



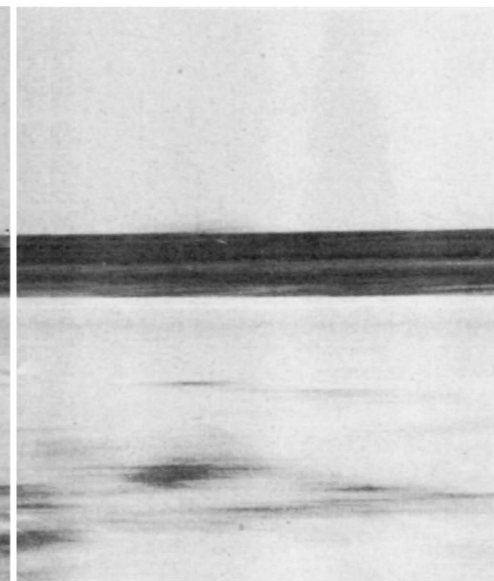
*"For getting around tight turns—and for me these are the interesting turns—it's just about unbeatable."*



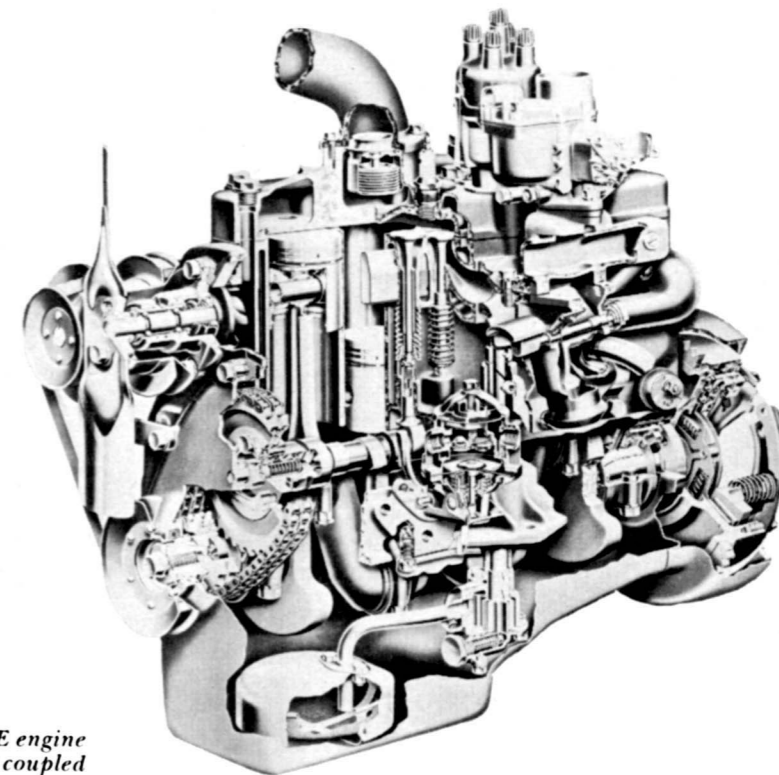
*The 100E engine gives a very modest top speed. Though the 4/4 is lively in the low gears, performance is handicapped by a 3-speed wide-ratio box.*



*Walt Herndon in his "traditional-look" Morgan. Morgan suspension takes smooth road well; but you'll know if the surface gets choppy.*



*The Ford side-valve single-carb 100E engine is no ball of fire, especially when coupled to a 3-speed box; however it is dependable, lightly stressed, and economical.*



**I**F you are one of the small multitude of automotive reactionaries who feels with passion that all post-MGTC design is decadent and that the performance and appearance of that vanished breed added up to a supremely happy answer to basic sports car requirements, then take heart. Morgan, staunchest guardian of the vintage look, ride and feel, has brought forth what can be called a latter-day successor to the immortal Midget—albeit at a rather stiff price.

In England the greatest appeal of the svelt Morgan 4/4 Series II lies in its dramatically low initial cost. There its base price before purchase tax is \$530 lower than that of its nearest competitor, the MG A, and after tax the spread is \$630. But in the U.S., thanks to the complexities of international finance, the difference in price becomes relatively insignificant. What, then, does the 4/4 have that the competition doesn't have. The answer is a traditional character now totally abandoned by other auto manufacturers. This, as far as the American market is concerned, is the 4/4's main stock in trade; its only competition in this respect is from more expensive products from the Morgan factory. The 4/4 has other virtues to be sure, but these—good handling, low operating cost, and so on—are challenged by other makes that have additional and exclusive virtues.

The 4/4 to our eyes is a very attractive car. It's 2.5 inches lower at the cowl than the bigger Morgans, has a very long hood, gracefully sweeping separate fenders, cutdown doors, a streamlined but unabashedly honest radiator shell-grille—all of which combine to make it look fast and functional in the prewar grand manner. The designers' problem was to bring the vintage look up to date and in this they have been thoroughly successful, to the delight of loyal "Morganatics" everywhere.

The workmanship on our test car's body was generally very good, and the well-rubbed finish of the paint was downright surprising. Seating was very comfortable, helped by lots of leg room and pleated leather over pneumatic

upholstery. The low seating position and relatively-high windshield make for very little wind buffeting and the car can be driven all day with little fatigue. The top and side curtains are tiresome to erect or stow, but they do give excellent wet weather protection. The body is narrow and conditions become cozy when the side curtains are in place and elbows are forced inboard. Driver and passenger are separated by a high shaft tunnel which combines with the well-contoured seat back and the body's rear quarter panels to give lateral bracing as effective as that provided by good bucket seats. Controls are all conveniently placed, including a horn button that can be pressed without taking a hand from the wheel; heel-and-toe operation of the brake and throttle pedals is easy.

But there are points of criticism. Luggage space is limited to a narrow, shallow trough just behind the seat backs which also serves for stowage of the top and side curtains. Although it's a rare sports car that's easy to get in and out of, the 4/4 calls for even more agility than most. The car has no water-temperature gauge, but needs one badly, especially with the high-compression head. The door latches are quite positive but very stiff to operate. You can't pull on the hand brake without impaling an elbow on a side-curtain fitting. You have to learn a special technique in order to shift gears without barking the back of your hand on the sharp inner edge of the instrument panel. Most of these points can be corrected easily by the owner, who will probably take the trouble to learn how.

But the typical Morgan fan tends to be fond of these off-beat touches that give Morgan products their hand-made air. Such an enthusiast is the owner of our test car, Walter Herndon, an art director with CBS TV in Hollywood. Although Herndon is a man of large physique, he finds the 4/4 a perfect fit, and after many months of living with the car, commuting, touring and dicing in it, he prefers it to any of the string of small-displacement sports machines he's

# SCI ROAD TEST: MORGAN 4/4 SERIES 2

owned in the past. Says Herndon: "The greatest single thing about the little Morgan is its amazing cornering power. For getting around tight turns—and for me these are the interesting turns—it's just about unbeatable. My racing buddies with Porsches can't stay with me." When *The Autocar* tested a 4/4 they made the same discovery: "... sharp corners can be taken at speeds that are astonishingly high even for a sports car."

The 4/4's side bite and, seemingly, total lack of roll are definitely exceptional. It corners best under plenty of power and even though it's very tail-heavy, the rear end has very little tendency to hang out. The steering characteristics are very close to neutral, a fact which shows up instantly when the 4/4 is cornering fast on dirt. If pushed hard enough on pavement it goes into a well-balanced drift with very gradually diminishing bite and nothing approaching a sudden change. Herndon says, "One thing I'm always sure of is just what the Morgan is going to do. I've been mistaken only a couple of times and then I found that the car is very forgiving."

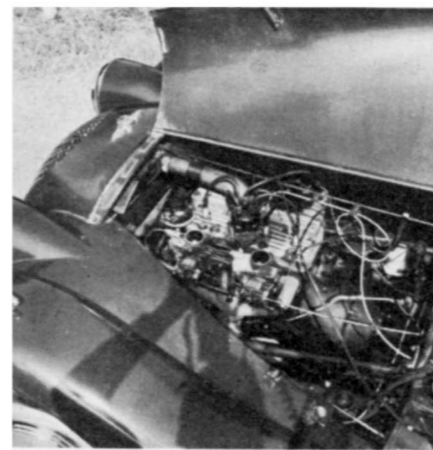
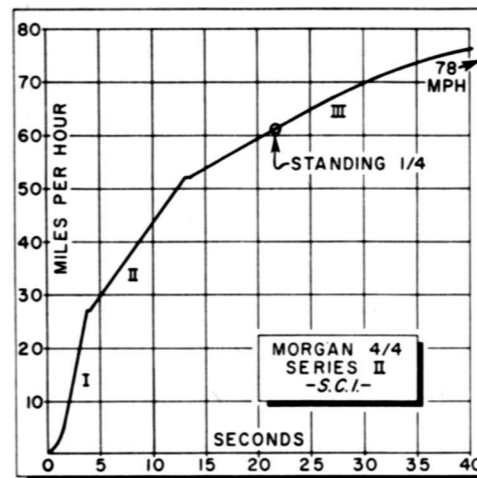
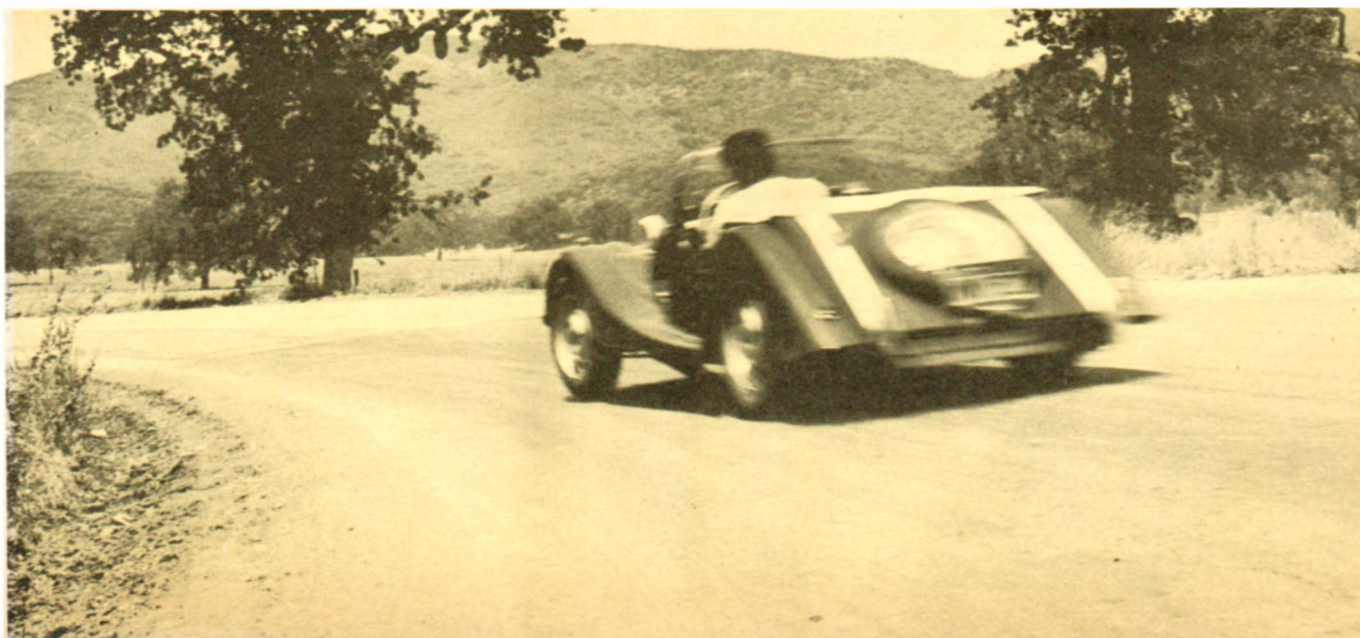
The 4/4's performance in fast turns would be exceptional, too, if it were not limited by its modest top speed, mild top-gear pulling power, and a three-speed transmission with widely spaced ratios. Performance is fairly potent in second gear out to the engine's revving limit of about 6300 rpm, or 55 mph in that gear. But a 50% drop in revs accompanies the shift from second to third and torque thereafter is on the flaccid side.

But torque in the low-speed range of the Ford 100E engine (Anglia, Prefect, Escort, Squire) is very high, and the muscular little power plant pulls effortlessly at low revs. It is quieter than many ohv designs, and although solidly mounted, produces very little vibration. The blood lines of this simple, reliable, long-wearing engine can be traced back to the Model A era—another point of appeal to the traditionalist. The earliest direct ancestor of the 100E appeared in 1932 with a displacement of 32 cubic inches or 933 cc. The 71.6 cubic inch, 1172 cc version appeared in '36 and since then the basic design has been steadily refined and improved in terms of power output and durability. Its fuel economy in the high-g geared 4/4 is outstanding. The



Going, one sees clean lines and a spare tire. A luggage rack is available to increase carrying capacity.

4/4 performance in fast turns would be exceptional if it weren't for modest pulling power in high gear.



Our test 4/4 had the power pack—light-alloy high-compression head, special manifolds, and 2 carbs.

20.5 mpg registered during our acceleration and speed runs is the worst mileage you could possibly get. A good average for aggressive town and country driving is 30 mpg and 50 mpg can be had at low and/or steady speeds. The 100E is notoriously easy and cheap to maintain and the essential parts and know-how are widely available all over the world. It's the power plant used most often by English specials builders.

For this reason there is a broad selection of speed equipment available for the 100E from England. The basic Morgan 4/4 is powered by the stock, single-carb engine which develops 36 bhp. The owner of a car with this engine can add power-augmenting parts at his leisure, or he can buy his 4/4 with power pack installed. This consists of a light-alloy high-compression (8 to 1 as compared to the standard 7 to 1) cylinder head, special intake and exhaust manifolds, and dual carbs. The kit, installed, costs a sobering \$275 (on the West Coast), adds about 5 mph to the 4/4's top speed, and makes a very significant improvement in acceleration. The higher compression ratio also increases this side-valve engine's tendency to run hot. This condition can be ameliorated by replacing the small two-blade fan with a four blader, and by converting to a more free-flowing exhaust system. An overhead-valve conversion is also available for the 100E engine.

Our test car had the power kit, and was a peppy, exhilarating performer in the zero to 50 range, which is to say in the indirect gears. Even from zero to 60 it out-accelerates the bigger-engined, lower-g geared and late lamented MGTC

(Continued on page 56)

TEST CAR: MORGAN 4/4, SERIES II TWO-SEATER, WITH SPEED KIT (dual carbs, special manifolds and high compression head).

PERFORMANCE

**TOP SPEED:**  
Two-way average ..... 77.5 mph (top down)  
Fastest one-way run ..... 78.2 mph (top down)

**ACCELERATION:**

From zero to	Seconds
30 mph	5.0
40 mph	8.7
50 mph	12.4
60 mph	20.4
70 mph	30.3
Standing 1/4 mile	21.7
Speed at end of quarter	62 mph

**SPEED RANGES IN GEARS:**

Gear	Range
I	0-27
II	8-52
III	16-Top

**SPEEDOMETER CORRECTION:**

Indicated	Actual
30	31
40	41
50	51
60	61
70	70

**FUEL CONSUMPTION:**  
Hard driving during speed & acceleration checks ..... 20.5 mpg  
Average driving (under 60 mph) ..... 31.6 mpg

**BRAKING EFFICIENCY (10 successive emergency stops from 60 mph, just short of locking wheels):**

Stop	Percent
1st stop	62
2nd	62
3rd	64
4th	62
5th	70
6th	70
7th	64
8th	67
9th	67
10th	70

SPECIFICATIONS

**POWER UNIT:**

Type	In-line four (Ford Anglia)
Valve Arrangement	L-head
Bore & Stroke	2.50 x 3.64 in. (63.5 x 92.5 mm)
Stroke/Bore Ratio	1.41/1
Displacement	71.6 cu. in. (1172 cc.)
Compression Ratio	8.0/1
Carburetion by	Two Solex downdraft
Max. Power	Approx. 44 bhp @ 5000 rpm
Max. Torque	Approx. 60 lb.-ft. @ 2500 rpm
Idle Speed	500 rpm

**DRIVE TRAIN:**

Transmission ratios	
I	3.89
II	2.01
III	1.00
Final drive ratio (test car)	4.44
Axle torque taken by	Leaf springs.

**CHASSIS:**

Wheelbase	96 ins.
Front Tread	47 ins.
Rear Tread	47 ins.
Suspension, front	coil spring and sliding pillar.
Suspension, rear	Half-elliptic leaf springs.
Shock absorbers	Telescopic front; piston type rear.
Steering type	Cam and gear.
Steering wheel turns L to R	2.5
Turning diameter	33 ft.
Brake type	2 leading shoe front; one leading, one trailing rear.
Brake lining area	88 sq. ins.
Tire size	5.00 x 16. (Test car had 5.50 x 16*)
*Loaded radius	13 ins.

**GENERAL:**

Length	144 ins.
Width	56 ins.
Height	50 ins. (top up)
Weight, test car	1605 wet. 1985 with test crew.
Weight distribution, F/R	46/54
Weight distribution, F/R, with driver	43/57
Fuel capacity	9.6 U.S. gallons

**RATING FACTORS:**

Bhp per cu. in.	0.61
Bhp per sq. in. piston area	2.24
Torque (lb.-ft) per cu. in.	0.84
Pounds per bhp—test car	36.5
Piston speed @ 60 mph	2070 fpm
Piston speed @ max bhp	3035 fpm
Brake lining area per ton (test car)	110 sq. ins.
MPH per 1000 rpm	17.6

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## Morgan 4/4

(Continued from page 17)

and TD, and has comparable top speed. And this is in spite of its being under-transmission, although not under-powered.

The small Morgan's engine is mounted far forward on the frame, so that almost the entire Ford three-speed box also lies under the hood and ahead of the firewall. Shifting is accomplished by means of a horizontal shaft which pivots and slides in a bearing in the bulkhead. The far end of the shaft connects with a rather conventional vertical shift lever and the driver's end is bent upwards to terminate in the usual knob. Shifting, therefore, requires the same fore-and-aft and transverse motions that go with a conventional three-speed box, with the difference that the pattern is reversed. Instead of R-2 top; 1-3 bottom: it is 2-R top; 3-1 bottom.

Acceleration times through the gears in the new 4/4 could be reduced by a full second or more if the final shift could be made quickly, but the 2.01 to 1 jump between second and third is what really hurts.

There are remedies if you care to pay for them. This Ford transmission is used a lot by the specials set in England and close-ratio gears made specifically for it are inexpensive and easily available. Herndon has ordered a set which will permit him to wind out to 70 mph in second, which will greatly improve performance. A better move is swapping the Ford box for a four-speed unit. This can be done at little cost and with a minimum of adapting problems if you use the trans-

mission from a side-valve Morris Minor.

Most of the important things in the 4/4 have been well provided for. The brakes, for example, may not sound impressive with a total friction area of only 88 sq. inches. But the car is light and the lining ratio works out to 110 sq ins per ton. This is a very decent figure for the speeds involved, and the brakes benefit further from good design and ample cooling. During our standard tests, which reduce many brakes to a state of near-total failure, the 4/4's brakes showed no sign of fade; they became only slightly grabby, tending to pull to one side.

On rough corners the rear wheels tend to chatter outward in the manner of all hard-spring, solid-axle cars. When charging full-tilt down the straight there is considerable shaking movement of the cowl and a slight tendency for the car to 'walk' — to wiggle a bit in its forward course. Little road shock is fed back to the steering wheel and extra-light front wheel loading adds to the ease of quick, no-slack steering. This and the character of the ride, the very perceptible flexing of the supple frame, and the vista down the long, narrow hood are all reminiscent of good things of the past and contribute to the Morgan's nostalgic appeal.

The 4/4's P.O.E. base price is \$2195, although most cars shipped here carry a few extras. The speed kit costs an additional \$275 and there are rumbles that the 4/4 may soon be available with Coventry Climax single-cam 1500 cc engine at substantially higher cost. Morgan cars are distributed east of the Mississippi by Fergus Motors of New York. Worldwide Automotive Import Inc. of West Los Angeles serves the western U. S.

—Griff Borgeson

## Austin Healey

(Continued from page 18)

Exhaust plumbing is largely as before, with the front three and the back three ports spilling into separate manifolds, which in turn discharge through individual downpipes to a sound absorption type muffler. Final exit is normally via a single tailpipe, and with this system the warmed up 100-6 seems no noisier than the '57 version. Dual tailpipes, as used on the Mille Miglia car, are worth an extra 5 bhp at the top end of the rev range, but their note is conspicuously rude.

Two pairs of hotspot areas, with calculated air gaps between them, are formed on opposing faces of the exhaust and inlet manifolds. Hotspotting has been designed to localize heat exchange in the carb regions, rather than spreading it over the whole length of the manifolds. Undesirable heat transfer to the float chambers is baulked by a sheet steel plate attached sandwich-wise between the flanges of the SUs and the intake gallery. The latter has the usual center dividing wall, pierced by a balance hole of 5/16 inch diameter.

On the ignition side, the new equipment includes a replacement distributor giving a modified advance curve.

What all this adds up to is a gain of 21

horsepower, maximum output being 123 bhp at 4800, compared with the 1957 car's 102 at 4600. Max torque goes up from 141 pounds foot at 2400 to 147 at the surprisingly high turnover of 3000 per minute. The torque curve is flatter and longer than the basic C-type's. The power curve follows approximately the "C" path as far as 2000 rpm, then really starts showing a dividend.

All concerned in the project—Geoffrey Healey at Warwick, Morris Engines Division at Cowley, and freelancer Harry Weslake—have sensibly resisted the temptation to let this thing develop into a mere gunpowder plot. They wanted, and were determined to achieve, a substantial performance increase, but they weren't willing to sacrifice any of the smoothness they'd boughten with their two extra cylinders. To this end, the regular C camshaft, with the moderate lift of .3125 inch has been retained, and the compression ratio is even reduced a piece—from 8.25 to 7.9/1. This drop in ratio, as a matter of fact, is the more or less incidental result of the combustion chamber sculpture necessitated by the larger valves.

Most of Healey's power-seeking exercises have centered around inlet tract length and its relation to charge ram. Oddest of the several empirical relics we saw at Warwick was a semi-downdraft manifold flanged to slope the SU's back towards the