

Produced from 1929-1950

VOLVO 164

engineering features



introduction

Volvo's new four-door 164 joins the 140 Series in meeting the growing demand for high quality automobiles.

Highlights include a powerful new 182 cubic inch (3-litre) six-cylinder engine, new manual and automatic transmissions, new rear axle, power steering and a luxury interior with genuine leather upholstery.

The 164 is the first six-cylinder Volvo ever sold in the U.S. But this does not mean that six-cylinder cars are new to Volvo. Six-cylinder touring cars were produced in quantity from 1929 to 1950. It was these cars that first established Volvo's reputation for durability and reliability. Six and four-cylinder models were produced side by side for several years following introduction of the popular four-cylinder 444 and 544 models.

Production of the 122 models began in 1956 and these sedans, along with the 1800 sports coupe, firmly established Volvo in America.

Development of the 164 began simultaneously with the 140 Series. When the 144 was introduced in Sweden in 1966, 164 plans were finalized. The parallel development of the two cars and their B20 and B30 engines, of two and three litres capacity, has resulted in their sharing many of the same engineering advances.

For example, both models have unit frame construction. The 164 uses a lengthened and strengthened frame and has a longer wheelbase. Overall length also is increased to accommodate the larger engine.

Mechanically, the 164 bears a strong resemblance to the 140 Series just as the 140 borrowed heavily from the 122 and before it the 544 and 444. But although many components are similar in design, over 450 new parts were specially engineered for the 164.

Many features perfected in the 140 have been adapted for use with the more powerful 164. One of these is the use of four-



wheel disc brakes with the unique Volvo dual hydraulic system. Front brake pads in the 164 are 35 percent larger.

Another 140 feature incorporated into the 164 is the high efficiency, draftless heating and ventilation system. In the new 164, additional improvements have been made including tinted glass for hot weather comfort and an electric rear window defroster for cold weather safety and driving ease.

The new B30 engine produces 145 horsepower at 5500 r.p.m., 23 percent more than the B20. All-important torque is up to 163 foot pounds in the B30 at a low 3000 r.p.m. giving greatly improved acceleration and increased power at the most often encountered driving speeds. This increase is almost a third greater than the four-cylinder B20 engine.

A four-speed manual transmission, with ratios complementary to the horsepower-torque characteristics of the larger engine, was designed by Volvo for the 164. Three-

speed automatic transmissions have a larger torque converter to handle the added power of the 182 cubic inch engine.

The rear axle is completely new and includes wheel bearings which absorb greater lateral stresses. The world famous ZF concern designed the 164's power steering unit.

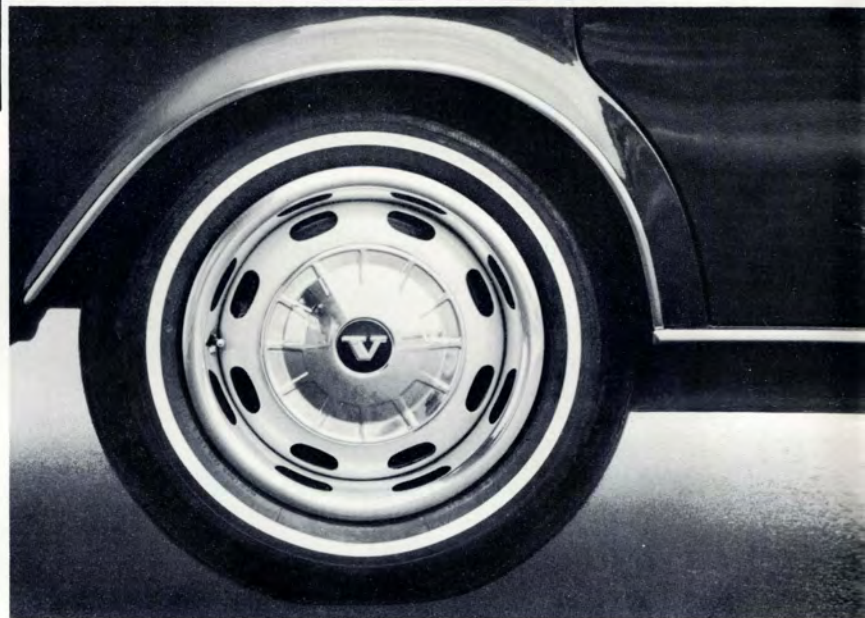
Inside there's traditional Volvo comfort, improved with the use of an exclusive carpeting backed with additional sound absorbing material. In addition, luxurious genuine leather is used for all the seats.

This book is meant to familiarize you with the distinctive new features of the 164 and to give you an understanding of the engineering quality built into the car. It contains an analysis of these new features complete with illustrations, specifications and technical descriptions. It also relates these features to Volvo performance, safety, comfort, reliability and economy.





The 164 is equipped with fifteen-inch safety rims and 6.85 x 15 low profile tubeless whitewall tires. Ground clearance is seven inches. Even when fully loaded, the 164 is further off the ground than many empty cars.



Rear lighting units combine parking, stop, backup and directional signal lights in one unit. Rubber inserts in the bumpers are a protection against "park by ear" drivers.



exterior

The 164 is Volvo's biggest car, but length and width are still less than some of the so-called "compacts." Interior and trunk space are equal to or larger than many intermediate and full-size cars.

Despite its greater size, there's no wasted space in the 164; no ornamental overhang in front or rear and no useless bulges in the sides. The car's functional design is possibly best exemplified by its extensive use of glass — there is a total of 3,800 square inches. All four corners of the car can be seen from the driver's seat. There are no blind spots.

To be exact, the 164 is three inches longer overall than the four-cylinder 144. The wheelbase is four inches longer to accommodate the larger six-cylinder engine and properly distribute the added weight.

Unit body construction combines extra strong side posts and bulkheads with precision stamped body components. This means, for example, that the doors, trunk lid and hood fit properly to begin with and will stay that way. Another benefit of unit construction is crushable front and rear body sections that absorb crash impact without deforming the passenger compartment.

The 164's distinctive front end styling is reminiscent of early Volvo touring cars which featured a similar diagonal slash across the grille. An unusual feature is the provision of twin recesses on either side of the grille to house auxiliary lamps. Parking lights and wraparound directional signals are mounted on a rust proofed anodized aluminum bumper that is protected with hard rubber inserts to prevent dents and scraps.

Doors open to an 80° angle and have an additional stop position for easy exit and entry in crowded parking lots. Patented latches will keep the doors closed even under severe impact conditions.

Other exterior features include fully tinted, curved window glass and two tinted, spring loaded side view mirrors. Two-speed, full-sweep 16-inch wipers and 1½ quart capacity electric washers keep the windshield clear.

Something not so obvious is the six coats of paint outside and five coats inside that gives the 164 its glossy sheen. Altogether, the car is protected by 33 pounds of paint, including a dip of primer. Protecting the underside of the car equally well are two preservative coats, the second one being the familiar black underseal — an extra cost option on many cars.

Volvo 164 exterior specifications:

	Inches
Length	185.6
Wheelbase	106.3
Width	68.3
Height	56.7
Track, front and rear	53.1
Ground clearance	7.1
Width, front doors	35.4
Width, rear doors	32.7
Turning circle	31.5 feet
Curb weight	2928 pounds
Weight distribution front/rear	53/47
Glass area	3830 square inches

Wraparound turn signal lights and side reflectors, amber in the front, red in the rear, provide important night time illumination. Wheel covers and bumpers are made of rust proofed aluminum. Bright metal trim on the body is made of stainless steel.





Full width dashboard is covered with a wood grain finish and completely surrounded by padding. The underdash panels are made of impact absorbing plastic, providing leg protection to front seat passengers. The steering wheel has a padded center and a full horn ring made of soft metal. The ignition switch, below and to the right of the automatic shift selector, incorporates a fool-proof steering wheel lock.



Comfortable rear seating area has a fully carpeted floor in complementary colors. Leather is used for the seat cushion and backrest as well as for the center door panel.

Durable vinyl, almost identical in appearance, covers the base and sides of the seat and doors.

interior

The luxurious interior of the new six-cylinder 164 was designed for maximum driver-passenger space, comfort, convenience and safety.

Legroom, for example, is exceptional in the 164 and results from a carefully engineered combination of front seat height and seat to pedal and firewall distance. The car's interior height allowed use of chair-type seats with increased vertical legroom. This is something that's impossible to achieve in cars with low roofs without seriously effecting headroom.

By making the front seats higher, Volvo engineers gained maximum effective legroom for front seat passengers without sacrificing rear seat legroom.

The 164 instrument panel is typical of the attention paid to the car's interior fittings. It's fully padded, glare free and extends the full width of the car. Impact absorbent panels together with a lockable, illuminated glove compartment extend the whole width of the underdash area. A locking center console also is standard. All knobs are impact absorbing rubber and are marked for easy recognition.

Gauges and warning lights are set below a ribbon-type speedometer with a sliding pointer which can be set by the driver to any desired speed. A 999,999 mile odometer and separate, push-button reset trip odometer are immediately below the speedometer.

The Volvo impact absorbing safety steering wheel has a locking feature in combination with the four-way ignition switch built into the column. On the column's left side is the turn signal lever which also serves as the headlight dimming switch. This is of particular value to shorter drivers who often find it awkward to operate floor mounted dimmer switches.

Full width safety padded sun visors are hinged to provide glare protection from the sides as well as from the front. The visors are notched to extend over the top of the rear view mirror blocking out annoying and dangerous "hot spots." The mirror itself has a breakaway feature built into the roof attachment. A slide on the bottom can be moved to eliminate headlight glare from following traffic.

Facing the driver is a horizontal speedometer with a sliding pointer. Fuel and water temperature gauges are to the left, flanked by a 999,999 mile odometer and separate tripmeter. Center warning lights are for battery charging, directional signals, hand brake, high beams and oil pressure. Rheostat switch on the lower left adjusts the panel lights, the far right button instantly zeros the tripmeter.

Other 164 interior features include an inside hood release, armrests on all doors and a folding rear seat center armrest. Assist handles, with handy clothes hangers attached, are installed above the doors for rear seat passengers. An additional assist handle is mounted on the dashboard for the convenience of front seat passengers. Special anti-theft latches control the frameless vent windows. Behind the center underdash panel is the easily accessible nine-fuse storage area.

Volvo's patented 3-point shoulder/lap safety belts are fitted for front seat passengers. They store conveniently on the door posts and can be snapped into a center mount with one hand. Volvo belts are one piece and have only one adjustment point in contrast with the three piece, four-point, double adjustment belts used in most other cars. Three sets of seat belts are provided for rear seat passengers.

Front and rear seats are upholstered in genuine leather with matching vinyl covering the headrests. An exclusive, durable carpeting covers the entire floor and rear shelf and provides effective sound insulation.

The 164 is available with three soft interior colors, tan with yellow and dark green exterior colors, blue with dark blue and white exterior colors, and grey with black, dark grey, red and medium blue exterior colors.

Volvo 164 interior dimensions:

	Inches
Front seat width,	
hip height	56.3
Width, front seats	22.4
Depth, front seats	19.3
Headroom, front	37.4
Height, front seat	
cushion-floor	14.2 - 12.6
Height, front seat	
backrest (plus headrest)	20.9
Rear seat width,	
hip height	56.3
Depth, rear seat	18.5
Headroom, rear	35.0
Height, rear seat	
cushion-floor	13.0
Height, rear seat backrest	23.6





All four doors on the 164 open to an 80° angle and have two stop positions for easy entry and exit. The vent windows are frameless and have an anti-theft lock.



Volvo 3-point safety belts have only one adjustment point. They fasten easily into a quick center mount. The flap on the tunnel covers the dual rear seat heating ducts.



The backs of the front seats have a net covered storage pocket. Snaps on the bottom, front and rear, hold the cushion in place and also enable easy removal for cleaning the floor.



Conveniently positioned dashboard knobs are of the breakaway type. The vertical choke is needed for cold engine starting and can be pushed in after half a minute.



A rubber insert in the carpet is fitted below the large, correctly positioned pedals. Carpet colors are coordinated with the three interior colors, blue, brown and grey.



Gear shift for the four-speed transmission is set between the seats close to the driver's hand. The remote linkage requires only a short throw.

seating

The leather upholstered seats in the 164 are the finest Volvo has ever produced. The individual front seats can be adjusted six different ways for ideal comfort and proper body support.

The front seat backs are separately adjustable from bolt upright to fully reclining. An exclusive benefit of this adjusting mechanism is protection against whiplash injuries. The mechanism includes a friction device which will release the backrest if the car is subjected to the force of a ten mile-an-hour rear end collision. The front seat backrests will recline automatically at a controlled rate, protecting passengers from injury.

Headrests offer additional protection against whiplash injuries. They are adjustable and, when removed, allow the seat back to fold flat, meeting the rear seat cushion to form a bed.

Another exclusive Volvo feature is adjustable lumbar supports for both driver and passenger seats. They are operated by knobs on the sides of the backrest. Marked "firm" and "soft," they adjust the seat's tension in the critical area contacted by the lower part of an occupant's back.

The driver's seat has two separate fore and aft adjustments that total 10.9 inches of travel. Normal adjustment is made by raising the lever in the right front corner. This operation enables the seat to be moved forward or backward 7.9 inches on its rails.

For extra short or extra tall drivers a second lever, in the front center, is raised to move the entire seat assembly forward and up, or back and down. There are four stops on this device that give 1.6 inches of height adjustment.

The combination of these two systems means that any driver can easily select the amount of legroom and armroom he desires. The driver can also properly distribute his or her weight on the seat for maximum comfort.

Similar adjustments can be made to the passenger seat. Fore and aft movement is made with a lever on the outboard side. Moving the front and rear of the seat up or down are simple adjustments that can be made with the cushion removed.

The full width three-passenger rear seat, also upholstered in leather, can be divided with a folding center armrest, creating individual seating for two occupants. There is ample rear seat legroom and proper cushioning support gives excellent riding comfort. Loose items can be stored in nylon net pockets attached to the backs of the front seats. Other rear compartment features include side armrests, ash trays and separate rear seat heating.

Center lever on driver's seat can be raised to provide 1.6 inches of height adjustment. The lever on the left lifts to slide the seat fore and aft.



Lever on the outboard side of the seats adjusts the backrest to any position. This mechanism is part of an anti-whiplash device that will fold the seat back at a controlled rate if the 164 is struck from the rear.



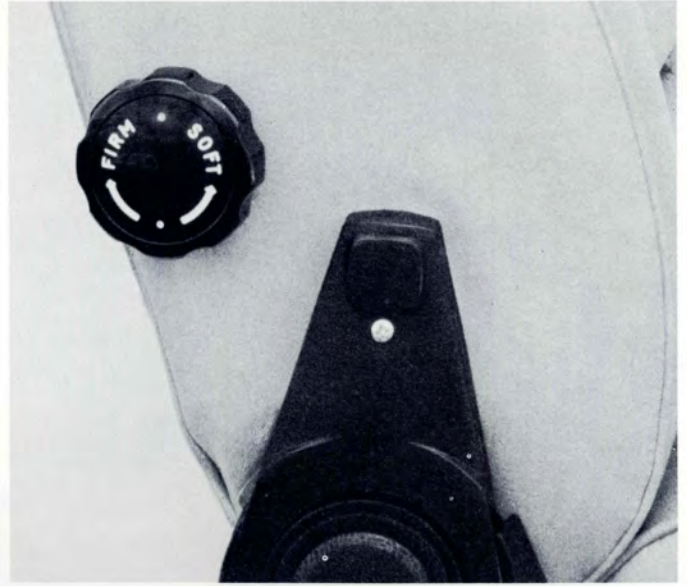


Individual front bucket seats are designed for long distance driving with six separate adjustments. Cushions and backrests are upholstered in leather with matching vinyl used to cover the seat's sides and headrests.

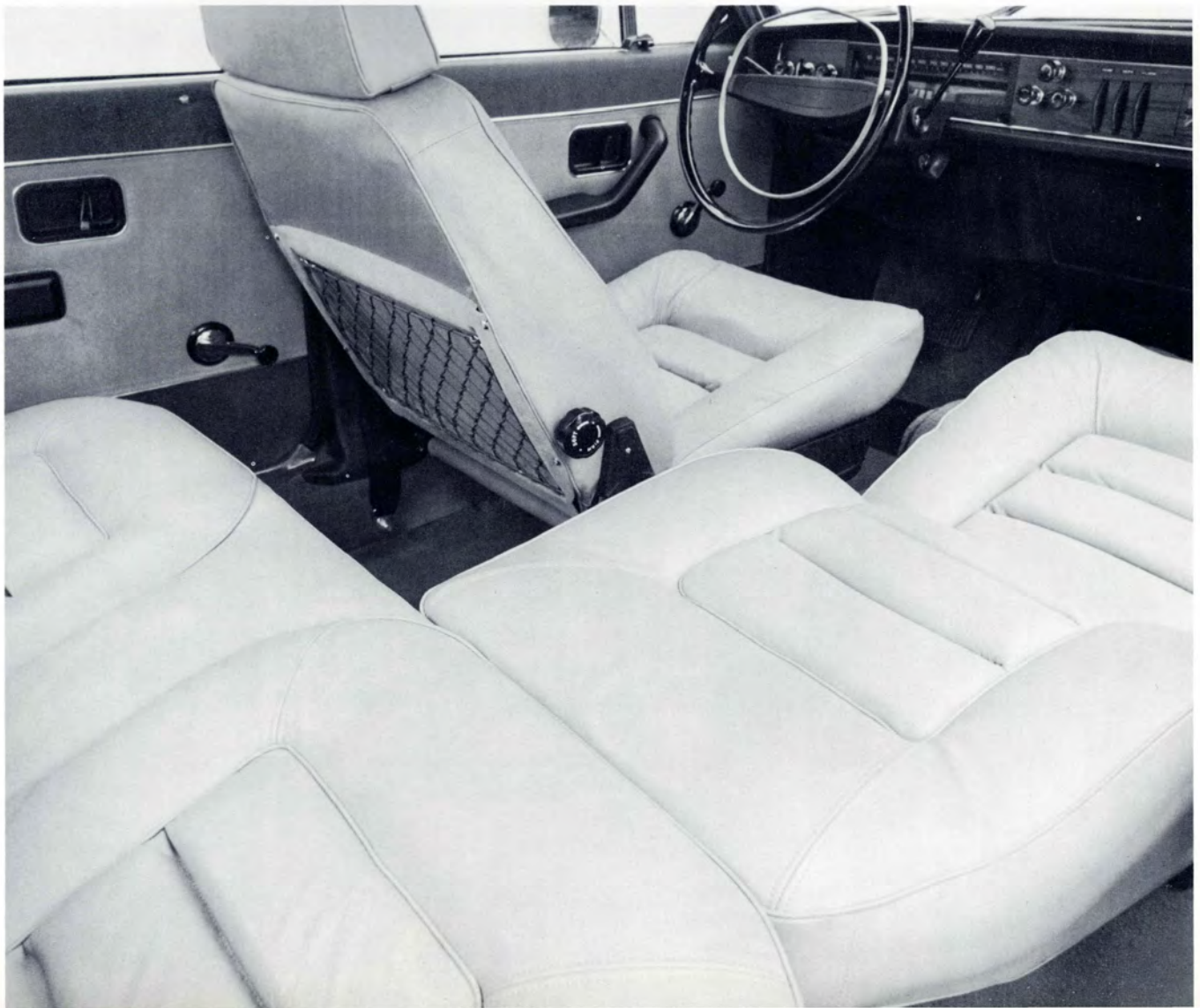


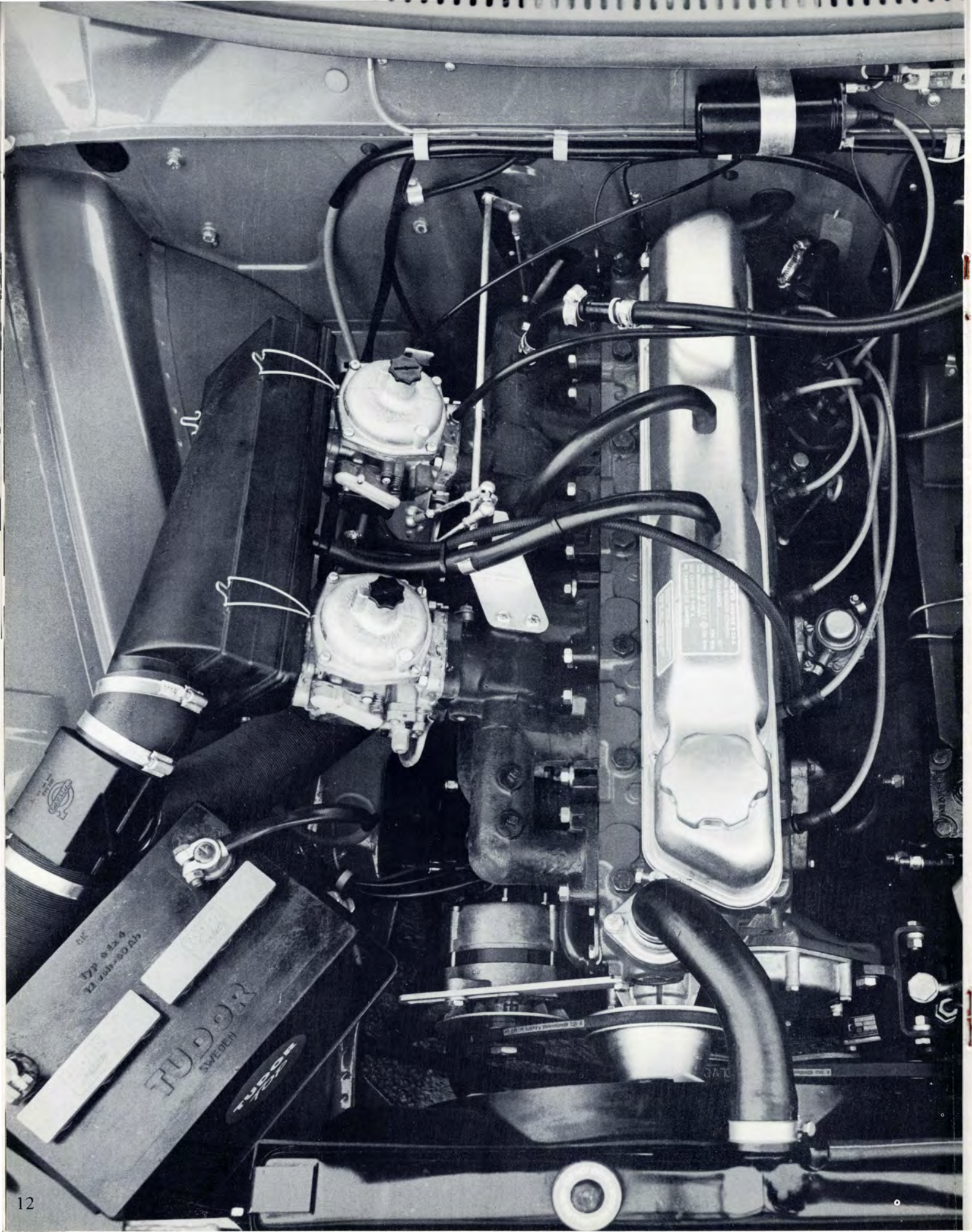
The full width leather upholstered rear seat divides with a center armrest which folds up for a third passenger. Rear compartment features include side armrests and ashtrays on the doors and separate heating ducts.

An adjustment knob on the side of the front backrest controls the tension of horizontal strips inside the seat back. This exclusive lumbar support provides comfort in the critical area contacted by the lower part of an occupant's back.



Fully reclining seats are another Volvo feature. After removing the headrests and adjusting the rear seat cushion, the front seats recline to form twin beds.





engine and transmission

Volvo's 182 cubic inch six-cylinder engine is the outstanding feature of the 164. It is the company's first engine with more than four cylinders in ten years. The first Volvo six-cylinder powerplant, designed in 1929, also had a three-litre displacement but had only 26 percent of the new B30's 145 horsepower.

Development of the B30, which began in 1962, was concurrent with that of the four-cylinder B20, also new for the 1969 140 Series and 1800S models. Both these engines share many similarities with the previous B18 engines that powered Volvos for eight years. These similarities are in the areas of strength and durability.

For example, the B30 crankshaft has seven main bearings, one between each cylinder. Due to the length of the crankshaft and its exposure to torsional stress it is fitted with a vibration damper. The added rigidity contributes to long engine life and vibration free operation.

The crankshaft journals are induction hardened for protection against wear. Lead/bronze alloy bearings, which are 50% stronger than those made of white metal, are used for both main and connecting rods. The same material is used for the four camshaft bearings. At Volvo's engine plant each individual bearing is inspected for conformity to tolerance standards as are all crankshaft journals. In addition, each crankshaft is dynamically balanced to insure vibration free performance at even the highest speeds.

Many of the engine's moving parts, such as pistons, connecting rods and valves, are identical to those used in the B20. Other parts and components are completely new. Although the two engines have the same bore and stroke measurements the 33% more torque and 23% added horsepower require additional strength for some components.

For example, the clutch, flywheel, camshaft and cooling and lubricating systems all are redesigned.

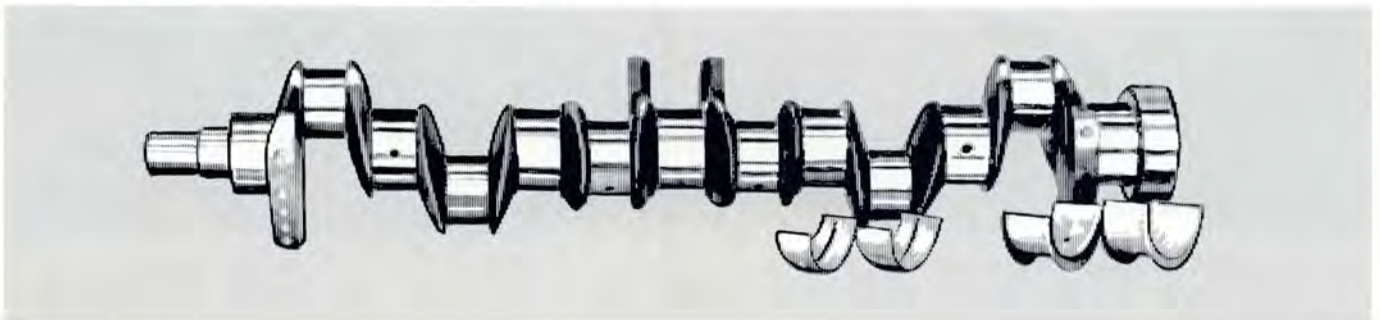
The engine compartment in the 164 easily accommodates the six-cylinder powerplant and permits ample working room on the sides. The addition of air conditioning will not interfere with this accessibility for routine servicing. The entire electrical system is easily reached as is the fuel system and oil filter. Even headlight adjustment is simplified because knurled knobs are accessible under the hood by removing special covers.

The 164 electrical system is 12 volt with enough power to operate all accessories simultaneously. An alternator supplies a maximum output of 35 amps and has the capacity to charge the 60 amp hour battery at idle speed, even in the coldest weather. A one h.p. starter insures quick starts without excessive cranking. The ignition system is protected against moisture with silicone rubber seals developed for Volvo marine engines.

The dominant under hood feature is Volvo's unique air induction system. This is designed to supply the carburetors with heated air of a constant temperature for maximum performance and low exhaust emissions. Additional engine benefits are fast warm up and quieter engine operation.

The induction system draws air from cold and warm sources through flexible tubing and automatically regulates the flow with a thermostatically controlled flap valve in a housing at the air cleaner. Depending on the temperature in the housing, cool air is taken from the front of the engine and/or hot air is taken from the exhaust manifold. This system can hold temperatures to within a few degrees of the optimum temperature (85°F). The entire mechanism is completely automatic.

Seven main bearing crankshaft has induction hardened journal surfaces.



When the engine is cold, all the intake air is drawn from the lower branch that wraps around the exhaust pipe, the first external engine part to get hot. The choke is only needed initially as the temperature of the intake air rises so fast that the choke may be completely closed in about 30 seconds. As the temperature rises, the system adjusts to take air from both branches. The fresh air branch has its intake at the rear of the right headlight. This is superior to placing the cool air intake directly in the air stream, an arrangement that makes it possible for quantities of dirt and dust to enter the intake system.

The twin Zenith-Stromberg carburetors used on the 164 were specifically designed for Volvo's exhaust emission control system and are sealed at the assembly plant after the engine is tuned. The only possible adjustment is to the idle, and this adjustment is limited to prevent unacceptable emission level. The carburetors also automatically adjust to compensate for higher ambient temperatures.

The air/fuel mixture travels from the carburetors to Volvo's exhaust emission control system entirely contained inside the dual induction manifold. There, the mixture is heated and blended inside a preheating chamber to produce better combustion and cleaner exhaust. At higher engine speeds, valves inside the manifold open to permit the mixture to flow directly into the combustion chambers. This system was introduced on cars built for the U.S.A. in the summer of 1967 and now is a feature on all dual carburetor Volvos throughout the world.

Inside the air cleaner housing and protected by it, is a single paper air filter that lasts for 25,000 miles under normal conditions. The cover and filter are easily removed for carburetor inspection.

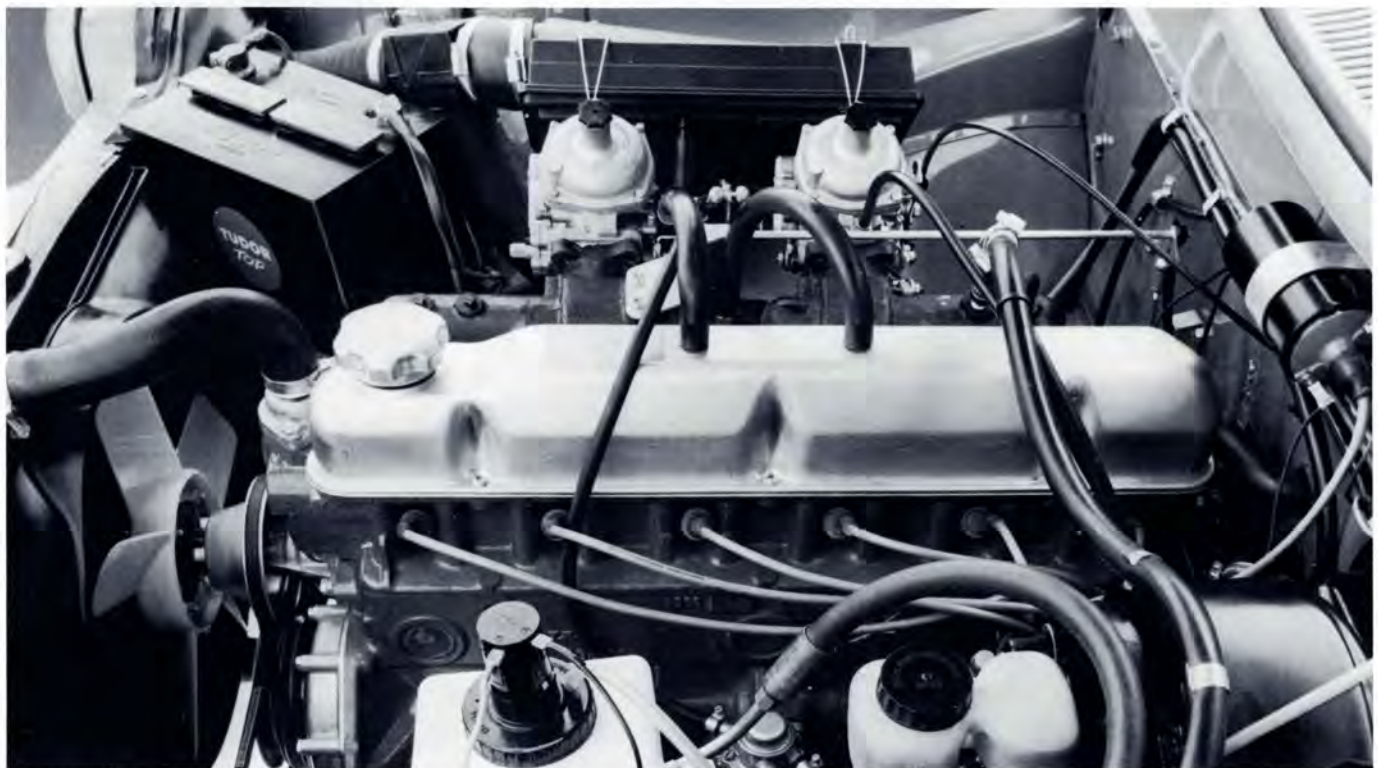
Another special feature is an unusual nylon fan. Its speed is limited to 3000 r.p.m., regardless of how fast the engine is turning. The fan, which has asymmetric blades to reduce vibrations and noise, is controlled by a viscous slip clutch. Limiting the fan speed results in quieter engine operation and reduced high speed power loss.

Important internal engine features include fully machined combustion chambers for complete fuel burning and less carbon build up, freely rotating valves which have a longer life and water jackets that completely surround each cylinder for proper cooling.

The B30 has a full-flow oil filter which is 50% larger than the one used on the B20, and a high capacity oil pump.

A transparent expansion tank is part of the sealed cooling system. The tank allows visual inspection of the coolant level. Cooling systems are filled with a 50% anti-freeze solution at the factory.

164 performance combines low and medium speed flexibility with high speed response. The torque curve, a measure of pulling power, is extremely flat with over 150 foot pounds available between 1500 and 4900 r.p.m. Maximum torque of 163 foot pounds occurs at a low 3000 r.p.m.



Volvo's new B30 engine is its first six-cylinder powerplant in 10 years. It develops 145 horsepower at 5500 rpm and 163 foot pounds of torque at 3000 rpm. Unusual exterior features include an air induction system controlled by a thermostat and an asymmetric nylon fan which has its speed limited to 3000 rpm.

The horsepower curve also is very flat with the engine developing full power, 145 b.h.p. at 5500 r.p.m. This power is transmitted to the rear wheels via a strengthened drive shaft and carefully chosen final drive ratios (3.31 to 1 for the automatic and 3.73 to 1 for the manual shift).

The 164 will achieve speeds of 34 mph in first gear, 54 mph in second, 80 mph in third and 109 mph in fourth gear. It will cruise at 60 mph at only 3100 r.p.m.

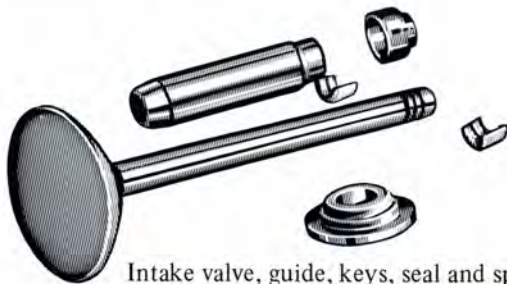
The 164 with three-speed automatic transmission reaches 51 mph in first gear, 83 mph in second and needs only an economical 2700 to cruise at 60 mph.

What these figures mean in terms of comparative performance is that the 164 can be driven easily at low and medium engine speeds in all traffic conditions, while retaining the high speed response which previous Volvos have been noted for.

Especially noteworthy is the quiet running engine's smooth response, even at low rpm. This factor results in considerably less use of the gearbox.

The three speed automatic is equipped with a bigger 11-inch torque converter, developed to handle the additional power, and a part throttle kick down feature for smooth low speed shifting. The automatic transmission gear selector is column mounted and the standard PRNDL quadrant is illuminated.

164s with standard transmission use an entirely new four-speed fully synchronized unit. In contrast to other Volvo sedans, the 164 has remote linkage and a lever which requires a very short throw for fast shifts. A benefit of this type of linkage is the elimination of vibrations to the lever. The shift is positioned conveniently close to the driver.



Intake valve, guide, keys, seal and spring retainer.



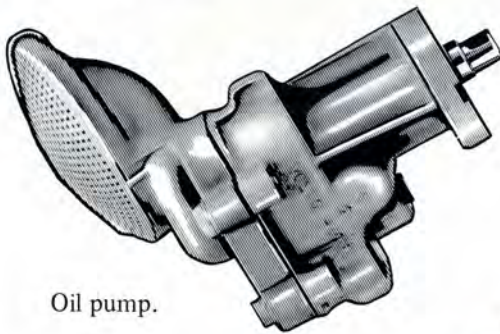
Piston assembled with connecting rod and bearing cap.



Camshaft



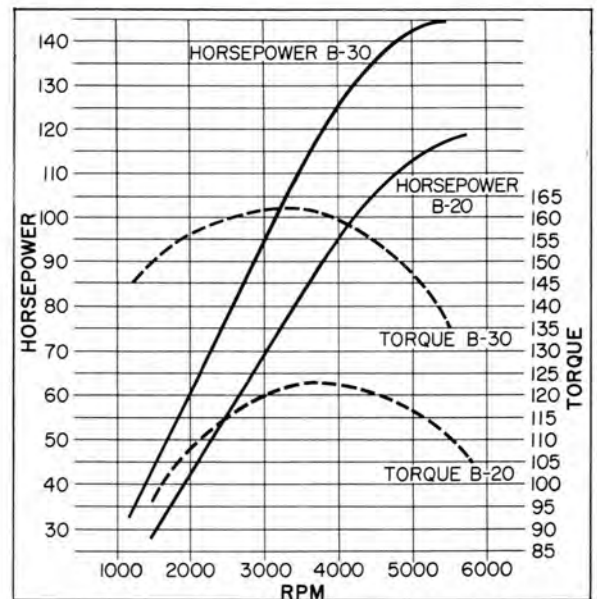
Alternator



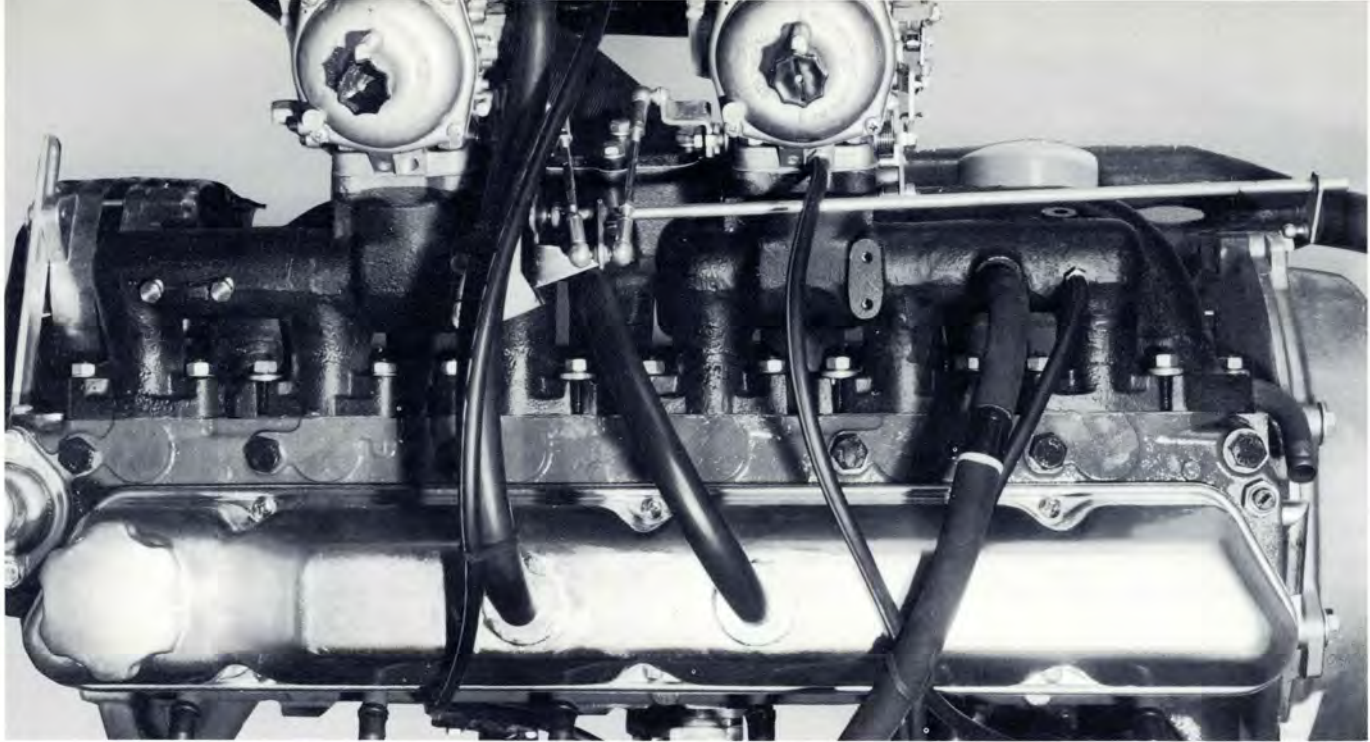
Oil pump.



Crankshaft vibration damper.

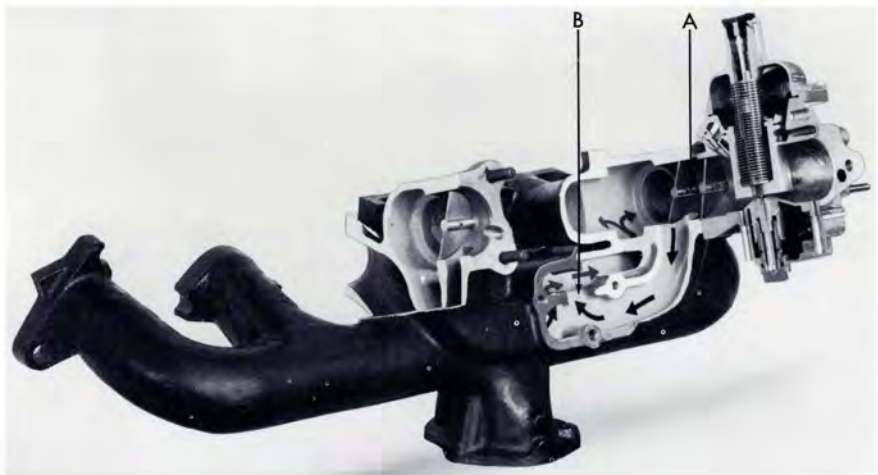


Horsepower and torque curves of the B30 engine are shown with those of the B20. The six-cylinder engine produces over 40% more torque at 2000 rpm and more than one-third greater horsepower at 4000 rpm.



Overhead view shows Zenith-Stromberg carburetors and manifolding to the twelve port head. Hoses into the valve cover are part of the positive crankcase ventilation system which takes unburned gases back through the carburetors.

The Volvo exhaust emission control system is contained inside the intake manifold. The secondary valve (A) is closed at low engine speeds routing the air/fuel mixture to a central preheating chamber (B) which is warmed by the exhaust pipe. Both carburetors feed into this chamber from which the mixture spreads to the six induction ports as required. Also helping to lower emissions at idle speed is vacuum retarded timing. At high engine speeds, where combustion is more complete, the secondary valve opens so that each carburetor directly supplies three cylinders.



Volvo 164 engine and power train specifications:

Engine

Type B30. Water cooled, six-cylinder in line, cast iron block and head, seven-main bearing crankshaft. Pushrod operated overhead valves with gear driven four-bearing camshaft. Bore: 3.50 inches. Stroke: 3.15 inches. Displacement: 182 cubic inches (2979 cc.) Maximum horsepower: 145 b.h.p. at 5500 r.p.m. Maximum torque: 163 foot pounds at 3000 r.p.m. Specific power output: .80 b.h.p. per cubic inch displacement. Power to weight ratio: 20.2:1 Compression ratio: 9.2:1 Oil filter: Full flow. Oil capacity: 6.3 quarts including filter.

Clutch

Diaphragm spring type, nine inch single dry plate.

Cooling system

Sealed. 50% anti-freeze coolant circulated by engine driven pump. Transparent expansion tank. Capacity: 13.0 quarts. Engine driven fan equipped with slip clutch.

Fuel system

Twin horizontal 1.75 inch Zenith-Stromberg CDSE (emission) carburetors supplied by a mechanical pump. Gasoline required: Premium. Tank capacity: 15.5 gallons.

Transmissions

Manual. Four-speed, fully synchronized with floor mounted remote linkage.

			Overall	M.P.H. at 5500 r.p.m.
Ratios:	1st	3.14:1	11.71	34
	2nd	1.97:1	7.35	54
	3rd	1.34:1	5.00	80
	4th	1.00:1	3.73	—
	Reverse	3.54:1	13.20	—

Automatic. Hydraulic 11-inch torque converter, three-speed with part throttle kick down. Column mounted illuminated gear selector with standard P,R,N,D,L quadrant.

			Overall	M.P.H. at 5500 r.p.m.
Ratios:	1st	2.39:1	7.91	51
	2nd	1.45:1	4.80	83
	3rd	1.00:1	3.31	—
	Reverse	2.09:1	6.92	—

Rear axle

Hypoid type. Ratios: 3.73:1 for manual transmission; 3.31:1 for automatic transmission.

heating and ventilation

Thorough fresh air heating and ventilating systems are built into the Volvo 164 for maximum passenger comfort. Hot air can be regulated in terms of intensity, direction and temperature. The heating system is so effective that its full capacity is needed only in extremely cold weather.

The system is controlled by three vertically mounted, illuminated, finger-tip operated discs. These are recessed into the center of the dashboard. An adjacent knob operates a two-speed blower. Heated air to the front floor comes from outlets under the dash and is evenly distributed so it circulates freely to warm the whole car quickly. Two additional outlets atop the transmission tunnel heat the rear passenger area.

Three vents across the top of the dashboard supply the windshield with air. Any adjustment, from full force for defrosting to a partial air flow for defogging, can be made. Air can be directed to either the floor or windshield or both, by dialing the floor and defroster discs.

The third disc, for temperature adjustment, is connected to a thermostat. The temperature selected is automatically maintained regardless of changes in speed, outside temperature or engine temperature.

Fresh air, drawn from a vent at the base of the windshield, enters the car through outlets at the sides under the dashboard. These outlets have a foot operated lever and two positions for partial or full force intake. Opening the floor and defrosting ducts will further aid cooling. This fresh air also helps prevent rust. A constant flow passes through the sill plates to avoid moisture accumulation.

Another feature of the 164, and a soon to come Federal safety requirement, is rear window defrosting. Special heat conductive wires, cast onto the glass, defog or defrost the rear window, depending on the setting of a two-position switch on the dashboard. The switch will only supply current when the ignition is on to ensure against accidental battery drain. The wires are so small in diameter that they are virtually invisible.

For extreme hot weather driving comfort, optional Volvo air conditioning is available. Cold air direction, force and temperature are all separately adjustable. Maximum dispersion of cooled air is provided by three outlets installed in the underdash panels. All controls are conveniently located in the center.

This specially designed unit has a drive belt that is free running when the air conditioner is turned off and, although it produces 12,000 B.T.U., there is only a negligible horsepower loss in operation.

Three illuminated dials, centered in the dashboard are used to select the temperature and direction of heat for the fresh air system.





Custom air conditioning, especially designed for Volvo, has three outlets installed in the underdash area. Cooling controls, located in the center panel, adjust the temperature and blower speed. Each outlet has adjustable louvres to direct the air flow.



Thirteen heat conductive wires across the rear window are controlled by a dashboard switch to keep the glass free of mist and ice.

Fresh air vents under the dashboard are foot operated. They open to partial and full positions, drawing air from an intake at the base of the windshield.



A gas operated cylinder on either side enables the trunk lid to be opened easily to any position.

luggage compartment

The Volvo 164 luggage compartment doesn't just look big, it is. There is more usable space than in most full size cars. The 164 has, for example, over six cubic feet more usable space than a \$14,000 luxury sedan.

The reason for this great storage capacity is the height and box-like structure of the trunk compartment. The flat trunk lid opens easily with gas operated cylinders that do the lifting. The spare tire is stored upright in a well where it is out of the way but readily accessible. Another well, hidden by the floor mat, is provided on the other side to store tools or an accessory gas can.

The trunk lid, with a latch that can be left securely closed but unlocked if desired, has a lamp attached for automatic illumination. A similar lamp is fitted under the engine hood. An accessory tray, which fits on the trunk's rear shelf, can be purchased to securely store loose items.

Volvo 164 luggage compartment dimensions:

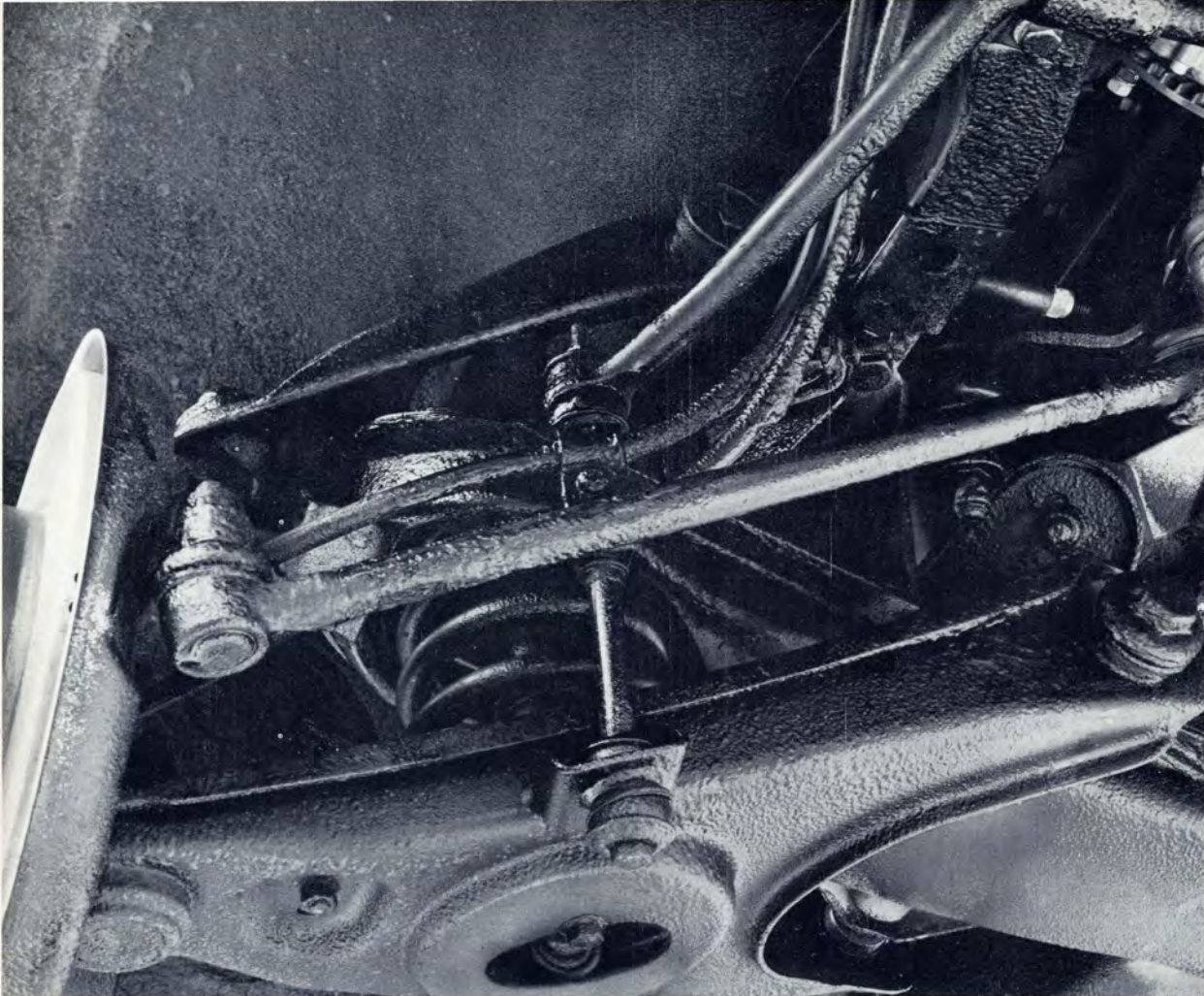
	Inches
Width, minimum and maximum	52.0 – 55.0
Width, with tire removed	61.0
Height	22.0
Length	47.6
Capacity	23.6 cubic feet



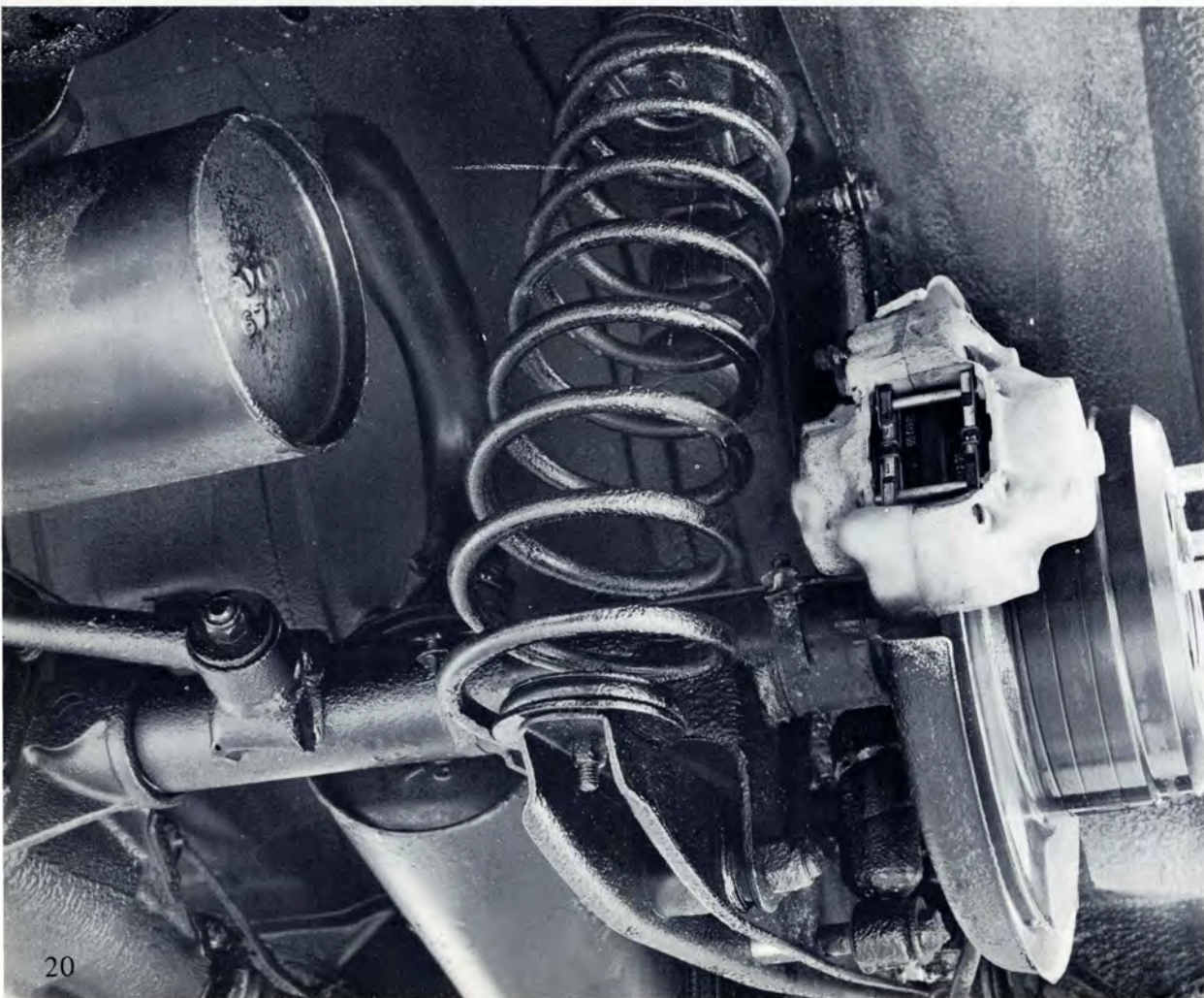
Spare tire is stored vertically, out of the way but always accessible. Tools and jack are supplied in plastic pouches. Eash to use safety jack lifts a single corner of the car.



Spacious trunk will store six suitcases vertically with lots of room left for small bags. A well on the left side, covered by the floor mat, will house a specially designed accessory spare gas can.



Front suspension is independent, permanently lubricated. Control arms are mounted on friction reducing nylon lined bushings.



The 164 uses an entirely new rear axle carried by longitudinal control arms and torque rods. Coil springs and telescopic shock absorbers are used on all four corners.

suspension and steering

Underneath the 164 are the components which give it its solidity, superior ride and sure handling qualities.

The suspension uses coil springs all around and double acting telescopic shock absorbers at each corner. Up front, the springs are thicker than those used in the 140 Series and have a greater load rating to compensate for the increased weight of the six-cylinder engine. The rear springs are supplemented by hollow rubber springs that limit vertical axle travel on very rough roads or when the car is fully loaded.

The front suspension is independent with upper and lower control arms, stronger ball joints and anti-sway bar.

In the rear, the 164 has a newly designed live axle which is accurately positioned by rubber mounted support arms and torque rods. A feature of the rear suspension is a new type of wheel bearing which absorbs greater lateral stress during cornering. The stress is taken on both sides of the car and both sides of the bearings, adding to longer life. With other tapered bearing designs all the stress is transmitted to the inner wheel via the axle shafts. These new bearings also simplify rear axle repair.

The 164 has a power assisted cam and roller steering system. This ZF designed unit makes steering and parking easier and is both firm and responsive without the vagueness associated with most power systems in use today.

Only 3.7 turns of the steering wheel are required to turn it lock to lock. The 164 has a tight turning circle of 31.5 feet.

The safety steering column is a specially developed four-section unit. The upper two sections are designed to telescope and will collapse under pressure from either end. Connecting these sections with the two bottom sections is a universal joint coupling. A hard rubber coupling that absorbs road shock and vibrations joins the two lower sections to the steering box.

New safety column and ZF steering are provided. In addition to faster, full-control response, this new power assisted unit effectively absorbs road shock.

Volvo 164 suspension and steering specifications:

Front suspension—

Independent with control arms mounted on friction reducing nylon lined bushings. Steering knuckles supported by ball joints. Stabilizer bar. Permanently lubricated. Coil springs with double acting telescopic shock absorbers.

Rear suspension—

Solid rear axle carried by longitudinal, rubber mounted control arms and torque rods. Transverse location by rubber mounted track rod. Coil springs and auxiliary rubber springs with double acting telescopic shock absorbers.

Wheels and tires—

Pressed steel wheels, rim size 4½J x 15 inches. 6.85 x 15 tires, whitewall, low profile, tubeless.

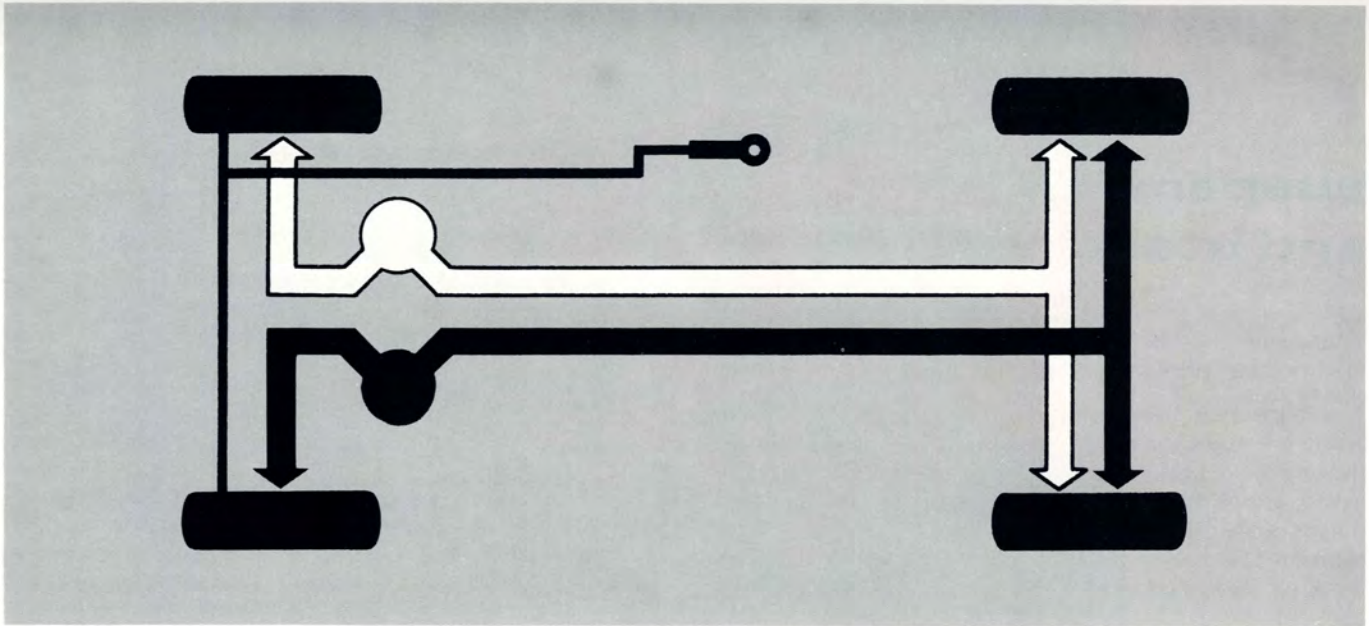
Steering—

Cam and roller type with power assist standard. Turns lock to lock: 3.7. Turning circle: 31 feet 6 inches. Collapsible steering column.

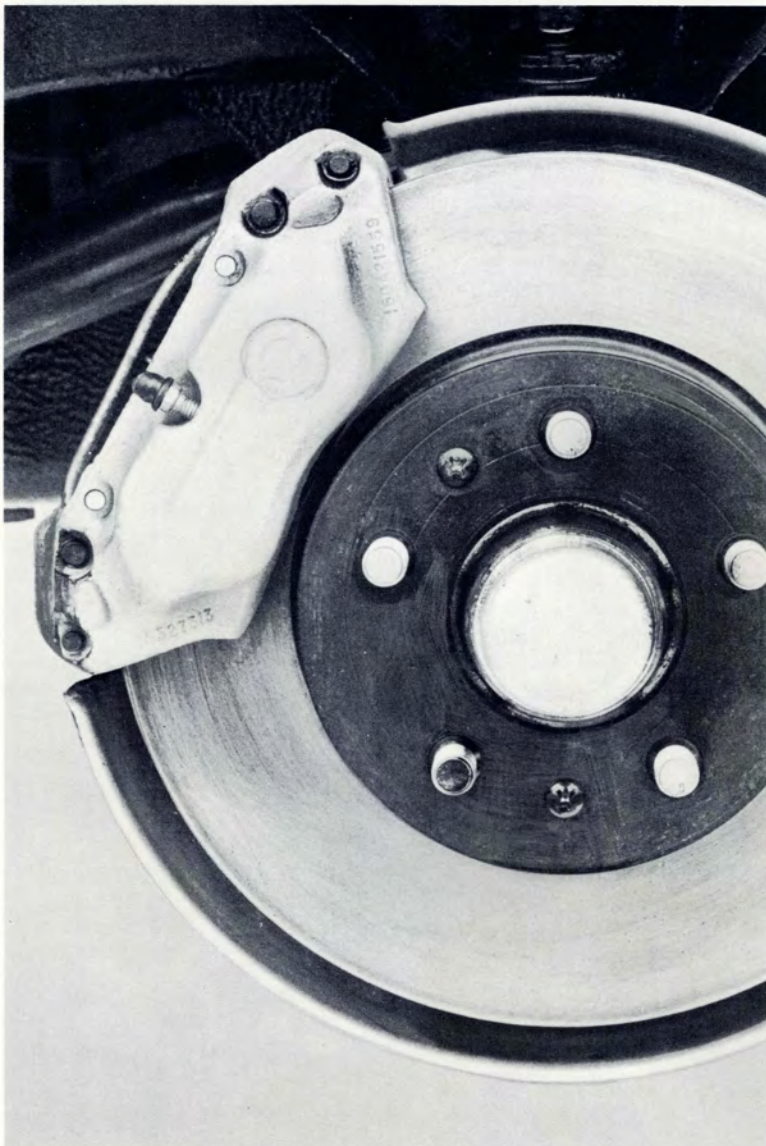
Power steering is standard on the 164.

Hydraulic pump, bottom center, runs off the fan belt. Above the radiator expansion tank is the fluid reservoir.





The 164 dual brake system has each circuit operating on three wheels, two front and one rear. Pressure relief valves incorporated into both rear brake hydraulic lines prevent premature locking of the rear wheels.



Powerful disc brakes are used on all four wheels. The front pads are 35% larger than those on the 140 Series, compensating for the greater front end weight.

brakes

Contributing to the overall performance and safety of the 164 is an exclusive dual circuit "fail safe" brake system using power assisted, self adjusting discs on all four wheels. The four discs provide a swept area comparable to 150 mph grand touring cars.

The dual footbrake circuits each operate on both front and one rear wheel. Not only is it more efficient than the other four emergency systems, but it also eliminates the hazard of control loss during heavy braking. With either circuit inoperative the 164 maintains directional stability even during panic stops and provides at least 80% of total four wheel braking effectiveness.

Three immediate failure warnings are built into the hydraulic system. An instrument panel light goes on should either of the two circuits become inoperative. Also, pedal travel and pressure will increase noticeably if one of the circuits should fail.

The hand brake features a brake drum with conventional brake shoes for each rear wheel. An automatic dashboard reminder light warns the driver that the hand brake is applied.

Assisting the 164 to stop straight is a pair of proportioning valves incorporated into the rear brake hydraulic lines. The valves regulate the hydraulic pressure and prevent the rear wheels from prematurely locking before the front wheels, the primary cause of loss of control during emergency braking.

Volvo 164 brake specifications:

Power assisted four-wheel disc brakes. Twin circuit hydraulic system; each circuit operating on both front wheels and one rear wheel. Each circuit alone provides 80% of total four-wheel braking effectiveness. Special pressure relief valves operating on rear wheels.

Front: Self adjusting 10.7 inch discs – pad area 27.0 square inches

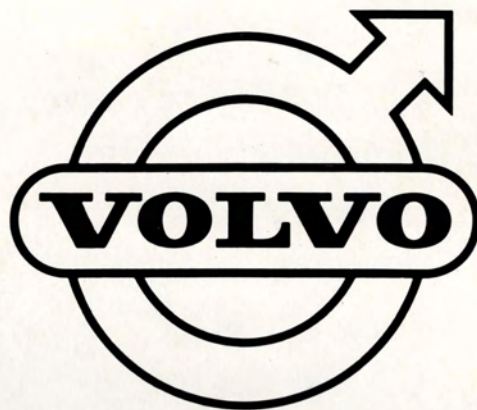
Rear: Self adjusting 11.6 inch discs – pad area 14.4 square inches

Hydraulic power assist: Dual diaphragm, 1:4 ratio.

Handbrake: Mechanical drum brakes acting on both rear wheels. Lining area: 27 square inches. Dashboard warning light.

A more powerful brake booster is used on the 164. Visual inspection of the hydraulic fluid level is another Volvo safety feature.





The factory reserves the right to make changes at any time, without notice, in prices, colors, materials, equipment, specifications and models and also to discontinue models.

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