

AUTOTEST

VOLVO 164 AUTOMATIC (2,978 c.c.)

AT-A-GLANCE: Spacious saloon, powered by exceptionally smooth six-cylinder engine. Good performance, with average economy. Ride could be better. "Slow" steering, but adequate handling. Lavishly equipped, soundly constructed and very well finished.

MANUFACTURER

AB Volvo, 405 08 Goteborg, Sweden.

UK CONCESSIONAIRES

Volvo Concessionaires Ltd, Raeburn Road, Ipswich, Suffolk.

PRICES

Basic£1,692 0s 0d (£1,692.00)
Purchase Tax ... £519 5s 10d (£519.29)
Seat belts Fitted as standard
Total (in G.B.) ..£2,211 5s 10d (£2,211.29)

(Standard specification includes power steering, sliding roof, laminated windscreen, tinted glass, leather upholstery and built-in foglamps.)

PRICE AS TESTED £2,211 5s 10d
(£2,211.29)

PERFORMANCE SUMMARY

Mean maximum speed 107 mph
Standing start ¼-mile 19.0 sec
0-60 mph 12.8 sec
30-70 mph through gears 12.3 sec
Typical fuel consumption 19 mpg
Miles per tankfull 240

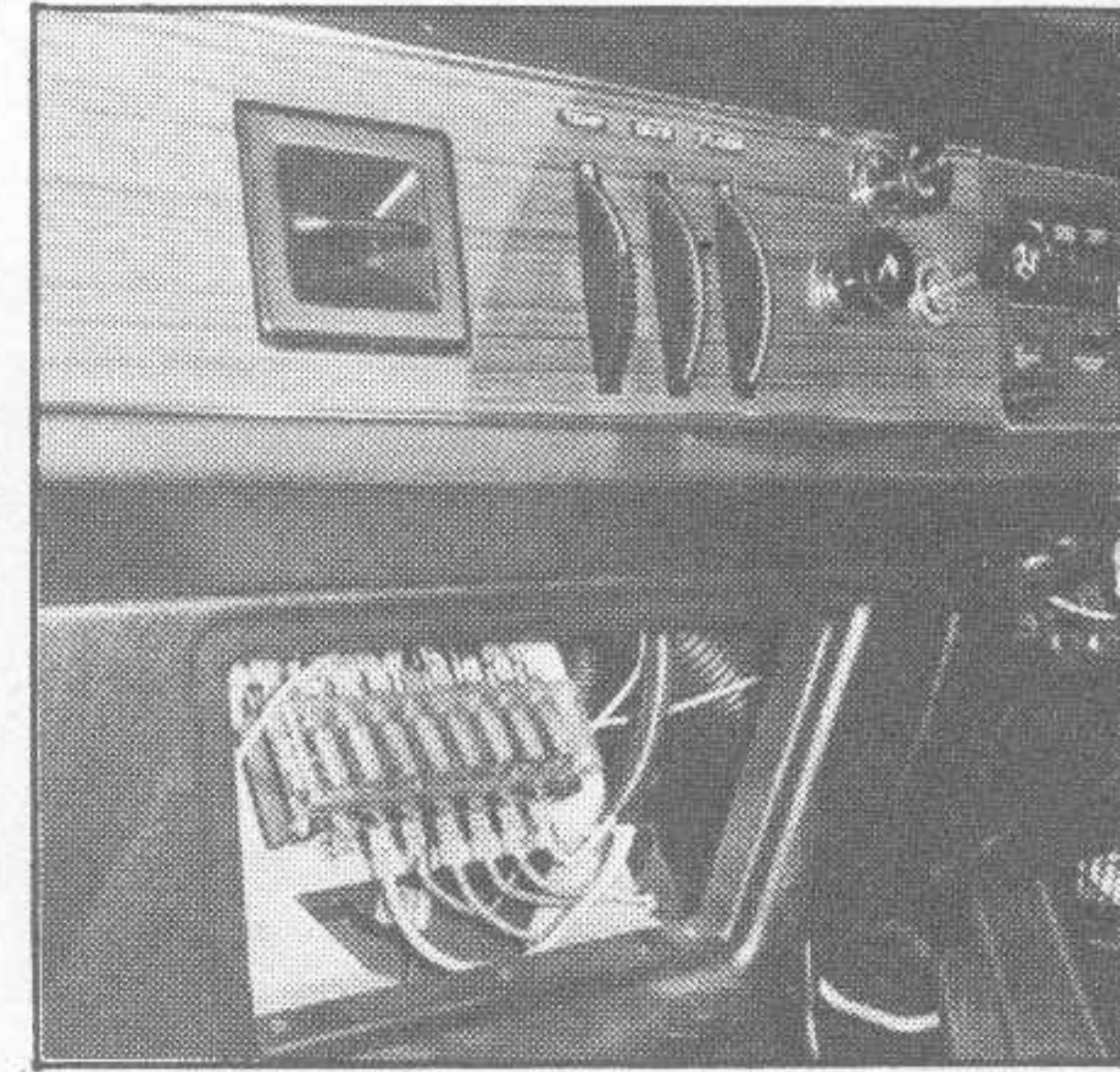
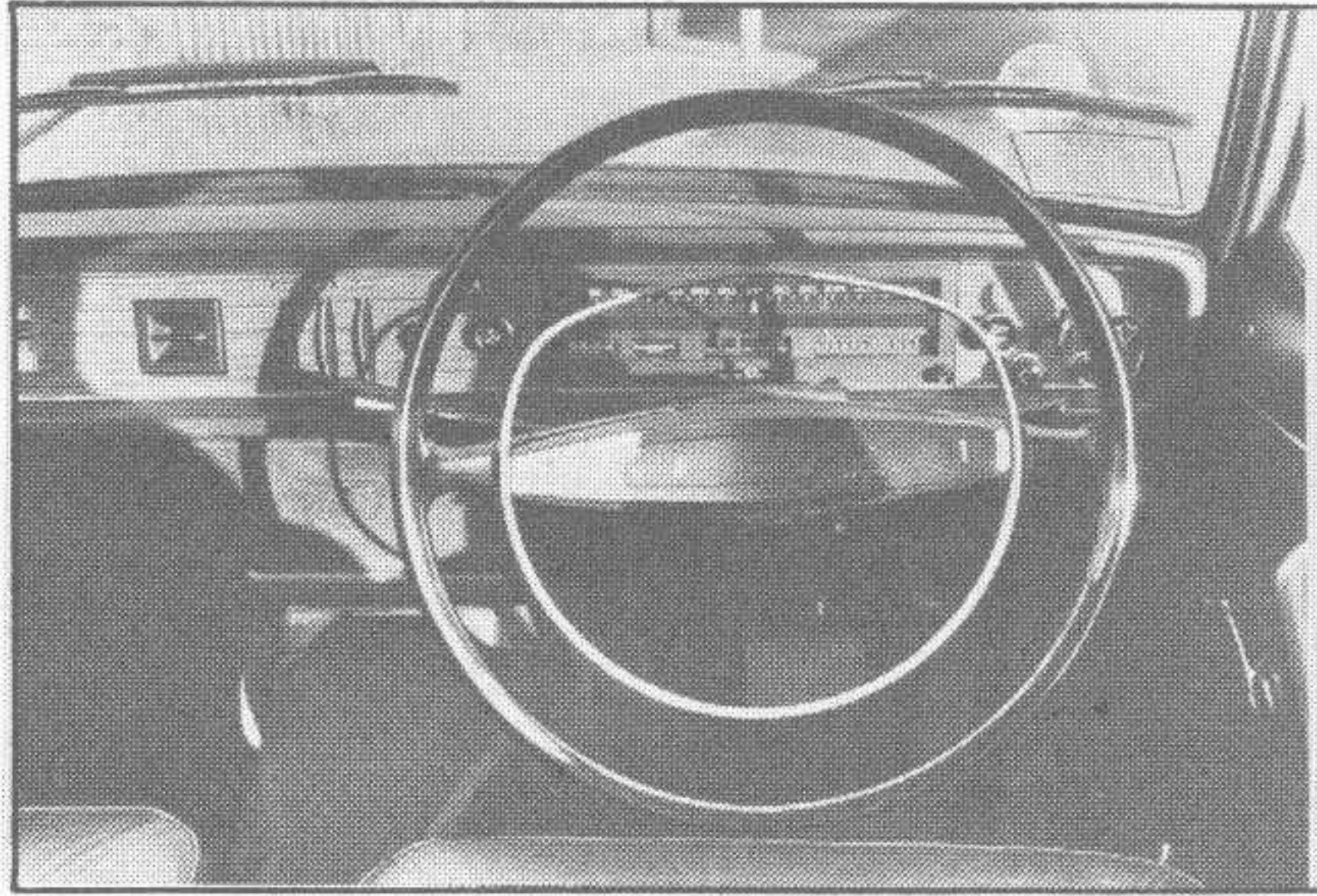
THE 164, Volvo's first post-war six, made its debut in August 1968. Although not available in Britain until early 1969, it has already become a familiar sight on British roads.

Bodily, it closely resembles the smaller Volvo models. Main identification point is the distinctive grille, which bears the diagonal Volvo emblem of pre-war years.

Less apparent is the lengthening of the wheelbase and front end. Overall length is up by 2.6in. At 15ft 5.6in., the 164 just scrapes into the same Channel-ferry category as its four-cylinder stablemates. The wheelbase has been lengthened by 3.8in., a change which helps to counteract the effect of the heavier engine. Our figures show that the front wheels support 54.3 per cent of the kerb weight, a distribution comparable with that of other cars in this class.

Volvo's six-cylinder B30 engine has the same 88.9 x 80mm bore and stroke as the fours, giving a capacity of 2,978 c.c. It breathes through a pair of Zenith-Stromberg carburettors and develops 130 bhp (DIN) at 5,000 rpm—a degree of tune about mid-way between the single-Stromberg (B20A) and twin-SU (B20B) versions of the four-cylinder unit.

Three versions of the 164 are being imported into Britain. Least expensive is the basic manual-transmission model, selling at £1,963. With overdrive and power steering—available only as a package in Britain—the price goes up to £2,129. Topping the list is the



Top: From the windscreen back, the 164 is basically the same as the 144 and 144S. Our test model came without the usual smart, but rather vulnerable wheel-trims.

Centre, left: Instrumentation is confined to a speedometer (with push-button trip reset), a fuel gauge and a temperature indicator. Note the somewhat fussy minor-control layout.

Centre, right: Fuses are housed behind a snap-on cover on the fascia. The heater controls are neat.

Bottom: There is plenty of legroom and the wide-opening doors make getting in and out a simple matter. There are useful net-pockets on the backs of the front seats. Substantial head-restraints, with built-in fixings, are provided.

automatic-transmission model, which comes complete with power steering and a sliding-roof. This is priced at £2,211.

Performance

Belying its somewhat stolid appearance, the 164 is not a heavy car. Its 2,990lb kerb weight compares favourably with that of its competitors, examples being Austin 3-litre (3,369lb), Ford Executive (3,054lb), Rover 3.5-litre (3,514lb) and Vauxhall Viscount (3,070lb). As a consequence, it accelerates deceptively well.

Step-off is average, 0-30 mph taking 5.0sec. Yet, despite adverse weather conditions (20-25 mph winds), the 0-60 mph time is a creditable 12.8sec. This comfortably beats the Ford Executive (13.1sec), Austin 3-litre (14.8sec) and Vauxhall Viscount (15.9sec). Even the Rover 3.5-litre is only slightly faster (12.4sec). The 0-80 mph times show the same pattern, the Volvo taking 23.0sec, the Rover 21.8sec, the Ford 26.1sec, the Austin 28.7sec and the Vauxhall 32.1sec.

As kick-down changes into intermediate are possible at speeds below 60 mph, the 164 has useful overtaking capabilities. Its 50-70 time of 7.7sec is appreciably better than that of the 144S tested during the early part of last year (9.0sec). It also beats the Ford Executive (8.7sec), Austin 3-litre (9.3sec) and Viscount (10.9sec) and is only just pipped by the Rover 3.5-litre (7.4sec).

Despite the inclement weather, a mean maximum of 107 mph was recorded. Travelling down wind, the speed was no less than 113 mph. Incidentally, although spot-on at 60 and 70 mph, the speedometer then indicated a pessimistic 110 mph.

In addition to the usual test activities, the Volvo also served to transport four people and luggage to Geneva. On the French autoroutes, the speedometer seldom showed less than 90 mph, at which speed the Volvo is perfectly happy. Even at 100 mph, it seems quite unperturbed.

Petrol consumption during the 2,000-mile test period averaged 17.9 mpg—this despite the hard driving to which the car was subjected much of the time. Spells of gentler usage did not show an appreciable improvement in economy and we doubt whether the average owner would better 20 mpg—an acceptable figure for a car of this kind, we hasten to add. Assuming a consumption of around the DIN (calculated) figure of 18.7 mpg, the 12.7 gal tank gives a useful range of around 200 miles. Incidentally, when the fuel gauge shows "empty", it means just that!

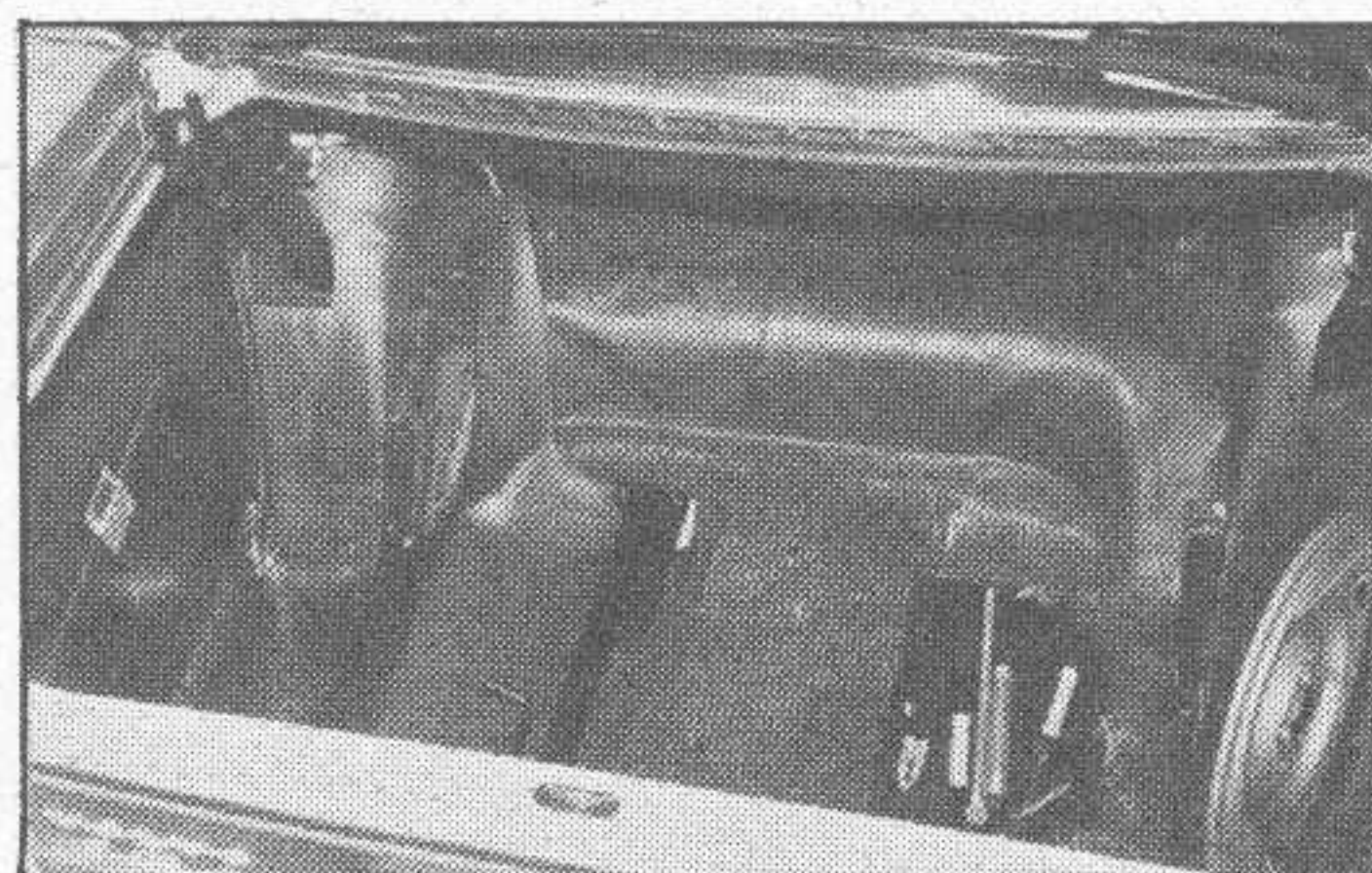
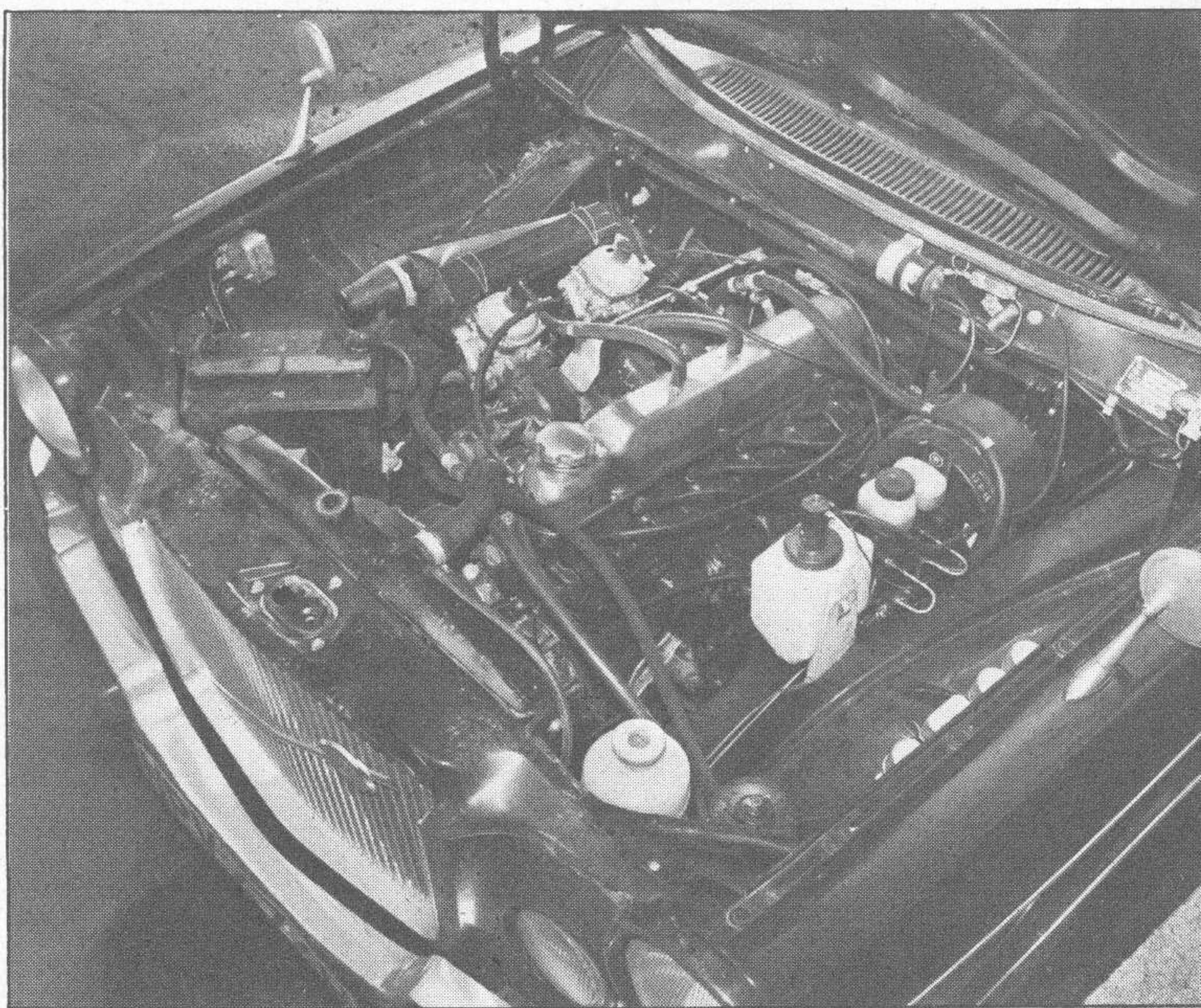
A bad oil leak—the result of an improperly fitted timing-cover gasket—resulted in an oil consumption of 220 miles per pint. Clearly, the normal consumption is substantially better than this.

Engine and transmission

The B30 is the quietest and most refined six we have sampled for some time. Apart from the merest trace of piston slap when cold, it is remarkably quiet mechanically. Even when the engine is working hard, there is only a trace of intake noise. A viscous coupling renders the asymmetric, five-bladed fan quite inaudible, even at maximum revs. The exhaust system, too, is quite devoid of noise and vibration problems.

Just as impressive is the engine's uncanny smoothness throughout its working range. Even at 6,000 rpm—just 100 rpm below valve-bounce speed—it shows no signs of distress.

Sadly, this very refinement can all too easily produce an impression of sluggishness. Only when its performance is objectively compared

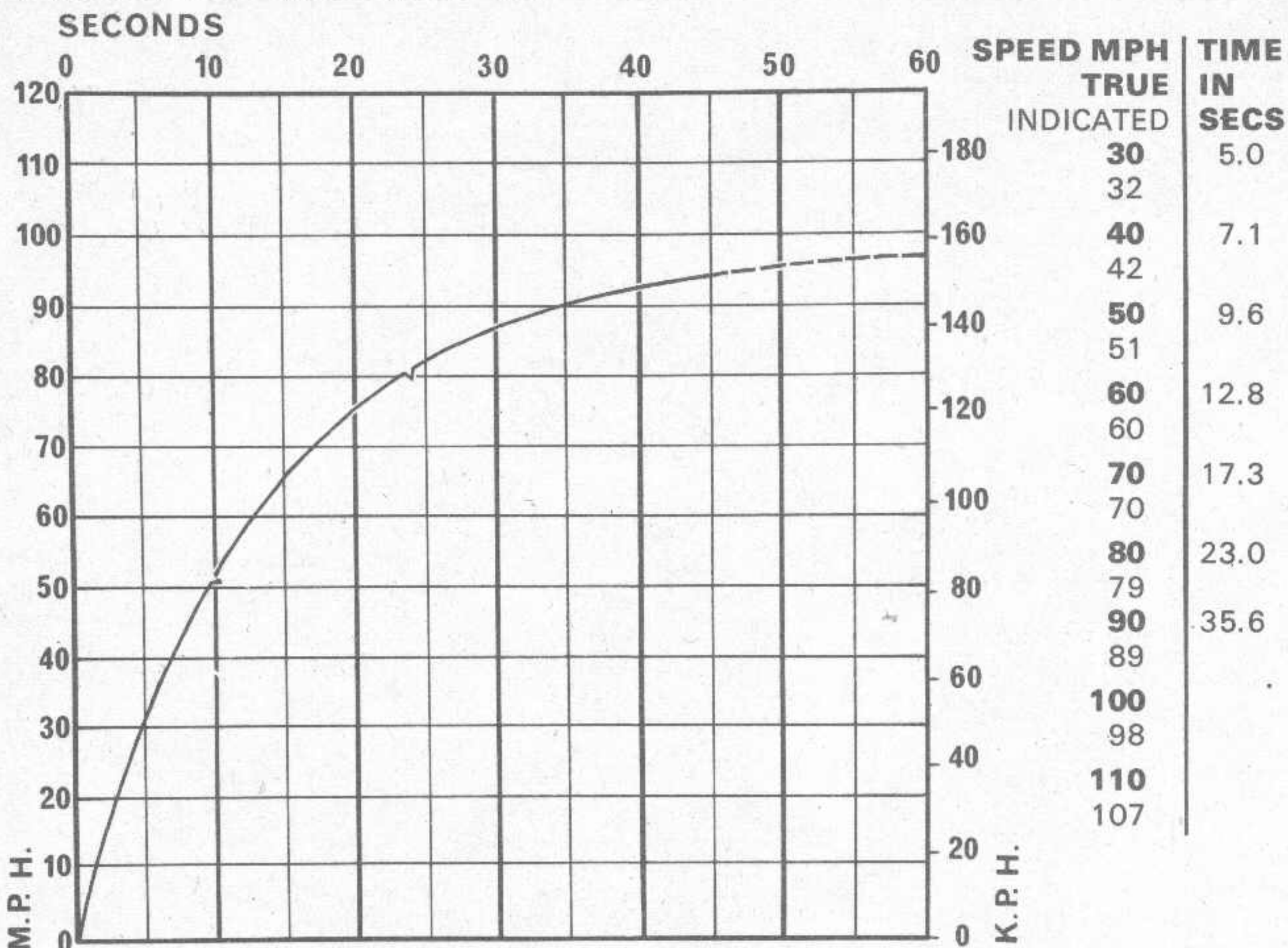


Top: Mud-flaps are standard equipment on the 164, as is the heated rear window. This shows the air extraction vents at the base of the rear window and the rubber facing on the bumper

Centre: Engine accessibility is good although the dip-stick is hidden below the ignition leads. There is a substantial cross-shaft from the pedal to the direct-acting brake servo

Bottom: The boot is very spacious but has a deep sill. The spare wheel lives on the right (shown here without its retaining strap) and the tools under the floor on the left

ACCELERATION



SPEED RANGE, GEAR RATIOS AND TIME IN SECONDS

mph	Top (3.31-6.62)	2nd (4.80-9.60)	1st (7.91-15.82)
0-20	—	—	3.2
10-30	—	—	3.8
20-40	—	—	4.0
30-50	—	6.9	4.4
40-60	—	7.4	—
50-70	—	8.3	—
60-80	—	10.3	—
70-90	20.4	19.4	—

Standing 1/4-mile
19.0 sec 73 mph

Standing kilometre
34.7 sec 90 mph

Test distance
2,120 miles

Mileage recorder
1.8 per cent under-reading

PERFORMANCE

MAXIMUM SPEEDS

Gear	mph	kph	rpm
Top (mean)	107	172	4,890
(best)	113	182	5,160
Inter	92	148	6,100
Low	56	90	6,100

BRAKES

(from 70 mph in neutral)

Pedal load for 0.5g stops in lb

Load	Distance
1 30-20	6 30-50
2 30-20	7 30-60
3 30-20	8 30-70
4 30-40	9 20-50
5 30-40	10 25-55

RESPONSE (from 30 mph in neutral)

Load	g	Distance
20lb	0.33	91ft
40lb	0.58	52ft
60lb	0.86	35ft
80lb	1.02	29.5ft
Handbrake	0.27	111ft

Max. Gradient 1 in 6

MOTORWAY CRUISING

Indicated speed at 70 mph 70mph
 Engine (rpm at 70 mph) 3,200 rpm
 (mean piston speed) 1,680ft/min.
 Fuel (mpg at 70 mph) 20.5mpg
 Passing (50-70 mph) 7.7 sec

COMPARISONS

MAXIMUM SPEED MPH

Rover 3.5-litre (£2,343)	108
Volvo 164 (£2,211)	107
Ford executive (£1,846)	100
Austin 3-litre (£1,745)	99
Vauxhall Viscount (£1,719)	97

0-60 MPH, SEC

Rover 3.5-litre	12.4
Volvo 164	12.8
Ford Executive	13.1
Austin 3-litre	14.8
Vauxhall Viscount	15.9

STANDING 1/4-MILE, SEC

Rover 3.5-litre	18.3
Ford Executive	18.6
Volvo 164	19.0
Austin 3-litre	20.3
Vauxhall Viscount	20.5

OVERALL MPG

Rover 3.5-litre	19.2
Volvo 164	17.9
Ford Executive	17.2
Austin 3-litre	14.9
Vauxhall Viscount	14.3

GEARING (with 165-15in. tyres)

Top	21.9 mph per 1,000 rpm
Inter	15.1 mph per 1,000 rpm
Low	9.2 mph per 1,000 rpm

TEST CONDITIONS:

Weather: Dry, but stormy. Wind: 20-25 mph. Temperature: 10 deg. C. (50 deg. F). Barometer 29.54 in. hg. Humidity: 60 per cent. Surfaces: Dry concrete and asphalt.

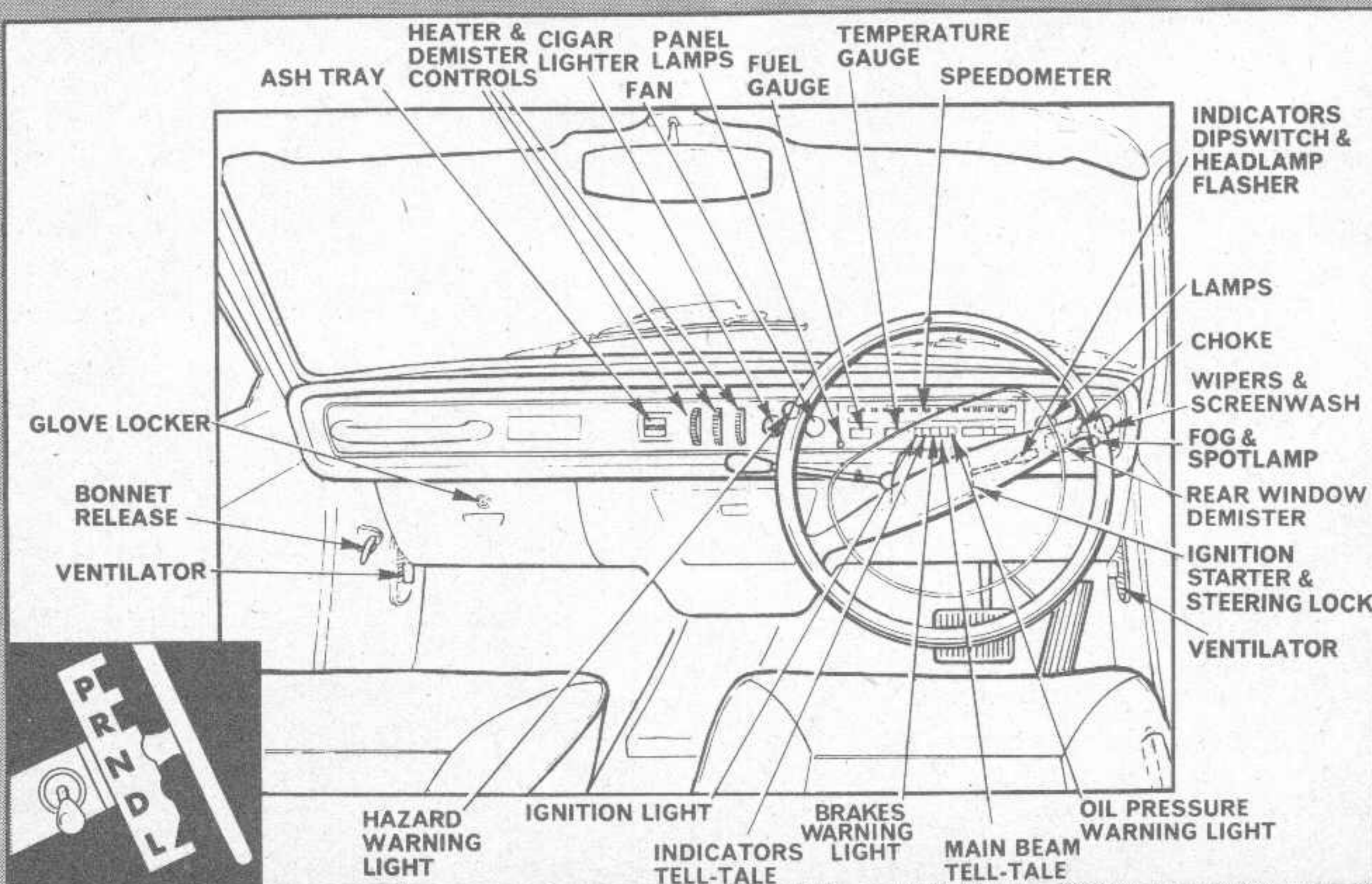
WEIGHT:

Kerb weight: 26.7 cwt (2,990lb-1,357kg) (with oil, water and half full fuel tank). Distribution, per cent F, 54.3; R, 45.7. Laden as tested: 30.8 cwt (3,448lb-1,565kg).

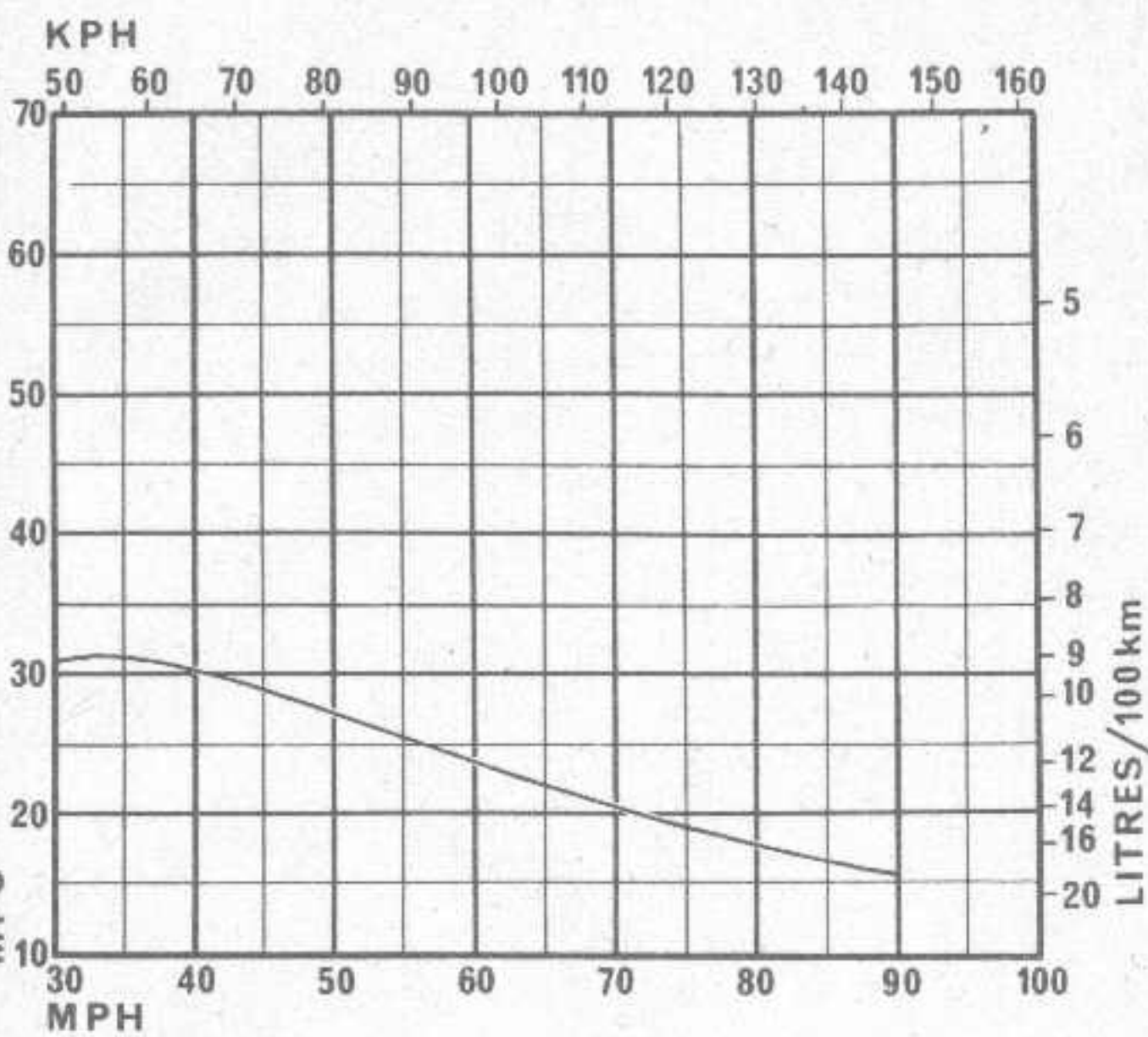
TURNING CIRCLES:

Between kerbs L, 31ft 2in.; R, 31ft 3in. Between walls L, 33ft 6in.; R, 33ft 7in. Steering wheel turns, lock to lock, 4.0.

Figures taken at 7,100 miles by our own staff at the Motor Industry Research Association proving ground at Nuneaton and on the Continent.



CONSUMPTION



FUEL (At constant speeds—mpg)

30 mph	30.8
40 mph	30.1
50 mph	27.2
60 mph	23.7
70 mph	20.5
80 mph	17.7
90 mph	15.6

Typical mpg 19 (14.9 litres/100km)
 Calculated (DIN) mpg 18.7 (15.1 litres/100km)
 Overall mpg 17.9 (15.8 litres/100km)
 Grade of fuel . . Premium, 4-star (min. 97 RM)

OIL
 Miles per pint (SAE 10W/30) 220*
 *Adversely affected by leaking timing cover gasket

SPECIFICATION

FRONT ENGINE, REAR-WHEEL DRIVE

ENGINE
 Cylinders 6, in line
 Main bearings 7
 Cooling system Water; pump, fan and thermostat
 Bore 88.9mm (3.50 in.)
 Stroke 80.0mm (3.15 in.)
 Displacement 2,978cc (182 cu.in.)
 Valve gear Overhead; pushrods and rockers
 Compression ratio 9.2 to 1. Min. octane rating 97RM
 Carburettor Zenith-Stromberg 175 CD 2SE
 Fuel pump Mechanical
 Oil filter Full flow
 Max. power 130 bhp (net) at 5,000 rpm
 Max. torque 152 lb.ft (net) at 2,500 rpm

TRANSMISSION
 Gearbox Borg-Warner Type 35 3-speed automatic with torque converter
 Gear ratios Top 1.0—2.0
 Inter 1.45—2.90
 Low 2.39—4.78
 Reverse 2.09—4.18
 Final drive Hypoid bevel, ratio 3.31 to 1

CHASSIS and BODY
 Construction Integral, with steel body

SUSPENSION
 Front Independent, double wishbones, coil springs, telescopic dampers, anti-roll bar
 Rear Live axle, trailing links, radius rods, coil springs, telescopic dampers

STEERING
 Type Power-assisted recirculating ball
 Wheel dia. 16.5 in.

BRAKES
 Make and type Girling, discs front and rear
 Servo Girling vacuum servo
 Dimensions F 10.7 in. dia., R 11.6 in. dia.
 Swept area F 212 sq.in., R 198 sq.in. Total 410 sq.in. (267 sq.in./ton laden)

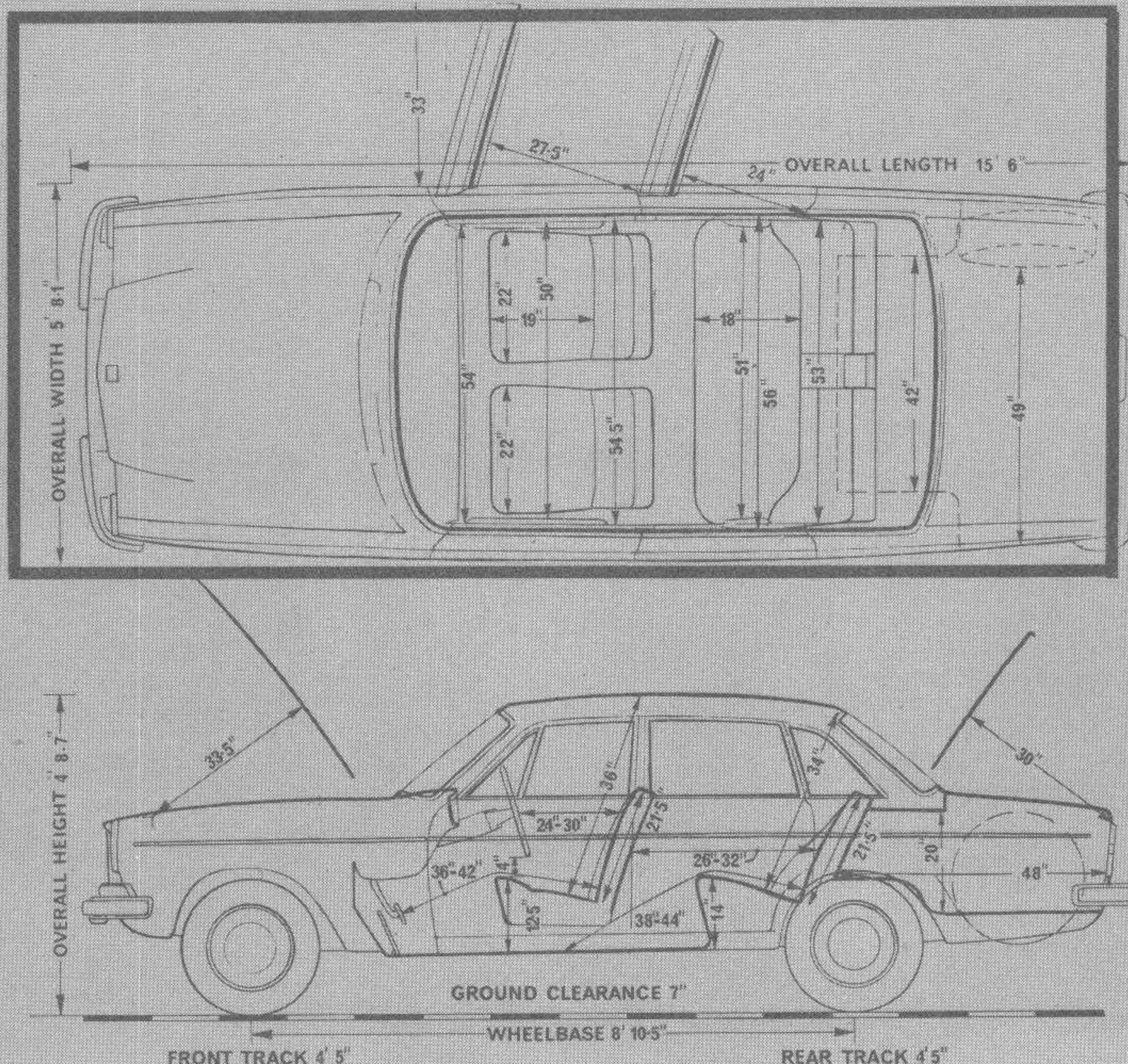
WHEELS
 Type Pressed steel disc, 5-stud fixing, 4.5 in. wide rim
 Tyres—make Pirelli
 —type Cinturato radial ply tubeless
 —size 165-15 in.

EQUIPMENT
 Battery 12 volt 60 Ah
 Alternator Bosch 55 amp a.c.
 Headlamps Bosch 90/80 watt (total)
 Reversing lamp Standard
 Electric fuses 9
 Screen wipers Two-speed
 Screen washer Standard, electric
 Interior heater Standard, water-valve type
 Heated backlight Standard
 Safety belts Standard, inertia-reel
 Interior trim Leather seats, PVC headlining
 Floor covering Carpet
 Jack Screw pillar type
 Jacking points 2 each side under sills
 Windscreen Laminated
 Underbody protection Galvanized bottom rails before painting; underseal elsewhere

MAINTENANCE
 Fuel tank 12.7 Imp. gallons (58 litres)
 Cooling system 23 pints (including heater)
 Engine sump 10.6 pints (6.0 litres) SAE 10W/30. Change oil every 6,000 miles. Change filter element every 6,000 miles
 Gearbox 14.4 pints ATF. Check every 6,000 miles
 Final drive 2.8 pints SAE 90EP. Check every 6,000 miles
 Grease No points
 Tyre pressures F 21; R 26 psi (normal driving)
 F 26; R 30 psi (fast driving)
 F 26; R 30 psi (full load)
 Max. payload 1,056lb (478kg)

PERFORMANCE DATA
 Top gear mph per 1,000 rpm 21.9
 Mean piston speed at max. power 2,330 ft/min
 Bhp per ton 84.5 net

STANDARD GARAGE 16ft x 8ft 6in.



SCALE 0.3in. to 1ft
 Cushions uncompressed

AUTOTEST VOLVO 164 AUTOMATIC . . .

with that of similar cars is the 164's potential fully appreciated.

Transmission is Borg-Warner type 35, its column-mounted selector lever having a PRNDL pattern. Strangely, the facia-mounted indicator and the selector lever move in opposite directions.

When the transmission is left to its own devices (selector lever in "D"), full-throttle change-ups take place at 41 and 74 mph. Slightly better acceleration is possible if "lock-up" is employed to delay the changes to just above 50 and 80 mph, equivalent to around 5,500 rpm. Unfortunately, the selector lever is not a pleasant one to use in this fashion. It is too far from the steering-wheel rim and has a rather stiff action, making it all too easy to overshoot into neutral when "unlocking".

Up to 60 mph, kick-down changes into intermediate are possible. Similarly, a kick-down change into low can be made below 27 mph. At lower speeds, part-throttle down-changes also occur, a feature which rendered the measurement of acceleration impracticable below 70 mph in top and 30 mph in intermediate. Incidentally, a point which tends to accentuate the impression of sluggishness is the heaviness of the throttle.

Although gear-change quality is usually good, it has a tendency to deteriorate during the course of a lengthy run. Even so, a really harsh change is a very rare occurrence.

Apart from a whine in low gear, the test car's transmission was unusually quiet. The car was also free from the heterodyne booming so often encountered in automatic-transmission cars.

Ride-Handling and Brakes

Initial ride impressions were formed while driving one-up over good roads. Although the rear end sometimes feels a trifle "nobbly", there is little to criticize under these conditions.

With a normal complement of passengers aboard, the ride over good roads is noticeably firmer, especially at low speeds. Much of this nobbliness disappears at higher speeds, the ride then becoming quite acceptable. Yet, fast undulating roads can cause an uncomfortable amount of rear-end float.

The Volvo copes remarkably well with abnormally rough surfaces. There is no evidence of bottoming and the ride remains remarkably level. The whole car, in fact, feels reassuringly robust and taut.

Power steering is included in the specification of automatic and overdrive cars. This is higher-g geared than the non-power variety and requires four turns of the wheel from lock to lock. In view of the compact turning circle (just over 31ft between kerbs), this is by no means excessive. Yet, the steering feels very low-g geared and response is sluggish. Because of this, an unfamiliar driver can form the opinion that the Volvo understeers excessively. This is not the case—understeer remains quite moderate and all four wheels can be made to slide simultaneously when a slippery corner is tackled with sufficient exuberance. There is a fair amount of body roll, but this in no way affects controllability. Once one learns the technique of applying sufficient lock at an early enough stage, the 164 can be hustled along winding roads surprisingly quickly.

Straight-line stability is excellent. Despite the "slow" steering, motorway driving in gusty conditions presents no problems.

A dual-line, all-disc braking system is employed. This is arranged so that each hydraulic system actuates both front brakes, plus one of the rears. A direct-acting vacuum servo is used. Miniature drums, formed in the naves of the rear discs, are used for the handbrake system.

Brake response is pleasant and the effort required low. Only 60lb is necessary to produce a deceleration of 0.86g. A highly creditable 1.02g required only 80lb. Even on public roads, with their lower friction coefficients, 1.0g could sometimes be attained.

Although no misbehaviour of any kind was experienced on the road, our MIRA testing revealed a tendency to fade during hard usage. During the first three stops, there was a build-up of efficiency. Thereafter, fade was experienced during the course of each stop. Recovery was complete after each of the first eight stops. Over-recovery took place after the ninth and tenth. Considerable wire-brushing and the pungent smell of charred lining were noted from the seventh stop onwards.

The handbrake proved capable of a 0.27g deceleration from 30 mph, but it could only just hold the car on a 1 in 6 gradient. With automatic transmission, this is of little consequence. A parking pawl is provided and restarting, even on a gradient of 1 in 3, presents no problems.

Noise

Road noise generally is better than average, but considerable bump-thumping is apparent at low speeds. This is associated with the nobbliness of the ride and is accentuated by the unusually low level of mechanical noise.

The right-hand front quarter vent was a poor fit on the test car, the resultant whistle spoiling an otherwise acceptable wind noise level.

Comfort and Convenience

The 164 is a deceptively spacious car. Legroom is generous and the boot quite enormous.

The seats are upholstered in leather. This looks and smells delightful, but is inclined to be slippery. As well as a generous amount of fore-and-aft adjustment, both front seats have adjustable backrests. These have very effective friction locks and can be lowered to form emergency beds.

An instant four-position height adjustment is provided for the driver's seat. Cushion height and rake can also be adjusted on the front passenger's seat, but this operation involves the use of spanners. Both front seat backrests feature adjustable lumbar supports. Although

sound in principle, they appear to have relatively little effect on seating comfort.

Removal of the substantial front seat head restraints is only a few moments' work—a point that will be greatly appreciated by some of the shorter rear passengers.

The heater is of the water-valve type and features thermostatic control. Although it has an abundant output, its response to temperature control adjustment is abnormally slow. Stale air is extracted at the base of the rear window, which has two-stage (75 and 150 watt) electric heating as standard.

One of the 164's few serious shortcomings is the absence of face-level cold-air ventilation. Neither has it provision for simultaneously feeding warm air at floor level and cool air to the screen. True, there is a vent on each side of the cowl, but these are of comparatively little use.

We liked the illuminated heater controls. Some form of colour-coding would improve them still further.

There is little heater ram effect, but the two-speed blower is unobtrusive enough to be used for lengthy periods. Such an arrangement minimizes fluctuations in output during stop-go conditions.

Although the steering wheel is large (16.5in. dia) and mounted rather high, most of our testers were happy with the driving position and control layout. Two of our shorter staff-members complained that the wiper-blades impeded their view of the wing mirrors and the horn-ring obscured the speedometer. There is, incidentally, a useful differential between the two wiper speeds.

Although total headlamp power is only 90 watts (80 watts when dipped), the lighting is surprisingly good. There is a pair of built-in tungsten-halogen foglamps, wired to function in conjunction with sidelamps or dipped headlamps, but not with main beams.

The 164 is lavishly equipped. In addition to the many items already mentioned, it has a 55-amp alternator, towing hooks at each end, mud-flaps for each wheel, extremely neat inertia-reel seat belts, a laminated windscreen, tinted glass, net-pockets on the back of each front seat, a steering lock, a useful toolkit, a dipping rear-view mirror and a host of other items. In fact, the only thing it lacks is a clock—a surprising omission in a car of this type.

The paint finish is excellent and the interior trim of a very high quality. Most of the external brightware is in stainless steel. Bumpers are in anodized aluminium with substantial rubber facings. Much of the underbody is galvanized prior to the application of zinc-phosphate, primer and paint. Although not as exciting as some cars in this price range, it represents a thoroughly sound investment. □

