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the article on Tune Up Clinic that can  
be accessed at:**

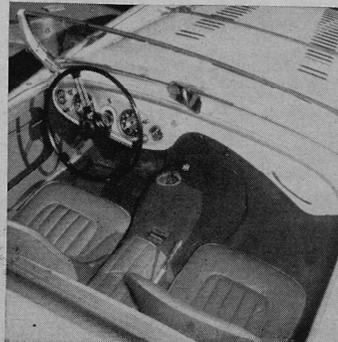
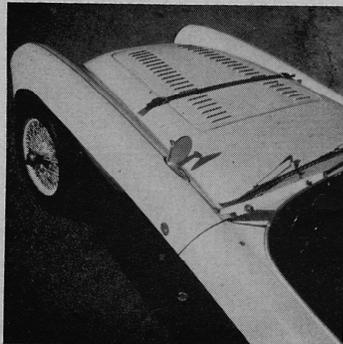
**[www.healey6.com/Technical/tune.pdf](http://www.healey6.com/Technical/tune.pdf)**



## Road Test: THE AUSTIN-HEALEY 100-M improved performance thanks to the "Le Mans kit"



photography  
Ralph Poole



Ever since the "LeMans" kit was announced as optional equipment for the Austin-Healey "100," we have been besieged by inquiries—what is included, what is the cost, how much is performance improved, etc.—and some answers are about due.

For 1956, the Austin company have announced a third model for the Healey lineup, the 100-M. For \$290 more than the price of a standard 100 model, one gets the following extras, factory installed.

1. An 8.10-to-1 compression ratio obtained by a steel head gasket.
2. A high-lift camshaft.
3. Special valve springs, cups and seats.
4. Two 1 $\frac{3}{4}$ " S. U. carburetors and necessary attaching parts.
5. A cold-air box for the carburetors.
6. A special advance-curve distributor.
7. A new 4-speed gearbox (overdrive is also standard equipment).

The above items give an engine output of 110 bhp at 4500. Thus the 100M falls between the 90 bhp (at 4000) of the standard 100 model and the 132 bhp at 4700 of the strictly-for-competition 100-S model tested last September. The performance, as might be expected also falls about midway between models, per the following data.

Model .....	100	100M	100S
top speed .....	102	109	119
0-60 mph .....	11.7	9.6	7.8
SS $\frac{1}{4}$ mile.....	18.1	17.4	16.1

The 100 model was tested in our July, 1954, issue and all data applies to the cars in "showroom" condition; running with top and side curtains installed except on the 100 S which has neither. In addition, the above performance data can be duplicated by the average owner, driving a car in good tune and making brisk but not brutal gear changes. Furthermore, the performance figures given in the tabulation are all the more remarkable when we take note of the fact that this car weighed 235 lbs more than our earlier 100 model test car.

The 100 M has the stiffer Le Mans type rear springs, front shocks and anti-roll bar. Consequently it rides a little firmer than the normal 100 model and in our opinion suffers somewhat in comparison—because of the really excellent ride in the 100. However, there is no denying that the 100 M suspension is better suited for competition work, and the tendency to bottom (at the rear) on fast starts from a standstill is greatly reduced. The test car was also equipped with the latest type Dunlop Road Speed tires which have sipes (small cuts) in the tread. These were a tremendous improvement over earlier equipment, not only on dry roads, but more especially in the wet. Adhesion on slippery curves is almost uncaunty.

The new transmission unit is the same as supplied on the 100 S model, but with overdrive added. This is actually a modified Austin "Princess" unit, designed to withstand over 200 ft-lbs of torque. Durability should be almost unlimited.

Our test car was brought over for the Nassau races by Donald Healey, and it garnered a 9th place in class D, beaten by one other A-H and a flock of Ferraris. The driver was Roy Jackson-Moore, who then drove the car to California and was also at the wheel during our performance tests. Despite nearly 5000 miles on the clock, the car was in good condition and got only minor attention (plugs, points and tappets) before the test. Roy reports that at Nassau, with windshield removed, he indicated 4400 rpm on the long straight, equivalent to about 116 mph, with tire expansion. The best we could get during the timed high speed runs was 4150 rpm, due to the extra drag of top and windshield.

As shown in the data panel, the 3rd-od and 4th-direct ratios are nearly identical, consequently all acceleration tests were made by flipping the overdrive switch from direct to od when 4500 rpm was attained in 3rd gear. This gives a quicker shift and better times than using 4th-direct. The engine is red-lined at 4800 rpm, but there was no improvement in acceleration times by exceeding the 4500 rpm point in each gear. The overdrive unit is available with 3 ratio options: .756, .778, or .820. This car was equipped with the .778 ratio which, when multiplied by the rear axle ratio of 4.10, gives an overall ratio of 3.1898. As now supplied, the overdrive is operable at any speed in any gear—in effect 8 speeds forward, 2 in reverse. However, most owners will prefer to use the overdrive only on the open highway as an extra "5th speed" for cruising. Direct drive (4.10) is a very useful gear for city driving, thanks to the very good lugging power of the large, four-cylinder engine. Top speed in direct drive is limited by the red-line—though the engine will run well beyond 5000 rpm in this ratio if allowed to do so.

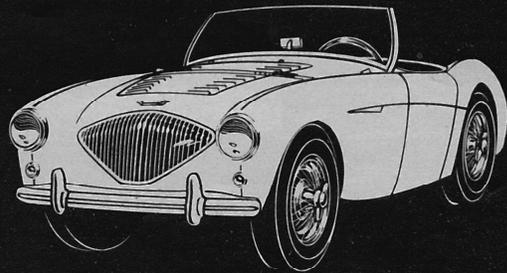
The "Le Mans" kit is certainly designed to give a worthwhile performance gain, yet still retain the low speed pulling power (torque) and ruggedness of the large, four-cylinder engine. However, the valve timing of the 100 M is still extremely conservative at only 10° overlap, and for those who are not interested in production car competition a reground camshaft can be used to good advantage. Such a change is described this month in "Tune Up Clinic" on page 42.

Other items which are listed by the Austin Company as options include an 18.7 or a 31 gallon fuel tank, Alfin brake drums and aero screens, all at extra cost. A heater is still supplied and included in the price.

The 100 M can be identified at a glance by the hood louvers and leather hood strap. In all other appearance details the car is identical to previous models, though the overdrive switch and the ignition lock have been interchanged. The seats are comfortable, the driving position is just right and there is ample storage space for odds and ends. In fact, the popularity of the Austin-Healey is due to only two things: (1) it's a genuine sports car and (2) it is reliable and trouble free. The 100 M will enhance that reputation.

## ROAD & TRACK ROAD TEST NO. F-3-56

### AUSTIN-HEALEY 100M



#### SPECIFICATIONS

List price	.....	\$3275
Wheelbase	.....	90 in.
Tread, front	.....	49.0 in.
rear	.....	50.8 in.
Tire size	.....	5.90-15
Curb weight	.....	2385
distribution	.....	48/52
Test weight	.....	2700
Engine	.....	4 cyl.
Valves	.....	po/hv
Bore & stroke	.....	3.44 x 4.38 in.
Displacement	.....	2660cc
Compression ratio	.....	8.10
Horsepower	.....	110
peaking speed	.....	4500
equivalent mph	.....	105
Torque, ft/lbs (est.)	.....	160
peaking speed	.....	2500
equivalent mph	.....	58
Mph per 1000 rpm (od)	.....	23.4
Mph at 2500 rpm (od)	.....	80.1
Gear ratios (overall)	.....	
4th (od)	.....	3.19
4th (high)	.....	4.10
3rd (od)	.....	4.24
3rd	.....	5.45
2nd	.....	7.84
1st	.....	12.6
R & T high gear perf. factor	.....	65.5

#### PERFORMANCE

Timed top speed	.....	109
Max. speeds in gears	.....	
4th (4800)	.....	87
3rd (4800)	.....	67
2nd (4800)	.....	46
1st (4800)	.....	28
Shift points from	.....	
3rd od (4500)	.....	80
3rd (4500)	.....	62
2nd (4500)	.....	43
1st (4500)	.....	26
Mileage range	.....	22/28 mpg

#### ACCELERATION

0-30	.....	3.4 secs.
0-40	.....	4.7 secs.
0-50	.....	7.2 secs.
0-60	.....	9.6 secs.
0-70	.....	13.1 secs.
0-80	.....	17.9 secs.
0-90	.....	24.3 secs.
standing 1/4 mile	.....	17.4 secs.

#### TAPLEY READINGS

Gear	Lbs/ton	Mph	Grade
1st	600	23	32%
2nd	530	35	28%
3rd	430	44	22%
od	330	52	17%
4th	330	55	17%
od	240	62	12%

Total drag at 60 mph, 125 lbs.

#### SPEEDO ERROR

Indicated	Actual
30	29.4
40	39.0
50	48.1
60	57.0
70	67.0
80	78.6
90	90.0

