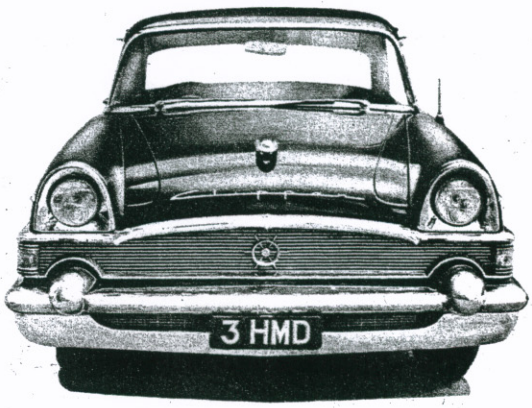
THE PACKARD CLIPPER

An Exceedingly High Performance American Family Car With a Number of Interesting Technical Features

In Brief

Price: £2,475 plus purchase tax £1,238 17s. equals £3,713 17s. (with various optional extras).

Capacity	...5,243 c.c.
Unladen kerb weight ...	... 38¾ cwt.
Fuel consumption ...	... 16.6 m.p.g.
Maximum speed ...	... 113.4 m.p.h.
Maximum speed on 1 in 20 gradient	95 m.p.h.
Maximum high gear gradient	1 in 4.3
Acceleration:	
10-30 m.p.h. in high ...	4.25 sec.
0-50 m.p.h. through gears	8.4 sec.
Gearing: 27.5 m.p.h. in top at 1,000 r.p.m.; 117.5 m.p.h. at 2,500 ft. per min. piston speed.	



NO DECEPTION: The powerful-looking front view of the Packard is no deception as it has a maximum speed substantially over 110 m.p.h. and corresponding hill climbing ability.

A GLANCE at the data page for performance quoted for the Clipper model built by the Packard Co., shows that this is a car with altogether outstanding performance by European standards. The mean maximum speed of 113.4 m.p.h. is faster than any car built on this side of the Atlantic which is capable of carrying five people, and a run in each direction was made at 115.2 m.p.h. That these very high speeds were not achieved at the sacrifice of the quality of acceleration is shown by the fact that only 4¼ seconds are required to go between 10 and 30 m.p.h. (even when in the "high" section of the transmission) and only 9.4 seconds to accelerate to 80 m.p.h. from 60 m.p.h.; correspondingly, the car will sustain 95 m.p.h. on a 1 in 20 gradient and 72 m.p.h. on a 1 in 10 gradient.

Full use of the transmission will provide 60 m.p.h. from rest in less than 11 seconds, 80 m.p.h. in less than 20 seconds, and here again one may search in vain the statistics of English and Continental cars for similar figures outside of the sports car class.

As the Clipper is emphatically not a sports car, but an exceedingly quiet saloon, capable of carrying six persons and their luggage in complete comfort, one might assume that at the least there would be a severe penalty in fuel consumption. It is all the more notable to find that the overall figure turns out to be 16-17 m.p.g. as a reflection of the remarkable specific consumption of 0.58 pints per b.h.p./hr. when the car is travelling at a cruising 90 m.p.h.

So much for the figures.

Exceptional Representative?

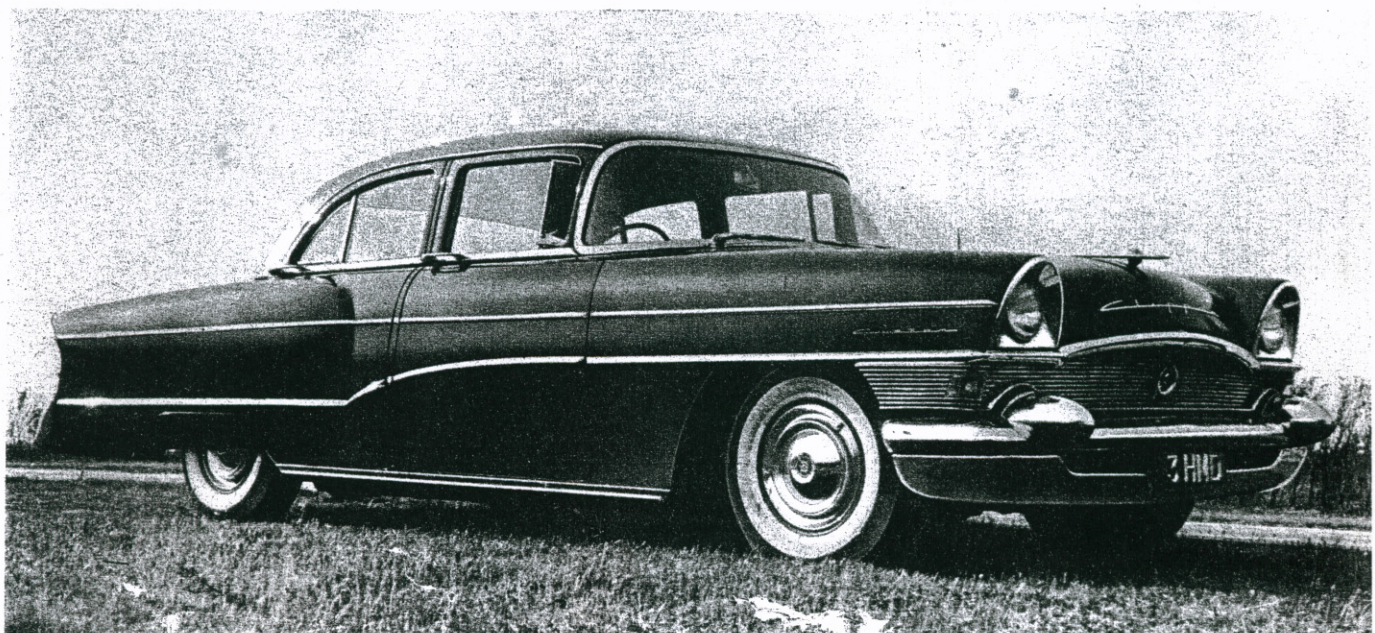
One has only to drive the car for a short distance to realize that the American car has made great strides in the past five years, not only in sheer performance but also in handling. But there are nevertheless some grounds for believing that the Clipper may be in some degree exceptional in this respect for it combines a weight distribution more closely allied to European practice than American with a suspension system found rarely in principle and of unique detail design.

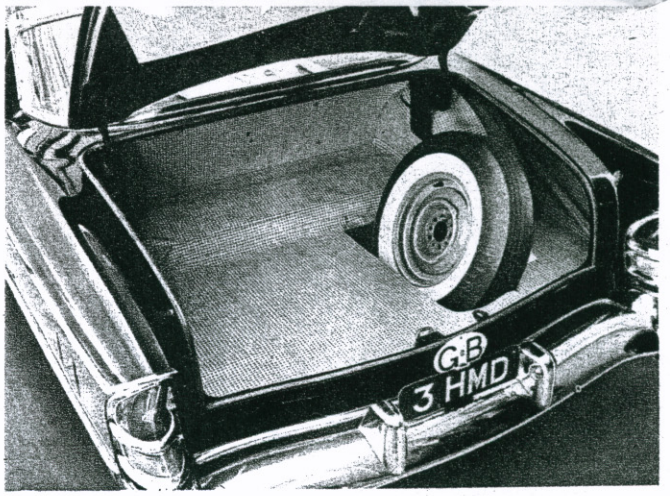
Reference to the side view silhouette of the car will show that the front seat is almost in the centre of the wheelbase and both this and the engine are therefore farther back in the frame than is now common. A considerable effort has been made to offset the weight of a V.8 power unit which has a capacity of 5.2 litres and a nominal output of 225 b.h.p. and of a transmission which embodies a lock-up clutch, a four element torque converter, a multi-plate clutch, and a two-train epicyclic gear. The latter elements are enclosed in a light alloy casing which reduces weight by 95 lb. and in consequence the front wheels support a comparatively modest 54% of the unladen weight of the car, the laden weight being supported about equally fore and aft.

The car submitted for test by the British concessionaires Leonard Williams and Co., Ltd., had been converted by them to right-hand drive, a change which excludes power steering. This notwithstanding very little effort is needed on the wheel, and response to the helm is consistent and reasonably rapid since the five turns from lock to lock move the front wheels through a very big angle in order to achieve a turning circle of 41 ft. with a wheelbase of over 10 ft.

The driving position also calls for favourable comment, for the front seats are high and although having only a

LENGTH AND PROPORTION: Despite an overall length of 18 ft. the Clipper is a well proportioned car due partly to a low build well demonstrated by this picture.





SPACE & GRACE: An exceedingly large luggage locker has its capacity but little reduced by the carriage of the spare wheel. It is flanked on each side by the striking tail fins which as shown (*right*) are blended into the tail lights and the rear bumper.

The Packard Clipper

simple fore-and aft adjustment the driving position was found equally comfortable by large males and small females. This is indeed an altogether exceptionally easy car to drive, and bears a hallmark of quality in that after a few hundred yards the driver ceases to be conscious of the size, in spite of the somewhat formidable width of 6½ ft. and a length of 18 ft.

As is normal on modern American cars outside the lowest price range, there is no clutch pedal on the Clipper, but unlike most of them there is a solid and direct drive from the flywheel to the back axle in all conditions at over 70 m.p.h. and, with progressively reduced throttle opening, down to 24 m.p.h.

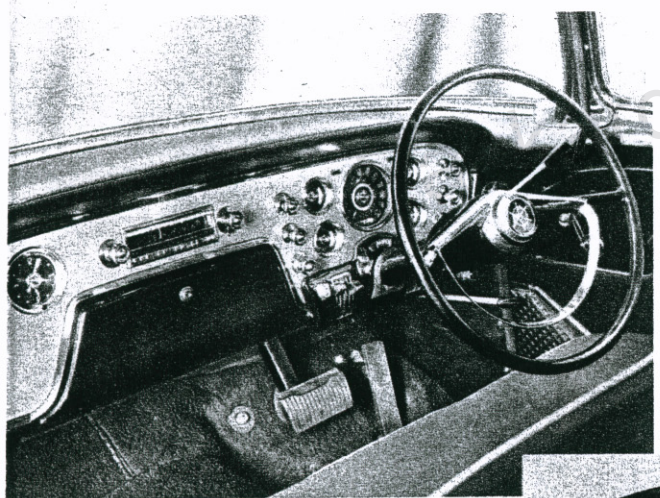
What happens below 70 m.p.h. can be determined by the driver. If he puts the gear selector lever in "H" the car will accelerate from rest to 70 m.p.h. using a fluid converter which offers an increase in torque of 2.9 times with the engine running at 1,650 r.p.m. On full throttle this will be the minimum speed of the engine, and the torque increase will diminish above 45 m.p.h. to zero just before the lock-up point of 70 m.p.h. or 2,500 r.p.m.

If the gear lever be put into "drive" the car will start from rest in an epicyclic gear having a reduction of 1.82:1 with a corresponding increase in starting torque. On full throttle this gear will be held in engagement up to 60 m.p.h. at which point it will be automatically disengaged and followed by the lock into direct drive at 70 m.p.h. However, in this position of the gear lever, releasing the throttle will cut out the epicyclic gear at lower speeds; similarly, pressing the accelerator pedal to the floor will re-engage the epicyclic gear at any speed below 60 m.p.h. Lastly, if the lever be put in "LO" the second sequence of events will be followed except that the epicyclic gear is permanently engaged below 60 m.p.h. irrespective of throttle opening. In this condition therefore a measure of engine braking is obtainable although it is less than might be expected owing to the high slip factor in the torque converter when it is being driven by the back axle.

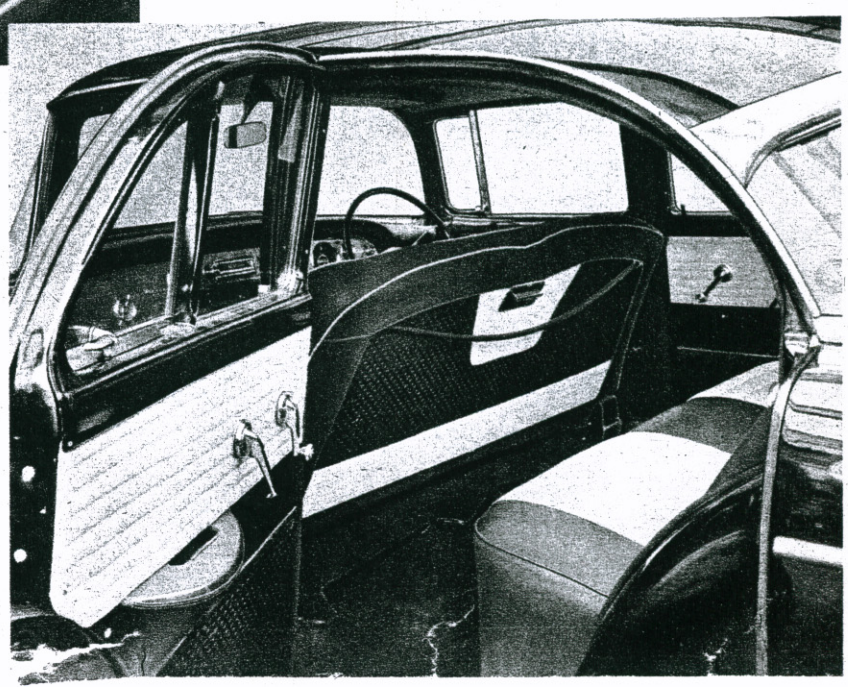
Although this description may seem complicated, in fact driving the car is simplicity itself, and the converter solely may be relied upon for all ordinary driving. Only when exceptional acceleration is required in traffic or when climbing a steep hill need there be any resort to the low range of the transmission in either of its manifestations. In either case, it is pertinent to comment that the engine is so quiet, and the change from one ratio to another so smoothly effected, that from the passenger's point of view this Packard might well be powered by a fixed gear steam plant, and with wind noise also at low level the car gives astonishingly relaxed transport at cruising speeds which can range between 80 and 100 m.p.h. on suitable roads. As one might suppose, there is some increase in noise at over 110 m.p.h., and on the car tested it was impossible to sustain speeds of this order until the engine had been fitted with Bosch Type 225 sparking plugs.

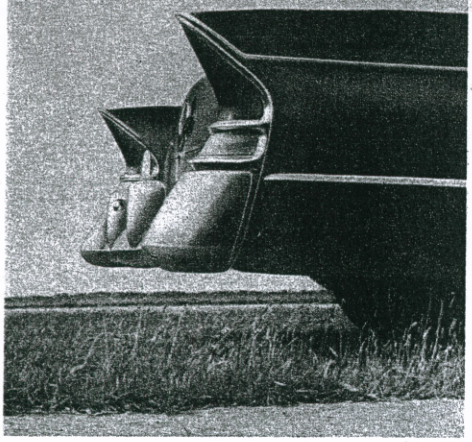
Successful Suspension

At all speeds, and over all road surfaces, the combination of steadiness and comfort shows that the new Packard concept of torsion bar suspension fully repays the great experimental effort which it represents. The car is unique in that there are only two 9-ft. long torsion bars each of which runs from one end of the car to the other, being wound up anti-clockwise by the front to the wishbones and clockwise by links to the rear axle. Thus, when the front wheel goes over a bump the reaction is transmitted to the rear wheel (cross racking of the frame being thus avoided) and by reason of the exceptional length of the torsion bars a very low rate suspension can readily be provided. But the front and rear suspensions have an equal rate although, unavoidably, the weight on the front wheels is fixed and the weight on the rear wheels variable. To meet the liability of the rear to sink when laden there are stiffening torsion bars linked to the rear axle through an electric motor which is sensitive to trim and, after a delay of 5 or 7 seconds, will put the car on an even keel.



WELL FURNISHED: The handsome facia panel of the car is shown left, also the common level for the throttle and brake pedals. Below can be seen the striking interior effects made possible by modern upholstery fabrics.





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It is sufficiently sensitive to react to the introduction of a few gallons of fuel.

The car has a reasonably low roof-line and although the ground clearance on occasions proved inadequate the low centre of gravity made it possible to take fast corners in considerable confidence with no noise from the tyres. On sharp corners in mountainous districts the behaviour was somewhat less happy but it was only in this somewhat extreme condition that the size and soft suspension of the car were found to be of disadvantage.

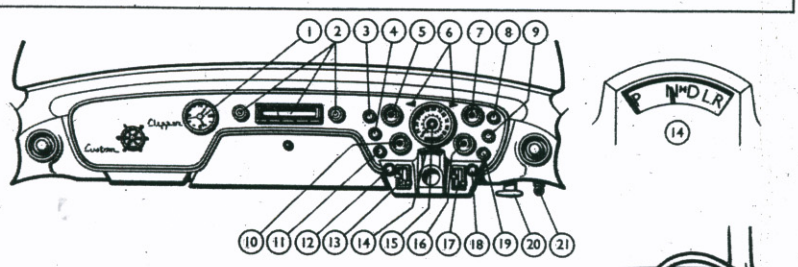
In more ordinary long distance runs the 6-ft. width of the front compartment, a wraparound windscreen nearly 6 ft. wide and 18 inches deep, and the 4 ft. provided between the floor and the roof, gave an air of spaciousness which was particularly agreeable. Moreover although the car tested was the cheapest in the whole range, the level of the appointments, the design and finish of the instruments and facia panel, the Lurex upholstery and the well executed design of the interior hardware, must all be considered exceptional even when the car bears the burden of British import duty and purchase tax.

A fitting of particular interest was a radio set in which one could blend front and rear speakers to choice with sound from stations which the set selected electronically after pressing a button. The antenna could be raised and lowered at the turn of a switch, which was characteristic of the lavish standard of fittings which included a clock, although regrettably the locker space was limited, and there was no alternative accommodation for small parcels except behind the back seat ahead of the wraparound rear window. An illustration displays the enormous luggage space available, and a test of the rear seat showed that the ride here was as good as it was in front.

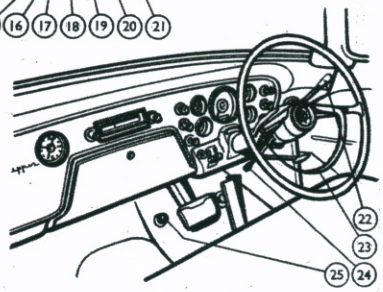
Braking Problems

In view of the many admirable qualities of the Clipper it is to be regetted that a serious criticism must be made when we come to the important question of brakes. With less than 100 sq. in. per laden ton these are on the small side for a car capable of running steadily at 100 m.p.h., but unfortunately, their limitations are not caused only by restricted lining area. The shoes themselves are designed to give a substantial self-servo effect (thus multiplying overall braking differences caused by changes in friction coefficient) and a very small pedal travel is compensated by a vacuum servo. These features make it easy to transfer the toe of the shoe from the throttle to the brake pedal, and little more than toe pressure will bring the car to rest from moderate speeds at a normal rate of stopping. Unfortunately, when combined with very poorly ventilated drums this system also results in the rate of retardation falling to virtually nil after one emergency stop from 100 m.p.h., or a half-dozen quick stops from 60 m.p.h. Even more discouraging, within half an hour of not very fast driving on winding roads it is impossible to stop without pumping on the pedal and when on the fourth or fifth pump the shoes catch up with the expanded drums the overall servo action can produce an effect of considerable violence.

It must be emphasized that these unfortunate symptoms do not make themselves felt in the case of main-road motoring at ordinary speeds, or at high speeds on auto routes, but unfortunately in Europe these are not the sole conditions in which a car is used, and upon which criticism of behaviour is based.



1, Clock. 2, Radio controls. 3, Head- and side-light switch. 4, Speaker control. 5, Coolant temperature gauge. 6, Direction indicator warning lights. 7, Fuel contents gauge. 8, Windscreen wiper control. 9, Radio aerial extension and retraction control. 10, Oil pressure gauge. 11, Cigar lighter. 12, Spare switch (unconnected). 13, Ventilator controls. 14, Gear selection indicator. 15, Speedometer. 16, Dynamo charge warning light. 17, Heater temperature controls. 18, Heater fan switch. 19, Ignition and starter switch. 20, Handbrake. 21, Handbrake warning light. 22, Gear selector. 23, Horn half-ring. 24, Direction indicator lever. 25, Headlamp dip switch.



Mechanical Specification

Engine

Cylinders	V.8
Bore	96.8 mm.
Stroke	88.9 mm.
Cubic capacity	5,243 c.c.
Piston area	91.3 sq. in.
Valves	Pushrod o.h.v.
Compression ratio	8.5/1
Max. power at	225 b.h.p. at 4,600 r.p.m.
Piston speed at max. b.h.p.	2,700 ft. per min.
Carburetter	Carter double choke
Ignition	Auto Lite coil
Sparking plugs	Champion N18
Fuel pump	Mechanical
Oil filter	By-pass

Transmission

Clutch	Nil
Top gear	1 : 1
Converter	2 : 9 : 1 at 1,650 r.p.m. of flywheel
Low gear	1.82 : 1
Propeller shaft	Open
Final drive	Hypoid bevel 3.07 : 1
Top gear m.p.h. at 1,000 r.p.m.	27.5
Top gear m.p.h. at 1,000 ft./min. piston speed	49

Chassis

Brakes	Hydraulic
Brake drum diameter	11 in.
Friction lining area	192 sq. in.
Suspension, front and rear:	Common torsion bar with leveler.
Shock absorbers:	
Front	Monroe telescopic
Rear	Monroe telescopic
Tyres	7.60 x 15 Tubeless

Steering

Steering gear	Gemmer
Turning circle (between kerbs):	
Left	41½ feet
Right	41 feet
Turns of steering wheel, lock to lock	5

Performance factors (at laden weight as tested):

Piston area, sq. in. per ton	43.3
Brake lining area, sq. in. per ton	93
Specific displacement, litres per ton mile	5,420

Coachwork and Equipment

Bumper height with car unladen: Front (max.) 20 in., (min.) 9½ in. Rear (max.) 18 in., (min.) 13 in.

Starting handle	No
Battery mounting	Below bonnet
Jack	Ratchet
Jacking points	Beneath bumpers

Standard tool kit: Jack; combined brace and jack handle; grease gun; tyre pump; hammer; 2 screwdrivers; pliers, plug spanner; adjustable spanner; set of 6 spanners.

Exterior lights: Two head, two parking, two tail.

Direction indicators: Two front flashing, two tail ditto, with rear lights.

Windscreen wipers	Two by vacuum pump
Sun vizors	2

Instruments: Clock, speedometer, water temperature, fuel level, oil pressure.

Warning lights: Indicators, dynamo charge, main beam, hand-brake on.

Locks:

With ignition key	Front doors glove locker
With other keys	Rear boot

Glove lockers	One
Map pockets	Nil
Parcel shelves	Behind rear seat
Ashtrays	Three
Cigar lighters	One
Interior lights	Roof, glove box, luggage locker
Interior heater	Yes
Car radio	Yes

Extras available: Push-button gear control, front underseat heater, electric window lifts, power front seat, white wall tyres, Solex glass, wheel trim rings.

Upholstery material: Lurex, Vinyl and leather

Floor covering	Carpet

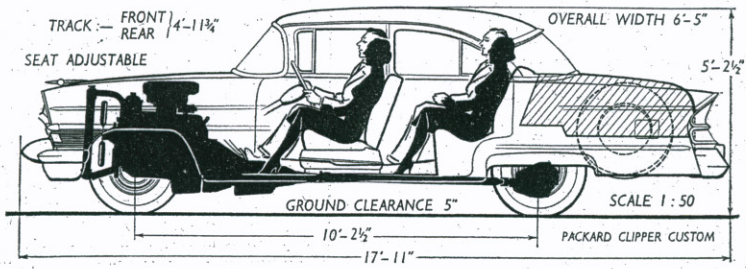
Exterior colours standardized: Various in single, double and triple-tone combinations.

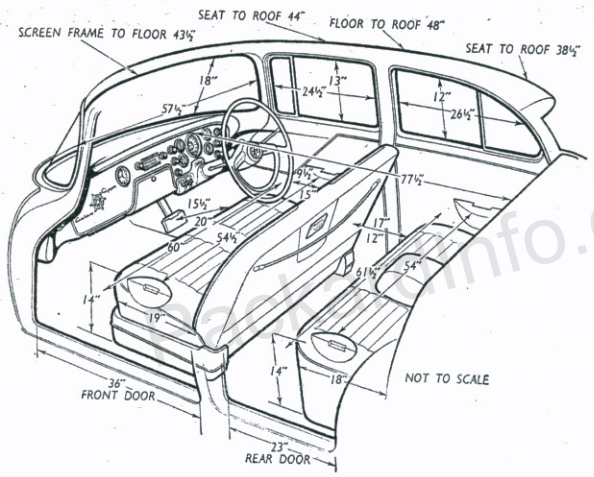
Alternative body styles	Hardtop coupe

The Motor Road Test No. 16/56 (Continental)-

Make: Packard **Type:** Clipper

English Concessionaires: Leonard Williams, Ltd., Packard Buildings, Great West Road, Middlesex





Test Data

CONDITIONS. *Ostend-Ghent Motor Road; barometer 29.97 to 30.12 in.; air temperature 60°-70°F.; wind variable 5-10 m.p.h.*

INSTRUMENTS

Speedometer at 30 m.p.h.	5% fast
Speedometer at 60 m.p.h.	5% fast
Speedometer at 90 m.p.h.	7% fast
Distance recorder	5% fast

MAXIMUM SPEEDS

Flying Quarter Mile

Mean of four opposite runs	113.4 m.p.h.
Best time equals	115.2 m.p.h.
"Maximile" equals	107.5 m.p.h.

Speed in gears

Maximum speed in Converter	70 m.p.h.
Maximum speed in 1st gear	60 m.p.h.

FUEL CONSUMPTION

26.0 m.p.g. at constant 30 m.p.h.
25.0 m.p.g. at constant 40 m.p.h.
22.5 m.p.g. at constant 50 m.p.h.
20.5 m.p.g. at constant 60 m.p.h.
18.5 m.p.g. at constant 70 m.p.h.
16.5 m.p.g. at constant 80 m.p.h.
14.0 m.p.g. at constant 90 m.p.h.
Overall consumption for 358 miles, 21.6 gallons =16.6 m.p.g. (18 litres/100 km.).
Fuel tank capacity 17 gallons.

ACCELERATION TIMES Through Gears

0-30 m.p.h.	4.3 sec.
0-40 m.p.h.	6.3 sec.
0-50 m.p.h.	8.4 sec.
0-60 m.p.h.	10.9 sec.
0-70 m.p.h.	15.2 sec.
0-80 m.p.h.	20.0 sec.
0-90 m.p.h.	26.7 sec.
0-100 m.p.h.	34.6 sec.
Standing Quarter Mile	18.2 sec.

ACCELERATION TIMES on Two Upper Ratios

	Converter High	Low
10-30 m.p.h.	4.2 sec.	3.2 sec.
20-40 m.p.h.	5.4 sec.	4.2 sec.
30-50 m.p.h.	5.4 sec.	4.0 sec.
40-60 m.p.h.	6.2 sec.	4.6 sec.
50-70 m.p.h.	7.5 sec.	—
60-80 m.p.h.	8.4 sec.	—
70-90 m.p.h.	11.4 sec.	—
80-100 m.p.h.	13.7 sec.	—

WEIGHT

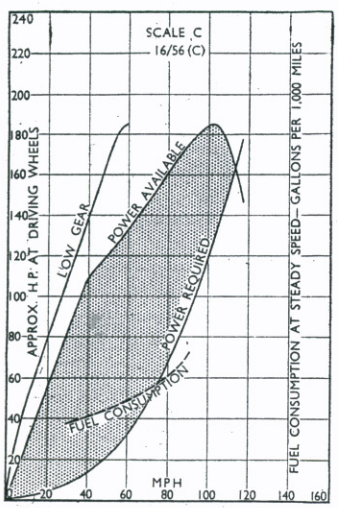
Unladen kerb weight	38¼ cwt.
Front/rear weight distribution	54½/44½
Weight laden as tested	42¼ cwt.

HILL CLIMBING (at steady speeds)

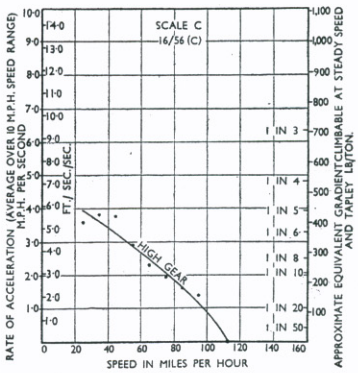
Max. top gear speed on 1 in 20	95 m.p.h.
Max. top gear speed on 1 in 15	85 m.p.h.
Max. top gear speed on 1 in 10	72 m.p.h.
Max. gradient on High	1 in 4.3 (Tapley 523 lb./ton)
Max. gradient on Low	1 in 3.3 (Tapley 667 lb./ton)

BRAKES at 30 m.p.h.

0.45g retardation	(= 67 ft. stopping distance) with 25 lb. pedal pressure
0.65g retardation	(= 46½ ft. stopping distance) with 50 lb. pedal pressure
0.70g retardation	(= 43 ft. stopping distance) with 75 lb. pedal pressure
0.85g retardation	(=35.4 ft. stopping distance) with 125 lb. pedal pressure



Drag at 10 m.p.h. .. .. .. 56 lb.
Drag at 60 m.p.h. .. .. .. 203 lb.
Specific Fuel Consumption when cruising at 80% of maximum speed (i.e., 90 m.p.h.) on level road, based on power delivered to rear wheels .. .. .. 0.58 pints/b.h.p./hr.



Maintenance

Sump: 8 pints, S.A.E. 20 S. W. **Gearbox:** 9 pints, S.A.E. **Rear axle:** 3½ pints, S.A.E. 90. **Steering gear:** S.A.E. 90. **Radiator:** 42 pints (3 drain taps). **Chassis lubrication:** By grease gun every 1,000 miles to 28 points. **Ignition timing:** 5° B.T.D.C. **Spark plug gap:** 0.035. **Contact breaker gap:** 0.016 in. **Valve timing:** I.O., 14° B.T.D.C.; I.C., 62° A.B.D.C.; E.O., 54° B.B.D.C.; E.C., 18° A.T.D.C. **Tappet clearances:** Hydraulic Zero Lash. **Front wheel toe-in:** 0-$\frac{1}{16}$ in. **Camber angle:** 5° 50". **Castor angle:** Minus 0.5° to minus 1.5°. **Tyre pressures:** Front 26 lb., rear 24 lb. **Brake fluid:** Lockheed. **Battery:** 12v. 60 amp.-hr. **Lamp bulbs:** Head, sealed beam 40/50 w.; side and tail, 18/3 w.; reversing light, 18 w.; rear number plate, boot, interior, 6 w.

Ref. A/S.2/56.