

THE VOLVO DIESEL



THE BEGINNING OF A NEW VOLVO TRADITION

Safety, comfort and excellent handling and performance have long been the hallmarks of the Volvo line. We offer quality sedans and wagons that are built to last. And we can say with confidence that our gasoline-powered models have made their mark in the automotive world.

Diesel-powered automobiles have been associated with durability, relatively low maintenance combined with excellent fuel economy.

If you're considering a diesel this year, you're in luck. Because 1980 marks the beginning of our new Diesel powered cars.

The D24 engine which Volvo has carefully selected to power its new diesel cars has several special characteristics. However, we should look first at the basic differences between diesel and gasoline engines.

As you know, a conventional gasoline engine generates power by burning a mixture of gasoline

and air in the cylinders. The piston moves up and down, sucking in the mixture through an intake valve on the downstroke and compressing it on the upstroke. When it has been compressed, the mixture is ignited by a spark plug.

The resulting explosion forces the piston down. And this, of course, transmits the power to the crankshaft — and from there to the transmission and the wheels.

In a diesel engine, only air is drawn into the cylinder on the intake downstroke. During compression of the air, extreme heat is generated. Diesel fuel is then sprayed into the superheated air — which ignites spontaneously without spark plugs.

High compression ratios provide efficient utilization of fuel. And that's the key.

Diesel engines have very high compression ratios — generally ranging from 18 to 22:1. That makes them two to three times greater than the ratios achieved by

gasoline engines. High compression is necessary to ignite Diesel fuel. The compressed air temperature can reach up to 750°C; diesel engines are built very strongly. They must endure rapid pressures and temperature changes that would destroy a gasoline engine.

There's another essential difference. Gasoline engines generally operate with an almost constant mixture of air and fuel. Output is regulated by the volume of the mixture.

A diesel engine, on the other hand, operates with a surplus of air. In certain types of diesel engines, the volume of air is constant — and the amount of injected fuel regulates the output.

This constant air surplus present in a diesel engine makes it possible for all the fuel to be consumed. And almost complete combustion usually results in lower levels of carbon monoxide and hydrocarbons in the exhaust gases.

MODERN ADVANCES ON A PROVEN DESIGN

THE SWIRL CHAMBER CREATES A
TURBULENCE WHICH MIXES AIR AND FUEL
EFFICIENTLY. THIS ALLOWS THE ENGINE TO
RUN AT RELATIVELY HIGH SPEEDS

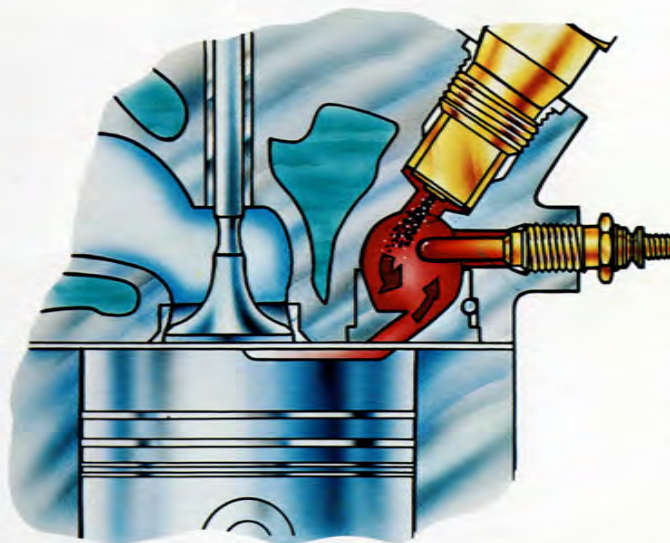
The D24 is an in-line, six cylinder diesel passenger car; a design which gives the engine more balance than either a four or a five-cylinder – and balance equal to an eight.

It's also one of the most responsive diesels available. It pumps out 82 hp (DIN) @ 4800 RPM and its max torque (DIN) KPM/RPM is 14.3 @ 2800 RPM.

Part of this excellent performance is due to its *indirect-injection, swirl chamber*. Air is sucked into the swirl chamber in the cylinder head – creating a powerful turbulence into which fuel is injected at high pressure.

The quick, efficient mixture of fuel and air achieved by the swirling action in the chamber allows the D24 to run at higher speeds than direct injection diesels.

Engine performance is further enhanced by an overhead camshaft



which controls the valves directly. This configuration ensures more accurate valve timing – which improves engine “breathing” (induction of air and elimination of exhaust gases) and helps to keep the engine quiet and vibration free.

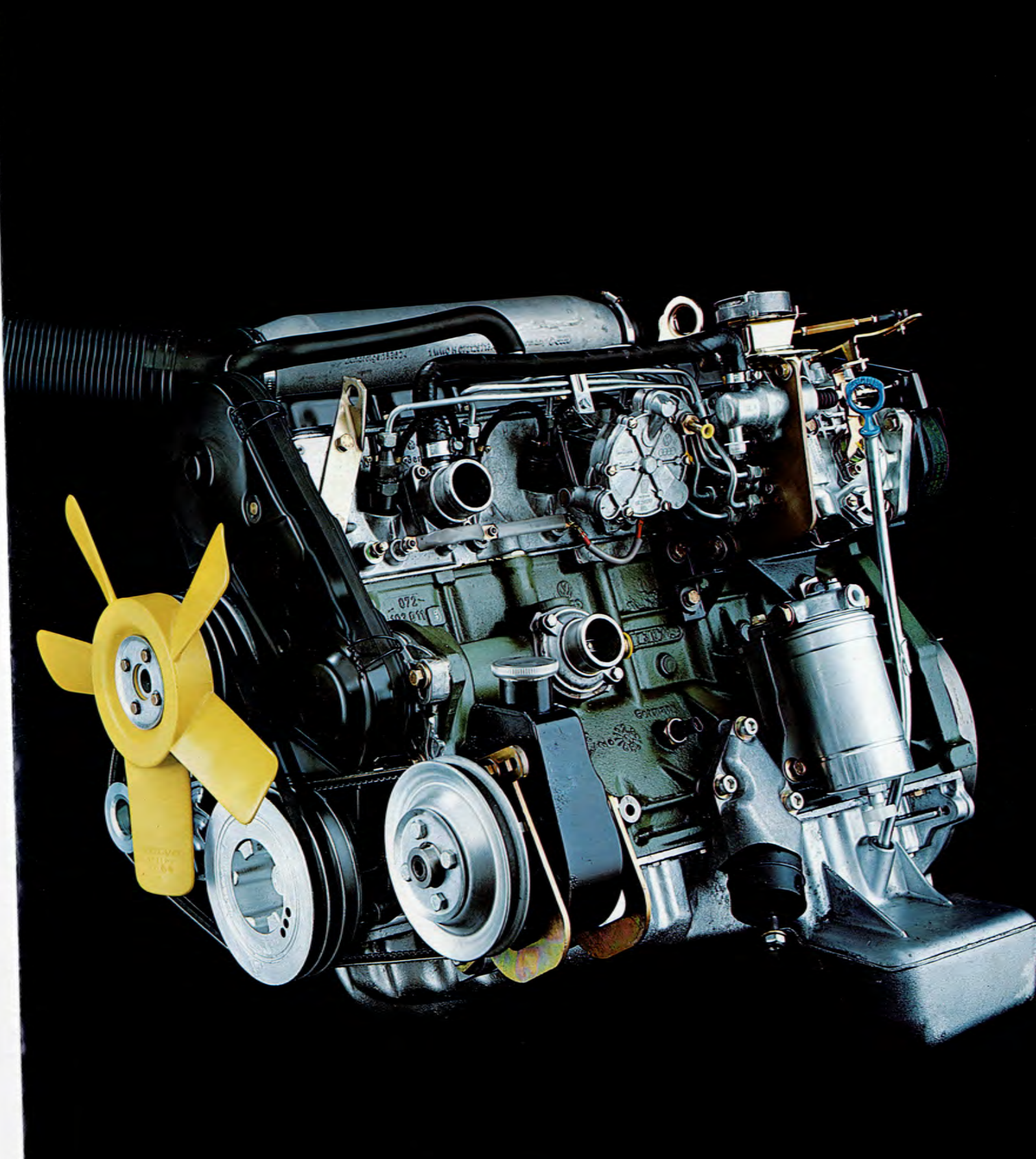
The efficient operation of a diesel engine is also greatly dependent on the fuel injection system. There are different types. On the D24, the fuel pump is driven by the camshaft via a toothed belt. The

system is so precise that when the engine is running a 4800 rpm, the injectors are open for only a thousandth of a second, at an exact position of the crankshaft.

To help get you on your way quickly – even on the coldest day – a heater or glow plug intrudes into the swirl chamber. It heats up to approximately 800° to 1000°C. to facilitate ignition. A glow plug light on the dash will go out when the engine can be started.

You'll appreciate the refinements of the D24 engine when you drive one of our new Volvo diesel sedans or wagons. In tests, they've gone from zero to 100 kmh in 17.5 seconds. They're comfortable smooth, quiet. Good fuel economy will give you a long driving range.

Test drive one today. We think you'll drive back to your Volvo dealership – smiling.



AN OVERHEAD CAMSHAFT ENSURES MORE ACCURATE VALVE TIMING – WHICH HELPS ENSURE QUIET, EFFICIENT ENGINE PERFORMANCE.



ATTRACTIVE BEIGE CLOTH
UPHOLSTERY IS STANDARD
ON WOODSIDE TAN METALLIC
DIESEL SEDANS.



WOODSIDE TAN METALLIC DIESEL SEDAN
WITH COLOUR-KEYED SPOILER.

THE VOLVO DIESEL: QUALITY, COMFORT AND PERFORMANCE

One of the advantages of the Volvo Diesels — besides their smooth, quiet operation and good fuel economy — is the fact that they're Volvos.

Our new diesels follow the Volvo tradition of designing cars for *people*. The science of ergonomics — making man's use of machinery more efficient and more comfortable — is applied to each feature of Volvo. Instrumentation. Controls. Even the seats. The whole interior is designed for the comfort and convenience of you and your passengers.

Volvo diesels are also carefully engineered. Each system is tuned to work with the others to produce excellent — and predictable — handling and performance.

Power-assisted, four-wheel disc brakes are standard. And the front discs are ventilated for faster cooling (which helps resist brake fade). There's a triangular dual brake circuit system. And a unique stepped bore master brake cylinder.

Our diesel sedans and wagons have a power-assisted rack and pinion steering; recognized by many automotive authorities as the most precise system available.

The front McPherson strut suspension incorporates coil springs and shocks. There's a "live" rear axle at rear to help ensure constant wheel-to-wheel track. And both front and rear suspension is designed as an integral part of the automobile. It

functions well in adverse weather conditions, at speed or in accident avoidance maneuvers.

And if all that isn't enough — your diesel comes fully equipped, features like intermittent windshield wipers, (and a rear washer/wiper on a wagon.) Dual outside mirrors that you can adjust from inside. A rear centre armrest. Rear window defroster. Lighted glove box with a vanity mirror. And much more.



Our 1980 Volvo Diesel Sedans and Wagons are built to be driven and enjoyed. If you are a person who appreciates quality and value, we think you belong behind the wheel of one of our new diesels.

Take a test drive. You will want to take one home.

DIESEL GENERAL SPECIFICATIONS

Engine:
Fuel injected in-line six cylinder diesel with overhead camshaft, swirl chamber.

Displacement: 2.4 (2836 cc)

Compression Ratio: 23:0:1

Bore x Stroke: 76.5 mm x 86.4 mm

Output Horsepower DIN @ RPM:
82 @ 4800 rpm

KW/DIN/r/s: 60/80

Max Torque KPM/DIN/RPM:
14.3 @ 2880 rpm

NM/DIN/r/s: 140/47

Gear Ratios:	(Manual)	1st	4.03:1
		2nd	2.16:1
		3rd	1.37:1
		4th	1:1
		Overdrive	0.798:1

Final Drive Ratio (Automatic): 3.73:1

1st 2.45:1

2nd 1.45:1

3rd 1:1

Final Drive Ratio: 3.54:1

Fuel Capacity:
13.2 Imperial gallons
60 Litres
(Minimum 45 cetan value diesel fuel)

Coolant Capacity:
2.1 Imperial Gallons
9.5 Litres

Battery:
12 Volts/88 Amps HPS
55 Amp Generator

General Data:	Inches	cm
Wheelbase	104.0	264
Overall Length	192.5	489
Overall Width	67.3	171
Overall Height		
Sedans	56.3	143
Wagons	57.5	146
Legroom Front		
Sedans	40.7	103.5
Wagons	40.7	103.5
Legroom Rear		
Sedans	36.6	93
Wagons	36.4	92

Seating Capacity:
Sedans and Wagons 5 persons

Trunk Capacity:
Sedans (SAE) 13.9 cu. ft./395 DM3

Cargo Capacity:
Wagons (SAE)
Rear seat up 41.1 cu. ft./1160 DM3
Rear seat down 76.0 cu. ft. 2150 DM3

Curb Weights (Approximately)
Diesel Sedan 3119-3164 lbs/1415-1435 kg
Diesel Wagon 3240-3252 lbs/1470-1475 kg

**KINGSMERE GREEN METALLIC DIESEL
WAGON WITH OPTIONAL ROOF RACK.**

VOLVO

The factory reserves the right to make changes at any time, without notice, to prices, colours, materials, standard equipment, specifications and models and also to discontinue models or introduce superseding models.