

Press Release

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Volvo S60: A sedan for all seasons and for all reasons

For immediate release

Volvo's S60, with a year of international recognition and sales success under its belt, is enhanced for 2002 with the availability of All-Wheel-Drive. With its dynamic coupe-like countenance, this passionate expression of the "new" Volvo design language adds Electronically Controlled AWD to its broad complement of sophisticated performance technology, advanced safety engineering and refined designs for personal driving pleasure.

Featuring the S60's front wheel drive bias for superior traction and fuel efficiency, Volvo's S60 2.4T AWD selectively puts the rear wheels to work when demand arises for superior traction in severe driving conditions. Developed in cooperation with Swedish firm Haldex, the electronically controlled system is fully integrated with ABS, Stability Traction Control (STC) and, with December production, Dynamic Stability Traction Control (DSTC).

Born of the Volvo P2 platform which spawned the S80 and new V70 series, the S60 was bred as a performance oriented sport sedan distinguished by a nimble and responsive nature with a decidedly Scandinavian character.

The S60 chassis' exceptional torsional rigidity together with the decidedly sporting character of the tuned suspension delivers a dramatic synthesis of superior ride quality and exceptional handling. Highly evolved 5-cylinder engines, in both naturally aspirated and turbocharged versions, 5-speed automatic or 5-speed manual transmissions, state-of-the-art braking with Emergency Brake Assist (EBA) and traction control systems firmly establish the performance character at the heart of this truly refined European sport sedan with the Scandinavian flare.

The S60's cockpit optimizes the driving experience with clear instruments, intuitive controls that reside within the natural arc of the hand, Volvo's legendary comfortable seats designed around orthopedic principles and a constellation of driver-centric creature comforts. In a perfect balance of form and function, the S60's graceful coupe profile does not exact a toll on interior space. To the contrary, the S60 offers a spacious interior with comfortable seating for five. The sleek exterior profile offers additional benefits for the ear as well as the eye. In conjunction with the premium build quality, the smooth, aerodynamic shape contributes to an interior noteworthy for its quiet and reassuring sense of solidity.

Consistent with Volvo's unwavering commitment to occupant safety, the S60 enjoys a comprehensive array of safety features including standard Side Impact Protection System (SIPS) with side impact airbags and Inflatable Curtain (IC), Whiplash Protection Seating System (WHIPS), seat belts with pyrotechnic pre-tensioners in all seating positions, dual-stage front airbags (SRS), plus Volvo's safety cage construction.

From Home Safe Lighting to Volvo's patented PremAir(ozone reduction radiator coating, the S60 boasts a wealth of personal security features and industry-leading environmental control technologies. It offers the S60 owner reassuring evidence that the Volvo S60 is the modern interpretation of the sporty sedan for thoughtful buyers. Like all Volvo models, the Volvo S60 comes with an Environmental Product Declaration certified by Lloyd's Register of London, UK.

The declaration certifies that these models meet environmental standards throughout the life cycle of the car - Volvo's cradle-to-grave approach to environmental management.

"My mandate was to design a car that will appeal to younger people, those who wouldn't normally consider a Volvo. In short, design a Volvo sedan that is inspired by a sports car and drives like one," comments Volvo's Chief of Design, Peter Horbury.

"I wanted to bring forward recognizable symbols of our past, design elements that define Volvo. The grille is derived from performance turbos of our past. The strong 'V' hood line is lifted from our 122 series and the strong shoulder line from our 140 series. But I also wanted something bolder. I brought in the C70 Coupe roof line and, with clever packing, created a rather comfortable rear seat for tall passengers," states the S60 designer Giza Loczi. "It's a true Volvo sedan with the heart and soul of a coupe."

S60 Buyers

They will be around 30-44 years old and relatively successful early in life, 50/50 split between men and women. Majority are married with median income around \$100,000. Well educated and early adopters of technology: Palm VIs, Internet phones. They are confident but not cocky, value merit over title and likely self-employed or work for a start-up. Value authenticity - opposed to traditional status symbols. Demographics like the new MB C-Class, but don't need the 'badge'.

Competitive Group

Trade-ups are expected from Toyota Camry, VW Passat, Honda Accord, Acura. They will cross-shop from A4 2.8, BMW 3 Series, MB C-Class.

S60 puts the rear wheels to work for an AWD Revolution

The new Volvo S60 AWD made its public debut at the international Frankfurt Motor Show in Germany in September, showcasing an electronically controlled Active On-Demand (AOD) system which provides nearly instantaneous power distribution between the front and rear wheels.

Like previous Volvo all-wheel-drive systems, the new AWD operates completely automatically, independent of the driver. The advantage of the new system is the speed and sophistication with which it operates.

In normal driving situations, the S60 AWD primarily powers the front wheels. It is only when the system detects that the front wheels have lost traction and have begun to spin that it delivers power to the rear wheels.

The system, created by Haldex of Sweden, uses a mechanical pump and 'wet' multi-plate clutch to distribute the power to the rear wheels. The difference in rotational speed between the slipping front wheels and the rear wheels causes the pump (located at the rear differential) to force oil to the wet clutch plates in the rear differential, pushing the plates together to transfer power to the rear wheels. A small electrical pump is used to "pre-pressurize" the system so that power transfer can occur almost instantly.

The system is electronically controlled through a module mounted on the rear differential. The module controls the electric pump and an oil control valve. The differential module communicates with the engine control module (ECM) and brake control module via a network to determine when the front (driven) wheels begin to lose traction and to anticipate different driving situations. The system is so finely tuned it can react to as little as a quarter turn difference between the input shaft and the output shaft of the differential.

A valve between the pump and the wet clutch pack is controlled by the module, and opens when the module detects a loss of traction. The amount of wheelspin (and resultant difference in rotational speed between front and rear wheels) determines the how far the valve opens and the amount of oil pressure applied to the wet clutch by the pump, and dictates how much power is transferred to the rear wheels.

When all four wheels are rotating at the same speed, the mechanical pump at the differential does not pressurize the system and there is no power transfer.

By measuring front wheel spin, throttle position and other data, the system can determine how quickly to distribute power, and how much power to distribute. When accelerating on a difficult

surface like gravel, for example, the rear wheels can be engaged quickly with maximum power transfer. During a low speed cornering or parking maneuver the system knows that the difference in speed between the wheels does not require the rear wheels to be engaged. As a result, the inertia other systems experience in similar circumstances is avoided.

Because it is part of the car's Multiplex computer system, the AWD control system can communicate with other systems (such as the TRACS traction control system) in the car to optimize the all-wheel-drive to match almost any driving situation. Early in the new year, the Dynamic Stability and Traction Control (DSTC) feature will be integrated into the system and DSTC will be offered as an option on the S60 AWD.

The extremely fast speed of engagement and disengagement, and the variable power transfer to suit the driving conditions, is a factor in the safety and security the system provides in the S60 AWD.

"The speed of the system gives what was already a well-balanced car exceptionally good road handling. After all, the owner of a sedan does not use all-wheel-drive for off-road accessibility but for optimal road-holding and stability," says Hans Gustavsson, Senior Vice President of Research, Development & Purchasing at Volvo Car Corporation.

Smooth, seamless power for the S60 AWD comes from the proven 2.4-litre, 5-cylinder aluminum engine with variable valve timing and light-pressure turbocharger. Output is 197 hp at 5,100 rpm and maximum torque is 210 lb./ft. at a low 1,800 rpm. A member of the new generation RN family of engines, extensively modified for improved emissions and fuel economy, it is the same power plant used in the S60 2.4T.

Enhanced engine management software helps the engine deliver impressive power and highly responsive performance - important characteristics that contribute to the S60 AWD's dynamic character.

Competitive group includes:

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