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JOHN BOLSTER TESTS

A Works- Modified Sprite Mark 2



THE Austin-Healey Sprite, in its Mark II form, is a practical and most attractive little sports car. The Donald Healey Motor Co., Ltd., of the Cape, Warwick, is the parent firm which originates the design of the cars, and this company also specializes in modifying the basic machine. Obviously, the standard model is turned out at a competitive price, but there is considerable scope for the man who can afford de luxe equipment and special tuning.

I have recently had the pleasure of using a fully modified Sprite which had received "the treatment" at Warwick. First of all, an extremely effective fibreglass hard top had been added, plus a pair of lightweight glass fibre bucket seats and a set of fitted carpets. These items cost £52 10s., £18 16s. and £10 respectively.

Then the Healey Sprint Kit had been fitted. This entails enlarging and polishing the ports while lining up the manifolds. Two 1½ ins. SU carburettors and a high-efficiency exhaust system are used. The chassis benefits from an anti-roll bar, heavy-duty front springs, and a set of special damper valves. For the driver's pleasure, a wooden steering wheel is fitted. The complete cost of this Sprint kit is £71.



In addition, the engine tuning had been carried a good deal further. A set of high-compression pistons at £12 12s. was installed, together with a three-quarter-race camshaft and distributor at £19 5s. Larger valves were incorporated, costing 17s. 6d. each for the inlets and £1 3s. for the exhausts. A lightened flywheel at £6 6s. and a nine-spring clutch at £15 10s. were added, plus an oil cooler at £16. An alloy rocker cover with quick-action filler cap completed the engine at £6 6s. Fitting charges would be extra on these items, the work having been carried out to racing standards, with all strategic bolts and nuts drilled and wired. The block was bored .060 in. oversize to bring the capacity up to 995 c.c.

4,000 r.p.m., things were beginning to happen, and in the band between 5,000 and 7,500 r.p.m., the performance was almost beyond belief.

The figures speak for themselves. The 0 to 60 m.p.h. time of 10 seconds is tremendous motoring but the standing quarter-mile in 17.2 secs. is simply breathtaking, 80 m.p.h. coming up in third during this exercise. The acceleration continued strongly in top gear, 90 m.p.h. being seen on any short straight. With a good long run, a timed 100 m.p.h. could be appreciably exceeded.

Driven sensibly, the engine was by no means intractable though it would not suit auntie. I employed the machine as a town carriage on occasion, one oiled plug being the sole penalty for this



A disc brake and wire wheel kit is a "must" for a little motor of this calibre, at £103. The test car had a 4.55 to 1 axle nose assembly, costing £25. Apart from these few items, "my" Sprite was "absolutely standard, old man".

From the above specification, it is obvious that the test car was a pretty hot little package. The engine was dead smooth, flashing up to 7,500 r.p.m. at the drop of a hat. Conversely, practically no power was generated under 3,000 r.p.m. and it was advisable to keep below half throttle when coaxing the willing little unit past this critical speed. At

indignity. The clutch was smooth and the gear change excellent, but while the interior noise level was high, it would be acceptable to the young enthusiasts who would own such a car. I cruised for considerable distances at 6,000 r.p.m. without feeling that I was overdoing it.

The ride, of course, was hard and the seats lacked padding, though they gave excellent lateral location. All this is typical of the small competition car, and would be valued as such by the enthusiastic driver. The usual oversteer had vanished, a completely neutral characteristic being displayed. The

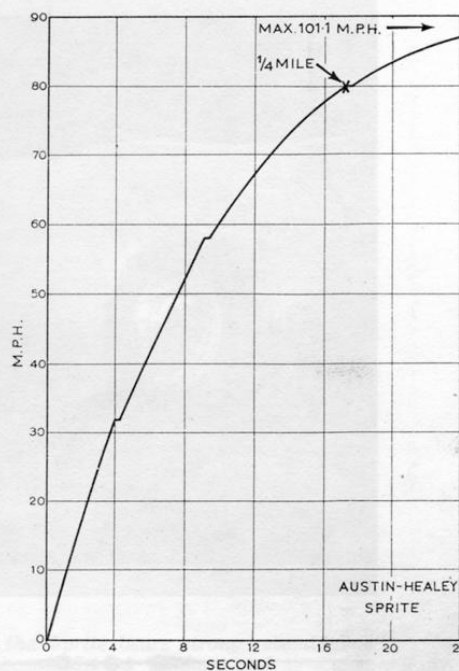


machine could be cornered very fast, and while it did not encourage one to adopt extreme angles of drift, the road-holding was very satisfactory for hard driving. Bumps could cause a momentary unsticking of the rear end, but a flick of the steering wheel soon subdued that. Severe bumps could force the rear suspension to bottom, but this was exceptional.

The brakes gave me every confidence, and a fat lady who suddenly waddled into the middle of the Watford By-pass evidently had confidence in them too. All four wheels left impressive black lines, the car remaining straight with no

hopping or tramp. The steering was sensitive, giving good "feel" on wet roads, at the expense of some kick-back on bumpy surfaces.

There was something very endearing about this little car. It seemed to be so well made, with absolutely no rattles. There were noises, of course, but they were all functional sounds that one expects in a sporting vehicle. The hard top was very neat indeed, the sliding windows fitting satisfactorily with no tendency to open or close themselves. In spite of the low roof line, fully sufficient head room was provided for a tall driver. The driver and passenger were



ACCELERATION GRAPH

comfortable on a long journey, but though the spare wheel seemed to occupy more than its fair share of the boot, there was extra luggage space behind the seats which I found suitable for the carriage of a large dog.

The Austin-Healey Sprite is a jolly little sports car which adds good looks to its virtues in its Mark II form. When modified at Warwick it becomes a genuine 100 m.p.h. car with formidable acceleration, which can take on almost anything on four wheels up to 2-litres capacity.



SPECIFICATION AND PERFORMANCE DATA

Car Tested: Austin-Healey Sprite Mk. II, price, £623 including P.T. For prices of extras see text.

Engine: Four cylinders 64.3 mm. x 76.2 mm. (995 c.c.). Pushrod-operated overhead valves. Compression ratio 10.6 to 1. 68 b.h.p. at 6,500 r.p.m. Twin SU carburetors. Lucas coil and distributor.

Transmission: Special nine-spring single dry plate clutch. Four-speed gearbox with central remote control and synchromesh on upper three gears, ratios 4.55, 6.18, 8.73 and 14.60 to 1. Open propeller shaft. Hypoid rear axle.

Chassis: Punt-type chassis-body structure. Independent front suspension by wishbones and helical springs with torsional anti-roll bar. Rack and pinion steering. Rear axle on quarter-elliptic springs and radius arms. Lever-type hydraulic dampers all round. Disc front and drum rear brakes with hydraulic operation. Knock-on wire wheels fitted 5.20 x 13 ins. tyres.

Equipment: 12-volt lighting and starting. 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. Width 4 ft. 5 ins. Turning circle 21 ft. 6 ins. Weight 15 cwt.

Performance: Maximum speed 101.1 m.p.h. Speeds in gears: 3rd 80 m.p.h., 2nd 58 m.p.h., 1st 32 m.p.h. Standing quarter-mile 17.2 secs. Acceleration: 0-30 m.p.h. 3.8 secs., 0-50 m.p.h. 7.8 secs., 0-60 m.p.h. 10 secs., 0-80 m.p.h. 17.2 secs.

Fuel Consumption: Driven hard, 27.3 m.p.g.

IMPROVING THE PERFORMANCE OF POPULAR CARS

Works Tuned Austin-Healey Sprite

WHEN the originators of a small sports car take a production model and turn it into a miniature GT racer, the results are bound to be startling. The Donald Healey Motor Co. of Warwick have done just this with a standard Mark II Sprite as a demonstration of all that their performance-producing accessories put together can do for the car.

Total cost of the modifications to the Sprite test car amounts to almost £400, which brings the price of a converted standard model to more than £1,000. Naturally, one gets a lot for this sum of money. First of all the engine is bored to maximum oversize to bring the capacity up to 997 c.c. With this change go a "1/4-race" camshaft, a modified cylinder head with polished ports and combustion chambers, larger inlet and exhaust valves and face machining to raise the compression ratio to 10 to 1. Twin 1.5in. S.U. carburettors are fitted in conjunction with a dual exhaust system, resulting in an output of 65 b.h.p. net at 6,500 r.p.m. No modifications to the lower part of the engine have been found necessary, although an oil cooler is incorporated.

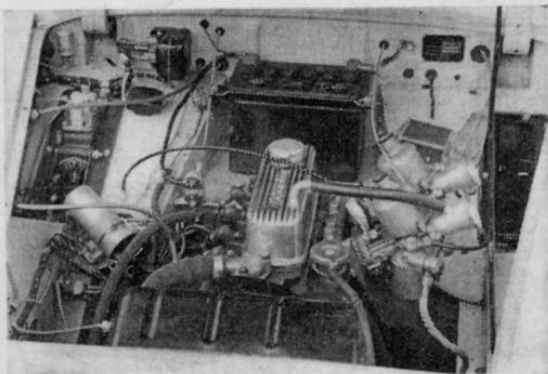
To transmit the extra power, a nine-spring clutch unit is fitted, and the flywheel lightened, while the final drive ratio is reduced from 4.24 to 4.55 to 1 to take full advantage of the free revving nature of the engine.

Naturally, some chassis modifications are required if this horsepower is to be used to advantage. Thanks to the inherent handling qualities of the Sprite, those effecting road-holding are of a relatively minor nature, consisting of revised, harder damper settings and an anti-roll bar for the front suspension. However, Lockheed disc brakes are fitted to all four wheels to provide a reserve of stopping power.

The knock-on or centre-lock wire wheels fitted to the test car, while not a direct attribute to better performance—in fact they increase the unsprung weight—would pay dividends in long-distance sporting events and in any case are considered a "must" by some owners at home and overseas. This applies also to the wood-rimmed steering wheel and polished valve cover.

More functional and certainly as aesthetically pleasing is the neat glass-fibre hardtop with glazed rear quarter windows,

The bell mouths of the two 1.5in. S.U. carburettors barely clear the bonnet top. A special light alloy rocker cover is another extra



although its curves accentuate the flatness of the windscreen.

As one would expect from the car's background, performance was comfortably above the 100 m.p.h. mark, a best speed of 106 m.p.h. being achieved by taking the engine up to 8,000 r.p.m., a procedure authorized by Geoffrey Healey, although the red section of the rev counter starts 1,000 r.p.m. below this figure. The attraction—and indeed the danger—of this free-revving unit is that at any speed above 3,000 r.p.m. the engine remains smooth. In fact, it is only too easy unwittingly to take the needle right off the clock when accelerating in the indirects. Even when cruising on motorways it is important to watch engine speed; in these conditions the Sprite buzzed along contentedly at 7,000—a true 92 m.p.h.—without any indication of stress such as overheating or drop in oil pressure.

Fuel consumption for a car which almost insists on full use of its performance was a creditable 28.2 m.p.g.

Unfortunately low speed tractability has been forfeited to achieve high performance. The combination of poor torque at low engine speeds, a harsh competition type clutch, plus undue transmission slack, demanded firm but gentle clutch and accelerator co-ordination to ensure a smooth getaway. On the move the same factors precluded the use of less than 2,500 r.p.m. in any gear, so that local journeys in built-up areas were made mostly in second gear.

Performance Data

Figures in brackets are for Austin-Healey Sprite Mk II tested in AUTOCAR, 2 June 1961

Acceleration times (mean): Speed range, Gear ratios, and Time in seconds:

m.p.h.	4.55 to 1	6.23 to 1	8.8 to 1	14.6 to 1
10-30	—	—	—	3.0 (—)
20-40	—	—	3.7 (6.1)	—
30-50	—	5.9 (9.5)	3.9 (—)	—
40-60	9.5 (16.6)	6.4 (11.3)	—	—
50-70	10.2 (19.2)	6.5 (—)	—	—
60-80	11.0 (31.7)	—	—	—
70-90	13.5 (—)	—	—	—

From rest through gears to:

30 m.p.h.	4.5 sec.	(5.7) sec.
40 " "	7.2 " "	(9.0) "
50 " "	8.8 " "	(13.8) "
60 " "	12.4 " "	(19.8) "
70 " "	15.0 " "	(29.4) "
80 " "	21.3 " "	(51.8) "
90 " "	28.6 " "	(—) "

Standing start quarter-mile 18.2 sec. (21.8)

Maximum Speed on Gears:	m.p.h.	k.p.h.
Top (mean)	104.0 (85.3)	167.4 (137.3)
(best)	106.0 (85.5)	170.7 (137.6)
3rd	70.0 (68.0)	112.7 (109.0)
2nd	52.0 (46.0)	83.7 (74.0)
1st	30.0 (28.0)	48.3 (45.0)

Overall fuel consumption for 1,542 miles: 28.2 m.p.g., 10.0 litres per 100 km. (33.2 m.p.g., 8.5 litres per 100 km.)

Prices:

ENGINE: Sprint Kit comprising: Enlarging and polishing ports, lining up inlet and exhaust manifolds, fitting two 1.5in. S.U. H4 carburettors, high efficiency exhaust system, anti-roll bar, modified damper valves, wood-rimmed steering wheel, £71 fitted. Modifications to engine and transmission, £93 19s 6d plus fitting. Chassis modifications, £209 6s plus fitting.