

# JACK BRABHAM'S M.G. MIDGET-CLIMAX

"...a really potent sports car with vast reserves of stamina..."



It is no secret that the new M.G. Midget is closely related to the Austin-Healey Sprite, and this article may, therefore, be applied to the latter car also. The original Sprite was a lovable little ugly duckling, but it has been developed into the latest model, which is a good-looker, and the M.G. Midget, which is a really attractive small sports car.

In standard form, these machines have a lively performance which satisfies the average owner. Tuning equipment is available to augment the power output, but if the process is carried too far there may be noise, roughness and a lack of flexibility. If a bigger engine could be fitted, of a type designed initially for continuous high power production, the car would obviously be transformed. Unfortunately, the larger B.M.C. units cannot be used because their weight would ruin the handling characteristics. The replacement of the cast iron engine by a light alloy one of increased size is, therefore, the only answer.

This is precisely what Jack Brabham has done in producing his new Sprite-Climax and Midget-Climax. He has taken the famous 1,220 c.c. Coventry

## SPECIFICATION AND PERFORMANCE DATA

**Car Tested:** M.G. Midget two-seater sports car fitted with Coventry Climax engine and disc brakes. Price of basic conversion £360.

**Engine:** Four cylinders 76.2 mm. x 66.6 mm. (1,220 c.c.). Light alloy block and head. Single chain driven overhead camshaft. Compression ratio 10 to 1. 83 b.h.p. at 6,400 r.p.m. Twin SU carburetters. Lucas coil and distributor. Kenlowe electric fan.

**Transmission:** 7½ ins. single dry plate clutch, four-speed gearbox with central remote control gear lever. Ratios 4.22, 5.726, 8.085 and 13.504 to 1. Open propeller shaft dynamically balanced to hypoid final drive unit. Alternative final drive ratios of 4.875, 4.55 and 3.9 to 1.

**Chassis:** Two-door, two-seater sports car of all-steel mono-construction integral with frame and floor. Rack and pinion steering. Front suspension: independent with coil springs and wishbones. Rear: quarter elliptic leaf springs and radius arms. Hydraulic shock absorbers front and rear. Bolt-on disc wheels fitted 5.20 x 13 ins. tyres.

**Equipment:** As standard M.G. Midget. Speedometer, rev. counter, oil pressure, water temperature and fuel gauges. Windscreen wipers and washers, flashing direction indicators.

**Dimensions:** Wheelbase, 6 ft. 8 ins. Track (front), 3 ft. 9½ ins.; (rear), 3 ft. 8½ ins. Overall length, 11 ft. 5½ ins. Overall width, 4 ft. 5 ins. Unladen weight, 13 cwt.

**Performance:** Maximum speed, 107.1 m.p.h. Speeds in gears: third, 80 m.p.h.; second, 57 m.p.h.; first, 34 m.p.h. Standing quarter-mile, 16.4 secs. Acceleration: 0-30 m.p.h., 2.8 secs.; 0-50 m.p.h., 5.8 secs.; 0-60 m.p.h., 9 secs.; 0-80 m.p.h., 17.8 secs.

**Fuel Consumption:** 28/30 m.p.g.

Climax engine with a Stage I camshaft but with twin carburetters. This he has installed in the Midget, using all the know-how that has been accumulated from many Herald-Climax conversions. It is not an easy engine to mount flexibly, because it is so light for its considerable torque. Jack has developed a mounting which gives smooth running right through the revolution range, an achievement which some other firms have failed to emulate.

The engine fills the bonnet from the radiator to the bulkhead, but an electric fan, mounted ahead of the radiator block, saves the under-bonnet space usually occupied by this component. The result of all this is that one gains 270 c.c. and an overhead camshaft while reducing the weight over the front wheels by some 40 lb. These figures speak for themselves.

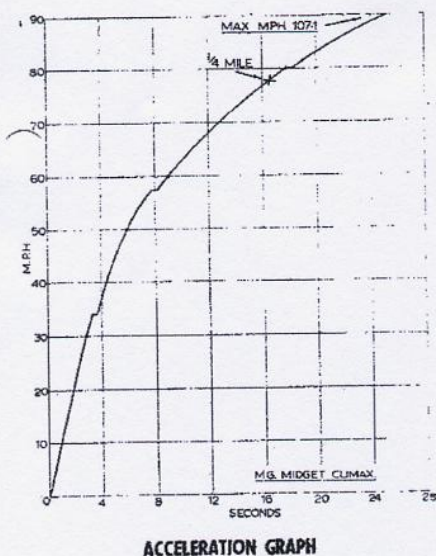
A suitable clutch assembly has been developed and the standard gearbox is used. All the special gears, axle ratios and "chassis-tuning" components that are available for Sprites are applicable to this car if required. The test car had the optional disc brakes and anti-roll bar but there were no structural modifica-

tions. Jack Brabham disapproves of stiffening the suspension and I heartily agree with him. I have driven some "racing" Sprites which leapt like young rams and could only be kept on the road by the skill of the driver. For a small car to hold the road well, relatively soft suspension is essential or every bump will cause a lack of adhesion.

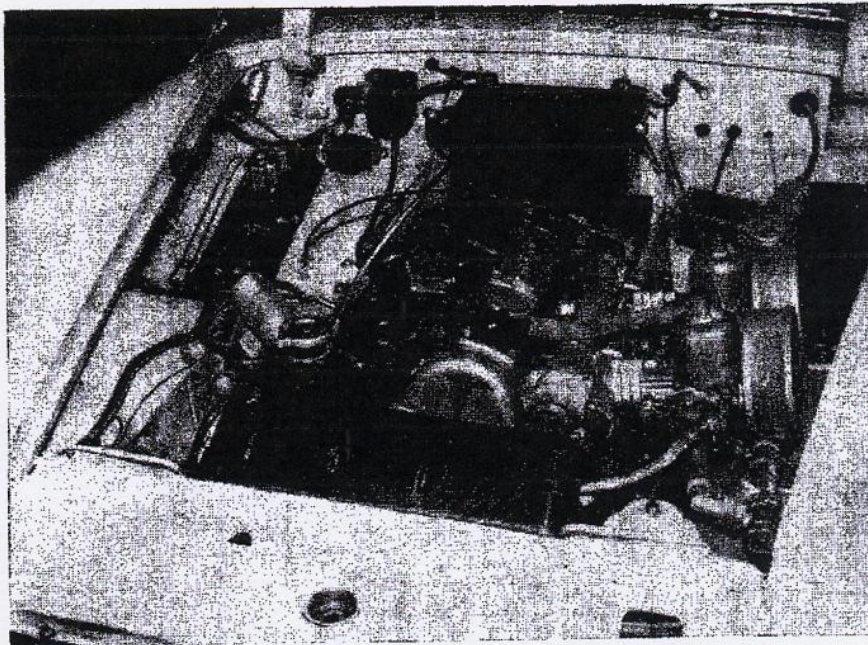
When I took over the Midget I was at once impressed by the lateral location afforded by the proper bucket seats, and the correct relationship of all the controls. In passing, it amazes me that, after more than 70 years of motor manufacture, the majority of cars are still sold with dangerous pedals and seats that encourage the driver and passenger to slide uncontrollably into each other's laps. Ah well!

The engine starts at once, even when the car has stood all night in freezing weather. It idles steadily with no appreciable shake on its mountings, and the clutch permits a smooth start. The engine is more flexible than the unit which it replaces, and will propel the car at 15 m.p.h. in top gear without protest. As a shopping car, the Midget-Climax even better than a standard Midget and the excellent steering lock renders parking particularly simple. The exhaust is well silenced, a virtue which I personally rate very highly.

If flexibility is one aspect of the Coventry Climax engine, an appetite for high revolutions is an even more pronounced characteristic. When hurrying, one normally changes up at 6,500 r.p.m. and at this speed the short-stroke unit is completely unstressed. Modern "cooking" engines, with their pushrods and rockers, can be developed to give an astonishing performance, but for turbine-like smoothness at high revolutions the "camshaft job" has it every time.



ACCELERATION GRAPH



The Climax engine fills the available space on the Midget.

The cruising speed of the Midget-Climax is higher than the maximum of the standard car. On the motorway, 90 m.p.h. may be maintained with the throttle almost closed, and there is still lots of acceleration left. The test car had the hood and sidescrims erect when it was timed at 107.1 m.p.h., and the rev. counter was registering 6,400 r.p.m. at this time. With the smoother contours of a hard top, 110 m.p.h. could certainly be exceeded.

Even more impressive is the acceleration through the gears. The rear axle of the test car was much less inclined to tramp than is usually the case with Sprites, in spite of the vastly greater power available. This is apparently due to the improved weight distribution. At all events, full throttle can be used on bottom gear without excessive wheel-spin, though an early change to second is beneficial on wet roads. The box permits rapid changes, the clutch grips instantly and the result is a time for the standing quarter-mile of 16.4 secs. Very few cars indeed, irrespective of size or price, can better this splendid figure.

The machine never feels over-powered and the quick steering permits an immediate correction if one is guilty of an indiscretion. I took a rather bumpy curve at just over 100 m.p.h. and found that, although the rear axle bounced on occasion, a flick of the wrist was sufficient to pin the little projectile down on its course. For the type of car, the ride is quite surprisingly comfortable at all speeds. Again, it must be a matter of weight distribution, and it is a far cry from the earlier Sprites, which took quite a bit of holding even on the straight at much lower speeds.

To me, the most impressive feature of the car is its acceleration in the 80-90 m.p.h. range. Persons in 3½-litre devices watch with pained incredulity as one sails past, and the ease with which one glides over hill tops, still at 90 m.p.h., seems almost unnatural. The brakes cope easily with repeated high-speed stops, and the fuel consumption is always moderate. Fast driving consumes the stuff at the rate of 28 m.p.g. and 30 m.p.g. is easily attained under normal conditions.

Externally, nothing is visible of the changes that have been wrought within. So many "conversions" are unattractive because they have an air of being home-made. In the case of the Midget-Climax it is impossible to tell where B.M.C. ends and Brabham begins. Everything is properly finished, the controls work normally and there is no sign of improvisation. Engine heat does not penetrate to the cockpit and there are no bulges which try to hide that the machinery is larger than standard.

A high-performance sports car which has no other virtues may appeal to the young. A high-performance sports car which is quiet, flexible and comfortable has a far larger potential market and I predict that Jack will sell as many as he can make. At £360 for the whole job, which includes work on the brakes and fitting a rev. counter, this cannot be regarded as an expensive operation. A Midget or Sprite so treated becomes a really potent sports car that has vast reserves of stamina and will stand the hardest driving indefinitely. And, of course, if one were to tune the Climax ... !

