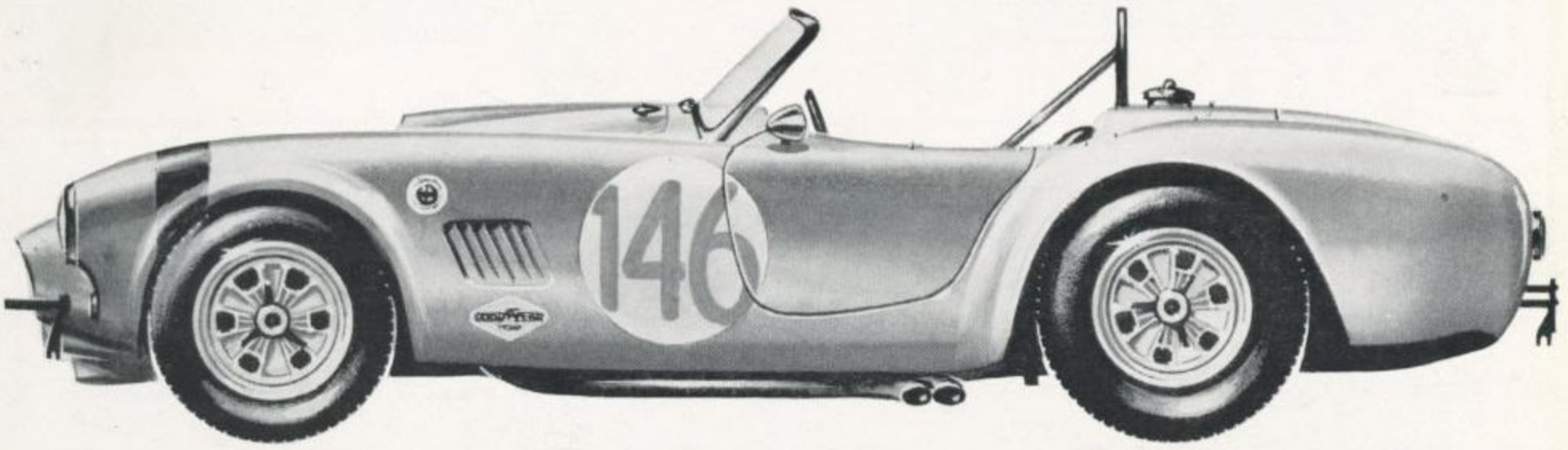
The A.C. Cobra



NUMBER 60

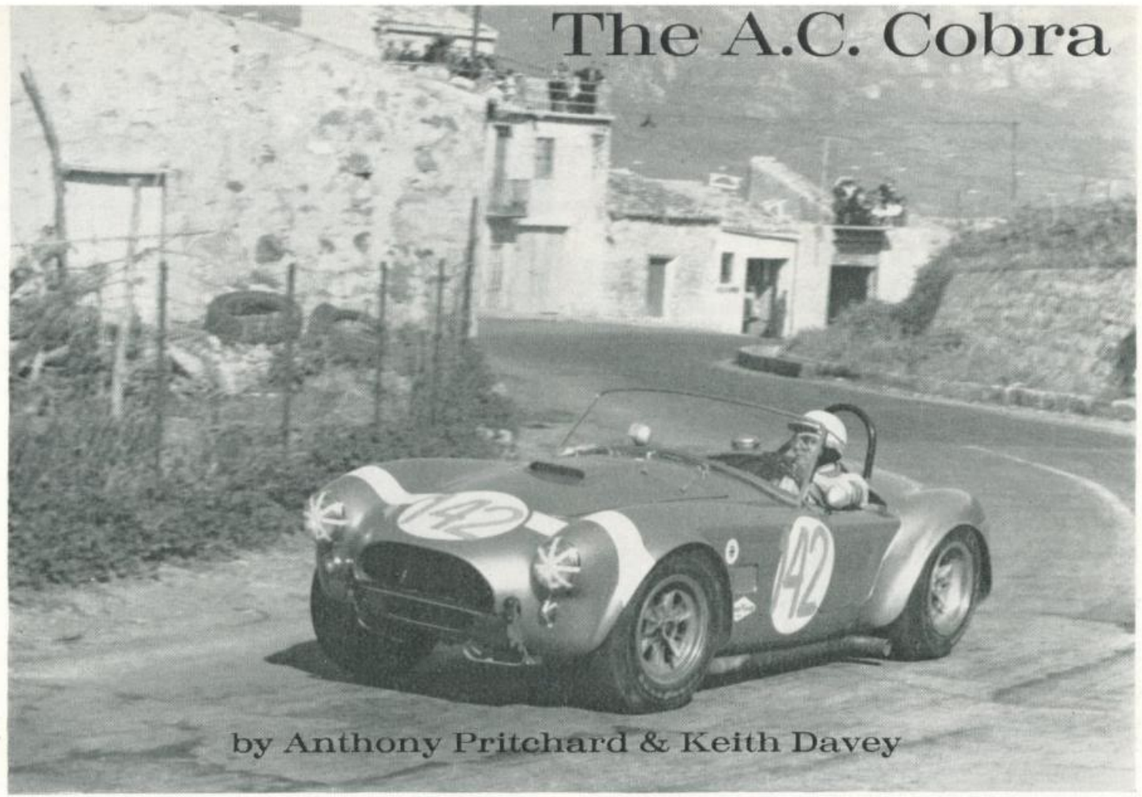
RETAIL PRICE
UNITED KINGDOM TWO SHILLINGS
UNITED STATES & CANADA 50 CENTS

PROFILE PUBLICATIONS

THE A.C. COBRA which finished 8th in the 1964 Targa Florio, in spite of broken rear suspension.
Drivers: Dan Gurney and Gerry Grant.

The A.C. Cobra

by Anthony Pritchard & Keith Davey



Cobra in Sicily: the Bob Bondurant/Phil Hill Cobra retired with a broken rear suspension wishbone in the 1964 Targa Florio.
(Photo: Geoffrey Goddard)

In 1904 a gifted young engineer, John Weller, whose advanced 20 h.p. car had been exhibited at the previous year's Crystal Palace Motor Show, and John Portwine, a butcher who was prepared to finance the production of a small commercial vehicle, formed a Company known as Autocars and Accessories Ltd. Their first product was the Autocarrier, a three-wheeler with an air-cooled, single-cylinder engine. It was an immediate success, and 1907 saw a new company, Autocarriers Ltd., embark on the production of a passenger vehicle on similar lines.

A four-wheeler was designed by Weller in 1913 to use the French Fivet engine, but after a small number of cars had been built production was delayed by the War until 1919, by which time supplies of this engine had virtually dried up. A.C. therefore chose for post-war production the four-cylinder 1½-litre Anzani unit which was later, in modified form, to power the chain-drive Frazer Nashes. In 1919, Weller completed the design of a six-cylinder engine, something which he had long had an ambition to do. This was of very light construction, being made largely of aluminium (although the cylinder head was of cast iron), had a capacity of 1,991 c.c. (65 × 100 mm.) and valve actuation was by a single overhead camshaft driven by an inordinately long chain from the crankshaft.

S. F. Edge, associated with Napiers until his 'retirement' from the Motor Industry in 1912, joined the A.C. Board in 1921. Edge was a firm believer in using competition success to boost sales, and A.C. had more than their fair share of success in the years that followed, using both the four-and six-cylinder engines. Record-breaking during the early 'twenties at Brooklands and Montlhéry was followed by numerous victories in speed and reliability trials and rallies, including a win in the 1926 Monte Carlo Rally. However, the Company (or perhaps their customers were to blame) tended to become rather conservative in later years, for the post-war 2-litre saloon, which was only finally dropped in 1956, retained the same semi-elliptic non-independent suspension as had served the cars of twenty years earlier. And that same 2-litre six-cylinder engine designed by Weller in 1919 was still to be had as an alternative power unit in the A.C. Ace in 1964—a record of longevity equalled by none.

THE INFLUENCE OF TOJEIRO

Much of the reputation of the A.C. Company over the last 13 years is due to John Tojeiro. In 1950, Tojeiro was racing an M.G. 'TA', already modified to the extent of having a lightweight body. The rather inadequate suspension (non-independent by leaf springs) came under critical scrutiny, and Tojeiro decided as a result to scrap the chassis completely and start again from scratch.

The new frame was H-shaped, being made up of three large-diameter steel tubes, while 12-gauge steel boxes at each end carried the suspension members. The suspension was, of course, independent front and rear by a transverse leaf spring and lower wishbones. Rack-and-pinion steering was of Morris manufacture, as were the hubs, and the rest of the chassis consisted of Girling hydraulic shock-absorbers and Turner light-alloy wheels. This chassis was used as a basis for a number of 'one-off' specials during the next few years, the first being Chris Threlfall's Wolseley-M.G.-engined car. Brian Lister, later to gain fame as a designer in his own right, used a J.A.P. twin-cylinder unit and Chris Sears his ex-Frazer Nash Lea-Francis

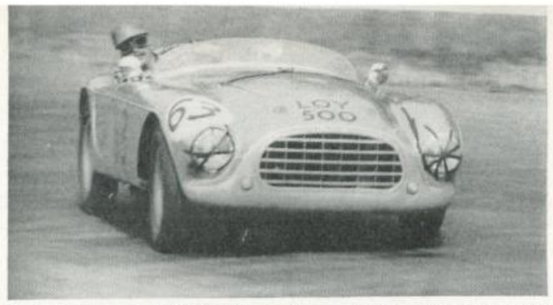
engine. The Leonard-M.G. of Lionel Leonard was similarly based.

In 1953 appeared an extremely attractive 'special' which was to make a marked impression on the British motor racing scene during that year and 1954. Fitted with a body which was an almost exact copy of the Superleggera Touring 'Barchetta' style used on the Tipo 166 Mille Miglia Ferrari, it was powered by a 2-litre Bristol engine and used the same Tojeiro-designed chassis. Cliff Davis, whose car it was, already owned a Cooper–M.G. with the same body style. Such was the success of this car in British events during 1953 that the A.C. Company exhibited at the Earls Court Motor Show that year an advanced (and revolutionary by A.C. standards) sports car built to almost the same specification and known as the Ace—reviving the name of a fast late-pre-war sports model. At that time the only other British production car with fully independent suspension was the Lagonda 3-litre.

THE ACE

Although the prototype Ace had the 'Barchetta' body, the production cars were given a modified frontal, treatment and a slightly more curved rear wing line, making what was a very pleasing body into a very beautiful one. In its production life the Ace (and the Aceca coupé introduced the following year) was fitted with a choice of three engines. The original Weller-designed six-cylinder unit was used exclusively until 1956, and was by then developing 90 b.h.p. at 4,500 r.p.m., giving a performance which was no better than the much cheaper mass-production Austin-Healey 100, Triumph TR2 and the M.G.'A', although it did have far superior roadholding. The Company therefore decided, at the instigation of Ken Rudd, to offer as an alternative the 1,971 c.c. Bristol engine, which was developing 125 b.h.p. in its most powerful (production) form. As an echo of the furious competition activity of the 'twenties came works participation in the 1957 and 1958 Le Mans events, although the Ace gained innumerable victories in the hands of private owners during the 'fifties. A modified Ace-Bristol driven by Ken Rudd and Peter Bolton took second place in the 2-litre class in 1957 to a Ferrari, and a special competition car with a Tojeiro-designed space-frame chassis won the class in the following year's race, driven by Bolton and Dickie Stoop.

In 1961 Bristols discontinued the production of their 2-litre engine, as their new 407 model was Chrysler-powered. The supplies of the Bristol engine became very limited, and A.C. then turned to the 2·6-litre Ford Zephyr engine as an alternative power unit.



Cobra's Ancestor: LOY 500, the famous Tojeiro-Bristol of Cliff Davis at Crystal Palace in 1953. (Photo: Guy Griffiths)

Nothing was lost by this decision, however, as the Zephyr engine was even more powerful than the Bristol after tuning by Rudd, and was cheaper into the bargain. At the same time, the Ace was given a 'face-lift'—the only major design change during its lifetime—and 1962 Aces appeared with the revised frontal treatment incorporating a smaller air intake which remains a feature of the Cobra. Incidentally, Carroll Shelby was not the first to fit the Ace with an engine which took it into the 'big banger' class, for the Jaguar 3·4 unit powered a number of American-owned Aces from 1957 onwards.

It is a remarkable tribute to the original design of the Ace that it changed so little over the years. The plain fact is that the car could not be improved upon. The Ace had a very lively performance and impeccable road manners, added to which was the most beautiful body ever seen on a British sports car.

THE MAN BEHIND THE COBRA PROJECT

The Cobra project was the inspiration of one man, Carroll Shelby, who possessed a great deal of experience of racing European high-performance cars. Like many would-be racing drivers, Shelby started his career on the circuits with an M.G. 'TC', but soon progressed through Allard and Jaguar until 1954, when he drove a private Aston Martin DB3S in Europe. Shelby was on very intimate terms with the works, lending them his car on more than one occasion; at Le Mans, in fact, the car which he shared with Paul Frère ran as a works entry although painted in the American racing colours of blue and white. In 1955 Shelby was over in Europe again at the wheel of a fast but fickle six-cylinder 4·4-litre Tipo 121 Ferrari. In 1957 he won the S.C.C.A. National Championship with a Ferrari, but was back in Europe the following year as a member of the works Aston Martin team.

First of a long line of Aces is the Aceca coupé—pictorially correct if chronologically inaccurate.

Heyday of the Ace—Don Levy's Ace-Bristol at Mallory Park in 1957. (Photo: T. C. March)

At the wheel of the DBR1 Shelby displayed both speed and skill and his successes for the Feltham team included a win, with Roy Salvadori as co-driver, in the 1959 Le Mans race. He also drove the unsuccessful DBR4/250 Grand Prix Aston Martin, and in 1958 was seen at the wheel of a 250F Maserati belonging to the Scuderia Centro-Sud and a lightweight version of the same car entered by Temple Buell. Clearly Shelby had learned a great deal about fast cars, but there are few drivers who are also successful technicians, and Shelby's success with the Cobra, and as entrant of the Ford G.T.s on behalf of the Company, put him in this very exclusive category.

EARLY COBRA DAYS

It was in the autumn of 1961 that Shelby first approached A.C. with a view to the Thames Ditton Company supplying the Ace body/chassis assembly for Shelby to install an American Ford engine. A.C. were interested in the proposal and during the winter they built the first prototype. This was completed in February 1962, but testing revealed the need for certain modifications. The chassis frame was strengthened, the front spring was lengthened and re-designed wheel spindles and bearings were fitted. The 221 cu. in. Ford engine and Borg-Warner gearbox, which had been sent over from America, were then removed and the car was flown to the United States for Shelby to continue the development work. After the installation of a 260 cu. in. Ford engine the car was taken to Riverside Raceway for testing and early changes were the fitting of a Holley carburettor and adding anti-roll bars at the front and rear. The latter are not fitted as standard to the production cars, but later models have brackets ready for their installation if the purchaser should so wish. Another problem which required urgent solving was cooling—both of the engine compartment and the cockpit. The earliest cars shipped to the U.S.A. had Ford Zephyr radiators, which were very inadequate, and Shelby substituted and used as standard radiators made by the McCord Radiator Co. To deal with the cockpit problem, a ventilation system with intakes at the front was installed. Subsequently, Shelby American evolved a strengthened axle hub design (after failure of this component in the Cobra's first race at Riverside Raceway in October, 1962) and differential mounting brackets (again as the result of race failures) and these improvements were soon incorporated in the design by A.C. Alterations were made to the rear suspension and chassis flexing was cured by increasing the gauge of the chassis tubes and also their diameter. The prototype was followed to the States by three further cars which were used for the development work mentioned and one of these later formed the basis of the Ford Cougar II styling experiment. Details of the various Ford engines used are given in the accompanying table. All, however, are the normal Ford product, which is a 90-degree V-8 with pushrod overhead valves and featuring hydraulic tappets (solid tappets are fitted to the higher performance versions). They are comparatively compact and not excessively heavy, and fit well into the A.C. underbonnet area.

Finishing and final assembly work on the first batch of one hundred cars started at Shelby's small Santa Fé works in December 1962, but Shelby American was later transferred to what had been Lance Reventlow's Scarab works at Venice, also in California. At first Cobras were made only in red or white, but demand soon forced Shelby to add black, blue, green and maroon to the colour range. The first 75 cars were powered by the 260 cu. in. (4·2-litre) Ford engine, but subsequent cars have had the 289 cu. in. (4·7-litre) unit. Early cars were sent by A.C. with the Zephyr radiator mountings still in place and this caused assembly difficulties, but the Thames Ditton factory

Pit stop for refuelling and a tyre change by the Thames Ditton-entered Cobra in the 1963 Le Mans race. This car, with Ninian Sanderson and Peter Bolton at the wheel, went on to take 7th place overall. (Photos: B.P. Ltd. and *Motor*)

Not at its best in the 1964 Targa Florio where a premium was placed on roadholding that the Cobra had not got, the sole finisher of five starters was the Gurney/Grant car in 8th place, despite broken rear suspension. (Photo: *Motor Sport*)

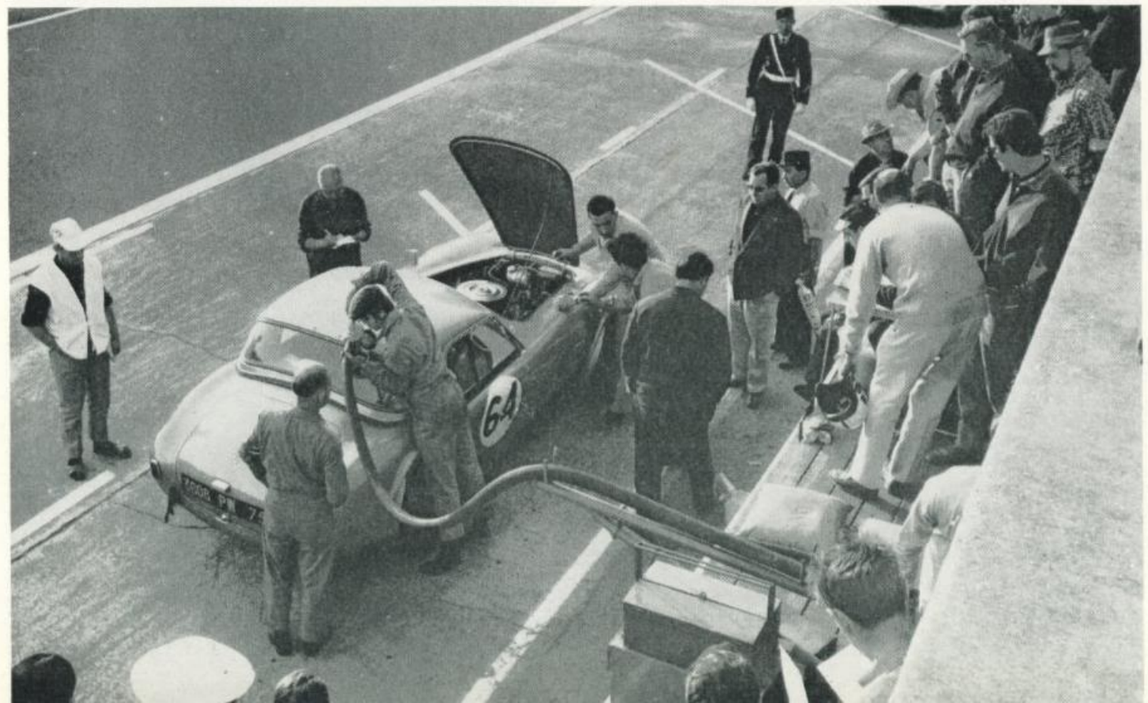
Efficient streamlining means more power to the Cobra's elbow—the new coupé of Gurney/Bondurant took 4th place surrounded by five Ferraris in the 1964 Le Mans race. (Photo: B.P. Ltd.)

quickly incorporated the necessary modifications. From early in 1963, after the construction of the first 125 cars, rack-and-pinion steering was substituted for the worm-and-sector originally fitted, but it is interesting to recall that early A.C. Aces had rack-and pinion steering which was changed to the cam gear type early in that car's production life. On early Cobras (the worm and sector steering of which had a lengthy idler arm and two track rods to each steering arm) it had been found that under racing conditions the toe-in altered during wheel travel. A heavy strain was then thrown on the ball joints of the idler arm with resultant failure of the idler arm bracket. The final drive ratio was reduced from 3·54: 1 to 3·77: 1 and wheels with a wider rim were fitted. During 1963 the standard Ford gearbox was replaced by a box using Pontiac gears, which gave the slightly better spaced lower ratios of 2·20, 1·63 and 1·31: 1 compared with the 2·36, 1·78 and 1·41: 1 of the original.

LATER DEVELOPMENTS

Further modifications were made in 1964. Air vents were installed in the front wings just behind the wheels to extract heat from under the bonnet and aluminium air shrouds were henceforth fitted to protect the passenger footwells and the battery. At the same time an alternator replaced the dynamo and detail changes were made to the pedal layout. It is also interesting to note that the first 70 cars had Lucas electrics (including the dynamo), but the dynamo had then been changed to one of Ford specification with a greater output. Furthermore, from late 1963 American Stewart-Warner, instead of Smith, instruments have been fitted to cars marketed by Shelby American. The Cobra story has been one of constant detail modification and these changes are still taking place. For 1964 the boot lid was shortened so that the body section below it could be made deeper and stiffer. Originally the fuel tank was mounted below the spare wheel, which was itself mounted horizontally in the boot; the former has now been transferred to a vertical position over the rear axle. The most drastic design change came in May 1965, when the by then traditional transverse leaf spring suspension was at long last scrapped. Its place was taken by a much more modern layout incorporating unequal-length wishbones and combined coil spring and damper units. By January 1964, over 400 cars had been built and production was running at the rate of 3-4 cars per day.

Pit stop in the 1964 Le Mans race for the privately-entered Mortemart/Fraissinet Cobra which eventually finished 18th; the following year the same pair took 9th place with an Iso Grifo. (Photo: *Motor*)



Finishing 5th behind two other Cobras in the 1964 Tourist Trophy at Goodwood is Bob Olthoff with a hardtop coupé entered by Willment. (Photo: *Autocar*)

Dante Duce breaks the sports/racing car record at the 1964 Brighton Speed Trials with a time of 24·35 sec. (Photo: *Autocar*)

THE NAME

Shelby had decided to call the car the Cobra right from its inception, but naturally A.C. thought that their name should be on it too. As a result the early cars were shipped to the States with the usual A.C. badge, which is circular, bears the letters A.C. in a curved script and was attached by prongs through the bonnet and boot lid. In fact, A.C. are so attached to this symbol that they have special keys on their typewriters to reproduce it. On arrival at the Shelby works, these badges were removed and replaced by a special Cobra badge. This bore the words 'Shelby Cobra' with the A.C. emblem in the centre. The Cobra badge was smaller than the original and the holes in the metalwork were filled in with pop rivets and painted. The rivets soon made their presence obvious when the paint began to shrink; this difficulty was circumvented by A.C. leaving off their badge and the now-familiar pictorial Cobra badge was evolved. The Ford Company ensured that their contribution to the car was recognised by the fitting of 'Ford Powered' badges on the front wing panels. Unfortunately for A.C., the cars are known in the States as 'Ford Cobras' and now bear no external indication of their British origins. In addition the cars are homologated by the F.I.A. as Shelby American Cobras.

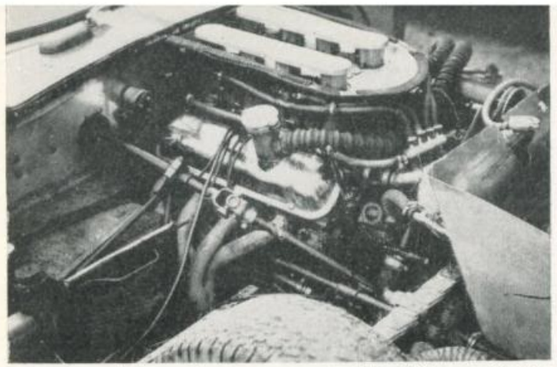
THE CURRENT POSITION

Since the middle of 1965 there has been an agreement between A.C. Cars and Shelby American Inc. that the former would be responsible wholly for the manufacture of 4·7-litre cars, these having first become available on the British market in 1964 and, just before the 1965 London Motor Show, they renamed the 4·7 Cobra the A.C. '289'. Similarly, from the middle of 1965, Shelby has been supplying only 7-litre cars. Wherever a buyer lives, therefore, if he wants a 4·7-litre car it will be an A.C. '289', and if he wants a 7-litre car it will be a Shelby American Cobra. A.C. do, however, market one 7-litre model. This is the '428' introduced in prototype form at the 1965 London Motor Show (when it was known as the '427'—the size of the Galaxie engine which powers it has since been increased). In all mechanical respects this 7-litre model is identical to the Shelby American Cobra, except that the wheelbase has been lengthened by 6 in. to 8 ft. and there is servo brake operation. The '428' has a very attractive and graceful body built by the Italian coachbuilder Frua. This coachbuilder is also responsible for bodies on Maserati chassis and the styling has much in common with these—indeed the windscreen used on the '428' is identical to that fitted by Frua to Maseratis. As might be expected, '428s' are made only in small numbers and they are rather expensive. The prices are £2,952 (£2,400 basic) and £4,611 (£3,750 basic) for the '289' and '428' respectively. Although the standard transmission on the latter is an all-synchromesh gearbox, this is the only Cobra variant offered with automatic transmission; the unit fitted is the three-speed Ford C/6 with ratios of 2·46, 1·46 and 1·0: 1.

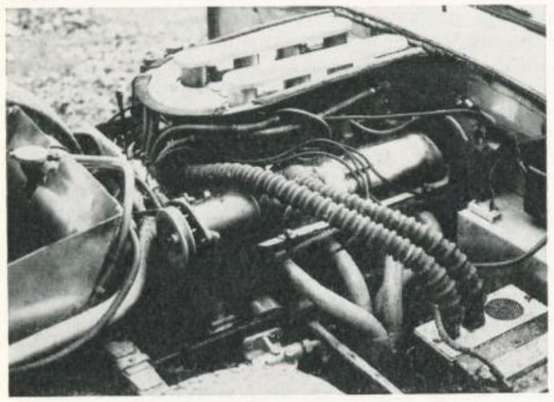
MODIFICATIONS FOR RACING

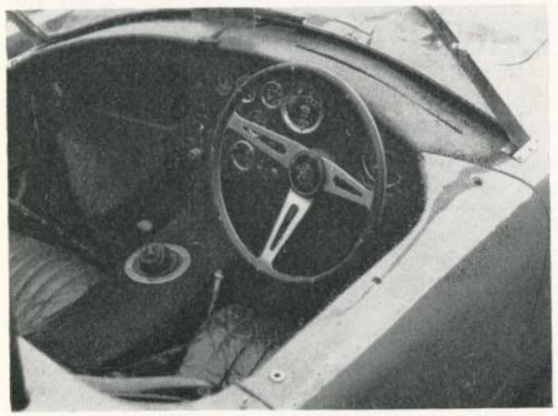
Shelby Racing Cobras are extensively modified, especially as far as the engine is concerned, and it is possible to buy fully converted cars or the components only. Engine modifications include larger valves, general engine tuning and carburation changes. On Shelby-entered cars the carburettors have been four down-draught Weber 48IDM instruments. Other racing developments have included a cast aluminium sump, a special clutch housing to protect the driver in the event of the clutch shattering and the 'Sebring' gearbox with an aluminium casing and ratios of 2·33, 1·61, 1·20 and 1·0: 1; this became an optional alternative on all Shelby American Cobras in 1964.

Tight Trio: right to left are the Daytona coupé of Bondurant, the Ferrari 275LM of Mairesse and Bandini's Dino seen in the 1965 Nurburg 1,000 Kilometres race. (Photo: *Motor Sport*)



Two views of the engine compartment of the Willment Daytona coupé. (Photos: the Authors)





Purely functional: the cockpit of a racing Cobra. This is the open car raced during the 1964–66 seasons by the Willment team. (Photo: the Authors)

Halibrand magnesium wheels are the usual wear on Racing Cobras and fitting these involves bending the steering arms to give extra clearance.

The most significant development for racing, however, was the introduction of the Daytona coupé in 1964. This was based on the usual A.C.-built chassis, but was fitted with an entirely new aerodynamic coupé body with a longer and more pointed nose and a chopped tail. As well as being more aesthetically pleasing, the Daytona had far more efficient lines than the open cars and was, therefore, considerably faster. With a 4·7-litre engine developing close to 380 b.h.p., the claimed maximum speed of the Daytona was just under 200 m.p.h. This body was designed by 27-year-old Pete Brock who had at one time worked for the Special Vehicle Development Section of General Motors.

THE COBRA'S RACING RECORD IN MAJOR EVENTS

1962-63

The racing début of the Cobra was at Riverside Raceway in October 1962, where a 4·2-litre car was driven by Billy Krause. After taking the lead early in this race, in which it faced no serious opposition, the Cobra retired with rear hub failure. By the Daytona Grand Touring race held in February 1963, Shelby was in a position to field four cars, but mechanical failures continued to dog the team and the sole finisher was Dave McDonald in fourth place. A strong entry of cars again appeared the following month at Sebring. Here the Cobras showed an impressive speed, but out of the four starters there was again only one finisher—the car of Phil Hill/Ken Miles which was placed eleventh overall and third in the over-3,000 c.c. G.T. category. Of the other three entries, axle trouble accounted for one and ignition trouble for the other two.

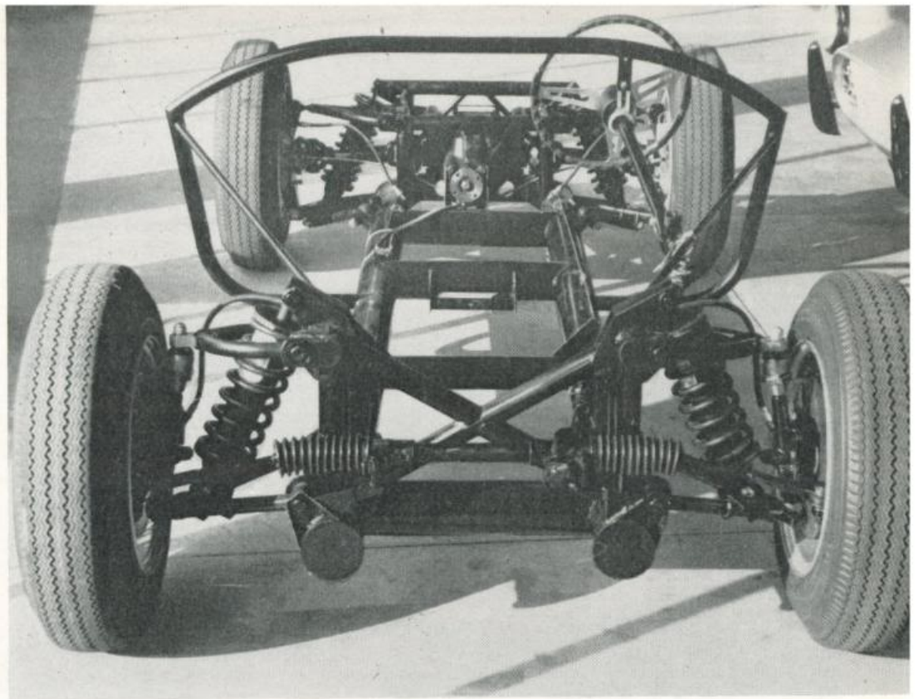
For the 1963 Le Mans race there were two Cobra entries. The A.C. works entered a car prepared in the Thames Ditton factory and supplied by Shelby with an engine that was rather deficient in b.h.p. This entry was sponsored by *The Sunday Times* and driven by Peter Bolton and Ninian Sanderson. The second entry was a Hugus/Shelby car driven by Hugus and Jopp. Both entries were managed by Stirling Moss. The Hugus car retired in the eleventh hour with a broken con-rod when it was just about to be disqualified for taking on oil too soon. The British entry, however, displayed reliability, if not a great deal of speed, and finished seventh, the first 'British' car out of three survivors.

1964

Shelby once again made a determined effort on home ground at Daytona, where for a while the car of Bob Holbert/Dave McDonald led by six laps from a pack of GTO Ferraris. This car was unfortunately eliminated by fire when refuelling and the highest placed finisher was the Dan Gurney/Bob Johnson car in fourth place, having run for much of the race on seven cylinders. Sebring was once again Ferrari-dominated, but the Cobras of Holbert/McDonald, Spencer/Bondurant and Schlesser/Hill took fourth, fifth and sixth places.

This year was the most important in Cobra history as Shelby entries, assisted by the Ford Company, took part in all the major European events and the cars were now raced in Europe by leading private teams. A total of five cars ran in the Targa Florio at the end of April, but the race was pretty disastrous for Cobra, as although Ferrari did not enter, four of the first seven places were occupied by Porsche. The sole Cobra finisher was the Shelby car of Gurney/Grant in eighth place, despite broken rear suspension. Phil Hill was eliminated by a broken rear wishbone, the Gregory/Ireland car by steering failure and a fourth works entry, loaned to the local drivers Arena and Coca, retired with a seized engine caused by a broken oil pipe. A private entry driven by Hitchcock/Tchkotoua finished, despite a smashed-in front, outside the time limit and was not classified. Of the Cobras in this race, Denis Jenkinson wrote most aptly in *Motor Sport:* 'Coming out of a corner there is no rising crescendo to peak r.p.m. before the driver changes gear, there is just a shattering explosive noise and the engine is doing

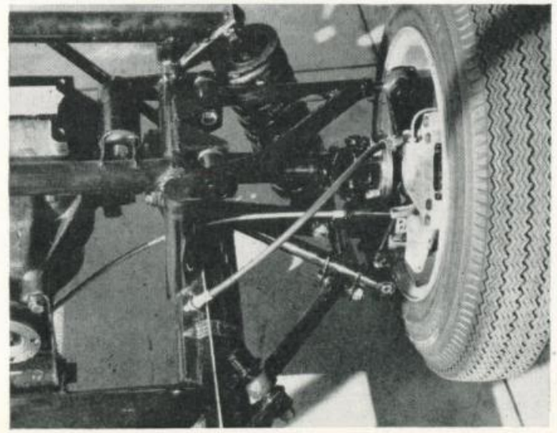
The Cobra sheds its skin.



7,000 r.p.m. and the driver is wildly grabbing for the gear-lever, and the next moment he is standing on the brakes and trying to scrabble round the next corner.'

The Shelby Cobras were supported in the Nurburgring 1,000-kilometres race by the entries from the British Willment team; one of these was, however, crashed by Frank Gardner when the engine seized, and this car non-started. All the Cobras had trouble right at the start of the race, but nevertheless Schlesser/Attwood won the category for G.T. cars over 3,000 c.c. (despite losing 20 minutes through a broken l.t. wire to the coil) and the Willment car of Olthoff/Hawkins was third in the class (despite a fire which burnt the fuel lines and a pit-stop to deal with a broken front wheel bearing). At Le Mans the Cobras were again out in force with an A.C. works entry for Sears/Bolton, which retired and two of the very new Daytona coupés entered by Shelby American Inc. The coupé of Gurney/Bondurant led the G.T. category almost throughout the race and took a very well-deserved fourth place. Its sister car, driven by Amon/Neerpasch, was disqualified during the night for an infringement of the rules relating to batteries. The Thames Ditton-entered Cobra became the centre of a somewhat amusing controversy, as it was alleged that it had been travelling at 183 m.p.h. on the M1 motorway during pre-Le Mans testing. There was an M.o.T. enquiry, and Mr William Swallow, president of the S.M.M.T., gave an assurance that manufacturers would not do high-speed testing on public roads again. This incident also highlights the great increase in power output which Shelby had found in twelve months, for the maximum speed of the British car in the 1963 race was only 165 m.p.h.

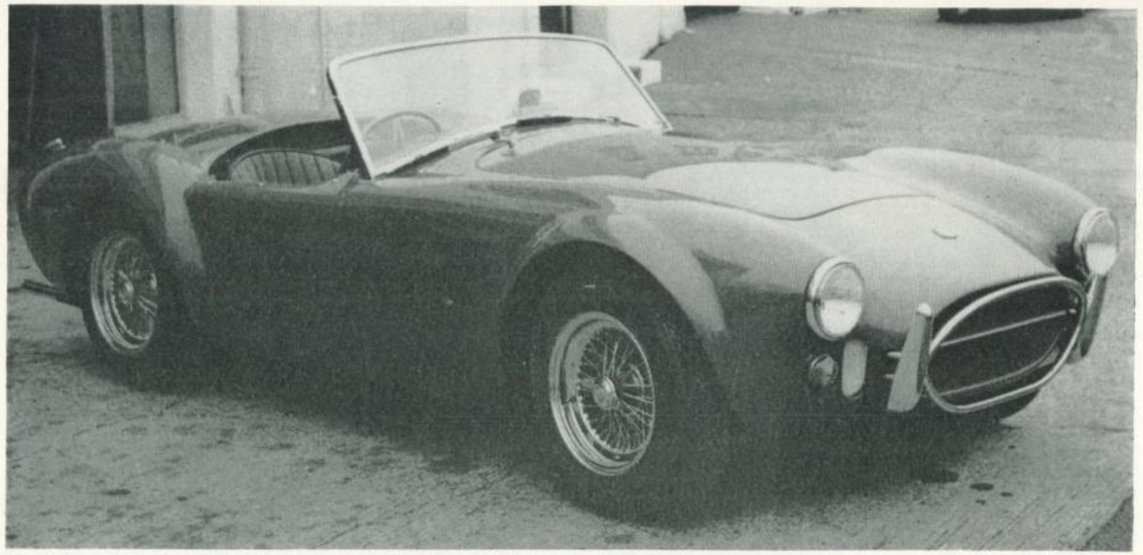
The wishbone and coil spring suspension of the latest Cobra.



The Rheims 12-hours race was a disappointment for Shelby, as the Daytona coupés of both Gurney/Bondurant and Ireland/Neerpasch retired with split gearbox casings. Another race well supported by Shelby was the 130-lap R.A.C. Tourist Trophy at Goodwood where Cobras took third, fourth and fifth places overall behind Graham Hill (Ferrari 330/P) and Piper (Ferrari 275LM). These were driven by Gurney (Daytona coupé), Sears and Olthoff (Willment entries). Shelby did not support the Paris 1,000-kilometres race, but Cobras nevertheless won the 1964 G.T. Championship. For all the 1964 races Shelby had used the 4·7-litre engine, but he had been planning to build a Daytona coupé powered by the 6·8-litre Galaxie engine; Ford had discouraged this as the car would have been as fast as the Ford prototype coupés.

1965

Shelby was now responsible for the entry of Ford G.T. coupés, but continued to race his own Cobras as well. A coupé shared by Keck/Johnson/Schlesser took second place overall in the Daytona 2,000-kilometres race and the make was again the first G.T. car home at Sebring where Schlesser and Bondurant were fourth overall with a Daytona. In the Monza 1,000-kilometres race, the class winning Cobra of Bondurant/Grant was eighth overall and beaten by the 914 GTS Porsche of Pon/Slotemaker which won the smaller G.T. category. Cobras were not entered for the Targa Florio—it became clear in 1964 that they were not suited to this type of event—and their next race was the Nurburg 1,000-kilometres race, with Alan Mann responsible for



The '289'—all 4·7-litre models are now completely assembled in the U.K. (Photo: the Authors)

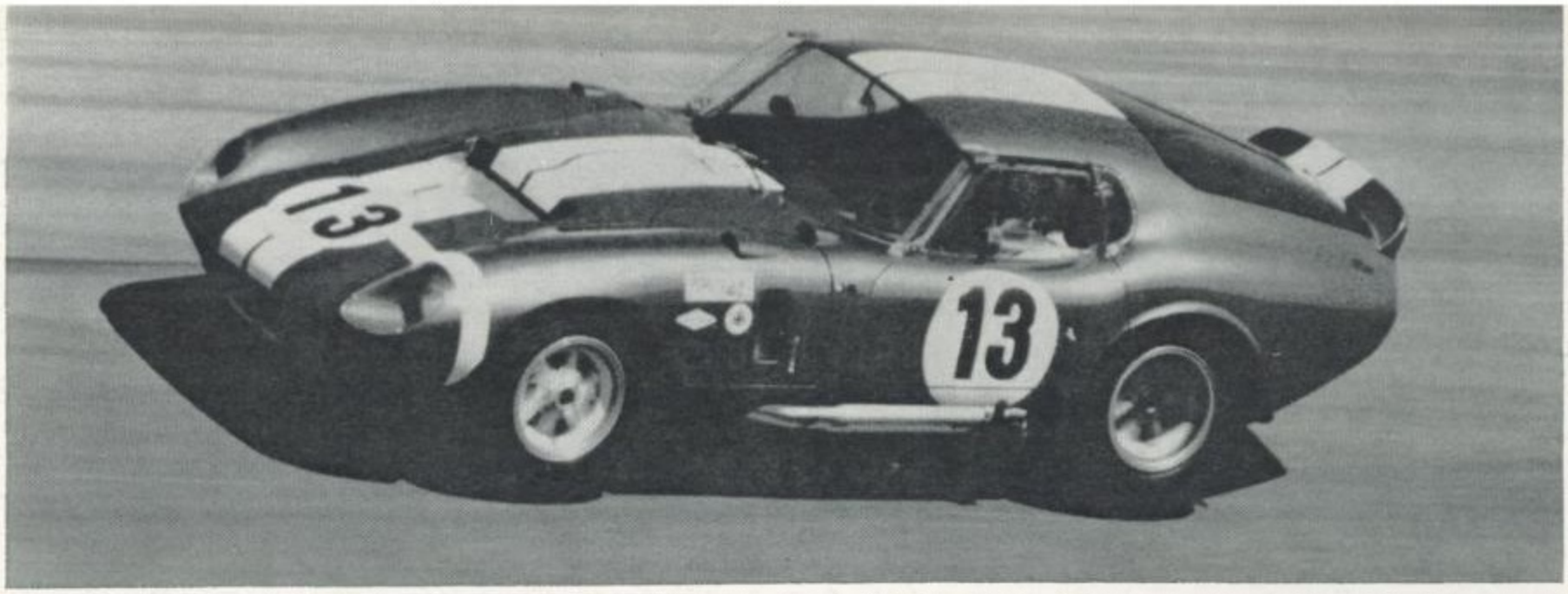
the preparation of the works cars in this race. Here the Daytonas completely dominated the G.T. category and finished sixth and tenth overall in the hands of Sears/Gardner and Schlesser/Simon. Le Mans saw a grand total of five Daytonas entered, two by Shelby American, the others by Ford France, A.C. Cars and Scuderia Filipinetti, but all the last three were prepared by Alan Mann. Only one Cobra survived, the A.C. entry of Sears/Thompson which finished eighth, with a battered front, and which was defeated in the G.T. category by Mairesse/'Beurlys' (Ferrari 275GTB). At Rheims, Bondurant/Schlesser were fourth and won the G.T. category. Once again Cobras were the winners in 1965 of the G.T. Championship, but against far from strong opposition. Their most likely opponent, which was the 275LM Ferrari, was homologated as a G.T. car only for the 1966 season and it is very questionable whether the Daytona should have been homologated—its bodywork was very different from the production cars and, probably, less than a dozen instead of the necessary hundred had been built.

POSTSCRIPT

Although still widely raced by private owners, the Cobra's role in International G.T. racing has now been taken by the Ford GT40, homologated in 1966. Shelby himself now has many other interests including 'hot' versions of the Mustang and the Eagle Formula One car in which he is associated with Dan Gurney; he has also dabbled with the King Cobra, a Ford-powered Cooper 'Monaco' sports/racing car. There still is, however, a considerable demand for production Cobras for, compared with their Continental rivals, they offer exceptionally high performance at a modest price. It must be conceded, however, that the Cobra concept is now somewhat outdated, especially as far as roadholding is concerned. It is remarkable how easy it is to turn a car with both appearance and roadholding which are 'out of this world', into a monster which has neither. Without any disrespect to the Cobra it is a well-nigh perfect example. To quote Denis Jenkinson (*Motor Sport*, 1964), '. . . next time I am out in a vintage car and the inevitable peasant comes up and says, 'Ah! they don't make 'em like that nowadays', I shall say, 'Oh yes they do, and they are called Cobras.'

Frua is responsible for the coachwork on the longer wheelbase A.C. '428'. (Photo: the Authors)

THE COBRA DAYTONA COUPE entered by the "Race Proved by Willment" Team. During 1965 and 1966 it was probably the most successful privately-owned Cobra. It is shown in the form in which it ran in the 1965 Tourist Trophy race, in which it was driven by Frank Gardner and finished 11th.



A Shelby American Daytona Coupé at speed in the 1965 Daytona 2,000 kms. race. A Daytona shared by Keck, Johnson and Schlesser took second place overall. (Photo: *Autosport* and Shelby American, Inc.)

SPECIFICATION: THE A.C. 289 AND COBRA (1966/67 FORM)

Engine: Ford 4·7 or 7-litre (for further details see text and separate table).
Gearbox: Borg-Warner all-synchromesh with ratios of first, 2·20 :1, second, 1·66 : 1, third, 1·31 : 1 and top, 1 : 1.
Final drive: Hardy-Spicer prop-shaft to final drive incorporating Salisbury limited slip 4.HU differential with ratio of 3·45 : 1.
Frame: based on two main longitudinal 4 in. diameter members with additional transverse and longitudinal tubular members.
Front and Rear Suspension: unequal length wishbones and combined coil spring/damper units.
Steering: rack and pinion with 2½ turns from lock to lock.
Brakes: Girling disc to all four wheels with twin master cylinders and swept area of 580 sq. in.
Tyre size: 185 × 15.
Fuel tank: 15 gallons.
Wheelbase: 7 ft. 6 in.
Front track: 4 ft. 7 in.
Rear track: 4 ft. 6 in.
Overall length: 13 ft.
Height: 4 ft. 1 in.
Width: 5 ft. 8 in.
Ground clearance: 5 in.
Turning Circle: 34 ft.
Kerb weight: 2,282 lb.
Weight distribution: Front: 51·53 per cent. Rear: 48·47 per cent.
Approx. maximum speed: 145-150 m.p.h.
Approx. fuel consumption: 18-20 m.p.g.

Ford V-8 Engines Used in Cobras.

Capacity	B.H.P.	Torque	C.R	Notes.
4,260 c.c. (96·5 × 73 mm.) 260 cu. in. (3·8 × 2·87 in.)	164 at 4,400 r.p.m.	258 at 2,200 r.p.m.	8·8 : 1	This unit was fitted to the first 75 cars only.
4,727 c.c. (101·6 × 73 mm.) 289 cu. in. (4·0 × 2·87 in.)	195 at 4,400 r.p.m.	282 at 2,400 r.p.m.	8·6 : 1	This unit was fitted to all later Shelby cars until mid-1965 and is now fitted to all A.C.s except the Frua coupé.
6,989 c.c. (104·9 × 101·1mm.) 428 cu. in. (4·13 × 3·98 in.)	345 at 4,600 r.p.m.	462 at 2,800 r.p.m.	10·5: 1	This unit. has been fitted to all Shelby Cobras since mid-1965 and is used in the A.C. Frua coupé.

Brighton Snake Trials, 1966: the Cobra lives up to its name and Gerry Tyack scatters the photographers with his 4·7-litre car. (Photo: Guy Griffiths)

A trio of Cobras cornering in the 1965 Sebring race. (Photo: *Autosport* and Shelby American, Inc.)

Printed in England