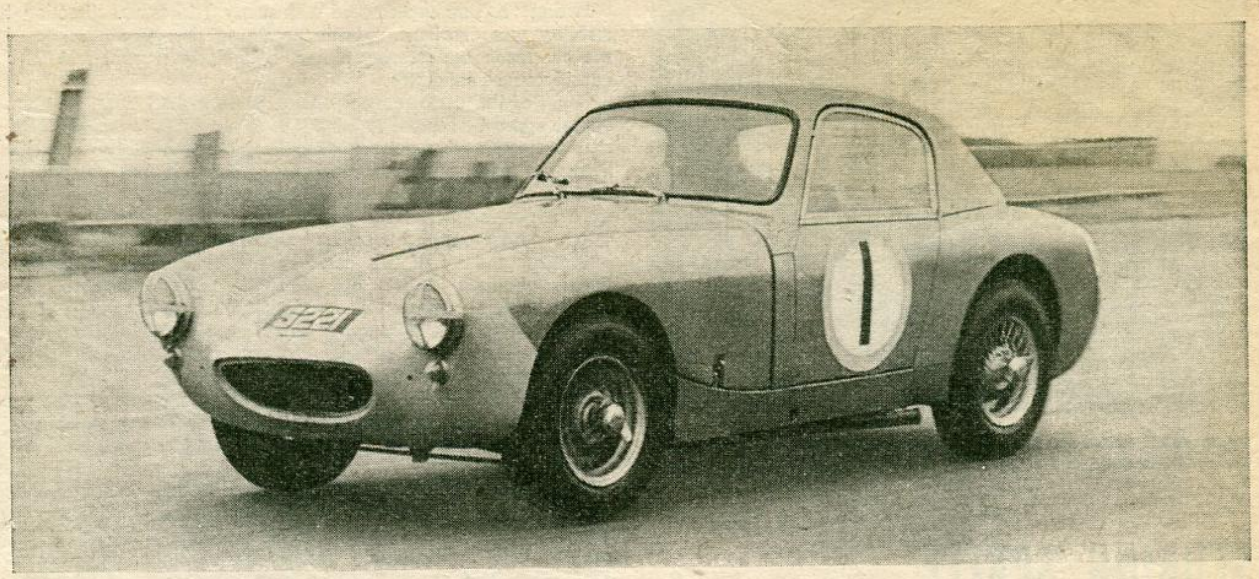
IMPROVING THE PERFORMANCE OF POPULAR CARS



Above: The car which was tested competes at an International Silverstone meeting with Australian, Paul Hawkins, at the wheel. Below: Not after the fire . . . but it shows the lengths to which competitors go to remove all surplus weight

SEBRING SPRITE

ALTHOUGH many different conversions of standard production cars come the way of *The Autocar* Road Test staff, few have been so internationally famous in competition motoring as the Austin-Healey Sebring Sprite. This car, perhaps, only just falls within the category of a conversion, since the modifications are extensive enough for it to be regarded as a separate model. Although based on the normal Sprite, it has been built in sufficient numbers for the car to be recognized and homologated as a Grand Tourer by the international authorities.

It is available in a number of different forms, depending on the uses to which the owner wishes to put it. The actual car tested belonged to John Sprinzel and has covered many hundreds of racing miles—some of them with Stirling Moss at the wheel.

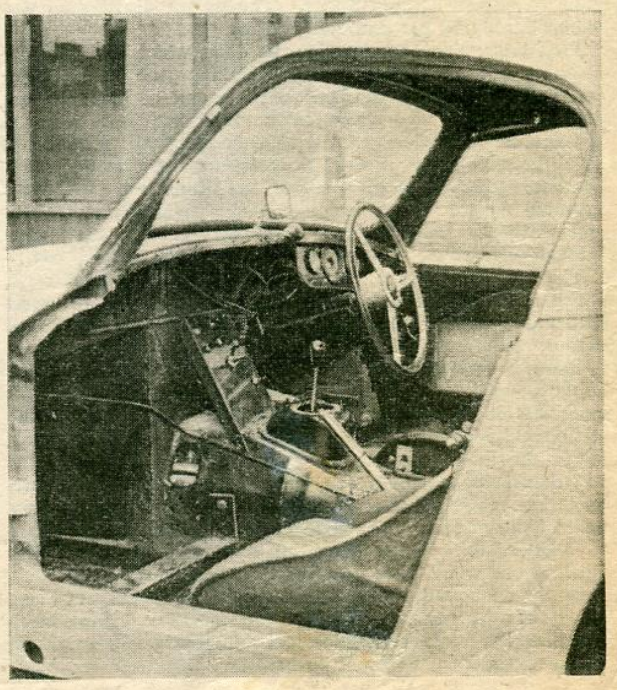
Few distinguishable Sprite features remained. The B.M.C. A-type engine had been modified extensively—a formula Junior crankshaft, lightened flywheel, flat-top solid skirt pistons, oversize inlet valves and 11 to 1 compression ratio being among the changes. The fan had been removed, but a full-flow oil cooler helped to keep the temperature down. Mounted immediately behind the driving seat were two S.U. petrol pumps

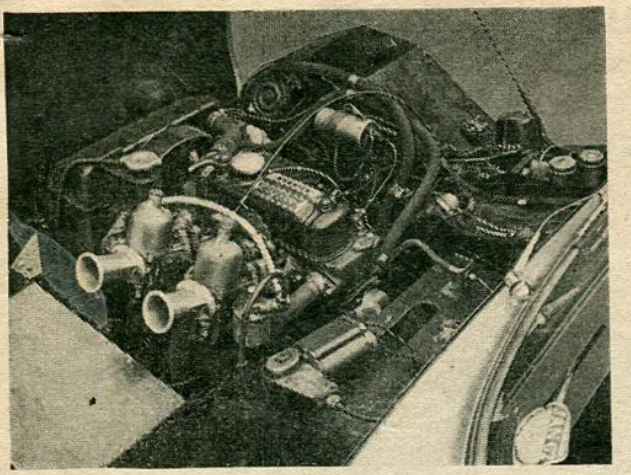
PERFORMANCE

From rest through gears to:	Sebring Sprite	Mark 2 Sprite
40 m.p.h.	5·8 sec	9·0 sec
50 ,,	7·6 ,,	13·8 ,,
60 ,,	10·8 ,,	19·8 ,,
70 ,,	14·1 ,,	29·4 ,,
80 ,,	20·2 ,,	51·8 ,,
90 ,,	27·8 ,,	—
Standing quarter mile	17·8 sec	21·8 sec
Second Gear		
10—30 m.p.h.	5.6 sec	6.2 sec
20—40 ,,	4·0 ,,	6·1 ,,
30—50 ,,	4·3 ,,	—
Third Gear		
30—50 m.p.h.	5·7 sec	9·5 sec
40—60 ,,	5·7 ,,	11·3 ,,
50—70 ,,	6·5 ,,	—
Top Gear		
40—60 m.p.h.	8·6 sec	16·6 sec
50—70 ,,	9·5 ,,	19·2 ,,
70—90 ,,	14·2 ,,	—

Maximum Speed in Gears

Gear:		
Top (mean)	100 m.p.h. (7,200 r.p.m.)	85.3 m.p.h.
(best)	100 ,,	85·5 ,,
Third ..	73 ,,	68 ,,
Second	51 ,,	46 ,,
First	31 ,,	28 ,,





Modifications under the light-weight bonnet had been carried out in a workman-like style, and accessibility to all components is outstandingly good

SEBRING SPRITE . . .

for supplying the twin 1¼in. S.U. carburettors; a nine-spring competition clutch transmitted the torque. A power output of 80 b.h.p. at 7,000 r.p.m. is claimed.

The gearbox was the close-ratio unit now fitted as standard equipment to the Mark II Sprite. Normally the Sebring Sprite has a 4·55 : 1 rear axle ratio, but on the car tested a 4·875 : 1 axle ratio was installed. This was the ratio employed at Brands Hatch, where the car had been racing a few days before it was collected for test. Suspension changes consisted of heavy-duty shock absorbers at the front with an anti-roll bar, and adjustable dampers at the rear. Wire wheels and 5·20—13in. R5 Dunlop covers were fitted. The front drum brakes had been replaced by 8·5in. diameter discs.

The bodywork had been extensively lightened; the bonnet was constructed from glass fibre and an aluminium hardtop of streamlined shape covered the passenger compartment. All the interior trim had been removed, and the battery shifted from under the bonnet to a position just forward of the rear axle. With the spare wheel on board and the 12-gallon fuel tank half-full, the car weighed 11·75 cwt, almost 2 cwt lighter than a standard hardtop Sprite. The weight distribution was almost exactly 50 per cent fore and aft.

First impression after opening the door, which was done by inserting a hand through a small sliding pane in the side-screen and lifting an interior catch, is one of bareness and exposed wiring. The whole of the facia had been removed and the only instruments fitted were an electronic tachometer, an oil pressure gauge, a water thermometer and a petrol gauge. Switches for lamps, ignition, starter and windscreen wiper were mounted on the central console which covered the gearbox and flywheel. Both the road and the rear axle are visible through gaps in the floor on either side of the battery box.

The first thing that one notices as soon as the engine starts, which it always did very easily, is the noise. Even the most hardened extrovert would be embarrassed by the amount of exhaust noise from this car. It is almost impossible to avoid it, however carefully one drives. In town the car was a slight nuisance, as it was inclined to overheat and even the soft plugs started to misfire. It also became very warm in the cockpit and one sat in a mist of Castrol-R fumes—very intoxicating for the diehard enthusiasts. Surprisingly enough, the engine was remarkably tractable, and one could potter along at relatively low engine speeds. Full power from the engine was not available under 5,000 r.p.m., but it then continued right through to 7,000 r.p.m. Rather fierce for road use, the clutch was much as one would have expected on a competition car.

On the open road, if one could submerge the feeling of being anti-social, the car was immense fun to drive. Hard when travelling slowly, the suspension and ride greatly improved with increased speed. The small bucket seats held their occupants securely. Steering was light, direct and positive, the rack and pinion mechanism being very well run in. Gone was the "darting" feeling experienced with many Sprites and directional stability was excellent. While cornering the good balance of the car made the steering almost completely neutral and gave considerable confidence.

What of the performance? John Sprinzel had asked that the engine speed be limited to 7,200 r.p.m. In practice it was found that the engine started misfiring if this speed were exceeded. With the lower rear axle ratio incorporated it was possible to achieve 7,200 r.p.m. in top gear with remarkable ease, even up a slight incline. This engine speed represented about 100 m.p.h. Acceleration, therefore, not maximum speed, is the interesting feature of this car. In the performance table, the figures obtained are set out alongside those of the recently tested Mark II Sprite. A standing quarter-mile of 17·8sec is extremely fast, as is 0-80 m.p.h. in 20·2sec. In racing trim, with only one person aboard and no road test equipment, these figures naturally would be even better.

The disc brakes fitted on the front of the car are an obvious must for the Sebring Sprite. With these there was never any fade when stopping from high speeds frequently and consecutively.

Total price of the equipment fitted to this car is £650, and there is no reason why the modifications should not be made to a second-hand Sprite. In this case, for just over £1,000 one can have an extremely worth-while racing or rally car to distinguish itself in any international company. Its successes have been widespread and varied, and last year one finished third in the most gruelling of all rallies, the Liège-Rome-Liège, and its name results from regular class victories at Sebring.

The Mosses, brother and sister, sprint across the track to jump into their Sprites at the start of the Sebring four-hour Grand Touring car race earlier this year

Safety Harness Lesson

AT a recent Silverstone club race meeting there was a sharp reminder that safety harness is not an infallible saver. A two-door saloon, in which the squabs of the front seats fold forward to gain access to the rear, hit a bank head-on at moderate speed. The driver was wearing a full safety harness of a well-known and approved type. Force of impact, however, resulted in the seat coming off its mountings, and there appeared to be no locking device to stop the front seats jack-knifing in such a situation.

Under such conditions the full harness had little more effect than a lap strap, and the driver was badly cut about the face as a result of being thrown against the lower half of the steering wheel. It is suspected that the injury was aggravated because the harness was not done up sufficiently tightly.

There are three lessons to be learnt from this accident: A seat that hinges forward must be secured firmly at the rear; manufacturers should give careful attention to seat mountings; and a loosely worn harness is not properly effective.