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REPRINTED FROM  FEBRUARY 10, 1950

# CARRYING 40 PASSENGERS ECONOMICALLY

JENSEN MOTORS LIMITED  
CARTERS GREEN ∴ WEST BROMWICH

Telephone No. : 1112 (3 lines)

Telegrams : "Expert"

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**ROAD TEST No. 395—JENSEN PASSENGER CHASSIS**

**MODEL** NSN lightweight single-decker passenger chassis.

WEIGHTS :	Tons	cwt.	qrs.
Unladen weight .. ..	4	9	2
Load .. ..	2	16	0
Driver, observer, etc. ..	3	2	
	7	9	0

Distribution :	Front axle	Rear axle
Front axle .. ..	3	4
Rear axle .. ..	4	0

**ENGINE** Perkins P.6 six-cylindrical oil engine; bore 88.5 mm. (3.5 ins.), stroke 127 mm. (5 ins.); piston-swept volume, 4,730 c.c. (288.6 cubic ins.); maximum output 70 b.h.p. at 2,200 r.p.m.; R.A.C. rating 29.4 h.p.; maximum torque 184 lb.-ft. at 1,000 r.p.m.

**TRANSMISSION**: Through Borg and Beck single-dry-plate clutch, 12 ins. in diameter, to five-speed-and-reverse gearbox, thence by three-piece propeller shaft to the underslung worm drive of the fully floating back axle.

**GEAR RATIOS**: 8.14, 4.73, 2.79, 1.6 and 1 to 1 forward, 8.14 to 1 reverse; back-axle ratio 7 to 1.

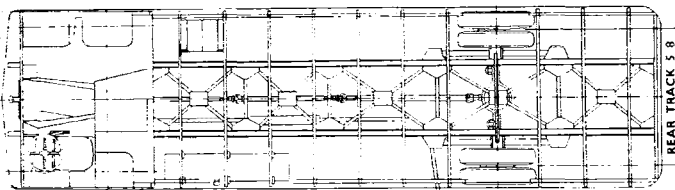
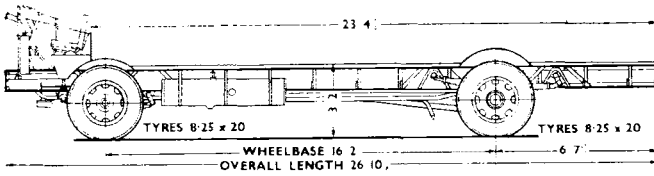
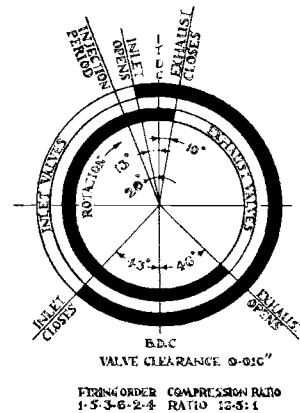
**BRAKES**: Pedal operates through Lockheed continuous-flow hydraulic system to Girling two-leading-shoe units at all wheels; hand brake takes effect on rear wheels, through mechanical linkage. Front and rear drums 16 ins. in diameter; front shoes 2½ ins. wide; rear shoes 3½ ins. wide; frictional area 361 sq. ins., that is, 48.5 sq. ins. per ton gross weight as tested.

**FRAME**: Fabricated I-section aluminium-alloy side and cross-members, with diagonal bracing riveted between the cross-members.

**STEERING**: Cam and lever.

**SUSPENSION**: Semi-elliptic springs with Woodhead-Munroe hydraulic shock absorbers at both axles.

**ELECTRICAL**: 12-volt 140-watt compensated-voltage-control dynamo with 154 amp.-hr. battery.



**FUEL CONSUMPTION**: (a) Non-stop test 16 m.p.g. at 26.5 m.p.h. average speed; (b) one stop per mile, 15.4 m.p.g.; (c) four stops per mile, 11.05 m.p.g.; that is, 119 gross ton-m.p.g. as tested (a), 114.6 gross ton-m.p.g. (b), and 82.2 gross ton-m.p.g. (c), giving a time-load-mileage factor of 3,153.

**TANK CAPACITY**: 30 gallons; range 330-480 miles, according to service.

**ACCELERATION**: Through gears 0-20 m.p.h. 12 secs.; 0-30 m.p.h. 27.6 secs.; top gear 10-20 m.p.h. 12.3 secs.; 10-30 m.p.h. 27.9 secs.

**BRAKING**: From 20 m.p.h. 14 ft. (30.9 ft. per sec. per sec.); from 30 m.p.h. 33 ft. (29.5 ft. per sec. per sec.).

**WEIGHT RATIOS**: 0.470 b.h.p. per cwt. gross weight as tested. Payload 37.6 per cent. of gross load.

**TURNING CIRCLES**: Both locks 61 ft.

**MAKERS**: Chassis, Jensen Motors Ltd., West Bromwich, Staffs. Body, J. H. Sparshatt and Sons (Southampton), Ltd., Southampton, Hants.

The assault on Wenlock Bank was made in dashing style, but it was soon necessary to change down to fourth and third gears. Second gear was engaged as we passed by the cottage. Within four minutes of starting the climb, the radiator-water temperature rose to 200 degrees F., and a minute later had reached boiling point. By this time we had nearly reached the top of the hill, the engine slogging steadily at almost governed revolutions. Bottom gear was engaged as the steepest section of approximately 1 in 5½ was tackled, and up to this point the minimum speed had been 9 m.p.h.

The engine and radiator were given a chance to cool down on the opposite side of the hill before a second consumption test, with one stop per mile, was started on the outskirts of Much Wenlock. A slight adjustment was made to the radiator blind to keep the temperature of the cooling system at an efficient level.

There were few inclines on this course, which finished at Bridgnorth, and except when accelerating from rest, there was no need to use the

indirect ratios. The consumption rate, measured over seven miles, was 15.4 m.p.g., the average speed, including 15-second stops at every point, was 23.5 m.p.h. The Jensen would obviously be an economical vehicle to operate, especially as an inter-urban bus in flat country.

The long, steep gradient out of Bridgnorth provided a secondary hill-climbing test, and the Jensen soared up in third and second speeds. As there was only light traffic on the road, the conditions were right for non-stop consumption trials.

After replenishing the test tank, the bus was headed towards Wolverhampton, maintaining a speed, wherever possible, of 35 m.p.h. A short, twisting gradient on the outskirts of Hilton required the use of fourth and third gears for almost 30 secs., and reduced the average speed. The fuel-consumption return for the course worked out to 16 m.p.g., the average speed being 26.5 m.p.h.

Given more favourable conditions, the Jensen bus would probably do 20 m.p.g. on continuous running.

Apart from the inconvenient size and position of the small window provided for signalling, I found many points to praise in the design of the cab. As the entry door is forward of the front axle, there is only a shallow step between the road and cab floor. Entry is eased also by the width and depth of the door.

The driver has a deep side window on the near side, giving him a full view of the kerb and of boarding passengers. The downsweep of the windscreen improves the view ahead. The Jensen cab has always been noted for its high-class finish and the good layout of controls, and the bus is no exception to the rule.

Although a full-fronted body is fitted, and the driver sits beside the engine, the near-side bonnet cover on the right-hand-drive models is opposite the saloon entrance, and the fuel pump and other components are readily available for service. When the time arrives for overhaul, the engine, clutch, gearbox and silencer and exhaust can be withdrawn as a unit in 30 minutes, and a replacement unit can be installed in 2½ hours.





Apart from the front destination blind there is no outward evidence to show that the Jensen bus has a Sparshatt body with tubular-steel frame. All aluminium exterior panels are wrapped around the tubing and pop-riveted. The body design is unusually clean.

## CARRYING 40 PASSENGERS

**B**Y equipping the light-alloy passenger chassis with a Sparshatt tubular-frame body, Jensen Motors, Ltd., has produced a 40-seater bus which, because of its lightness, can be fitted with a relatively small engine without sacrificing performance. During my road test, the fuel-consumption rate with four stops per mile, and carrying a load equal to 44 passengers, was 11 m.p.g.

The Jensen passenger chassis, if it may be so termed, weighs 2 tons 12 cwt., and the unladen weight of the complete bus, ready for service, is 4 tons 9½ cwt.

### Worm-driven Axle

The Perkins P.6 six-cylindered 4.73-litre oil engine has a power output of 70 b.h.p. at 2,200 r.p.m., and 184-lb.-ft. torque at 1,000 r.p.m. The David Brown five-speed gearbox and underslung worm-driven back axle are linked with a three-piece propeller shaft employing one Layrub and two Hardy Spicer couplings. Two self-aligning bearings support the shaft at the centre of the chassis.

Two-leading-shoe brakes of Girling pattern are actuated by a Lockheed hydraulic servo system, with a pump driven from a take-off at the rear of the gearbox. The road springs are fitted with rubber-bushed shackles and controlled by Woodhead-Monroe hydraulic shock absorbers.

The frame, which is an integral chassis-cum-body structure, has composite I-section members, which are fabricated of 14-gauge sheet alloy. Upper sections of the side members are 10½ ins. deep and riveted to lower

sections 6 ins. deep, each having 2½-in. riveted flanges. The upper sections extend for the full length of the chassis. Strengthening plates are generously used.

Angle strips, riveted to the side members at the front and rear, increase rigidity, and similar strips are employed for diagonal bracing between the cross-members. The lower main-member sections extend from the rear anchorages of the front springs to the back axle. Four of the six cross-members, all of which, with the exception of the front detachable member, are of similar design, are located in line with the spring anchorages.

The body floor consists of corrugated light-alloy sheeting with flush-fitting wood inserts. Both the floor and runners are integral with the main frame. The height of the wheel-arches is 6¼ ins. above floor level, which is 3 ft. 2 ins. above ground level.

The foundation of the body is constructed from steel tubing, the members forming the main

Passengers boarding the bus are in view of the driver, who can also see the kerb clearly. The curvature of the bottom of the windscreen improves the driver's view ahead.

structure being 1½ ins. in diameter and of 16-gauge thickness. Tubes of 1-in. diameter are used for the roof bends and other members not subjected to the main stresses. All exterior panels, which are of aluminium, are wrapped around the tubing and pop-riveted.

The bus was collected from the Jensen works at West Bromwich and driven to Elmton to collect the load. Travel in almost-empty buses is sometimes uncomfortable because of poor chassis suspension, but the Jensen bus has no such failing. The combination of long, soft springs and Woodhead-Monroe shock absorbers is sufficient to smooth out all road irregularities under any condition of load.

With 23 ft. 4½ ins. of body space

