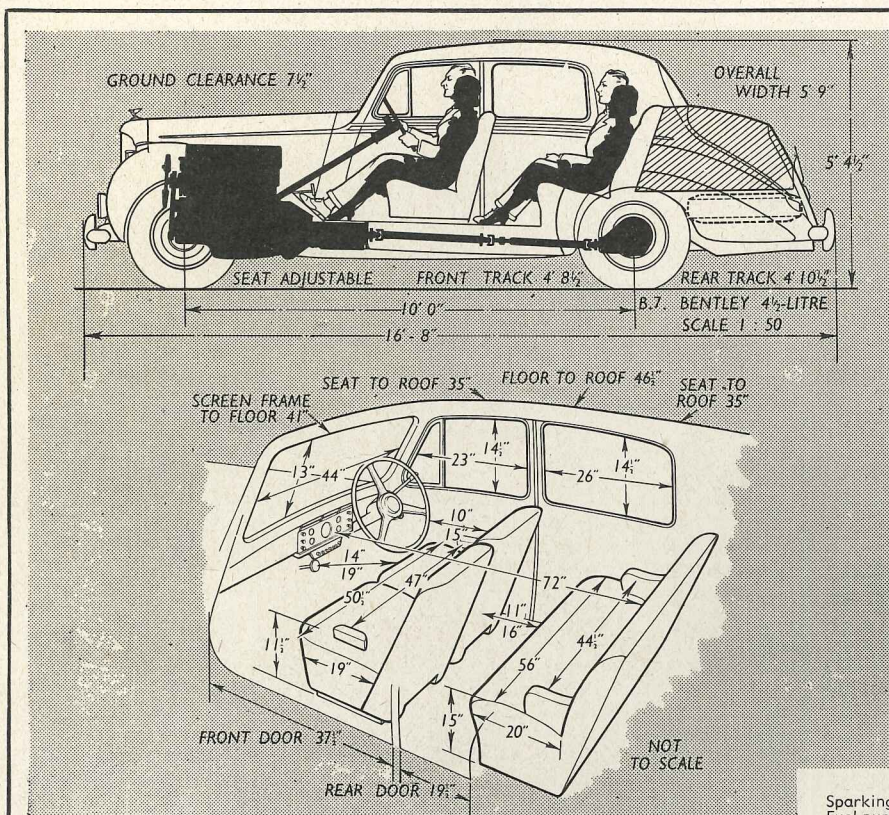


The Motor Road Test No. 9c/53 (Continental)

Make: Bentley

Type: B.7

Makers: Bentley Motors (1931) Ltd., 14-15 Conduit Street, W.1



In Brief

Price £3170 plus purchase tax £1311 19s. 2d. equals £4481 19s. 2d.
Capacity ... 4,566 c.c.
Unladen kerb weight ... 38.1 cwt.
Fuel consumption ... 15.5 m.p.g.
Maximum speed 101.7 m.p.h.
Maximum speed on 1 in 20 gradient ... 91 m.p.h.
Maximum top gear gradient 1 in 9.2
Acceleration
10-30 m.p.h. ... 3 secs.
0-50 m.p.h. through gears ... 9.6 secs.
Gearing: 24.8 m.p.h. in top at 1,000 r.p.m.; 80.6 m.p.h. at 2,500 ft. per min. piston speed.

Specification

Engine
Cylinders ... 6
Bore ... 92 mm.
Stroke ... 114.3 mm.
Cubic capacity ... 4566 c.c.
Piston area ... 62.4 sq. in.
Valves ...
Overhead inlet, side exhaust.
Compression ratio 6.75/1
Carburettor ... Twin S.U.
Ignition ... coil
Spark plugs ... Champion N.8
Fuel pump ... S.U. electrical
Oil filter ... Full-flow

Transmission
Clutch ... Hydraulic coupling
Top gear (S) ... 3.42
3rd gear (S) ... 4.93
2nd gear (S) ... 8.98
1st gear ... 12.93
Propeller shaft ... Divided open
Final drive ... Hypoid bevel

Chassis
Brakes Hydraulic front, mechanical rear
Brake drum diameter ... 12 1/2 in.
Friction lining area ... 186 sq. in.
Suspension:
Front ... Coil and wishbone I.F.S.
Rear ... Semi-elliptic
Shock absorbers:
Front ... Hydraulic
Rear ... Hydraulic, with ride control
Tyres ... India, 6.50 x 16

Steering
Steering gear ... Cam and roller
Turning circle ... 42 ft.
Turns of steering wheel, lock to lock ... 3 1/2

Performance factors (at laden weight as tested)
Piston area, sq. in. per ton ... 30
Brake lining area, sq. in. per ton ... 89.4
Specific displacement ... litres per ton mile 2,730
Fully described in "The Motor," September 24, 1952, and October 14, 1953

Test Conditions

Dry concrete road, warm weather, moderate diagonal wind. Premium-grade pump fuel.

Test Data

ACCELERATION TIMES (rolling start)

10-30 m.p.h.	3.00 sec.
20-40 m.p.h.	4.20 sec.
30-50 m.p.h.	5.50 sec.
40-60 m.p.h.	6.80 sec.
50-70 m.p.h.	9.10 sec.
60-80 m.p.h.	12.35 sec.

MAXIMUM SPEEDS Flying Quarter Mile

Mean of four opposite runs	101.7 m.p.h.
Best time equals	104.7 m.p.h.

Speed in Gears

Max. speed in 3rd gear	61 m.p.h.
Max. speed in 2nd gear	34 m.p.h.
Max. speed in 1st gear	21 m.p.h.

ACCELERATION TIMES from rest

0-30 m.p.h.	4.00 sec.
0-40 m.p.h.	6.65 sec.
0-50 m.p.h.	9.60 sec.
0-60 m.p.h.	13.25 sec.
0-70 m.p.h.	19.00 sec.
0-80 m.p.h.	25.10 sec.
Standing quarter mile	19.30 sec.

HILL CLIMBING (at steady speeds)

Max. top gear speed on 1 in 20	91 m.p.h.
Max. top gear speed on 1 in 15	84 m.p.h.
Max. top gear speed on 1 in 10	69 m.p.h.
Max. gradient on top gear	1 in 9.2 (Tapley 245 lb/ton)
Max. gradient on 3rd gear	1 in 6.2 (Tapley 360 lb/ton)
Max. gradient on 2nd gear	1 in 4.3 (Tapley 521 lb/ton)

BRAKES at 30 m.p.h.

0.24g retardation (=125 ft. stopping distance) with 25 lb. pedal pressure.
0.52g retardation (= 58 ft. stopping distance) with 50 lb. pedal pressure.
0.73g retardation (= 41 ft. stopping distance) with 75 lb. pedal pressure.
0.83g retardation (= 36 ft. stopping distance) with 100 lb. pedal pressure.

FUEL CONSUMPTION

21.8 m.p.g. at constant 30 m.p.h.
21.8 m.p.g. at constant 40 m.p.h.
19.8 m.p.g. at constant 50 m.p.h.
19.2 m.p.g. at constant 60 m.p.h.
16.5 m.p.g. at constant 70 m.p.h.
14.3 m.p.g. at constant 80 m.p.h.
Overall consumption for 569.4 miles, 36.7 gallons, equals 15.5 m.p.g.

WEIGHT

Unladen kerb weight ... 38.1 cwt.
Front/rear weight distribution ... 48/52
Weight laden as tested ... 41.6 cwt.

INSTRUMENTS

Speedometer at 30 m.p.h. ... accurate
Speedometer at 60 m.p.h. ... 5% fast
Speedometer at 80 m.p.h. ... 5% fast
Distance recorder ... 3% fast

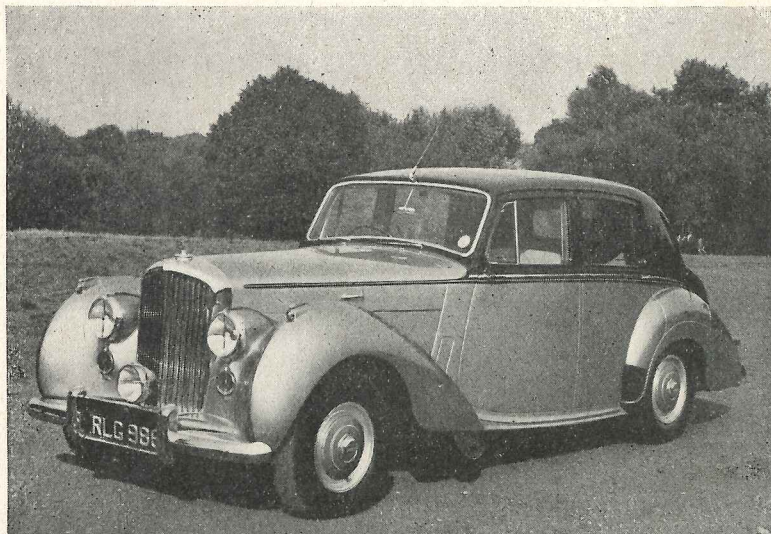
Maintenance

Fuel tank: 18 gallons. Sump: 16 pints, S.A.E. 20 winter, 30 summer. Gearbox and differential 16 pints, Type A/AQ/ATS Castrol TQ, Donax T6 Mobiloil 3200. Rear Axle: 1 1/2 pints, Hipress S.C. Steering gear: S.A.E. 30. Radiator: 30 pints (drain taps). Chassis lubrication: By pedal, one-shot system, S.A.E. 30. Ignition timing T.D.C. Spark, plug gap: 0.025 in. Contact breaker gap: 0.020 in. Valve timing Tappet clearances (cold): Inlet 0.006 in., exhaust 0.012 in. Front wheel toe-in: 0-1/8 in. Camber angle: 0 deg. Castor angle: 1/2 deg. Tyre pressures: Front 25 lb., rear 30 lb. Brake fluid: Lockheed orange. Battery: 12 volt, 54 amp/hr. Lamp bulbs: Head lamps, 48 watt (Lucas pre-focus axial filament type 185). Side and tail lamps, 6 watt. Centre lamp, 48 watt. Stop and reversing lamps, 6 watt.

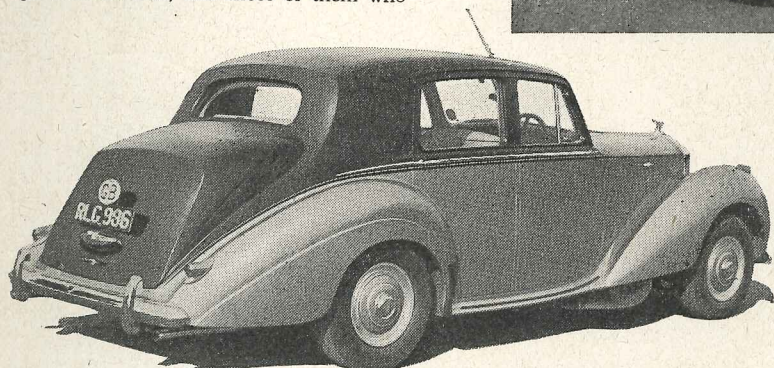
The B.7 BENTLEY with Automatic Transmission

The First Road Test of a British Car with Fully Automatic Gear-changing and Considerably Improved Performance

ONE does not expect a large percentage of potential purchasers of the Bentley class and price of car to be men of the Left willing to embrace any so-called reform merely because of its novelty. On the contrary one might reasonably suspect that a high proportion of Bentley buyers will tend conservatively to cling to the well known, and to well proved methods, and those of them who



NO OUTWARD SIGN reveals the changed mechanical character of the Bentley saloon in its automatic-transmission form; the classic body style lends itself particularly well to a two-colour finish, especially with the longer tail of the B.7.



already have experience of the Bentley clutch and gearbox will have known the classic type of transmission in its finest manifestation. Of necessity, therefore, a road test of a Bentley fitted with the alternative automatic gearbox must first answer the questions: "In what fashion does this gearbox work?" "Does it change gear as well as a skilled driver?" "What effect has it on the acceleration, speed and fuel consumption of the car?"

When the driver takes his seat in the new model he finds that it is impossible to start the engine until the gear lever is placed in the neutral position. Once the engine is running the lever may conveniently be moved down a notch into the

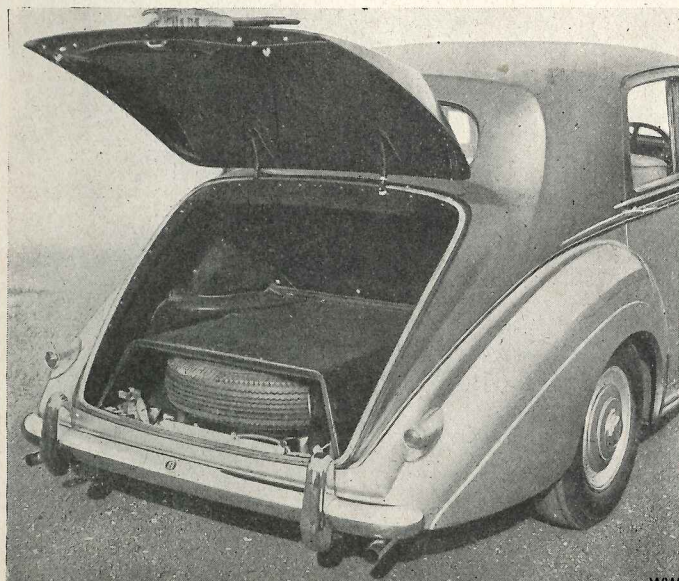
position marked 4. There is no clutch pedal, and when the hand brake is released the car will move off, and using a bare minimum of throttle opening will pass through the three indirect gears with automatic changing so that there is direct drive by the time that 20 m.p.h. is attained. Should traffic demand a lower speed, or should the car be brought to rest changes down will automatically be made at about 15, 10 and 5 m.p.h.

One may immediately be critical in that such changes appear, on this class of car, to be unnecessary, to be accompanied by a noticeable change in engine note, and by a slight shock as the additional engine braking is willy-nilly imposed on the car.

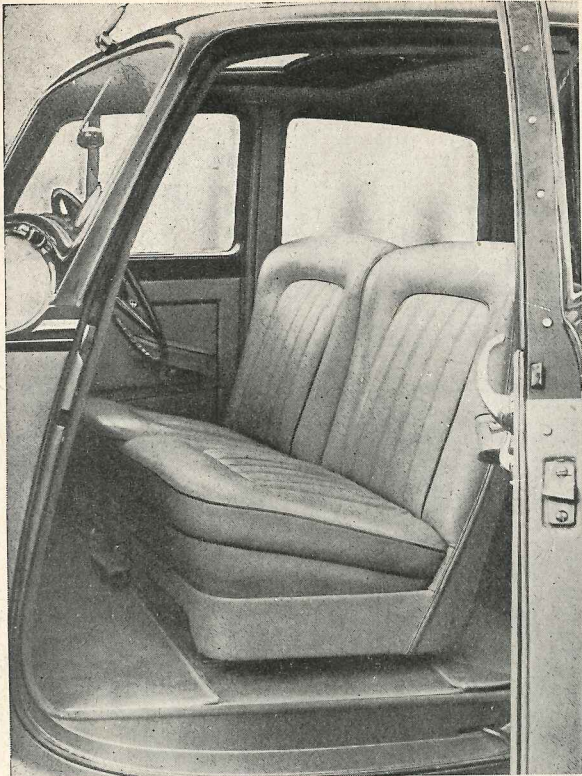
If we take a contrasting type of driving such as was used during our standing-start acceleration times, the accelerator is held wide open from rest up to maximum speed and in these circumstances the car will run up to approximately 20, 35 and 60 m.p.h. in the successive indirect ratios. It follows that by giving the car wide open throttle a change down will be made into third gear at any speed between 35 and 60 m.p.h.; and into second gear at any speed between 20 and 35 m.p.h.; and into bottom gear if the speed is below 20 m.p.h. These downward changes on full throttle are made smoothly, as well as silently, and the same may be said of all the upward changes of speed. Moreover, the box is itself almost noiseless.

Choice of Ratio

Having now described how the gears engage themselves in response to road speed and to the position of the accelerator, let us see what happens if the driver uses the steering column lever. By pulling this down from fourth to third position the third gear will be coupled up by means of an oil servo mechanism if the road speed is below 65 m.p.h. and above about 20 m.p.h. As there is no clutch the gear change is effected by moving the lever alone, and although this can cause some shock as the car is called upon to speed up the engine, a perfectly smooth change will be made if the throttle is opened up at the same time. In other words, the driver can use his skill both in the timing of a gear change and in performing the operation to the best possible advantage. These remarks apply in equal degree to the change down to second gear, which may be effected at speeds below 35 m.p.h.



LUGGAGE accommodation is greatly improved compared with earlier models, the spare wheel and tools still being separately housed, but leaving space for oddments at each side.



HIGH-GRADE leather, finely polished wood and a general air of good taste characterize the Bentley's interior. Seen here are the deep front seats with sensibly shaped squabs.

Once the gear lever has been moved the gear selected remains engaged irrespective of throttle opening except for the fact that an automatic upward change will be made at peak speed; in other words, if one were to drive on full throttle downhill with the gear lever in second position an upward change would be made into third between 35 and 40 m.p.h., and from third to top at between 65 and 70 m.p.h. Automatic downward changes, ending in the coupling up of first gear are made below 15 m.p.h.

Enthusiasm Engendered

The enthusiastic driver will find this feature invaluable. The gears can be used normally to assist the brakes as when running down mountain passes; alternatively a long winding hill with a gradient of, say, 1 in 8 can be stormed up in the third gear which remains engaged even when the throttle is released when coming into a corner, there being perhaps one or two automatic changes between third and top if straight sections of the hill permit the speedometer to approach the 70 m.p.h. mark.

Some of the more enthusiastic may regret the elimination of the feeling of moral superiority engendered by the perfectly timed co-ordination of clutch and gear lever which is possible on the orthodox gearbox, but the possibility of keeping both hands on the steering wheel gives additional control over the car which is a valuable feature in high-speed cornering. To sum up, the new Bentley transmission gives perfectly smooth starts from rest, and quiet and smooth engagement of the gears either automatically or, with few exceptions, as and when the driver wishes.

There must be many who think that multi-train epicyclic gearboxes involve additional friction losses which will be

reflected in lower m.p.g. and reduced maximum speed, and others who are certain that no automatic gear-change can conceivably act so effectively as a skilled driver. Unless the testers on *The Motor* staff are less skilled than they think themselves to be, the acceleration times recorded by the Bentley immediately disprove the last-named belief.

The smooth start from full torque with the hydraulic coupling brings up 30 m.p.h. from rest in bottom gear as fast as it can be done with clutch slipping and wheelspin using the conventional transmission on the 1952 Mk. VI. By the time that second gear has been engaged, and 40 m.p.h. reached, the automatic changes shows to slight advantage, and after the change has been made from third to top gear at 70 m.p.h. the automatic transmission has saved 1.1/5 seconds. Even a standing ¼-mile proves to be better

by 0.4 seconds.

This direct comparison is qualified by the fact that the final gear ratio on the Mark VI (3.73 : 1) was lower than the ratio used on the B.7 model, but the difference was not of a magnitude which should greatly affect the acceleration figures.

All Round Improvement

The idea that additional friction is present to impair fuel consumption is also disproved by the fact that a car with automatic transmission shows a 10% better consumption figure at 70 m.p.h. and better figures at all speeds down to 30 m.p.h. Finally, and here perhaps the change in final axle ratio played a more important part, the maximum speed of the car has been sensibly increased, the highest recorded speed in a favourable direction being little less than 105 m.p.h.

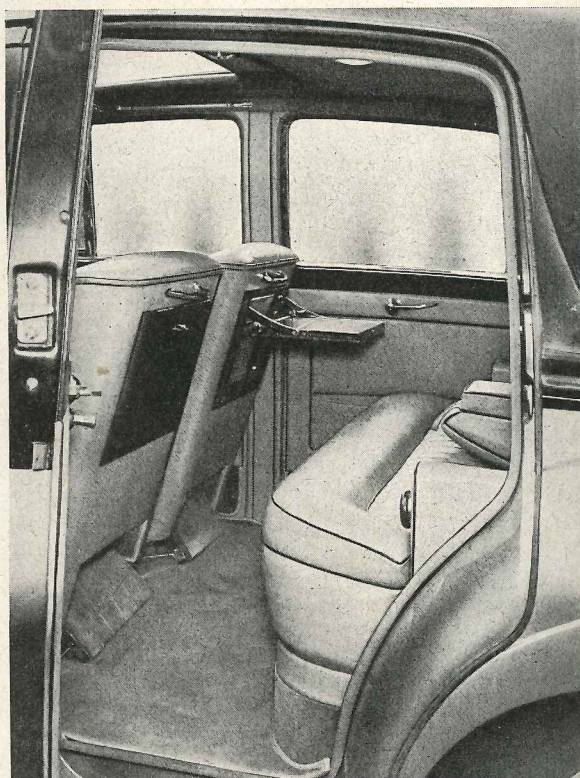
It is exceedingly rare for a well-established model to be modified, in the space of twelve months, so as to provide the buyer with higher speed, better acceleration, lower fuel cost and considerably increased ease in

driving. These substantial benefits do not, however, exhaust the dividends which have been declared by the Bentley engineering division.

The changes made to the rear of the frame and the body have not only increased very greatly the luggage-carrying capacity of the vehicle, but have also added a little over 1½ cwt. to the all-up weight and increased the unladen weight carried by the rear wheels from 2,000 to 2,235 lb. Coupled with some changes made to the rear spring location this has very much improved the high-speed handling of the car, and whereas on all the Mark VI models the degree of under-steer could be embarrassing, particularly on wet roads, with the B.7 a decisive but easily controlled break-away at the back of the car can readily be induced. The driver thus finds himself far more "in command" than on previous types and in conjunction with the improved performance, and easier gear changing, appreciably improved average speeds over winding country roads are possible with increased safety.

In addition to the larger luggage boot the body for 1954 has a changed fascia panel which provides superior reproduction from the inbuilt radio set, and a small tray which can be withdrawn from beneath the fascia if needed.

It has been necessary to write so much in this report regarding the performance and handling of the car that little space remains to comment upon the host of general features which will commend it to owners looking for the ultimate in comfort and convenience. One may perhaps find excuse in the fact that in these respects the Bentley has already achieved an international reputation which is worthily maintained by the model which has recently been through our hands.



REAR-SEAT PASSENGERS enjoy the benefits of good legroom, comfortable arm and foot rests; built-in picnic tables pull out for use as shown here.