

2006 model year

VOLVO XC70

OVERVIEW

In Brief:

- Available in higher SE and SE Lux trim levels.
- Complements the XC90 in Volvo's XC ('Cross Country') range.
- Modern, clean Scandinavian design.
- AWD/SUV design with high ground clearance combined with Volvo estate.
- AWD (All Wheel Drive) with Instant Traction™.
- High Volvo safety standards – fully crash tested in Volvo Safety Centre.
- Choice of powerful engines – '2.5T' 210bhp Petrol or 'D5' 185bhp Diesel.
- Higher specifications compared to most other premium brand rivals.
- Healthier Oeko-Tex standard compliant, emissions-free interiors.
- High Performance or Premium sound audio systems with Dolby Pro Logic Surround Sound™, plus 'digital jukebox' available.

The Volvo XC70 perfectly complements Volvo's XC90 by offering SUV standards of ground clearance (209mm), the extra stability and all-road ability of all-wheel drive, with a lower centre of gravity, in a Volvo estate car.

Produced in Volvo's Torslanda plant in Gothenburg, Sweden, the XC70 echoes the modern Volvo design themes introduced in the S80 and subsequently seen in the XC90 SUV and V50 Sportswagon, but asserts its own identity with its own unique, rugged styling with chunkier bumpers, body-side protection mouldings and larger door mirrors that all suit its 'cross country' (XC) role and status.

Inside, the XC70 is equally well designed with stylish, simple Scandinavian design and ergonomic dashboard, with emissions-free Oeko-tex standard materials, room for five adults – with the option of two additional rear-facing seats in the load area – and the flexibility of estate car practicality for large loads.

Generous standard specifications, including leather upholstery, alloy wheels, alarm with immobiliser, and a superior audio system with an in-dash six CD autochanger and Dolby Pro Logic II Surround Sound™, prove its premium status.

The engine line-up consists of two of Volvo's smooth, five-cylinder units – a choice of turbocharged petrol and diesel engines – both offering refined performance with the flexibility provided by generous low-end torque.

In Full:

- Complements the XC90 in Volvo's XC ('Cross Country') range
- SUV-style ground clearance (209mm) and AWD with electronic Haldex coupling, with practicality of a Volvo estate
- AWD/SUV design with high ground clearance combined with Volvo estate.
- AWD (All Wheel Drive) with Instant Traction™.
- Smart, modern Scandinavian design
- Oeko-tex standard emissions-free interior, with versatile, flat load area
- High Volvo safety levels with SIPS, IC, WHIPS and DSTC standard, and WRG
- Fully crash tested in Volvo Safety Centre
- Turbocharged 2.5T, 210bhp petrol and D5, 185bhp diesel engines available
- Volvo's active 'Four-C' chassis now available, with Comfort and Sport settings
- Generous standard specifications, with higher SE and SE Lux trim levels
- Outsells the Audi Allroad.
- 36,229 XC70 produced in Volvo's Torslanda plant in Gothenburg, Sweden in 2004, of which 1,575 were sold in the UK.

When Volvo launched the original V70 XC ('Cross Country') in 1997, it was a new breed of car. Here was a vehicle that combined the luxury and dynamics of an estate car with the versatility of All Wheel Drive and the extra ground clearance that can handle rough terrain.

Volvo had developed an understanding of how people actually use their vehicles and developed a genuinely new alternative to a traditional SUV (Sports Utility Vehicle).

The 'XC' concept proved a great success and found favour with customers across the world – particularly in the US market which sold the most XC70s in 2004 (16,071 against total global XC70 sales of 35,876). Now known simply as the Volvo XC70, it complements the Volvo XC90 in the XC ('cross country') range.

The Volvo XC70 was never intended to rival the mud-plugging ability of dedicated off-roaders, but it's surprisingly capable and can comfortably traverse muddy fields or dirt tracks.

Design Concept

The styling, while based on the Volvo V70 estate, asserts its own identity with a rugged look that suits its cross country role and status. The front and rear feature chunkier bumpers, unique colour co-ordinated side mouldings with flared wheel arches. To complete the effect and to protect the bodywork on rough terrain, skid plates are fitted to the front and rear bumpers, and are complemented by bespoke alloy wheels and chunkier roof rails.

With the modern Volvo design cues of a V-shaped bonnet, and prominent, curved shoulders, the XC70 is still instantly recognisable as a Volvo. It also has the practicality of the V70's square-shaped rear and vertical tailgate to provide a spacious, well-shaped load area.

The increased ride height enhances the Volvo XC70's stance and all-road appeal. It has a ground clearance of 209mm, which is 69mm more than a Volvo V70 and comparable with many SUVs, including the XC90 which has 218mm ground clearance. Coupled with All Wheel Drive (AWD) with Instant Traction™, using the latest, electronic Haldex coupling, and chunky Pirelli Scorpion STR tyres, it provides the Volvo with real all-terrain ability.

The interior of the Volvo XC70 uses classic, minimalist Scandinavian style to provide an efficient, ergonomic dashboard, grab handle on the centre console for rough conditions, comfortable seats with unique, sailing-inspired visible stitching, and split-folding (60/40) rear seats with head restraints that fold away instead of having to be removed, to quickly and simply provide a flat loadspace. In addition, the front passenger seat folds forward to help accommodate longer loads, and an optional rear-facing seat is available for an extra two passengers.

The rear seat also has two positions to allow flexibility to maximise load or passenger space, and can be specified with integrated child booster cushions, and to split 40/20/40, if preferred, to allow long loads to be carried between rear passengers or swap the centre section for an optional cooler or storage box.

Driving Dynamics

There are two, turbocharged five-cylinder engines to choose from for the XC70, both of which offer plenty of performance and refinement – a 210bhp, 2.5T petrol and the new D5, 185bhp (Euro IV) diesel.

Engine	2.5T	D5 (Euro IV)
Type	2521cc transverse 5 cyl/20v turbo	2401cc transverse 5 cyl/20v turbo
Fuel	Petrol	Diesel
Power	210 bhp	185 bhp
Torque (Nm at rpm)	320 Nm at 1,500 - 4,500 rpm	400 Nm at 2,000 – 2,750 rpm
0-62mph (manual/Geartronic)	8.1 manual 8.5 geartronic	9.5 manual 10.0 geartronic
Top speed (manual/Geartronic)	130 manual 130 geartronic	130 manual 127 geartronic
CO2 (g/km)	244 manual 266 geartronic	201 manual 224 geartronic
MPG (manual/Geartronic)		
Urban	20.0/18.1	27.7/25.2
Extra urban	35.8/33.2	46.3/40.9
Combined	27.7/25.4	37.2/33.2

The 2.5T petrol engine, available with five-speed manual or Geartronic transmissions, uses a light pressure turbo to provide stirring performance – 0-62mph takes 8.1sec – with good mid-range torque of 320Nm from as low as 1500 rpm up to 4500rpm, and emissions of 244 g/km.

Strong mid-range urge and refinement are also some of the characteristics of Volvo's new D5 common rail turbodiesel introduced with the 2006 models, offering 185bhp with massive torque of 400Nm from 2,000rpm, following extensive modifications to enhance power delivery, refinement, performance and emissions compared to the original D5.

The D5 is now fitted with a diesel particulate filter with oxidising coating as standard, with six-speed manual transmission as standards, or Volvo's new (optional) six-speed Geartronic, plus the latest common rail direct injection technology to combine generous amounts of torque.

With the standard six-speed manual gearbox, the XC70 D5 achieves an average of 37.2mpg on the official Combined cycle, with emissions of 201g/km

The XC70 combines its off-road abilities with on-road dynamics derived from the acclaimed Volvo V70 estate. The MacPherson strut front suspension and multi-link rear provide a cushioning ride with entertaining, failsafe handling.

Volvo's advanced, active 'Four-C' (Continuously Controlled Chassis Concept) was recently introduced as part of the dynamic revisions for the 2005 models.

With a choice of two settings: Sport and Comfort, the advanced 'Four-C' technology continuously analyses huge amounts of information up to 500 times a second and responds instantly by adjusting each of the shock absorbers individually to suit road and driving conditions. It also interacts with the DSTC (Dynamic Stability and Traction Control) – the engine, brakes, steering and other functions – to maximise the car's response and handling. This all happens quickly and smoothly, and will step in to help control the car in an emergency situation no matter which chassis mode is currently selected.

Quality and Equipment

To reflect their higher standard specifications, the XC70 is available with SE or SE Lux trim levels.

The SE model includes a minimum of:

- Alloy wheels.
- Leather upholstery.
- Electronic climate control with Air Quality System and pollen filter.
- Alarm and immobiliser.
- DSTC (Dynamic Stability and Traction Control).
- Electric driver's seat and folding door mirrors with water repellent glass.
- Load compensating suspension.
- High-Performance audio system with six CD in-dash autochanger and Dolby Pro-Logic II with surround sound™, nine speakers and 4 x 50W amplifier.

Additional items for the SE Lux include:

- Active Four-C chassis system.
- Walnut wood (or aluminium mesh, or black mesh) dashboard and door inlays.
- Bi-Xenon headlights with cleaning system.
- Heated and electrically adjustable front seats.
- Premium sound system with 4x75w amplifier and 11 speakers.

For further style and desirability, a comprehensive range of optional items includes Bi-Xenon headlights, heated seats, integrated telephone and Volvo's RTI satellite navigation system that now features RDS-TMC (Traffic Message Channel) that highlights traffic problems ahead and can even re-route the driver, if required.

Safety

As you'd expect from Volvo, the XC70 is packed with the latest safety features. Volvo's acclaimed SIPS (Side Impact Protection System) and WHIPS (Whiplash Protection System) are complemented by side airbags, twin front 'intelligent' airbags, an Inflatable Curtain (IC) that protects front and rear passengers, and three-point safety belts with pre-tensioners and head restraints for all five occupants.

More recently, to improve the driver's visibility and help prevent accidents, Volvo has introduced water repellent glass (WRG) for door mirrors and (laminated) side windows (optional).

Environment

Volvo's 'clean inside and out' environmental programme reflects its continuing commitment to the environment. Its plants are some of the automotive world's cleanest factories, 85 per cent of each car can be recycled, and every new Volvo is backed by an Environmental Product Information (EPI), which is available at www.volvocars.com/epi. In addition, Volvo's annual Corporate Citizenship report is available on www.volvocars.com/citizenship.

Like all Volvos, the XC70's interior is free from allergy inducing emissions, and an active carbon filter ensures dust and exhaust particles do not enter the cabin, while an Air Quality System (AQS) shuts down the air input if outside air is too dirty.

All Volvo's five cylinder engines feature Volvo's PremAir® - a special catalytic coating on the radiator which converts up to 75 per cent of the harmful ground-level ozone passing through it into pure oxygen. In addition, they already meet the stringent EU 2005 and America's ULEV (Ultra Low Emission Vehicle) emissions requirements.

DESIGN CONCEPT

In Brief:

The Volvo XC70 combines the elegance and practicality of the Volvo V70 with the ruggedness, all-road ability and (209mm) ground clearance of an SUV (Sports Utility Vehicle).

It complements the XC90 in Volvo's 'XC' (Cross Country) range and provides a perfect alternative for customers wanting the versatility of an SUV with car-like driving characteristics and lower centre of gravity.

Although the design is based on the Volvo V70 estate, the XC70 asserts its own 'cross country' style and identity. The chunkier brushed aluminium roof rails, bumpers (with skid plate protectors), wheel arch extensions and wrap-around bodyside mouldings are both attractive and practical. Dark-tinted side windows and a rear spoiler are available to personalise the exterior design, if required.

The traditional Volvo estate styling cues of a vertical tailgate and upright side windows provide a large, well-shaped and versatile loadspace.

In Full:

- Designed to reflect customer's AWD/all-terrain requirements
- Complements XC90 in Volvo's XC (Cross Country) range
- Traditional Volvo V-shaped bonnet with sporty black, egg-crate grille
- Wheel arch extensions and bodyside cladding for extra protection
- Unique 16in alloy wheels with chunky Pirelli Scorpion STR tyres
- 209mm ground clearance comparable with most SUVs

The design of the Volvo XC70 is a brilliant synthesis of the elegant sophistication of the Volvo V70 and the ruggedness of an SUV (Sports Utility Vehicle). It perfectly complements the Volvo XC90 and provides an alternative for customers who want added versatility and all-road ability in a car-like body.

Unlike the original Volvo V70XC or 'Cross Country', which was a derivative of the V70 estate, the current Volvo XC70 was developed as a stand alone model. This is reflected in the distinctive styling, which was developed by the Swedish designer Stefan Jansson, under the guidance of Volvo's then Vice President of Design, Peter Horbury.

Chunky, contrasting bumpers, with skid plate protection front and rear, wheelarch extensions and body-side mouldings add rugged appeal and are also extremely practical when driving on difficult terrain – or even around town.

The bonnet retains the characteristic Volvo 'V', and at its leading edge it meets a distinctive, black, egg-crate grille, with Volvo's rounded shoulders that run the length of the car to add to its chunky appeal as well as contributing to the side impact protection.

These wheel arches frame the bespoke 16in alloy wheels, which are mated to chunky Pirelli Scorpion STR tyres. The standard fit roof rails are chunkier than those on a regular V70, and are finished in brushed aluminium to be as attractive as they are practical.

The visual impact of these design touches is enhanced by the increase in ground clearance. The Volvo XC70 sits 60mm higher to the ground than the Volvo V70, with a total ground clearance of 209mm – similar to many off-roaders. This makes a major contribution to the car's off-road ability and the rugged, stylish and practical appeal of the design.

Dark tinted side and rear windows, plus a rear spoiler are available to personalise the XC70, if required.

DRIVING DYNAMICS

ENGINES

In Brief:

There are two powerful, five-cylinder engines available for the XC70, a petrol and a diesel. Both are turbocharged and offer the flexibility of high levels of torque at lower engine speeds.

The 2.5T petrol engine boasts four valves per cylinder with a light pressure turbo and dual continuously variable valve timing to provide stirring performance with excellent mid-range torque.

Volvo's new D5 Euro IV turbodiesel is a refined, all aluminium unit, with 20 valves, and the latest common rail technology. It is available with a six-speed manual or a new six-speed Geartronic transmission.

In full:

At the heart of the Volvo XC70 are two powerful, five-cylinder, turbocharged engines that both deliver an impressive combination of performance and flexibility:

- **2.5T petrol:** 210bhp, 320Nm of torque from 1,500rpm to 4,500 rpm; a max speed of 130mph, with 0-62mph in 8.1 seconds and emissions of 244 g/km.

- New D5 diesel: 185bhp, 400Nm of torque from 2,000rpm with Diesel Particulate Filter and Euro IV compliant; a max speed of 130mph, with 0-62mph possible in 9.5 seconds with emissions of 201g/km.

Engine	2.5T	D5 Euro IV
Type	2521cc, 5 cylinder, 20v, turbo (petrol)	2401cc, 5-cylinder, 20v, turbo (diesel)
Bhp	210	185
Torque Nm/rpm	320Nm at 1,500 rpm	400Nm at 2,000 rpm
CO2 g/km	244 manual/266 Geartronic	201 manual/224 Geartronic
Top Speed mph	130 mph	130 mph
0-62 mph seconds	8.1 manual/8.5 Geartronic	9.5 manual/10.0 Geartronic
Kerb* weight Kg	1667	1701
MPG: man/Geartronic		
Urban	20.0/18.1	27.7/25.2
Extra urban	35.8/33.2	46.3/40.9
Combined	27.7/25.4	37.2/33.2

Steering/tyres	Rack and pinion with 205 (16in) section tyres.
Turning circle, m (ft)	11.9 (39ft)
Transmission	5 speed manual (2.5T) 6 speed manual (D5) Auto: 5 speed Geartronic
Brakes: Front discs Rear discs	16in – 305mm 16in – 288mm
Fuel Tank litres (gallons)	68 (15.0)
<u>Load capacity</u> : litres (cu ft)	
Rear seats up	485 (17.1)
Rear seats down	745 (26.3)
Rear seats down (load to roof)	1641 (58.0)
Load length: rear seats up	1077mm
Load length: rear seats down	1848mm
<u>Dimensions</u> : (mm)	
Length	4733
Width (excluding mirrors)	1860
Unladen height	1562
Wheelbase	2763
Front track width	1611
Rear track width	1548
<u>Ground clearance</u> : (mm)	
Standard height	209
With 2 persons	193
Max towing weight braked (kg)	1800 (all models)
Max total weight (kg)	2220 (all models)
Max payload (kg)	541 (2.5T); 472 (D5)
Max roof load (kg)	100
Max trailer 'noseweight'	90

(Full technical data, prices and options information available at www.media.volvocars.co.uk)

2.5T

The 2.5T belongs to the RN range of five-cylinder, all-aluminium, in-line petrol engines. It features four valves per cylinder, a twin cam head, centrally mounted spark plugs and dual continuously variable valve timing (CVVT). The latter operates on both the exhaust and inlet

cam and helps to minimise emissions, especially when the engine is cold, and maximise torque at low engine speeds.

Boasting a capacity of 2521cc, the 2.5T develops 210bhp and 320Nm of torque from as low as 1,500rpm up to 4,500rpm, and provides impressive mid-range flexibility.

Against the stopwatch, the manual Volvo XC70 2.5T achieves 0-62mph in 8.1 seconds and a maximum speed of 130mph. It is capable of 27.7mpg on the official Combined cycle with emissions of 244 g/km. The figures for the Geartronic (auto) version are 8.5sec, 130mph, 25.4mpg and 266 g/km, respectively.

D5

In the UK, the majority (at least 86 per cent in 2004) of Volvo XC70 customers choose the performance, flexibility and range of a diesel engine. And from the 2006 model year, Volvo now offers a new, substantially updated version of Volvo's acclaimed and refined 2.4-litre, five-cylinder turbodiesel: the D5.

The new D5 engine offers a six-speed manual gearbox or the option of a new six-speed Geartronic (from October 2005).

These enhancements have been achieved as a result of customer feedback and achieved by the following technological developments and extensive changes to performance characteristics of the D5 diesel engine - see following details:

- New electronic glow plug system for faster starting.
- More advanced injection process with 7 spray holes (instead of 5) in each injector for complete fuel atomisation and more efficient combustion and enhanced performance.
- New, larger and more efficient turbocharger with electronic control for faster/more precise control of charge pressure; plus larger compressor wheel, new cambered vanes for improved response at all speeds, and reduced turbo lag.
- Turbo centre housing now water cooled to provide continued cooling after engine stops.
- Improved flow of air/exhaust gases for optimal flow and reduced drop of pressure.
- More powerful engine management system with more sensors to improve regulation.
- EGR (Exhaust Gas Recirculation) system modified for improved flow/regulation.
- New, more effective cooling system for EGR.
- New, faster, electronically controlled throttle moves EGR gases/ regulates temp better.
- Air swirl in combustion chamber is now infinitely variable for more efficient combustion.
- Increased volume for combustion chambers, and consequently a lower compression ratio.

- Larger catalytic converter with oxygen sensor for more precise emissions control.
- NOx emissions reduced by 50%
- Maintenance free, coated diesel particulate filter (Euro IV compliant) automatically burns off soot particulates approximately every 500 miles.
- Low emissions superior to Euro IV control standard requirements:

	<u>Euro IV requirement</u>	<u>D5 (S60 example)</u>
CO (Carbon monoxide)	0.500 g/km	0.207 g/km (58% better than required)
NOx (nitrogen oxide)	0.250 g/km	0.187 g/km (25% better than required)
Particulates	0.025 g/km	0.001 g/km (96% better than required)

As a result, the power and torque of the new D5 engine has significantly increased - from 163bhp to 185bhp, and 340Nm to 400Nm, respectively. With the high level of torque available from 2,000rpm, excellent mid-range flexibility is assured, with a top speed possible of 130mph and a 0-60mph time of 9.5 seconds (one second quicker than 10.5 seconds of the previous D5). Yet despite strong performance, the XC70 D5 achieves 46.3mpg on the extra-urban cycle, and 37.2 miles on a gallon of diesel on the Combined cycle. With the new, coated diesel particulate filter particulate emissions are reduced by 96 per cent. The D5 has carbon dioxide emissions of 201g/km, while all other emissions are now substantially below the levels required by the Euro IV compliance.

CHASSIS

In Brief:

The all-wheel drive (AWD) Volvo XC70 combines the ability to traverse mixed terrain with a sophisticated load compensating suspension set-up, and the on-road dynamics and high torsional rigidity of the Volvo V70.

An increase in the ground clearance by 69mm compared with the Volvo V70, together with all-wheel drive with the latest AWD with Instant Traction™ and chunky Pirelli Scorpion STR tyres, mean the Volvo XC70 is surprisingly capable over rough terrain and poor surfaces.

More active drivers may be interested in the option of Volvo's active 'Four-C' (Continuously Controlled Chassis Concept) chassis, initially introduced on the high-performance V70 R, and subsequently available for the XC70 (standard SE Lux) with separate Sport and Comfort settings available at the touch of a button.

The Four-C chassis continuously monitors the car and road conditions up to 500 times per second and simultaneously adjusts each Monroe-Öhlins shock absorber and interacts dynamically with the DSTC system, brakes and steering for optimised ride and handling. The system also actively adjusts dampers to reduce roll during cornering, dive during braking and squat during acceleration.

In Full:

- AWD with Instant Traction™ for impressive all-terrain and on-road performance.
- Electronic Haldex coupling system maximises traction between front and rear axles.
- Volvo's TRACS anti-spin system also distributes power across the axle.
- Lower centre of gravity and weight than an SUV.
- 209mm Ground clearance (69mm more than V70, and 9mm less than XC90).
- Active 'Four-C' chassis with Sport and Comfort settings available (Std SE Lux).
- DSTC (Dynamic Stability and Traction Control) fitted as standard.
- High torsional rigidity benefits safety and chassis dynamics.
- Wider front track than Volvo V70 for improved stability in all conditions.
- Sophisticated multi-link rear suspension.
- Load compensating suspension fitted as standard.

The strength of the Volvo XC70 concept is its ability to combine the on-road dynamics of the critically acclaimed Volvo V70 with the mixed-terrain ability of an SUV.

The sophisticated suspension set-up and high torsional rigidity are shared with the Volvo V70, but the front track is wider for enhanced stability in all conditions.

A high level of torsional rigidity is crucial to providing a consistent ride and handling balance, and it also enhances a vehicle's crash performance. Volvo's engineers met their rigidity targets through the extensive use of High Strength Steel (HSS) and the application of bonding techniques in place of the more usual spot welding. Bonding, unlike spot-welding, produces a continuous join that increases the rigidity of the structure and also steals less space in, for example, the luggage area. The technique clearly works, as the Volvo XC70 is 50 per cent stiffer than its predecessor.

Suspension

The Volvo XC70 shares its basic suspension set-up with the Volvo V70, but with modified geometry and an extra-wide track. The MacPherson strut front suspension employs dampers and coil springs that are combined in a single unit and are positioned asymmetrically in relation to the strut. Beneath the spring struts are triangular lower links, with an anti-roll bar

attached directly to the bottom of the struts themselves. Anti-lift and anti-dive technology also enhances the car's stability in all conditions.

At the rear, the Volvo XC70 employs a sophisticated multi-link system, mounted in a chill-cast aluminium subframe. This is attached to the body at four points via insulating rubber bushes to keep noise and vibration to a minimum. The use of aluminium helps keep the weight down, while the compact design ensures that there's no encroachment on passenger or luggage space.

Four links on each side – hence multi-link – comprised of two trailing arms, upper and lower links, a track rod and an anti-roll bar, control the movement of the wheels. As with the front suspension, the coil springs and dampers form a single unit. This system permits a small degree of passive rear wheel steer when cornering, to aid stability. In recognition of its role as a load carrying estate, the Volvo XC70 features load compensating suspension as standard.

The revised suspension geometry and the introduction of chunky 215/65 R16 Pirelli Scorpion STR tyres have resulted in a change in the track widths when compared with the Volvo V70. The Volvo XC70 has a front track of 1611mm, compared with 1560mm for the Volvo V70, which promotes extra stability in rough conditions.

These changes also incorporate an increase in ride height, to help the Volvo XC70 cope with rough terrain. It has a total ground clearance of 209mm, which is 69mm more than a Volvo V70 and compares well with rivals such as the Audi Allroad and even some SUVs.

AWD with Instant Traction™

The Volvo XC70's all-wheel drive system has the latest electronic system developed in conjunction with the Swedish specialist, Haldex. It operates independently of driver input, distributing torque automatically between the front and rear wheels for the best possible grip in all conditions.

For 2006 model year, a new 'pre-charged' function uses a non-return valve within the coupling making 80Nm of torque instantly available to the rear wheels if the sensors detect any slippage. It feeds more power to the rear wheels as the car pulls away to improve acceleration. Once moving, power is balanced between front and rear, reducing drive to rear wheels when not needed, and reducing fuel consumption.

The intelligent AWD system uses a variety of sensors to monitor the road surface and the steering wheel, brake and accelerator pedal positions. In normal driving conditions on dry roads, almost all the power is distributed to the front wheels. However, for off-road work, or if the sensors detect slippage, torque is diverted to the rear wheels to maximise traction.

The XC70 further benefits from Volvo's TRACS anti-spin system and DSTC (Dynamic Stability and Traction Control). TRACS prevents wheel spin by transferring power across the axle if it detects a wheel is losing grip on one side.

In addition, the DSTC system increases driving safety on twisty roads and in slippery conditions by using sensors to detect if one of the driven wheels shows any sign of losing traction and cutting the power to it at lightening speed so it can quickly regain grip. And if the car shows any tendency to skid, the system steps in to automatically brake the relevant wheels to help maintain smooth control.

All XC70 models benefit from ABS brakes with EBD (Electronic Brake Distribution) and EBA (Electronic Brake Assist) which senses an emergency stop and automatically brings the car to a halt in as short a distance as possible.

Active 'Four-C' Chassis

The advanced electronics of Volvo's active 'Four-C' (Continuously Controlled Chassis Concept) technology allow all of the car's dynamic systems to communicate and work in unison and has now been specifically optimised for the variety of UK road conditions.

The car's speed, wheel movement and steering are continuously monitored via Multiplexed control systems that update the suspension settings 500 times per second.

The advanced electronics allow the driver to choose between different suspension settings at the touch of a button on the dashboard for maximum driver choice, control and enjoyment.

The system is designed to help counteract the cars natural dynamic tendencies:

- TAKE OFF: When accelerating away from standing start, the rear dampers are set to maximum stiffness to help prevent acceleration squat and optimise front wheel traction.
- BRAKING: When braking the front dampers are stiffened to reduce 'brake dive'. This allows greater rear end grip so more rear braking effort can be used.
- CORNERING: When cornering the outside dampers are stiffened to reduce roll and provide extra grip and traction.

The Four-C system, standard on SE Lux models, offers the choice of Sport or Comfort chassis settings, and both settings are programmed to compensate the suspension to account for heavy loads or if the XC70 is towing.

STEERING, BRAKES AND TRANSMISSION

In Brief:

The Volvo XC70's steering and braking systems have been tuned to maximise driver enjoyment and safety, both on and off-road. The rack and pinion steering provides a linear response and plenty of feedback, while the anti-lock brakes are boosted by Electronic Brakeforce Distribution (EBD), plus Dynamic Stability and Traction Control (DSTC) with Electronic Brake Assist (EBA).

There is also an optional speed dependent system available that provides additional assistance at low speeds and more steering feel as speed increases.

A five-speed manual gearbox is standard on the petrol powered XC70, and a six-speed manual for the diesel. For those who prefer to let a computer take the strain, Volvo also offers five and six-speed Geartronic automatic transmissions. This system adapts its shift points to individual driving styles and also benefits from a sequential, manual shift facility for added control.

In Full:

- Power-assisted, ZF rack and pinion steering optimised for feedback/response.
- Anti-lock brakes with Electronic Brakeforce Distribution (EBD).
- Dynamic Stability and Traction Control with Electronic Brake Assistance (EBA).
- Speed dependent steering available (optional).
- Five-speed manual transmission for 2.5T petrol engine or five-speed Geartronic transmission available.
- Six-speed manual transmission for D5 turbodiesel or new six-speed Geartronic
- Optional Geartronic automatic transmission adapts its shift patterns to suit individual driving styles and includes a sequential, manual shift facility for added control .

The Volvo XC70 uses a power-assisted rack and pinion steering system that has been developed to optimise driver feedback and response, both on and off road. The steering feel has been improved through careful tuning of the torque build-up during cornering, which helps the driver to place the car accurately on the road.

Large disc brakes, which are ventilated at the front, deliver a firm and consistent response, whatever the payload. As you'd expect from Volvo, an anti-lock braking system is fitted as standard assisted by Electronic Brake Force Distribution (EBD). EBD constantly distributes braking power between the front and rear wheels to ensure maximum retardation regardless of the road conditions.

In addition, Dynamic Stability and Traction Control (DSTC) are standard on all XC70 models with EBA (Emergency Brake Assist). This senses when an emergency stop is required and automatically applies maximum braking performance.

The 2.5T engine model is supplied with the 'M56' five-speed manual gearbox. This compact unit uses a three shaft (one input/two layshaft) system in place of the more traditional two shaft design, which contributes to the smooth, positive shift quality.

The D5 turbodiesel is available with a six-speed manual gearbox as standard, but for 2006, a new six-speed Geartronic automatic transmission is offered when production starts in October 2005 (and for any customers wanting automatic transmission but unable to wait until then, a 2.4D Euro III engine is available).

The Geartronic transmission automatically adjusts its shift points to reflect the driver's style and also offers a manual, sequential-shift facility where the driver is able to choose gears individually by tipping the lever forwards to change up and backwards to change down.

INTERIOR DESIGN CONCEPT

In Brief:

The interior design concept for the Volvo XC70 is typical of the contemporary, Swedish design and style of the rest of the Volvo range, with a smart, uncluttered and ergonomic dashboard design. But the XC70's interior has been customised to reflect its versatile role as a rugged, all-road, premium alternative.

There's an aluminium passenger grab handle on the centre console in case the terrain gets really rough, and the standard leather trim features 'sail seam stitching,' which underlines Volvo's tough yet luxurious approach to the quality of its interior design.

The cabin has room for five adults, with the option of two additional rear-facing seats in the loadspace, with air vents on the B-pillars for the added comfort of rear passengers.

When the rear seats are all folded flat, there's 1641 litres of load capacity, while the front passenger seat also folds forward to allow longer loads up to 3.09m to be carried.

Unique to the Volvo XC70 is the option of a 40/20/40 split rear seat, which allows long items to be accommodated between two rear passengers. The centre section can also be removed and replaced with accessories, such as an electric cooler box.

In Full:

- Complements critically-acclaimed Volvo V70 estate design (and V70 AWD)
- Contemporary, Swedish design with uncluttered, ergonomic dashboard
- Interior maximised for comfort, quality, convenience and practicality
- Space for five adults, plus option of two extra rear-facing seats in loadspace, with three-point safety belts and head restraints for each occupant
- Angle of rear seat backrest can be adjusted through 30 degrees
- Unique 40/20/40 split rear seat option for further versatility
- Air vents on B-pillar for added comfort of rear passengers
- Standard 'sail seam' leather trim
- Aluminium passenger grab handle on centre console
- Front passenger seat folds forwards to accommodate loads up to 3.09m long
- Luggage volume of 1641 litres with seats folded
- Unique shopping bag holder in loadspace
- Rear waste bag/bottle holder
- Optional Family Pack includes power child locks, integrated booster cushions, and foldable table with dual cupholders for rear passengers

The interior design concept for the Volvo XC70 borrows heavily from the Volvo V70, but it's been revised and upgraded to reflect its role as the rugged, all terrain alternative.

Contemporary Swedish Design

Durable fabrics and materials have been chosen for the carpets and trim panels. The Select leather upholstery, which is standard across the range, also features unique 'sail seam' stitching, which underlines Volvo's tough yet luxurious approach to the interior design.

To reflect the more rugged intentions of the XC70, the centre tunnel console design is more open and accessible than the equivalent V70 design, and includes a sturdy passenger grab handle that also looks the part and proves extremely useful when crossing rough terrain.

The rest of the fascia is borrowed from the Volvo V70 and is a handsome design tuned for ergonomic efficiency. The large, easy to use buttons are spread logically across the fascia in a typically simple Swedish design, and the controls for the audio system, climate-control and dynamic systems are sensibly grouped together and fall naturally to hand.

Additional controls for the stereo, cruise control and the (optional) Road and Traffic Information (RTI) system have also been cleverly integrated into the steering wheel and can be operated without the driver taking their hands off the wheel. All the car's primary functions are therefore grouped sensibly around the driver, helping to make the XC70 an easy and satisfying car to use.

Comfort

The front seats were orthopaedically designed and combine a high level of comfort and support – especially over a long journey. The driver's seat is electrically adjustable (as is the passenger's on SE Lux spec cars) and this, coupled with a steering wheel that adjusts for reach as well as rake, provides an ideal driving position for people of all shapes and sizes.

Volvo has always been committed to providing exceptional comfort for all the car's occupants. Peter Horbury, Volvo's former Vice President of Design explained

"Nobody rides tourist class in a Volvo; everybody rides at least business class. All five seats are a priority."

Space and Versatility

By opting for a transverse engine layout, Volvo's engineers have helped maximise the available passenger space. There's ample room in the rear for a triplet of adults and every occupant benefits from a proper head restraint and a three-point safety belt with tensioners. The angle of rear-seat backrest can also be adjusted through 30 degrees to maximise either rear passenger comfort or load space

In the design of the rear seat, the Volvo XC70 offers two choices. The standard fitment is for a traditional 60/40 split rear seat, or there's also an optional, three way, 40/20/40 split design to make the car as flexible as possible. By folding down the centre section, for example, the XC70 is able to accommodate two passengers in extreme comfort alongside a long object,

such as a snowboard. The centre section can be removed altogether and replaced with an array of options including a 30 litre storage box and a 17 litre cool box.

Such versatility helps the Volvo XC70 stand out against some talented opposition, and it's accompanied by all the luggage space and practicality expected of a Volvo estate car. The near-vertical rear end and square rear windows liberate a vast, well-shaped load area. With the rear seats in place, there's 485 litres of space to the glass line, which, with the seats folded down, can be increased to a maximum of 1641 litres. To accommodate items of up to 3.09m in length, the front passenger seat also folds forwards.

Two integrated child booster seats are available for the rear seat as part of an optional Family Pack, which also includes a foldable table and dual cupholders, plus power child locks for the rear doors.

Folding the rear seats has also been made as easy as possible. There's no need to remove the head restraints – they simply fold out of the way first – and lowering the seat leaves a flat cargo area that makes loading and unloading as convenient as possible.

This space is made more useful by a number of neat storage solutions. Volvo's unique shopping bag holder keeps objects upright and secure and folds away neatly into the boot floor when it's not in use. A standard steel safety grille protects occupants against loose luggage under heavy braking, and it can be folded up against the headliner when it's not in use. Other thoughtful touches include a hook in the passenger seat headrest for hanging a jacket to keep it within easy reach without it obscuring rear vision.

For drivers who require occasional seven-seater versatility, Volvo also offers the option of a pair of rearward facing seats for children. Both of these benefit from a three-point safety belt and head restraints. And when they're not in use, the seats fold away beneath the luggage compartment floor.

QUALITY AND EQUIPMENT

In brief:

A passion for high quality lies at the heart of the Volvo brand. In the Volvo XC70, this is reflected not only in the choice of trim materials and contemporary Swedish design, but also in the build quality. In addition, the interior conforms to the

international Oeko-tex ecological standard, which means all materials are free from potentially harmful emissions to minimise the risk of allergen reaction.

To reflect their higher standard specifications of the XC70, it is available as SE or SE Lux, which includes a minimum of electronic climate control with Volvo's Air Quality System with pollen and active carbon filter, a high performance audio system with a six CD in-dash autochanger, Dolby Pro Logic II Surround Sound™ and 4 x 50W amplifier, alloy wheels, cruise control, leather trim, electric driver's seat, alarm and electric heated and folding door mirrors with water repellent glass for every model.

There's also a wide range of options and accessories, reflecting the active lives of Volvo XC70 owners, including Volvo's DVD-based Road and Traffic Information satellite navigation system that, from 2006, now features RDS-TMC (Traffic Message Channel) and automatically highlights traffic problems ahead, and can re-route around any hold-ups.

Additional peace of mind is provided by a comprehensive warranty package that includes a full three year/60,000 mileage mechanical warranty.

In Full:

- SE and SE Lux trim levels to reflect XC70's higher standard specifications.
- High standard of materials and build quality – all conform to Oeko-Tex standards and are emissions and allergen free.
- Standard specification includes: Electronic Climate Control with Volvo's Air Quality System with pollen and active carbon filters, alloy wheels, leather upholstery, electric heated/folding door mirrors with water repellent glass, cruise control, electric driver's seat, and a high performance audio system with 6xCD player and Dolby Pro Logic II Surround Sound, 4 x 50w amplifier and nine speakers.
- DVD-based Road and Traffic Information system (RTI), with or without TV, available, now featuring RDS-TMC (Traffic Message Channel) to highlight traffic problems.
- Volvo On Call telematics system (optional).
- Vast range of accessories to meet lifestyle requirements, including electric cooler box, towbars and roof carriers for bikes, skis and snowboards.
- Full array of Volvo safety equipment (DSTC, ABS, WHIPS, SIPS, IC, etc).
- Service intervals: 18,000 miles or 1 year.
- Three year/60,000 mileage warranty package.

A passion for high quality lies at the heart of the Volvo brand. It's inherent not only in the build quality that reflects the ruggedness, durability and reliability for which the marque is renowned, but also in the choice of body and trim materials. From the exquisitely crafted door handles to the leather-wrapped gearlever, the Volvo XC70 exudes quality and desirability. The switchgear has a solid, quality feel and the fascia is designed with typical, contemporary Swedish simplicity, reminding occupants that they are enjoying a premium product.

For 2006 models, servicing intervals have been extended from 12,000 to 18,000 miles – or one year, whichever comes first.

In line with Volvo's commitment to the environment, all interior trim material conform to the internationally recognized, ecological Oeko-Tex standard, and are emissions-free to reduce allergic reactions and skin conditions (see Environment section).

Design and Desirability

The Volvo XC70 also offers an exceptional array of standard equipment, and to reflect this, the XC70 is available as SE and SE Lux trim levels.

The luxury specification of every model includes Electronic Climate Control (ECC) with Volvo's Air Quality System (AQS) and pollen and active carbon filters, leather upholstery, electric windows, electric folding and heated door mirrors with water repellent glass, a rain sensor for the windscreen wipers, cruise control, alloy wheels, a rear waste bin and an electric driver's seat with memory. Also standard is a high-performance audio system with six CD player, nine speakers, a 4 x 50W amplifier and Dolby Pro Logic II Surround Sound™ delivering premium sound quality.

Upgrading to the SE Lux model adds an electric passenger's seat, heated front seats, walnut wood trim and Bi-Xenon headlights with cleaning system, plus an upgraded Premium audio system with a more powerful 4 x 75w amplifier and eleven speakers.

Volvo owners are also encouraged to give their car a personal touch by choosing from a range of stylish optional extras, such as darkened side and rear windows or a rear spoiler. Many are conveniently grouped together, such as the Winter, Bi-Xenon, Family, and Communications Packs:

Winter Pack:	Heated front seats and headlamp cleaning system
Bi-Xenon Pack:	Bi-Xenon headlights, heated front seats and headlamp cleaning

	system
Family Pack:	Foldable table and dual cupholders (rear), power child locks (rear doors) and integrated booster cushions x 2
Communications Pack 1:	Dual band integrated GSM telephone, RTi navigation system with RDS-TMC, remote control and Europe DVD maps, plus Volvo On Call telematics system
Communications Pack 2:	Dual band integrated GSM telephone, RTi navigation system with RDS-TMC, remote control and Europe DVD maps and TV, plus Volvo On Call telematics system

Volvo's RTI (Road and Traffic Information) satellite navigation system now features a new RDS-TMC (Traffic Message Channel) which displays up to date information of any traffic problems. It comprises of a large colour screen that rises from the top of the dashboard to be safely positioned in the driver's view. This is linked to a DVD map system and displays information for most of Europe, and displays any traffic problem areas by a set of red or yellow symbols to indicate the severity of any congestion. Controls on the steering wheel make it easy for the driver to use the system, which can display information of the traffic areas highlighted, or there's a remote control unit for passengers to use. The screen can also double as a TV monitor.

Volvo On Call – advanced Telematics

Volvo On Call is a valuable personal safety feature using advanced Telematics. The system uses an integrated GSM telephone with a built-in GPS unit for satellite positioning, and ensures help is always close at hand.

Volvo On Call - Safety Package: Volvo On Call comes with a standard safety package. If an airbag or seatbelt pre-tensioner is triggered in the event of an accident, Volvo On Call automatically calls the Emergency Services via BT999 and can also provide data of your location.

Alternatively, pressing the red 'SOS' button on the integrated GSM telephone will put you straight through to the Emergency Services.

Also, if the car breaks down or you need help, pressing the Volvo On Call button will put you straight through to a Volvo On Call operator who is only a call away at any time of day to offer personal services such as route guidance, or to guide roadside assistance to you.

Volvo On Call - Security Package: An optional Volvo On Call security package offers the added benefits of a remote door unlock facility, theft notification and vehicle tracking.

In the future, Volvo On Call's services could include automatically contacting your local dealer when a service is required.

Accessories

There's also a vast range of accessories to accommodate the needs of every Volvo XC70 owner.

There is a parking assistance system for the front and rear of the car, while the wide range of load-carrying systems includes ski and roof boxes, bike racks and surf board holders, plus towbars – all designed to ensure the car can accommodate all the active hobbies, interests and busy lives of Volvo owners.

The technicians and interior designers were anxious to look after every member of the family and have developed a bespoke cage/gate that provides a dedicated compartment within the load area for a pet. All of these features help to confirm the Volvo XC70's reputation for versatility and great design.

Quality and Customer Satisfaction

Volvo's employees are justifiably proud of the quality of their products, but they're equally determined to offer the best customer service. Volvo's management has set a goal of achieving 'Customer satisfaction no. 1' in the premium sector. To fulfil this ambitious target, the company has initiated a series of Quality Forums, which scrutinise information from a combination of internal and external sources, including independent rankings by companies such as JD Power. Having analysed the data, the Forums initiate action plans to improve performance in specific areas.

This quality assurance package is backed up by a comprehensive warranty. The standard mechanical warranty is three years/60,000 miles, there's a three year unlimited mileage warranty on the paintwork and eight years cover against rust perforation. In addition, all Volvos are covered by one year's free RAC cover, which provides full breakdown and recovery assistance, anywhere in Europe, 24 hours a day.

SAFETY

In Brief:

Like all Volvo models, the XC70 has been developed and extensively crash tested in the Volvo Safety Centre in Gothenburg, Sweden, and features a comprehensive safety package designed to protect occupants in a wide variety of accidents.

The SIPS (Side Impact Protection System) includes side airbags and an Inflatable Curtain (IC) airbag that protects both front and rear occupants.

In frontal impacts, 'intelligent' front airbags work in unison with the safety belts, while the WHIPS (Whiplash Protection System) helps reduce the risk of back and neck injuries in a rear impact.

In the rear of the car, all three passengers benefit from three-point safety belts with pre-tensioners and head restraints, plus there are ISOFIX mounting points for child seats. A passenger airbag cut-off switch is available in order to safely carry a child seat in the front of the car.

To improve the driver's vision and to help prevent accidents occurring, Volvo has now introduced water repellent glass (WRG) for the door mirrors on the XC70, with the options of WRG for (laminated) side.

In Full:

- SIPS (Side Impact Protection System) with side airbags and IC (Inflatable Curtain) airbags for front and rear passengers
- Twin front 'intelligent' airbags
- Five three-point seatbelts with pre-tensioners and load limiters for front seats
- WHIPS (Whiplash Protection System) for front seats
- ISOFIX mounting points for rear seats
- WRG: Water repellent glass for door mirrors and side windows
- Passenger airbag cut-off switch available
- DSTC (Dynamic Stability and Traction Control) standard on all models
- Extensively crash tested in Volvo's Safety Centre

Volvo's commitment to safety is as old as the company itself. As Assar Gabrielsson, one of the founders of Volvo, declared: "Cars are driven by people. The guiding principle behind

everything we make at Volvo, therefore, is – and must remain – safety.” It’s a commitment that’s more than fulfilled with the Volvo XC70, designed after extensive crash testing in Volvo’s Safety Centre. As a result, the XC70 features an extensive safety package designed to protect occupants in the widest range of accident scenarios.

Side Impact Protection

A quarter of all impacts are from the side, which is why Volvo developed the Side Impact Protection System (SIPS). A large part of the force of a collision that would otherwise penetrate through the side of the car is dissipated by SIPS via beams, pillars, the floor, the roof and other parts of the car body. The front seats can actually move sideways into the car in the event of a heavy side impact to increase space from any intrusion.

The side impact airbags then play an important role in protecting the chests of the occupants. They are fitted in the outer edge of the front seats, not in the door, which ensures that they’re always securely positioned next to the occupant’s side, whatever the position or angle of the seat.

Further protection is provided by the IC (Inflatable Curtain) airbag, which sits in the headlining and protects occupants in the front and rear. In the event of a side impact, IC inflates in a few thousandths of a second and then remains inflated for about three seconds in order to provide maximum protection throughout complex collision sequences. The Curtain is effective whether the window is open or shut and it absorbs up to 75 per cent of the energy developed when the head is thrown sideways in a crash.

Intelligent Airbags

The two front airbags are ‘intelligent’ and deploy in two stages according to the severity of the accident, alleviating the risk of facial injuries caused by the occupant’s faces impacting with the airbag. They are complemented by three-point safety belts with pre-tensioners, which are fitted for all passengers. The pre-tensioners activate within a few thousandths of a second in the event of a collision and tighten the belt for maximum protection. The front seat safety belts then release a little so that the driver and passenger are cushioned by the airbags in a controlled manner.

Whiplash Protection

Volvo was the first car manufacturer to improve driver comfort by studying ergonomics and introducing adjustable lumbar support backs in 1964 and, after nearly 40 years of continuous research, crash testing and innovation, Volvo is now proud to claim its seats can reduce whiplash injuries by 50 per cent.

Seventy per cent of personal injuries in car accidents include whiplash, but Volvo's research shows this risk can be reduced by half with 'WHIPS' – the Volvo whiplash protection system, first introduced at the launch of the S80 in 1998, and is now standard in all Volvo front seats.

Volvo's WHIPS seats significantly reduce the force on the spine and head by absorbing energy from the impact and offering superior support thanks to a combination of an innovative moving support mechanism in the seat back, and a fixed head restraint design permanently at the right height and position.

In practice, the WHIPS seat mechanism bends backward with the occupant's body - first in parallel and then in a short reclining movement.

Volvo's traffic accident research team compared real-life whiplash injuries from Volvos with and without WHIPS, and the results point to a clear conclusion: WHIPS reduced short term and long term (of more than a year) injuries by 33 per cent and 54 per cent respectively, with whiplash injuries in women these were reduced by as much as 50 per cent and 75 per cent, respectively.

All Volvo car head restraints were placed in the highest category in the 'New Car Whiplash Rating' published by the Thatcham Motor Insurance Repair Research Centre. Static tests were carried out to measure the design and position of head restraints in 500 car models.

"We are very proud of coming out so well," says Volvo Car Corporation's safety engineer and whiplash specialist, Lotta Jakobsson. "Volvo has long understood how important head restraints are, and led the industry in introducing them.

"However, static evaluations of head restraints only show a part of what happens in real life accidents. That is why Volvo has invested over a decade's research into crash testing and analysis of real accidents, and introduced its Whiplash Protection System – 'WHIPS'.

In October 2002, the United States Insurance Institute for Highway Safety (IIHS) compared car seats with and without whiplash protection, and achieved an average injury reduction of 49 per cent.

Like Volvo, the Swedish insurance company, Folksam, also compared real-life accidents, and showed that WHIPS seats reduced whiplash injury by 40 per cent. Folksam also crash tested seats from different 2003 cars and Volvo seats were considered the best, with an overall

whiplash injury reduction in the region of 50 per cent possible, if all cars had seats as good as Volvo.

Child Safety

A passenger airbag cut-off switch is now available to enable a child seat to be carried in the front of the car, while in the rear Volvo has also paid special attention to child safety with the option of an integrated booster cushion built into the rear centre armrest designed for children aged between 4 and 10.

In addition, two integrated booster cushions are also available for the rear seats as part of the optional Family Pack.

Water Repellent Glass (WRG)

Another aid to improve driver visibility is Water Repellent Glass (WRG) that Volvo has now introduced as standard on all XC70 models for door mirrors and is also available for (laminated) side windows.

On the side windows the WRG gathers water as pearls of moisture which easily blow away by the wind speed, leaving a dry glass panel with unobstructed visibility. Since it is more difficult for dirt to fasten on dry surfaces, it is also easier to keep the windows cleaner. The WRG treatment requires that the windows be laminated.

On the WRG door mirrors, a different method is used. Here, the water is distributed evenly across the entire glass surface so that it is possible to see through the water. In certain weather conditions, the function can be speeded up if the mirror heater elements are activated.

ENVIRONMENT

In Brief:

Volvo's continued commitment to the environment is reflected in its 'clean inside and out' programme.

An air filter prevents dust, pollen and exhaust particles reaching the interior, while the Interior Air Quality System ensures that the air inside the cabin is always cleaner than that outside. All the trim materials comply with Oeko-Tex standards to create a healthier, emissions-free interior, helping to reduce the risk of an allergic or asthmatic reaction.

Another pioneering feature is Volvo's PremAir system, which converts up to 75% of the ground level ozone passing through the radiator into oxygen. Several of the engines in the range already also meet the stringent EU 2005 and America's ULEV (Ultra Low Emission Vehicle) emission requirements.

The XC70 is built in one of the automotive world's cleanest factories, with 85 per cent of each car able to be recycled, and every new Volvo is backed by an Environmental Product Information (EPI) analysis which can be viewed at www.volvocars.com/epi.

Volvo also produces an annual Corporate Citizenship report, which is available at www.volvocars.com/citizenship.

In Full:

- 'Clean inside and out' environmental commitment
- Interior trim materials conform to Oeko-Tex standards and are allergen-free
- Cabin air filter removes dust, pollen and exhaust particles
- PremAir ozone system converts up to 75% of ground level ozone to oxygen
- Interior Air Quality System ensures cleaner air inside than out
- 85 per cent of the car can be recycled
- Several of the engines already meet stringent EU 2005 and ULEV (Ultra Low Emission Vehicle) emission requirements
- Each new Volvo is backed by an Environmental Product Information analysis, available at www.volvocars.com/epi.
- Volvo produces an annual Corporate Citizenship: www.volvocars.com/citizenship

Healthier Inside

According to the 2001 RAC Report on Motoring, the typical private motorist drives for over 250 hours each year, while in the same period, a company car driver spends an average of 425 hours inside their vehicle.

Yet, while most of us are aware of vehicle emissions and air quality issues, how many drivers know that the air inside their cars may also be harmful? Or that the metals, textiles and leathers used in car interiors can emit volatile substances, which activate allergies and skin conditions?

Many motorists don't realise their car could be increasing their risks of asthma, eczema, headaches, eye irritation or even a heart attack. In recent years, the number of people suffering from allergies and other forms of hypersensitivity has been growing rapidly.

Volvo's 'clean inside and out' programme to create emission-free cars is a healthy solution to the problem.

The interior of the Volvo XC70 complies with a strict standard called Oeko-Tex, which sets maximum levels for dangerous substances contained in textiles and trim materials. All the leather upholstery and the trim fitted to the Volvo XC70 meets Oeko-Tex standards. The components on the Volvo XC70 that most frequently come into contact with the skin – the door handle, ignition key and safety belt locks – are also compliant with Oeko-Tex and allergen-free.

Air Quality

The Volvo PremAir[®] system makes a major contribution to air quality. It's an industry first and is available on every Volvo XC70 with the 2.5T petrol engine. PremAir[®] features a catalytic coating on the radiator that converts 75% of the ground level ozone passing through it into oxygen. It therefore reduces harmful pollutants in the local environment.

Every Volvo XC70 also benefits from Volvo's Air Quality System. This constantly monitors the cabin environment to minimise odours and pollutants entering from the outside. It ensures that the air inside the car is always cleaner than that outside. The air-conditioning system also incorporates a cabin air filter that prevents dust, pollen and exhaust gas particles entering the car.

Corporate Citizenship

The Volvo XC70's impressive aerodynamics (Cd 0.34) and sophisticated catalyst and engine management systems help to keep fuel consumption and emissions to a minimum. The 2.5T engine in the range already meets the extremely stringent EU 2005 and ULEV (Ultra Low Emission Vehicle) emission requirements.

Volvo's commitment also extends beyond the car's immediate environment. It was one of the first manufacturers to use tools to evaluate the life-cycle environmental impact of its products. The system, known as EPI (Environmental Product Information) enables Volvo to

evaluate the impact of its products and processes on natural resources, ecosystems and human health. This information is available to the public at www.volvocars.com/epi.

It's a strategy that's clearly paid dividends. The XC70 is built in one of the automotive world's cleanest factories with emissions of solvents from the Volvo Torslanda plant in Sweden reduced by over 90 per cent since 1972. Plus, 85 per cent of each car can be recycled and every new Volvo is backed by an EPI. Volvo's annual Corporate Citizenship report is available on www.volvocars.com/citizenship.

SECURITY

In Brief:

Volvo is committed to protecting the car, its occupants, and their possessions, and was voted 'Best Manufacturer' in the first 'British Insurance Car Security Awards' announced in July 2004, and won the same title again in 2005.

Every XC70 is fitted as standard with a sophisticated alarm and immobiliser that can be switched on and off using the convenience of a remote control on the key fob. The combination of deadlocks and the availability of laminated and dark tinted side windows make the Volvo XC70 more secure.

The remote control also operates the Approach lighting system, which illuminates the car and the surrounding area as the driver approaches. Likewise, a tweak of the headlight stalk activates the Home Safe system, switching on the headlamps for thirty seconds after the occupants have left the vehicle.

In full:

- Electronic immobiliser fitted as standard
- Alarm and deadlock system operated from remote control key fob
- Approach and Home Safe Lighting system fitted to every model
- Volvo 'Best Manufacturer' in first and second British Insurance Car Security Awards
- Laminated and dark tinted side windows available (optional)

Volvo's passion for the safety of its owners also extends to issues of personal security. The Volvo V70 is fitted as standard with a wide range of features designed to protect occupants from burglary, theft and assault.

Volvo came out as overall 'Best Manufacturer' in the first 'British Insurance Car Security Awards' announced in July 2004, and won it again in the second awards in 2005. The BISCA aim is to raise consumer awareness of vehicle security and recognise manufacturers' efforts to make more secure cars. To be eligible for the awards, all cars had to pass strict selection criteria in line with the New Vehicle Security Ratings scheme (NVSR) developed by the Motor Insurance Repair Research Centre (Thatcham).

An electronic immobiliser makes it impossible to start the car without the right key, while the outer lock cylinder rotates, making it difficult to break in to. If the thief does manage to get in, via a window, for example, the deadlock system makes it impossible to open a door from the inside. The introduction of optional laminated side windows also makes it harder for thieves to gain access.

The deadlock system is activated by the remote control key fob, which allows the driver to open the car as they approach. This system can also be used to access the tailgate independently of the doors, which is a useful deterrent to opportunist thieves.

The same remote control system also switches on the alarm system, which is standard on every Volvo XC70. The alarm is triggered if anyone attempts to open the doors, the bonnet or the boot lid. It also reacts to movement inside the car or if a window is broken. As an option, this system can be upgraded to include a level sensor that activates the alarm if the car is jacked up in any way.

For additional security, Volvo is one of very few car companies to offer the option of stronger, laminated windows plus dark tinted rear windows to protect the car's interior contents and aid personal security.

An important contribution to personal security is provided by the Approach and Home Safe lighting system. By pressing a button on the remote controller as they approach the car, the driver is able to turn on the inside lights, the side marker lights and the lights in the rear-view mirrors. On leaving the car, a tweak of the headlight stalk activates the dipped beam headlamps for 30 seconds, lighting a path to the door. It's a simple system that offers considerable peace of mind.

DID YOU KNOW?

- 1 The majority of XC70 owners are aged between 35 to 64* and university educated, with a household income of about £74,000, and either the owner of a small or large business, a company director, a professional partner or freelance occupation*
- 2 Volvo's Torslanda plant in Gothenburg, Sweden produced 36,229 XC70's in 2004, of which 1,575 were sold in the UK (compared to 1,164 in the UK in 2003).
- 3 The XC70's five best selling countries in 2004 were:

USA	16,071
Sweden	3,929
Germany	1,927
Canada	1,923
UK	1,575
- 4 The Volvo Accident Research Team has studied over 30,000 real-life accidents involving Volvos, and as a result has helped develop Volvo's SIPS (Side Impact Protection System) and WHIPS (Whiplash Protection System).
- 5 Volvo has produced over 12 million cars since it started in 1927. Volvo cars has been owned by Ford since 1999, and now employs around 28,000 people and sold a total of 456,224 cars globally in 2004 (compared to 415,046 global sales in 2003). The USA buys the most Volvos each year, followed by Sweden, the UK and Germany.
- 6 The top hobbies of XC70 owners are:
 - Walking/hiking/hill climbing (25.76%)*
 - Gardening (22.73%)*
 - Watching football or rugby (15.23%)*
 - Touring/travel/holidays (15.12%)*

*Source: New Car Buyers Survey 2002/2004