

Reprinted from "The Motor," December 4, 1946

THE 2.4-LITRE HEALEY



DONALD HEALEY MOTOR CO., LTD.
The Cape - - - Warwick

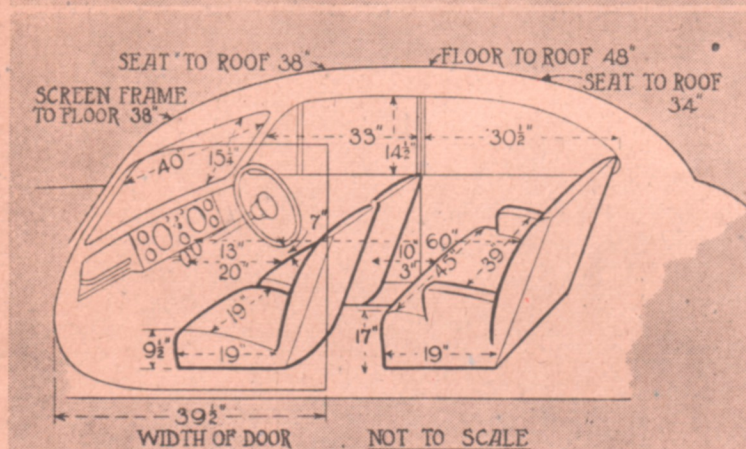
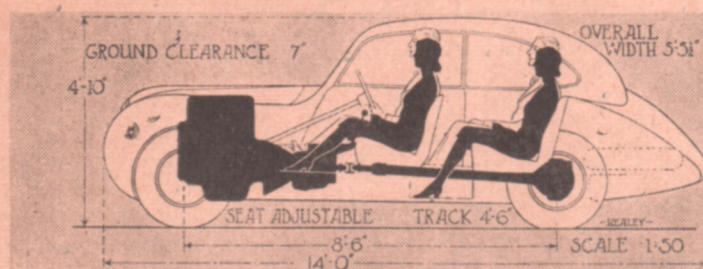
Telephone: 543

The Motor Continental Road Test No. I.C./46

Make: Healey.

Type: 2.4-litre Saloon.

Makers: Donald Healey Motor Co., Ltd., The Cape, Warwick.



Test Conditions

Milan-Como Autostrada.
Dry, moderate wind. Swiss petrol and natural rubber tyres.

Test Data

ACCELERATION TIMES on Three Upper Ratios

	Top	3rd	2nd
10-30 m.p.h.	8.2 secs.	6.2 secs.	4.0 secs.
20-40 m.p.h.	8.0 secs.	5.2 secs.	3.5 secs.
30-50 m.p.h.	9.0 secs.	6.0 secs.	4.5 secs.
40-60 m.p.h.	8.5 secs.	6.8 secs.	—
50-70 m.p.h.	12.0 secs.	—	—
60-80 m.p.h.	13.8 secs.	—	—
70-90 m.p.h.	18.0 secs.	—	—

ACCELERATION TIMES Through Gears

0-30 m.p.h.	3.7 secs.
0-40 m.p.h.	6.0 secs.
0-50 m.p.h.	8.4 secs.
0-60 m.p.h.	12.3 secs.
0-70 m.p.h.	17.8 secs.
0-80 m.p.h.	23.5 secs.
0-90 m.p.h.	33.0 secs.
0-100 m.p.h.	47.0 secs.
Standing quarter-mile	17.8 secs.

MAXIMUM SPEED: Flying Kilo-

metre (moderate wind)	
Mean of two runs	104.14 m.p.h.
Best time equals	106.56 m.p.h.
Flying quarter-mile (no wind)	
Mean of four runs	103.46 m.p.h.
Best time equals	104.65 m.p.h.

BRAKES at 30 m.p.h.

1.00 g. (=30.0 ft. stopping distance) with 120 lb. pedal pressure.
0.67 g. (=45.0 ft. stopping distance) with 75 lb. pedal pressure.
0.55 g. (=55.0 ft. stopping distance) with 50 lb. pedal pressure.

FUEL CONSUMPTION

38.5 m.p.g. at constant 30 m.p.h.
34.5 m.p.g. at constant 40 m.p.h.
31.5 m.p.g. at constant 50 m.p.h.
28.8 m.p.g. at constant 60 m.p.h.
31.2 m.p.g. at constant 70 m.p.h.
24.8 m.p.g. at constant 80 m.p.h.

HILL CLIMBING

Max. top-gear speed on 1 in 20 .. 90 m.p.h.
Max. top-gear speed on 1 in 15 .. 75 m.p.h.
Max. top-gear speed on 1 in 10 .. 45 m.p.h.

STEERING

Turning circle 35 ft., 2 1/2 turns of steering wheel lock to lock.

In Brief

Price £1,250. Tax. £347 19s. 5d. =

£1,597 19s. 5d.

Tax £20

Road weight unladen .. 22 1/2 cwt.

Laden weight as tested .. 25 1/2 cwt.

Consumption 30-35 m.p.g.

Speed 104 m.p.h.

(mean both ways)

72 m.p.h. 3rd.

48 m.p.h. 2nd.

Acceleration .. 10-30 on top, 8.2 secs.

0-50 through gears, 8.4 secs.

0-100 through gears, 47 secs.

Tapley lb. per ton and gradients. ..

220 lb. max. on top = 1 in 10

330 lb. max. on 3rd = 1 in 6 1/2

485 lb. max. on 2nd = 1 in 4 1/2

Gearing: 22 m.p.h. on top at 1,000 r.p.m.

69 m.p.h. at 2,500 f.p.m. piston speed.

Specification

Cubic capacity	2,443 c.c.
Cylinders	4
Valve position	Overhead (pushrod)
Bore	80.5 mm.
Stroke	120 mm.
Compression ratio	6.8
Max. power	103 b.h.p.
at	4,500 r.p.m.
H.P. per sq. in. of piston area	3.28
H.P. per ton unladen	91
Piston area per ton	28 sq. ins.
Litres per laden ton-mile	2.580
Ft./min. piston speed at max. h.p.	3,540
Carburettor	Twin S.U. horizontal
Ignition	Coil
Plugs, make and type	Lodge HLNP
Fuel pump	Twin S.U., electric
Oil filter	Tecalemit full-flow
Clutch	9-in. s.d.p. centrifugally assisted
1st gear	12.76
2nd gear	7.54
3rd gear	4.96
Top gear	3.5
Reverse	12.76
Propeller shaft	Torque tube
Final drive	Helical bevel
Brakes	Lockheed 2 l.s. hydraulic
Drums	Cast iron, 11-in. front, 10-in. rear
Friction lining area	150 sq. ins.
Brake area per ton	133 sq. ins.
Steering	Healey
Tyre size	5.75 x 15

Fully described in "The Motor," January 16, 1946

Maintenance

Fuel Tank: 16 gallons (including 2 gallons reserve).
Sump capacity: 12 pints. Gearbox oil capacity: 2 1/2 pints. Rear axle oil capacity: 3 1/2 pints.
Radiator water capacity: 3 gallons. Grease points: 14. Plug gap: .018 in. Contact gap: .015 in. Tappets: .003 in. Front wheel toe-in: 1/4 in.-1/2 in. Castor angle: 1-3 degrees, adjustable.
Damper fluid: Luvax piston-type shock absorber (thin) fluid. Tyre pressure: 20 front and rear.
Oil filter element: Clean every 2,000-3,000 miles; renew every 10,000. Electrical system: 12-volt, 63 amp./hr. Bulbs: Headlamps, 48-watt; side, tail and stop lamps, 6-watt; ignition and petrol warning lamps, 2.5-volt, 0.5-watt; trafficators, 3-watt; dash lamp, 2.4-watt; fog lamps, 48-watt.

THE 2.4-LITRE HEALEY

WHEN the new Healey car was introduced to the public in January this year we were able to predict, on purely theoretical grounds, that it would have outstanding performance. By a calculation based upon the frontal area, the engine power output, and the coefficient of drag as established in wind tunnel tests on a model, it was possible to commit ourselves in print to an estimate that the saloon car would have a maximum road speed of 105 m.p.h., and would thus join a very select body indeed of cars which have a road maximum in excess of three figures.

In view of the somewhat wild claims made from time to time, it is worth mentioning that in the two years 1937-39 only five cars—two British, three Continental—were road tested by "The Motor" at over 100 m.p.h., and none of them in fact reached so high a speed as 105 m.p.h.

Turning to the equally important factor of acceleration, the calculated performance was a standing quarter-mile in less than 20 secs, once more a very remarkable figure when one bears in mind that the average acceleration time for a standing quarter-mile in the 1½-2½-litre saloon car class was 23.6 secs. in 1939, and the best recorded 19.7 secs.

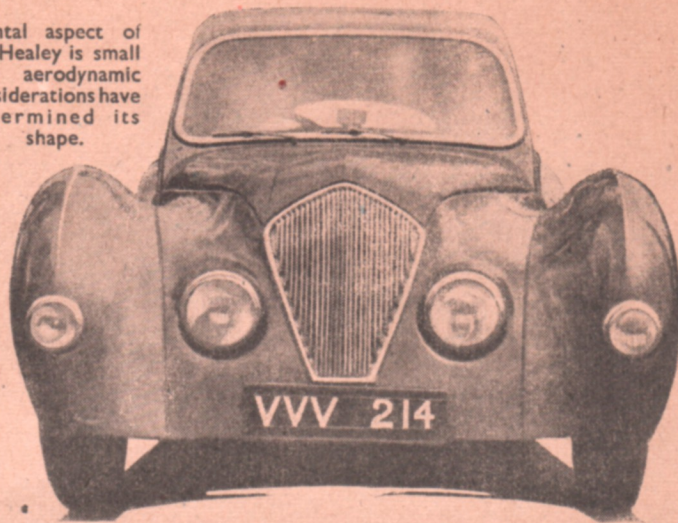
The fact that these remarkable "target" figures have been reached or improved upon during the course of the road test is, therefore, a source of congratulation to the designer and manufacturer, and a matter of very real interest to all potential buyers of high-performance cars.

Alps and Autostrada

Adequate testing of an automobile of this calibre is difficult since there are no tracks or roads in this country where the full qualities of the car can be completely assessed. To cope with this problem "The Motor" decided that the car should be taken on the Continent and given an extended run over a thousand miles or more, including prolonged flat-out running on motor highways, and tests on alpine climbs. Having taken this decision, the next problem was to find a route and, further, to set up an organization so that really accurate timing over flying and standing quarter-miles could be achieved. In carrying this out we were fortunate in securing the full co-operation, not only of the manufacturers of the car, but also of the Automobile Club of Milan, whose assistance throughout was of the greatest value.

The maximum speed of a car must be assessed not so much as a figure obtained against a stop-watch, but in the manner in which speed itself is achieved. In the past there have been cars with a high maximum which in practice proved unobtainable except on the track, and inadvisable for anyone other than the experienced racing driver. It was, therefore, perhaps a blessing in disguise that the Milan-Como Autostrada on which the Healey was tested

Frontal aspect of the Healey is small and aerodynamic considerations have determined its shape.



was reduced through war-time usage to a surface no better, and in places considerably worse, than our own average main roads. Similarly, the amount of traffic to be found on this motor road, and its control, provide conditions much more comparable with ordinary British motoring. During the tests, which lasted two days, the Healey must have covered close on 100 miles at a speed in excess of 100 m.p.h., and both from the point of view of driver and passenger it must be recorded that this distance was achieved with a minimum of anxious moments and a maximum feeling of security and ease.

From a passenger point of view, the first impression is one of extreme "handiness" of the car throughout its range. Although, judged by wheelbase and overall dimensions, the Healey is a small car, there is a degree of spaciousness within the body which, coupled with the exceptional head-room, adds very greatly to the material comfort of the passenger. Although the suspension might be described as reasonably soft, the phasing is such that when travelling at 100 m.p.h. on comparatively indifferent surfaces, the car rises and falls in a very gentle manner, and at no time is there the least suggestion of the increasingly progressive bounce reminiscent of some American cars under similar conditions.

Planned for Driving

From the point of view of the driver of the Healey, three points are noteworthy. First of all, lightness of the controls coupled with the really outstanding acceleration makes one master of almost any situation likely to be encountered on the road. Secondly, the really good all-round visibility and ample elbow room gives an illusion of a large car on a small wheelbase, and thirdly, the performance of the brakes must be regarded as indispensable to the maintenance of such high cruising speeds as the Healey provides under almost all conditions.

It is clear that cornering and road holding generally will not be revealed on an Italian motor-road, and the Healey was accordingly driven hard over some of the most twisting and difficult highways in Europe. As might be expected from the comparatively large and unstressed Riley engine, it seemed impossible to make the car lose its tune, and the performance recorded from the South of France to the Channel, at the end of our tests was in every way as good as when the vehicle left Warwick—3,000 miles previously.

At the same time, one has to recognize that the combination of a four-cylinder engine with a high top gear of necessity involves the use of third gear for comfortable traffic driving. Similarly the low weight of the car has precluded the use of expensive and heavy sound-damping expedients, whilst the low bonnet line has also restricted the dimensions and efficiency of the air-silencer apparatus.

Buyers of this type of high-performance car will probably not regard these comments as a matter of serious criticism. They may, however, consider the head lights and the horns to be slightly inadequate, but in view of present-day conditions such criticism is not entirely fair. To illuminate a French main road to an extent where a cruising speed of 90 m.p.h. is safe at night, and to provide an adequate warning instrument for speeds in excess of 100 m.p.h., are luxuries which the over-worked component manufacturer to-day can scarcely be expected to produce. For the moment, by devious means, such as higher-powered lamp bulbs, a compromise has to be reached, and no doubt in due course, when equipment suitable for such a high-performance car does become available, the Healey will be among the first to fit them. Generally speaking, the head lamps at present give an adequate beam for speeds up to 80 m.p.h., but the pleasant-toned horns necessitate occasional reductions in speed which would not



The internal layout of the coachwork is plain, but practical. Wide doors and tilting seat squabs give easy access to the rear compartment.

ference" between the steering levers as the wheels rise and fall and they are able to do this without imparting any gyroscopic flick back into the steering box.

A word is also required on the matter of brake design.

The problem of stopping a 100 m.p.h. car is an exceedingly difficult one, and the expedients open to the race car designer such as 16-in. drums are difficult, if not impossible, to translate into touring car design. In fact, the use of 15 ins. rim diameter has set a limit of 11 ins. to the diameter of the Healey front brakes, the rear being 10 ins. in diameter. This gives a friction lining area of approximately 120 sq. ins. per ton laden, whereas racing cars have a figure of some 400 sq. ins. per ton.

We feel that we should stress the marked absence of fade which we observed when road testing the car. This is undoubtedly due to the very careful selection of the Ferodo VG 91 brake linings, plus the efficiency of the new Lockheed two leading shoe design.

Internal Arrangements

Finally, it is appropriate to make some comments on the body design and interior equipment of the car. From the point of view of the designers, only two things have really been considered as absolutely essential. One, that the shape of the body should be as good a compromise between the aero-dynamic and driver-convenience as possible, and, secondly, that the total structure should weigh the absolute minimum. The fact that such a blend has produced astonishing petrol consumption, allied to a great performance, has already been commented upon, but it must also be mentioned that the general appearance of the car is satisfactory, although, of course, the car tested and illustrated represents only one of the various designs which can be mounted on such a chassis.

A great saving of weight has been obtained by the use of Perspex in the

side and rear windows, and it is important to record that although such material may become scratched with constant use, a special kit is now available which renders the surface like new and was, in fact, extensively used on aircraft in the war. The windscreens is safety glass. The general interior of the car might be described as plain but thoroughly practical. It is satisfying to find a really sensible hand-brake to the left of the driver, and all essential instruments are grouped in a position where they can be read easily at the maximum speed. But if the high-performance aspect of this car has been stressed, it should not be allowed to blind a potential owner as to the possibilities of using the Healey as a perfectly normal car for shopping and general utility work. In fact, with its short wheelbase and exceptional turning circle, plus its complete lack of temperament and striking all-round visibility, it would probably excel in a purely utilitarian role.

Both the bonnet and the boot are controlled by spring-locks within the car, so that pilfering or interference risks are reduced to a minimum. Luggage accommodation is surprisingly good, and the petrol filler cap is placed within the boot as a further protection against theft from the very adequate petrol tank.

On the whole, therefore, the Healey provides a most notable contribution to post-war British motoring. There is little doubt that, in skilled hands, it can quite well give a stirring account of itself in international events, but at the same time three people could betake themselves and their baggage on a pleasure tour of the Continent with the certainty that no racing-car temperament would creep into the itinerary. Delivery position of the saloon model is still a matter of some months, but chassis, at the moment, are beginning to come off the line and can be obtained almost immediately.

The battle for supremacy in the medium-powered, high-performance class is now passing to a handful of British concerns. Assuming that the Healey represents the opening broadside of this class, some most stimulating and highly interesting competition will most surely appear, to the benefit of the British cars in general, and the furtherance of our national prestige in a field so long dominated by the foreigner.

be necessary if their note could be made more penetrating at will.

So much for our road impressions of one of Britain's most remarkable cars. In fact, here is a vehicle which projects into the modern automobile world all the virtues and advantages (and, let us admit, some of the disadvantages) of the classic type of vintage car, and does so not by "stunt" engineering, but by the sound application of well-tried principles. For example, there can be little doubt that the highly remarkable fuel consumption figures are the product of three factors: low wind resistance, moderate engine speed, and the fuel economy derived from the good inter-cylinder distribution possible on the four-cylinder engine.

The extremely good road holding and control of the car is again a direct product of the care which has been taken in the frame design and the suspension layout. Although the total structure weighs a little over 160 lb., it is of 6 ins. depth throughout and very stiffly cross-braced in the centre section. The parallel action for the front suspension is unique in British cars, as is the mechanical means whereby it is provided. The geometry of this system is such that there is virtually no "inter-

Coachwork on the Healey saloon affords an effective compromise between the aero-dynamic and driver-convenience, and at the same time provides excellent all-round visibility

