The Motor Road Test No. 28/60

Make: Turner. **Type:** Alexander-Turner 950

Makers: Turner Sports Cars (Wolverhampton), Ltd., Municipal Aerodrome, Pendeford, Wolverhampton.

Alexander Conversion Car submitted for test by Alexander Autos & Marine, Ltd., Haddenham, Bucks.

Test Data

CONDITIONS: *Weather: Warm and dry with little wind (Temperature 56°-68°F., Barometer 29.8 in. Hg.) Surface: Dry concrete and tarmacadam. Fuel: Premium and super-premium pump petrols (96-97 and 100-101 Research Method Octane Rating). Performance tests made with hood and sidescreens in position.*

INSTRUMENTS

Speedometer at 30 m.p.h.	3% fast
Speedometer at 60 m.p.h.	5% fast
Speedometer at 90 m.p.h.	5% fast
Distance recorder	3% slow

WEIGHT

Kerb weight (unladen, but with oil coolant and fuel for approx. 50 miles)	11¾ cwt.
Front/rear distribution of kerb weight	53/47
Weight laden as tested	15½ cwt.

MAXIMUM SPEEDS

Flying Mile.

Mean of six opposite runs	95.7 m.p.h.
Best one-way time equals	97.3 m.p.h.

"Maximile" Speed. (Timed quarter mile after one mile accelerating from rest.)

Mean of opposite runs	90.9 m.p.h.
Best one-way time equals	91.8 m.p.h.

Speed in gears at 7,000 r.p.m.

Speed in 3rd gear	84 m.p.h.
Speed in 2nd gear	62 m.p.h.
Speed in 1st gear	46 m.p.h.

FUEL CONSUMPTION

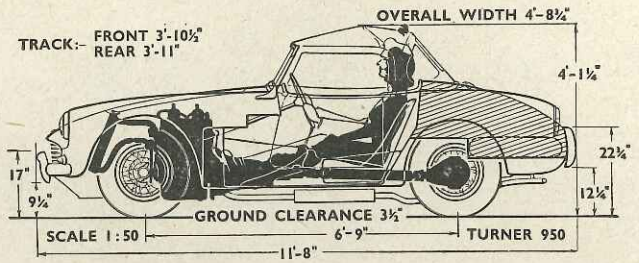
45.0 m.p.g. at constant 30 m.p.h. on level.
43.5 m.p.g. at constant 40 m.p.h. on level.
42.0 m.p.g. at constant 50 m.p.h. on level.
39.5 m.p.g. at constant 60 m.p.h. on level.
34.5 m.p.g. at constant 70 m.p.h. on level.
29.5 m.p.g. at constant 80 m.p.h. on level.

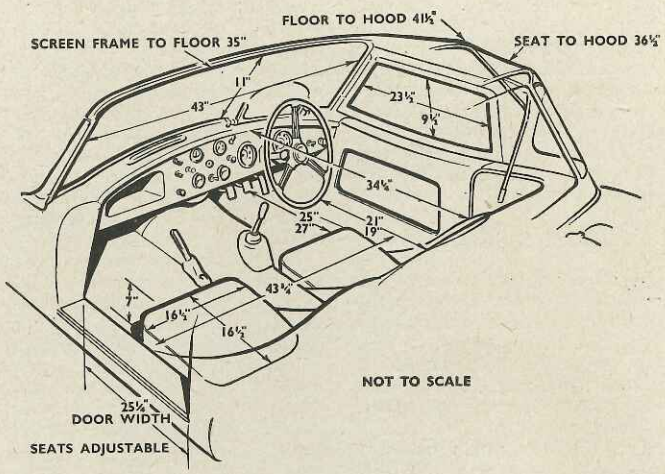
Overall Fuel Consumption for 1,569 miles, 50.4 gallons, equals 31.2 m.p.g. (9.1 litres/100 km.)
Touring Fuel Consumption (m.p.g. at steady speed midway between 30 m.p.h. and maximum, less 5% allowance for acceleration). 36 m.p.g.
Fuel tank capacity (maker's figure) 6 gallons.

STEERING

Turning circle between kerbs:	
Left	32 ft.
Right	32½ ft.

Turns of steering wheel from lock to lock 2½.





ACCELERATION TIMES from standstill.

0-30 m.p.h.	4.9 sec.
0-40 m.p.h.	6.9 sec.
0-50 m.p.h.	10.1 sec.
0-60 m.p.h.	13.6 sec.
0-70 m.p.h.	18.7 sec.
0-80 m.p.h.	26.5 sec.
0-90 m.p.h.	43.4 sec.
Standing quarter mile	19.7 sec.

ACCELERATION TIMES On Upper Ratios

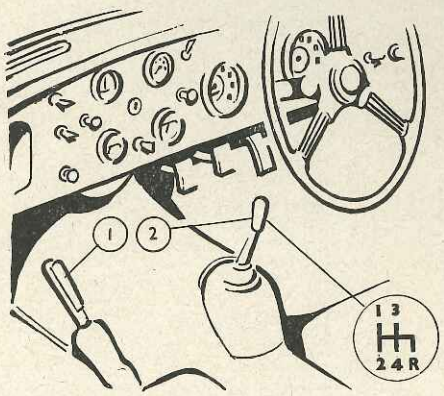
	Top gear.	3rd gear
10-30 m.p.h.	13.9 sec.	9.9 sec.
20-40 m.p.h.	13.3 sec.	9.5 sec.
30-50 m.p.h.	13.3 sec.	9.3 sec.
40-60 m.p.h.	14.7 sec.	9.3 sec.
50-70 m.p.h.	13.9 sec.	10.6 sec.
60-80 m.p.h.	15.9 sec.	13.5 sec.
70-90 m.p.h.	27.3 sec.	

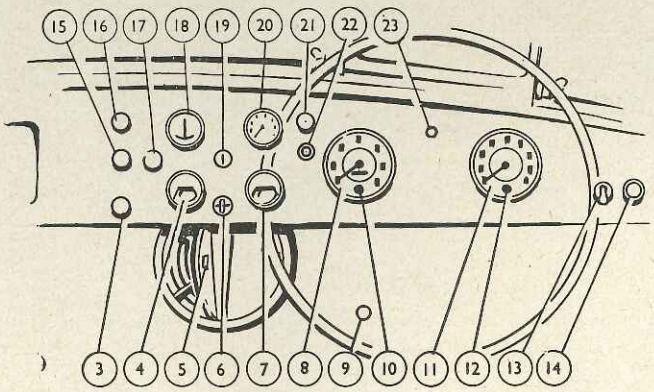
BRAKES from 30 m.p.h.

0.90 g retardation (equivalent to 33½ ft. stopping distance) with 115 lb. pedal pressure.
0.80 g retardation (equivalent to 37½ ft. stopping distance) with 100 lb. pedal pressure.
0.64 g retardation (equivalent to 47 ft. stopping distance) with 75 lb. pedal pressure.
0.45 g retardation (equivalent to 67 ft. stopping distance) with 50 lb. pedal pressure.
0.25 g retardation (equivalent to 120 ft. stopping distance) with 25 lb. pedal pressure.

HILL CLIMBING at sustained steady speeds

Max. gradient on top gear	1 in 12.0 (Tapley 185 lb./ton)
Max. gradient on 3rd gear	1 in 8.6 (Tapley 260 lb./ton)
Max. gradient on 2nd gear	1 in 5.5 (Tapley 405 lb./ton)





1. Handbrake. 2. Gear lever. 3. Heater fan rheostat. 4. Fuel contents gauge. 5. Heater air shutter. 6. Direction indicator switch. 7. Oil pressure gauge. 8. Speedometer. 9. Headlamp dip-switch. 10. High beam indicator lamp. 11. Tachometer. 12. Dynamo charge warning lamp. 13. Horn switch. 14. Screenwasher pump. 15. Lights switch. 16. Panel light switch. 17. Choke control. 18. Ammeter. 19. Ignition switch 20. Water thermometer. 21. Windscreen wiper switch. 22. Starter. 23. Direction indicator warning light.

THE ALEXANDER-TURNER

A 948c.c. Two-seater of High Performance and Excellent Road-holding

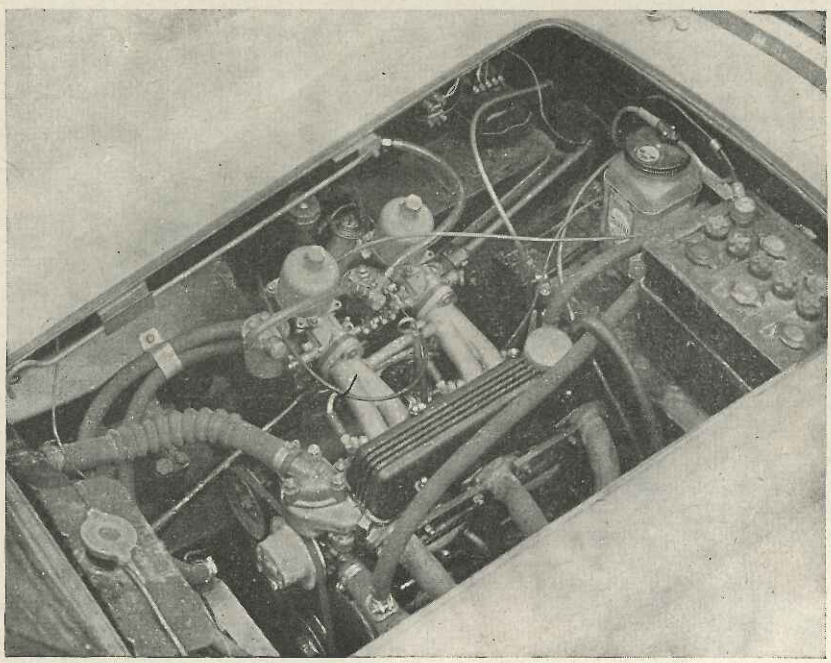
BUILT at Wolverhampton in modest numbers, the Turner is a small sports car carrying full road equipment which, costing rather more than some other two-seaters of similar engine size, has won a great many races because it combines low weight with tenacious roadholding. From the factory, it is offered with a tuned 948 c.c. Austin or a 1,097 c.c. Coventry Climax engine; our test model, loaned by Alexander Autos and Marine Ltd. (Turner distributors for S.E. England), was their own special version of the 948 c.c. model, using a light alloy "cross flow" cylinder head. Other extra-performance equipment on our test model included S.U. carburetters of 1½-in. bore, a super-sports camshaft, close-ratio gears, disc front brakes, centre-lock wire wheels shod with 5.60-13 Dunlop Nylon tyres, an anti-roll torsion bar, and an oil cooler; also there were such refinements as a heater and windscreen washers. With all these extras aimed at making it a very fast 1-litre competition car, the Turner remained an extremely pleasant open two-seater for ordinary use in weekday or weekend traffic.

Beneath its glass fibre and plastic body, the Turner has a straightforward twin-tube chassis. Apart from a tuned Austin A35 engine, it uses an I.F.S. assembly from the same source, rack and pinion steering, and an Austin A35 rear axle kept very precisely under control by two radius arms, two laminated torsion bar springs, one torque reaction link and a Panhard rod. There is nothing revolutionary about the chassis, but its details have been carefully worked out to provide an exceptionally high standard of roadholding. A reasonable degree of sports-car firmness in the springing does not prevent the Turner riding quite comfortably when its tyres are at ordinary touring pressures, even across the rough grass fields which serve for car parks at motor racing circuits. With the extra front anti-roll bar which was on our test model, it corners fast with even less roll than most other sports two-seaters, wheel adhesion and full controllability being retained up to remarkably high cornering speeds.

Around town, some frictional damping in the rack and pinion mechanism gives the steering a slightly dead feel, but above 30 m.p.h. or so this unwelcome stiffness is lost. A driver soon acquires confidence that the Turner will go just where he wishes, on the straight or around corners, with a minimum of conscious steering. In the 70-80 m.p.h. speed range a good deal of scuttle shake was evident, but this shake seemed to be at least in part a shortcoming of the coachwork (perhaps it is unwise to mount a heavy 12-volt battery quite high up on the scuttle of a non-metallic body) and was not accompanied by any loss of steering precision.

Disc front brakes are an optional extra for Turner cars with the 948 c.c. engine, and they worked with smooth, silent effectiveness. Unusually high pedal pressures were needed on our test model, but we understand that on current production models the pendant pedals have been redesigned and their leverages altered to reduce the effort required from the driver; also that despite the expectation that this change would be accompanied by longer

From above the twin-carburetter cross-flow engine is scarcely recognizable as being basically B.M.C. "A" series. Accessibility is good thanks to the front hinged bonnet, and the dipstick is particularly easy to reach. No fan was fitted on the test car.



In Brief

Price (with Alexander cross-flow cylinder head, 1½-in. carburetters, super sports camshaft, oil cooler, close ratio gears, centre-lock wire wheels, disc front brakes and anti-roll torsion bar) £1,052 17s. 0d. including purchase tax.
Price of Alexander-Turner (including purchase tax) £895.
Price of Turner 950 (including purchase tax) £815 14s. 2d., or in kit form, £550.

Capacity	948 c.c.
Unladen kerb weight ...	11¾ cwt.
Acceleration:	
20-40 m.p.h. in top gear ...	13.3 sec.
0-50 m.p.h. through gears	10.1 sec.
Maximum direct top gear gradient	1 in 12.0
Maximum speed	95.7 m.p.h.
"Maximile" speed	90.9 m.p.h.
Touring fuel consumption ...	36.0 m.p.g.

Gearing: 14.8 m.p.h. in top gear at 1,000 r.p.m. 29.6 m.p.h. at 1,000 ft./min. piston speed

(*Left*) The weather protection offered by modern roadsters is remarkably good and in this respect the Turner is no exception. The hood is also simply and quickly erected but it does tend to restrict entry and exit from the car.

(*Right*) An attractive shape in glass fibre. For competition use an aero screen is fitted but the main screen is difficult to remove and replace due to the inaccessibility of the nuts and bolts holding it in position.

(*Below*) A driver's seat which is not quickly adjustable can make the car awkward to drive for those who are trying it for a short time and do not happen to fit but as can be seen the driving position is good for the right person or once it has been adjusted.

THE ALEXANDER – TURNER

pedal travel, an extra inch of legroom has in fact been made available in the cockpit.

This body does not look strikingly low, because it extends up to shoulder level beside and immediately behind the driver, who is better protected from back-draught than in many other open cars. None of the luggage accommodation is inside the cockpit; two huge door-compartments and a cubby hole providing ample stowage for almost anything likely to be "wanted on voyage." Under lock and key protection, a very considerable quantity of luggage can be carried in the rear locker, which has the spare wheel flat on its floor. Rather inconveniently, the small 6-gallon petrol tank also has its filler inside the luggage locker.

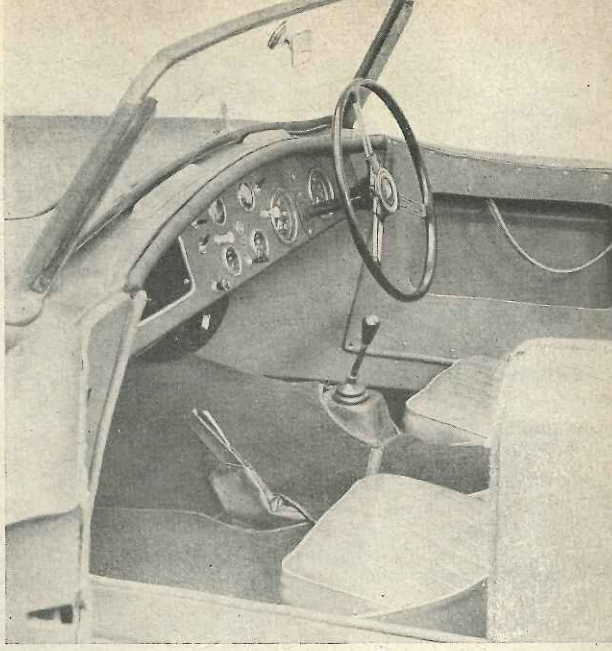
Weather protection is well looked after in the conventional modern sports car manner, by rigid-frame sidescreens, which are very easily installed or removed, and by a hood incorporating three big flexible windows which has a loose fabric and a removable two-piece frame. Sidescreens incorporating sliding window panels, and a removable hard-top, are available if required. Adjustment of the two bucket seats is confined to alternative bolt-down mountings, and for tall people legroom at first seems rather limited, especially as intrusion of the gearbox enclosure into the cockpit leaves no obvious left foot position comfortably away from closely-spaced pedals. After a while, however, a driver seems to settle down behind the offset-to-the-left steering wheel and makes quite long runs without complaining of any discomfort. Carrying the optional tachometer on the test model, the facia with its individual instruments on a panel covered in black plastic fabric seemed entirely appropriate to a sporting car, there being a thermometer, oil pressure gauge and ammeter as well as the fuel contents gauge and speedometer. The two doors do not extend far enough forward to make exit from the body really easy.

In rather cool summer weather, the engine always started easily without needing any help from the choke and was almost completely devoid of any warming-up temperament. Running without a fan (although there is room to fit one), the test engine would warm up the water from its usual 60° C. to about 70° C. if worked hard, or to 85° C. in London traffic, and lost some water at high r.p.m., but would seem unlikely to overheat in any but very rare conditions. Despite a compression ratio of 9.4/1, the 96-octane grades of Premium petrol seemed acceptable and the use of 100-octane fuel a luxury.

In its Alexander form, the Austin engine has a light-alloy cylinder head, with four semi-downdraught inlet ports on the right and three exhaust ports on the left. Our test car had 1½-inch S.U. carburetters on long pipes instead of the 1¾-inch bore carburetters usually fitted, and had the optional super-sports camshaft. Mechanical clatter was prominent at low speeds and the engine roared healthily when working at the very high r.p.m. of which it is capable in this tuned form (we are told that at 7,000 r.p.m. the power curve still points upwards), but whilst the high general level of noise was rather tiring when all the weather-proofing was in place, it became less so with even one sidescreen removed, and cockpit noise is not objectionable when the hood is folded. Less highly tuned versions of the engine would obviously be quieter, although the bodywork does not carry any apparent sound-deadening material. Silencing of the exhaust is sufficient to let the available power be used without much restraint.

Due apparently to a resonance effect in the special long inlet pipes, at around 3,000 r.p.m. use of full throttle produced blow-back from the carburetter intakes which could be smelt inside the car, and which, despite some "nursing" of the throttle during our performance tests, is reflected as a flat-spot in the top gear acceleration time from 40 to 60 m.p.h. Beyond this critical speed, the engine really starts working, and the special, very close ratios in the gearbox of our test car made it easy to keep always above 3,000 r.p.m., even if 5,000 r.p.m. was never exceeded. The unsynchronized and rather noisy 1st gear needs to be used, but the extra close ratios make it unusually easy to engage. A lower 1st gear would greatly improve the getaway from rest, but despite the handicap of a 10.25/1 starting gear, such acceleration times as rest to 60 m.p.h. in 13.6 secs., rest to 80 m.p.h. in 26.5 sec., and

A separate lockable luggage compartment is particularly welcome in an open car and the space offered is generous for a vehicle of this size. The boot lid, for which no stay is provided, will normally remain in the open position on its own.



(*Right*) Dashboard layout is very "sports car," with a full array of instruments and switches. The carpeting adds a touch of refinement which is not entirely matched by the quality of the trim. The gear lever is well placed but the handbrake is rather too far forward for easy reach.

19.7 sec. for a standing-start ¼-mile indicate the remarkably vivid performance of which this fully equipped 1-litre car is capable, even when carrying two men and a moderate weight of test equipment. With hood and sidescreens erect, a mean timed speed of more than 95 m.p.h. was recorded, and with a tonneau cover over the passenger seat even higher speeds were attainable without over-revving the engine.

Whilst the 3,000 r.p.m. flat spot past which the engine preferred to be "nursed" on half throttle was a decided nuisance in brisk, as distinct from fast, driving, the engine had quite a dual personality. Around town, the Turner in its tuned form would potter along without 2,500 r.p.m. ever being exceeded, running smoothly enough and never threatening to foul its sparking plugs. Allowed to rev. fast, the engine showed the other side of its character, and even if 6,000 r.p.m. is thought preferable to 7,000 r.p.m. as an "everyday" limit, the indirect gears provide speeds of 39 m.p.h., 53 m.p.h. and 72 m.p.h., which permit very rapid overtaking of main road traffic. When true cruising speeds of 85-90 m.p.h. were sustained along the Motorway, the indicated oil pressure fell very gradually from 50 lb. to 35 lb., but always recovered as soon as speed was reduced on regaining old-fashioned roads.

On the really steep hills which can be encountered in some parts of Britain, certain features of the highly-tuned test car which would be very advantageous on a racing circuit became a disadvantage. The special close ratios (with which 1st gear is actually higher than the normal 2nd gear), together with the super-sports camshaft and oversize carburetters which did not improve the torque at low r.p.m., made re-starting on steep hills tricky, and experiments on 1 in 4 heated up the clutch (normally very firm indeed in its action) to the point at which slip set in temporarily.

Finish of the moulded bodywork is good enough for the use of metal doors to be not visually apparent. It would seem that an owner might need to go round some items such as boot lid hinges with a spanner occasionally, but the bodywork has quite a professional air about it, and a good instruction manual illustrated with drawings and a wiring diagram is provided with each car. Some details which we disliked, such as a horn control mounted on the facia where it hardly seemed as accessible as might be wished, could soon be changed by an individual buyer to meet his own tastes.

For the majority of sports car buyers, the Alexander-Turner as it was submitted to us for test would be rather too highly tuned. Dispensing with the oversize carburetters or the super sports camshaft, and perhaps also with the close-ratio gears, would save money and presumably make the car quieter and more flexible for everyday road use, probably without dropping the maximum speed below about 90 m.p.h. But, even some rather elusive fuel starvation trouble which occurred during hard acceleration or at high r.p.m. (and which took a long time to track down as resulting from an invisible perforation in a plastic pipe which was letting air into the suction side of the fuel pump) did not damp our enjoyment of a comfortable, lively and exceptionally controllable little car.

Specification

Engine (B.M.C. "A" series with Alexander cross-flow head)

Cylinders	4
Bore	62.9 mm.
Stroke	76.2 mm.
Cubic capacity	948 c.c.
Piston area	19.3 sq. in.
Valves	Pushrod-operated o.h.v.
Compression ratio	9.4/1
Carburetter	2 inclined S.U., 1½ in. bore
Fuel pump	S.U. electrical
Ign. timing control	Centrifugal and vacuum
Oil filter	Full-flow
Max. power	Not disclosed
(Normal Turner 43 b.h.p. at 5,000 r.p.m.)	

Transmission (close-ratio)

Clutch	Borg & Beck 6½ in. single dry plate
Top gear (s/m)	4.55
3rd gear (s/m)	5.60
2nd gear (s/m)	7.61
1st gear	10.25
Reverse	13.17
Propeller shaft	Hardy Spicer open
Final drive	B.M.C. hypoid bevel
Top gear m.p.h. at 1,000 r.p.m.	14.8
Top gear m.p.h. at 1,000 ft./min piston speed	29.6

Chassis

Brakes: Girling hydraulic, drum-type at rear and discs (optional extra) on front
Brake dimension: Front discs 8 9/16 in.; rear drums 8 in. x 1½ in.
Friction areas: 57.8 sq. in. of lining working on 207.4 sq. in. rubbed area.
Suspension:
Front: Independent by coil springs, transverse wishbones, coil springs and Armstrong lever-arm hydraulic dampers. Optional anti-roll torsion bar on test car.
Rear: Rigid axle located by trailing links (1 on left, 2 on right) and Panhard rod, transverse laminated torsion bar springs and Armstrong telescopic shock absorbers.
Steering gear ... ... Rack and pinion
Tyres: 5.60—13 on wire wheels (replacing 5.20—15 on bolt-on wheels).

Coachwork and Equipment

Starting handle ... ... No
Battery mounting ... On scuttle under bonnet
Jack ... ... Screw jack
Jacking points: Under front cross member, and under side members ahead of rear axle.
Standard tool kit: Jack, wheel brace, copper hammer, 2 double-ended spanners, screwdriver, box spanner and tommy bar, adjustable spanner.
Exterior lights: 2 headlamps, 2 sidelamps/flashers, 2 stop/tail lamps, rear number-plate lamp.
Number of electrical fuses ... 2
Direction indicators: Flashers (white at front, amber at rear), non-self-cancelling.
Windscreen wipers: Self-parking electrical two-blade.
Windscreen washers ... Optional extra
Sun visors ... ... None
Instruments: Speedometer with non-decimal non-trip distance recorder, oil pressure gauge, water thermometer, ammeter, fuel contents gauge (tachometer optional extra).
Warning lights: Dynamo charge, headlamp main beam, turn indicators.
Locks:
With ignition key Ignition switch only
With other key ... ... Luggage locker
Glove lockers ... One open cubby on facia
Map pockets: Two large compartments in doors
Parcel shelves ... ... None
Ashtrays ... ... None
Cigar lighters ... ... None
Interior lights ... Instrument lighting only
Interior heater: Optional extra recirculatory heater and screen de-mister.
Car radio ... ... Extra
Extras available: Alexander cross-flow cylinder head, 1½-in. carburetters, super-sports or racing camshaft, oil cooler, high-compression pistons, lightened flywheel, close-ratio gears, centre-lock wire wheels and tyres to fit, disc front brakes, Lockheed vacuum brake servo, racing brake linings, anti-roll torsion bar, ZF spin-limiting differential, alternative rear axle ratios (3.75, 3.90, 4.22, 4.875 or 5.30), hardtop, sliding-window sidescreens, heater, screen washer, wheel discs, tonneau cover, etc.
Upholstery material ... ... Vynide
Floor covering ... ... Carpet
Exterior colours standardized ... 6
Alternative body styles ... ... None

Maintenance

Sump: 6 pints, plus 1 pint in filter, S.A.E. 30 (below freezing S.A.E.20).
Gearbox ... ... 2½ pints, S.A.E. 30 oil
Rear axle 1¾ pints, S.A.E. 90 hypoid gear oil
Steering gear lubricant ... S.A.E. 90 E.P.
Cooling system capacity: 8½ pints (2 drain taps)
Chassis lubrication: By oil gun every 1,000 miles to 10 points
Ignition timing ... ... 12° B.T.D.C.
Contact-breaker gap ... ... .012 in.
Sparking plug type ... ... K.L.G. FE220
Sparking plug gap ... ... .022 to .025 in.
Valve timing (optional camshafts available): 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):
Inlet ... ... .012 in.
Exhaust ... ... .012 in.
Front wheel toe-in ... ... 1/16-1/8 in.
Camber angle ... ... 1°
Castor angle ... ... 4°
Steering swivel pin inclination ... 6½°
Tyre pressures: (Touring) front, 14 lb.; rear, 16 lb. (High-speed use) up to 24 lb. front and 26 lb. rear.
Brake fluid ... ... Girling
Battery type and capacity: 12-volt Lucas GTW7A, 38 amp hr.
Miscellaneous: Oil steering column bearings every 1,000 miles.