

# VOLVO



## A car you can believe in.

As Rich Ceppos observes about Volvos in *CAR & DRIVER* (Feb. 1981): "This year's cars look almost exactly like last year's cars, which look the same as they did the year before that. While this would logically lead you to believe that Volvos have changed very little over the years," he goes on, "nothing could be further from the truth. For over a decade, a steady mechanical evolution has been taking place under the surface and every year the serious-minded Swedish engineers have made their car a little bit better..."

From the time of their introduction in this country, he writes, "Volvos were considered honest, forthright vehicles, anti style and anti annual model change. Not that their reputation has changed much since. Volvos are known to be rugged. (Remember the ads showing them stacked six high?) Their durability is legendary. (In Sweden they last an average of 17.9 years — or is that 27.9?\*) Joan Claybrook, former chief of the National Highway Traffic Safety Administration, and a known Naderite, owns one."

Thank you, Rich. We trust that a growing family of wise car-buyers will echo your opinions about Volvo for years to come.

\*As a matter of fact, according to the Swedish Motor Vehicle Inspection Bureau, the life-expectancy of a Volvo in Sweden now averages 18.7 years... that's longer than any other car on the road in Sweden, longer than Mercedes-Benz, BMW, Volkswagen, Peugeot, or Audi. Of course, driving conditions in America may differ, so your Volvo may not last as long. Then again, it may last longer.

<b>DL</b>	
Two-door sedan	Four-cylinder
Four-door sedan	Four-cylinder Six-cylinder Diesel
Wagon	Four-cylinder Six-cylinder Diesel
<b>GL</b>	
Four-door sedan	Four-cylinder Six-cylinder Diesel
Wagon	Four-cylinder Six-cylinder Diesel
<b>GLT</b>	
Two-door sedan	Four-cylinder Four-cylinder Turbo
Four-door sedan	Four-cylinder Turbo
Wagon	Four-cylinder Turbo
<b>GLE</b>	
Four-door sedan	Six-cylinder



# DL

Two-door sedan    Four-cylinder  
Four-door sedan    Four-cylinder  
Six-cylinder Diesel

When you get down to sticker price, the DL sedan — the basic Volvo — is positively luxurious.

"I don't believe it!" is a common reaction when people realize that their investment in a Volvo DL can still buy so much car. The fact is that standard equipment includes practical, thoughtful, even luxurious features that may cost you extra on some other cars. For example, your choice of a four-speed manual

transmission with overdrive, or a four-speed automatic, with overdrive fourth gear.\* Tinted glass on *all* the windows. Full interior and trunk carpeting. Cloth upholstery. A quartz crystal clock. On the four-door DL — perhaps the perfect family sedan — a centrally controlled door-locking system, and child-proof safety locks for the rear doors. For a complete list of what's standard on the DL, see page 17.

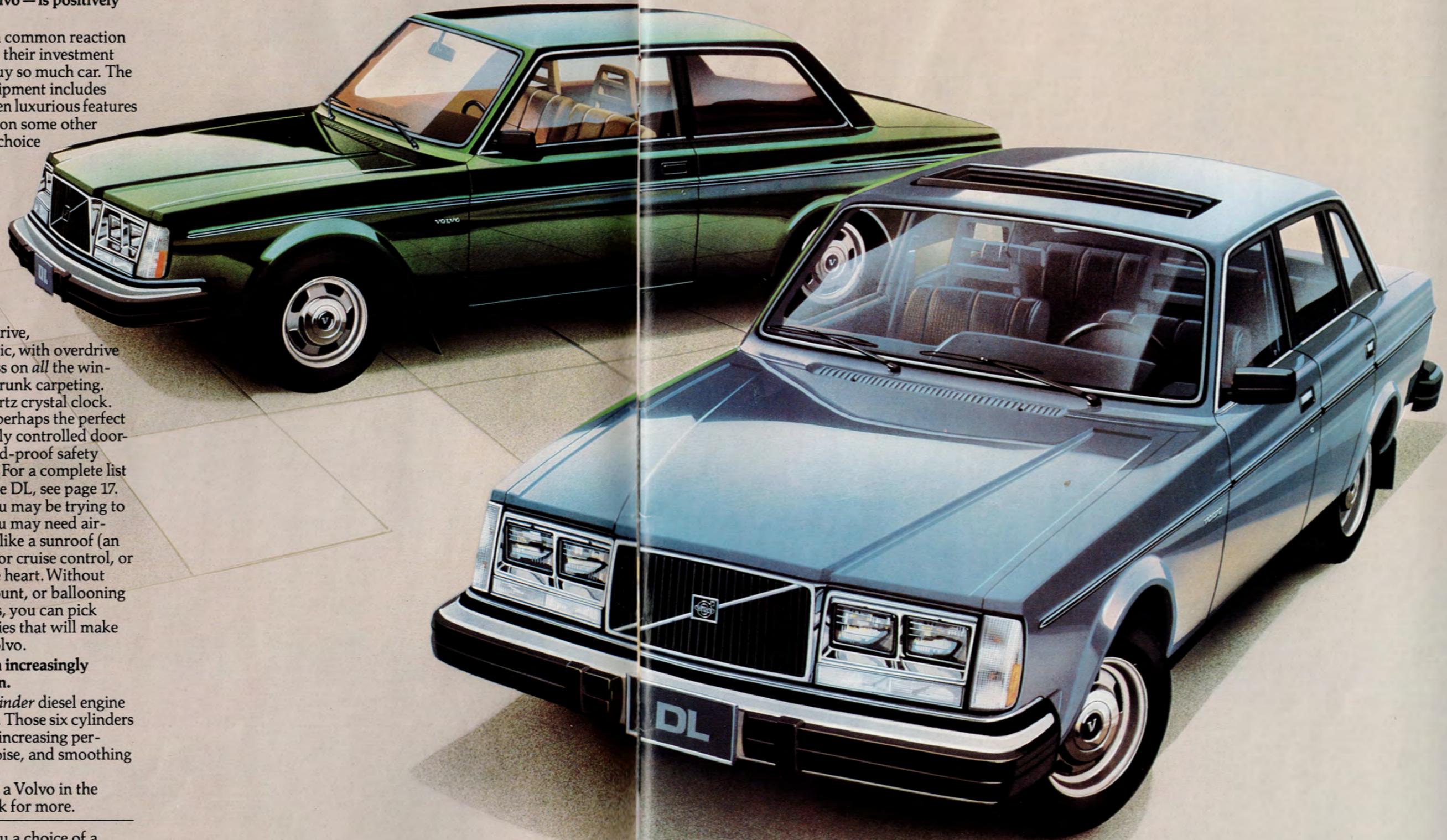
Now, even though you may be trying to hold the line on cost, you may need air-conditioning. Or, you'd like a sunroof (an option on certain DLs), or cruise control, or power-windows. . . Take heart. Without gouging your bank account, or ballooning your monthly payments, you can pick and choose the accessories that will make our basic Volvo your Volvo.

**The Volvo DL Diesel: an increasingly popular economy option.**

It has the only *six-cylinder* diesel engine found in a passenger car. Those six cylinders make all the difference: increasing performance, decreasing noise, and smoothing out vibrations.

Imagine! A diesel *and* a Volvo in the bargain. You couldn't ask for more.

\*The DL Diesel gives you a choice of a four-speed manual transmission, or a three-speed automatic.



"If you think of an imported station wagon as embodying Old World quality and limitless practicality, then Volvo is the standard bearer." — MOTOR TREND's Import Car Buying Guide.

MOTOR TREND continues: "The Swedish manufacturer's cars are getting rather large by current standards, but that's hardly a drawback for a wagon. Especially when outstanding engineering blesses it with surprising maneuverability and fuel efficiency. And, of course, Volvo durability is legend."

The key to that "surprising maneuverability" is the simple fact that the DL wagon is a DL sedan in disguise. The overall length of the sedan and the wagon is the same (192.4"). Their overall width (67.2") and turning radius is the same (32'2"). Frankly, the reason such attributes are missing from other wagons remains a mystery to us...

Despite its sedan-like similarities, the DL wagon has an enormous hauling capacity. With the rear seat down, the cargo area measures roughly six by four by three feet — in all, seventy-six cubic feet, at nearly right angles. With the rear seat up, you still have cargo space that's almost four feet long.

To make it easy to get things into the back, the tailgate is nearly square and hinged at the top, so it'll never be in your way.

Gas-filled springs enable you to open it one-handed. And the floor of the cargo area is only twenty-three inches from the ground.

Though it's intended to be practical, the interior of the DL wagon is not at all spartan. The cargo area, for example, is fully carpeted. Storage compartments are built into the front doors. There's a vanity mirror in the lighted glove box. The cargo area contains lockable storage space.

Of course you can always add available options: among them, air-conditioning, power-windows, a diesel engine. In any event, you'll still get a Volvo sedan inside your Volvo wagon at no extra cost.



# GL

Four-door sedan	Four-cylinder Six-cylinder Diesel
Wagon	Four-cylinder Six-cylinder Diesel

Although the Volvo GL delivers fuel economy, it can satisfy even an oil shiek's penchant for opulence.

With its four-cylinder gasoline engine, or six-cylinder diesel, the GL sedan or wagon won't drain your wallet at the pump, as the typical luxury car is likely to these days.

Yet, almost the only touch of opulence that you select is the audio system.

What comes standard?

A stately plush velour interior, color-coordinated with plush carpeting that extends into the trunk. (Throughout the cargo area of the wagon.) A heated driver's seat. An electric tachometer.\* A sunroof on the sedans. Dual side mirrors. Intermittent front wipers. Air-conditioning.\*\* Power windows.\*\*

Roominess is also synonymous with luxury, and with Volvos: enough for all the shoulders and all the knees of five adults in the GL sedan. Nor is it necessary to travel light. A cavernous trunk measuring 13.9 cubic feet and shaped as a big deep box can hold everyone's luggage, upright, in the sedan. Even with the rear seat up, the wagon offers 41.1 cubic feet of carrying space, nearly square.

Sedan or wagon, the ride and handling characteristics are one hundred percent Volvo: equally smooth, without any loss of feel for the road; designed to be as steady in an avoidance maneuver as under normal driving conditions.

In short, the Volvo GL is a car that makes embracing economy as luxurious as possible. And isn't that one way the rich get richer?

\*Not available on Diesel models.

\*\*Optional in the Diesel wagon.



# GLT

Two-door sedan    Four-cylinder  
Four-door sedan    Four-cylinder Turbo

**"The GLT... especially the Turbo... shows that Volvos can do more than get out of their own way."**

Perhaps we can forgive *CAR AND DRIVER's* Csaba Csere for his backhanded compliment. After all, there he was confronting a Volvo sedan— always touted for such sedate family-oriented virtues as roominess, comfort, and durability— suddenly behaving as a high-performance touring car.

While taking nothing away from the standard GLT, the new Turbo has writers bursting with enthusiasm— *CAR AND DRIVER's* Rich Ceppos, for instance: "The turbocharged version of the venerable 2.1-liter B21F four-cylinder engine is enough to transform a pleasant car into one that suggests *joie de vivre*."

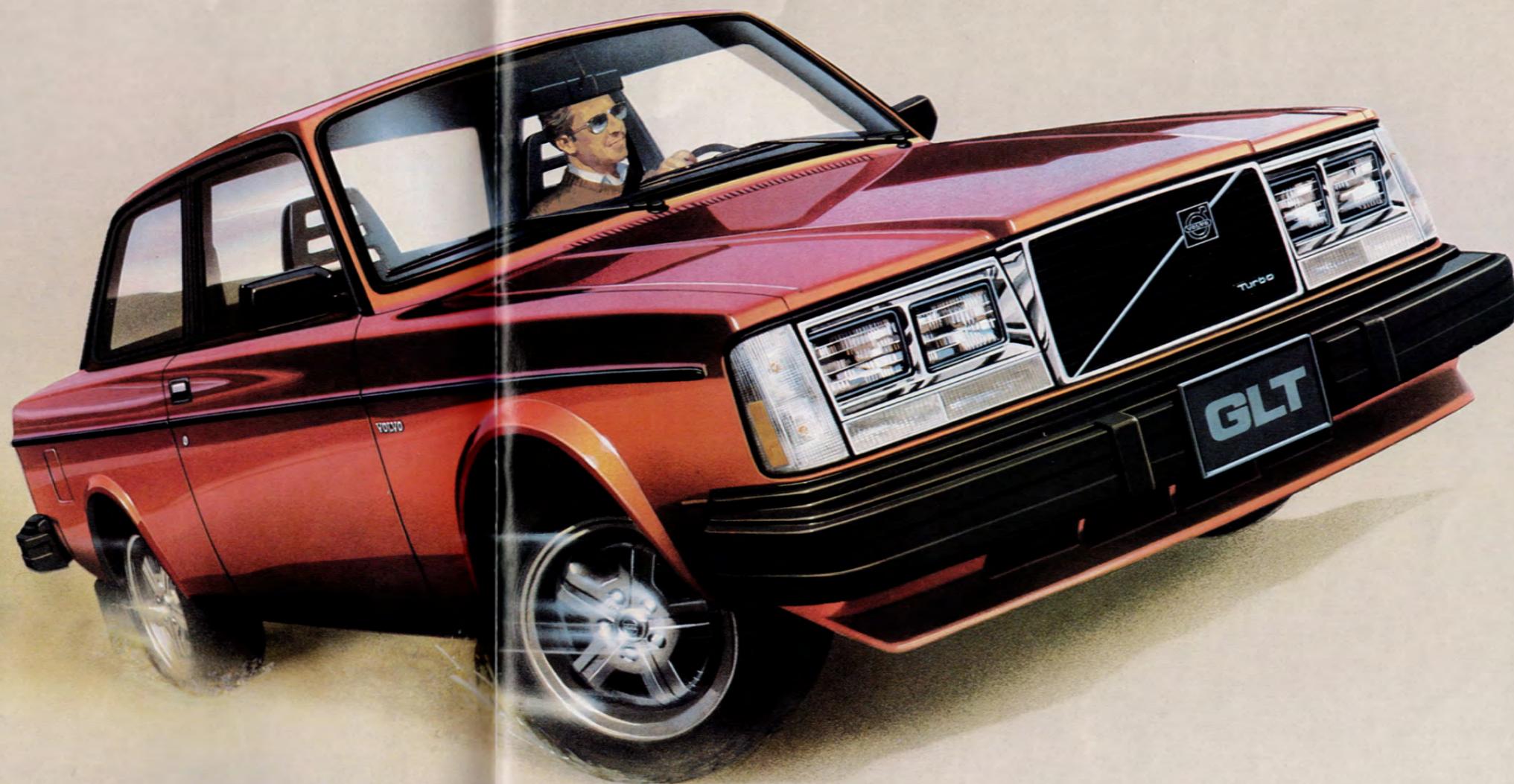
"Actually 'refined' is a word that comes to mind as you wheel the GLT Turbo down the road. Everything seems to work with a fluidity, with a harmony, that's lacking in most other cars. No small detail has been left unpolished.

"The GLT Turbo is one of those cars that just flat feel good to drive. Almost everything about it seems to have been carefully developed. The driving position is a perfect example. The small, padded steering wheel, the pedals, and the shifter all seem perfectly and naturally placed. The chair-like driver's seat, one of the most supportive touring seats in any car, offers an adjustable lower cushion, a lumbar support, and a reclining backrest.

"The controls, too, operate with satisfying precision. The shift linkage is crisp and jewel-like. The clutch take up is velvety and linear. And the steering is sensitive, direct, and accurate.

"The GLT arrows down the highway, solid and stable. The ride is Mercedes-taut. The body is drum-tight and rattle-free.

"After all these years, Volvo has scienced-out every nook and cranny, and the result is a big sedan that does a whole lot of things awfully well."



**"Stunned! is the only way to describe my reaction to the first high-speed corners and bends I took with Volvo's GLT wagon..."**

"I was all ready to opposite-lock the steering wheel to bring the rear end back in line," Bill Hartford tells his readers in *POPULAR MECHANICS*, "but it never went anywhere. In 1,000 miles of driving I was astounded over and over again at the sportscar handling of what I consider a trend-setter wagon."

What astonished Bill is, in part, attributable to traditional Volvo design. Like all Volvo wagons, the GLT's overall size and

turning radius are virtually the same as those of the GLT sedan — very unwagon-like characteristics, to be sure.

It's the *shape* of the GLT wagon that gives it an impressive amount of cargo space: seventy-six cubic feet, with the rear seat down. (Roughly six feet long, four feet wide, and three feet high, at nearly right angles.) Three tie-down rings on each side make it easy to secure movable objects. The tailgate is almost square and hinged at the top, so it swings up and out of your way;

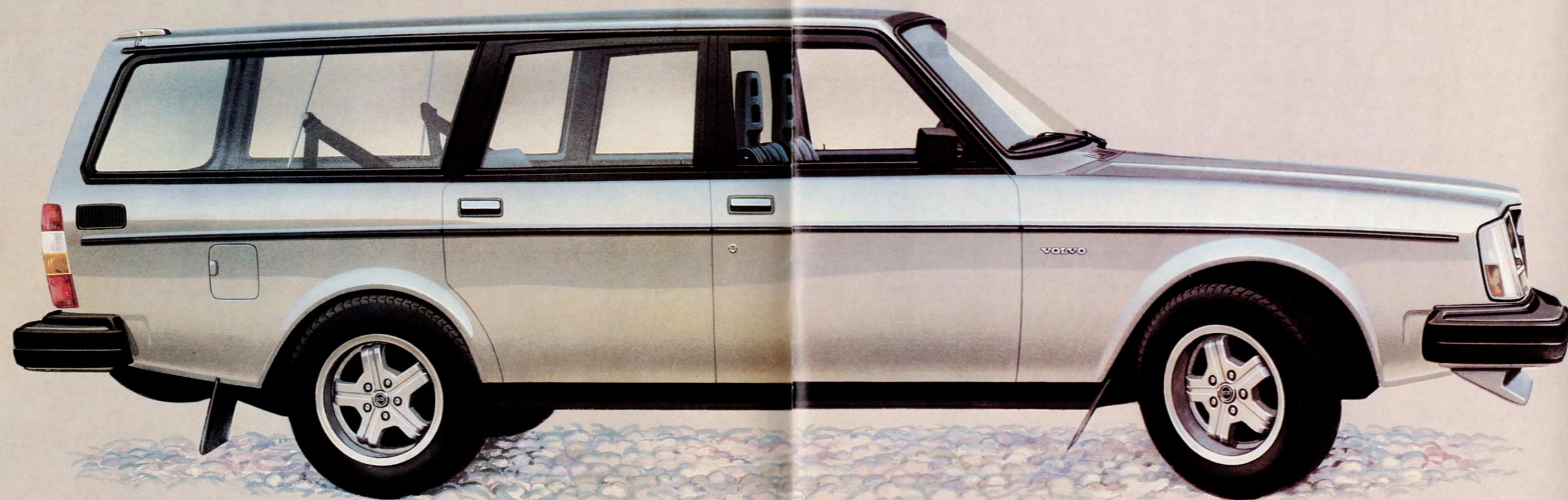
gas-filled springs enable you to open it with one hand. To load something into the back, you only have to lift it twenty-three inches off the ground. You can even pull as much as 2,000 pounds.

Now, about that sportscar handling: the GLT wagon comes equipped with a small-diameter steering wheel to quicken the steering response, and a deliberately taut suspension. It's balanced by special front and rear stabilizer bars and runs on five-spoke, alloy rims fitted out with Pirelli P6 tires.

In addition, as Bill notes, "the velour and comfort inside will stun the family

member who's not as enthusiastic about a station wagon's ability to follow a Ferrari on a twitchy back-country road."

Poor Bill. You see, the car that astonished him was the *old* GLT wagon: since then, we've turbocharged the engine. Presumably, when he test drives the *new* GLT Turbo wagon, he may be more than "stunned!" He may be speechless, as well.



# GLE

Four-door sedan Six-cylinder

**The gratification, the comfort, the interior quiet, the ride — for less than a Mercedes.**

To quote the *ROAD & TRACK* Buyer's Guide: "The GLE four-door sedan offers as much luxury and touring comfort as just about anything on the road these days... along with Volvo's reputation for building cars with extraordinary longevity."

Sitting in the driver's seat, you'll notice after you've closed the door that the dome light stays on for an extra fifteen seconds, so you can put on your seat belt and find the ignition when it's dark. The upholstery is leather. There's a sunroof. The interior carpeting is plush. Rocker switches in the door armrest control the power windows. A rheostat on the center console activates the air-conditioning. Toggle switches electrically adjust the dual side mirrors. If the interior temperature drops below 57 degrees F., heating elements just below the surface of the seat and backrest automatically warm up to 79 degrees F.

Four passengers can travel with you in style; there's room, especially leg room, for everyone sitting in the back.

Under the hood the Volvo B28F V-6 engine is ready to demonstrate how compatible it is with the GLE, ready to achieve optimum performance. Its torque curve allows you to call upon a surge of power the instant it's needed — power that calls into question people's original preference for gas-aholic V-8s.

So, if you want a well-built European luxury sedan, but you don't want to follow the crowd, consider the Volvo GLE. It's not outrageously priced, yet you certainly get all the amenities a person of means could want. And instead of owning the status car everyone else owns, you'll discover the status that comes from not.



As the comparison of standard equipment shows, the Volvo sticker price includes almost everything. Therefore, accessories are a matter of personal preference, not necessity. So your Volvo can be outfitted to serve you better, a complete line of accessories is available from your dealer:

**Audio systems**

Component series, microprocessor stereo and cassette, top executive player/recorder, twenty-watt speakers, graphic equalizer, modular CB...

**Comfort and convenience accessories**

Cruise control, leather steering wheel cover, power windows, a variety of monitoring gauges...

**Weather accessories**

Air-conditioning, engine block heater, sunroof, wind deflectors...

**Performance accessories**

Road-handling kit, steering wheel, alloy wheels, exhaust systems, spoiler, separate R Sport rally car accessories...

**Safety and security accessories**

Lockable gas cap, lockable wheel nuts, anti-theft alarm, reflector bumper strips...

**Towing, load carrying, and travel accessories**

Trailer hitch and wiring harness, a variety of load-leveling systems, steel cargo guard, lockable ski rack, removable and permanent wagon luggage racks...

**Sedan and wagon care and maintenance accessories**

A variety of protective floor and trunk mats, seat covers, service manuals, touch-up paints, car-care chemicals...

Ask your dealer for an accessory brochure.

**STANDARD EQUIPMENT OF ALL VOLVOS:**

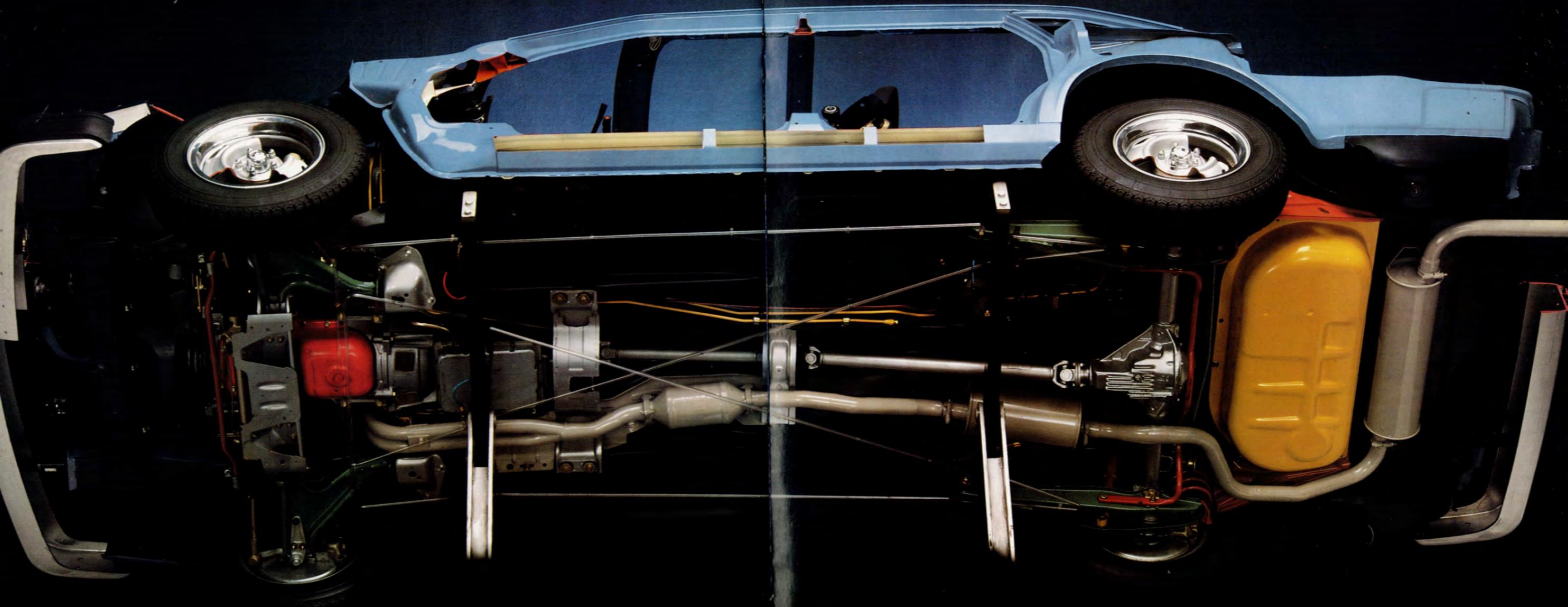
- INSTRUMENTS**  
Clock (quartz crystal); fuel gauge; odometer (six-digit); speedometer (85 MPH); temperature gauge (coolant); trip odometer
- WARNING BUZZER**  
Headlights; key; safety belts
- HEATING AND VENTILATION SYSTEM**  
12-outlet, high-capacity; with four-speed fan
- HEADLIGHTS**  
Halogen high-beam
- WINDOWS**  
Tinted, with dark tint band along top of windshield; electric rear window defroster; front windshield wipers with intermittent cycle; wagons also have rear window wiper
- INTERIOR**  
Front seats: Adjustable bucket seats, with adjustable lumbar support  
Rear seats: Three passenger; center armrest  
Seat belts: Four three-point, self-adjusting (one lap belt for rear-center passenger)
- CARPETING**  
Full interior and trunk or cargo area
- DOOR-LOCKING SYSTEM**  
Centrally controlled (except certain two-door models) including tailgate on wagon.  
Child-proof rear door locks
- POWER ASSISTED BRAKES AND STEERING**

**ADDITIONAL STANDARD EQUIPMENT BY MODEL**

		DL SEDAN (GAS)	DL WAGON (GAS)	DL SEDAN (DIESEL)	DL WAGON (DIESEL)	GL SEDAN (GAS)	GL WAGON (GAS)	GL SEDAN (DIESEL)	GL WAGON (DIESEL)	GLT SEDAN (GAS)	GLT WAGON (GAS)	GLT SEDAN (DIESEL)	GLT WAGON (DIESEL)	GLE SEDAN (TURBO)	GLE WAGON (TURBO)	GLE SEDAN (GAS)
DRIVETRAIN	Manual, four-speed, fully synchronized, with overdrive	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Automatic, four-speed, floor-mounted, with overdrive fourth gear	•	•			•	•			•	•	•				
	Automatic, three-speed, floor-mounted			•	•			•	•						•	
INSTRUMENTS	Tachometer					•	•			•	•	•	•			
	Turbo boost gauge											•	•			
	Voltmeter											•	•			
	Glow plug indicator			•	•			•	•							
	Turbo warning light											•	•			
AIR-CONDITIONING						•	•	•	•			•*	•	•		
POWER WINDOWS						•	•	•	•			•*	•	•		
WIPERS	Rear window wiper with intermittent cycle/washer			•		•		•						•		
MIRRORS	Left remote control, manual	•														
	Dual remote control, manual		•	•	•	•	•	•	•	•						
	Dual electric											•*	•	•		
HEATED DRIVER'S SEAT				•	•	•	•	•	•			•*	•	•		
PAINTWORK	Enamel	•	•	•	•											
	Enamel or metallic					•	•	•	•	•	•	•	•	•	•	•
UPHOLSTERY	Cloth, with vinyl trim	•		•												
	Vinyl		•		•											
	Velour					•		•								
	Leather							•		•						•
	Cloth, velour or leather											•				
	Velour or leather												•			

\*Not standard on certain two-door GLT Turbo models.

WHERE YOUR MONEY GOES



**Volvo uses galvanized steel and Zincrometal\*\* for body parts and key structural members vulnerable to rust.**

A hot bath process, galvanizing the 37.7 square feet of sheet steel in each Volvo, produces a protective layer of zinc three times thicker than is possible through electro-galvanizing, the less expensive and faster process widely used today.

The front fender panels are made of Zincrometal, a rust-resistant sheet steel with a zinc-rich primer baked



on. Plastic fender liners in the front wheel housings further protect the panels from dirt, gravel, and the road salts commonly encountered during winter driving. A plastic splash guard protects the engine compartment from dirt and salt spray, too.

**Over 4,000 spot welds end squeaks and rattles, and keep joints from becoming targets for rust.**

To minimize rust-prone joints, Volvos are assembled from the largest possible body panels. Spot welds, each strong enough to support the weight of the entire frame, fuse the panel assembly together. Special equipment ensures that the body parts fit together perfectly, and because spot welds replace bolts in

\*Zincrometal is a registered trademark of Diamond Shamrock Corporation.

Volvo's body construction, you'll never again hear squeaking or rattling as bolts gradually loosen.

**Every inch of the Volvo receives anti-corrosive protection.**

The floor, for example, gets a coat of abrasion-resistant polyester paint, then a thick asphalt-compound coating, which also reduces road sound.

Rust-proofing oil is sprayed onto the engine's underside, the axles, and the suspension. During assembly, Volvo sprays a penetrating anti-corrosive gel into the closed body sections, the roof pillars, the doors, the rocker panels.

**Volvo bodies receive a four-coat paint process above the beltline, a five-coat process below.**

Because the paint below the beltline — the lower half of the doors, the door sills, the rocker panels — is especially susceptible to chipping, the area is sprayed with wet-on-wet layers of polyester paint. The resilient polyester undercoats prevent the final coat of paint from chipping in the majority of cases in which damage would otherwise occur. Door sills, rocker panels, and the underside of the floor

are also sprayed with a polyester abrasion-resistant paint.

**Slipstream ventilation of the door sills is another unusual rust-preventive feature.**

Used by Volvo for over a decade, this process prevents moisture from collecting in the cowl air intake and inside the doors, two areas prone to rust. When rain or wash water enters the air intake, it flows downward through the bulkhead and out through holes drilled in the bottom of each door sill. When the car is moving, air flowing through the intake helps evaporate residual moisture.

**The Volvo body design eliminates unnecessary enclosures and crevices where moisture and dirt collect.**

Door latches have built-in drains: water that runs in, runs out. The trim is expensive rust-proof stainless steel; the front grille, chip-resistant ABS plastic. The exhaust system is partially aluminized to resist rust. The brake pipes are made of a special alloy, stronger and more rust-proof than pure copper.

Volvo's attention to detail goes on and on...

**Have you heard the one about the traveling salesman who has 774,000 miles on his Volvo?**

Back in 1965, Norbert G. Lyssy, a traveling salesman from Utopia, Texas, bought a Volvo 1800 S to get him around his Texas-sized territory. Since then, Mr. Lyssy has driven the Volvo an average of 70,000 miles a year, including 55-mile treks through the mountains on weekends, dragging a 16-foot power boat to his favorite lake. In all this time "Old Red," as Mr. Lyssy affectionately calls his Volvo, has never failed to get him to his destination.

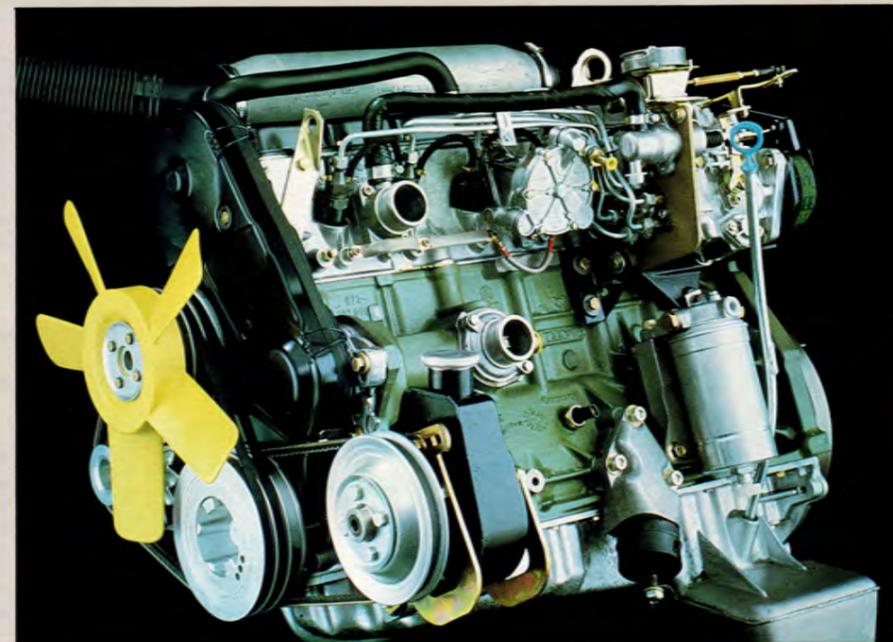
Mr. Lyssy has always done his own maintenance and mechanical work faithfully. Records he has kept for business purposes show that, all told, he has replaced the rings, a rod and main bearing, the shocks, the throw-out bearings, the clutch and pressure plate, and the timing gears. Oh, and he had to rebore a cylinder — at 680,000 miles!



The traveling Mr. Lyssy adds, "I think she'll reach a million miles with ease. After all, I only have 226,000 more miles to go." And that's no joke.\*

\*Sadly, Mr. Lyssy's quest has been temporarily delayed. Along the way to the magic one million, "Old Red" sustained some body damage in a successful effort to avoid hitting a deer. Although both Mr. Lyssy and the deer were unharmed, "Old Red" is recuperating in an auto repair shop.





**Volvo engines provide power to spare, not to waste.**

During the 1950s and 60s, when the name of the game with most auto makers was horsepower, Volvo maintained that horsepower alone didn't produce high performance, and it certainly didn't promote fuel economy. As usual, time has borne us out.

The engines in Volvo models deliver more torque, not just unbridled horsepower, over a wide range of speed — so that you can enjoy better performance and efficiency, from initial acceleration on through high-speed passing situations.

Since many technical variables are involved in Volvo's performance equation, our engineers assume the responsibility for matching engines with models. Consequently, every Volvo delivers optimum performance.

**The B21F**

Volvo uses the basic four-cylinder engine in the DLs, GLs, and GLTs without the Turbo. The cross-flow cylinder head improves engine performance by providing a free flow of exhaust gases; the design helps to localize heat from the exhaust manifold, which helps to cool the engine more rapidly. The overhead cam activates the in-line valves directly, eliminating push rods and rocker arms, and thereby reducing internal

vibration and wear. Volvo owners find the B21F rugged, dependable, and capable of delivering plenty of power without squandering fuel.

**The D24**

The engine Volvo uses in the DL and GL diesel sedans and wagons would please Rudolf Diesel himself. The only six-cylinder diesel engine in a passenger car today, it successfully overcomes the disappointments of standard four- and five-cylinder diesels. "Swirl chambers" in the cylinder heads reduce noise, and the swirling air patterns they create ensure a rapid and thorough mixture of air and fuel. The in-line, six-cylinder configuration makes the D24 as well balanced as a V-8. For a diesel, that's incredible.

**The B21F-Turbo**

A turbocharged B21F engine boosts the GLT's high performance. Volvo engineers are proud to introduce a 30- to 40-percent increase in torque over the unboosted engine running at the same rpm. The energy of the exhaust gas is used to drive a turbine mounted on the exhaust manifold. The turbine drives a compressor, increasing the pressure of the air and fuel mixture to the engine. In other words, the 2.13-liter B21F engine modified with the turbocharging unit performs like a 3-liter engine. The

additional burst of power is reserved for mid-range speeds — to help you get into fast-moving highway traffic, for example, and to take hills with impunity. To control the boost pressure, avoid pre-ignition, and protect the engine, an integrated "wastegate" allows excess exhaust to by-pass the turbine. Engine modifications include a newly designed piston (reducing the compression ratio to 7.5:1), a modified camshaft with very mild valve timing, sodium-cooled exhaust valves, a new intake manifold and exhaust system, a new air filter (to increase the air flow), and a thermostatically controlled air-cooler, which keeps the oil temperature within acceptable limits for peak engine efficiency. The result is impressive. And surprisingly quiet.

**The B28F V-6**

This engine is designed to the specifications of the GLE sedan. The compact V-6 configuration allows room for emission control and fuel-injection equipment — and for energy absorption, to help keep the engine away from the passenger compartment in case of a collision. The engine block and cylinder heads are made of a light, cast-aluminum alloy. This saves weight, allows for an even front-to-back weight distribution (to improve traction), creates a high power-to-weight ratio, and indirectly lessens fuel consumption. Also, aluminum dissipates heat four times faster than cast iron; more efficient cooling reduces engine wear. The low inertia mass of the valve system in the overhead camshaft engine makes it very



responsive at high rpm's. The cumulative result — an efficient, hard-working, durable engine that offers reasonable V-6 fuel economy, and power to spare when you need it.

**A superior fuel distribution system and a microprocessor based ignition system are standard on all gasoline powered Volvos.**

Volvo's sophisticated fuel injection systems automatically regulate the flow of fuel and the air-to-fuel combustion mixture as changes occur in the volume, temperature, humidity, and barometric pressure of incoming air. Volvo's fuel injection systems are more sensitive than most conventional carburetor systems. Because our fuel injection is so precise, Volvo engines now offer better fuel economy, greater horsepower, faster warm-up, and cleaner exhaust than they ever have before.

The solid-state ignition system that we build into most 1982 Volvos is a computer-controlled unit that does away with breaker points and condenser, components subject to malfunction. Compared with conventional ignition systems, the Volvo ignition provides a more consistent and controlled spark for precise combustion — increasing Volvo's engine performance and fuel economy, and reducing exhaust emissions.

**The choice of a manual or an automatic transmission is yours.**

Volvo's fully synchronized, four-speed manual transmission has first and second gear ratios designed for powerful acceleration, hill-climbing or trailer pulling, and prolonged engine and clutch life. Those who are wary of a manual transmission should be encouraged by Patrick Bedard, a writer for *CAR AND DRIVER*: "The takeup in a Volvo clutch is so silky and so gradual. And the effort drops off in such a marvelously linear fashion as you let out the pedal. If you ever have to teach (someone) how to drive a stick shift, this is the car to do it in. (It's) easier than tangoing on Arthur Murray's footprints... in the whole car kingdom, no other works half so well."

The overdrive that comes with the Volvo manual transmission is easier

to use than a true fifth gear. Overdrive engages at the push of a button, lowering the engine's rpm, reducing noise, and increasing fuel economy. When it's necessary to drop back into fourth (for power to pass or climb hills), simply push the button again. Down-shift below fourth gear automatically disengages the overdrive, so the driver doesn't have to remember it before shifting back up.

On the other hand, if you choose Volvo's automatic transmission, you'll be impressed with its quiet performance, and its smoothness through the gears. Acceleration through the lower gears is set for a wide range of speed, eliminating the sluggishness often associated with automatics. When you need *extra* acceleration, additional pressure on the accelerator automatically shifts the transmission to the next lowest gear. An innovation this year — offered on all Volvos with four-cylinder engines — is a four-speed automatic with overdrive fourth gear. Above 25 mph this transmission automatically shifts into overdrive, to help increase fuel economy and decrease engine wear by reducing engine revolutions at cruising speeds.



**The Volvo Lambda Sond® emission control system has been acclaimed as the most significant break-through ever achieved in the fight to obtain clean cars.**

Lambda Sond is standard equipment on all gasoline-powered Volvos. Its introduction earned Volvo the Award for Excellence in Air Pollution Control from the National Environmental Industries Council.

The challenge was to find a way to control the three major air pollutants: carbon monoxide, hydrocarbon, and nitrogen oxide.

Using an unusual substance called zirconia, developed by the U.S. space program to detect the presence of oxygen, engineers produced a sensing device that detects the oxygen in the engine's exhaust gases. It works as an on-and-off switch, telling the engine to run a leaner or richer air-to-fuel ratio, and thereby maintaining the proper degree of oxygen in the exhaust gases, so that the converter functions efficiently.

Another obvious advantage of the Lambda Sond system is that it eliminates the loss of power and fuel economy associated with many other emission control systems.



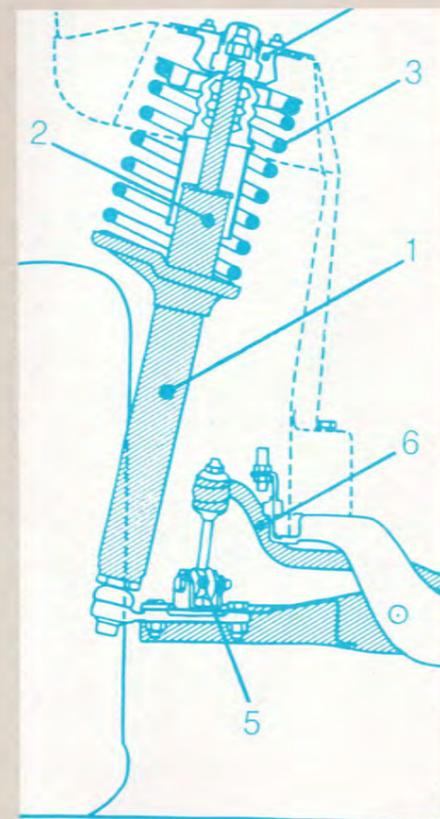
The Volvo suspension gives the driver precise steering control, but doesn't sacrifice comfort.

All the suspension components complement one another — and the steering and braking systems, weight distribution, and engine performance, as well. The Volvo ride is a delightful compromise between what people think of as typically European (stiff), and typically American (buoyant).

Each front wheel is independently suspended by a McPherson strut, an ingenious device that incorporates a coil spring and a shock absorber into one unit. Your Volvo is designed to respond immediately to your steering commands, and doesn't sway its way between lanes or around corners.

In back, Volvo engineers have selected a "live" rear axle to do the job of keeping the rear wheels on the road at the same angle. As a result, Volvo's road-holding ability remains as consistent as possible in all driving situations.

In addition, front and rear stabilizer bars counteract any car's normal tendency to lean as it corners, but without stiffening the ride on the straightway.



All Volvos have power-assisted disc brakes on all four wheels.

Braking depends upon friction, and friction generates heat that in a panic stop can weaken, distort, or burn out conventional drum brakes. Volvo's large disc brakes absorb heat and then cool off, substantially reducing the loss of effectiveness (brake fading) that can occur after repeated hard stops. Also, disc brakes spin water off quickly, so they tend to be more effective than drum brakes in rainy weather.

Volvo GLs, GLTs, GLEs, and diesels are equipped with a "spoiler," a device extending below the front bumper that increases road traction aerodynamically by decreasing the amount of air that flows under the moving car. Because less air circulates around them, the front disc brakes of these Volvos are ventilated. The discs themselves are thicker, so that ventilation slots can be cast through their centers, creating four cooling surfaces to dissipate heat.

Volvo engineers prefer power-assistance to full power brakes. You graduate the degree of pressure on the brake pedal, rather than having to control full power brakes that can barely be touched. In addition, special valves in the Volvo brake circuit proportionately modify the hydraulic pressure on the rear brakes. This modification helps prevent premature rear-wheel lock, the principal cause of loss of control during a hard stop.



Volvo's disc brakes have a dual triangular split brake circuit system, and a stepped-bore master brake cylinder.

In relatively simple and inexpensive brake circuit systems, if the front brake circuit fails, the braking effectiveness of the rear circuit can drop 70 percent, or more!

In the dual system Volvo has pioneered, each brake circuit simultane-



An innocent-looking Volvo DL with bolt-on gear suddenly becomes... AUTOWEEK'S full-fledged SCCA Production Class rally car.

"Considering Volvo's long-standing reputation for dependability," reasoned George Levy of *AutoWeek's* neophyte rally team, "the DL seemed like a wise choice for a rally car. Another attraction: all types of race and rally-proven equipment are available right from your local Volvo dealer, compliments of Volvo's performance-parts catalog."

For their maiden rally attempt, the *AutoWeek* Volvo team braved the 678-mile Press On Regardless, in Houghton, Michigan. "Among us old

ously and independently serves both front wheels (the ones that do most of the braking), and one opposite rear wheel. Should one system fail, the other provides about 80 percent of the braking power of the whole system.

Volvo's stepped-bore master brake cylinder lends additional integrity to the dual brake circuit system. If one circuit fails and the brake fluid chamber drains, the master brake cylinder will sustain the pressure in the remaining brake circuit, enabling you to stop the car with a nearly normal amount of pressure on the brake pedal.

rally freaks," claims *ROAD & TRACK's* Cameron A. Warren, "the Press On Regardless is the Big One. All the ingredients are there: slippery single track roads through the woods, miserable wintery weather, and two full nights of competition."

Of the 82 cars entered, *AutoWeek's* Volvo DL finished 18th overall and 4th in Production Class. "The car was superb from start to finish," said the *AutoWeek* team. "The only problems we encountered...two tire changes, necessitated by sliding sideways into a couple of trees and, later, striking a rock with the right front wheel... were attributable to driver error!"

For better traction, all Volvos have steel-belted radial tires mounted on wide-base rims and centered on lathe-turned hubs.

It's through the tires that you know what's going on — on the road. Volvo engineers select the type and brand of radial to match the specifications of each model and to complement the characteristics of the other Volvo components.

The radials on every Volvo have steel belts, an especially wide surface area, and tread that stays open for better grip when cornering on wet pavement.

The use of wide-base rims makes it possible to select more efficient, better running, wide-base radials. And, to make tire alignment less of a problem, Volvo rims are centered on lathe-turned hubs for precise fit and true running.

Volvo engineers try not to leave anything to chance.

By design, Volvos are eminently controllable cars.

Many cars that are relatively easy to control under ideal weather and road conditions become difficult to control in a moment of panic. Volvos, on the other hand, are designed to respond to your reactions in a crisis just as they respond to your actions under normal driving conditions.

A number of components and interrelated systems combine to give the Volvo its distinctive handling characteristics.

Power-assisted rack and pinion steering is standard on all Volvos. Volvo engineers believe it is the most responsive and reliable steering system that can be built into a car.

Fewer moving parts account for its reliability. Its responsiveness to your hands on the wheel gives you a consistent feel for the road.

Volvo engineers rejected full power steering in favor of power-assisted steering. Turning your Volvo in its tight, 32-foot-6-inch turning circle is almost effortless, yet the car's response to your steering commands is not diminished. When you move the wheel, you move the car.

The Volvo deliberately understeers slightly when you go around a curve.

This forces you to follow your natural instinct and continually keep the car moving into the curve. A car that oversteers tends to move the front end into a curve too quickly — a tendency most drivers can't always control, especially when the road is wet or icy.

All Volvos come as close as possible to the ideal 50-50 front-to-rear weight distribution, so they're easier to control when cornering or braking hard.

The weight of a well-balanced car is distributed as evenly as possible between the front and rear wheels.

Volvo's 51% front/49% rear weight distribution without passengers or luggage changes to approximately 45% front/55% rear when the car is fully loaded.

The fact that the weight distribution changes only moderately, even when you're carrying luggage or extra passengers, means that the car maintains its balance and therefore its handling predictability.



In every Volvo form follows function; they're designed and built to fit you, rather than requiring you to fit them.

Every Volvo is a study in ergonomics — the science of making machinery more comfortable and more efficient for people to use.

All cars have doors. But Volvos have doors for adults — to open, to pass through, and to close.

Volvo doors are squarish, instead of

being big, long rectangles. (They don't weigh a ton either.) And they open wide — to an angle of nearly 80 degrees. The height of the Volvo and the height of its seats further complement the size of the door opening: you can get in and seat yourself without feeling like you're falling on the ground. What's more, you won't get tangled in a shoulder harness when

you climb into the back of the two-door Volvo — our system is neat, simple, and out of the way.

**Anyone who spends a minute or two sitting inside a Volvo is impressed by how much room there is.**

Room for your head, shoulders, arms, legs; room for long-distance comfort, whether you're driving or just going along for the ride. Even in the back seat there's room for an adult to assume the normal sitting position: no knees tucked under chin.

**Volvo owners will talk your ear off about their front seats.**

Rich Ceppos of *CAR AND DRIVER* describes them as "front seats that all cars ought to have." The design reflects intense research into the effects on the spine that are greater when sitting than standing.

With the assistance of orthopedic surgeons, Volvo engineers built seats that adjust to accommodate almost every conceivable human shape and size in an anatomically correct position. The comfortable driver is better able to maintain constant control —



especially throughout a long trip, when any car can become dangerous if the driver experiences discomfort or fatigue. So Volvo seats are incredibly comfortable.

The front seats slide back and forth to lock in any one of several positions (one every half inch). Levers adjust the height and angle of the driver's seat nine different ways. The front passenger's seat may be similarly adjusted by resetting a few bolts. The backrests can be adjusted to any angle between 90 and 170 degrees, to help you achieve the perfect driving position. (Somewhere between 110 and 130 degrees is considered to be the least fatiguing.) When the seat is fully reclined, there's no ridge between the backrest and the seat cushion.

The seat cushions and backrests provide proper thigh support without restricting your blood flow, a restriction that often causes one or both legs to "fall asleep." The backrests are

dished to hold your upper body in place as the car corners.

Adjustable lumbar support in each backrest — a component pioneered by Volvo — eases pressure on the spine, the cause of back tension and driver fatigue.

Head restraints are permanently fixed into the seat frames at the proper height to help reduce the possibility of whiplash. They are "see-through" as well, so they don't create blind spots to block your view.

What about the back seat? Unusually comfortable. The broad base is a thick cushion of cold-formed polyurethane foam; flexible but firm. A center armrest is standard equipment. The sides of the back are contoured, as the front backrests are dished, for passenger comfort while cornering.

**Your Volvo and its instrumentation are designed not to get in your way.**

Volvo engineers apply the laws of ergonomics to every part of every Volvo.

That's why the steering wheel is positioned at a 23-degree angle: studies indicate that this angle gives the driver maximum knee room and a natural, firm grip on the wheel.

To reduce muscle tension and provide a more stable driving position, Volvos have a left foot rest, so both the driver's feet can be comfortably positioned on a similar plane.

To improve defensive driving, Volvo sedans and wagons have better than 90-percent all-around visibility



from the driver's seat. The front door pillars, for instance, are no wider than the distance between your eyes, so you look through them, in effect, not around them. All glass is tinted, with a darker tint-band along the top of the windshield to reduce glare. A prismatic day/night rear view mirror is standard. Two anti-glare side mirrors are standard on most Volvos.

A good driver monitors the car's instruments frequently. By studying these eye movements, Volvo engineers have determined an instrument configuration and layout that gives the driver the most information and control, without drawing attention from the road more than is necessary. Accordingly, you can operate the Volvo's turn indicator, headlight dimmer, and windshield wiper/washer without taking your hands off the steering wheel. All dials, gauges, and switches are easy to read, day or night, and are easy to reach.

A twelve-outlet ventilation and heating system distributes air rapidly, evenly, and quietly. The assist handle over the doors, the door handles, the window winders (in Volvos without power windows), the lighted seat-belt console, the lighted glove-box, the trunk light — these are among the myriad unobtrusive, instantly accessible, and just plain functional ergonomic details in every Volvo. More reasons why Volvos are cars people swear by — not at.





sive, heavy frame with a body shell bolted onto it. Unfortunately, what you end up with is a strong frame, but not necessarily a strong body.

In Volvo's unitized body, the frame and shell are spot-welded together, rather than bolted, to form a single, stronger, lighter-weight unit.

**The unitized body creates a kind of cage that surrounds Volvo passengers on all sides.**

Hollow steel profiles help maintain the integrity of the passenger compartment during a collision. In 1973, Volvo dramatized the strength of the cage's roof pillars alone by stacking six Volvo sedans on top of a seventh, without a trace of structural damage to any one of them. ...

**Tubular steel bars help bolster passenger protection where it's needed most — in all Volvo doors.**

The doors are securely braced by a patented process. A wide beam welded to the floor, and a cross-panel behind the rear seat backrest, further increase resistance to impact from the side.

**Front and rear "crumple zones" enable the Volvo to absorb impact and help reduce the possibility of injury to passengers.**

Special patterns stamped into the sheet metal skin and structural framework create areas designed to give themselves up in the event of a crash. As they give way, these front and rear crumple zones help absorb the force of an impact rather than transmitting it all to the passenger compartment. (Part of the front crumple zone also directs the engine down under the floor, away from the passenger compartment.)

The crumple-zone concept has also been applied to the Volvo steering



column: the column offers several stages of protection, depending upon the severity of the impact.

In a fender-bender, the large and heavily padded hub in the center of the steering wheel will help protect the driver. However, when the driver is thrown hard against the steering wheel, it aligns with the driver's body, and a crumple zone in the wheel anchorage spreads the force of the impact over a wide area. If the impact is greater still, the upper section of the steering column is designed to collapse away from the driver. A special

slip-coupling disengages, allowing the column to telescope down into a sleeve convoluted to permit a controlled collapse. In the most severe front-end collision, the lower end of the column is designed to fold as a penknife, pulling the upper part of the column and the wheel forward and down, away from the driver.

**The location of the fuel tank helps protect it from damage, if your Volvo is rear-ended.**

The Volvo fuel tank is close to the rear axle, completely separate from the trunk floor and the passenger compartment. Special impact members added to the body frame create a safety zone around the fuel tank and, in a severe rear-end collision, force the rear axle forward, reducing the possibility that the fuel tank might rupture.

For additional safety, the filler pipe is near the rear wheel, and incorporates two bellows-like joints that give upon impact, reducing the risk of a fuel leak.

**Volvo was the first auto maker to introduce the laminated glass windshield as standard equipment — in 1959.**

Using mannequin passengers in high-impact tests, Volvo has since demonstrated the importance of the laminated glass windshield as a safety feature. Its flexibility also helps minimize damage from flying stones and other road hazards.



lision. In a Volvo each seat frame is secured to the floor at four points, and each seat locks onto the adjustment rails on *both* sides, not just one.

**Volvo was the first auto maker to introduce three-point seat belts as standard equipment — in 1959.**

Even though Volvo's energy-absorbing front end may slow down the car during a collision, it does not slow down your body momentum. Statistics have proven that it's worthwhile to buckle on a seat belt to keep yourself from flying forward into the windshield. Volvo's three-point seat belts, with patented slip-joint anchors, help hold you back in your seat while they spread the force of your forward momentum evenly across your body and pelvic bone. Fitted with inertia reels, they are retractable and self-adjusting — easy to put on and easy to wear.

Three-point safety belts for front seats didn't become mandatory equipment on all cars in the U.S. until 1968. Characteristically, Volvo standard equipment also includes three-point seat belts for the two outside rear passengers, though these are still not required by law. (A lap belt is provided for the middle rear-seat passenger.)

So that the belt will fit a young child properly, allowing an even distribution of force, Volvo offers a special accessory cushion that raises the child to the proper height.

**When all is said and done, the most important things that go into Volvos are people.**

Safety Feature	Volvo Intro- duction	USA Legal Require- ment
Windshield defroster/defogger	1954	1968
Windshield wiper/wash	1956	1968
Laminated windshield	1959	1968
Padded dashboards	1960	1968
Seat belts	1963	1968
Split-brake system	1966	1968
Seat anchorages	1967	1968
Head restraints	1968	1969
Stepped-bore master brake cylinder system	1975	None

**Volvo front seats are firmly anchored to the floor of the car.**

In order for a seat belt to restrain you, the seat must stay put in a col-



# THE 1982 VOLVOS AT A GLANCE:

## DIMENSIONS AND WEIGHTS

Wheelbase	104.3 in.
Overall length	192.4 in.
Overall height, Sedans	56.2 in.
Wagons	57.5 in.

Legroom,	
Front (all models)	39.8 in.
Rear Sedans	36.6 in.
Wagons	36.4 in.

Trunk capacity, Sedans	13.9 cu. ft.
Cargo capacity, Wagons	41.1 cu. ft.
Rear seat down	76.0 cu. ft.

Approximate curb weights	
DL, GLT, GL sedans	2891-3065 lbs.
Diesel, GLE sedans	3120-3149 lbs.
DL, GLT wagons	3129-3262 lbs.
Diesel wagons	3230-3263 lbs.

## BODY

Unitized. Central passenger safety cage with energy absorbing front and rear ends. Rustproofing includes use of galvanized steel in susceptible areas; anti-corrosive coating inside doors, rocker panels, etc.; extensive undercoating and special stone chip resistant paint. Aluminum tailpipe and muffler.

## B21F ENGINE: DL, GL, GLT\* MODELS

Fuel injected in-line four, cast iron block with light alloy "cross-flow" cylinder head. Overhead camshaft. Lambda Sond® emission control.

Displacement:	130 cu. in.
Compression	
Ratio:	9.3:1
Horsepower:	98 @ 5000 (S.A.E.)
Torque:	112 @ 3000 (S.A.E.)
Sealed cooling system:	9.8 qts. auto./ 10.0 qts. manual
Fuel tank:	15.8 gallons, unleaded 91RON

## D24 ENGINE: DIESEL MODELS

In-line overhead cam, six-cylinder diesel with indirect fuel injection into swirl chambers.

Displacement:	145 cu. in.
Compression	
Ratio:	23.0:1
Horsepower:	78 @ 4800 (S.A.E.)
Torque:	98 @ 2800 (S.A.E.)
Sealed cooling system:	9.7 qts. auto./ 9.9 qts. manual
Fuel tank:	15.8 gallons

\*California non-turbo GLT has B21F LH Lambda engine: HP 105 @ 5400, torque 119 @ 3000.

## B21F-T: GLT TURBO MODELS

Fuel injected, in-line four, cast iron block with light-alloy "cross-flow" cylinder head. Overhead camshaft. Lambda Sond® emission control. Exhaust-driven turbo-compressor.

Displacement:	130 cu. in.
Compression	
Ratio:	7.5:1
Horsepower:	127 @ 5400 (S.A.E.)
Torque:	150 @ 3750 (S.A.E.)
Sealed cooling system:	9.8 qts. auto./ 10.0 qts. manual
Fuel tank:	15.8 gallons, unleaded 91RON

## B28F ENGINE: GLE MODEL

Fuel injected V-6 with light-alloy cylinder heads and block; wet steel cylinder liners. Overhead camshafts. Lambda Sond® emission control.

Displacement:	163 cu. in.
Compression	
Ratio:	8.8:1
Horsepower:	130 @ 5500 (S.A.E.)
Torque:	153 @ 2750 (S.A.E.)
Sealed cooling system:	11.5 qts.
Fuel tank:	15.8 gallons, unleaded 91RON

## ELECTRICAL SYSTEM

12V, solid-state ignition. 55 amp alternator, all Diesel models. 70 amp alternator on all other models. 60 amp hour battery on four-cylinders; 90 amp on diesels; 70 amp on six-cylinders.

## DRIVETRAIN

Manual: Four-speed fully synchronized transmission. Electrically operated overdrive which automatically releases when you shift from 4th to 3rd gear. Gear ratios: 1st 4.03:1; 2nd 2.16:1; 3rd 1.37:1; 4th 1.00:1; overdrive 0.80:1. Final drive ratio: B21F 3.54:1; B21F-T 3.73:1; D24 3.54:1.

Automatic: DL, GL, and GLT models: four-speed with overdrive fourth gear; floor-mounted shift lever, with an illuminated PRND21 pattern. Final drive ratio: B21F 3.91:1; B21F-T 3.73:1. Diesel and GLE models: three-speed with a floor-mounted shift lever, with an illuminated PRND21 pattern. Final drive ratio: D24 3.31:1; B28F 3.54:1.

## STEERING SYSTEM

Rack-and-pinion gear. Servo-assist is standard on all models. Turning circle: 32'2". Turns lock-to-lock: 3.5.

## SUSPENSION SYSTEM

Front: McPherson strut incorporating coil springs and telescopic shock absorbers. Stabilizer bar. GLT's have larger diameter stabilizers and gas-filled shocks. GLE has gas-filled shocks. Rear: Rigid "live" axle located by longitudinal control arms and torque rods. Lateral location by track rod. Coil springs and telescopic shock absorbers. Stabilizer bar. The GLT sedan has a larger diameter stabilizer and gas-filled shocks.

Tires: Steel belted radials. Size: DL gas sedan 175SR14; GLE sedan, GL gas sedan and all diesel sedans 185/70SR14; All wagons 185SR14; GLT sedan and wagon 185/60-HR15-P6.

## BRAKE SYSTEM

Self-adjusting disc brakes on all four wheels. Tandem type power-assist. Ventilated front discs are standard on the Diesel, GL, GLT, and GLE models. Each circuit of the dual triangular-split hydraulic brake system connects both front wheels and one rear wheel. Stepped-bore master cylinder maintains near-normal pedal effort should one circuit fail. Handbrake operates mechanically on separate rear wheel drums.

## VOLVO

The factory reserves the right to make changes at any time, without prior notice, in prices, colors, materials, standard equipment, specifications, and models; also, to discontinue models. Roof racks are accessories.



## A Volvo DL wagon travels 26,738 miles to take its place in the GUINNESS BOOK OF WORLD RECORDS.

On September 6, 1980, after nearly three years of planning, Canadians Ken Langley and Garry Sowerby set out to drive an automobile around the world in record-breaking time — an ambitious challenge for man and car alike.

To attempt a new world record, Ken and Garry would have to travel 26,514 land-miles — the distance around the earth's equator — passing through both hemispheres, with only one driver and one vehicle. They measured their own elapsed journey time by maintaining a signed log, authenticated at borders, embassies, and embarkation points.

After intensive research Ken and Garry selected the Volvo DL wagon as the car that stood the best chance of driving them to fame. Their decision was based on Volvo's proven record of durability and reliability, Volvo's international network of service organizations (just in case any problems arose), the DL wagon's inherent comfort, its cargo space, and the fact that it's an everyday car, readily available to any buyer.

Then Ken, Garry, and their DL wagon conquered the world. They drove 26,738 miles, through 23 countries and 92 cities, in 74 days, 51 minutes — disposing of the existing around-the-world record of 102 days rather handily.

Along the way, a kangaroo left the Volvo with a bent bumper and a slightly dented fender. Also in Australia, the heavy desert dust troubled the voltage regulator causing the engine to misfire, so the regulator needed to be dusted off. Otherwise, for the Volvo, the 74-day drive around the world was nothing more than a breaking-in period.

