



The quiet Volvo

Traditional Volvo virtues enhanced with refined six-cylinder engine; fair performance and roadholding but excessive pitch and road noise, excellent gearbox; spacious interior and huge boot; superb construction and finish.

OUR recent survey among Volvo owners revealed that quite a high proportion, had bought more than one Volvo, many apparently regarding their cars with the same kind of contentment that a pipe smoker might feel for a particular brand of tobacco. Scarcely a second thought was given to any other car. Apparently qualities such as reliability, solidity, comfort—the foundation of the Swedish firm's almost legendary reputation—have produced a degree of loyalty among owners of which possibly no other manufacturer in the world can boast. A remarkable achievement, since the four-cylinder Volvo has not been notable for radical advance or particularly outstanding road behaviour.

Now, in the six-cylinder 164, Volvo should have a car with enough extra to retain many of the customers that have hitherto graduated to another morgue. Anybody put off, as some of our respondents' gripes suggested, by the engine noise and intake roar of the four-cylinder models would find little cause for complaint in the new, smooth and normally very quiet B30 six

which has at last given a Volvo mechanical refinement to match the comfort of its interior and quality of finish and fittings.

Though it gives the impression of being a much larger and more imposing car than the 144, maybe because of the size and associations of the massive radiator grille, the 164 is structurally very similar. Only the forward section has been extended to accept the larger engine, adding 4in. to the wheelbase, though this has not been enough to prevent the forward weight bias increasing from 51 to 55.5 per cent. The new seven-bearing engine has been evolved from the B20 by adding two extra cylinders: like all Volvo engines, it is fitted with an exhaust emission control device as standard, in this case a full Duplex manifold arrangement.

Though not completely without faults—the omission of face level ventilation being our most serious complaint—the 164 is undoubtedly the best Volvo to date and a car to which one takes an immediate liking. It has an adequate, if unsensational, performance, impressive smoothness and flexibility low down, a splendid gearbox and completely jerk-free transmission. It is fairly agile, too, for a large car, though the suspension is too soft to give real control of roll and pitch so the car gets a bit untidy and cumbersome when pressed. Otherwise the 164 has all the ingredients of a comfortable high-quality family car—excellent seats front and rear (the former with the ingenious lumbar

PRICE: (With overdrive and power steering) £1,520 plus £466 14s. 8d. equals £1,986 14s. 8d.

INSURANCE: AOA group rating 6. Lloyd's 6 (provisional)

Volvo 164 *continued*

support adjusters), plenty of leg room, a feeling of great strength, intelligent use of crash padding and other safety features, light easy controls and an enormous boot. Though our comparison chart shows you can enjoy its equal in performance, many of its features and better fuel consumption for rather less money, the 164 is a worthy and useful addition to the Volvo range which should go down equally well with Volvo fanatics or any other prosperous motorist who appreciates a comfortable, quiet well-engineered family car, albeit one with little sporting appeal.

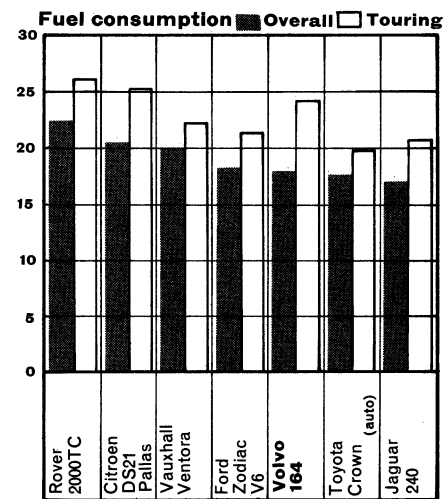
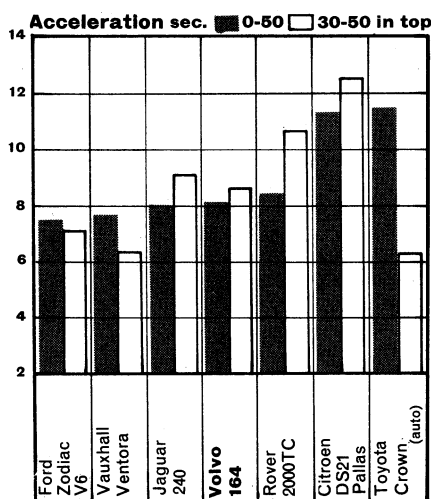
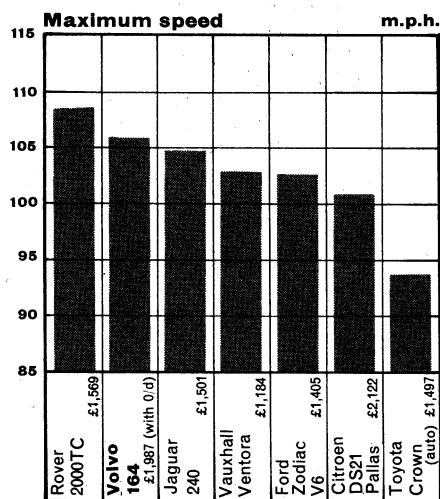
The car is marketed in this country in three standard versions, rather than a basic model with options. These start at £1,830 for the normal manual model, rising to £2,065 (at which price it must compete with the formidable Jaguar XJ6) for the automatic

with power steering and a sunshine roof. Our test car fell in between, a manual model with overdrive and power steering, but apparently in England you cannot have one without the other, nor a sunshine roof without automatic transmission. An odd arrangement.

Performance and economy

Prior to the 164, Volvo engines ranged in power from the 77 b.h.p. (net) of the standard 1800 c.c. 131 series (no longer in production) to 100 b.h.p. from the high compression twin-carburettor 144S. In between came the single carburettor 144 2 litre B20 with 82 b.h.p. from which the B30 six-cylinder engine is scaled up by the addition of two extra cylinders with the same 88.9 by 80mm. oversquare dimensions. Like all Volvo engines it has a main bearing between each journal, conventional pushrod valve gear and closed-circuit crankcase breathing. It shares the 144S's viscous coupled cooling fan, has slightly higher com-

Performance



Performance tests carried out by Motor's staff at the Motor Industry Research Association proving ground, Lindley.

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Conditions

Weather:
Temperature
Barometer
Surface: Dry tarmac and concrete
Fuel: 101 octane (RM) 5-star rating

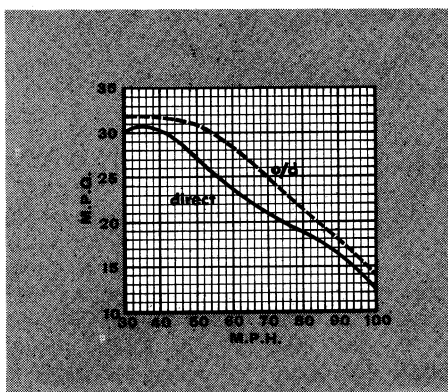
Maximum speeds

	m.p.h.	k.p.h.
Mean lap banked circuit	105.7	170
Best one-way ¼-mile	112.5	181
Direct top gear	104	168
3rd gear	80	130
2nd gear	55	89
1st gear	34	55
"Maximile" speed: (Timed quarter mile after 1 mile accelerating from rest)		
Mean	104.8	
Best	108.4	

Acceleration Times

m.p.h.	sec.	
0-30	3.6	
0-40	5.7	
0-50	8.1	
0-60	11.3	
0-70	14.8	
0-80	19.8	
0-90	27.3	
Standing quarter mile	18.5	
Standing kilometre	33.9	
	O/d	Top
	Top	3rd
m.p.h.	sec.	sec.
10-30	—	6.3
20-40	11.8	8.1
30-50	11.6	8.6

40-60	12.9	8.6	6.0
50-70	14.8	8.9	6.5
60-80	17.6	10.7	8.8
70-90	—	13.9	—



Fuel consumption

Touring (consumption midway between 30 m.p.h. and maximum less 5% allowance for acceleration)	24.1 m.p.g.
Overall	18.1 m.p.g.
	(= 15.6 litres/100km)
Total test distance	1,230 miles

Brakes

Pedal pressure, deceleration and equivalent stopping distance from 30 m.p.h.

lb.	g.	ft.
25	0.46	65
50	0.92	33
65	0.98	31
Handbrake	0.39	77

Fade test

20 stops at ½g deceleration at 1 min. intervals from

a speed midway between 40 m.p.h. and maximum speed (= 73 m.p.h.)

Pedal force at beginning	32 lb.
Pedal force at 10th stop	50
Pedal force at 20th stop	32

Steering

Turning circle between kerbs:	ft.
Left	28.5
Right	28.75
Turns of steering wheel from lock to lock	3.7
Steering wheel deflection for 50ft. diameter circle	1.2 turns

Speedometer

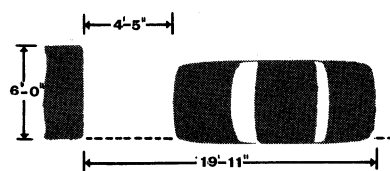
	30	40	50	60	70	80	90
Indicated	30	40	50	60	70	80	90
True	29	39	49	59	68	78	88
Indicated 100							
True 100							
Distance recorder:							2.8% slow

Weight

Kerb weight (unladen with fuel for approximately 50 miles)	25.5 cwt.
Front/rear distribution	55½/44½
Weight laden as tested	29.2 cwt.

Parkability

Gap needed to clear 6ft wide obstruction in front



pression than the B20 and develops 130 b.h.p. (net) at 5,000 r.p.m. Another feature shared with the twin carburettor engine is a close tolerance Stromberg instrument and Duplex manifold arrangement, with heated by-pass to ensure complete vapourisation during low-speed running, and a straight-through unheated one for full-power operation. When this is fitted the thermostatically controlled constant temperature air intake is discarded.

The improvement in performance over the 144S is not as marked as the extra power might suggest since the 164 is 3 cwt heavier. Accelerating from rest it reaches 50 m.p.h. only half a second sooner than the 144S but, more obvious, is the much greater flexibility that enables it to pull without snatch from as low as 10 m.p.h. in top gear, and the greatly reduced engine noise. Much of this is due to the far better intake silencing afforded by the single filter box; with complete smoothness throughout the rev range, the only disturbance is a slight fussiness which builds up above 4,000 r.p.m. when accelerating

hard in the gears. The car's cruising performance is impressive, particularly in overdrive which is geared to give 100 m.p.h. at just over 4,000 r.p.m. There was little difference in the maximum speed obtainable in overdrive and direct top, our best mean lap of the banked track of nearly 106 m.p.h. probably being equivalent to about 110 m.p.h. on a flat straight road.

Though the 164 engine has a lower compression than that of the 144S, we found that it also preferred a five-star fuel diet. No pinking occurred during normal motoring on four-star fuel but it was prone to run-on after idling in traffic and we opted for 101 octane during our performance testing. The overall fuel consumption of 18.1 m.p.g. is fairly heavy (our staff 3.3-litre Ventora, with overdrive, does 22 m.p.g.) though the touring figure goes up to over 24 m.p.g. if you take it easy. Making full use of the overdrive, most owners should manage better than 20 m.p.g., particularly as our car might have been set a little on the rich side, judging from the ease with which it started without



The leather upholstered seats are very comfortable and have a wide range of adjustment right down to near horizontal which makes a reasonable bed. Even with the driver's seat right back, there is plenty of knee room for tall rear passengers and the prop shaft scarcely intrudes on foot space.



Though only the front section and wheelbase are extended to make room for the new six cylinder engine, the 164 gives the impression of being generally larger and more lavish than other Volvos, the solid built-to-last appearance being continued in the large distinctive vertical radiator grille.

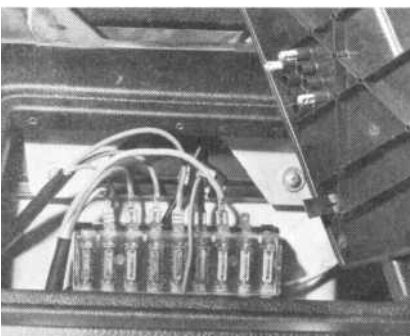


use of the choke. Based on these figures, the 124 gallon tank is not particularly generous for a car accustomed to Nordic terrain; it gives a range of only just over 220 miles.

Transmission

Unlike the 144S, which has a lower axle ratio if it has overdrive, so you can choose between maximum speed on one hand or relaxed cruising and fuel consumption on the other, all manual 164s share the same 3.73:1 final drive. The overdrive works on top gear only, and increases the m.p.h. per 1,000 r.p.m. from 19.6 in direct top to 24.5. With ample torque available from low speeds, the overdrive is a useful fifth gear and even with the 70 m.p.h. limit can be engaged to maintain a constant main-road speed. A flick of the steering column stalk into direct is sufficient to cope with most open road cornering and overtaking requirements though we found it kinder to depress the clutch momentarily when changing out at steady speeds or on the over-run. Under power the overdrive comes in very smoothly with only a slight alteration in note as the revs drop to indicate that the change has been made.

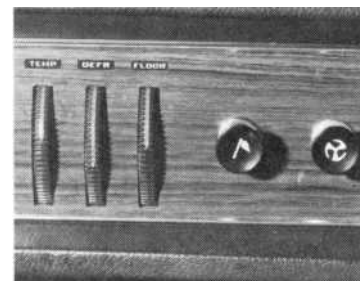
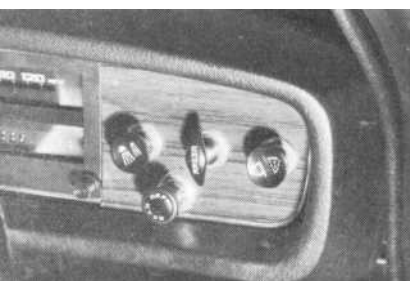
The 164 has a new gearbox with an extremely short, sturdy remote shift which is much more pleasant to use than the long, slanted lever on four-cylinder models. Its movement is precise and smooth once you have got accustomed to exerting just the right pressure to overcome spring resistance against the 1-2 plane without going right through into the reverse slot beside first.



Above: from the rear, only the 164 badge, larger 15 in wheels and the elements of the electrically heated rear window distinguish the six cylinder Volvo from its smaller stablemates. Good rear visibility, square rear deck and small turning circle ease parking in tight spaces.

Left: a flap in the centre of the fascia pulls out to reveal the fuse box, spares being carried in slots moulded in the lid.

Below: neat, knurled wheels projecting from the fascia control heating and ventilating, the flat arrows indicating the settings appearing as illuminated red lines at night.



Below left: most of the important minor controls are grouped together within easy reach of the driver's right hand.

Ratios are well chosen with a fairly high third giving nearly 80 m.p.h. a maximum of under 55 m.p.h. in second sometimes made the car feel unnecessarily fussy driving one-up, but it paid handsome dividends when full use was made of the car's enormous carrying capacity in hilly country. The synchromesh worked powerfully on all gears except second when too hurried a change could lead to the odd crunch. Apart from some occasional unexplained clunks both gearbox and final drive were practically inaudible on the test car.

The diaphragm spring clutch is light, engages very gently and was just man enough to restart the car on a 1-in-3 slope. The rear suspension is deliberately designed to provide some angular compliance to absorb take-up shock. And all our drivers praised the smooth but crisp action of the transmission.

Handling and brakes

It is not only their traditionally conservative approach which has kept Volvo faithful to the live axle for all their cars. They believe that a well located live axle, with no camber or track changes, gives better stability and traction on the ice and snow which covers in Sweden for so much of the winter; it is also easier to adjust and repair. The fact that Swedish Volvo buyers automatically get a five-year accident insurance contract suggests that leaving the road is considered a very real possibility. These factors are not so significant in Britain and though the roadholding is generally good, we were rather disappointed by the soft floating ride and the pitch induced by undulating surfaces. There was also rather more tyre thump and road roar over bumps and ridges than there should be for a car in this class, particularly at low speeds. But it becomes less obtrusive as the speed rises and the ride levels out to make this a very pleasant relaxing car in which to cover long distances at high speeds. Apart from this movement, the occupants are well isolated from the road and the suspension swallows the shock if not the noise induced by sharp irregularities in a very comfortable fashion.

With 14 of its 25 cwt. carried over the front wheels, power steering sounds like a must for the 164 although the basic model is manual with a variable rate system giving nearly five turns between locks. For the constant-rate power steering, generally well liked by our drivers, the ratio is raised to give 3.7 turns between locks for a remarkably small turning circle of 28.5 ft., equivalent to 1.2 turns on the 50ft. circle. It has some built-in weight if not much feel, the effort required remaining more or less constant irrespective of speed and slip angle; it self-centres quite readily after a sharp manoeuvre.

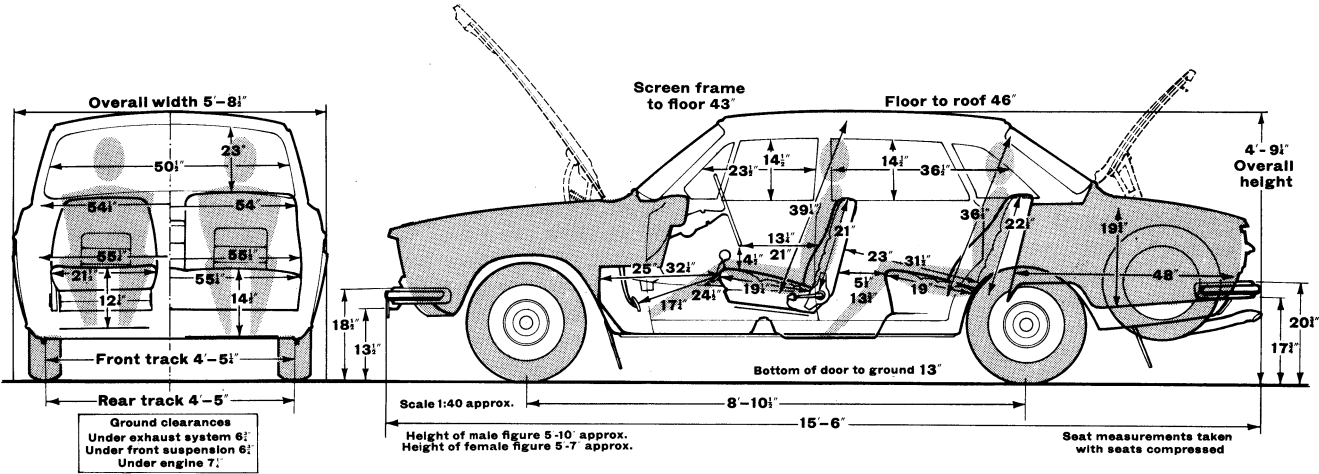
Those who feel that the classic behaviour for a fast road car should be initial understeer followed by progressive transition to final oversteer at the limit will think that the 164's handling is inferior to that of smaller Volvos. No longer is the oversteer an automatic sequel and it takes quite severe provocation to get the back end to move out at all. However, as a result of increased cornering power from bigger tyres, the 164 can be hustled through a corner almost as fast, if not quite as tidily, as a smaller Volvo. A high rate of roll which builds up quickly early on, and a lot of protesting squeal from the Pirelli Cinturato tyres, act as a deterrent to fast cornering and might be seen by some as effrontery to the dignity of so stately a car. On wet roads, the understeer sets in earlier and, with little feel coming back through the steering, forethought is needed on very slippery

continued overleaf

All this mountain of luggage, 13.5 cu. ft., will pack into the boot which is both long and deep. The spare wheel stows vertically and can be removed without moving much of the load but like everything else must be lifted over the high sill.



Specification



Front engine; rear wheel; coil sprung live axle; integral body/chassis

Engine	
Block material	Cast iron
Head material	Cast iron
Cylinders	6-in-line
Cooling system	Water, pressurized
Bore and stroke	88.9mm. (3.5in.) x 80mm. (3.15in.)
Cubic capacity	2,979cc. (182cu. in.)
Main bearings	Seven
Valves	Pushrod o.h.v.
Compression ratio	9.2:1
Carburettors	Two Zenith-Stromberg with emission control
Fuel pump	Mechanical
Oil filter	Full flow
Max. power (net)	130 b.h.p. at 5,000 r.p.m.
Max. power (gross)	145 b.h.p. at 5,500 r.p.m.
Max. torque (net)	152 lb. ft. at 2,500 r.p.m.
Max. torque (gross)	16 ft. at 3,000 r.p.m.

Transmission	
Clutch	s.d.p. diaphragm
Internal gearbox ratios:	
Top gear	1.00
3rd gear	1.34
2nd gear	1.97
1st gear	3.14
Reverse	3.54
Overdrive top	0.797
Synchromesh	All forward gears
Overdrive type	Laycock
Final drive	Hypoid bevel 3.73:1
M.p.h. at 1,000 r.p.m. in:	
O/d top gear	24.5
Top gear	19.6
3rd gear	14.5
2nd gear	10.0
1st gear	6.2

Chassis and body

Construction. Unitary

Brakes

Type.	Girling discs with dual circuits, servo assistance and supplementary rear drums for handbrake
Dimensions	10.7 in. dia. front, 11.6 in. dia. rear
Friction areas:	
Front	27 sq. in. of lining operating on 212 sq. in. of disc
Rear.	14.4 sq. in. of lining operating on 198 sq. in. of disc

Suspension and steering

Front	Independent by wishbones and coil springs with anti-roll bar
Rear	Live axle with trailing link and coil springs, radius rods and anti-roll bar
Shock absorbers:	
Front.	Telescopic
Rear.	Telescopic
Steering type . . .	Worm and roller with power assistance
Tyres	Pirelli Centurato, 165SRx15
Wheels	Pressed steel disc
Rim size	4½J

Coachwork and equipment

Starting handle . . .	No
Tool kit contents . .	Tyre lever, screwdriver, adjustable spanner, box spanner, pliers
Jack	Screw pillar
Jacking points . . .	4 under door sills
Battery	12 volt negative earth 60 amp hrs capacity
Number of electrical fuses .	9
Headlamps.	Bosch assymetric
Indicators	Self-cancelling flashers
Reversing lamp . . .	Two automatic
Screen wipers	Two-speed electric
Screen washers . . .	Electric
Sun visors	Two
Locks:	
With ignition key . . .	Steering lock
With other keys . . .	Doors and boot
Interior heater	Fresh air with outlets front and rear
Upholstery	Leather
Floor covering	Carpet
Alternative body styles .	None
Maximum load	1,056 lb
Maximum roof rack load .	224 lb

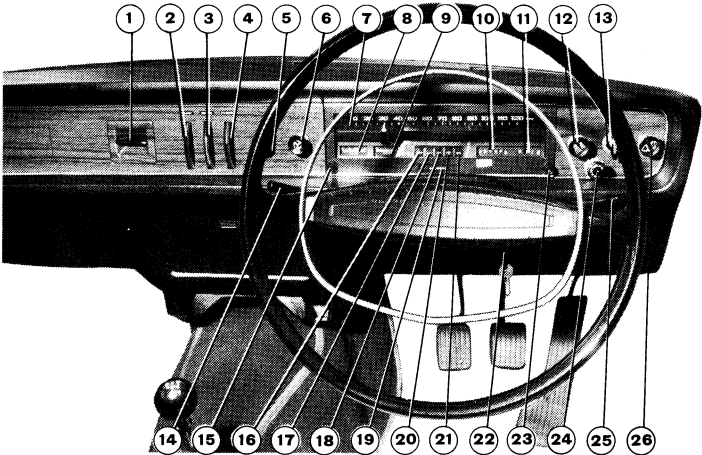
Maintenance

Fuel tank capacity	12½ galls
Sump	10.6 pints SAE 10W/30
Gearbox	2.5 pints SAE 30
Rear axle	2.8 pints SAE 90 Hypoid
Steering gear	2.1 pints
Coolant	23 pints (2 drain taps)
Chassis lubrication . . .	None

Minimum service interval .	3,000 miles
Ignition timing	10° b.d.c. at 800 r.p.m. with vacuum pipe disconnected
Contact breaker gap . . .	0.010 in.
Spark plug gap	0.028-0.032 in.
Spark plug type	Bosch W175T35
Tappet clearances (hot or cold)	Inlet 0.020 in.; Exhaust 0.020 in.
Rear wheel toe-in	None
Front wheel toe-in	0-0.16 in.
Camber angle.	½° ± ½°
Castor angle	½° ± ½°
King pin inclination	7.5°
Tyre pressures:	
Front	24 p.s.i.
Rear	26 p.s.i.

Safety check list

Steering Assembly	
Steering box position	Well back beside engine
Steering column collapsible . . .	Yes
Steering wheel boss padded . . .	Yes
Steering wheel dished	Yes
Instrument Panel	
Projecting switches	Yes but well masked by fascia surround
Sharp cowls	No
Padding	All round fascia
Windscreen and Visibility	
Screen type	Laminated
Pillars padded	No
Standard driving mirrors	Interior and wing
Interior mirror framed.	Yes
Interior mirror collapsible	Yes
Sun visors	Two, crushable
Seats and Harness	
Attachment to floor	Sliding runners
Do they tip forward?	No
Headrest attachment points . . .	Yes
Back of front seats	Padded rail
Safety harness	Lap and diagonal
Harness anchors at back	Yes
Doors	
Projecting handles	Window winders project slightly
Anti-burst latches	Yes
Child-proof locks	Yes



1, ashtray. 2, temperature control. 3, screen distribution control. 4, floor distribution control. 5, cigar lighter. 6, heater fan. 7, speedometer. 8, fuel gauge. 9, temperature gauge. 10, total mileage recorder. 11, trip mileage recorder. 12, lighting switch. 13, choke. 14, indicator/flasher/dipswitch stalk. 15, panel light rheostat. 16, ignition warning light. 17, indicator tell-tale. 18, handbrake warning light. 19, overdrive tell-tale. 20, main beam tell-tale. 21, oil pressure warning light. 22, ignition/starter switch. 23, trip rewind. 24, rear window heater switch. 25, overdrive stalk. 26, windscreen washer/wiper button.

Volvo 164 *continued*

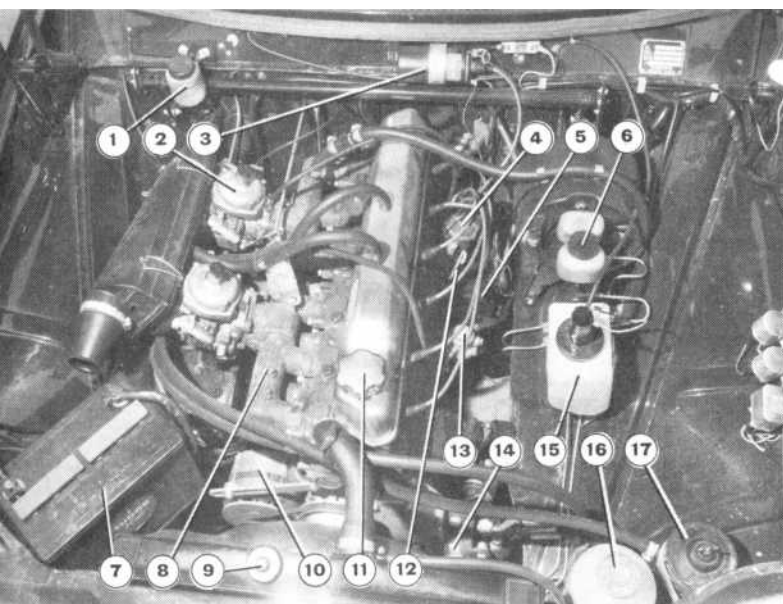
surfaces to prevent the car from sailing straight on.

Among the numerous Volvo safety features is twin circuit operation of the four-wheel disc brakes, with each circuit linked to one of two pistons in each front disc caliper and one rear brake. If either system fails you still have braking on three wheels and 80% of the total effect. There is no evidence of this in normal use and with effective servo assistance the brakes worked well, reaching 0.98g. for a modest pedal load of 65lb. though they were prevented from a full 1g. by premature locking at the front. There was practically no effect from a soaking in the water splash and though a rise in pressure and strong smell half way through our 20-stop routine indicated pending fade, they were back to normal at the end, which suggested that the brakes were only just being properly bedded down in a low mileage car. The handbrake, a substantial lever conveniently placed on the driver's right, works on special supplementary drums built into the rear discs. It held the car easily on the 1-in-3 slope and provided a good emergency stop.

Comfort and controls

The smell of real leather augments the restrained opulence of the interior, upholstered in the test car in a pleasing shade of pale blue. Though they appear to provide rather more side support than they actually do, the seats are excellent and have an enormous range of adjustment to suit a driver of practically any size and build. A convenient central lever projecting from the front of the driver's seat (the side on the passenger's seat) gives long and easy fore and aft sliding and the runners are inclined so that shorter drivers sitting closer to the wheel are also higher. The backrests, which recline to the horizontal position and can be locked in any position, also have a knurled wheel on the inside to tension a spring adjusting a special lumbar support pad. Most of our drivers agreed that it was no more or less comfortable at either extreme but it was nice to be able to make a change in the middle of a long journey.

Though shorter drivers found the steering wheel a little on the high side, and the speedometer partly obscured by the horn ring, the driving position is first class with gear lever and brake within easy reach and the pedals, including the huge organ-pedal type accelerator, at just the right angle. Wide doors give easy access to the rear compartment where the seat is equally comfortable with plenty of knee and headroom for two with the arm rest down, or three in reasonable comfort with it up, since the low prop-shaft line makes a minimum intrusion on foot room. Despite thickish screen pillars, there are no real blind spots to mar the excellent visibility through the large areas of glass.



1, clutch reservoir. 2, carburettor. 3, coil. 4, distributor. 5, starter motor. 6, brake fluid reservoir. 7, battery. 8, Duplex manifold. 9, sealed radiator cap. 10, alternator. 11, oil filler. 12, dipstick. 13, fuel pump. 14, power steering pump. 15, screen washer reservoir. 16, radiator overflow reservoir. 17, power steering fluid filter.

The extremities of the flat bonnet and boot deck are visible from the driving seat and with its good lock and power steering the Volvo is easier to manage in congested streets than most cars of its size. And an inadvertent nudge should have little effect on striker or struck as the bumpers are generously covered with full length rubber strips.

Apart from the omission of face level vents, the heating and ventilating system is comprehensive and very effective with separate ducts at floor level which rapidly raise the interior temperature of front and rear compartments. Three large knurled wheels which partly project from the fascia provide fairly sensitive control of temperature and distribution but the fact that for sufficient cool air flow, assistance was often necessary from the two-speed fan even at quite high speeds, confirmed that pressurized door seals do not exhaust as effectively as positive extractors. It is possible to open a front quarter vent to improve flow but inevitably at the expense of increasing wind noise which is normally quite low, only building up slightly above 70 m.p.h. Separate air vents in the side at knee level seem rather dated and were seldom used, particularly as the controls could not be reached without unbuckling the seat belts which were a lot more difficult to adjust and unfasten than the one-handed central clamp suggests. Standard equipment on the 164 is a very rapid operating electrically heated rear window. Lights have reasonable spread and penetration on both main and dipped beams and the two-speed wipers sweep a very large area. If required, two additional lights can be fitted in the recesses beside the radiator grille.

Fittings and furniture

Safe, restrained and very pleasing sums up the Volvo interior. The mock wood fascia is completely surrounded by soft crash padding beyond which none of the flat topped control knobs (the important ones grouped conveniently on the right) project. The bulkhead below, containing a large glove locker and the fuse box, is soft and curved to protect front passenger's knees and there are grab handles for all. Instrumentation is limited to a rather coarsely calibrated strip speedometer (with a vulgarly coloured movable pointer), fuel and water temperature gauges, trip and distance recorders and a comprehensive selection of warning lights. Illumination is rheostat controlled and, possibly due to Sweden's long dark nights, lights are liberally supplied throughout the car-in bonnet, boot, glove compartment plus automatic reversing lights. Other standard fittings include anchorages for two three-point and one lap belt at the back, laminated windscreen, collapsible dipping mirror, two speed wipers and large capacity electric washers on the same switch (pull and turn), steering lock, cigar lighter, three ashtrays and good quality fitted carpet throughout. Outside there are mudflaps all round and towing fixtures front and rear.

In addition to the glove compartment, maps and oddments can be carried in strong pockets on the front seat backs and anything larger in the huge boot which consumed 13 cu.ft. of luggage, another example of clever planning even if women may not appreciate having to lift suitcases over the high sill. The soundness of Volvo construction is evident from the fit of the doors which check-open strongly in two positions and require only to be sprung over the first to shut firmly with a solid thump.

Service and accessibility

Volvos are built to withstand long and hard service in difficult conditions; blowing warm air through the door sills to prevent internal rusting is evidence of careful design consideration in this respect, but proper service is essential too. Most of the components in need of routine service are easily accessible and the average owner should have no difficulty in carrying out 3,000 mile checks himself, there being no greasing requirements; the handbook gives ample information. Several of the items listed in the 6,000-mile service, such as compression test and front wheel alignment, should be left to a competent mechanic at one of Volvo's 225 service agencies.

MAKE: Volvo. MODEL: 164. MAKERS: Aktiebolaget Volvo, Goteborg, Sweden. Concessionaires: Volvo Concessionaires Ltd., P.O. Box 7, Tower Ramparts, Ipswich, Suffolk.