

Road Test Report of
THE
MORRIS MINI-COOPER

Reprinted from



September 20, 1961

MinipassionMini.com

The Motor Road Test No. 35/61

Make: Morris

Type: Mini-Cooper.

Makers: Morris Motors, Ltd., Cowley, Oxford.

Test Data

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CONDITIONS: Weather: Dry and hot with slight breeze. (Temperature 66°-77°F., Barometer 29.8 in. Hg.) Surface: Dry concrete and tarred macadam. Fuel: Premium-grade pump petrol (approx. 97 Research Method Octane Rating).

INSTRUMENTS

Speedometer at 30 m.p.h. 3% fast
 Speedometer at 60 m.p.h. 1% slow
 Speedometer at 80 m.p.h. 1% slow
 Distance recorder 1% slow

WEIGHT

Kerb weight (unladen, but with oil coolant and fuel for approx. 50 miles) 12½ cwt.
 Front/rear distribution of kerb weight .. 63/37
 Weight laden as tested 16½ cwt.

MAXIMUM SPEEDS

Mean lap speed around banked circuit 85.2 m.p.h.
 Best one-way ¼-mile time equals 87.4 m.p.h.

"Maximile" speed. (Timed quarter mile after one mile accelerating from rest.)
 Mean of opposite runs 82.3 m.p.h.
 Best one-way time equals 84.1 m.p.h.

Speed in gears. (Limits indicated on speedometer.)
 Speed in 3rd. gear 63 m.p.h.
 Speed in 2nd. gear 46 m.p.h.
 Speed in 1st. gear 28 m.p.h.

FUEL CONSUMPTION

56.5 m.p.g. at constant 30 m.p.h. on level.
 53.0 m.p.g. at constant 40 m.p.h. on level.
 47.0 m.p.g. at constant 50 m.p.h. on level.
 41.0 m.p.g. at constant 60 m.p.h. on level.
 34.5 m.p.g. at constant 70 m.p.h. on level.
 27.0 m.p.g. at constant 80 m.p.h. on level.
 22.0 m.p.g. at maximum speed of approx. 85 m.p.h. on level.

Overall Fuel Consumption for 1,064 miles, 30.75 gallons, equals 34.6 m.p.g. (8.15 litres/100 km.)

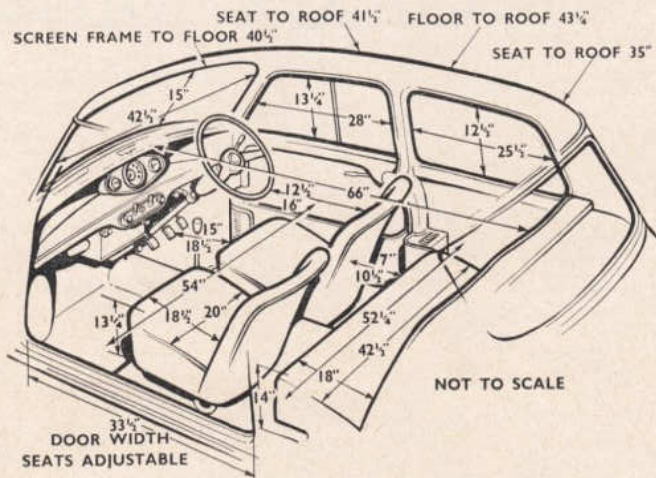
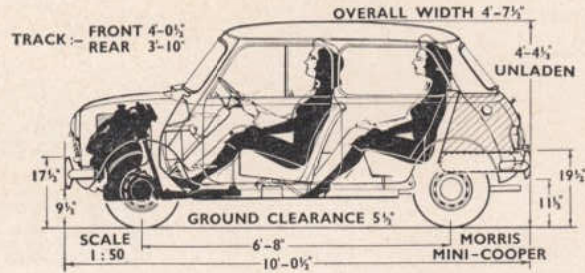
Touring Fuel Consumption (m.p.g. at steady speed midway between 30 m.p.h. and maximum, less 5% allowance for acceleration) 40.5 m.p.g.
 Fuel tank capacity (makers' figure) 5½ gallons.

STEERING

Turning circle between kerbs:
 left .. 31½ ft. right .. 29½ ft.
 Turns of steering wheel from lock to lock 2½

BRAKES from 30 m.p.h. (tested when warm, see text)

0.90 g retardation (equivalent to 33½ ft. stopping distance) with 90 lb. pedal pressure.
 0.80 g retardation (equivalent to 37½ ft. stopping distance) with 75 lb. pedal pressure.
 0.56 g retardation (equivalent to 54 ft. stopping distance) with 50 lb. pedal pressure.
 0.25 g retardation (equivalent to 120 ft. stopping distance) with 25 lb. pedal pressure.



ACCELERATION TIMES from standstill

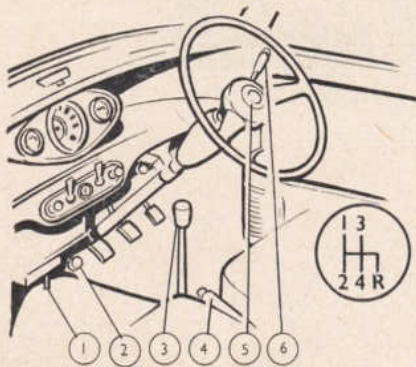
0-30 m.p.h.	4.8 sec.
0-40 m.p.h.	7.7 sec.
0-50 m.p.h.	11.8 sec.
0-60 m.p.h.	17.2 sec.
0-70 m.p.h.	26.3 sec.
0-80 m.p.h.	47.3 sec.
Standing quarter mile	21.1 sec.

ACCELERATION TIMES on upper ratios

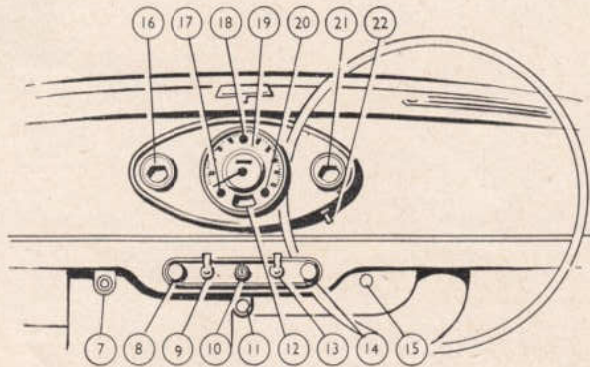
Top gear	3rd gear	
10-30 m.p.h.	10.7 sec.	7.4 sec.
20-40 m.p.h.	11.8 sec.	7.6 sec.
30-50 m.p.h.	12.7 sec.	7.9 sec.
40-60 m.p.h.	13.3 sec.	9.4 sec.
50-70 m.p.h.	16.5 sec.	—
60-80 m.p.h.	30.6 sec.	—

HILL CLIMBING at sustained steady speeds

Max. gradient on top gear	1 in 12.4	(Tapley 180 lb./ton)
Max. gradient on 3rd gear	1 in 7.5	(Tapley 295 lb./ton)
Max. gradient on 2nd gear	1 in 5.3	(Tapley 415 lb./ton)



1, Heater shutter. 2, Dip switch. 3, Gear lever. 4, Handbrake. 5, Horn button. 6, Direction indicator switch and warning light. 7, Windscreen washer button. 8, Heater temperature control.



9, Wiper switch. 10, Ignition and starter key. 11, Heater fan switch. 12, Fuel gauge. 13, Lights switch. 14, Fresh air heater intake control. 15, Choke. 16, Water temperature gauge. 17, Main

beam warning light. 18, Oil pressure warning light. 19, Speedometer. 20, Dynamo charge warning light. 21, Oil pressure gauge. 22, Panel light switch.

The Morris Mini-Cooper



New duo-tone colour schemes, a chromium-plated grille and the Morris Cooper motif are the only exterior features which distinguish this from standard Mini-Minors.

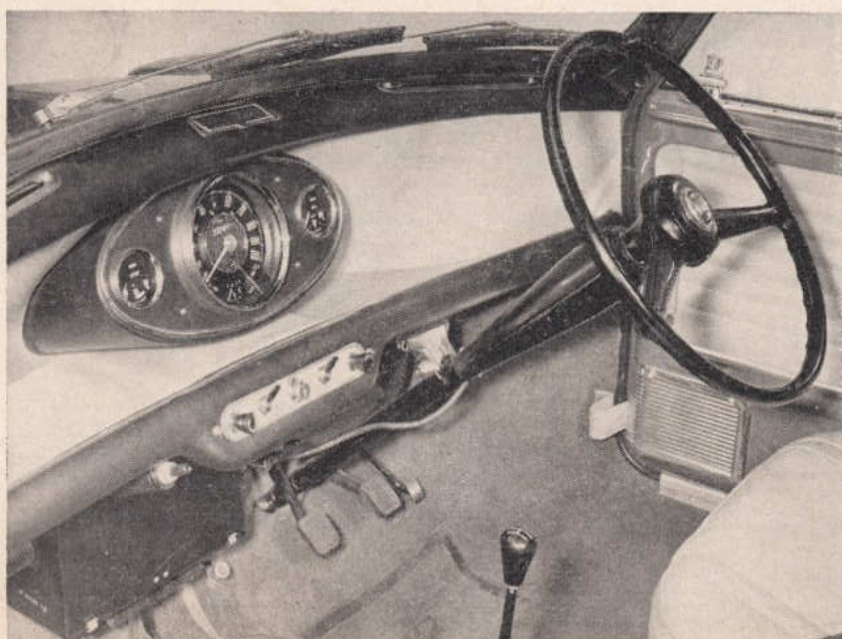
A Wolf Cub in Sheep's Clothing

AS one of the world's most compact genuine four-seat cars, the Morris Mini-Minor is famous also for its immensely responsive steering. When the name Cooper is added to its title, the Mini-Minor justifies identification with the builders of world championship-winning Grand Prix cars by having a larger and more sporting engine, close-ratio gears and disc front brakes which lift its road performance into an even higher class. With a top speed of just over 85 m.p.h., and effortless top gear acceleration such as one associates with

considerably larger cars as well as very quick acceleration when the gears are used, the "Mini" becomes an extremely rapid car on ordinary give-and-take roads.

First impressions are not of a sporting car, however, but of a compact yet roomy saloon which is much more "de luxe" in its furnishing than the majority of small cars. Upholstery has been smartened up, and the washable plastic roof lining now carries a proper interior lamp; the centrally placed instrument nacelle has been widened to accommodate a thermometer and oil pressure

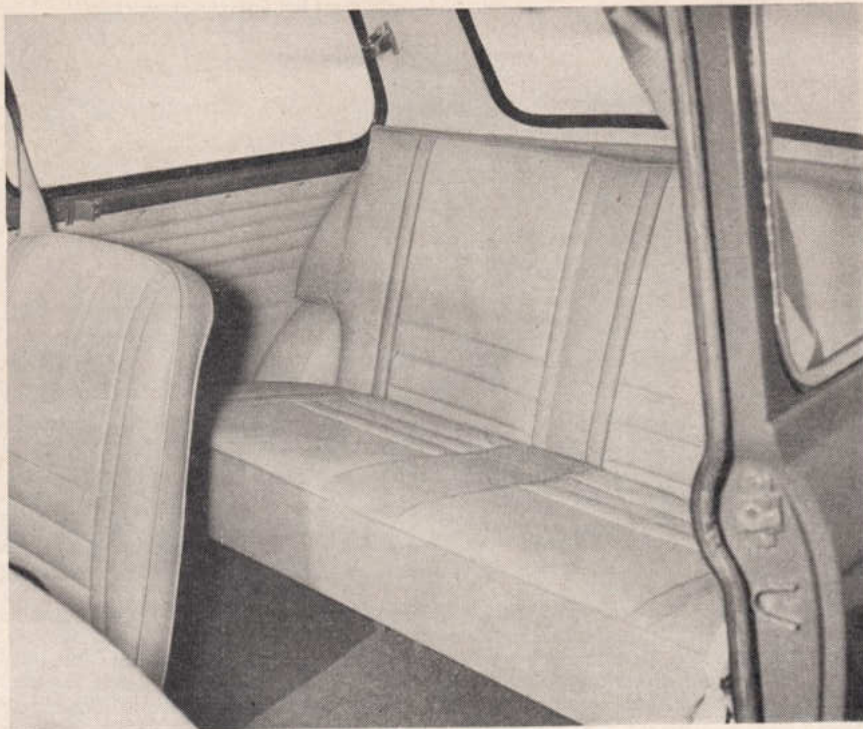
gauge although it remains rather remote from the driver's normal sight line and, after dark, only the speedometer and fuel contents gauge are illuminated. Less conspicuous improvements are also welcome, sliding windows in the doors having much more satisfactory catches than were fitted to early Mini-Minors (although the hinged rear quarter windows are still liable to blow shut at high cruising speeds, blowing open again when a door is slammed!) and the starter operating from the ignition key instead of from a button. Availability of a fresh-air interior



Oil pressure and water temperature gauges supplement the improved centrally mounted speedometer dial. Better upholstery and a remote control gear lever are also standard features.

In Brief

Price	£465, plus purchase tax
	£214 7s. 3d. equals £679 7s. 3d.
Capacity 997 c.c.
Unladen kerb weight	.. 12½ cwt.
Acceleration:	
20-40 m.p.h. in top gear	.. 11.8 sec.
0-50 m.p.h. through gears	.. 11.8 sec.
Maximum top gear gradient	1 in 12.4.
Maximum speed 85.2 m.p.h.
"Maximile" speed 82.3 m.p.h.
Touring fuel consumption	.. 40.5 m.p.g.
Gearing: 14.9 m.p.h. in top gear at 1,000 r.p.m.;	27.4 m.p.h. at 1,000 ft./min. piston speed.



Despite the car's small overall size, there is ample room for two large adults in the back seat. Pillar- and floor-mounted safety straps are an option for front seat passengers.

heater brings a welcome end to misting-up dangers in humid weather, although on our test car the push-pull cable operation of its hot water valve failed. A carpeted floor in the luggage locker is another improvement, especially as this floor over the spare wheel can readily be removed for special occasions when every possible cubic inch of space is required.

Such refinements as these emphasize that the Mini-Cooper is not a racing Mini-Minor, but a better all-round car than the lower-priced versions which preceded (and of course continue in production alongside) it. Engine tuning alone could have given power at high r.p.m., but the long-stroke crankshaft which increases engine displacement from 848 c.c. to 997 c.c. also gives such figures as top gear acceleration from 20 to 40 m.p.h. in only 11.8 sec. That sort of urge in top gear, and ability to exceed 85 m.p.h. on the level, would be highly satisfactory for a conventional saloon car of 2-litre engine size.

A moderate degree of tune has been applied to the engine, although it will still run on premium petrol without demanding "100 octane" fuel. Our test model had a lumpy and rather fast tick-over, perhaps partly due to the special camshaft which lets it breathe well at high r.p.m., but not helped by awkward access to two S.U. carburetters, adjuster screws on which have only the feeblest springs to discourage them rotating as the engine vibrates. A very real advantage of this twin-carburetter long-stroke engine was its willingness to pull smoothly and hard almost immediately after a start from cold, and although at low cruising speeds it uses slightly more fuel than the smaller single-carburetter

A longer-throw crankshaft has increased the capacity of the B.M.C. A-series engine to 997 c.c. With a special camshaft and twin S.U. carburetters, it gives genuine 85 m.p.h. performance.

engine, overall petrol economy is excellent for such a roomy and lively car.

Welcome though its "big car" ability to overtake or sweep easily up hills in top gear may be, this version of the Mini-Minor also has closer spacing of its four gearbox ratios. Marks on the speedometer dial which it seems purposeless to over-step suggest maxima of approximately 65 m.p.h. in 3rd gear, 45 m.p.h. in 2nd gear and nearly 30 m.p.h. in 1st gear, these being the change-up speeds used when recording (with two men and some heavy test equipment aboard) such figures as from rest to 50 m.p.h. in 11.8 sec. and to 70 m.p.h. in 26.3 sec.

Adoption of the traditional sports car remote control brings this model's gear lever to a very convenient position, but with the transverse engine and front-wheel drive involves mechanical complexities. The gear control is very

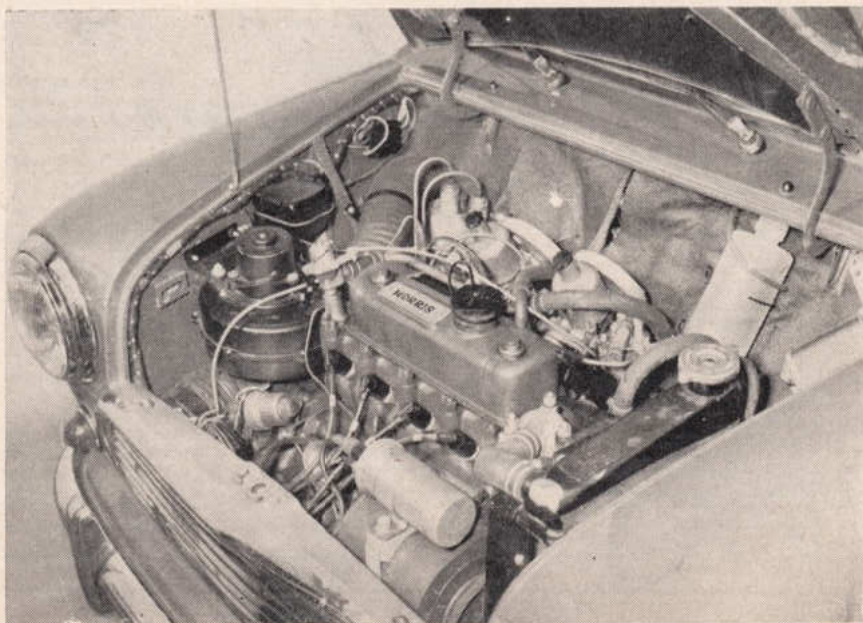
The Morris Mini-Cooper

satisfactorily positive, but after some 3,000 miles was still heavy to use on our test car; synchromesh is provided on the upper three gears, and although better than hitherto it remains rather easy to override. Despite the high bottom gear, restarting with two or three people in the car is possible on a 1 in 4 hill, and the handbrake holds securely on even steeper gradients if pulled up with reasonable firmness.

An exhaust note which is business-like but not aggressive, a new 16-blade fan to push air transversely through the radiator, and widespread use of sound-absorbing material make this model at least as quiet as earlier Mini-Minors and at times usefully quieter. It can cruise very effortlessly at 70 m.p.h. or more, but when driven hard it reminds one, by appreciable power roar and road rumble augmented by general fussiness towards the maximum speeds in the lower gears, that this is a small and light car. It is obviously unfair, but given a small saloon which performs like larger models costing perhaps twice as much, one tends to expect also the refinement of a much heavier and more cumbersome vehicle.

Nothing could be less cumbersome than a Mini-Minor, and either by chance or thanks to the nylon tyres fitted to Cooper models, our test car seemed more than normally responsive to a light touch on its steering. One cannot say that it is anything but stable, yet it takes very, very little steering movement to swing the Mini-Cooper round an obstacle during fast driving. Taken into a corner as fast as seems safe or a little faster, this little saloon claws its way round with a good deal of "drift" but a notably stubborn reluctance to spin or run out of road. More power means that the effect normal to front-wheel-driven cars (which, if the accelerator pedal is released whilst cornering, self-centre their steering less strongly and show less understeer) is a little more evident, but it never seems to become embarrassing.

By 1961 standards Mini-Minors have unusually firm suspension, but damping is gentle and the progressiveness of rubber springs is such that one cannot ever detect a bump stop coming into harsh



The Morris Mini-Cooper

A carpeted floor over the spare wheel can be removed if extra luggage space is needed.

action. On a secondary road the ride can be lively, but it is shock free and has no exaggerated movements such as can induce car-sickness in more softly sprung vehicles—major humps or hollows which worry some soft-riding cars are almost totally ignored. Riding comfort seems just as good in the back seat as in front.

Application of disc brakes to the front wheels has certainly achieved the desired result of eliminating fade in severe conditions. Several stops from 60 m.p.h. or more, made in a quick series, can produce a smell of hot brakes as large amounts of energy are dissipated, but instead of their effectiveness fading the brakes then become rather more responsive to moderate pedal pressures. In utter contrast to what has been normal, the one circumstance which can require an embarrassingly large pedal effort to bring the wheels close to locking is the need to make an emergency stop when the brakes are completely cold as a result of the pedal having remained untouched during a good many miles.

Whilst some people who have not yet experienced it for themselves are still incredulous concerning the very large amount of passenger space which can exist in a car only 10 ft. 0½ in. long, most keen motorists know what a miracle has been performed by banishing the engine and gearbox to a tight-packed spot at the very front of the body and putting four tiny wheels at the extreme corners of the car. HOLLOWED-OUT doors and body sides provide unrestricted elbow room, above four capacious parcel compartments which cannot be insulted with the name "pockets"—there is also a fascia shelf and plenty of parcel space under the rear seat.

Men with very long legs will usually criticize both the range of driving-seat adjustment and the forward-crouch driving position, but can in fact drive long distances in reasonable comfort and



have room for two adult passengers behind them. Small pedals are spaced widely enough to accommodate broad shoes, yet not so far apart as to rule out intentional toe-and-heel operation of brake and accelerator simultaneously. Sliding windows, when combined with a fresh-air heater which can be set to admit unheated air to the body, provide reasonably draught-free ventilation. Rigid door handles in place of pull-straps are an orthodoxy which pleases passengers, even though handles at the rear extremities of front-hinged doors are less accessible than were the straps.

The ability of ordinary Morris Mini-Minors to make fast point-to-point progress on far from perfect roads is by now a very widely observed

phenomenon. With maximum and cruising speeds raised by 10-15 m.p.h. and much-improved acceleration, this Cooper version of Alec Issigonis' remarkable design is even faster, its higher 3rd gear being especially welcome for overtaking more promptly and safely.

This is the fastest production saloon car of its size ever to figure in our regular series of Road Test Reports. So much performance, combined with a lot of practical merit and quite a high standard of refinement, will obviously make many people decide that a sum of about £680 is better spent on this model than on something bigger but no better.

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Specification

Engine	
Cylinders	4 (Transversely mounted engine)
Bore	62.43 mm.
Stroke	81.28 mm.
Cubic capacity	997 c.c.
Piston area	18.96 sq. in.
Valves	In-line o.h.v. (pushrods)
Compression ratio	9/1
Carburettor	2 S.U. inclined, type HS2
Fuel pump	S.U. electrical below fuel tank
Ignition timing control	Centrifugal and vacuum
Oil filter	Purolator full-flow
Max. power	55 b.h.p. at 6,000 r.p.m.
Piston speed at max. b.h.p.	3,200 ft./min.

Transmission	
Clutch	B.M.C. 7½ in. single dry plate
Top gear (s/m)	3.765
3rd gear (s/m)	5.11
2nd gear (s/m)	7.21
1st gear	12.05
Reverse	12.05
Front wheel driving shafts	Birfield with constant velocity outer universals
Final drive	Helical gears from transverse gearbox
Top gear m.p.h. at 1,000 r.p.m.	14.9
Top gear m.p.h. at 1,000 ft./min. piston speed	27.4

Chassis	
Brakes	Lockheed hydraulic, discs at front with two-ratio pressure booster valve, drums at rear with pressure limiting valve.
Brake dimensions	Front discs 7 in. dia.; rear drums 7 in. dia. x 1½ in. wide
Friction areas	45 sq. in. of lining area working on 157.4 sq. in. rubbed area of discs and drums.
Suspension:	
Front	Independent by transverse wishbones and Moulton rubber springs
Rear	Independent by trailing arms and Moulton rubber springs
Shock Absorbers	Telescopic (orifice type)
Steering gear	Rack and pinion
Tyres	Dunlop Gold Seal nylon tubeless, 5.20-10

Coachwork and Equipment

Starting handle	None
Battery mounting	Under luggage locker floor
Jack	Pillar type
Jacking points	Under sides of body
Standard tool kit:	Jack, wheelbrace sparking plug spanner and tommy bar
Exterior lights	2 headlamps with pilot bulbs, 2 stop/tail lamps, rear number plate lamp.
Number of electrical fuses	2
Direction indicators	Amber flashers, self-cancelling
Windscreen wipers	Twin-blade electrical, non self-parking
Windscreen washers	Pump-type
Sun visors	Two, hinge mounted
Instruments	Speedometer with non-decimal total mileage recorder, fuel contents gauge, oil pressure gauge, coolant thermometer
Warning lights	Dynamo charge, headlamp main beam, turn indicators

Locks:	With ignition key. Ignition/starter switch, driver's door, luggage locker
Glove lockers	None
Map pockets	Wide compartments in two doors and on each side of rear seat
Parcel shelves	Full-width on fascia
Ashtrays	1 front, 2 rear
Cigar lighters	None
Interior lights	One in roof (manual switch only)
Interior heater	Smiths recirculatory heater and demister. (Fresh-air type optional extra)
Car radio	Radiomobile as optional extra
Extras available	Fresh-air heater, radio
Upholstery material	Leathercloth
Floor covering	Pile carpet with underfelt
Exterior colours standardized	Six duotone combinations
Alternative body styles	None (lower-powered engine etc., available in same body)

Maintenance

Sump and transmission	8 pints plus 1 pint in filter S.A.E. 30 engine oil above freezing or S.A.E. 20W down to 10°F.
Gearbox and final drive	lubricated from engine.
Steering gear lubricant	S.A.E. 90 hypoid gear oil
Cooling system capacity	5½ pints plus 1 pint in optional heater (2 drain taps)
Chassis lubrication	By grease gun every 1,000 miles to 10 points
Ignition timing	T.d.c. static
Contact-breaker gap	0.014-0.016
Sparking plug type	Champion N5
Sparking plug gap	0.024-0.026 in.

Valve timing	Inlet opens 16° before t.d.c. and closes 56° after b.d.c.; Exhaust opens 51° before b.d.c. and closes 21° after t.d.c.
Tappet clearances (hot or cold)	Inlet and exhaust 0.012 in.
Front wheel toe-out	¼ in.
Camber angle	1° normally laden
Castor angle	1½° normally laden
Steering swivel pin inclination	9½° normally laden
Tyre pressures	Front 24 lb. Rear 22 lb.
Brake fluid	Lockheed (S.A.E. Spec. 70-R-1)
Battery	Lucas GLTW7A, 12 volt 34 amp. hr.
Miscellaneous	Top up carburettor dashpots with S.A.E. 20 engine oil

AN EXPLANATION OF SPECIAL TERMS IN THE DATA PANEL OF "THE MOTOR" ROAD TESTS

THE following notes may assist readers of these reprints who are unfamiliar with some of the special terms regularly used :

Kerb weight : The weight of the car ready to be tested with oil, water, tools and fuel for approximately 50 miles.

Laden weight : Kerb weight plus driver, one passenger and standard test apparatus.

Tapley figures : Acceleration and hill-climbing ability of the car measured by the instrument of this name, which consists of a damped pendulum. Gradients climbable in top gear equivalent to the Tapley figure recorded are set out separately.

Braking figures : With the friction coefficient between tyres and road at the normally accepted maximum coefficient of unity the rate of retardation on the car cannot exceed 32.2 ft. per second²—the acceleration of gravity : this would be equivalent to stopping the car in 30.1 ft. from 30 m.p.h. The recorded figures are therefore set out as a percentage of gravity, with the equivalent stopping distances.

Maximum speed : Timed by two observers on a level road in both directions with sufficient run-in (between 1 and 3 miles) to ensure that the car has reached its terminal velocity.

Acceleration : Top-gear accelerations are taken from rolling starts—i.e., when timing between 30 and 50 m.p.h. full throttle has been given at well below 30 m.p.h. This applies to other acceleration times in a fixed gear.

Standing start acceleration times : Are the best that can be recorded by the testers using the fastest possible rather than the smoothest getaway from rest, and upward gear changes on full throttle when this is practicable.

Fuel consumption : The steady speed figures are the average of runs in opposing directions consuming a measured 1/10 gallon. The overall figure is based on a mixture of town and country driving and reflects the natural pace of the car so that if an unchanged engine and transmission system were transferred from a car having moderate road holding to one outstanding in these characteristics the overall consumption would tend to suffer.

Touring fuel consumption : Based, empirically, on the m.p.g. at a steady speed midway between 30 m.p.h. and the maximum, less 5% to allow for acceleration, this figure will be found close to that obtained by many private owners in the course of normal week to week motoring.

Under and oversteer : An understeering car will tend to be naturally straight-running and be stable in cross winds, but will require unexpected steering lock to carry it round a corner of given radius. An oversteering car corners willingly but may wander on the straight and is often sensitive to cross winds.

Equipment : This is correct as at the time of road test, and should be checked if a purchase is contemplated at some substantially later date.

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