ROAD TEST REPORT . . .

BENTLEY

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'S' SERIES

BENTLEY MOTORS (1931) LIMITED 14-15 CONDUIT STREET LONDON W1

Cleanliness of line is emphasized by the two-tone finish. The appearance is essentially modern, but it remains restrained in the Bentley tradition. The simple grace will not quickly become dated

The Autocar
ROAD TESTS

No. 1578

BENTLEY SERIES S SALOON

A COMPANY as conservative as Bentley, known to develop and adopt changes in design only after prolonged experiment and consideration, produces new models infrequently. When the new Series S was announced, therefore, it was awaited by the motoring public with more than ordinary interest, even though the formidable price places that interest in an academic class for the majority of people.

The Series S, which succeeds the Mark VI, is, with the exception of the traditional radiator, of entirely modern appearance, incorporating the best of current standards of line and grace, yet excluding ultra-modern styling details that may fall suddenly from fashion. This approach is illustrated by the head lamps, which are faired in to the smoothly flowing wings but not cowled. Similarly the rear wings have a cleanly sloping line but are not swept up to prominent fins at their extremities. The car, longer by 1ft 1½in than the Mark VI Bentley, has a delightfully balanced appearance. The Bentley tested was constantly admired by drivers and non-motorists alike in England and on the Continent, where much of the testing took place.

Performance matches the appearance, for the new model is a 100 m.p.h. car, reaching 50 m.p.h. from a standing start in 10.3sec and 80 m.p.h. in 28sec. After 80 appears on the car's exceptionally accurate speedometer, the speed can still be increased by nearly 1 m.p.h. per second to 90 m.p.h., after which it rises at an understandably slower rate, a considerable length of clear road being required for 100 m.p.h. to be achieved. In normal driving, speeds much in excess of a genuine 80 m.p.h. are unlikely to be seen, but this speed is as easily held as it is reached, its maintenance frequently made practicable by the reserve of safety provided by the incomparably good brakes.

These mechanical-servo-assisted brakes are the magic hand that grasps the car and strips it of its speed in a twinkling in almost any conditions. On one occasion the car, quite heavily laden, was being driven at 85 m.p.h. down a completely open but quite steep hill when it was realized that a side turning almost reached would provide a better route. The result of firm, but not heavy, pressure on the brake pedal provided sheer joy even for a driver already familiar with the high standard of Bentley braking. The two tons of car and contents slowed smoothly to a crawl in a moment without noise from brakes or tyres, without the slightest deviation from course, and without even a tremor being detected. All that could be felt was the immensely powerful retardation.

During brake testing at lower speeds, it was found that only 25 lb pressure on the pedal produces a powerful braking effect, and that there is no advantage in exerting more than approximately 50 lb, which represents very little effort, for under this pressure deceleration is at its maximum at little short of 1*g* on smooth concrete. This deceleration was measured as 30ft per second per second, close indeed to the maximum of 32.2 permitted by the natural laws governing the braking by friction of a body subject to the normal pull of gravity. Incidentally, the brakes are not so efficient in reverse, although still effective. The pull-out hand brake lever holds the car in all conditions and the shortcoming of it not being ideally placed is of little consequence because automatic transmission and its attendant two-pedal control virtually reduces the hand brake lever to a safety device for parking.

Automatic transmission is standard equipment on the new Bentley and Rolls-Royce models; and it is now more refined than that used previously. As a safety precaution the engine cannot be started unless the quadrant lever is in the neutral position. Next to neutral is position 4, engagement of which provides the driver with fully automatic operation of the four forward gears in all conditions. If the throttle pedal is kept fully depressed, the gears change from first to second

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at 19 m.p.h., second to third at 32 m.p.h., and third to top at 60 m.p.h. When the car is travelling in top gear at speeds below 60 m.p.h., full depression of the throttle results in an automatic change down into third, or into second if the speed is in the twenties or below.

Sudden depression of the pedal in this way results in a rather fierce initial acceleration in either of the lower gears because they are engaged under full throttle. This technique of sudden, full throttle opening is primarily intended for emergency, however, for there are alternative methods of changing gear. In the ordinary way a driver simply opens the throttle smoothly and the gears will change almost imperceptibly according to load. But if below 60 m.p.h. the control lever is moved to position 3, third gear is automatically engaged, the change being made virtually imperceptible if an appropriate touch of throttle is given simultaneously. With the lever in this position third gear is always held until 60 m.p.h. is reached. Above 60 m.p.h. top engages. In all other respects first, second and third gears operate as if the lever were in position 4.

The french polished woodwork of the facia and window surround is very beautiful and, with the fine hide upholstery, helps to provide the luxurious appearance expected in such a car. Instruments and switches are laid out neatly, and the ride control switch is mounted conveniently on the steering column. Adjustable armrests are fitted to the doors. The backrests of the bench type seat can be adjusted independently. A pull-out table is fitted under the facia; it contains the ashtray drawer

For certain conditions—primarily the negotiation of prolonged, very steep hills—position 2 is provided to keep the car permanently in second gear. Position 2 is adjacent to reverse and, as a safety precaution, these two gears are in a different plane on the quadrant so that they cannot be engaged accidentally. When the lever is set at 2, first gear is by-passed and it is possible to hold second gear to something over 40 m.p.h., the gear being held up to maximum r.p.m. Position 2 is also useful for rocking the car, in conjunction with reverse, should the road wheels have sunk while stationary on a soft surface.

When the car is slowing gently, as when running up to red traffic lights, the changing down of the gears is imperceptible to the passengers. The changes are so smooth that they frequently pass unnoticed even by the driver. There is no tendency to creep when the car is stationary with the engine ticking over and the gear lever in one of the driving positions; the take-up when the throttle is opened in these conditions is delightfully smooth, even when maximum acceleration is required. When starting from cold the smoothest take-off is achieved by letting the engine warm up sufficiently for low r.p.m. to be held while a driving range is engaged.

The side lights high in the wings have red tell-tales, both of which are visible from the driving seat. Fog lamps incorporating winking indicators are fitted as standard on each side of the traditional radiator grille

The performance provided by the new model calls for outstandingly good suspension and steering if it is to be used safely, and in a car bearing such a heavy price purchasers naturally expect very high standards indeed. Yet, in a car of such considerable weight, and in which comfort and silence are at least as important as high performance, the designers are faced with almost insuperable problems in trying to provide the best of two worlds. The Bentley engineers have been markedly successful in their compromises.

The steering has 4½ turns of the wheel from lock to lock, and as a result it is light to operate, although the driver has to work rather hard when manœuvring in crowded streets. On the open road directional control is commendably precise, and the activities of the front wheels can be felt through the steering to a nicely chosen degree. When cornering fast on indifferent surfaces, movement of the wheels is translated into a slight reaction at the steering wheel that indicates pleasantly what is happening at road level.

It is easy to be misled by the softness of the ride into thinking that the steering and suspension fall short of the standards set by high-performance sports cars, such an

Two S.U. carburettors are fed with air through a massive cleaner and silencer. The six-cylinder 4,887 c.c. engine has an overhead inlet and side exhaust system, and the plugs and double-contact distributor are readily accessible

assumption being not unnatural having in mind the character of the car. In this connection it is interesting to note that on the decidedly poor surface of a straight road in northern France, the Bentley was kept to a speed of 85 m.p.h. in safety and with supreme comfort, the poor surface being indicated to the driver only through the reaction in the steering wheel and a lightness in the feel that indicated how hard the front suspension was being made to work. When recently the same road was used in similar conditions by two high-performance sports cars the equally safe speed was some 5 m.p.h. less and the effects of the rough surface were pronounced. Thus, in the new model is achieved a wonderful degree of comfort, combined with a standard of control that falls short only of the best of super sports cars. The only aspect of the suspension in which the car proved disappointing concerned the control of the rear spring dampers. Instead of the lever fitted to previous models to give the driver an adjustment at will of the rear dampers, there is a switch marked normal and hard, but virtually no difference in the ride could be felt when this was operated.

One fast run in the new car is sufficient for the driver to realize that the designers have surpassed themselves in making the interior silent. On previous models the effect of closing all the windows in town traffic was to encase the occupants in a soundproof room, but at high speed there was still appreciable wind noise. The interior of the Series S is utterly silent at 100 m.p.h. when the windows are closed. Should a window be opened the cracking noise of a hundred-mile-an-hour gale shatters the calm, but otherwise one is conscious of the speed only by watching the speedometer or the rapid approach of the horizon. On a Belgian *autoroute* speeds of more than 90 m.p.h. were held for some miles, the occupants of the

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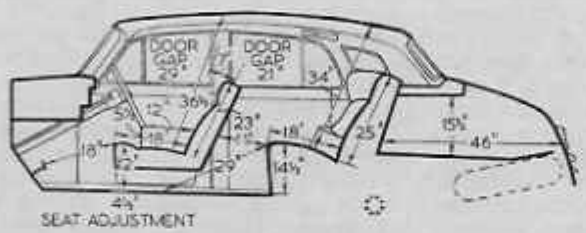
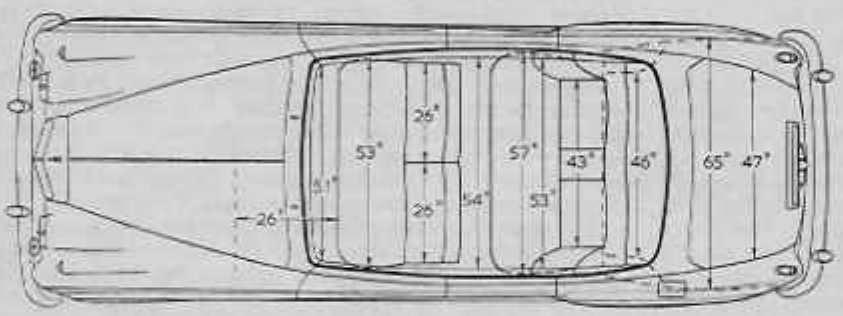
WHEELBASE	10' 3"
FRONT TRACK	4' 10"
REAR TRACK	5' 0"
OVERALL LENGTH	17' 7¼"
OVERALL WIDTH	6' 2¼"
OVERALL HEIGHT	5' 4"



SEAT ADJUSTMENT



Measurements in these ¼in to 1ft scale body diagrams are taken with the driving seat in the central position of fore and aft adjustment and with the seat cushions uncompressed

PERFORMANCE

ACCELERATION: from constant speeds.
Speed Range, *Gear Ratios and Time in sec.

M.P.H.	4 range
10—30	3.5
20—40	4.5
30—50	5.9
40—60	6.9
50—70	9.5

From rest through gears to:

M.P.H.	sec.
30	4.4
50	10.3
60	14.2
70	19.9
80	28.0
90	39.4

* Gear ratios 3.42; 4.96; 9.00; and 13.06 to 1.
Standing quarter mile, 19.7 sec.

SPEEDS ON GEARS:

Gear	M.P.H. (max.)	K.P.H. (normal and max.)
Top (mean)	101	163
Top (best)	101	163
3rd	62	100
2nd	32	51
1st	19	31

(In 4 range maximum on 2nd is 40 m.p.h., 64 k.p.h.).

TRACTIVE RESISTANCE: 19 lb per ton at 10 M.P.H.

TRACTIVE EFFORT:

	Pull (lb per ton)	Equivalent Gradient
Top	253	1 in 8.5
Third	380	1 in 5.75
Second	550	1 in 4

BRAKES:

Efficiency	Pedal Pressure (lb)
75 per cent	25
96 per cent	50

FUEL CONSUMPTION:
14 m.p.g. overall for 261 miles (20 litres per 100 km.).
Approximate normal range 13–16 m.p.g. (21.7–17.6 litres per 100 km.).
Fuel, First grade.

WEATHER:
Air temperature 68 deg F.
Acceleration figures are the means of several runs in opposite directions.
Tractive effort and resistance obtained by Tapley meter.
Model described in *The Autocar* of April 29, 1955.

SPEEDOMETER CORRECTION: M.P.H.

Car speedometer	10	20	30	40	50	60	70	80	90	100
True speed	10	20	30	40	50	60	70	81	91	101

DATA

PRICE (basic), with saloon body, **£3,295.**
British purchase tax, **£1,374 0s 10d.**
Total (in Great Britain), **£4,669 0s 10d.**

ENGINE: Capacity: 4,887 c.c. (298.2 cu in).
Number of cylinders: 6.
Bore and stroke: 95.25 × 114.3 mm (3¾ × 4½in).
Valve gear: o.h.v. inlet, s.v. exhaust.
Compression ratio: 6.6 to 1.
M.P.H. per 1,000 r.p.m. on top gear, 25.

WEIGHT: (with 5 gals fuel), 37¼ cwt (4,242 lb).
Weight distribution (per cent): F, 51; R, 49.
Laden as tested: 40½ cwt (4,542 lb).
Lb per c.c. (laden): 1.08.

BRAKES: Type: Bentley/Girling.
Method of operation: Hydro-mechanical, servo operated.
Drum dimensions: F, 11¼in diameter; 3in wide. R, 11¼in diameter; 3in wide.
Lining area: F, 212 sq in. R, 212 sq in (209 sq in per ton laden).

TYRES: 8.20—15in.
Pressures (lb per sq in): F, 19; R, 26 (normal).

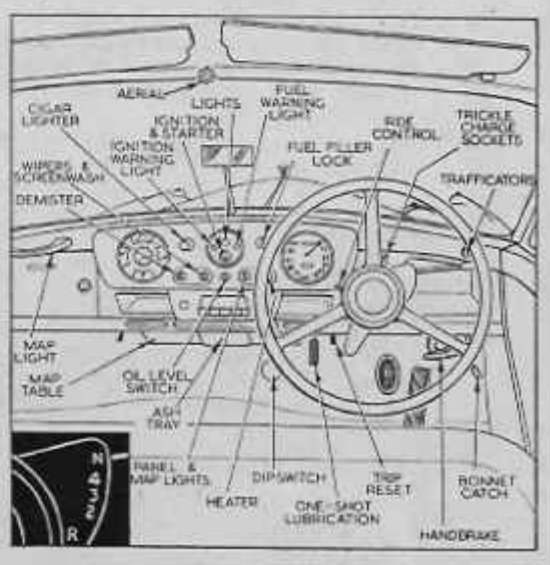
TANK CAPACITY: 18 Imperial gallons.
Oil sump, 16 pints.
Cooling system, 30 pints.

TURNING CIRCLE: 41ft 8in (L and R).
Steering wheel turns (lock to lock): 4¼.

DIMENSIONS: Wheelbase: 10ft 3in.
Track: F, 4ft 10in; R, 5ft 0in.
Length (overall): 17ft 7¼in.
Height: 5ft 4in.
Width: 6ft 2¼in.
Ground clearance: 7in.
Frontal area: 26.4 sq ft (approximately).

ELECTRICAL SYSTEM: 12-volt; 57 ampère-hour battery.
Head lights: Double dip; 60–36 watt bulbs.

SUSPENSION: Front, independent, coil springs and wishbones. Rear, semi-elliptic. Anti-roll bar position front and rear.



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car conversing in drawing-room tones, marvelling at the almost eerie silence.

Much of the credit for the comfort and silence is owed to the design and construction of the coachwork. A bench seat at the front has separate backrests that are adjustable within the range from bolt upright to semi-reclining. The backrests of all the seats are tall and, particularly at the rear, passengers can go to sleep if they wish with heads rested on upholstery that is as comfortable as the softest pillow. The backrest of the rear seat sweeps right round the corners to add still further to comfort, and this seat has a central and side armrests. Armrests are fitted only to the doors for the front occupants. Central armrests would be a useful addition. The car is supremely comfortable for four people, and six of average stature can be accommodated.

Detail fittings are abundant. There is a grab handle in front of the front passenger, and in addition to spring-loaded straps in the rear compartment that swing up above the line of the windows when not in use, there are grab handles on the insides of the doors. There is a pull-out table placed centrally under the facia, in which there is a subsidiary ashtray drawer. The drawer has a curved floor at the rear, and as the slide on the car tested was a little loose, ash was spilt. Fold-down tables are incorporated in the backs of the front seats with ashtrays, whose exteriors are replicas of the tables, built into the same polished wood surround. There is a cigar lighter on the facia and another beside one of the pair of vanity mirrors at the rear. Each mirror has its own light and light switch.

Apart from the conventional heater-demister unit in front, electric elements are moulded into the rear window pane to keep this clear also. However, it is difficult to understand why the switch for this device should be fitted below the rear window itself. Unless the driver has a rear passenger, he must stop the car should he wish to clear the window when his rearward vision is affected by moisture. There is a lockable glove compartment in the left side of the facia and an open pocket on the driver's right. Pockets are also fitted in the front doors, but there is none at the rear.

Controls on the instrument panel have been reduced to a minimum, most of those provided being plain and functional, and designed for more than one purpose in the pull and twist planes.

Instruments on the facia are as comprehensive as would be expected, but the rev. counter common to previous Bentleys has been omitted, it having no further useful purpose following the adoption of automatic transmission as standard. The starter is now operated by clockwise pressure on the ignition key beyond the point at which the ignition is turned on. Windscreen washers are operated by the windscreen wiper switch, and an additional switch connects a solenoid that releases the panel covering the fuel filler cap at the rear. The panel can also be released manually by a control in the luggage locker. Fine hide is used for the upholstery, and the facia and the window surrounds are finished in superbly french polished woodwork. On the car tested the doors had to be slammed fairly hard. It may be presumed that the coachwork as a whole was still tight pending final adjustment after more prolonged "shaking down." (Bentleys do not, of course, have to be run-in by their purchasers.)

The luggage locker, being very long, is more capacious than it appears at first sight. A tray of hand tools and spare bulbs is housed under the carpet in the locker. Larger tools are in with the spare wheel, and there is an inspection lamp included in the equipment

The longer tail of the new car has enabled the luggage room to be increased. The locker is not very deep, as the spare wheel is laid horizontally in a special compartment below the floor. However, it is long, and capable of accommodating a useful amount of luggage. The larger tools are fitted in the spare wheel compartment, and there is a rubber-lined tray of small tools tucked under a corner of the carpet of the luggage locker itself. Provision is made for strapping the luggage locker lid securely should so much luggage be carried that the lid cannot be fully closed. On it are mounted the number plate and a unit containing the particularly effective reversing lights and a light for number plate illumination. The bulb of the last mentioned lamp failed during the test and its replacement—by a bulb included in the tray of tools—was an unnecessarily long job. Headlamp bulbs were easier to change (a change to yellow bulbs being undertaken when the car was taken to France) and the beams were adequate for fast touring at night.

For those able to afford a car offering such comfort, quality and performance, fuel consumption is of little account. However, it is of academic interest to record that 13 to 16 m.p.g. is not unreasonable when the size of the engine (the largest British car unit), performance, automatic transmission and weight are taken into account. Only the modest size of the fuel tank calls for criticism. A range of less than 200 miles (excluding the reserve supply) is not in accord with the long-distance touring capabilities of the car.

When a model is offered at such a high price the smallest detail that is not of the very highest standard must be criticized. The Bentley was all the more impressive, therefore, for proving to be remarkably free from the minor defects that are frequently overlooked by even the most thorough manufacturers. Indeed, the contrary was the case, praise being won for many small details as well as for the major components. Typical examples are the way in which the sun vizors are fashioned to fit the exact shape of the windscreen, and the superb craftsmanship with which even the smallest piece of piping on the upholstery is terminated with its own little hide capping.

The latest Bentley model offers a degree of safety, comfort and performance that is beyond the experience and perhaps even the imagination of the majority of the world's motorists.

Tables and ashtrays are fitted to the backs of the front seats. Operation of the windows and door locks is conventional

A cigar lighter is fitted beside one of the rear vanity mirrors, each of which has its own light switch. The hand strap swings out of the way

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