

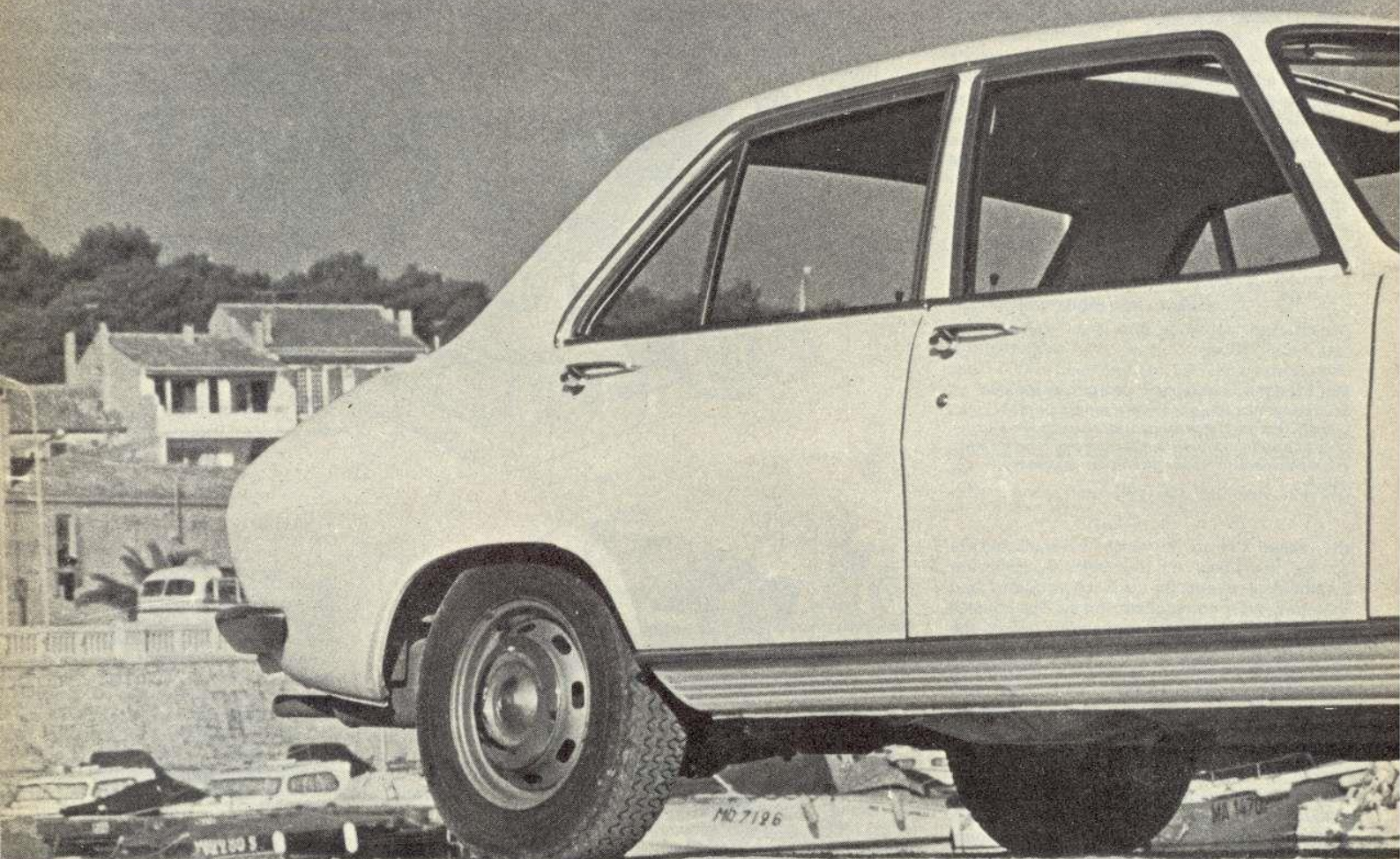
Autocar



Peugeot 504 ▢ **First Full Test**

BMW 2002 ▢ 15000 mile report

Innes drives the Le Mans winning GT40



Autotest

Peugeot 504

2218

AT-A-GLANCE: New French saloon with exceptional blend of top qualities—riding comfort and stability, precise control and powerful, fade-free braking allied to high cruising speeds, 106 mph maximum and moderate fuel consumption. Excellent seating front and rear, good quality furnishings and equipment, efficient heating and ventilation.

MANUFACTURER: S.I.C.A. Peugeot, 75 Avenue de la Grande Armée, Paris.

PERFORMANCE SUMMARY

Mean maximum speed	106 mph
Standing start $\frac{1}{4}$ -mile	18.7 sec
0-60 mph	12.6 sec
30-70 mph through gears	13.5 sec
Typical fuel consumption	27 mpg
Miles per tankful	320

UK CONCESSIONAIRES:

Distributors Peugeot Ltd., 468-472 Purley Way, Waddon, Croydon, Surrey.

WHEN someone recently asked the chief of our largest car manufacturing combine which of his foreign competitors he most respected, he was quoted as citing two—Peugeot and Mercedes. In each case a reputation for technical excellence is founded on unusually exacting design studies and development programmes—also embracing every bought-out component—behind each new model, rather than fundamentally new or extravagant concepts. This philosophy is never more conspicuous than in the construction and behaviour of the new 504.

If the paper specification looks impressive rather than exciting, a few days' vigorous testing in its native France revealed a balance of qualities rarely found in one motor-car, but aptly summed up in the makers' phrase: *Une grande routière Européenne*, which defies literal translation. Our choice was the fuel injection (type KF6) version, more costly but appreciably faster than the single carburettor (type XM) alternative and identical in all other respects except for having a slightly higher final drive ratio. Technically, the 504 follows traditional Peugeot lines except that it is their first rear-drive car with all-independent suspension—MacPherson struts at the front (as before) and semi-trailing arms with coil springs at the back. Unusual is the long, rigid tube enclosing the propeller shaft that directly unites the gearbox and final drive casings. One might sum up the suspension's behaviour by suggesting that any British visitor lucky enough to have his first experience of the notorious French secondary roads (particularly those in the north) in this car might well

wonder what all the fuss was about.

A detailed description of the 504 was published on 12 September. Briefly, the engine is a 4-cylinder (84 x 81 mm, 1,796cc) with push-rod-operated opposed valves in a light alloy head, and the cast-iron block contains detachable wet cylinder liners, as featured in Peugeot engines for many years past. With Kugelfischer indirect injection the net output is 97 bhp at 5,600 rpm, with single-choke carburettor 82 at 5,500. The unit is inclined at 45 deg. Transmission is through a 4-speed all-synchro gearbox with column change and hypoid final drive to exposed drive shafts with constant-velocity universal joints. All-disc Girling brakes have vacuum servo assistance, and steering is by rack-and-pinion. Wheelbase and track dimensions are a few inches up on those of the 404, and smaller diameter wheels (14in.) carry radial ply tyres of larger section.

There is no special starting procedure, a thermostatic element sensitive to engine water temperature enriching the mixture when it's cold, and an "electrovalve" atomizes the petrol while the self-starter is operating. One simply turns the key and the engine starts, then keeps running without a fast idle or any signs of stalling or hunting. Even at tick-over the 4-cylinder injection pump is scarcely heard from within the car, only a faint whine from the constant-delivery fuel pump in the rear tank.

From the Peugeot commercial centre, at 75 Avenue de la Grande Armée, we plunged straight into the maelstrom of busy Parisian traffic, and were soon remarking on the quietness and tractability of the engine, and the



sweet action of a clutch that takes very little effort to hold it out of engagement. The 504 is lively enough to get away first from most hold-ups, to the accompaniment of gear whines in the indirects familiar to every Frenchman for two decades. It's not that they are specially noisy—rather a recognizable family voice that each new model inherits.

There is a fairly wide gap between first and second speeds, so this upward change is best done fairly slowly when carrying a critical or sensitive passenger. The other two upward changes are extremely quick and light, and in keeping with the best floor-shift mechanisms. Particularly when driving hard in difficult country though, one finds the downward step across the gate from 3rd to 2nd much clumsier than it would be with a floor lever. The synchromesh worked perfectly, withstanding lightning shifts during performance testing.

As the car gathers speed the only non-mechanical noise is a subdued hum from the Michelin XAS tyres, lost as wind roar increases around the front pillars and over the sliding roof as fitted to our car—a £17 extra (200NF) bargain in France. This is louder than expected at moderate speeds, say 50-70 mph, but thereafter increases very little right through to 100 mph and over, since air flow over the roof evidently rises clear. We were told the factory is aware that the 504's sliding roof causes more disturbance when shut than the 404's, for instance. Again, with this open there is some resonant buffeting on the eardrums at 40-50 mph, which disappears above this, but no draughts inside the car.

In high gear the surprisingly high limit of 106 mph (mean) is reached at the exact peak of the power curve (5,600 rpm), but in the indirects we ran up to about 6,000 rpm for acceleration testing, having found this gave the best results; equivalent speeds are 31 in 1st, 52 in 2nd and 81 in 3rd.

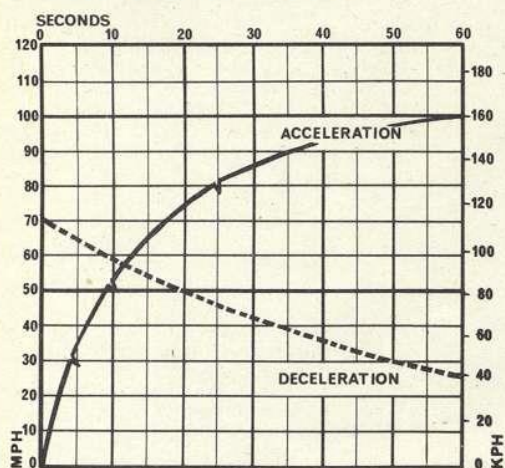
It is when one breaks clear of urban areas that the Peugeot really shows its mettle as, literally, a grand touring car. The performance figures speak for themselves, except to say that they are achieved with little mechanical fuss or effort. On the great new *autoroutes*, which are free of speed limits and rarely as busy as Germany's autobahnen, we were able to cruise the Peugeot for long stretches at around 100 mph. With its comparatively high gearing it has a long stride and simply sweeps along with complete directional stability so that no concentration is needed to hold it on course, quite strong side winds scarcely moving it. Once up in the high 90s one can back off the accelerator to about half-throttle, suggesting a good aerodynamic form. The tank holds just over 12 gallons, enough for a safe 275 miles between refills. There is no low-level warning lamp. No topping-up of the sump was required during the test, a pint restoring the level to normal at the final check. Several times, though, a phenomenon occurred after long runs at sustained high speed; on dropping back to around 70-75 a marked low frequency vibration was transmitted throughout the car, which would disappear after a few miles at reduced speed. Although the tyres did not become more than a little warm to the touch, we could think of no other source of this behaviour.



Above: The forward two induction pipes are curved to clear the distributor; a very large oil-bath air cleaner is used. Below: The side lamps and indicators are shaped to "complete" the composition at the front



PERFORMANCE



MAXIMUM SPEEDS

Gear	mph	kph	rpm
Top (mean)	106	171	5,610
(best)	107	172	5,660
3rd	89	143	6,600
2nd	57	92	6,600
1st	34	55	6,600
Standing 1/4-mile	18.7 sec 73 mph		
Standing kilometre	35.1 sec 91 mph		

MOTORWAY CRUISING

Indicated speed at 70 mph	74 mph
Engine (rpm at 70 mph)	3,700 rpm
(mean piston speed)	1,965ft/min
Passing (50-70)	8.6 sec
Noise (per cent silent at 70 mph)	65 per cent

TIME IN SECONDS

TRUE SPEED MPH	30	40	50	60	70	80	90	100
INDICATED SPEED	32	42	53	63	74	86	97	109

Test distance 1,362 miles.
Mileage recorder 3.2 per cent over-reading.

SPEED RANGE, GEAR RATIOS AND TIME IN SECONDS

mph	Top (3.78)	3rd (5.32)	2nd (8.18)	1st (13.83)
10—30	—	7.9	4.7	3.1
20—40	—	7.5	4.4	—
30—50	11.3	7.5	4.8	—
40—60	10.9	8.2	—	—
50—70	12.2	9.1	—	—
60—80	15.7	10.7	—	—
70—90	20.2	—	—	—
80—100	35.7	—	—	—

CONSUMPTION

FUEL CONSUMPTION

Steady speed fuel consumption figures are not quoted as our test equipment is not compatible with the car's Kugelfischer fuel injection system. The manufacturers are not able to supply their own figures as these have not yet been taken.

Typical mpg	27 (10.5 litres/100km)
Overall mpg	25.3 (11.2 litres/100km)
Grade of fuel	Premium, 4-star (min 97RM)

OIL

Miles per pint (SAE 20W/40) 1,200

HOW THE CAR COMPARES

Maximum speed (mph)

	70	80	90	100
Peugeot 504	✓	✓	✓	✓
Austin 1800 de luxe Mk II	—	—	—	—
Humber Sceptre	—	—	—	—
Triumph 2000	—	—	—	—
Vauxhall Victor 2000	—	—	—	—

0-60 mph (sec)

	30	20
Peugeot 504	✓	✓
Austin 1800 de luxe Mk II	—	—
Humber Sceptre	—	—
Triumph 2000	—	—
Vauxhall Victor 2000	—	—

Standing start 1/4-mile (sec)

	30	20
Peugeot 504	✓	✓
Austin 1800 de luxe Mk II	—	—
Humber Sceptre	—	—
Triumph 2000	—	—
Vauxhall Victor 2000	—	—

MPG OVERALL

	20	30
Peugeot 504	✓	✓
Austin 1800 de luxe Mk II	—	—
Humber Sceptre	—	—
Triumph 2000	—	—
Vauxhall Victor 2000	—	—

PRICES:

Peugeot 504	No UK price announced
Austin 1800 de luxe Mk II	£1,019
Humber Sceptre	£1,285
Triumph 2000	£1,297
Vauxhall Victor 2000	£995

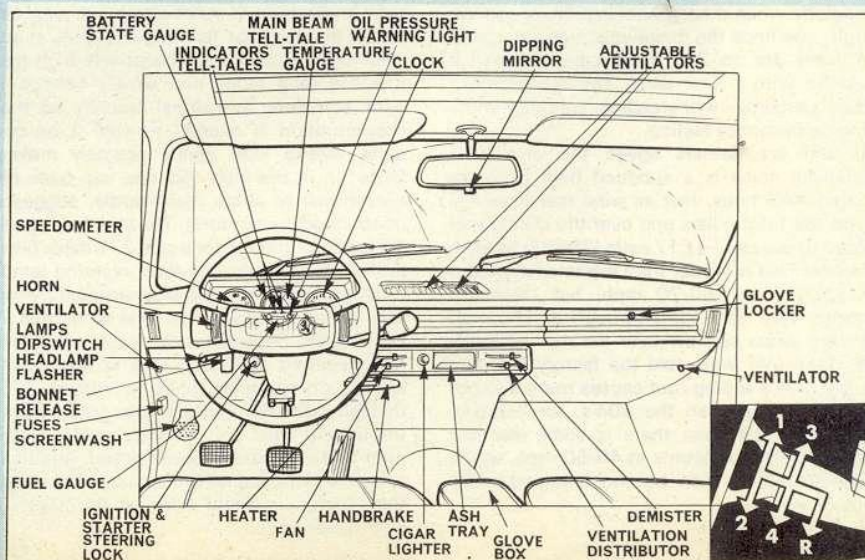
TEST CONDITIONS Weather: Sunny dry. Wind: 0-3 mph. Temperature: 54 deg. C (12 deg. F). Barometer: 29.6in. Hg. Humidity: 50 per cent. Surfaces: Dry concrete and asphalt.

WEIGHT Kerb weight: 23.2cwt (2,600lb—1,180kg) (with oil, water and half-full fuel tank). Distribution, per cent: F, 52.5; R, 47.5. Laden as tested: 27.5cwt (3,086lb—1,420kg).

TURNING CIRCLES

Between kerbs L, 33ft 8in.; R, 33ft 9in.
Between walls L, 35ft 4in.; R, 35ft 6in.
Steering wheel turns, lock to lock 4.5.

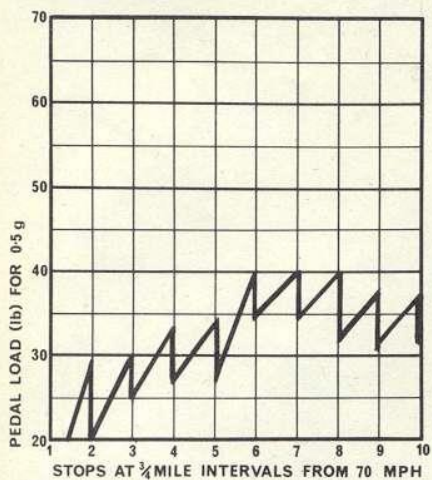
Figures taken at 5,700 by our own staff in France.



Peugeot 504 Injection (1,796 c.c.)

Autotest Number 2218

BRAKES

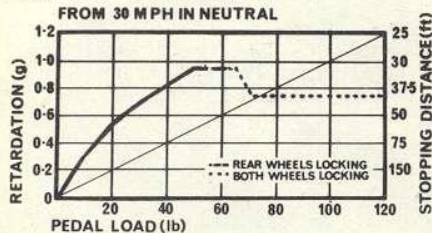


(from 30 mph in neutral)

Load	g	Distance
10lb	0.32	94ft
30lb	0.70	43ft
50lb	0.96	31ft
65lb	0.98	30.7ft
Handbrake	0.36	84ft

Max. Gradient 1-in-3.

Clutch pedal 30lb and 4.2in.



SPECIFICATION

FRONT ENGINE, REAR-WHEEL DRIVE

ENGINE

Cylinders . . . 4, in line
 Main bearings . . . 5
 Cooling system . . . Water; pump, thermostat and clutched fan
 Bore . . . 84mm (3.31in.)
 Stroke . . . 81mm (3.19in.)
 Displacement . . . 1,796 c.c. (109.5 cu. in.)
 Valve gear . . . Overhead; pushrods and rockers
 Compression ratio . . . 8.35-to-1. Min. octane rating: 97 RM
 Fuel injection . . . Kugelfischer (optional)
 Oil filter . . . Purflux full flow, renewable element
 Max. power . . . 97 bhp (net) at 5,600 rpm
 Max. torque . . . 113 lb ft (net) at 3,000 rpm

TRANSMISSION

Clutch . . . Diaphragm spring, 8.46in. dia
 Gearbox . . . Four-speed, all synchromesh, column change
 Gear ratios . . . Top 1.0
 Third 1.41
 Second 2.17
 First 3.67
 Reverse 3.75
 Final drive . . . Hypoid bevel, 3.78-to-1

CHASSIS and BODY

Construction . . . Integral, with steel body

SUSPENSION

Front . . . Independent, MacPherson struts, coil springs, bottom wishbones, anti-roll bar
 Rear . . . Independent, coil springs, trailing arms, telescopic dampers, anti-roll bar

STEERING

Type . . . Rack and pinion
 Wheel dia. . . 16.5in.

BRAKES

Make and type . . . Girling discs front and rear
 Servo . . . Vacuum
 Dimensions . . . F, 10.7in. dia.; R, 10.7in. dia.
 Swept area . . . F, 236 sq.in.; R, 202 sq.in. Total 438 sq. in. (332 sq.in./ton laden)

WHEELS

Type . . . Pressed steel disc, 5in. wide rim
 Tyres—make . . . Dunlop, Kléber-Colombes or Michelin as on test car
 —type . . . XAS radial ply tubed
 —size . . . 175—14

EQUIPMENT

Battery . . . 12 Volt 55 Ah
 Alternator . . . SEV or Paris-Rhone 42-amp a.c.
 Headlamps . . . Marchal tungsten-halogen/tungsten sealed beam, 200/80-watt (total)
 Reversing lamp . . . Standard
 Electric fuses . . . 5
 Screen wipers . . . Two-speed, self-parking
 Screen washer . . . Standard, electric
 Interior heater . . . Standard, air-blending type
 Heated backlight . . . No provision
 Safety belts . . . Extra, anchorages built-in
 Interior trim . . . Cloth seats, pvc headlining
 Floor covering . . . Carpet
 Starting handle . . . No provision
 Jack . . . Screw scissors
 Jacking points . . . 4, each side under sills front and rear
 Windscreens . . . Zone toughened or laminated
 Underbody protection . . . Rust-proofing treatment under paint

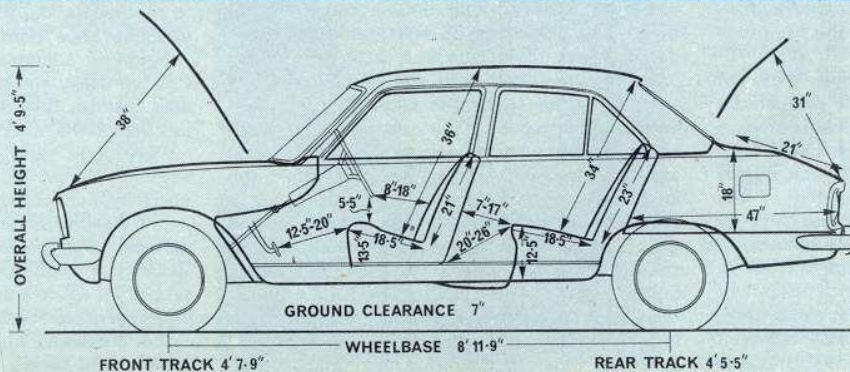
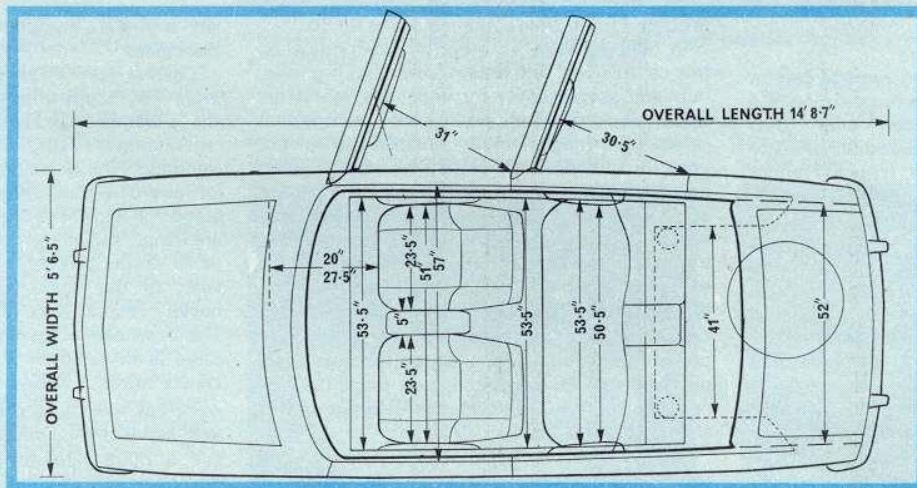
MAINTENANCE

Fuel tank . . . 12.3 Imp. gallons (no reserve) (56 litres)
 Cooling system . . . 14 pints (including heater)
 Engine sump . . . 7 pints (4 litres) SAE20W/30 or 40. Change oil every 3,000 miles. Change filter/element every 6,000 miles.
 Gearbox . . . 6 pints SAE 20W/30 or 40. Change oil every 6,000 miles.
 Final drive . . . 2.1 pints SAE 90EP. Change oil every 9,000 miles.
 Grease . . . 6 points every 3,000 miles
 Tyre pressures . . . F, 21; R, 26 psi (normal driving)
 Max. payload . . . 1,058 lb (480 kg)

PERFORMANCE DATA

Top gear mph per 1,000 rpm . . . 18.9
 Mean piston speed at max. power . . . 2,980 ft/min
 BHP per ton laden . . . 67.2

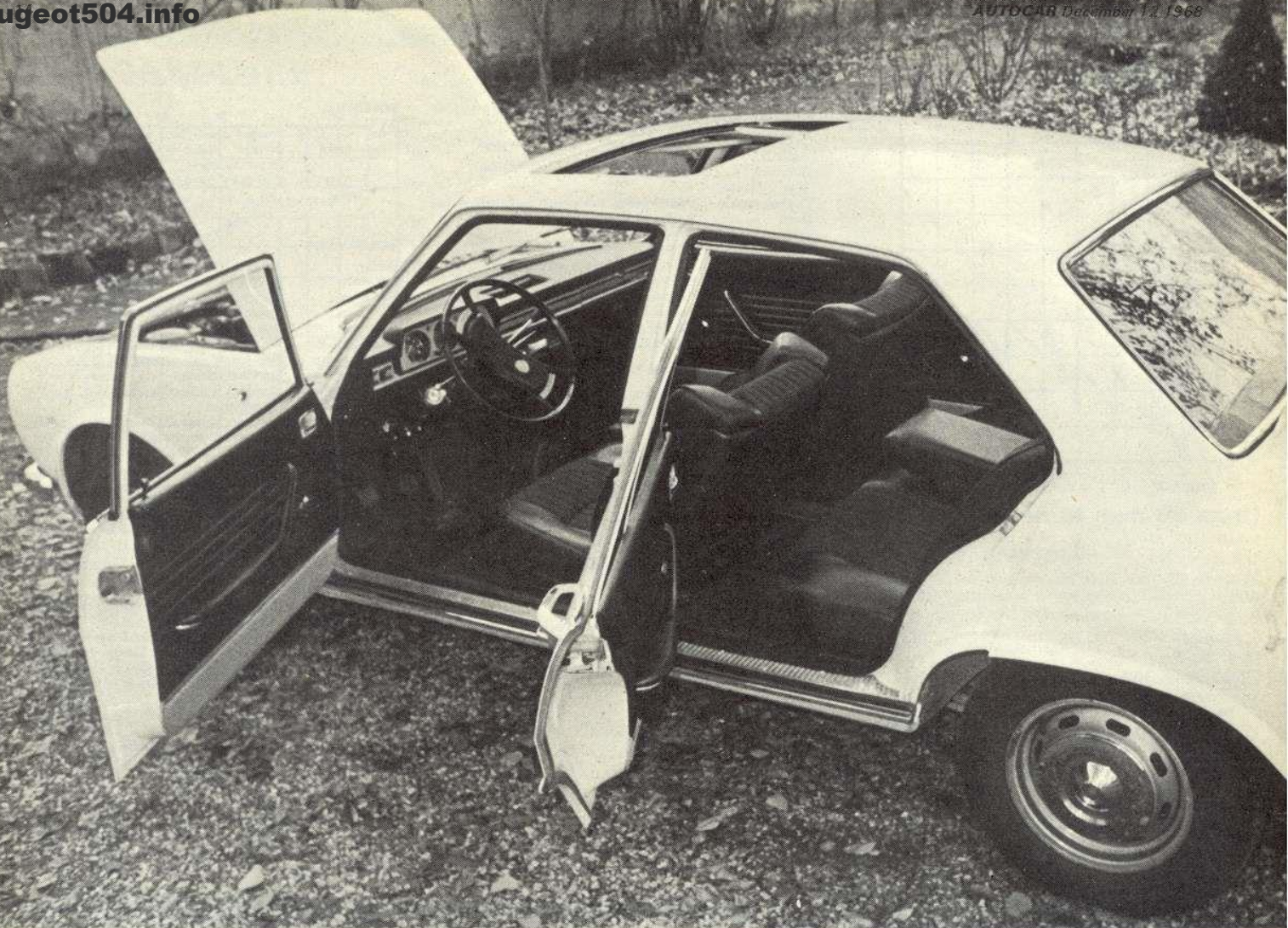
STANDARD GARAGE 16ft x 8ft 6in.



SCALE

0.3in. to 1ft

Cushions uncompressed



The Peugeot undone. Door openings give easy access to the very comfortable and roomy interior, which is one of the reasons why the 504 is such a superlatively excellent fast family touring car

PEUGEOT 504 ...

Off the autoroutes, too, high average can be maintained thanks to the car's outstanding ride and handling abilities. Not once in over 1,360 miles were the occupants unseated or seriously disturbed, while the stability on (typical French) steeply cambered roads with collapsed foundations merits very strong praise. Although truly supple, the suspension is so damped that no 'float' occurs even when abrupt humps or dips are taken fast, and the seats—front and rear—are 'dead' and bounce-free. All the seats backs are shaped to hold their occupants unobtrusively in place when the car is being cornered fast. It took heavy-handed driving to get a squeal out of the tyres. Their behaviour in the rain was likewise exemplary, and the fore-and-aft balance of the car in such conditions allows considerable liberties to be taken without coming unstuck. The steering characteristics are ordinarily neutral; but as the limit is approached it is the front that begins to go first.

Peugeot aficionados may regret that the steering ratio has been lowered by comparison with the 404's $4\frac{1}{2}$ turns of the big wheel between locks, giving turning circles a little under 34ft diameter between kerbs. Presumably this was to make it light enough for manoeuvring at low speeds on the rather fat tyres but one certainly has to work a bit harder through a succession of sharp bends, and in this respect the 504 is inferior to, say, the NSU Ro 80 which has power assistance and quicker gearing. Both test drivers, incidentally, remarked on the affinity between the 504's general feel and reactions to those of

the better front-drive cars such as the Ro 80.

In keeping with its other dynamic qualities, this car has very fine brakes, retarding it powerfully and progressively for unusually light pedal loads; working them hard between the frequent lacets of a longish mountain descent did not unsettle their stability or reduce their stopping power noticeably. A Bendix hydraulic compensator, linked to the rear suspension and sensitive to static loading and dynamic weight transference during braking, ultimately allowed the rear wheels to lock when the stopping figures were being taken. It is adjustable, and presumably could have been reset to improve on the excellent 0.98g figure obtained. An umbrella-handle parking brake held the car securely on 1-in-3, and the car restarted on this slope without difficulty.

Behind each of the fuel injection 504's trapezoidal headlamp glasses are two reflectors, one with a 45/40-watt double filament bulb, the other a long-range 55-watt iodine type. Sudden changes in wattage from 200 to 80 when 'dipping' combined with the sharp cut-off of the yellow dipped beams made for tiring and erratic progress at night, especially on long straight roads when there was nearly always an approaching vehicle in the distance. While the long-range lamps are superb on a clear night, in misty conditions a ready means of extinguishing the iodine bulbs would sometimes help. Imported 504s will surely have white double-filament bulbs with greater penetration. Automatic reversing lamps are standard, and the boot interior is also lit automatically when the lid is raised. Dashboard lighting has variable inten-

sity, and there are interior lamps on each centre door pillar.

Leather trim is an expensive extra, but we were very happy with the velour cloth and synthetic leather (very like the real stuff) seat covering, finding the seats extremely restful for all-day motoring. The backrests have a fine adjustment for rake—as well as laying horizontal for sleeping purposes—and there are built-in headrests which are simply pulled upwards to the desired height, or as simply pushed down. While one may not wish to use them, they might save broken necks if the car were rammed hard from behind. The back seat is ideally contoured for two, but there is plenty of room for a third with the wide centre armrest folded back. Passengers in the back are almost as comfortably seated and as well served by the suspension as those in front, still a quite rare attribute these days. A tall driver (over 6ft) might like a bit more leg stretch to the pedals, but this would prejudice the very adequate knee room behind.

Fingertip adjusters for regulating the reflectors, vertically and horizontally, are a commendable feature; they are found under the bonnet just behind the reflectors.

Very good visibility all round is assured by large windows and a deep screen with not-specially thin pillars, and the low bonnet falls away steeply to give one a view of the road surface only 10ft or so ahead of the bumper. Both front door windows would not seal again properly if opened at even a quite modest speed. The rear-view mirror, with dipping reflector, is rather small and supplementary external mirrors are certainly needed in Paris. The 2-speed wipers



Headrests are built into the front seat backs, forming a neat and integral part of each seat when not wanted



Rubber-faced over-riders are another sensible and practical feature. Wheel trims are held by a centre bolt and not clipped on as on other cars

continue to operate efficiently at top speed, but park rather high from the base of the screen. A large pedal sets the screenwashers and wipers going simultaneously, and the wipers can be kept moving after the spray has ceased: full marks for this. There are three round instrument dials, with raised white figures on black faces: speedometer with total and journey distance recorders, voltmeter, water temperature and fuel gauges combined, and transistor clock with second sweep. Warning lamps include one for loss of brake fluid or excessive pad wear at any wheel. A common fresh-air inlet just ahead of the screen feeds a divided system enabling a proportion of the flow to by-pass the heater element and be directed to adjustable outlets in the padded coaming above the dash. As these are progressively opened, so the volume that can be passed through the heater is reduced. The heater includes a thermostatic valve so that the desired 'room' temperature can be maintained regardless of car speed, and the booster fan has a rheostat.

Additional independent cold air feeds discharge below the fascia at each side. There is no ducting, though, to the rear compartment. Extractor slots inside the rear quarter panels are intended also to keep the rear window demisted by drawing air over it, but we did not have weather conditions that would prove their worth. The system seems to work very well overall, since no fiddling with the levers was needed once they had been set correctly, and fumes of garlic and Gauloises were quickly dissipated.

While the universal lighting lever, moving in a U-form behind the wheel, is otherwise very

The sunshine roof is a cheap extra well worth having especially in mountainous country, though it generates a little wind noise at speed



The rampant Lion of Belfont is still to be seen on the grille



convenient, it is at '8 o'clock' whereas the driver's left hand is usually at '10 o'clock' and thus he has to fumble for it when wanting to dip or vice versa. It can be tricky to find quickly, too, when one has to deal with a succession of tight, blind hairpin bends.

As for maintenance, there will surely be some owners with experience of so-called 'lubricated for life' components who will welcome having a few steering joints to grease every few thousand miles. The standard of paint finish and quality of the 504's mechanical parts as well as its body fittings look fine. We place it among Europe's finest touring cars. □