Sebring Sprite Prototype

BY DAVID PALMER

TWO INTERNATIONAL EVENTS on the racing calendar that the British Motor Corporation Department always tries to support are the classic sports car races at Le Mans and Sebring. While they have met with a modicum of success at the French race, Sebring has generally seemed to turn out as little more than an excuse for showing the BMC flag in the U.S. This year, however, a 1.3-liter Austin-Healey Sprite prototype driven by Clive Baker and Rauno Aaltonen scored a resounding success. This sleek little coupe, going like lightning in the rain, compared with almost everything else on the wet circuit, won its class, finished ahead of the fastest of the Alfa Romeo TZ-Cs, beat its 3-liter big brother A-H 3000 and occupied a proud 15th overall in the final standings.

There were two of the 1.3-liter Sprite prototypes in the race this year. The second car, driven by Paddy Hopkirk and Timo Makinen, finished 18th at Sebring, likewise a thoroughly respectable position in such quick company. The two cars were designed jointly by Donald Healey Motors at Warwick and BMC. Although they differ slightly in bodywork, both are roughly the same under the skin.

Although in appearance the prototypes bear no resemblance at all to the current Mk III Sprite, they are surprisingly basic underneath, the extra power and performance being obtained partly from the larger engine and less weight and partly from very careful preparation.

The body was developed from an original Healey idea, made as a mock-up and tested in the BMC wind tunnel before the actual final version was made by hand from aluminum and mounted on a Sprite floor pressing. The nose tapers down to a sharp edge, with the twin lamps and flashing signals enclosed in perspex molded to the body line. All windows are of perspex to save as much weight as possible, those in the doors sliding down for ventilation. There is no interior trim; the fascia is finished in matt black, with the main instruments situated in a nacelle directly ahead of the 3-spoke, leather-grip steering wheel. To the left of the nacelle are flick switches for lights, wipers, washers, and an overriding switch for the fuel pump. The speedometer is ahead of the passenger seat and a fire extinguisher is mounted in a clip on the gearbox tunnel.

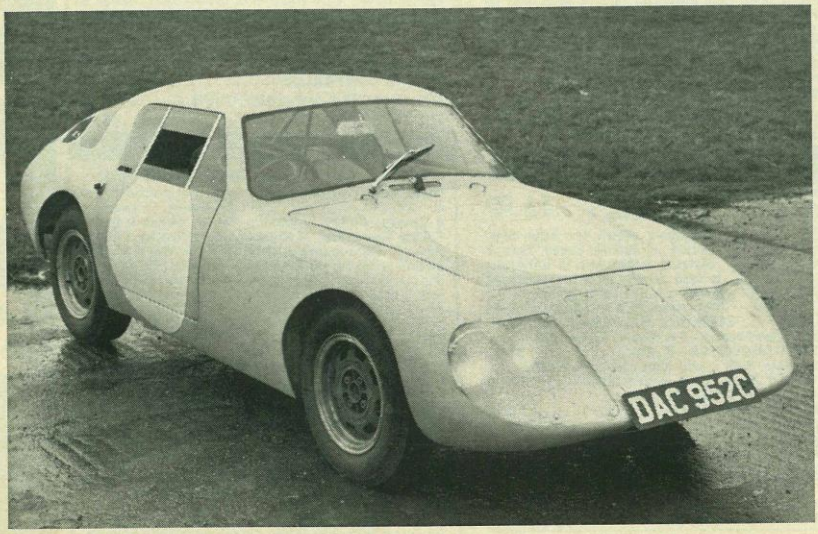
The top of the car sweeps gently down from the windscreen with the tail suddenly chopped off flat in the current idiom. The space thus achieved is filled mainly with a 20-gal. fuel tank that gives rise to a high floor line inside. The spare wheel is the only adornment to this floor. Two racing bucket seats complete the interior, which is decidedly cramped, and forced BMC team chief Stuart Turner to allocate the smallest of his drivers, Clive Baker and Rauno Aaltonen, to this car.

Motive power for the car is a rather special version of the BMC "A" series engine; its nearest similar unit in production is that used on the Mini Cooper S. The 1275-cc block is overbored 0.020 in. to give a new capacity of 1293 cc, and is a conventional engine with sump, not a front-wheel-drive package. The crankshaft is balanced and runs in normal Cooper S bearing shells and the rod bearings are also production, but the camshaft is a competition version having higher lift (0.394-in.) and a 95° overlap. The inlet opens 50° before top dead center and closes 70° after bottom dead center. Exhaust opens 75° bbdc. and closes 45° atdc. The rockers are lightened and the pushrods matched for weight.

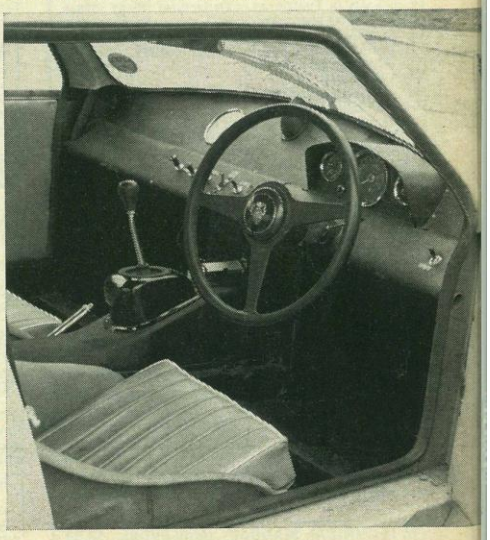
A Cooper S cylinder head is used, with standard-sized valves, but the combustion chambers are gas-flowed and the porting matched perfectly to the manifolds. Machining of the head and block has raised the compression ratio to something in the region of 12:1 and as an extra safety precaution forged pistons instead of cast ones are used, although they are made from the same basic material as the production Cooper S pistons. With a static ignition timing of 5° btdc and Champion N58R plugs, maximum rpm is between 7000 and 7250.

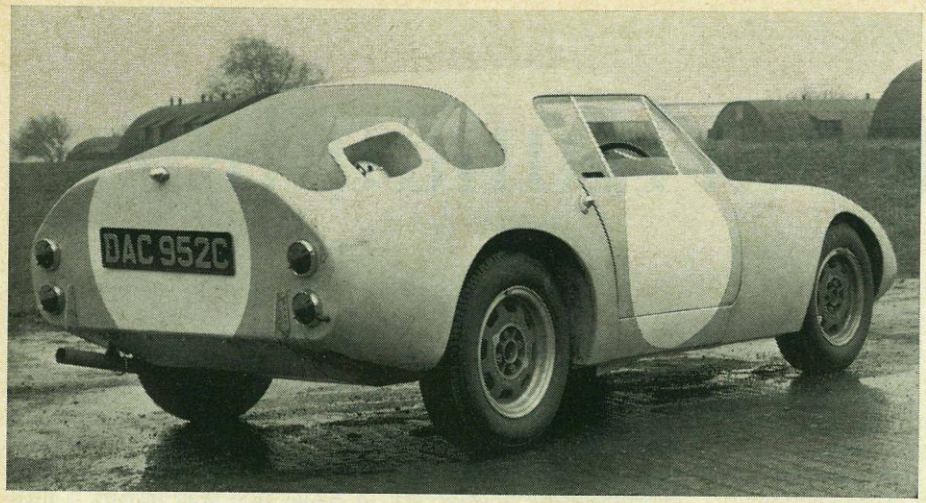
Special manifolding, allowing the most direct route to and from the combustion chambers without resorting to the crossflow method, carries a twin-choke Weber 45 DCOE to get the fuel in and a 3-branch free-flow exhaust, connected

Radiator air intake is below British number plate.



Cockpit has only necessary equipment.





Tail is chopped off in current fashion prescribed by Dr. Kamm.

to a straight-through pipe with barely any silencing qualities, takes the burned gas away. At maximum revs the engine develops 110 bhp, while maximum torque of 94 lb-ft comes at 5000 rpm. Oil pressure at maximum revolutions is between 80 and 85 psi at a temperature of 80° C.

Transmission is as the standard Sprite except for changes to ratios. A Borg & Beck diaphragm spring clutch with competition linings on the driven plate transmits power to a 4-speed close-ratio gearbox, the solid rear axle having a 3.9:1 final drive unit.

Lockheed disc brakes of 7-in. diameter are fitted to the car all round and the disc pads use Mintex lining material, but there is no power assistance. The hubs have four studs to carry special Healey built 13-in. cast magnesium wheels with eight large cooling ducts in each. The tires are 5.00L-13 Dunlop Racing. Use of these special wheels makes a saving of something like 4 lb in unsprung weight per wheel. Apart from alterations to the shock absorber valves and the addition of an anti-roll bar across the front, the suspensions remain exactly as per the production car.

It can be seen from this description that the car does not differ as much as one would think by its appearance from the current Mk III Sprite. Probably the only reason it had to be entered in the prototype class was so that the large engine could be used, and once this had been decided the special light-weight body and other advantageous modifications could be made. Unfortunately, just because a 1.3-liter Sprite is being raced as a prototype is no guarantee that a production model will follow in due course, although there is always a possibility of this happening.

Sebring co-driver Clive Baker about to set off on a trial run.