at Nuremberg. Originally and, perhaps, ironically he should have been at the wheel of one of the B.R.M. P167 cars he had driven in the 1970 series of Can-Am races, but this broke its engine during testing. Rodriguez was leading in the first heat of the race when the Ferrari went out of control, hit the barrier on the left-hand side of the track and shot across the track to slam into the barrier on the right-hand side. The car burst into flames and although Pedro was quickly rescued from the wreckage, he was badly injured and had suffered serious burns. The heat was stopped at this point and only after the second heat had been run, was it announced that Rodriguez had succumbed to his injuries. Rodriguez, a driver who was never prepared to admit defeat and who was always at his best on a wet track, was a terrible loss to

the Wyer team and at Watkins Glen his place was taken by Gijs van Lennep.

Since the 1970 race the Watkins Glen circuit had been extensively modified in the first stage of what was to be an almost complete redesign. Although the general layout of the first half of the circuit was much the same as before, it had been widened and resurfaced. On the second part of the circuit a left and right-hand double bend replaced what had previously been fast 'kinks' on to the pits straight. The final corner had been narrowed and banked. With a uniform width throughout of 36 feet and a lining of twin Armco barriers on both sides for the whole length of the circuit, it should have been safer and met with drivers' approval. But in certain places there was a complete lack of 'run-off' room and drivers were complaining that the surface was excessively bumpy.

From the Wyer team came two 917s, both with full 5-litre engines and to the original 1970 *Kurz* specification, and these were driven by Siffert/van Lennep and Bell/Attwood. David Piper also entered his private 917 for Mario Cabral and Tony Adamowicz. Heading the Ferrari attack were the familiar works 312P driven by Ickx and Mario Andretti and the equally familiar Sunoco-Ferrari entered by Penske for Mark Donohue and David Hobbs. Four other 512Ms were entered; North American Racing Team entered a car for Sam Posey/Ronnie Bucknum, Herbert Müller Racing for Müller and George Eaton, Ecurie Evergreen fielded the ex-Francorchamps car for Alain de Cadenet and Lothar Motschenbacher (and because of the latter there was a large 'bulge' in the roof to increase headroom) and Greg Young for himself and Jim Adams. This last car non-started, however, because a fuel tank sprang a leak on race morning. One of the strongest entries came from Autodelta which entered three Tipo 33/3 cars for Pescarolo/Stommelen, Galli/Elford and de Adamich/Ronnie Peterson (the brilliant Swedish Formula One driver who took second place with a March in the 1971 Drivers' Championship). Elford had been included in the team because he had already signed up with Autodelta for 1972 and the lightweight Tipo 33/TT/3 had been brought along for him to test and possibly drive in the race.

In practice the Penske Ferrari took pole position on the grid in 1 min 7.74 sec (129.04 mph) and was timed on the straight at 184.6 mph—compared with 175 mph for the Gulf 917s. And this was interesting because at Le Mans the 917s in long-tail form had been substantially quicker on the Mulsanne straight than the Sunoco car. Galli bounced off a wandering 911 Porsche in practice and wrote off the TT car against the Armco. Its engine was then transferred to the other Galli/Elford car which had been running with a 4-litre Can-Am version of the V-8 engine.

After two paced laps, the field was released and Donohue with the Sunoco-Ferrari went into the lead, trailed by the two Gulf 917s and the works Ferrari. The 917s appeared to lack the speed to stay with the American-entered 512M, the works Ferrari went by them into

second place on lap 13 and two laps later Siffert stopped with the first of a series of punctures. Galli cut across the front of a slow 911, the two cars touched, the 911 spun and as Müller with his 512M and another 911 arrived on the scene, they collided under braking and gyrated into the Armco barrier on the outside of the curve. On lap 36 Bell turned in fastest lap of the race in 1 min 8.30 sec (127.98 mph) and then the 917's throttle cable broke at the pedal. After fiddling around under the engine cover, Bell realized that he could just about operate the remains of the pedal assembly and nursed the car back to the pits. The car rejoined the race in nineteenth place with Attwood at the wheel and then had to stop again because of a puncture.

Just as the first hour came up, the leading Ferrari came into the pits, left-hand front wheel flapping. The trouble was that the bolt connecting the steering tie rod to the suspension had broken and the car was out of the race. When the now leading 312P made its routine refuelling stop on lap 56, the engine refused to fire because the starter motor had burnt out and after a quarter of an hour's fruitless work by the mechanics it, too, was pushed away into retirement. So the Siffert/van Lennep Porsche led from the Alfa of Peterson and de Adamich. The Bell/Attwood 917 climbed back to eleventh place, only to suffer another puncture, and another two punctures in quick succession on the leading car of Siffert/van Lennep gave the Autodelta entry an advantage that it never lost.

Stommelen's third-place Alfa collided with a slower car and wrecked itself against the Armco and then rain began to fall, light at first, but getting heavier and heavier. A bank of mist and spray reduced visibility, the pits road was flooded, drivers were unable to see pit signals and Elford (in third place), blinded by spray from slower cars, ran into the back of Barber's Lola T212. Both cars wrote themselves off against the Armco barriers. After a whole series of pit stops to try to sort out alternator trouble, David Piper's 917 Porsche was finally retired. In these atrociously wet conditions both Gulf cars developed engine misfires and the drivers were gunning them down the straights to try to clear them a little. In addition the Bell/Attwood car developed a bad crankcase oil leak. So the de Adamich/Peterson Alfa splashed its way on in front to score Autodelta's third Championship victory of the season and the Gulf 917s of Siffert/van Lennep and Bell/Attwood had to settle for second and third places, two and twenty laps respectively behind the leader.

Although the Sports Car Championship was now completed with Porsche scoring their third successive victory with 72 points to the 51 of Alfa Romeo and 26 of Ferrari, the Sports Car season as such was still far from over. Back in May at the first of the Interserie races at Imola (Interserie is the European equivalent of the Can-Am races for Group 7 2-seater racing cars), Porsche had introduced the 5000 *Can-Am Spyder* version of the 917. This lighter conversion which cost £7,000 proved popular with contestants in the series and cars were fielded by the Finnish A.A.W. team for Leo Kinnunen (chassis

No 021), the Gesipa Racing Team for Michel Weber (chassis No 007) and Jürgen Neuhaus (chassis No 031). There were seven rounds of the Championship and the overall winner was Kinnunen with the A.A.W. car. In the sixth round of the Championship also at Imola the works 312P Ferrari was entered for Clay Regazzoni. The race was run in two heats and a final, all to be of thirty laps, but because of the atrociously wet weather the final was cut to ten laps. Regazzoni won his heat, but lost over three laps in the final because of fuel pump trouble.

The appearance of the Group 7 version of the 917 at Imola gave a clear indication of the direction in which Porsche plans were heading. At the fourth round of the Can-Am series, held at Watkins Glen on the day after the Six Hours race, yet another 917 variant was entered. This was designated the 917-10 and whereas the 5000 *Can-Am* had smooth, curved lines reminiscent of the old 908 *Spyder*, the new car looked like a blown-up version of the 908/3 and had similar small tail fins. The car was entered by Porsche-Audi with sponsorship from the S.T.P. Corporation, was driven by Jo Siffert, managed by Richie Ginther, and looked after by a couple of works mechanics—all in all, a formidable opponent for the 8-litre McLarens that have dominated the series for several years. At this same race appeared the latest Can-Am Ferrari, based on a modified 512M chassis and with a 7-litre engine and neat wedge-shaped body and this was driven by Mario Andretti.

At the 'Glen' Siffert finished third behind the McLarens of Revson and Hulme and Andretti took fourth place. Of several survivors from the Six Hours race to run, Posey drove the N.A.R.T. Ferrari 512M into sixth place, de Adamich was seventh with a 3-litre Alfa, van Lennep ninth and Bell and Attwood eleventh and thirteenth after pit stops. The works 312P should have run and in fact was tenth fastest in practice. But the organizers ruled that the cockpit did not comply with Can-Am regulations. Overnight the cockpit was modified, but then team manager Schetty was informed that the car's practice times would be disregarded and it would have to start from the back of the grid. It was hardly surprising that Ferrari withdrew the car from the race. Subsequently Siffert drove the very promising 917-10 car of very low weight into second place at Lexington, fifth at Donnybrooke (Minnesota), fourth at Edmonton and fifth at Monterey. Following Siffert's death at Brands Hatch, the car missed the final round of the Championship at Riverside. Siffert was a post-humous fourth overall with 68 points. The car raced in the Can-Am series was chassis No 002, the first car being retained in Europe for development testing.

Three long distance Sports Car races were held before the end of the season. On 12th October the Barcelona 1,000 Kilometres race was held on the difficult Montjuich Park circuit. All the Gulf 917s had been returned to the works except one car which was entered for Bell/van Lennep. But it was galling too for the Wyer team to see

the first 908/3 in private hands, a car far more suited to this tortuous circuit, being indifferently driven by local drivers José and Juan Fernandez. On this circuit the 917 was beaten by the diminutive 1.8-litre Lola T212 of Scuderia Filipinetti driven by Jo Bonnier and Ronnie Peterson and the Wyer car finished second, five laps in arrears after a long pit stop while the mechanics freed a brake pad that had bonded to the piston. The 908/3 took fifth place.

From Barcelona the Wyer travelled on to Montlhéry for the Paris 1,000 Kilometres race where the same car with the same engine was again driven by Bell/van Lennep. For the first time Autodelta fielded a 33/TT/3 car and this was driven by Pescarolo/Stommelen (a second car should have run, but it was affected by gearbox trouble during tyre testing at the Paul Ricard circuit the previous week). Unfortunately this car failed to start because of a crash on the warming-up lap. From Matra came a single MS660 car for Beltoise and Amon. The Matra led for much of the race, despite gearbox trouble, but retired when Beltoise ran out of road. So two years of brilliant collaboration between Porsche, Gulf and Wyer culminated in a final victory at the French circuit and Bell/van Lennep took the chequered flag five laps ahead of the 917 *Spider* of Larrousse and Kinnunen. In November was the Kyalami Nine Hours race and here Ferrari, hoping to repeat their 1970 victory, entered two 312Ps. The original car raced throughout the 1971 season was driven by Brian Redman (who has signed up to drive Ferrari Prototypes in 1972) and Regazzoni, while a brand new car with modified cockpit and suspension was entrusted to Jacky Ickx and Mario Andretti. Despite the presence of a pair of Porsche 917s entered by David Piper, the Maranello 'babies' came home in the first two places, Regazzoni/Redman fifteen laps ahead of Ickx/Andretti who had lost 45 minutes when the car expired out on the circuit with electrical trouble.

The end of the 1971 season did not merely mark the end of a Formula, but the end of an era that can never be repeated. The collaboration between Wyer and Porsche has come to an end, but the season also saw the deaths of Rodriguez and poor Jo Siffert who lost his life at the wheel of a B.R.M. in the Rothmans World Championships Victory race at Brands Hatch in October. Richard Attwood has retired from racing and David Yorke has left the Wyer team. In 1972 Prototype racing is now fought out between Ferrari with a strong team of drivers that includes Ickx, Regazzoni, Redman, Andretti and Peterson and the Autodelta team which is fielding the Tipo TT33 cars, later in the season with flat-12 engines, for Stommelen, Elford, Marko, Hezemans, de Adamich and Galli (and Siffert would have been in the team). And there is much at stake, for just as the two marques are rivals on the race track, so the new Alfasud 1,300 cc production car built at Naples is in direct competition with the Fiat 128. Both Fiat, with a majority holding in Ferrari, and Alfa Romeo, who have been racing since before the first World War, are only too aware of the benefits accruing from racing successes.

Gulf are continuing their support of the John Wyer team who will be racing a new Mirage powered by a V-12 3-litre engine developed by Harry Weslake on behalf of Ford. Weslake was responsible for the design of the Eagle V-12 engine and carried out development work on the cylinder heads of both the Jaguar D-type and the Vanwall. But there is a world of difference between the successful preparation and racing of an existing highly sophisticated design such as the Porsche 917 and the building from scratch and development of a completely new car. Remembering the comparative failure of B.R.M. and Cosworth-powered Mirages, it is difficult to believe that J.W. Automotive Engineering will be in the hunt in 1972. Another difficulty facing the team is shortage of drivers, for with the deaths of Rodriguez and Siffert, the retirement of Attwood and the sacking of Oliver, the only survivor of 1971 is Derek Bell. It is likely that he will be paired with Gijs van Lennep, but most of the other leading drivers have been snapped up by Ferrari and Auto-delta. In early 1972 races the Mirage was raced with the Cosworth DFV V-8 3-litre engine.

And what of Porsche, the instigators of so much exciting motor-ing? The Zuffenhausen team has now withdrawn from Sports Car and Prototype racing and decided to concentrate its efforts on the Can-Am and Interserie races. The Can-Am cars are prepared by Roger Penske on much the same lines as Wyer looked after the 917s. Initially Porsche are fielding developed versions of the 917-10 seen in the 1971 Can-Am races. In 5.4-litre 'stretched' form the existing engine has been induced to develop close to 650 bhp, but a turbo-charged version is planned. It should also be remembered that during 1971 Porsche were developing a flat-16 engine (intended to be raced if the competition from Ferrari should become intense) and this is likely to be used in Can-Am racing in due course.

As one exciting and spectacular era comes to a close, already the teams are preparing themselves for other battles and only time will reveal whether these are as fascinating as those of the years of 917 power.

Appendix I

Results of the Sports Car Manufacturers' Championship

1968

ROUND 1

Daytona 24 Hours race
(3rd-4th February):

- 1st, V. Elford/J. Neerpasch/J. Siffert/R. Stommelen/H. Herrmann (Porsche 907 2.2-litre), 673 laps (2,566 miles), 106.70 mph,
- 2nd, J. Siffert/H. Herrmann (Porsche 907 2.2-litre), 668 laps,
- 3rd, J. Buzzetta/J. Schlessler (Porsche 907 2.2-litre), 659 laps,
- 4th, J. Titus/R. Bucknum (Ford Mustang 4.7-litre), 629 laps,
- 5th, U. Schütz/N. Vaccarella (Alfa Romeo Tipo 33/2 2-litre), 617 laps,
- 6th, M. Andretti/L. Bianchi (Alfa Romeo Tipo 33/2 2-litre), 609 laps.

Fastest lap: not issued by the organizers.

ROUND 2

Sebring 12 Hours race (23rd March):

- 1st, J. Siffert/H. Herrmann (Porsche 907 2.2-litre), 237 laps (1,232 miles), 101.51 mph,
- 2nd, V. Elford/J. Neerpasch (Porsche 907 2.2-litre), 226 laps,
- 3rd, M. Donohue/C. Fisher (Chevrolet Camaro 5-litre), 221 laps,
- 4th, J. Welch/R. Johnson (Chevrolet Camaro 5-litre), 217 laps,
- 5th, J. Titus/R. Bucknum (Ford Mustang 4.7-litre), 217 laps,
- 6th, D. Morgan/H. Sharp (Chevrolet Corvette Stingray 7-litre), 208 laps.

Fastest lap: S. Patrick (Lola T70

Mk 3-Chevrolet 5-litre), 2 min 49.0 sec (110.76 mph)

ROUND 3

B.O.A.C. '500' race, Brands Hatch, six hours (7th April):

- 1st, J. Ickx/B. Redman (Ford GT40 4.7-litre), 218 laps (578 miles), 95.96 mph,
- 2nd, L. Scarfiotti/G. Mitter (Porsche 907 2.2-litre), 218 laps,
- 3rd, V. Elford/J. Neerpasch (Porsche 907 2.2-litre), 216 laps,
- 4th, P. Hawkins/D. Hobbs (Ford GT40 4.7-litre), 210 laps,
- 5th, P. Rodriguez/R. Pierpoint (Ferrari 250 LM 3.3-litre), 209 laps,
- 6th, J. Bonnier/S. Axelsson (Lola T70 Mk 3-Chevrolet 5-litre), 207 laps.

Fastest lap: not issued by the organizers.

ROUND 4

Monza 1,000 Kilometres race, 100 laps (25th April):

- 1st, P. Hawkins/D. Hobbs (Ford GT40 4.7-litre), 5 hr 18 min 3.4 sec (118.27 mph),
- 2nd, R. Stommelen/J. Neerpasch (Porsche 907 2.2-litre), 5 hr 20 min 15.8 sec,
- 3rd, P. Depailler/A. de Cortanze (Alpine A-211 3-litre), 3 laps in arrears,
- 4th, G. Koch/R. Lins (Porsche 910 2-litre), 5 laps in arrears,
- 5th, A. Nicodemi/C. Facetti (Porsche 910 2-litre), 6 laps in arrears,
- 6th, A. Wicky/J-P. Hanrioud (Porsche 910 2-litre), 8 laps in arrears.

Fastest lap: J. Ickx (Ford GT40 4.7-litre), 2 min 56.5 sec (127.86 mph).

ROUND 5

Targa Florio, 447 miles, 10 laps (5th May):

1st, V. Elford/U. Maglioli (Porsche 907 2.2-litre), 6 hr 28 min 47.9 sec (69.04 mph),

2nd, N. Galli/I. Giunti (Alfa Romeo Tipo 33/2 2-litre), 6 hr 31 min 30.7 sec,

3rd, M. Casoni/L. Bianchi (Alfa Romeo Tipo 33/2 2-litre), 6 hr 37 min 55.1 sec,

4th, H. Herrmann/J. Neerpasch (Porsche 907 2.2-litre), 6 hr 38 min 48.7 sec,

5th, T. Pilette/R. Slotemaker (Alfa Romeo Tipo 33/2 2-litre), 6 hr 55 min 28.8 sec,

6th, G. Baghetti/G. Biscaldi (Alfa Romeo Tipo 33/2 2-litre), 7 hr 0 min 8.5 sec.

Fastest lap: V. Elford, 36 min 2.3 sec (74.48 mph—new lap record).

ROUND 6

Nürburgring 1,000 Kilometres race, 44 laps (19th May):

1st, J. Siffert/V. Elford (Porsche 908 3-litre), 6 hr 34 min 6.3 sec (95.04 mph),

2nd, H. Herrmann/R. Stommelen (Porsche 907 2.2-litre), 6 hr 37 min 7.8 sec,

3rd, J. Ickx/P. Hawkins (Ford GT40 4.7-litre), 6 hr 37 min 57.5 sec,

4th, J. Neerpasch/J. Buzzetta (Porsche 907 2.2-litre), 6 hr 42 min 22.9 sec,

5th, N. Galli/I. Giunti (Alfa Romeo Tipo 33/2 2-litre), 1 lap in arrears,

6th, D. Hobbs/B. Redman (Ford GT40 4.7-litre), 1 lap in arrears.

Fastest lap: J. Siffert, 8 min 33.0 sec (99.54 mph—Prototype lap record).

ROUND 7

Spa 1,000 Kilometres race, 71 laps (26th May):

1st, J. Ickx/B. Redman (Ford GT40 4.7-litre), 5 hr 5 min 19.3 sec (122.11 mph),

2nd, G. Mitter/J. Schlesser (Porsche 907 2.2-litre), 1 lap in arrears,

3rd, H. Herrmann/R. Stommelen (Porsche 908 3-litre), 2 laps in arrears,

4th, P. Hawkins/D. Hobbs (Ford GT40 4.7-litre), 4 laps in arrears,

5th, G. Koch/R. Lins (Porsche 910 2-litre), 4 laps in arrears,

6th, D. Spoerry/R. Steinemann (Porsche 910 2-litre), 5 laps in arrears.

Fastest lap: G. Mitter/J. Schlesser, 4 min 0.3 sec (131.26 mph).

ROUND 8

Watkins Glen Six Hours race (14th July):

1st, J. Ickx/L. Bianchi (Ford GT40 5-litre), 286 laps (658 miles), 109.50 mph,

2nd, D. Hobbs/P. Hawkins (Ford GT40 5-litre), 286 laps,

3rd, R. Thompson/R. Heppenstall (Howmet TX gas-turbine), 267 laps,

4th, W. Frank/R. Tritschmann (Porsche 906 2-litre), 259 laps,

5th, J. Locke/R. Bailey (Porsche 906 2-litre), 257 laps,

6th, H. Herrmann/T. Ikuzawa/J. Siffert (Porsche 908 3-litre), 257 laps.

Fastest lap: J. Ickx, 1 min 11.1 sec (116.46 mph—Sports Car record).

ROUND 9

Austrian Grand Prix, Zeltweg, 500 kilometres, 157 laps (25th August):

1st, J. Siffert (Porsche 908 3-litre), 2 hr 55 min 17.74 sec (106.86 mph),

2nd, H. Herrmann/K. Ahrens (Porsche 908 3-litre), 2 hr 55 min 30.23 sec,

- 3rd, P. Hawkins (Ford GT40 5-litre), 5 laps in arrears,
 4th, T. Pilette (Alfa Romeo Tipo 33/2 2.5-litre), 5 laps in arrears,
 5th, K. von Wendt/W. Kauhsen (Porsche 910 2-litre), 10 laps in arrears,
 6th, R. Steinemann/D. Spoerry (Porsche 910 2-litre), 11 laps in arrears.
- Fastest lap:** J. Siffert, 1 min 4.82 sec (110.46 mph).

ROUND 10

Le Mans 24 Hours race (28th-29th September):

- 1st, P. Rodriguez/L. Bianchi (Ford GT40 5-litre), 330 laps (2,727 miles), 115.29 mph,
 2nd, R. Steinemann/D. Spoerry (Porsche 907 2.2-litre), 325 laps,
 3rd, R. Stommelen/J. Neerpasch (Porsche 908 3-litre), 324 laps,

- 4th, I. Giunti/N. Galli (Alfa Romeo Tipo 33/2 2-litre), 321 laps,
 5th, C. Facetti/S. Dini (Alfa Romeo Tipo 33/2 2-litre), 314 laps,
 6th, M. Casoni/G. Biscaldi (Alfa Romeo Tipo 33/2 2-litre), 304 laps.
- Fastest lap:** R. Stommelen, 3 min 38.1 sec (139.80 mph).

CHAMPIONSHIP RESULTS

(Based on the best five performances, Austrian race counting for half-points only).

- | | | | | | |
|------------------|---|------------|------------|------------------|-------------|
| 1st, Ford | 45 points | | | | |
| 2nd, Porsche | 42 points | | | | |
| 3rd, Alfa Romeo | 15½ points | | | | |
| 4th | <table> <tbody> <tr> <td>{ Howmet</td> <td rowspan="3">} 4 points</td> </tr> <tr> <td>{ Alpine-Renault</td> </tr> <tr> <td>{ Chevrolet</td> </tr> </tbody> </table> | { Howmet | } 4 points | { Alpine-Renault | { Chevrolet |
| { Howmet | | } 4 points | | | |
| { Alpine-Renault | | | | | |
| { Chevrolet | | | | | |
| 7th, Ferrari | 2 points | | | | |
| 8th, Lola | 1 point | | | | |

1969

ROUND 1

Daytona 24 Hours race (1st-2nd February):

- 1st, M. Donohue/C. Parsons (Lola T70 Mk3B-Chevrolet 5-litre), 626 laps (2,385 miles), 99.27 mph,
 2nd, L. Motschenbacher/E. Leslie (Lola T70 Mk3-Chevrolet 5-litre), 596 laps,
 3rd, J. Ward/J. Titus (Pontiac Firebird 5-litre), 591 laps,
 4th, R. Jennings/H. Wetson/A. Adamowicz (Porsche 911T 2-litre), 583 laps,
 5th, A. Everett/A. Johnson (Porsche 911 2-litre), 581 laps,
 6th, H. Kleinpeter/J. Gunn/R. Beatty (Chevron B8-B.M.W. 2-litre), 579 laps.

Fastest lap: J. Siffert (Porsche 908 3-litre), 1 min 54.0 sec (120.32 mph—new lap record).

ROUND 2

Sebring 12 Hours race (22nd March):

- 1st, J. Ickx/J. Oliver (Ford GT40 5-litre), 239 laps (1,243 miles), 103.34 mph,

- 2nd, C. Amon/M. Andretti (Ferrari 312P 3-litre), 238 laps,
 3rd, R. Stommelen/J. Buzzetta (Porsche 908 *Spyder* 3-litre), 235 laps,
 4th, A. Soler-Roig/R. Lins (Porsche 907 2-litre), 233 laps,
 5th, G. Mitter/U. Schütz (Porsche 908 *Spyder* 3-litre), 232 laps,
 6th, E. Leslie/L. Motschenbacher (Lola T70 Mk 3-Chevrolet 5-litre), 229 laps.
- Fastest lap:** V. Elford (Porsche 908 *Spyder* 3-litre), 2 min 43.19 sec (114.71 mph—new lap record).

ROUND 3

B.O.A.C. '500' race, Brands Hatch, six hours (13th April):

- 1st, J. Siffert/B. Redman (Porsche 908 *Spyder* 3-litre), 227 laps (602 miles), 100.22 mph,
 2nd, V. Elford/R. Attwood (Porsche 908 *Spyder* 3-litre), 225 laps,
 3rd, G. Mitter/U. Schütz (Porsche 908 *Spyder* 3-litre), 223 laps,
 4th, C. Amon/P. Rodriguez (Ferrari 312P 3-litre), 223 laps,

5th, D. Hobbs/M. Hailwood (Ford GT40 5-litre), 207 laps,

6th, H. Herrmann/R. Stommelen (Porsche 908 *Spyder* 3-litre), 205 laps.

Fastest lap: not issued by the organizers.

ROUND 4

Monza 1,000 Kilometres race, 100 laps (25th April):

1st, J. Siffert/B. Redman (Porsche 908 3-litre), 4 hr 53 min 41.2 sec (128.39 mph),

2nd, H. Herrmann/K. Ahrens (Porsche 908 3-litre), 1 lap in arrears,

3rd, G. Koch/H.-D. Dechent (Porsche 907 2.2-litre), 8 laps in arrears,

4th, H. Kelleners/R. Jöst (Ford GT40 4.7-litre), 8 laps in arrears,

5th, F. Gardner/A. de Adamich (Lola T70 Mk 3B-Chevrolet 5-litre), 8 laps in arrears,

6th, P. Depailler/J.-P. Jabouille (Alpine A-220 3-litre), 9 laps in arrears.

Fastest lap: P. Rodriguez (Ferrari 312P 3-litre), 2 min 48.1 sec (134.41 mph).

ROUND 5

Targa Florio, 447 miles, 10 laps (4th May):

1st, G. Mitter/U. Schütz (Porsche 908 *Spyder* 3-litre), 6 hr 7 min 45.3 sec (72.99 mph),

2nd, V. Elford/U. Maglioli (Porsche 908 *Spyder* 3-litre), 6 hr 10 min 34.0 sec,

3rd, H. Herrmann/R. Stommelen (Porsche 908 *Spyder* 3-litre), 6 hr 21 min 26.7 sec,

4th, K. von Wendt/W. Kauhsen (Porsche 908 *Spyder* 3-litre), 6 hr 35 min 33.5 sec,

5th, E. Pinto/G. Alberti (Alfa Romeo Tipo 33/2 2-litre), 6 hr 46 min 35.3 sec.

6th, G. Koch/H.-D. Dechent (Porsche 907 2.2 litre), 1 lap in arrears.

Fastest lap: V. Elford, 35 min 8.2 sec (76.40 mph—new lap record).

ROUND 6

Spa 1,000 Kilometres race, (11th May):

1st, J. Siffert/B. Redman (Porsche 908 3-litre), 4 hr 24 min 19.6 sec (141.20 mph),

2nd, P. Rodriguez/D. Piper (Ferrari 312P 3-litre), 4 hr 27 min 52.1 sec,

3rd, V. Elford/K. Ahrens (Porsche 908 3-litre), 1 lap in arrears,

4th, R. Stommelen/H. Herrmann (Porsche 908 3-litre), 4 laps in arrears,

5th, J. Bonnier/H. Müller (Lola T70 Mk 3B-Chevrolet 5-litre), 4 laps in arrears,

6th, T. Pilette/R. Slotemaker (Alfa Romeo Tipo 33/2 2.5-litre), 6 laps in arrears.

Fastest lap: B. Redman, 3 min 37.1 sec (145.28 mph—Prototype lap record).

ROUND 7

Nürburgring 1,000 Kilometres race, 44 laps (1st June):

1st, J. Siffert/B. Redman (Porsche 908 *Spyder* 3-litre), 6 hr 11 min 2.3 sec (100.97 mph),

2nd, R. Stommelen/H. Herrmann (Porsche 908/2 *Spyder* 3-litre), 6 hr 15 min 4.2 sec,

3rd, V. Elford/K. Ahrens (Porsche 908 *Spyder* 3-litre), 6 hr 16 min 9.8 sec,

4th, R. Attwood/R. Lins (Porsche 908 *Spyder* 3-litre), 1 lap in arrears,

5th, W. Kauhsen/K. von Wendt (Porsche 908 *Spyder* 3-litre), 2 laps in arrears,

6th, H. Kelleners/R. Jöst (Ford GT40 4.7-litre), 3 laps in arrears.

Fastest lap: C. Amon (Ferrari 312P 3-litre), 8 min 3.3 sec (106.70 mph—new lap record).

ROUND 8

Le Mans 24 Hours race (14th-15th June):

- 1st, J. Ickx/J. Oliver (Ford GT40 5-litre), 372 laps (3,005 miles), 125.44 mph,
 2nd, H. Herrmann/G. Larrousse (Porsche 908 3-litre), 372 laps,
 3rd, D. Hobbs/M. Hailwood (Ford GT40 5-litre), 368 laps,
 4th, J-P. Beltoise/P. Courage (Matra MS650 3-litre), 368 laps,
 5th, J. Guichet/N. Vaccarella (Matra MS630 3-litre), 359 laps,
 6th, H. Kelleners/R. Jöst (Ford GT40 4.7-litre), 341 laps.

Fastest lap: V. Elford (Porsche 917 4.5-litre), 3 min 27.2 sec (145.42 mph).

ROUND 9

Watkins Glen Six Hours race (7th July):

- 1st, J. Siffert/B. Redman (Porsche 908/2 *Spyder* 3-litre), 291 laps (684 miles), 111.19 mph,
 2nd, V. Elford/R. Attwood (Porsche 908 *Spyder* 3-litre), 291 laps,
 3rd, R. Lins/J. Buzzetta (Porsche 908 *Spyder* 3-litre), 282 laps,
 4th, J. Servoz-Gavin/P. Rodriguez (Matra MS650 3-litre), 266 laps,
 5th, H. Kelleners/R. Jöst (Ford GT40 5-litre), 265 laps,
 6th, R. Smothers/F. Baker/L. Sell (Porsche 906E 2-litre), 257 laps.

Fastest lap: V. Elford, 1 min 9.13 sec (119.77 mph—Prototype lap record).

ROUND 10

Austrian Grand Prix, Österreichring, 1,000 kilometres, 170 laps (10th August):

- 1st, J. Siffert/K. Ahrens (Porsche 917 4.5-litre), 5 hr 23 min 36.98 sec (115.78 mph),
 2nd, J. Bonnier/H. Müller (Lola T70 Mk 3B-Chevrolet 5-litre), 5 hr 24 min 44.13 sec,
 3rd, R. Attwood/B. Redman (Porsche 917 4.5-litre), 1 lap in arrears,
 4th, M. Gregory/R. Brostrom (Porsche 908 *Spyder* 3-litre), 2 laps in arrears,
 5th, R. Lins/G. Larrousse (Porsche 908/2 *Spyder* 3-litre), 2 laps in arrears,
 6th, K. von Wendt/W. Kauhsen (Porsche 908/2 *Spyder* 3-litre) 4 laps in arrears.

Fastest lap: J. Ickx (Mirage-Cosworth 3-litre), 1 min 46.6 sec (124.25 mph—new lap record).

CHAMPIONSHIP RESULTS

(based on the best five performances):

1st, Porsche	45 points
2nd, Ford	25 points
3rd, Lola-Chevrolet	20 points
4th, Ferrari	15 points
5th, Matra	6 points
6th, Alfa Romeo	3 points
7th { Chevron-B.M.W. } { Alpine-Renault }	1 point

1970

ROUND 1

Daytona 24 Hours race (31st January-1st February):

- 1st, P. Rodriguez/L. Kinnunen (Porsche 917 4.5-litre), 724 laps (2,759 miles), 114.87 mph,
 2nd, J. Siffert/B. Redman (Porsche 917 4.5-litre), 679 laps,
 3rd, M. Andretti/J. Ickx/A. Merzario (Ferrari 512S 5-litre), 676 laps,

- 4th, M. Parkes/S. Posey (Ferrari 312P 3-litre), 647 laps,
 5th, D. Piper/A. Adamowicz (Ferrari 312P 3-litre), 632 laps,
 6th, J. Thompson/J. Mahler (Chevrolet Corvette Stingray 7-litre), 608 laps.

Fastest lap: not issued by the organizers.

ROUND 2

Sebring 12 Hours race (21st March):

1st, M. Andretti/I. Giunti/N. Vaccarella (Ferrari 512S 5-litre), 247 laps (1,290 miles), 107.29 mph,

2nd, S. McQueen/P. Revson (Porsche 908/2 *Spyder* 3-litre), 247 laps,

3rd, M. Gregory/T. Hezemans (Alfa Romeo Tipo 33/3 3-litre), 246 laps,

4th, P. Rodriguez/L. Kinnunen/J. Siffert (Porsche 917 4.5 litre), 243 laps,

5th, H. Pescarolo/J. Servoz-Gavin (Matra MS650 3-litre), 241 laps,

6th, M. Parkes/C. Parsons (Ferrari 312P 3-litre), 239 laps.

Fastest lap: J. Siffert, 2 min 33.11 sec (122.27 mph—new lap record).

ROUND 3

B.O.A.C. 1,000 Kilometres race, Brands Hatch, 235 laps (12th April):

1st, P. Rodriguez/L. Kinnunen (Porsche 917 4.5-litre), 6 hr 45 min 29.6 sec (92.15 mph),

2nd, V. Elford/D. Hulme (Porsche 917 4.5-litre), 5 laps in arrears,

3rd, R. Attwood/H. Herrmann (Porsche 917 4.5-litre), 8 laps in arrears,

4th, G. van Lennep/H. Laine (Porsche 908 *Spyder* 3-litre), 8 laps in arrears,

5th, C. Amon/A. Merzario (Ferrari 512S 5-litre), 10 laps in arrears,

6th, G. Larrousse/G. Koch (Porsche 908/2 *Spyder* 3-litre), 18 laps in arrears.

Fastest lap: not issued by the organizers.

ROUND 4

Monza 1,000 Kilometres race, 174 laps (25th April):

1st, P. Rodriguez/L. Kinnunen (Porsche 917 4.5-litre), 4 hr 18 min 1.7 sec (144.56 mph),

2nd, I. Giunti/N. Vaccarella/C. Amon (Ferrari 512S 5-litre), 4 hr 19 min 27.6 sec,

3rd, J. Surtees/P. Schetty (Ferrari 512S 5-litre), 3 laps in arrears,

4th, C. Amon/A. Merzario (Ferrari 512S 5-litre), 3 laps in arrears,

5th, J-P. Beltoise/J. Brabham (Matra MS650 3-litre), 5 laps in arrears,

6th, H. Pescarolo/J. Servoz-Gavin (Matra MS650 3-litre), 5 laps in arrears,

Fastest lap: V. Elford (Porsche 917 5-litre), 1 min 24.8 sec (151.68 mph—new lap record).

ROUND 5

Targa Florio, 492 miles, 11 laps (3rd May):

1st, J. Siffert/B. Redman (Porsche 908/3 3-litre), 6 hr 35 min 30.0 sec (74.66 mph),

2nd, P. Rodriguez/L. Kinnunen (Porsche 908/3 3-litre), 6 hr 37 min 12.5 sec,

3rd, N. Vaccarella/I. Giunti (Ferrari 512S 5-litre), 6 hr 39 min 5.2 sec,

4th, H. Laine/G. van Lennep (Porsche 908 *Spyder* 3-litre), 6 hr 44 min 51.7 sec,

5th, R. Attwood/B. Waldegaard (Porsche 908/3 3-litre), 6 hr 45 min 1.6 sec,

6th, H. Müller/M. Parkes (Ferrari 512S 5-litre), 1 lap in arrears.

Fastest lap: L. Kinnunen, 33 min 36.0 sec (79.90 mph—new lap record).

ROUND 6

Spa 1,000 Kilometres race, 71 laps (17th May):

1st, J. Siffert/B. Redman (Porsche 917 5-litre), 4 hr 9 min 47.8 sec (149.42 mph),

2nd, J. Ickx/J. Surtees (Ferrari 512S 5-litre), 4 hr 12 min 23.3 sec,

3rd, V. Elford/K. Ahrens (Porsche 917 5-litre), 1 lap in arrears,

4th, I. Giunti/N. Vaccarella (Ferrari 512S 5-litre), 3 laps in arrears,

- 5th, H. Laine/G. van Lennep (Porsche 917 4.5-litre), 3 laps in arrears,
 6th, R. Attwood/H. Herrmann (Porsche 917 4.5-litre), 3 laps in arrears.
Fastest lap: P. Rodriguez (Porsche 917 5-litre), 3 min 16.5 sec (160.53 mph—new lap record).

ROUND 7

- Nürburgring 1,000 Kilometres race*, 44 laps (31st May):
 1st, V. Elford/K. Ahrens (Porsche 908/3 3-litre), 6 hr 5 min 21.2 sec (102.59 mph),
 2nd, H. Herrmann/R. Attwood (Porsche 908/3 3-litre), 6 hr 10 min 34.8 sec,
 3rd, J. Surtees/N. Vaccarella (Ferrari 512S 5-litre), 1 lap in arrears,
 4th, M. Parkes/H. Müller (Ferrari 512S 5-litre), 2 laps in arrears,
 5th, G. Larrousse/H. Marko (Porsche 908/2 *Spyder* 3-litre), 2 laps in arrears,
 6th, R. Lins/W. Kauhsen (Porsche 908/2 *Spyder* 3-litre), 2 laps in arrears.
Fastest lap: P. Rodriguez (Porsche 908/3 3-litre), 7 min 50.4 sec (108.62 mph—new Prototype record).

ROUND 8

- Le Mans 24 Hours race* (13th-14th June):
 1st, R. Attwood/H. Herrmann (Porsche 917 4.5 litre), 342 laps (2,863 miles), 119.29 mph,
 2nd, G. Larrousse/W. Kauhsen (Porsche 917 5-litre), 336 laps,
 3rd, R. Lins/H. Marko (Porsche 908/2 *Spyder* 3-litre), 334 laps,
 4th, S. Posey/R. Bucknum (Ferrari 512S 5-litre), 312 laps,
 5th, H. de Fierlant/A. Walker (Ferrari 512S 5-litre), 304 laps,
 6th, C. Ballot-Lena/G. Chasseuil (Porsche 914/6 2-litre), 284 laps.
Fastest lap: V. Elford (Porsche 917 5-litre), 3 min 21.0 sec (149.68 mph—new lap record).

ROUND 9

- Watkins Glen Six Hours race* (11th July):
 1st, P. Rodriguez/L. Kinnunen (Porsche 917 5-litre), 308 laps (724 miles), 117.81 mph,
 2nd, J. Siffert/B. Redman (Porsche 917 5-litre), 308 laps,
 3rd, M. Andretti/I. Giunti (Ferrari 512S 5-litre), 305 laps,
 4th, D. Hulme/V. Elford (Porsche 917 5-litre), 302 laps,
 5th, J. Ickx/P. Schetty (Ferrari 512S 5-litre), 299 laps,
 6th, R. Attwood/K. Ahrens (Porsche 917 5-litre), 295 laps.
Fastest lap: P. Rodriguez, 1 min 4.9 sec (127.58 mph—new Sports Car record).

ROUND 10

- Austrian 1,000 Kilometres race*, *Osterreichring*, 170 laps (11th October):
 1st, J. Siffert/B. Redman (Porsche 917 5-litre), 5 hr 8 min 4.67 sec (121.49 mph),
 2nd, A. de Adamich/H. Pescarolo (Alfa Romeo Tipo 33/3 3-litre), 2 laps in arrears,
 3rd, G. Larrousse/R. Lins (Porsche 908/2 *Spyder* 3-litre), 3 laps in arrears,
 4th, V. Elford/R. Attwood (Porsche 917 5-litre), 8 laps in arrears,
 5th, R. Jöst/G. Pankl (Porsche 908 *Spyder* 3-litre), 8 laps in arrears,
 6th, N. Lauda/P. Peter (Porsche 908 *Spyder* 3-litre), 9 laps in arrears.
Fastest lap: J. Ickx (Ferrari 512S 5-litre), 1 min 40.0 sec (132.24 mph—new lap record).

CHAMPIONSHIP RESULTS:

(based on the best seven performances)

1st, Porsche	63 points
2nd, Ferrari	39 points
3rd, Alfa Romeo	10 points
4th, Matra	4 points
5th, Chevrolet	1 point

1971

ROUND 1

Buenos Aires 1,000 Kilometres race,
165 laps (10th January):

- 1st, J. Siffert/D. Bell (Porsche 917 5-litre), 5 hr 25 min 25.92 sec (115.72 mph),
2nd, P. Rodriguez/J. Oliver (Porsche 917 5-litre), 1 lap in arrears,
3rd, R. Stommelen/N. Galli (Alfa Romeo Tipo 33/3 3-litre), 2 laps in arrears,
4th, A. de Adamich/H. Pescarolo (Alfa Romeo Tipo 33/3 3-litre), 4 laps in arrears,
5th, J. Juncadella/C. Pairetti (Ferrari 512S 5-litre), 10 laps in arrears,
6th, T. Gosselin/H. de Fierlant (Ferrari 512S 5-litre), 12 laps in arrears.

Fastest lap: J. Siffert, 1 min 51.53 sec (122.78 mph — new lap record).

NOTE: V. Elford (Porsche 917 5-litre), recorded a lap in 1 min 51.08 sec (123.28 mph), but this was disallowed because he was disqualified in the race.

ROUND 2

Daytona 24 Hours race (30th-31st January):

- 1st, P. Rodriguez/J. Oliver (Porsche 917 5-litre), 688 laps (2,621 miles), 109.20 mph,
2nd, R. Bucknum/A. Adamowicz (Ferrari 512S 5-litre), 687 laps,
3rd, M. Donohue/D. Hobbs (Ferrari 512M 5-litre), 674 laps,
4th, A. de Lorenzo/D. Yenko (Chevrolet Corvette Stingray 7-litre), 613 laps,
5th, L. Chinetti, jnr./N. G-Veiga (Ferrari 312P 3-litre), 584 laps
6th, D. Hines/O. Costanzo (Chevrolet Corvette Stingray 7-litre), 581 laps.

Fastest lap: not issued by the organizers.

ROUND 3

Sebring 12 Hours race (20th March):

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- 1st, V. Elford/G. Larrousse (Porsche 917 5-litre), 259 laps (1,347 miles), 112.50 mph,
2nd, R. Stommelen/N. Galli (Alfa Romeo Tipo 33/3 3-litre), 256 laps,
3rd, N. Vaccarella/T. Hezemans/A. de Adamich (Alfa Romeo Tipo 33/3 3-litre), 248 laps,
4th, P. Rodriguez/J. Oliver (Porsche 917 5-litre), 248 laps,
5th, J. Siffert/D. Bell (Porsche 917 5-litre), 248 laps less 4 penalty laps,
6th, M. Donohue/D. Hobbs (Ferrari 512M 5-litre), 243 laps,
Fastest lap: J. Siffert, 2 min 30.46 sec (124.43 mph — new lap record).

ROUND 4

B.O.A.C. 1,000 Kilometres race,
Brands Hatch, 235 laps (4th April):

- 1st, A. de Adamich/H. Pescarolo (Alfa Romeo Tipo 33/3 3-litre), 6 hr 24 min 32.2 sec (97.17 mph),
2nd, J. Ickx/C. Regazzoni (Ferrari 312P 3-litre), 3 laps in arrears,
3rd, J. Siffert/D. Bell (Porsche 917 5-litre), 6 laps in arrears,
4th, H. Müller/R. Herzog (Ferrari 512M 5-litre), 7 laps in arrears,
5th, D. Hobbs/J. Juncadella (Ferrari 512M 5-litre), 8 laps in arrears,
6th, R. Jöst/W. Kauhsen (Porsche 917 4.5-litre), 14 laps in arrears.
Fastest lap: not issued by the organizers.

ROUND 5

Monza 1,000 Kilometres race, 175 laps (24th April):

- 1st, P. Rodriguez/J. Oliver (Porsche 917 5-litre), 4 hr 14 min 32.6 sec (147.40 mph),
2nd, J. Siffert/D. Bell (Porsche 917 5-litre), 3 laps in arrears,
3rd, A. de Adamich/H. Pescarolo (Alfa Romeo Tipo 33/3 3-litre), 6 laps in arrears,

- 4th, R. Stommelen/T. Hezemans (Alfa Romeo Tipo 33/3 3-litre), 7 laps in arrears,
 5th, N. Vaccarella/T. Hezemans/R. Stommelen (Alfa Romeo Tipo 33/3 3-litre), 8 laps in arrears.
 6th, H. Müller/R. Herzog (Ferrari 512M 5-litre), 10 laps in arrears.
Fastest lap: P. Rodriguez, 1 min 24.0 sec (154.02 mph—new lap record).

ROUND 6

- Spa 1,000 Kilometres race*, 71 laps (9th May):
 1st, P. Rodriguez/J. Oliver (Porsche 917 5-litre), 4 hr 1 min 9.7 sec (154.77 mph),
 2nd, J. Siffert/D. Bell (Porsche 917 5-litre), 4 hr 1 min 10.1 sec,
 3rd, H. Pescarolo/A. de Adamich (Alfa Romeo Tipo 33/3 3-litre), 4 laps in arrears,
 4th, W. Kauhsen/R. Jöst (Porsche 917 4.5-litre), 5 laps in arrears,
 5th, C. Ballot-Lena/G. Chasseuil (Porsche 908/2 *Spyder* 3-litre), 11 laps in arrears,
 6th, T. Pilette/T. Gosselin (Lola T70 Mk 3B-Chevrolet 5-litre), 13 laps in arrears.
Fastest lap: J. Siffert, 3 min 14.6 sec (162.09) mph—new lap record).

ROUND 7

- Targa Florio*, 492 miles, 11 laps (16th May):
 1st, N. Vaccarella/T. Hezemans (Alfa Romeo Tipo 33/3 3-litre), 6 hr 35 min 46.2 sec (74.60 mph),
 2nd, A de Adamich/G. van Lennep (Alfa Romeo Tipo 33/3 3-litre), 6 hr 36 min 57.9 sec,
 3rd, J. Bonnier/R. Attwood (Lola T212-Cosworth FVC 1.8-litre), 7 hr 0 min 0.5 sec,
 4th, B. Chenevière/P. Keller (Porsche 911S 2.4-litre), 1 lap in arrears,

- 5th, M. Parkes/P. Westbury (Lola T212-Cosworth FVC 1.8-litre), 1 lap in arrears,
 6th, G. Pucci/D. Schmid (Porsche 911 2.4-litre), 1 lap in arrears.
Fastest lap: V. Elford (Porsche 908/3 3-litre), 33 min 45.6 sec (79.51 mph).

ROUND 8

- Nürburgring 1,000 Kilometres race*, 44 laps (30th May):
 1st, V. Elford/G. Larrousse (Porsche 908/3 3-litre), 5 hr 51 min 49.3 sec (106.51 mph),
 2nd, P. Rodriguez/J. Siffert (Porsche 908/3 3-litre), 5 hr 53 min 33.4 sec,
 3rd, H. Marko/G. van Lennep (Porsche 908/3 3-litre), 5 hr 53 min 33.5 sec,
 4th, A. de Adamich/H. Pescarolo (Alfa Romeo 33/3 3-litre), 5 hr 56 min 20.0 sec,
 5th, T. Hezemans/N. Vaccarella (Alfa Romeo Tipo 33/3 3-litre), 2 laps in arrears,
 6th, R. Jöst/W. Kauhsen (Porsche 917 4.5-litre), 4 laps in arrears.
Fastest lap: J. Ickx (Ferrari 312P 3-litre), 7 min 40.8 sec (110.86 mph—new lap record).

ROUND 9

- Le Mans 24 Hours race* (12th-13th June):
 1st, H. Marko/G. van Lennep (Porsche 917 5-litre), 396 laps (3,315 miles), 138.11 mph,
 2nd, R. Attwood/H. Müller (Porsche 917 5-litre), 394 laps,
 3rd, S. Posey/A. Adamowicz (Ferrari 512M 5-litre), 365 laps,
 4th, C. Craft/D. Weir (Ferrari 512M 5-litre), 354 laps,
 5th, R. Grossman/L. Chinetti, jnr. (Ferrari 365 GTB 'Daytona' 4.4-litre), 313 laps,
 6th, R. Tourol/A. Anselme (Porsche 911S 2.4-litre), 305 laps.
Fastest lap: P. Rodriguez (Porsche 917 5-litre), 3 min 18.7 sec (151.81 mph—new lap record).

ROUND 10

Austrian 1,000 Kilometres race,
Österreichring, 170 laps (27th
June):

- 1st, P. Rodriguez/R. Attwood
(Porsche 917 5-litre), 5 hr
4 min 26.01 sec (123.04 mph),
2nd, T. Hezemans/N. Vaccarella
(Alfa Romeo Tipo 33/3 3-litre),
2 laps in arrears,
3rd, R. Stommelen/N. Galli (Alfa
Romeo Tipo 33/3 3-litre), 2
laps in arrears,
4th, M. Pasotti/M. Casoni (Ferrari
512M 5-litre), 11 laps in arrears,
5th, E. Bonomelli/'Pooky' (Porsche
910 2-litre), 30 laps in arrears,
6th, C. Schickentanz/P. Kersten
(Porsche 911S 2.3-litre), 31
laps in arrears.

Fastest lap: P. Rodriguez, 1 min
39.35 sec (132.90 mph—new
lap record).

ROUND 11

Watkins Glen Six Hours race (24th
July):

- 1st, R. Peterson/A. de Adamich
(Alfa Romeo Tipo 33/3 3-litre),
279 laps (656 miles), 112.77
mph,
2nd, J. Siffert/G. van Lennep
(Porsche 917 5-litre), 277 laps,
3rd, R. Attwood/D. Bell (Porsche
917 5-litre), 259 laps,
4th, A. de Cadenet/L. Motschen-
bacher (Ferrari 512M 5-litre),
253 laps,
5th, J. Greenwood/R. Johnson
(Chevrolet Corvette 7-litre), 229
laps,
6th, P. Gregg/H. Haywood (Porsche
914/6 2.2-litre), 228 laps.
Fastest lap: D. Bell, 1 min 8.30 sec
(127.98 mph—lap record for
new circuit).

CHAMPIONSHIP RESULTS:

(based on the best eight perform-
ances):

1st, Porsche	72 points
2nd, Alfa Romeo	51 points
3rd Ferrari	26 points
4th { Lola	} 5 points
{ Chevrolet	

Appendix 2

Specifications of Leading Competition Sports Cars and Prototypes

Model	Alfa Romeo Tipo 33/2	Alfa Romeo Tipo 33/3	Alfa Romeo Tipo 33/3
<i>Principal Years raced</i>	1968-9	1969-71	1968-9
<i>Category</i>	Groups 4/5/6	Group 6	Group 6
<i>Capacity</i>	1,995 cc (78 x 52.2 mm)	2,993 cc (86 x 64.4 mm)	2,986 cc (85 x 66 mm)
<i>Cylinders and layout</i>	8 in 90-degree v-layout	8 in 90-degree v-layout	8 in 90-degree v-layout
<i>Valve actuation</i>	twin overhead camshafts	twin overhead camshafts	twin overhead camshafts
<i>Carburation</i>	per bank of cylinders	per bank of cylinders	per bank of cylinders
<i>Power Output</i>	Lucas fuel injection	Lucas fuel injection	4 Weber 46 IDA twin-choke carbs.
<i>Transmission</i>	260 bhp at 9,000 rpm	395 bhp at 9,000 rpm	310 bhp at 8,000 rpm
<i>Chassis</i>	6-speed and reverse gearbox in unit with the final drive	5 or 6-speed and reverse gearbox in unit with the final drive	5-speed and reverse ZF gearbox in unit with the final drive
<i>Front suspension</i>	large H-section tubular members	tubular and alloy-sheet monocoque	multi-tubular space-frame
<i>Rear suspension</i>	double wishbones and coil spring/damper units	double wishbones and links, radius arms and coil spring/damper units	double wishbones and coil spring/damper units
<i>Brakes</i>	ventilated discs mounted inboard at the rear	ventilated discs mounted inboard at the rear	double wishbones and coil spring/damper units
<i>Wheels</i>	cast magnesium 13-inch glass-fibre coupé	cast magnesium 15-inch glass-fibre open sports	ATE Dunlop or Girling discs
<i>Body</i>	7 ft 4.6 in	7 ft 7.3 in	magnesium-alloy 15-incl. glass-fibre coupé
<i>Wheelbase</i>	4 ft 5 in	4 ft 7.5 in	7 ft 6 in
<i>Front track</i>	4 ft 9 in	4 ft 7 in	4 ft 5 in
<i>Rear track</i>	13 ft 9.4 in	13 ft 1.5 in	4 ft 5.5 in
<i>Overall length</i>	5 ft 7.4 in	6 ft 3 in	15 ft 3 in
<i>Overall width</i>	1,488 lb	1,532 lb	5 ft 6.5 in
<i>Weight</i>	red with silver wheels	red with silver wheels	1,499 lb
<i>Colours</i>			metallic blue

<i>Model</i>	<i>Ferrari 312P</i>	<i>Ferrari 512S</i>	<i>Ford GT40</i>	<i>Ford P68</i>
<i>Principal Years raced</i>	1969-70	1970-1	1968-9	1968-69
<i>Category</i>	Group 6	Group 5	Group 4	Group 6
<i>Capacity</i>	2,989 cc (77 × 53.5 mm)	4,994 cc (87 × 70 mm)	4,942 cc (101.6 × 76.2 mm)	2,993 cc (85.6 × 64.8 mm)
<i>Cylinders and layout</i>	12 in 60-degree v-layout	12 in 60-degree v-layout	8 in 90-degree v-layout	8 in 90-degree v-layout
<i>Valve actuation</i>	twin overhead camshafts per bank of cylinders	twin overhead camshafts per bank of cylinders	push-rod overhead valves	twin overhead camshafts per bank of cylinders
<i>Carburation</i>	Lucas fuel injection	Lucas fuel injection	4 Weber 48 IDA twin-choke carbs.	Lucas fuel injection
<i>Power Output</i>	420 bhp at 9,800 rpm	580 bhp at 8,500 rpm	412 bhp at 6,000 rpm	420 bhp at 9,000 rpm
<i>Transmission</i>	5-speed and reverse gearbox in unit with the final drive	5-speed and reverse gearbox in unit with the final drive	5-speed and reverse ZF gearbox in unit with the final drive	5-speed and reverse Hewland gearbox in unit with the final drive
<i>Chassis</i>	multi-tubular space-frame with stressed skin	multi-tubular space-frame with stressed skin	sheet steel and aluminium monocoque	light alloy monocoque with stressed skin
<i>Front suspension</i>	double wishbones and coil spring/damper units	double wishbones and coil spring/damper units	double wishbones and coil spring/dampers	double wishbones and coil spring/dampers
<i>Rear suspension</i>	single top links, reversed lower wishbones and coil spring/damper units	single top links, reversed lower wishbones and coil spring/damper units	single top links, twin radius arms and coil spring/dampers	lower reversed wishbones, single top links, twin radius arms and coil spring/dampers
<i>Brakes</i>	Girling discs mounted outboard	Girling discs mounted outboard	Girling 11.9-inch ventilated discs	Girling 11.5-inch discs mounted inboard
<i>Wheels</i>	Campagnolo cast magnesium 15-inch	Campagnolo cast magnesium 15-inch	cast magnesium 15-inch	cast magnesium 15-inch
<i>Body</i>	glass-fibre coupé	glass-fibre coupé	glass-fibre coupé	glass-fibre coupé
<i>Wheelbase</i>	7 ft 10.5 in	7 ft 10.5 in	7 ft 11 in	7 ft 3 in
<i>Front track</i>	4 ft 11 in	4 ft 11.7 in	4 ft 7 in	4 ft 7 in
<i>Rear track</i>	4 ft 11 in	4 ft 11.5 in	4 ft 7 in	4 ft 7 in
<i>Overall length</i>	13 ft 1 in	13 ft 3.8 in	14 ft 0 in	13 ft 10 in
<i>Overall width</i>	6 ft 6 in	6 ft 6 in	6 ft 4 in	5 ft 10 in
<i>Weight</i>	1,496 lb	1,850 lb	2,472 lb	1,480 lb
<i>Colours</i>	red with gold wheels	red with gold wheels	various, but Gulf Colours were pale blue and orange	red with gold stripe

Model	Howmet TX	Matra MS630	Matra MS650	Mirage M2 (B.R.M. engine)
<i>Principal Years raced</i>	1968	1968-9	1969-70	1969
<i>Category</i>	Group 6	Group 6	Group 6	Group 6
<i>Capacity</i>	3,000 cc (equivalent) power unit was a Continental TS325-1 shaft	2,999 cc (79.7 × 50 mm) 12 in 60-degree v-layout	2,999 cc (79.7 × 50 mm) 12 in 60-degree v-layout	2,999.5 cc (73.8 × 57.2 mm) 12 in 60-degree v-layout
<i>Cylinders and layout</i>	gas turbine with one centrifugal stage and one axial stage compressor followed by an annular-type combustor, a two-stage gas generator turbine and a single-stage free power turbine. This unit developed 330 hp at 6,789 rpm after reduction gearing	twin overhead camshafts per bank of cylinders Lucas fuel injection 385 bhp at 9,000 rpm (1968)	twin overhead camshafts per bank of cylinders Lucas fuel injection 405 bhp at 9,000 rpm (1969)	twin overhead camshafts per bank of cylinders Lucas fuel injection 375 bhp at 10,000 rpm
<i>Valve actuation</i>		5-speed and reverse ZF gearbox in unit with the final drive	5-speed and reverse ZF gearbox in unit with the final drive	5-speed and reverse ZF gearbox in unit with the final drive
<i>Carburation</i>		multi-tubular space-frame	multi-tubular space-frame	aluminium-alloy monocoque
<i>Power Output</i>		double wishbones and coil spring/damper units	double wishbones and coil spring/damper units	double wishbones and coil spring/damper units
<i>Transmission</i>		lower reversed wishbones, single top links, twin radius arms and coil spring/damper units	single upper transverse links, lower parallel links, twin radius arms and coil spring/damper units	single upper links, lower parallel links, twin radius arms and coil spring/damper units
<i>Chassis</i>		Kelsey-Hayes disc brakes	Girling ventilated discs	Girling ventilated discs
<i>Front suspension</i>		hub-mounted	hub-mounted	hub-mounted
<i>Rear suspension</i>		cast magnesium 15-inch aluminium coupé	magnesium-alloy 15-inch glass-fibre open sports	magnesium-alloy 15-inch glass-fibre coupé
<i>Brakes</i>		7 ft 9 in	8 ft 0.5 in	7 ft 10 in
<i>Wheels</i>		4 ft 9.5 in	4 ft 7 in	4 ft 10 in
<i>Body</i>		12 ft 10 in	13 ft 1.75 in	13 ft 10 in
<i>Wheelbase</i>		Not available	5 ft 9 in	6 ft 3.5 in
<i>Front track</i>		Not available	1,742 lb	1,653 lb
<i>Rear track</i>		white, blue and silver	French blue	pale blue and orange
<i>Overall length</i>				
<i>Overall width</i>				
<i>Weight</i>				
<i>Colours</i>				

<i>Model</i>	<i>Porsche 910</i>	<i>Porsche 908</i>	<i>Porsche 917</i>
<i>Principal Years raced</i>	1967-70	1968-70	1969-71
<i>Category</i>	Groups 4/5/6	Group 6	Groups 4/5
<i>Capacity</i>	1991 cc (80 × 66 mm)	2996 cc (85 × 66 mm)	4494 cc (85 × 66 mm.) 4901 cc (86 × 70.4 mm)
<i>Cylinders and layout</i>	6, horizontally opposed	8, horizontally opposed	12, horizontally opposed
<i>Valve actuation</i>	twin overhead camshafts	twin overhead camshafts	twin overhead camshafts
<i>Carburation</i>	per bank of cylinders	per bank of cylinders	per bank of cylinders
<i>Power Output</i>	Bosch fuel injection	Bosch fuel injection	Bosch fuel injection
	220 bhp at 8,000 rpm	350 bhp at 8400 rpm	550 bhp at 8500 rpm 590 bhp at 8500 rpm
<i>Transmission</i>	5-speed and reverse in unit with the final drive	5 or 6-speed and reverse in unit with the final drive	4 or 5-speed and reverse in unit with the final drive
<i>Chassis</i>	multi-tubular space-frame	multi-tubular space-frame	multi-tubular space-frame
<i>Front suspension</i>	double wishbones, coil spring/damper units and anti-roll bar	double wishbones, coil spring/damper units and anti-roll bar	coil double wishbones, coil spring/damper units and anti-roll bar
<i>Rear suspension</i>	single upper links, reversed lower wishbones, radius arms and coil spring/damper units	single upper links, reversed lower wishbones, radius arms and coil spring/damper units	single upper links, reversed lower wishbones, radius arms and coil spring/damper units
<i>Brakes</i>	ATE ventilated discs	ATE ventilated discs	ATE ventilated discs (solid discs substituted in 1970)
<i>Wheels</i>	cast magnesium 15-inch	cast magnesium 15-inch	cast magnesium 15-inch
<i>Body</i>	glass-fibre coupé	glass-fibre coupé or open sports	glass-fibre coupé
<i>Wheelbase</i>	7 ft 6.55 in	7 ft 6.55 in	7 ft 6.55 in
<i>Front track</i>	4 ft 4.8 in	4 ft 10 in	4 ft 10.6 in
<i>Rear track</i>	4 ft 7 in	4 ft 10.25 in	4 ft 9.4 in
<i>Overall length</i>	13 ft 5.8 in	13 ft 1.48 in (<i>Spyder</i>) 13 ft 2.27 in (<i>Normal</i>)	15 ft 6 in (<i>Lang</i> , 1969) 14 ft 1 in (<i>Kurz</i> , 1970-1) 15 ft 8 in (<i>Lang</i> , 1970-1)
<i>Overall width</i>	5 ft 6 in	15 ft 10 in (<i>Lang</i>)	6 ft 2 in
<i>Weight</i>	1,323 lb	1386 lb (<i>Spyder</i>) 1452 lb (<i>Normal</i>) 1496 lb (<i>Lang</i>)	1972 lb
<i>Colours</i>	white (works cars)	white (works cars)	white (works cars, 1969); pale blue and orange (Gulf cars, 1970-1); blue and white stripes, orange and white stripes, white (Salzburg cars, 1970)

Appendix 3

The Evolution of the Porsche 917

- March, 1969 The 917 is announced at the Geneva Show. It is claimed to have a power output of 520 bhp at 8,000 rpm, it is offered with alternative long and short tails and it is given an ex-factory price tag of £14,000. Top speed is claimed to be 200 mph.
- March, 1969 At the end of the month the 917 appears at the Le Mans Test Weekend. On the Saturday on a dry track Rolf Stommelen set fastest lap of the weekend in 3 min 30.7 sec.
- April, 1969 On 20th March Porsche applies for homologation of the 917 as a Group 4 Competition Sports Car. At this time one car has been completed and there are sets of parts to compete a further 24. This is unacceptable to the F.I.A. and the other 24 are assembled within four weeks. On 20th April the cars are inspected and homologation becomes effective as from 1st May.
- May, 1969 Porsche enter two 917s in the Spa 1,000 Kilometres race. One car driven by Mitter and Schütz starts the race, but retires after only one lap with suspected valve trouble.
- May, 1969 Porsche enter three 917s in the Nürburgring 1,000 Kilometres race. Only one car driven by Frank Gardner and David Piper starts and this finishes eighth.
- June, 1969 At Le Mans Porsche enter two cars, with engines claimed to develop 560 and 585 bhp respectively for Elford/Attwood and Stommelen/Ahrens. Elford/Attwood lead the race for a considerable period, but their car retires with a broken gearbox. First 917 in private hands is delivered to John Woolfe, but he crashes on the first lap with fatal results.
- August, 1969 Porsche reveal *Spyder* version of the 917 for Can-Am racing. The car, known as the 917PA (Prototype America), is financed by the Audi division of VW and Paul von Neumann (American VW importer).
- August, 1969 Porsche 917 driven by Siffert/Ahrens scores first victory in the Austrian 1,000 Kilometres race. Similar car driven by Attwood/Redman takes third place.
- September, 1969 News announced that John Wyer will be responsible for the preparation and maintenance of the works Porsche 917s in 1970 and that these will be raced under the Gulf-Porsche and painted in the Gulf Oil Corporation's pale blue and orange colours.
- October, 1969 John Wyer attends a test session with Porsche at the Österreichring in October and he and John Horsman suggest the body modifications that transform the 917's handling characteristics.
- November, 1969 First race appearance of the new Wyer-inspired tail-

- section on David Piper's car in the Kyalami Nine Hours race which it wins.
- March, 1970 Appearance on the J.W. Automotive cars of new type of hub with bigger bearings and no stub axle as such. The new hub proves unsuccessful and is abandoned.
- April, 1970 At the Le Mans Test Weekend a new version of the 917 *Lang* with twin rear tail fins appears.
- April, 1970 The new 4,907 cc version of the 917 engine is raced for the first time in a Salzburg car in the Monza 1,000 Km race.
- May, 1970 At the Spa 1,000 Km race the Gulf cars are raced with the central trough in the tail of the 917 filled in and the Gulf team also tries a small angled spoiler (subsequently adopted at Le Mans).
- June, 1970 The Salzburg and Martini teams run 917 *Lang* cars at Le Mans. Since April these have been fitted with a rear aerofoil bridging the fins. The race is won by a standard 917 4.5-litre car—the first Porsche victory at Le Mans—driven by Dickie Attwood and Hans Herrmann.
- January, 1971 At the Buenos Aires race the cars appear with new laterally and radially ventilated brake discs made of beryllium.
- January, 1971 At the Daytona race there appears in practice a new version of the 917 with slightly longer tail surmounted by tail fins.
- April, 1971 At the B.O.A.C. race the Gulf cars are fitted with new aluminium alloy hubs similar to those used on the 908, but these are subsequently abandoned because of a tendency to expand. The 4,999 cc (86.8 × 70.4 mm) version of the 917 engine is first used in this race. At the same race one of the Martini cars was fitted with high 'snorkel rams' said to marginally increase power output.
- April, 1971 At the Le Mans Test Weekend Porsche reveal three new high-speed body styles, two of which are raced at Le Mans in June.
- May, 1971 Appearance at the first round in the Interserie at Imola of the 917 5,000 Can-Am *Spyder*, the lightweight open Group 7 car.
- June, 1971 Under the direction of the works engineers the Martini team tries out an experimental transistorised brake anti-locking device and the Wyer team experiment in practice with Girling twin-disc front brakes.
- July, 1971 At the Watkins Glen Can-Am race Porsche reveal the new and very light 917-10 *Spyder* Group 7 car which is raced during the series by Jo Siffert. The car is clearly a prototype for the cars to be raced in the 1972 series by the Roger Penske team.
- October, 1971 By October all except one of the 917s raced by the Gulf team have been returned to the works and the last car takes second place in the Barcelona 1,000 Km race and finishes the collaboration between Porsche and Gulf with a victory in the Paris 1,000 Kilometres race at Montlhéry.

Index

- A.A.W. Team**, 112, 132, 133
Aarnio-Wihuri, A., 112, 154
Abarth V-8, 56-7, 100, 138
Adamich, A. de, 72, 83-4, 88, 99-100,
118-21, 126, 129-31, 134, 137, 139,
156, 168-71, 183, 186, 188-202, 211,
213-6
Adamowicz, A., 121, 124, 127-8, 141,
153, 164, 184-5, 204, 207-9, 213
Adams, D., 23
— J. 213
Ahrens, K., 47-9, 61, 69-73, 82, 85,
87-91, 99-100, 112, 121, 125-6, 128,
133, 135, 140, 142, 145, 148-9, 154,
157, 162-9, 172, 189
Alberti, G. 83
Alfa Romeo, Tipo 33/2 23-4, 51
— Tipo 33/3 66-7, 117-8, 129, 134,
146, 156, 178-9, 192
— Tipo 33/TT/3 179, 216
All-American Racers 72
Alpine, A-210, 18
— A-211, 18
— A-220, 18, 34, 61, 75
American International Racing Team,
29, 70
Andretti, M., 27-8, 68, 71, 74, 78, 81,
122-8, 166-8, 177, 186-7, 213,
215-6
Andruet, J., 79, 92, 95
Ascari, A., 39
Aston Martin, 102-3, 105, 137
Attwood, R., 31, 34, 40-1, 45, 47, 51,
54, 57, 61, 69-71, 73-8, 81-4, 88-91,
94-5, 97, 99, 112, 129, 131-3, 137,
140, 142-3, 145-6, 154, 157-8,
162-4, 168-9, 171-2, 176, 198-9,
203, 208-10, 213-5, 217
Austrian Grand Prix, 1968: 47-9;
1000 Kilometres race, 1969: 61, 65,
Auto Usdau, Team, 176
Autodelta, 23-4, 66-7, 78, 118, 141,
160, 170, 192
Axellson, S., 46

Baghetti, G., 31, 34, 37, 52, 55
Bailey, L., 18, 63, 103
Ballot-Lena, C., 172, 195, 205

Barcelona 1000 Kilometres race, 1971:
215
Basche, D., 146
Baturone, D., 79
Beckwith, M., 31
Belgian Grand Prix, 1958: 104
Bell, D., 116, 141, 143-4, 152-3,
157-8, 160-1, 175, 180, 183-95,
200, 203, 207-10, 213-7
Beltoise, J.-P., 92, 95, 100, 117, 119-20,
122, 124, 129, 131, 134, 136,
155, 172, 181
Bennett, D., 109
Berta Prototype, 119, 146, 181
'Beurlys' (Blaton, J.), 43-5, 51
Bianchi, L., 27-8, 31, 33, 37-9, 40, 42,
46-7, 50-1, 53-6, 67, 72, 75
Bianchi, M., 29, 35, 40, 42, 48, 51, 53,
55
Biscaldi, G., 27, 35-7, 52, 88
B.O.A.C. '500' race, 1968: 30-4; 1969,
75-8
— 1000 Kilometres race, 1970: 108,
112, 116, 128-32; 1971: 177, 188-
92
Bonnier, J., 32, 46-8, 69-70, 73, 76-8,
80, 83-4, 86-7, 91-2, 97-100, 141,
145, 154, 166, 180, 198-9, 216
Bourgoignie, C., 76, 79, 85
Boyer, B., 62
Brabham, J., 117, 122, 124, 129, 131,
134, 136, 152, 155, 172
Brambilla, T., 75
Brambilla, V., 79
Brea, P., 180
Brescia Corse, Scuderia, 198
Bridgehampton Can-Am race, 1969:
101
British Grand Prix, 1968: 109
B.R.M. V-12 engine, 64-5
Broadley, E., 78
Brown, D., 102
Buchet, R., 57
Bucknum, R., 69, 72, 125, 153, 164,
184-6, 213
Buenos Aires 1000 Kilometres race,
1970: 119-120; 1971: 174, 177,
179-83; 200 Miles race, 1970: 120-1

- Bussinello, R., 72, 117, 198
 Buzzetta, J., 26, 28, 30, 39, 41, 45, 49, 52-4, 69-71, 73
- Cabral, M., 213**
 Cadenet, A de, 122, 198-9, 204, 213
 Cape Three Hours race, 1968: 57
 Casoni, M., 27, 37-9, 52, 72, 83, 99, 211
 C. D. cars 174
 Cella, L., 23
 Cevert, F., 117, 122, 124-7, 155, 172, 181
 Chapman, C., 78
 Charlton, D., 32
 Chasseuil, G., 195, 205
 Chenevière, B., 200
 Chevron, B8, 22
 — B12, 22
 — B16-Mazda, 141
 — B19, 177
 Chinetti, L., jnr., 121, 127-8, 184
 Chiti, C., 23, 27, 40, 49, 66, 72, 117-8, 126, 134, 183, 194, 197, 202, 211
 Choulet, R., 62
 Cluxton, H., 186
- Daytona Continental 24 Hours race, 1968:** 26-9; 1969: 59, 69-71; 1970: 108, 112, 113, 117, 121-5; 1971: 174, 183-6
 D.B. cars, 174
 Dean, A. G., 31, 97, 98, 121, 129, 166
 Dechent, H-D., 75, 79, 82, 85, 88, 134, 141, 152, 176, 191
 Depailler, P., 36, 40, 51, 53, 79, 81-2, 92, 155, 162, 205
 Deutsch, C., 174, 203
 Dibley, H., 31, 46-7, 51, 53
 Dini, S., 52, 83
 Donnybrooke Can-Am race, 1971: 215
 Donohue, M., 30, 69-72, 184-8, 204, 207-8, 213
 Dubois, C., 51
 Ducarouge, G., 116
 Dulon-Porsche Prototype, 189, 197
 Dutch Grand Prix, 1958: 104
- Eaton, G., 205, 213**
 Eberhorst, Dr. E. von, 102
 Edmonton Can-Am race, 1971: 215
 Elford, V., 17, 26-33, 37-50, 53-4, 69-97, 112, 121, 125-45, 148-9, 154, 157, 160-71, 176, 180-203, 206-7, 213-6
 Enever, R., 155
 Essex Wire Corporation, 103, 104
 European Grand Prix, 1957: 104
- Facetti, C., 52, 79, 88, 90, 134, 156, 162, 169, 171, 197, 211**
 Fangio, J., 89, 119, 170, 182
 Fernandez, José, 216
 Fernandez, Juan, 153, 216
 Ferrari, 250 LM, 51, 60
 — 312P (V-12), 67-8, 75, 92
 — 612, 67
 — 512S, 60, 112-3, 125, 152-3, 169
 — 512M, 172, 178
 — 512M (Sunoco), 178-9
 — 712, 215
 — 365 GTB4 'Daytona', 121-2
 — 312P (flat-12), 177, 193, 206
 Fierlant, H. de, 141, 153, 164, 180, 204
 Filipinetti, Scuderia, 76, 92, 116, 129, 180, 193, 204
 Fisher, C., 30
 Fittipaldi, E., 180, 183
 Follmer, G., 45-6
 Ford Advanced Vehicles Ltd., 103
 Ford-France, 137
 Ford GT40, 20-1, 43, 51, 64, 72, 137, 160
 — P68, 19-20, 63-4
 — P69, 63-4
 — V-8 engine, 64-5
 — V-12 engine, 217
 Forghieri, M., 116, 122, 136, 142, 144, 157
 Francorchamps, Ecurie, 116, 141
- Gagliardi, G., 193, 195, 204, 208**
 Galli, N., 31, 34, 37-9, 41, 52-5, 72, 83, 88-9, 92, 99-100, 118-120, 126, 134, 137, 137, 147, 156, 160, 164, 168-9, 171, 181, 183, 188, 193-4, 198, 201-2, 211-14, 216
 Gardner, F., 40, 42-3, 75, 81-2, 88-90, 93-4, 146
 Garner, J., 27, 70
 Gelo Racing Team, 116
 German Grand Prix, 1958: 104; 1969: 201
 Gesipa Rivet Team, 112
 Ginther, R., 101, 215
 Giunti, I., 37-41, 52-5, 72-3, 83-4, 88-9, 99-100, 116, 118, 121-2, 124-7, 133, 135-7, 139-141, 143, 145-6, 152, 166-72, 177, 180, 182
 Glemser, D., 36
 Goodwood Nine Hours race, 1955: 102; 1956: 102
 Gordini, A., 18
 Gosselin, T., 35-7, 76, 79, 85, 141, 180, 196, 201, 206
 Gozzi, F., 75, 79, 91

- Grandsire, H., 29, 35, 40, 42, 51, 53, 79, 85, 92, 95
 Greene, K., 205
 Gregg, P., 121
 Gregory, M., 28, 51, 54, 93, 118, 120-2, 126, 128, 134, 136-7, 156, 169, 171, 184, 186, 205, 207, 211
 Grossman, R., 186, 206
 Guezec, C. le, 205
 Guichet, J., 34, 51, 53, 55, 79, 92, 97-8
 Gulf Oil Corporation, 103
 Gurney, D., 72, 117, 121-7, 153
 Guthrie, M., 57, 93-4
- Hahne, H.**, 40, 88
 Hailwood, M., 26, 28, 69-73, 76-7, 85, 87-90, 94, 96, 109, 151, 159, 161-2
 Haldi, C., 205
 Hanstein, H. von, 16, 26, 42, 54, 58, 158
 Hawkins, P., 21, 26, 28-30, 33-6, 40-1, 43-9, 51-2, 54, 57, 75-7, 81, 85-7, 93, 95
 Healey-Repco, 155
 Hedges, A., 155
 Heppenstall, R., 25, 46-7, 51
 Herrmann, H., 17, 26-34, 36-48, 50, 53, 57, 69-71, 73, 75, 77-8, 80-9, 92-6, 99, 112, 125-6, 129, 132-3, 135, 137, 140, 142, 145-6, 148-9, 154, 157, 163-5
 Herzog, R., 189, 191, 195, 197, 211
 Hezemans, T., 126, 128, 134, 136-8, 156, 160, 169, 171, 186, 189, 192-4, 197, 199-202, 211-12, 216
 Hine, J., 89, 165
 Hobbs, D., 21, 26, 28, 30, 33-5, 40-7, 51, 53-4, 57, 69-73, 76-7, 85, 87-8, 90, 94-5, 109, 129, 151, 159-61, 184-6, 188-9, 204, 213
 Hockenheim race, 1969: 67
 Howmet TX, 24-5
 Horsman, J., 104-5, 108
 Hulme, D., 22, 31, 75, 128, 131-2, 166-8, 215
- Ickx, J.**, 21, 30-1, 33-5, 40-7, 57, 67, 70-5, 85-6, 88, 90, 94-99, 108, 109, 116, 121-5, 127, 129-33, 141-4, 146, 152-3, 157-8, 161-3, 166, 168-72, 177, 186-7, 189-91, 193-97, 200-2, 211, 213, 216
 Ikuzawa, T., 45, 47
 Imola 500 Km race, 1969: 67, 101; 1970: 168-9; 1971: 215
 Irwin, C., 40
 Italian Grand Prix, 1957: 104; 1958: 104; 1969: 134
- Jabouille, J-P.**, 51, 53, 55, 79, 85, 92, 155, 162, 172, 181
 Jaguar cars, 141, 217
 Jordan, D., 30, 70
 Jöst, R., 79, 82, 90, 93, 97, 170, 189, 193, 201, 203, 208
 Juncadella, J., 153, 172, 180, 189, 190-1, 193, 205, 207-8, 211
 J.W. Automotive Engineering Ltd., 103-6, 150-1, 216-7
- Kar-Kraft**, 103
 Kauhsen, W., 75, 83, 85, 88, 90, 92, 94-5, 151, 162-4, 172, 175-6, 180, 189-90, 192-3, 195-7, 201, 203, 208
 Kelleners, H., 36, 79, 82, 90, 93, 97, 133, 136, 141, 143, 148, 153, 162
 Keller, P., 200
 Killy, J-C., 34
 Kinnunen, L., 108-9, 121-3, 126-8, 131-3, 135-7, 139-40, 144, 147-8, 151, 166-7, 169-70, 197-8, 214, 216
 Koch, G., 75, 79, 82-3, 85-6, 88, 134
- Laguna Seca Can-Am race, 1969:**
 101
 Laine, H., 122, 132-3, 135-6, 138-42, 145-7
 Lanfranchi, A., 132
 Lang, S., 79
 Larrousse, G., 40, 51, 83-4, 92, 94-6, 99, 134, 139, 141, 143, 146, 148, 151, 162-4, 166-7, 170-2, 176, 180, 186, 190, 195, 197, 199-203, 207, 210-11, 216
 Le Mans 24 Hours race, 1954: 141; 1955: 102; 141; 1956: 102; 1963: 103; 1968: 49-56; 1969: 59, 90-7; 1970: 151-65; 1971: 173, 202-10
 Le Mans Three Hours race, 1971: 175
 Le Mans Test Weekend, 1968: 34; 1969: 62, 74-5; 1970: 130; 1971: 174-5, 192
 Lennep, G. van, 122, 131-3, 136, 138-42, 145-6, 154, 161-3, 166-8, 172, 175-6, 180-1, 184, 190, 192-5, 197-200, 202-3, 208-9, 213-7
 Leslie, E., 70, 71
 Lexington Can-Am race, 1969: 101
 Liddell, E., 81
 Ligier, G., 192, 205
 Ligier JS3 Prototype, 205
 Linge, H., 57, 91, 130, 147, 155
 Lins, R., 38-9, 47-50, 54, 83-4, 88, 90, 92, 94-5, 97, 99, 125-6, 134, 138-9, 141, 152, 163-6, 170-1, 176, 184, 189

- Maglioli, C.**, 71
 Maglioli, U., 37-9, 83-4, 137-9, 198
 Mairesse, W., 35, 43, 51-2
 Manfredini, C., 81, 121-3, 133, 154,
 162-3, 193-5, 204, 208
 Mann, A., 20
 March cars, 108
 Marcinovitch, C., 121, 146
 Marcos Mantis, 23
 Marko, H., 141, 146-8, 163, 166, 169,
 170, 174, 176, 180-1, 189, 193-6,
 202-3, 207-11, 216
 Marsh, J., 23, 42
 Martin, D., 168, 176, 180, 195-6, 204,
 209
 Martini Racing Team, 112, 169, 176
 Martini Trophy Race, 1967: 22
 Martland, D., 51, 91
 Matra Sports, 18-19, 61
 Matra, MS620, 19
 — MS630, 18-19, 42, 51, 61-2
 — MS630/650, 62, 79, 116
 — MS640, 62
 — MS650, 62-3, 116, 122, 129, 155
 — MS660, 117, 141, 146, 155, 171-2,
 205
 McGovern, W., 190
 McKee Engineering Corp., 25
 McLaren, B., 31-3, 129
 McLaren cars, 129
 McQueen, S., 126-8, 155, 180, 206
 Mercedes-Benz team, 18
 Merzario, A., 100, 116, 121-2, 125-6,
 129-136, 139-141, 145-6, 152, 158-
 60, 168-9, 178-182, 194
 Mieusset, F., 42
 Miles, J., 76-8, 191
 Mille Miglia, 1953: 102
 Mirage cars, 19, 20, 57, 85, 103, 217
 — M2/300, 21, 64-5
 — M3/300, 65-6, 97-99
 Mitter, G., 17, 26-45, 50-54, 69-78,
 81-5, 88-9, 92-5
 Monaco Engineering, 102
 Monaco Grand Prix, 1968: 42; 1969:
 91
 Monguzzi, E., 180
 Montanagni, M., 119
 Monte Carlo Rally, 1969: 17
 Montjuich, Escuderia, 116
 Monza 1000 Kilometres race, 1968:
 34-6; 1969: 68, 78-82, 86; 1970:
 108, 116, 132-6, 140-1, 172; 1971:
 174, 192-5, 203
 Moretti, G., 121-3, 133, 154, 193-5
 Moss, S., 104
 Motschenbacher, L., 70-1, 213
 Mugello, Circuit of, 1968: 49
 Muir, B., 51-3, 76
 Muller, H., 37, 51, 54, 76, 83-7, 92-9,
 129, 133, 138, 146, 149, 154, 160-1,
 175, 189, 193-7, 203, 208-13
Nationen Preis der, 1968: 49
 Neerpasch, J., 18, 26, 28, 30-1, 33-4,
 36-9, 41-2, 44, 47-50, 53-6
 Nelson, E., 26, 28, 43, 51, 55
 Neumann, P. von, 101
 Nicodemi, A., 198
 Nomad-B.R.M. car, 132
 Norinder, U., 66, 69-70, 73, 77
 North American Racing Team, 68,
 116, 121
 N.S.U. Company, 173
 Nürburgring 1000 Kilometres race,
 1967: 15, 16, 21; 1968: 39-42; 59;
 1969: 61, 87-90; 1970: 109, 145-9,
 156, 168; 1971: 200-2
Oliver, J., 51, 53, 69-77, 85, 88-90,
 94-5, 97-9, 116, 121, 132-3, 174-6,
 180-1, 183-6, 192-3, 195, 200, 203,
 207-8, 210, 217
 Orme, R., 152
Pairetti, C., 180
 di Palma, L., 120, 146, 180
 Paris 1000 Kilometres race, 1967: 18;
 1968: 57; 1969: 100; 1970: 171-2;
 1971: 216
 Parkes, M., 79, 82, 121-5, 129, 133,
 146, 149, 153-4, 161, 180-3, 193-4,
 198-200, 204, 207-8
 Parnell, R., 103
 Parsons, C., 46, 69-71, 123-5, 153,
 187
 Pasotti, M., 211
 Patino, O., 176
 Patrick, S., 29-30, 45-54, 70, 73
 Penske, R., 66, 69, 178, 188, 208, 217
 Pescarolo, H., 42, 51, 62, 70, 100,
 117-22, 125-9, 132-9, 155, 161,
 169-72, 183, 186-9, 192-8, 201-4,
 207, 211-6
 Pesch, F., 134, 166, 169, 201, 204
 Peterson, R., 116, 152-3, 157, 180,
 213-6
 Pickett, W., 122
 Piëch, F., 106, 137
 Pierpoint, R., 31, 34, 77
 Pietermaritzburg 3 Hours race, 1968:
 57
 Pike, R., 51, 54
 Pilette, T., 35, 39, 48-9, 52, 76, 79,
 85, 89, 94, 141, 143, 146, 152, 201,
 206
 Pillon, G., 195-6, 209
 Pinto, E., 83

- Pinto, R., 71
 Piper, D., 31, 35-40, 43, 46, 49, 51, 54, 57, 68, 77-8, 85, 88-94, 99-100, 108, 112, 119, 121, 129, 133, 141, 146, 154, 162, 172, 205, 214, 216
 Porsche, F., 58, 160
 Porsche Konstruktionen Salzburg, 88, 106, 109-12, 121, 132, 176
 Porsche 356 Carrera, 15
 — 906, 15
 — 907, 16, 29, 50, 58-9
 — 908 Normal, 17, 45, 48, 59, 60
 — 908 Spyder, 59, 82-3
 — 908/2, 87, 91
 — 908/3, 109, 137, 145, 175
 — 909, 59, 109, 137
 — 910, 15, 16, 17, 59
 — 911, 15, 17, 34, 59, 83
 — 917, 59-61, 98, 106, 107, 117, 125, 133, 154, 157, 173-5, 176, 183-4, 188-9, 210, 215
 — 917PA, 100
 — 917 5000 Can-Am, 214
 — 917-10, 215, 217
 Posey, S., 121-4, 153, 164, 180, 184, 186, 205-9, 213, 215
 Prophet, D., 85, 152
- Quester, D., 88**
- Race of Champions, 1970: 125**
 Redman, B., 21, 27, 30-1, 33, 36, 40-6, 50, 61, 69-71, 73, 75-7, 81, 83, 85, 87-91, 94, 97, 99-100, 108-9, 119-24, 126-8, 130, 132-4, 136-7, 139-40, 143-8, 150, 152, 157-8, 161-3, 166-71, 175, 189-91, 197, 199, 216
 Regazzoni, G., 152, 161, 177, 189, 191, 193, 195-7, 200-2, 211-2, 215-6
 Reutemann, C., 180
 Revson, P., 126, 128, 166, 184, 186, 188
 Ridelagh, M., 197
 Rio, J. del, 122
 Rindt, J., 31, 93, 120
 Rodriguez, P., 31, 34, 40, 50-4, 68, 75-6, 78, 81-2, 86-9, 92, 94, 97-100, 108-9, 121-4, 126-8, 131-3, 135-7, 139-40, 142-7, 150, 152, 157, 160-1, 166-71, 175-6, 180-203, 207-8, 210, 212, 216, 217
- Salmon, M., 36, 40, 43-4, 51, 55**
 Savage, S., 186, 188
 Savin-Calberson, Ecurie, 51
 Scarfiotti, L., 17, 29-42
 Schetty, P., 56, 78, 81-2, 92, 116, 121, 125, 127, 133, 136, 141-6, 152, 157, 161-8, 215
 Schlessler, J., 26-8, 42, 44
 Schültze, H., 40, 42, 90
 Schütz, U., 27-33, 37-42, 61, 61-95, 106, 193
 Sebring 12 Hours race, 1968: 29-30; 1969: 67, 83; 1970: 107-8, 113, 116-7, 125-8, 172; 1971: 174, 178, 186, 189, 206
 Serenissima car, 119
 Servoz-Gavin, J., 19, 51, 62-3, 70, 79-81, 92-9, 108, 117, 125-36
 Shelby, C., 103, 105
 Shell Cup race, 1968: 49
 Siffert, J., 17, 26-53, 69-101, 108-9, 121-153, 157-175, 180-217
 Skailes, R., 165
 Slotemaker, R., 37, 39, 52, 76, 79, 85, 94
 Solar Productions, 108
 Soler-Roig, A., 50, 54, 79, 120, 180, 183, 211
 Spa 1000 Kilometres race, 1968: 42-5; 1969: 61, 85-7; 1970: 107, 113, 140-5, 150, 153, 172; 1971: 176, 195-7
 Spanish Grand Prix, 1969: 83; 1970: 157; 1971: 192
 Spence, M., 31, 32
 Spoerry, D., 26, 28, 30-34, 40, 44, 50, 54-5, 83, 152, 154, 189
 Sports Car Championship, 1968: 56; 1969: 100; 1970: 172; 1971: 121, 214
 Sportscars Unlimited, 66
 Steinemann, R., 26, 29-34, 38-40, 44, 50, 54-5, 58-9, 70, 74, 91, 101, 154, 207
 Steinmetz, 88
 Stewart, J., 61, 88
 Stommelen, R., 17, 26-30, 34-45, 50-57, 61-94, 99, 118-120, 126, 134-6, 146-8, 156-8, 169, 183, 186-202, 211-6
 Surtees, J., 21, 72, 116, 133-6, 141-152
 Sutcliffe, P., 93
 Swaters, J., 116, 141
- Targa Florio, 1967: 15, 16; 1968: 36-9; 1969: 67, 82-4; 1970: 109, 136-40, 141, 145; 1971: 179, 195, 197-200, 203**
 Tartaruga, Scuderia, 26
 Taylor, S., 27, 66
 Taylor, T., 66, 78, 129, 181
 Terry, L., 18, 21, 64

- Tétu, M., 205
 Thompson, R., 29, 46-7, 51, 53-4
 Todaro, N., 198-9
 Toivonen, P., 83-4, 146
 de Tomaso car, 118
 Tourist Trophy race, 1951: 102; 1967: 22; 1969: 66, 93
 Troesch, S., 35-7, 52
 Tullius, R., 46-7, 51, 53
 Twaites, T., 131
 Tyrrell, K., 61, 108
- Udy, M. de**, 29, 30
- Vaccarella, N.**, 27, 31, 37-8, 40, 42, 52, 55, 72, 83, 84, 88, 92, 95, 99, 116, 121, 125, 127, 133, 135, 137-41, 145-6, 152, 160, 168, 186, 188, 193-4, 197, 199, 201-2, 205, 207-8, 211-2
- Vandervell, G. A., 104
 Vandervell Products, 104
 Vanwall car, 104
 V.D.S. Racing Team, 24, 76
 Veiga, N. G., 180, 184
 Vestey, P., 38, 51, 54
 Veuillet, A., 205
 Vinatier, J., 51, 79, 85, 95
- Waldegaard, B.**, 137, 145
 Walker, A., 153
 Walker, R., 17, 109
 Watkins Glen Six Hours race, 1968: 45-7, 59; 1969: 65, 97-8; 1970: 108, 166-8; 1971: 179, 212-4; Can-Am race, 1971: 215
 Weber, R., 62
 Weigel, D., 189, 205
 Weir, D., 198, 205, 209
 Wendt, K. von, 43, 52, 59, 83, 85-6, 88, 90, 99
 Weslake, H., 217
 Westbury, P., 198, 200
 White, K., 184
 Whitehead, P., 104
 Wicky, A., 55, 205
 Widdows, R., 42, 64, 81, 92, 94, 97, 98
 Wiesendanger, 195, 196, 211
 Williams, J., 51, 54, 76, 77, 119, 129, 155, 198
 Willment, J., 103
 Wisell, R., 141, 145, 154, 161, 166
 Woolfe, J., 22, 46, 51, 91, 93-4
 Wyer, J., 20-1, 36, 60, 64-5, 69, 102-4, 106-7, 116, 137, 148, 150, 158, 160, 175-6
- Yorke, D.**, 21, 40, 54, 102, 104, 109, 123, 137, 150, 176, 183, 194, 211, 216
 Young, G., 184, 186-7, 213
- Zadra, A.**, 198
 Zeccoli, T., 134, 136, 156, 158, 169, 193, 195, 197, 201
 Zerex Special, 178
 Zitro Racing Team, 198



The winning Gulf-Porsche of Siffert and Redman in the pits at the 1970 Spa 1000 Km race. (Photo: Nigel Snowdon)

