The Motor

The M.G. 1 ¼-litre Saloon

A New, Independently Sprung Model From a Famous Sports car Factory

FAMILY LIKENESS.—The new model combines accepted M.G. lines with new standards of small-car comfort and refinement.

FEW cars made in this country have ever endeared themselves to so many enthusiastic drivers as has the M.G. Midget, which has been popular in different forms ever since 1928. Owners have always lamented the fact that, when growing families made an open two-seater unsuitable for them, they were obliged to buy a more touring make of car. Now the M.G. Car Co., Ltd., can offer them a four-seater saloon, powered by an engine of the same dimensions as the TC series Midget, combining comfort with a lively performance. The price of £671 11s. 8d., including purchase tax, exceeds that of the 2-seater model by only some 25 per cent.

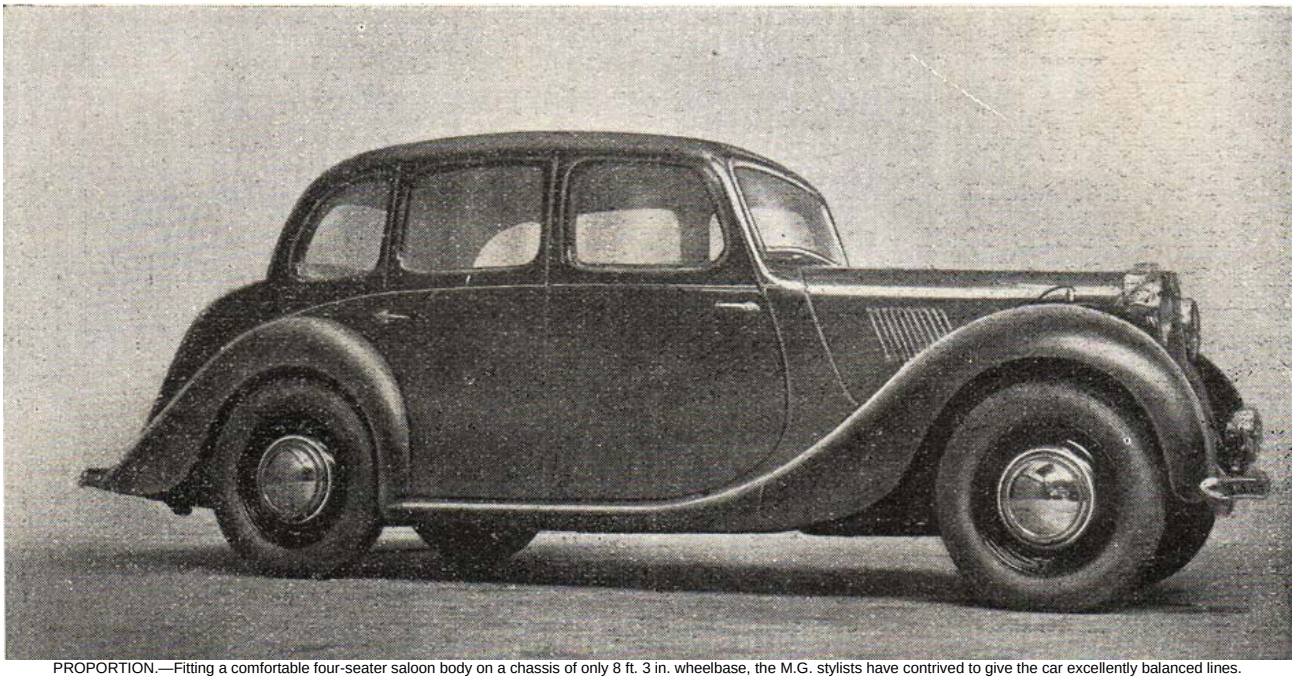
The most striking innovation in the new 1¼-litre model is undoubtedly the adoption of independent springing for the front wheels. Eleven years ago the R type of racing M.G. Midget featured independent springing of all wheels, but only now have the manufacturers been sufficiently satisfied with their test results to incorporate independent suspension on a production model.

The potential gains from the elimination of a rigid front axle are very substantial. There can be some reduction in unsprung weight, to the advantage of' both comfort and road holding. Flexible springs can be used without any wheel tramp or steering disturbances becoming troublesome. Braking stresses can be taken by rigid linkages, which ensure stability and control at all times. On the debit side of the balance sheet, however, it must be said that any system of I.F.S. needs to be well designed and form part of a suitable chassis, otherwise these advantages may not materialize. Hitherto the M.G. designers have held the view that cars with good orthodox suspension systems were better than cars with inadequately tested new layouts. During 1946 the first products of the Nuffield group of companies to use I.F.S. were announced, and the 1¼-litre M.G. follows this example. As a few observant motorists will be aware, the new design is anything but untried, having been in use on certain works cars throughout the war years.

Before details are described, a general picture of the style of the new car must be given. It is of a very popular size, in terms of both engine dimensions and body capacity. Rated at 11 h.p. by the now obsolete R.A.C. formula, the engine is of 1,250 cc. swept volume incurring an annual tax of £13.

In terms of body size, the 1¼-litre a full four-seater, having very adequate

Engine Dimensions:		**Transmission – (Contd.)**	
Cylinders	4	Prop. shaft	Hardy Spicer
Bore	66.5 mm	Final drive	Spiral bevel
Stroke	90 mm		
Cubic capacity	1,250 c.c.	**Chassis Details:**	
Piston area	21.5 sq.ins	Brakes	Lockheed
Valves	O.H.V. push rod operated	Brake drum dia-meter	9 ins.
Compression ratio	7.3/7.5	Friction lining area	90 sq. ins.
EnginePerformance:		Suspension, front	Independent, coil springs
Max.b.h.p.	46	Suspension, rear	Semi-elliptical
at	4,800 r.p.m.	Shock absorbers	Luvax-Girling
Max b.m.e.p.	116	Wheel type	Vent, disc
at	2,800 r.p.m.	Tyre size	5.25 X 16.00
B.H.P. per sq. in. piston area	1.82	Steering gear	Rack and pinion
Peak piston speed ft. per min.	2,835	Steering wheel	Spring spoke
Engine Details:		**Dimensions:**	
Carburetter	Single S.U.	Wheelbase	8 ft. 3 ins
Ignition	Coil	Track, front	3 ft. 11 $^{3}/_{8}$ ins
Plugs: make and type	Champion L10S	Track, rear	4 ft. 2 ins.
Fuel pump	S.U. electric	Overall length	13 ft. 5 ins.
Fuel capacity	8 gallons	Overall width	4 ft. 10¼ ins.
Oil filter	Full flow	Overall height	4 ft.9 ins.
Oil capacity	1 $^{1}/_{8}$ gallons	Ground clearance	6 ins.
Cooling system	Fan and pump	Turning circle	35 ft.
Water capacity	13 ½ Pints	Dry weight	20 cwt
Electrical system	12 volt earth return	**Performance Date:**	
Battery capacity	51 amp. hr. (10 hr. rate)	Piston area sq.ins. per ton	21.5
Transmission:		Brake lining area Sq. ins. per ton	90
Clutch	Borg and Beck 7 in.	Top gear m.p.h. per 1,000 r.p.m.	14.6
Gear ratios	Top 5.143 3rd 7.121 2nd 10.646 1st 18.000 Rev. 18.000	Top gear m.p.h. at 2,500 ft./min piston speed	61.8
		Litres per ton-mile dry	2,570



PROPORTION.—Fitting a comfortable four-seater saloon body on a chassis of only 8 ft. 3 in. wheelbase, the M.G. stylists have contrived to give the car excellently balanced lines.

enclosed luggage space. It provides this amount of accommodation within a wheelbase of 8 ft. 3 ins. and an overall length of 13 ft. 5 ins., so that it will fit into any normal garage. With no pretensions at being a large car, it does, nevertheless, display a very high standard of furnishing and general finish.

Any manufacturer introducing a new model at the present time faces a difficult choice in deciding the sort of body styling to adopt. Many present-day foreign cars, from the continents of both America and Europe, favour flowing, even bulbous, lines, with every possible part recessed into the body panelling. In England, however, there is a very strong body of opinion which adheres to the more classic line— the car which may be said to "look like a car."

The model now described represents an unhesitating affirmation of the orthodox school of thought. It is a typical four-door, six-light saloon, with luggage boot, and although its lines are more flowing than those of previous M.G. saloons, it represents the modern development of a theme rather than any break with tradition.

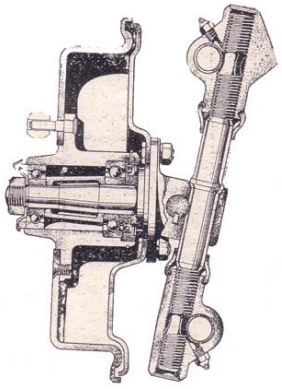
The foundation of the car is a chassis of generally orthodox layout, but good design has produced a notable combination of lightness and rigidity. The main side members are formed from inward facing channels, with shallow channel members welded in to form torsionally rigid boxes. With adequate main members and some support from a steel saloon body, elaborate cross bracing can often be dispensed with; in this case, a box-section cross member carries the front suspension system, and tubular bracing members are located under the gearbox, ahead of the rear axle, and at the extreme rear of the frame.

The independent front wheel springing system is, basically, of a type which has been used on certain American and Continental touring cars for almost 15 years, a period which has shown the principle to be sound but good detail design vital. Each wheel is located by a pair of transverse wishbone-shaped links, the lower member slightly the longer of the two, the geometry of the linkage being such that the wheel can rise or fall against a coil spring without changes in track or wheel camber of serious magnitude arising.

The behaviour of such a system when the car is new depends on a good geometrical layout and on mechanical parts being stiff enough to prevent undesirable deflections under any loading conditions. Proof of the correctness of the M.G. design was obtained when we covered substantial mileages in a prototype car, both in England and abroad, early this year.

For sustained good behaviour throughout the life of a car, all the bearings in a suspension system must remain free from backlash, even if somewhat neglected. An I.F.S. system must almost inevitably comprise a number of highly loaded joints, and these need careful designing.

In the system here described, rubber bushes are provided for the bearings securing the wishbone members to the chassis. Such bearings need no lubrication, and, being widely spaced, can safely be made slightly flexible—whereby the car is quietened. For the outboard bearings, however, plain bushes with grease-nipple lubrication are used. The kingpin bearings are an unusual feature of the design, orthodox thrust races being superseded by a threaded construction which gives a very large bearing surface. The sliding thread surfaces are lubricated from the wishbone bearing nipples, and only require attention at very infrequent intervals.

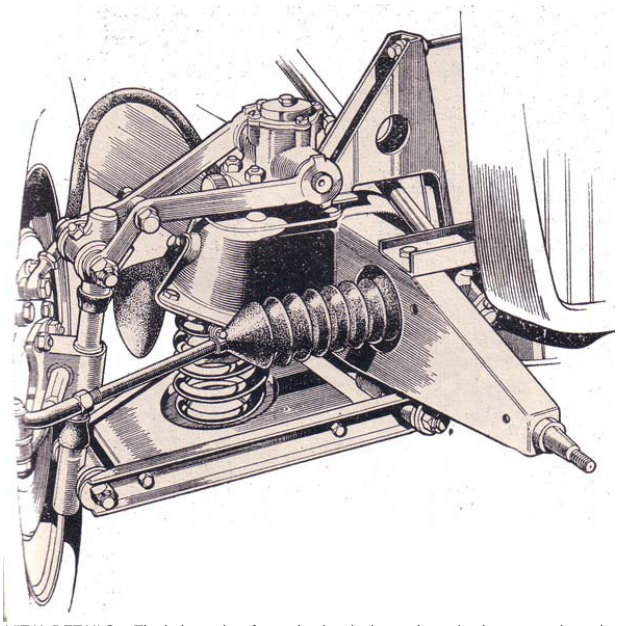


Rear suspension is by a rigid axle and half-elliptic leaf springs. Here, as elsewhere, the design is orthodox in principle, but clever in detail. The flexible seven-leaf springs, for example, have rubber inserts between the leaves, and are shackled directly on to extensions of the tubular chassis cross members, the frame being swept downwards slightly to pass below the axle. An unusual feature is the provision of a rubber-mounted sway-eliminator rod linking the offside frame member to the nearside of the axle casing.

In keeping with the comprehensive standard of equipment which distinguishes the model is the fitting of Smith's Jackall permanent jacks. This is a hydraulic system, and by operating a hand pump under the bonnet either the front or rear of the car may be lifted; with a minimum of effort and with no soiling of hands or clothes. The actual jack units are mounted on the chassis frame at the front of the car, and at the rear on the axle tube between springs and chassis frame.

Pressed-steel wheels of five-stud pattern are used, slots near the rim providing ventilation for the brakes and allowing snow grip chains to be fitted. Lockheed hydraulic brakes with 9-in. diameter drums are applied to all wheels, and a hand lever between the front seats applies the rear brakes through the medium of flexible cables. This parking brake is adjustable from inside the car.

A rack and pinion steering mechanism has been adopted, an almost frictionless gear being satisfactory with a good independent springing system. Mounted ahead of the front hubs, the rack controls the wheels through the medium of two



VITAL DETAILS.—The independent front-wheel springing and steering layout are shown in these sketches. Notable features are the threaded kingpin thrust bearings, rack and pinion steering installation, and rubber buffer effective on either bump or rebound.

short track-rod sections, the layout combining freedom from interaction between springing and steering with the minimum number of joints. A pre-loaded spring controls the meshing of the rack and pinion, and a rubber-bushed universal joint is incorporated in the steering column.

The engine of the new car is fundamentally similar to the well-tried unit fitted to Midget series TC cars. It differs somewhat in respect of accessory mountings, however, has a slightly different camshaft to produce the discreet silence and flexibility becoming to a saloon car, and is fed with mixture by a single S.U. carburetter.

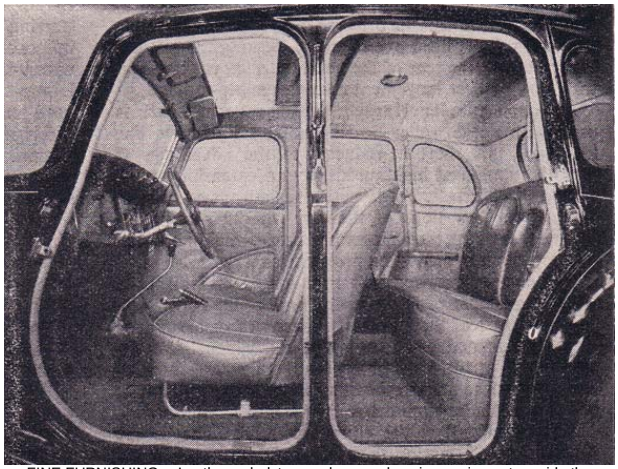
This engine is well suited to the capacity taxation system which came into force on January 1, the stroke/bore ratio of 1.35 being low enough to combine generous piston area with moderate tax. A counterbalanced crankshaft mounted in three thin-wall bearings, in conjunction with rigid connecting rods and big-end bearings of similar type, provide the foundation for a very sturdy power unit which should withstand long periods of hard use. Push-rod-operated overhead valves, of generous size and inclined at a small angle to the vertical,

WALNUT FACIA.—The use of good quality wood gives an unusually pleasant interior, instrument faces perpetuating the M.G. octagon motif.

combine with well-shaped ports to make possible a very good power output.

Typical of the care which has gone into details of the engine is the special provision made to prevent oil passing down the overhead-valve guides. Any tendency for oil consumption to increase during the life of the car owing to wear of the valve guides is checked by special oil seals—a double advantage is secured from these seals, in fact, for their presence permits the valve gear to be fed with unusually generous quantities of oil, so reducing the probable rate of wear.

In terms of cold figures, the best pulling power of the 1¼-litre engine corresponds to 116 lb. per sq. in. brake mean effective pressure, at a speed of 2,800 r.p.m., promising really

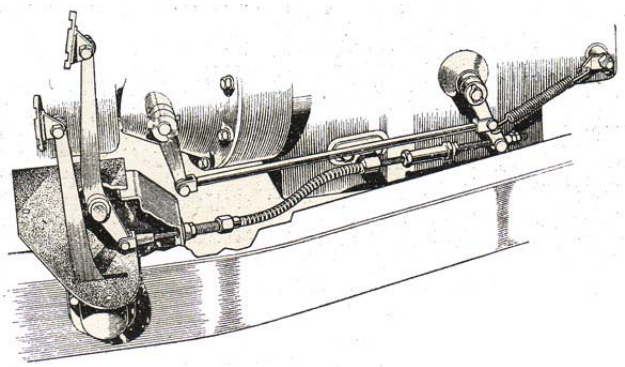


FINE FURNISHING.—Leather upholstery and comprehensive equipment provide the amenities for extremely pleasant travel.

good acceleration at around 40 m.p.h. in top gear. Maximum power output is of slightly less importance in a saloon model since few drivers use maximum revs. in the gears when handling this type of car, but an output of more than four times the rated horse power is usefully above the average.

In conjunction with this engine, a single dry-plate Borg and Beck clutch is used, a four speed gearbox completing the power unit assembly. Synchromesh engagement is provided for top, third and second gears, and the indirect ratios are high enough to permit the attainment of usefully high speeds in accordance with the tastes of enthusiastic drivers. The need for a remote gear control has been overcome by locating the selector mechanism at the rear of the gearbox, a short gear lever with very modest movement coming readily to hand.

An open tubular Hardy Spicer propeller shaft is used, with needle roller bearing universal joints. The length of this shaft is reduced, to the advantage of smooth running at high speeds, by an extension of the gearbox tail shaft. To keep the exhaust system well clear of the low floor of the car, without sacrifice of ground clearance, the silencer has been given an unusual location directly below the propeller shaft.



INCONSPICUOUS REFINEMENTS.—Shown above is the clutch control mechanism, combining accessibility for adjustment with freedom from interference by engine movement. On the right is the rear axle, with rubber-insulated transverse stabilizer rod, interleaved semi elliptic springs, and dual flexible hydraulic pipe-lines to brakes and jacks.

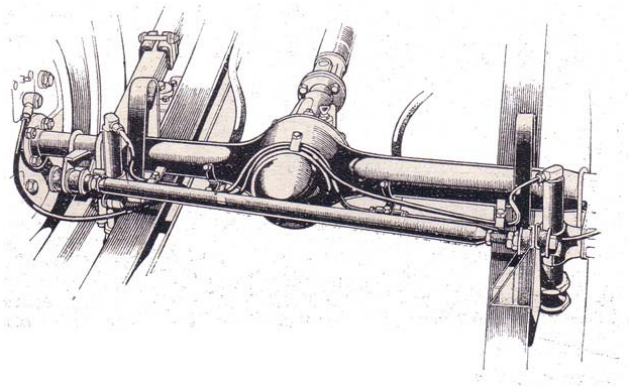
The complete power unit is mounted on vibration-absorbing rubber pads, under the nose of the engine and under the rear of the gearbox. These rubber mountings are supplemented by a transverse rod which holds the power unit at the level of its centre of mass—thus the unit can rock to absorb the inevitable torque. Irregularity of a four-cylinder engine, but cannot move about bodily.

A clever detail is the clutch-operating linkage. A flexible cable in tension links the frame-mounted clutch pedal to an arm pivoted near the front of the engine, via an accessible threaded adjustment. From this lever a push-rod runs back to the actual clutch-withdrawal mechanism. This design provides a clutch control unaffected by movement of the engine on its rubber cushions, and also convenient adjustment of clutch pedal clearance.

Sturdy pressed-steel saloon bodywork is fitted to the new model, providing useful extra stiffening for the box-section chassis frame. At the front, tubular chassis bracing members extend downwards and forwards from the dashboard structure to give the utmost rigidity of the front end assembly. Seen under construction, the generous use of sound-damping material on body panels is noted.

Four doors of adequate size give access to the body, revealing an exceptionally high standard of interior furnishing. Individual leather-upholstered front seats are comfortably wide, yet give some of the lateral support provided by sports car bucket seats. The rear seat has side armrests and a folding central armrest, providing very comfortable travel for two people.

Walnut has been freely used for the interior of the body, notably, door fillets and the instrument board. The usual speedometer, clock, oil-pressure gauge, fuel-contents indicator, and ammeter face the driver, a roomy locker occupying the opposite half of the facia panel. A telescopic steering column is provided, with wing-nut clamp, carrying a simple three-spoke



spring wheel. Trafficators are controlled from a knurled ring on the steering-wheel hub, and are self-cancelling under the influence of a time switch. Lighting switchgear is unusual, in that a dashboard knob is pulled for side lamps, then twisted and pulled again to bring the head lamps into operation. Stop lamp, reversing lamp, and a powerful fog lamp form part of the car's standard equipment, as do such other all-condition items as rear blind, sun visors, a sliding roof and an opening windscreen.

A capacious luggage locker provides for all normal requirements. When large amounts of baggage have to be carried, however, the lid of this locker can be left open to form a flat extension of the floor. Underneath the luggage locker is a separate compartment housing the spare wheel and tools, the lid of which incorporates the lamps and number plate—these remain lighted and visible even when the compartment is open.

The 1¼-litre M.G. is a highly developed small car which promises to combine comfort and good detail finish with a very brisk road performance. Cars have been in production at the Abingdon-on-Thames factory for some time past, and examples are already in the hands of MG. distributors as far afield as India, Australia and South America.

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