

At the front of the car are a double set of turn indicators, flashing in the white housings on top of the wings and in the amber-coloured nacelles below the head lamps. The individual parking lamps are also in the upper housings, while the ordinary side lights are in the head lamps



Autocar ROAD TESTS 1697

Borgward Isabella TS

THE Borgward company, of Bremen, offer a range of Isabella models, of which the TS—Touring Sports—saloon has the widest appeal. The standard saloon and the Combi estate car are equipped with the basic, 60 b.h.p. version of the 1,493 c.c. o.h.v. engine, while the TS and the attractive coupé (fixed head or convertible) have tuned units giving 75 b.h.p. Independent suspension is used all round. Except for the back loading door provided in the estate car, all the models have two-door coachwork. A full test of the TS saloon has been completed following provision of a car by the British concessionaires, Metcalfe and Mundy, Ltd., 280, Old Brompton Road, London, S.W.5.

First impression evoked by the Isabella is of its air of quality. Contributing to this are the high standard of paintwork and of detail fittings such as the winding ventilator windows in the doors; the number of instruments and minor controls; the finish of the protectively coated chassis; and the zip-case for handbook and documents. Although not of real leather, the upholstery is of a thick plastic imitation which looks both realistic and long-lasting, although the numerous exposed fasteners and the plastics window frames fall short of the standards of the coachwork as a whole.

Exceptionally large for a 1½-litre, the standard car with a bench front seat would hold up to six, while the TS, with separate front seats, will sit five comfortably, and allows space for a child at the front where the seats' edges overlap the transmission tunnel. Interior and exterior dimensions are similar to those associated with cars of two litres or more. While by no means a new design, the chassis incorporates unusual features, most important of which are the remarkably economical engine and the successful, swing axle i.r.s.

The two doors are really wide, making entry to the front seats simplicity itself, and, with these seats' backrests folded forward, entry to the rear is also satisfactory. The Reutter seats slide to and fro smoothly, and the rake of each spring-loaded backrest can be adjusted at the touch of a conveni-

ently placed lever. With the front seats set fully forward, beyond the adjusting notches provided for normal driving, the backrests will drop down to range with the forward edge of the rear seat. The seats themselves are rather hard but they are large and prove in practice to be comfortable on long runs. The front seats are curved enough to give a little lateral support.

Most drivers during the test considered that the non-adjustable steering wheel was set out from the facia an inch or two more than was necessary, but the only real complaint about the driving position concerned the awkwardly hinged, pendant throttle pedal.

Partly owing to the slim windscreen pillars there is good visibility, even though the farthest wing is obscured from



Speedometer and instruments are in front of the driver with, centrally, a pyramid of warning lights. The boss at the centre of the horn ring and steering wheel flashes the head lamps for signalling

Borgward Isabella TS...



The doors are wide, and on the driver's side is an external mirror, easily adjusted through the window. The petrol filler cap is reached through a flush-fitting panel beside the right rear lighting assembly

all but the tallest drivers by the over-high, domed scuttle and bonnet. A shallower, wider interior mirror would take more advantage of the large rear window, and there is, apparently, no reason why visibility in wet weather could not be improved by the use of longer wiper blades. The Isabella has a pear-shaped exterior mirror which is easily adjustable from the driving seat.

The engine starts on the ignition key, if not at a touch, at least at the first time of asking. During the damp but fairly warm weather accompanying the test there was no need to use the choke even when the car had stood out all night; the engine would pull well almost at once. The high overall gearing of the three upper ratios enables each gear to be held for a relatively long time, and to get the best from the car in typical British conditions the box must be used freely. First will run the TS up to a maximum of 27 m.p.h., second to 49 and third to 69 m.p.h. In top the maximum is markedly dependent on the conditions. The manufacturers claim 94 m.p.h., but in the indifferent weather of the test, which included a cross breeze, 86 m.p.h. was the highest true speed obtained.

Isabellas are a common sight on the *autobahnen* of Germany, and the handbook takes this into account with a suggested "all day" maximum cruising speed for the TS models of 82 m.p.h. Certainly a true 80 m.p.h. can be reached easily even on average English roads, which does credit to the combination of fairly small engine and large car. Surprisingly, even when the model is driven really hard the m.p.g. does not fall below 30, and cruising in the fifties, making no particular effort to be economic in the use of petrol, gave a creditable fuel consumption of no less than 37 m.p.g.

Synchromesh is provided on all forward speeds, and it cannot be beaten by fast changes. The steering column lever suffers from rather long travel and, in common with so many other change mechanisms of similar type, is rather slow between third and second. The gap between the planes carrying first and second, and third and top respectively, is commendably small. With overall ratios of 15.05, 8.38, 5.30 and 3.9 to 1, and 13in wheels, the change from third to second is used frequently, particularly in town, demanding an improved change between third and second. In towns the synchromesh on first proves well worth having. The choice of ratios appears to be splendidly suited to the conditions of the car's home country, and elsewhere where

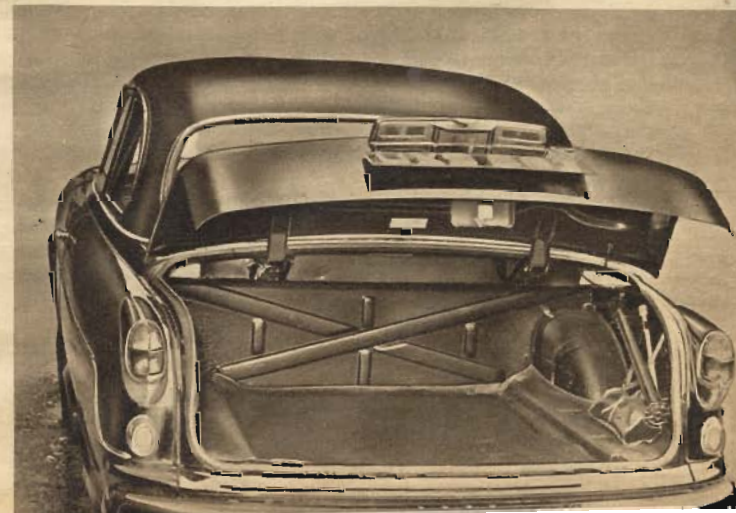
motorway networks are widespread or traffic relatively light. There is some transmission noise on all gears, and the axle is not entirely silent. The clutch is by no means fierce, but is not quite as progressive as it should be.

If full use is made of the ratios for maximum performance the TS can be made to accelerate well; for example, the standing start quarter-mile can be covered in 21.7 sec, and 50 m.p.h. reached in 13.8 sec. In the lower speed range it takes 15.5 sec to reach 40 from 20 m.p.h. in top, but only 5.5 sec in second.

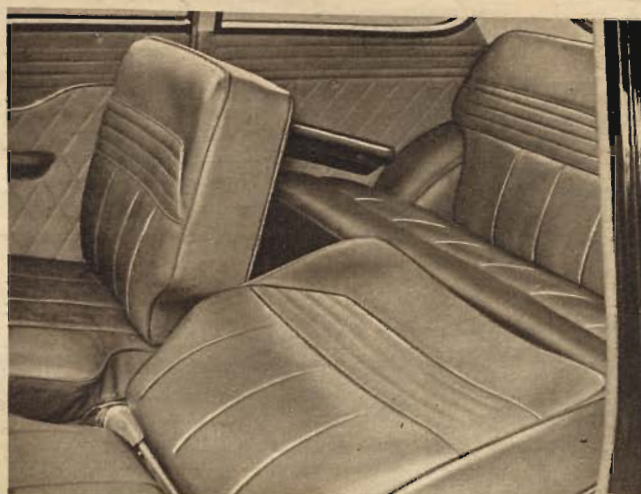
When high average speeds in tricky road and traffic conditions are not the prime consideration, the TS becomes a most restful car both for driver and passengers. The high gearing gives it long legs, and much is owed to the level ride provided by the all-independent suspension, and the particularly impressive insulation of the body from noise picked up or made by the road wheels. There is no suggestion whatever of the independent rear suspension affecting the steering, and the wheel grip is good, wet or dry. It was felt that slightly more powerful dampers would make the ride even better.

The steering is excellent. There is a slight degree of understeer, and a pleasant lightness and sensitivity; in conjunction with the very comfortable suspension, accurate placing of the Isabella is one of the pleasures of driving the car. There is no pronounced kick-back even on rough surfaces which, incidentally, can be taken fast without seriously impairing adhesion or ride.

When the windows are shut wind noise is slight, and while the engine and transmission can be heard, the overall volume



Luggage space is considerable, and the contours of the compartment are well suited for carrying cases of any shape. Jack, wheel brace and tool roll are mounted on the right. The lid is released by a control inside the rear passenger compartment



The TS Isabella is fitted with separate front seats by Reutter. Each backrest may be adjusted for rake by a small lever. The backrests will mate with the edge of the rear seat cushion. There is a single armrest for each of up to four occupants

of sound is not great. Both the triangular ventilator and main window in each door have winding mechanisms which work smoothly, and the rear passengers have a window on each side, hinged to open outward at its rear edge; to open a window makes a considerable increase in noise at the higher speeds.

The brakes were difficult to judge owing to a tendency on the car tested for the right front wheel to grab. A large proportion of the total mileage was covered on wet or damp roads, on which this one wheel tended to lock too readily. The impression was formed that the division of braking effort gave a little too much to the front wheels, but this opinion might be changed after driving another example of the model. As far as it was possible to judge it seemed that braking power fell short of the performance as a whole. The pull-out handbrake (pull-and-twist to release) under the centre of the fascia was easily operated, and little effort was required to make it hold the car securely on steep gradients.

Instruments and minor controls are wide in range and well laid out. An outstanding feature is the precision with which the switches work, from the dip-switch upwards. The speedometer scale is horizontal, directly in front of the driver, with an angled red strip extending from left to right as the speed rises. That on the car tested was nearly accurate at 50 m.p.h., but became pessimistic below and optimistic above this speed. Under the speedometer are four rectangular dials. The one on the left houses the total and trip mileage recorders, then come the temperature gauge, fuel indicator and the clock. Between the two pairs of dials is a neat pyramid of warning lights; the small one at the top indicates main beam, then a wider one gives warning of lack of oil pressure, the third is for ignition, and at the base is a pair for the turn indicators. Knobs at each end of the panel look after setting the mileage recorder and adjusting the panel lighting.

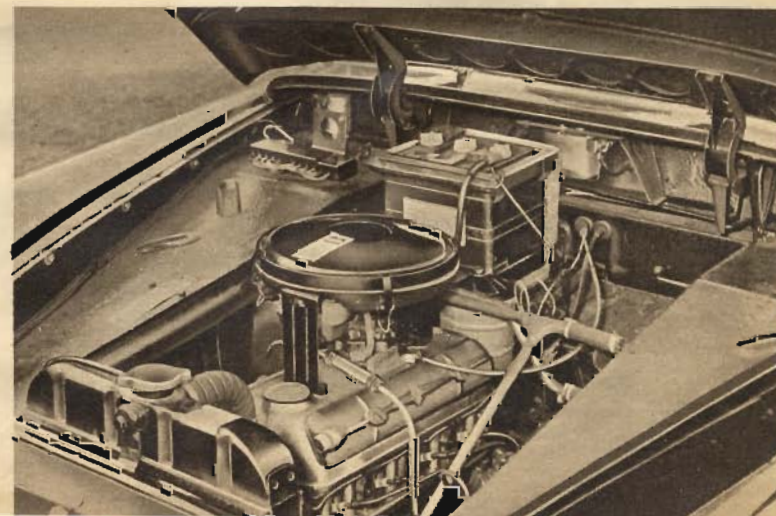
An unusual lighter is placed in the centre of the fascia panel—the element is exposed, and is operated by pressing a button in the side of its surround until the element glows. There are three neat, unlettered controls at each side of the lighter; nearest the driver is the ignition-starter, then are ranged choke, lights, wiper, right- or left-side parking lamps, and a manual control of the under-bonnet tap for the heater's hot water supply. The horn, the volume of which is not adequate out of town, has a ring on the steering wheel, while the central boss on the wheel flashes the head lamps for

signalling. This last control will flash the lamps when they are off or on dip; on main beam the dip switch is used. The dipper position is not as convenient on right-hand drive models as it is in its more usual location.

The heater is outstanding in effectiveness and in the scope and simplicity of distribution. Only the water tap control mentioned and the booster fan switch affect all the occupants. Apart from these, the heater is divided into two units, one for each side of the car. Driver and front passenger each has his own control, which may be set in any of four positions—off, full demist, demist and interior, and full interior. Even in exceptionally humid weather the screen could be demisted in a matter of moments.

Exceptionally good head lamps give plenty of penetration for fast motoring, in conjunction with really wide spread on dip. No oncoming drivers took exception to the dipped beams which, in addition to the spread, shone quite far forward. The panel lighting causes no reflection in the screen.

In spite of the thick backrests of the front seats, there is plenty of leg room for all occupants. Lack of a toe-board at the front is a fault. The flat floor meets a vertical bulkhead; a sloping foot rest would increase the front passenger's comfort. There is a non-lockable but lidded glove compartment in the left of the fascia, and slim pockets in the doors; there is also a net holder for maps to the right of the driver's legs. There is an armrest on each door, but none centrally. In the conversion to right-hand drive the door locks have not been changed, with the result that only the near-side door, next to the kerb, can be locked or opened with the key.



Under-bonnet accessibility is good, and there is room to wield tools round most of the components which might require attention. The T-shaped pipe carries hot water to the divided heating system

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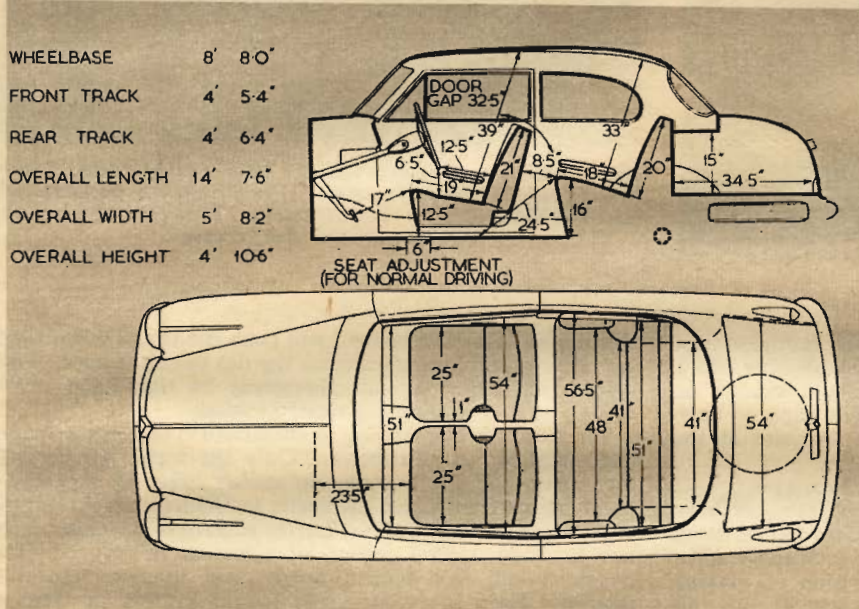
It is easy for the driver to slide across the seats, but the inconvenience is obvious.

The luggage locker is opened by a remote control in the rear passenger compartment, easily reached from the near-side doorway. The locker itself is well shaped for carrying a considerable quantity of luggage, regardless of the shape of the bags. The spare wheel has a separate container under

the floor, but luggage must be removed before it can be reached. The under-bonnet layout lends itself to easy routine maintenance; carburettor, plugs, coil and distributor are all within comfortable reach, and the battery may be topped up simply with a suitable pourer.

There is much to admire in this exceptionally large family 1½-litre, and little to prompt criticism. At a moderate ex-works price it provides roominess, high cruising speeds without fuss, quality construction, and unusually good fuel economy.

BORGWARD ISABELLA TS



Scale ½ in to 1 ft. Driving seat in central position. Cushions uncompressed.

PERFORMANCE

ACCELERATION:

M.P.H.	Speed Range, Gear Ratios and Time in Sec.			
	3.9 to 1	5.30 to 1	8.38 to 1	15.05 to 1
10-30..	—	—	5.4	—
20-40..	15.5	9.3	5.5	—
30-50..	15.4	11.5	—	—
40-60..	17.8	11.9	—	—
50-70..	23.0	—	—	—

From rest through gears to:

M.P.H.	sec.
30	5.4
40	8.5
50	13.8
60	19.7
70	31.6

Standing quarter mile, 21.7 sec.

MAXIMUM SPEEDS ON GEARS:

Gear	M.P.H.		K.P.H.
	(mean)	(best)	
Top	87.5	91	140.8
3rd	69	69	111.0
2nd	49	49	78.9
1st	27	27	43.4

TEST CONDITIONS: Weather: damp surface, breezy; air temperature, 65 deg. F.

Acceleration figures are the mean of several runs in opposite directions.

Tractive effort obtained by Tapley meter.

BRAKES (at 30 m.p.h. in neutral):

Pedal load in lb	Retardation	Equivalent stopping distance in ft.
25	0.60	50
50	0.78	38

FUEL CONSUMPTION: M.P.G. at steady speeds:

M.P.H.	Direct	
	Top	Bottom
30	64.5	64.5
40	57.2	57.2
50	54.0	54.0
60	33.3	33.3
70	24.0	24.0

Overall fuel consumption for 786 miles, 33 m.p.g. (8.6 litres per 100 km).

Approximate normal range 30-37 m.p.g. (9.4-7.6 litres per 100 km.).

Fuel: Premium grade.

TRACTIVE EFFORT:

	Pull (lb per ton)	Equivalent Gradient
Top	190	1 in 11.7
Third	265	1 in 8.4
Second	380	1 in 5.8

SPEEDOMETER CORRECTION: M.P.H.

Car speedometer:	10	20	30	40	50	60	70	80	90
True speed:	18	26	32	43	57	58	68	76	85

DATA

PRICE (basic), with saloon body, £950. British purchase tax, £476 7s. Total (in Great Britain), £1,426 7s. Extras: Radio to choice.

ENGINE: Capacity: 1,493 c.c. (91 cu in). Number of cylinders: 4. Bore and stroke: 75.0 x 84.5 mm (2.97 x 3.32in). Valve gear: o.h.v., pushrods. Compression ratio: 8.2 to 1. B.H.P. 75 at 5,200 r.p.m. (B.H.P. per ton laden 61.8). Torque: 84.6 lb ft at 2,800 r.p.m. M.P.H. per 1,000 r.p.m. in top gear, 17.6

WEIGHT: (With 5 gals fuel), 21.25 cwt (2,380 lb). Weight distribution (per cent): F, 52.6; R, 47.4. Laden as tested: 24.25 cwt. (2,716 lb). Lb per c.c. (laden): 1.8.

BRAKES: Type: Borgward. Method of operation, hydraulic. Drum dimensions: F, 9.06in diameter; 2.25in wide. R, 9.06in diameter; 2.25in wide. Lining area: F, 60 sq in; R, 60 sq in (99.0 sq in per ton laden).

TYRES: 5.90-13in. Pressures (lb per sq in): F, 24; R, 26 (normal).

TANK CAPACITY: 10½ Imperial gallons. Oil sump, 8 pints. Cooling system, 12 pints.

STEERING: Turning circle: Between kerbs, 32ft 10.75in. Between walls, 34ft 8.25in. Turns of steering wheel from lock to lock, 3.5.

DIMENSIONS: Wheelbase, 8ft 8in. Track: F, 4ft 5.4in; R, 4ft 6.4in. Length (overall), 14ft 7.6in. Width: 5ft 8.2in. Height: 4ft 10.6in. Ground clearance, 7in.

ELECTRICAL SYSTEM: 6-volt; 84 ampere-hour battery. Head lights: double dip; 35-35 watt bulbs.

SUSPENSION: Front, Independent, coil springs. Rear, Independent, coil springs and swing axle.

