

**Volvo Unleashes Tri-Fecta of Power
at 2004 SEMA Tradeshow**

Las Vegas, Nevada (November 2, 2004) – Building upon the "Evil Twin" S60 R cars that marked Volvo's debut at the 2003 Specialty Equipment Manufacturers Association (SEMA) tradeshow, Volvo Cars of North America, LLC (VCNA) today displayed three all-new powerhouses destined to attract even more enthusiasts toward the Swedish carmaker's exciting line of vehicles. Taking front and center stage is the V8-powered XC90 Power Utility Vehicle (PUV). Flanking its aggressive stance are two smaller, though equally intimidating, cars: the Volvo-built V50 SV and the Evolve-built Volvo S40.

Volvo XC90 PUV

First unveiled at the Paris Auto Show in September, Volvo's refined V8-powered XC90 has undergone a radical transformation for the 2004 SEMA show. Boasting a lowered stance, an aggressive body styling treatment and high performance wheels and tires, the XC90 Power Utility Vehicle (PUV) takes Volvo's hottest selling vehicle to the next level. But the transformation is more than skin deep. Still a work in progress, the V8 is slated to eventually produce 650 horsepower through its six-speed automatic "Geartronic" transmission and standard electronically controlled all-wheel-drive system.

The XC90 PUV, however, is still a Volvo. Meaning that wrapped within its eye-popping new looks are a number of state-of-the-art safety systems. Introduced with no fewer than five automotive world's firsts when it debuted two years ago, the Volvo XC90 was the first SUV to the market with standard Roll Stability Control (RSC), head curtain airbags for all three rows of seats, pyrotechnically charged pretensioning seatbelts in all seating positions and an incredible Dolby Pro Logic surround sound stereo system.

Volvo V50 SV

All new for 2005, the Volvo V50 activity sportswagon offers utility and safety in a dynamic design that has been heralded by the automotive media for its buttoned-down driving characteristics. The V50 making its debut at the 2004 SEMA show has been "breathed on" by Volvo's Special Vehicles (SV) department in Gothenburg, Sweden and the Volvo Monitoring and Concept Center (VMCC) in Camarillo, California.

While its exterior is restrained, and sophisticated, highlighting the V50's Scandinavian signature design elements, the heart of a true enthusiast beats beneath its sculpted hood. A highly tuned 2.5-liter turbocharged 5-cylinder engine pumps out an awe inspiring 340 horsepower. As would be expected, an electronically controlled all-wheel-drive system and a close-ratio six-speed manual transmission are also on tap to make the V50 SV the perfect all-weather extreme crossover wagon.

Evolve Volvo S40

Following on the heels of last year's Volvo S60 R SEMA dream cars, Evolve has once again created a masterpiece of design and engineering, this time in the shape of the exciting new S40 sport sedan. Extensively modified with a larger turbo that has also been repositioned away from the intake manifold where it resides in the stock car, the Evolve S40 puts out an estimated 425 horsepower to all four wheels via Volvo's Haldex electronically controlled all-wheel-drive system.

Outside, the Evolve S40's custom Silver and Titanium metallic paint treatment and tastefully crafted body kit attract attention from those "in the know." Ultra high performance tires envelope 19-inch lightweight wheels that openly display the incredible 15-inch disc brakes and 8-piston aluminum brake calipers.

Volvo Takes Vegas

All three high performance Volvos will be on display from November 2 - 5, 2004 at the 2004 SEMA tradeshow. The cars will be on display at the Ford Motor Company booth in the Las Vegas Convention Center. Trained product specialists from Volvo and Evolve will be on hand to answer any questions. For more information on each of the cars, please refer to their respective press releases: Volvo XC90 Power Utility Vehicle, Volvo V50 SV and Evolve S40.

VCNA provides marketing, sales, service, technology and training to Volvo automobile retailers in the U.S., Canada, Mexico and Puerto Rico. For more information on specific production vehicles or special vehicles please refer to the Volvo Cars of North America, LLC public relations website at: www.volvocars-pr.com.

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FOR IMMEDIATE RELEASE

**Volvo XC90 V8 Power Utility Vehicle
Debuts at 2004 Specialty Equipment Manufacturers Association
Tradeshaw in Las Vegas, Nevada**

Las Vegas, Nevada (November 2, 2004) – Hot on the heels of the introduction of Volvo's first V8 engine at the 2004 Paris International Auto Show, Volvo Cars of North America, LLC (VCNA) is proud to present the eye-grabbing XC90 PUV at this year's Specialty Equipment Manufacturers Association (SEMA) tradeshow in Las Vegas, Nevada.

And there may be no better place to show the audacious Swede than Las Vegas. Covered in a luscious racing red paint scheme, the Volvo XC90 PUV will keep the drivers of high-end European exotic cars glancing in their rearview mirrors.

"This was such a fun concept," noted Vic Doolan, President and CEO of VCNA, "that we just had to do it. It could possibly be the ultimate Volvo. It has all the safety that Volvo is known for with the looks and performance of an exotic car." But a concept it will remain as neither VCNA nor the Volvo Car Corporation may ever offer anything like the XC90 PUV. Noted Doolan, "This is just to get the juices flowing; to draw attention from those who may not have considered Volvo before."

Pushing the "Next Generation SUV" to the Next Level

Once you get past the XC90 PUV's aggressive stance and fully customized body enhancements, a true beast lurks within. Still a work in progress, the XC90 PUV is slated to eventually achieve a whopping 650 horsepower through the use of a massive supercharger, revised engine mapping and low restriction exhaust. That power is routed through a modified version of Volvo's Haldex electronically controlled all-wheel-drive system. The system is "pre-charged" meaning that power may be instantly routed to the wheel with the most traction. A new 6-speed automatic "Geartronic" transmission rounds out the driveline.

Right out of the box, the production Volvo XC90 V8 has the makings of purebred performer. With 311 horsepower and 325 ft.-lb. or torque at a low 3,900 rpm the Volvo XC90 reinforces its position as one of the most successful SUV models in the premium segment.

The new V8 engine marks a new turning-point in Volvo Cars' history. It is the first V8 the company has produced since it was founded in 1927, and the Volvo XC90 is the first model to be powered by the new engine. One absolute requirement for the new V8 engine was that it had to be installed transversely in the engine compartment, just like all other Volvo engines.

“A transverse engine is helpful in maintaining the frontal crumple zones in the XC90 and thus not compromise on protective safety,” says Hans Wikman. For this reason, extremely compact external dimensions were essential for the new engine. This also explains the choice of just 60 degrees between the two banks of cylinders – as opposed to the more conventional 90 degrees.

V8 tailor-made for the XC90

In order to maintain overall compactness, all the ancillary units such as the alternator are fitted directly onto the engine itself without any space-stealing brackets. The starter motor is fitted above the transmission for the same reason. Additionally, the exhaust camshafts are driven by secondary chains running off the inlet camshafts, saving additional space.

The left-hand cylinder bank is offset half a cylinder ahead of the right bank, contradicting normal practice in the automotive world – so the engine can slot neatly into the structural beam network of the XC90 and thus enhance collision safety. “We’ve tailored this V8 specifically for the XC90,” confirms Hans Wikman. The result is a V8 that is just 29.7 inches long and 24.9 inches wide – the most compact on the market compared to engines of equivalent volume.

As a result of these compact dimensions and the fact that both the block and cylinder head are cast in aluminum, Volvo’s new V8 weighs just 418 pounds – an important consideration when aiming for low fuel consumption.

Exotic Car Styling in an SUV

Riding a full two inches lower than a production XC90, the PUV's extraordinary styling is highlighted by its racy red paint scheme. With a nod to the super cars of Italy, the XC90 PUV sits squarely on its 9-inch wide ultra high-performance alloy wheels. The Pirelli P-Zero *Assimetrico* tires are 275/40-ZR20s front and rear.

Up front is an ultra deep front airdam with a wide-mouth opening that helps to channel cool air into the engine compartment and the supercharger's intercooler. Fared into the front fascia are small, high intensity foglamps. Air slips smoothly around the PUV's front end and over the ultra-wide, custom fabricated wheel arches. Deep cuts at the rear of the side sills direct air around the tires to the 13-inch floating rear brakes, shod with 4-piston calipers. Brake duty up front is handled by 15-inch floating discs with 8-piston calipers.

Around back, the rear valance smoothly integrates the custom fabricated quad exhaust tips. Tinted windows, tail lamps and head lamps and body color rearview mirrors round out the cosmetic touches to the XC90 PUV.

Volvo XC90 PUV is a Collaborative Effort

With the production XC90 V8 supplied by VCNA, the custom fabrication and design was handled by Aria Group, Inc. Aria Group is a design, engineering and manufacturing company servicing a broad spectrum of clients from its Southern California office. The company offers a

wide range of services to meet the demands of any product development or manufacturing project. Aria Group's team of specialists combines experience with the latest technologies to ensure all projects are planned, managed and executed professionally while exceeding the client's expectations. Aria Group is continually seeking and implementing new technologies and project management techniques to compliment its core strengths of innovation and superior customer service. To find out more about Aria Group visit our website at www.aria-group.com .

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FOR IMMEDIATE RELEASE

Volvo XC90 PUV Perfectly Melds Safety with Eye Popping Design at 2004 Specialty Equipment Manufacturers Association Tradeshow

Las Vegas, Nevada (November 2, 2004) – Despite its brutish appearance, the Volvo XC90 PUV on display at this year's SEMA tradeshow contains numerous active and passive safety systems. First introduced in 2003, the XC90 has become Volvo Cars of North America, LLC's top seller. With the introduction of the new 311 horsepower V8, sales are likely to continue to climb.

But Volvo's commitment to safety remains. A few of the XC90's safety features include:

- Roll Stability Control
- Special steel in a reinforced roof structure
- IC (Inflatable Curtain) - for all three rows of seats
- Lower cross-member for increased car-to-car compatibility

Customers expect Volvo to retain its lead in the field of safety - irrespective of vehicle type. With the launch of its first-ever SUV, Volvo Cars enters an entirely new segment, and the goal is perfectly clear: to lead the way in terms of safety.

As in all other Volvo models, safety in the Volvo XC90 is a holistic concern. Safety is never achieved by simply integrating a number of individual stand-alone features into a car: what is important is the interaction between them - it is this interplay that shapes the result.

This holistic approach is - and always has been - one of the cornerstones of Volvo's safety philosophy.

With the entry of Volvo Cars into the SUV market, there is increased focus on several new areas. One of them is roll-over accidents, where the vehicle rolls over onto its roof one or more times.

Roll-over Protection System

Volvo's Roll-over Protection System, ROPS, tackles the problem from two directions:

- a stability-enhancing system, RSC, which minimizes the risk of rolling over in the first place
- increased protection for the occupants if the vehicle does roll over

Owing to its higher center of gravity, an SUV may have a higher risk of rolling over in certain critical situations compared with a conventional passenger car. That is why the center of gravity in the Volvo XC90 has been kept as low as possible compared to most SUVs. In fact, it is just 89 mm (3.5") higher than that of the Volvo XC70.

However, this does not mean that Volvo has compromised on one of the features that SUV buyers value so highly: a commanding seating position. The front seats are no less than 6.5" higher than in the Volvo XC70.

In order to help reduce the risk of a roll-over situation, the Volvo XC90 is equipped with an active stability-enhancing system known as Roll Stability Control or RSC. The system uses a gyro-sensor to register the car's roll speed and roll angle. Using this information, the terminal angle is instantly calculated and thus also the roll-over risk.

If the calculated angle is so great that there is an obvious risk of rolling over, the DSTC (Dynamic Stability and Traction Control) anti-skid system is activated. DSTC responds by reducing the engine's power and also by braking one or more wheels as necessary until the car under-steers and stability is regained.

This helps reduce the risk of a roll-over accident initiated by extreme maneuvers. RSC is the only active stability-enhancement system on the market to measure the car's roll angle. It was developed jointly by Volvo and Ford Motor Company.

All the seats are equipped with seat belt "pre-tensioners" to hold the occupants securely in place. In an accident, the pretensioner pulls the seat belt firmly across the occupant's body in order to help provide maximum protection.

In order to help prevent the head from striking the cars' sides, the Volvo XC90 is equipped with Volvo's IC or Inflatable Curtain. IC also helps prevent the occupants from being ejected in an accident.

The Volvo XC90 has a version of IC that is specially adapted to deal with roll-over accidents.

This means that it stays fully inflated for longer so as to offer maximum protection in a roll-over scenario. What is more, the curtain is folded in its cassette in such a way that it follows the contour of the window glass as it inflates. If the occupant's head is resting

against the window at the moment of inflation, the curtain will thus slip between the glass and the occupant's head to provide enhanced protection.

In the Volvo XC90, all three rows of seats in the 7-seat version are protected by the IC.

Selfless compatibility

The problem of compatibility - when a SUV collides with a car that sits closer to the road surface - was in firm focus throughout the development of the new Volvo XC90. The typical SUV has a high ground clearance and thus often comes with high-positioned bumpers. This may create a greater risk of damage to the on-coming passenger car and more serious injuries to its passengers, since the lower car's protective beams and crumple zones simply slip below the front of the SUV without being activated.

In order to reduce the risk of this type of injury, the front suspension sub-frame in the Volvo XC90 is supplemented with a lower cross-member, positioned at the height of the beam in a conventional car. This lower beam is integrated into the XC90's structure and is neatly concealed behind the spoiler.

This construction reduces the risk of injuries in frontal collisions as well as in rear-end impacts and side impacts. The lower cross-member strikes the oncoming car's protective structure, activating its crumple zone as intended so the occupants can be given the maximum level of protection.

During the development of the Volvo XC90, considerable attention was also paid to the safety of pedestrians, cyclists and other relatively unprotected road- users. The entire front of the car features clean, gentle and smooth lines, and there are no protruding parts which may cause enhanced injuries.

The engine in the Volvo XC90 is installed low in the vehicle. As a result, the hood has no less than 3.1" of deformation space before there is any contact with the engine below it. It thus serves as a soft impact-absorbing "bumper", helping to reduce the risk of serious injury to a pedestrian who may be thrown onto the hood of the vehicle.

High safety level in the third row of seats

The Volvo XC90's third row of seats provide a high level of passenger safety. There is generous space behind it, so collision force in a rear-end impact can be effectively absorbed and dissipated.

The occupants of the rearmost seats sit just above the rear axle, which is the optimum position in terms of side-impact safety. These seats also feature belt tensioners, head restraints and, as already mentioned, the Inflatable Curtain or IC.

The front airbags are of the dual-stage type, with a sensor that monitors the incoming collision force and adjusts the airbag's inflation accordingly.

Safety for the car's youngest occupants has always been a high priority at Volvo. That is why the Volvo XC90 can be specified with the standardized attachment system for child seats, ISOFIX, in both the first and second row of seats.

WHIPS, Volvo's award-winning Whiplash Protection System, is fitted in the two front seats of the Volvo XC90. WHIPS is activated in the event of a rear-end collision from speeds as low as 8 mph, helping to reduce trauma on the spine and neck and thus reducing the risk of injury.

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Hot-blooded Volvo V50 SV Concept Car Debuts at 2004 Specialty Equipment Manufacturers Association Tradeshow

Las Vegas, Nevada (November 2, 2004) – The Volvo V50 SV, making its debut today at the 2004 Specialty Equipment Manufacturers Association (SEMA) tradeshow, is the first-ever high-performance car to emerge from Volvo Cars Special Vehicle department in Gothenburg, Sweden. Based on the production version of the 2005 Volvo V50 T5 AWD activity sportswagon, the V50 SV has design elements from the Volvo Monitoring and Concept Center in Camarillo, California and is meant to appeal to a generation of young enthusiasts that may not have considered the Volvo brand as anything but safe and conservative.

"From the get-go, the V50 activity sportswagon, with its aggressive styling and incredible driving characteristics was designed to get a younger audience interested in the Volvo brand," commented Thomas Andersson, Executive Vice President of Marketing at Volvo Cars of North America, LLC. "The V50 SV is a one-off design to see just how far Volvo could push the envelope. That it was done in-house, by the Volvo Special Vehicles department in Sweden, makes this car an even more interesting proposition."

While Volvo has no plans of offering the V50 SV parts or materials through its retailer network, it gives young enthusiasts and the aftermarket companies that cater to them a thought provoking "launching pad" to get their creative juices flowing. Understated and refined, the Volvo V50 SV has what it takes to turn heads and handle well on the race track.

The heartbeat of a performance Volvo

What dominates the performance of the Volvo V50 SV resides under the specially fabricated hood: a turbocharged 2.5-liter engine lifted from Volvo's high-performance S60 R. But while the S60 R puts out a commendable 300 horsepower, the V50 SV ups the ante considerably by producing an eye-popping 340 horsepower – an increase of 122 horsepower from the standard 218 horsepower found in a production V50 T5.

As with any turbocharged engine, getting large amounts of cool air pushed through the turbo housing is what gets the job done. In the case of the V50 SV, a highly modified front end incorporates massive lower air intakes. The air is routed up into the engine compartment to the turbo through larger-bore tunnels. Turbo boost pressure has been bumped from 1.0 bar to a heart-pounding 1.4 bar.

Horsepower is nothing without torque and the V50 SV won't disappoint. Volvo's history of minimizing turbo lag and offering a broad torque curve from very low rpm is retained in the V50

SV. With 331 lb.-ft. on tap from 1,500 to 4,800 rpm, the V50 SV will sprint to 60 mph in about 5.5 seconds.

A modified, low-restriction exhaust system with large-bore 3-inch diameter chrome tips adds the finishing touch-of-class at the rear end and also helps to boost engine performance. Its throaty note and distinctive burble give the V50 SV "curb presence."

Putting the power to the pavement is a close-ratio 6-speed manual transmission that is also borrowed from the S60 R. The V50 SV's clutch effort, however, is lighter and easier to modulate than the brutish S60 R. Volvo's electronically controlled all-wheel-drive system by Haldex routes power to the rear wheels almost instantaneously when the front tires begin to lose traction.

In normal driving situations, the V50 SV 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 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 occurs 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.

European Tuned Sports Suspension

The Volvo V50 SV's aggressive stance is made possible through a European-tuned sports suspension that is available optionally on Euro-spec V50s. Its 12-mm lowered ride height is accomplished through shorter, stiffer springs and firmer shock absorbers.

The suspension system has been carefully reworked to maintain a flat stance around corners, while never becoming twitchy when off-throttle maneuvers may threaten to bring the V50 SV's tail around.

Filling the wheel wells of the V50 SV are sticky race-bred Pirelli 235/40ZR-18 Corsa tires mounted on 18-inch lightweight performance alloy wheels. To optimize handling, rear toe has been dialed in .50 inches, while rear toe angles out .70 inches. Front and rear camber angles are dialed in at 1.0 degrees.

Bringing the car to a stop in short order is an upgraded AP Racing brake package featuring large 13.9-inch disc brakes with four-piston calipers at the front wheels. At the rear are 11-inch discs with standard two-piston Volvo calipers. Of course Volvo's anti-lock braking system with electronic brake force distribution is also on hand to bring the car to a swift, controlled stop in any situation.

Dynamic Exterior

Refined, restrained and coordinated are the words that best describe the V50 SV. In fact, a buyer interested in the V50 can actually obtain several of the exterior styling pieces – something that's not normally found on a SEMA display car.

The Volvo Dynamic Trim Package (MSRP: \$2,025) is available from any Volvo retailer and features body color front and rear spoilers, lower side sill extensions, a rear bumper valance and 17-inch "Sculptor" alloy wheels shod with Michelin MXM4 all-season tires. Additionally, 18-inch accessory wheels are also available through the retailer network.

The high-gloss one-off Sonic Blue paint is sophisticated and subdued, masking the V50 SV's performance potential. The standard roof mounted spoiler has been customized to create more down force at high speeds and the sculpted hood allows for improved engine compartment airflow. To slim down the V50's profile the standard roof rails have been removed. Massive black-mesh grille inserts and high intensity gas discharge headlamps nicely compliment the standard Volvo egg crate grille and badge.

Refined Interior with Rear Seat Entertainment

Volvo's typical attention to interior ergonomics is retained with the V50 SV. Only modestly modified, what's most evident once the driver is ensconced within the cabin is the brushed aluminum finish around the instrument cluster. The material matches what's found on the innovative ultra-slim center stack and door panels, and lends a high-tech appearance to the cleanly styled Scandinavian interior. A small shift light has been incorporated into the panel and a turbo boost gauge has also been added, with a maximum boost pressure reading of 1.4 bar.

Rear seat passengers will enjoy the fully integrated Volvo dual screen Rear Seat Entertainment system. Twin 7-inch LCD color screens have been mounted into the backs of the front headrests with a DVD player providing the entertainment. The Volvo Dual Screen Rear Seat Entertainment system is available from any Volvo Retailer as a factory installed option on the Volvo XC90.

Other interior touches include "Wetsuit" upholstery, a Volvo accessory three-spoke sport steering wheel with aluminum inlays, an aluminum shift knob and custom built racing pedals. The awesome 425-watt Dolby Pro Logic II stereo system with an in-dash 6-disc player is retained from the stock V50.

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FOR IMMEDIATE RELEASE

Volvo V50 SV Features Full Compliment of Swedish Manufacturer's Renowned Safety Systems

Las Vegas, Nevada (November 2, 2004) - The Volvo V50 SV, making its debut today at the 2004 Specialty Equipment Manufacturers Association tradeshow, features an array of safety systems designed and developed in the world's most state of the art Safety Center in Gothenburg, Sweden. "The Volvo V50 SV, while highly modified, wouldn't be a Volvo without its full complement of safety systems," said Thomas Andersson, Executive Vice President of Marketing at Volvo Cars of North America, LLC.

To that end, the Volvo V50 SV comes standard with a myriad of safety systems including antilock brakes with brake force distribution, the Volvo Side Impact Protection System (SIPS), Volvo's Whiplash Protection System (WHIPS) and the new patented front structure that incorporates four different grades of steel. It's all part of Volvo's Intelligent Vehicle Architecture (VIVA), a unique approach to building a car that integrates everything from its crashworthiness, to its dynamic styling and exciting driving characteristics.

The safety systems have been developed and tested in the Volvo Cars Safety Center, the most advanced facility of its kind in the world. About forty full-scale tests have been performed to help ensure that all the on-board components interact, not to mention an untold number of computer crash simulations.

During the development of the new Volvo V50, the goal was to achieve class-leading safety utilizing a new way of thinking about how cars deform in the event of a collision.

"Our aim of building cars that are the safest in their class applies to all models, including the new Volvo V50," says Ingrid Skogsmo, head of the Volvo Cars Safety Centre.

In a collision, the preconditions for efficient deformation are critical. Since the necessary deformation is absorbed within a limited total distance, the various materials' properties must be exploited to the maximum so as to absorb as much of the incoming energy as possible.

"A tough challenge, but one that we approached in an entirely new way," confirms Ingrid Skogsmo. "We call it Volvo's Intelligent Vehicle Architecture."

The frontal body structure of the new Volvo V50 is divided into several zones, each with a different task in the deformation process. The outer zones are responsible for most of the deformation. The closer the collision forces get to the passenger

compartment, the less the materials used deform. The intention is that the passenger compartment should remain intact in most collisions.

In order to give each zone the relevant properties, different grades of steel are used in different areas. Four different steel grades are used. In addition to conventional bodywork steel, three different grades of high-strength steel are employed: High Strength Steel, Extra High Strength Steel and Ultra High Strength Steel.

What's also unique is that the all-new V50 went through a series of computer simulated frontal crash tests *without the installed engine*. The engines were then designed to fit within the empty space that remained after the simulated crash test. In a real collision the engine may be shunted rearward 5.9 inches before contacting the bulkhead.

This zonal system enables the collision forces to be absorbed in a highly ingenious and effective manner:

Low-speed deformation zone

The front bumper incorporates an extremely rigid crossmember of boron steel. The attachments to the longitudinal members of the body are designed in the form of 'crash boxes', which absorb the forces generated by a low-speed collision without damage to the rest of the body structure. The crash boxes can be replaced easily at reasonable cost.

High-speed deformation zone

The straight sections of the side members are made of high strength steel, a very ductile grade of material, which is optimized for high-energy absorption. This zone accounts for most of the deformation in a collision.

In addition, Volvo has opted to include upper side cross-members since they provide essential protection if the vehicle should collide, for example, with a truck platform or a loading pier.

Back-up zone

The section of cross-member that turns outward toward the A-pillar is designed to act as a barrier protecting the cabin space and as a back-up against deformation. The design also helps minimize the possibility of the front wheel from penetrating the interior, the wheel instead helping to absorb the collision forces. This section is extremely rigid and is made of extra high-strength steel.

Three-way attachment

A rigid cross-member connects the A-pillars and lower side members. On each side they form an extremely rigid three-way attachment, which helps to preserve the passenger compartment.

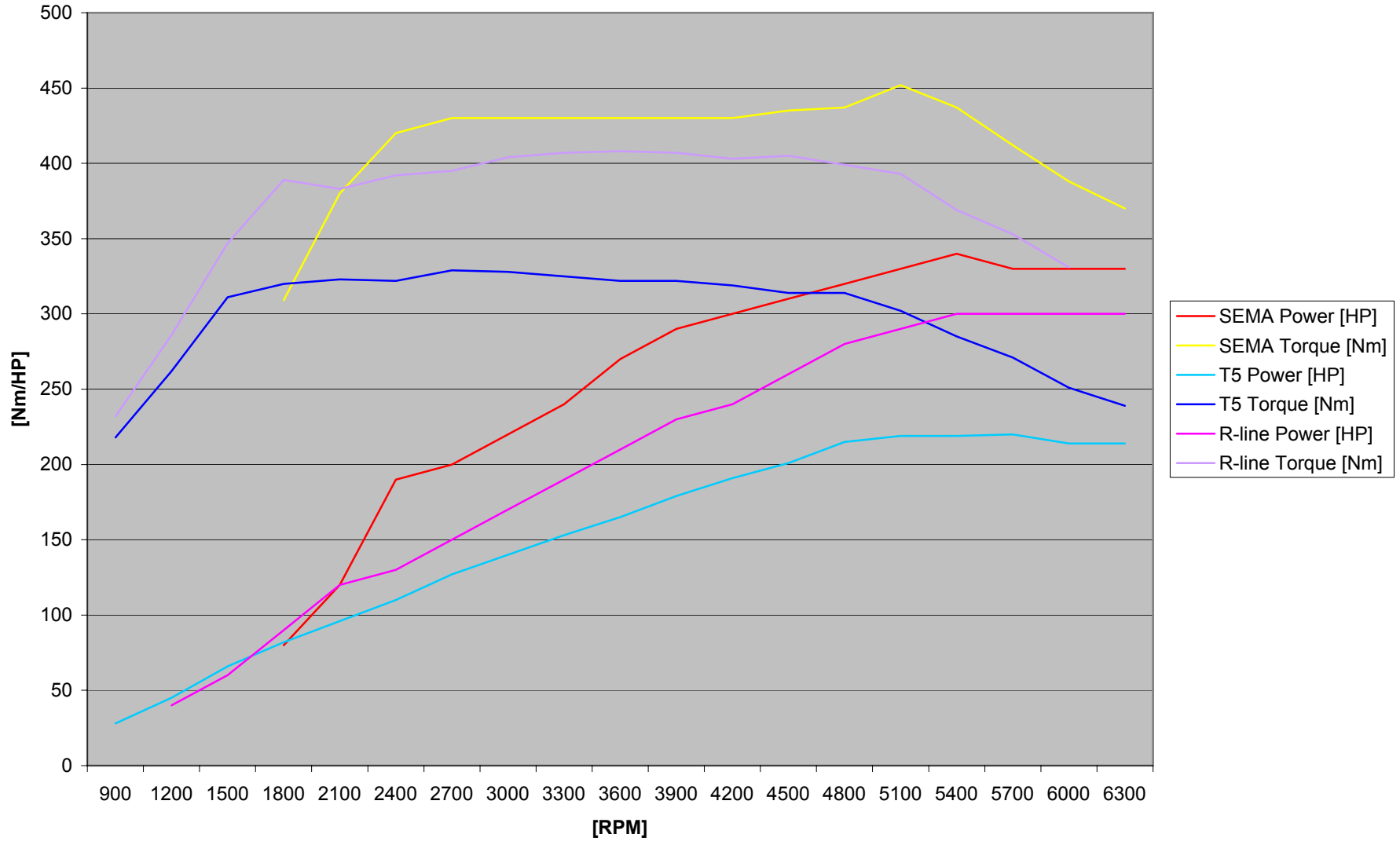
The new front structure is one of Volvo's many patented safety designs, and is an important part of Volvo's Intelligent Vehicle Architecture.

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Torque/Power SEMA Volvo V50 SV vs V50 V50 T5 & R-line



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**Volvo Cars of North America, LLC and Evolve Cars, Inc
Team Up Again for 2004 Specialty Equipment
Manufacturers Association Tradeshow**

Las Vegas, Nevada (November 2, 2004) – It was just one year ago that Volvo Cars of North America, LLC and Evolve Cars, Inc. took the 2003 Specialty Equipment Manufacturers Association (SEMA) tradeshow by storm with the "Evil Twin" Evolve S60s. For 2004 the collaborative effort continues with the Evolve S40; a significantly modified version of the hot-selling Volvo S40. Don Nicholson, President and CEO of Evolve Cars commented, "The Evolve S40 is exactly the right kind of car for the SEMA show. It's got the looks and performance to lift more than a few eyebrows."

Sold to Evolve Cars, Inc. for \$1, the Volvo S40 is strictly a VCNA Marketing exercise designed to build interest among the aftermarket enthusiast segment. "It's great to be at SEMA again," commented Thomas Andersson, Executive Vice President of Marketing at VCNA. "I think that the Evolve S40 will make an even bigger impression than last year's Volvo cars." Painted an eye-catching Silver metallic and Titanium Gray metallic paint scheme, the Evolve S40 is a full force frontal assault on the tuner enthusiast market. With an estimated 400+ horsepower going to all four wheels through a close ratio 6-speed manual transmission, the Evolve S40 will turn lap times as fast as it will turn heads.

Stunning Exterior Styling

From 30 feet away it's clear that the Evolve S40, while based on a production version of the popular Volvo S40 sport sedan, is no "normal" Volvo. Praised by the automotive media for its good looks, Volvo S40's design cues are taken to the extreme with the Evolve S40. What's most noticeable is the aggressively styled custom-built body and trim pieces. Up front is the Evolve designed front bumper with an ultra-deep front spoiler that houses Evolve Cars' signature mesh grille inlays. Functional twin air inlet scoops molded into the front fenders direct cool air over the turbocharger and into the engine compartment for improved performance and better engine cooling.

Lower side sills, rear valance, trunk spoiler and taillight trim add to the Evolve S40's aggressive appearance. The fuel door has been saved and the filler is relocated out of sight. Perhaps what lends most to the Evolve S40's stance is the high-performance wheel and tire package. As with all true performance cars, the Evolve S40 rides on staggered shoes. The lightweight HRE "C21" alloy wheels are 8.5-inches wide in front and a full 11.0-inches wide at the rear. Diameters front and rear are 19.0 inches. The wheels are wrapped in low profile Pirelli PZero "Rosso" tires that are 255/30ZR-19 up front and 305/25ZR-19 around back.

Other exterior modifications include a custom made 3.5-inch dual exhaust system, darkened tail lamps and a body color moon roof.

Fire Breathing Engine

The two small openings on the Evolve S40's fenders belie its performance potential. Used to direct air in and around the engine compartment, they are needed to keep things cool beneath the car's sculpted hood. And they are truly needed. Residing front and center in the engine bay is a massive intercooled turbocharger. Thick veins of plumbing run across the inline 5-cylinder engine and a strut tower brace helps stabilize the chassis of the Evolve S40 for up to 550 horsepower of body twisting power.

Obviously with an engine capable of producing this much power, heat is an issue that needs to be dealt with accordingly. Heat resistant silicone hoses and heat protection material keep the Evolve S40's fluids from boiling and the paint from peeling off the hood.

State of the Art Suspension & Braking System

Bringing 550 snorting horses to a stop in short order is the Evolve S40's high-performance braking system. Up front are monstrous 380mm two-piece rotors with eight-piston liquid cooled AP Racing calipers. At the rear are 362mm two-piece rotors with six-piston AP Racing calipers. Gracing the massive rotors is a special slotting pattern using the signature Evolve "E" to maximize braking performance. Keeping all of this under supreme control is Volvo's anti-lock braking system with electronic brake force distribution.

When Evolve decided how much tire contact patch they needed to handle the power and deliver the cornering and braking performance desired, it quickly became clear that an extraordinary suspension was needed. To accommodate, Evolve's Chief Engineer, Mano Agulian, created a Formula One style pushrod rear suspension, bringing the strut/spring assembly inboard into the vehicle's trunk and created new wheel wells around the aggressive tires. Up front, a custom Evolve adjustable coil-over suspension provides precision handling and a nearly flat cornering stance. Large Evolve anti-roll bars and fully adjustable Koni struts and Eibach springs give the driver ultimate control and adjustability for any road surface. Volvo's Dynamic Stability Traction Control (DSTC) system is also on hand to help keep the car under control during extreme maneuvers.

Innovative Volvo Interior Goes High Tech

Long praised by the automotive media for its ergonomically superior interiors, the S40 keeps the tradition alive, with a twist. While still providing the utmost in functionality, the 2005 Volvo S40 introduced an automotive first: the ultra slim center stack. Covered in stylish genuine aluminum trim, the swooping curve combines Scandinavian design influence with a touch of high-end electronics. Behind the slim panel, more interior storage space is available with the addition of a small tray that's perfect for a cell phone or other items.

The Evolve S40 adds unique interior appointments including silver carbon fiber leather and gray leather seating surfaces atop the supremely comfortable Volvo seats. A silver suede headliner and other silver and graphite colored pieces highlight the interior along with performance aluminum pedals, custom speaker and grilles and an Evolve shift knob. An Alpine audio system is also included.

Evolve Cars, Inc. designs, builds and markets unique styling and performance products specifically for late model Volvo automobiles. Based in Southern California, Evolve products are distributed internationally through select Volvo dealerships and other independent suppliers. For more information, please visit: www.evolvecars.com.

VCNA provides marketing, sales, service, technology and training to Volvo automobile retailers in the U.S., Canada, Mexico and Puerto Rico. For more information on specific production vehicles or special vehicles please refer to the Volvo Cars of North America, LLC public relations website at: www.volvocars-pr.com.

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**Volvo Safety Stands Side-by-Side with Performance
with the debut of the Evolve S40 at the 2004
Specialty Equipment Manufacturers Association Tradeshow**

Las Vegas, Nevada (November 2, 2004) - Volvo is a name not usually associated with the nation's largest automotive aftermarket tradeshow. But what Volvo is known for is safety. And the Volvo vehicles on display at this year's SEMA tradeshow are no exception. The S40 sold to and heavily modified by Evolve Cars, Inc. incorporates the latest in active and passive safety:

- **Volvo Intelligent Vehicle Architecture (VIVA); a new way of thinking**
- **New, patented frontal structure with several crumple zones**
- **Four steel grades interact for optimal deformation**
- **Developed and tested in the world's most advanced safety center**
- **Frontal design with integrated protection for other road users**
- **68 percent greater torsional rigidity compared to the current Volvo S40**
- **Unique Intelligent Driver Information System – IDIS**
- **High level of theft protection**

The new Volvo S40 sets the standard in its class with extremely high safety levels – both protective and preventive, and represents an evolution of the, "You think and then you build" theme that began with the award winning XC90 sport-utility vehicle.

It's all part of Volvo's Intelligent Vehicle Architecture (VIVA), a unique approach to building a car that integrates everything from its crashworthiness, to its dynamic styling and exciting driving characteristics. This is possible due to several interacting units, including a very stiff body, a new frontal structure and a world-first intelligent system for driver information.

The safety systems have been developed and tested in the Volvo Cars Safety Center, the most advanced facility of its kind in the world. About forty full-scale tests have been performed to help ensure that all the on-board components interact, not to mention an untold number of computer crash simulations.

VOLVO'S INTELLIGENT VEHICLE ARCHITECTURE (VIVA)

Crumple zones that employ different grades of steel

During the development of the new Volvo S40, the goal was to achieve class-leading safety utilizing a new way of thinking about how cars deform in the event of a collision.

“Our aim of building cars that are the safest in their class applies to all models, including the new Volvo S40,” says Ingrid Skogsmo, head of the Volvo Cars Safety Center.

In a collision, the preconditions for efficient deformation are critical. Since the necessary deformation is absorbed within a limited total distance, the various materials’ properties must be exploited to the maximum so as to absorb as much of the incoming energy as possible.

“A tough challenge, but one that we approached in an entirely new way,” confirms Ingrid Skogsmo. “We call it Volvo's Intelligent Vehicle Architecture.”

The frontal body structure of the new Volvo S40 is divided into several zones, each with a different task in the deformation process. The outer zones are responsible for most of the deformation. The closer the collision forces get to the passenger compartment, the less the materials used deform. The intention is that the passenger compartment should remain intact in most collisions.

In order to give each zone the relevant properties, different grades of steel are used in different areas. Four different steel grades are used. In addition to conventional bodywork steel, three different grades of high-strength steel are employed: High Strength Steel, Extra High Strength Steel and Ultra High Strength Steel.

What's also unique is that the all-new S40 went through a series of computer simulated frontal crash tests *without the installed engine*. The engines were then designed to fit within the empty space that remained after the simulated crash test. In a real collision the engine may be shunted rearward 5.9 inches before contacting the bulkhead.

This zonal system enables the collision forces to be absorbed in a highly ingenious and effective manner:

Low-speed deformation zone

The front bumper incorporates an extremely rigid crossmember of boron steel. The attachments to the longitudinal members of the body are designed in the form of ‘crash boxes’, which absorb the forces generated by a low-speed collision without damage to the rest of the body structure. The crash boxes can be replaced easily at reasonable cost.

High-speed deformation zone

The straight sections of the side members are made of high strength steel, a very ductile grade of material, which is optimized for high-energy absorption. This zone accounts for most of the deformation in a collision.

In addition, Volvo has opted to include upper side cross-members since they provide essential protection if the vehicle should collide, for example, with a truck platform or a loading pier.

Back-up zone

The section of cross-member that turns outward toward the A-pillar is designed to act as a barrier protecting the cabin space and as a back-up against deformation. The design also helps minimize the possibility of the front wheel from penetrating the interior, the wheel instead helping to absorb the collision forces. This section is extremely rigid and is made of extra high-strength steel.

Three-way attachment

A rigid cross-member connects the A-pillars and lower side members. On each side they form an extremely rigid three-way attachment, which helps to preserve the passenger compartment.

The new front structure is one of Volvo's many patented safety designs, and is an important part of Volvo's Intelligent Vehicle Architecture.

VIVA: Well-designed engines contribute to crash safety

Owing to efficient packaging, the engines in the new Volvo S40 are 7.8 inches slimmer than the 2.4- and 2.5-liter engines found in the S60 and V70. Since the engines are installed transversely, the reduced width creates greater space between the engine and passenger compartment. In a collision, the engine can be pushed up to 5.9 inches rearward before the crankshaft comes into contact with the cross-member near the bulkhead.

The steering column can be deformed up to 5.5 inches. When deformed, the steering column moves horizontally, to provide optimal airbag positioning.

In cars for the North American market the collapse function adapts to the use of the seat belt.

More solutions in common with other Volvo models:

- Collapsible pedals
- Dual-stage airbags
- Seat belt pretensioners for the front seats and rear outer seats
- Force limiter for the front seat belts
- Belt reminder for the front seats

In versions destined for the North American market, the force limiters have been designed so that their effect is tailored to suit the seat's passengers (due to the seat's fore-aft position).

VIVA: Side Impact Protection System stiffens body

The new Volvo S40 is 1.9 inches wider than its predecessor. This creates added space for deformation in a collision. In other respects, the Volvo S40 has the same type of side impact protection as found on the S60 and S80, with SIPS (Side Impact Protection System), side-impact airbags and inflatable curtains. These curtains are designed to provide enhanced protection in rollover accidents, by deflating extra-slowly (approximately 3 seconds).

The side airbags are larger than in the previous S40 model to provide more effective protection at the hips and chest.

Several features contribute to the stiffer body and help prevent the side from deforming in a collision:

- The reinforced, transversely installed tubular beam between the A-pillars
- The diagonally installed beams of Ultra High Strength Steel in the doors
- The B-pillars, which have been significantly reinforced and are dimensioned to help provide enhanced protection

The new Volvo S40 is designed to help provide the best possible protection in a rear-end collision as well.

Volvo's system for avoiding neck injuries – WHIPS (Whiplash Protection System) – is one of the most effective on the market. In the event of a severe impact from the rear, the seat backrest and head restraint accompany the movements of the seat occupant's body.

The seats and backrests are of a particularly robust design. They are designed to withstand high loads from items such as unsecured luggage.

Protection for other road users

The design of the new Volvo S40 has a front characterized by clean, smooth surfaces and rounded corners. The curves and panels are shaped to help reduce the risk of injury to pedestrians and cyclists in the event of an accident. Furthermore, the front has an energy-absorbing structure ahead of the bumper so as to help reduce the risk of leg injuries.

The hood and front fenders are designed to absorb collision energy. This helps reduce the risk of head injuries. In addition, the compact new gasoline engines leave a generous 2.8 inches of free space between the cylinder head and hood.

Built for children too

Just like the rest of the Volvo range, the all-new Volvo S40 is developed with a keen focus on children. The body's safety structure and interior safety systems are designed and dimensioned to help protect the youngest occupants too.

Both rear outer seats can be fitted with integrated child booster cushions for children above three years of age.

Volvo recommends that all children under the age of 12 be properly restrained in the rear seats at all times.

VIVA: PREVENTIVE SAFETY

Stable driving properties

The body of the new Volvo S40 is 68 percent stiffer than that of its predecessor, thanks to advanced body design. This torsional rigidity contributes to stable, predictable and consistent handling on the road. The car's chassis design, with its broad track and long wheelbase, also has a positive effect on stability.

- The front track is 60.4 inches (2.5 inches wider than the previous S40 model).
- The rear track is 60.3 inches (2.2 inches wider)
- The wheelbase is 103.9 inches (3.0 inches longer)

The suspension is fully independent, with spring struts at the front and a multilink system at the rear. The rear suspension provides a certain degree of passive steering to counteract any tendency to skid.

The new Volvo S40 can be specified with:

- STC (Stability and Traction Control) anti-spin system.
- DSTC (Dynamic Stability and Traction Control), which corrects the car's progress and poise if there is any sign of starting to skid.

The Volvo S40 T5 is also available with all-wheel drive. Volvo's electronically controlled AWD system distributes the torque automatically to match the road and driving style, providing stable, consistent driving characteristics.

Excellent braking

The new Volvo S40 has extremely powerful ABS brakes – with electronic brake-force distribution to the rear wheels and automatic panic-braking assistance – EBA (Emergency Brake Assistance). The front wheels feature ventilated discs. The disc size is adapted to engine power.

Projector-type headlamps

The headlamps feature projector-type low beams. The concentrated beam of light is surrounded by a “halo” which helps oncoming drivers judge the distance to the car.

Bi-Xenon gas discharge lamps (GDL) for high and low beam are available as an option.

Additional side-mounted turn indicators in the door mirrors and integrated side-marker lights in the front and rear lamps make the Volvo S40 easy to see from the side too.

Ergonomic driver’s environment

An ergonomically designed seating position with all the instruments and controls in just the right position makes for safer progress. In this respect, the Volvo S40 continues a renowned Volvo tradition. It has a comfortable and conveniently operated driver’s seat, an adjustable steering wheel and a logically laid out instrument panel.

Steering wheel-mounted controls for the audio system, cruise control and navigation system add further to driving safety.

Intelligent Driver Information System

The new Volvo S40 introduces IDIS – the Intelligent Driver Information System.

IDIS is a feature influenced by fighter aircraft technology. The system helps the driver avoid being distracted while driving.

When the traffic requires the driver’s full attention and concentration, for example when overtaking or braking, signals from the integrated GSM telephone (not available in the U.S.) and certain peripheral information are delayed until the situation is calmer. Drivers should, however, always focus their full attention and concentration whenever they are behind the wheel.

The IDIS function continuously registers the driver’s activity by monitoring steering wheel movements, the accelerator pedal, turn signal function, braking and so on. This information is processed and at a given activity level, information that is not essential to safety is held back.

IDIS is standard in all versions of the new Volvo S40, irrespective of whether or not the car is fitted with an integrated phone (U.S. cars will not be offered with the integrated phone).

IDIS is factory-prepared for forthcoming on-board systems for information and communication. The more such functions the car has, the greater the benefit of IDIS.

SECURITY

Volvo's holistic view of safety encompasses not just Protective and Preventive safety, but also Personal Security. The new Volvo S40 is designed to provide effective protection for the car's occupants and their property, both while on the move and when the car is parked.

The level of theft protection is very high, as a result of close co-operation with Thatcham, the world-leading automotive research and technology centre. The new Volvo S40 is equipped with a number of protective functions, such as:

- Electronic immobilizer
- Electronic anti-theft "marking"
- Uniquely identified control modules
- Audio system as an integral part of the on-board electrical system

The new Volvo S40 can also be equipped with laminated door windows. Laminated glass is extremely difficult to smash and provides enhanced protection against break-ins.

VCNA provides marketing, sales, service, technology and training to Volvo automobile retailers in the U.S., Canada, Mexico and Puerto Rico. For more information on specific production vehicles or special vehicles please refer to the Volvo Cars of North America, LLC public relations website at: www.volvocars-pr.com.

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FOR IMMEDIATE RELEASE

VOLVO RACING: Going Where No Volvo Has Gone Before

Las Vegas, Nevada (November 2, 2004) - It's no small task launching what may be the first transverse mounted engine AWD racing sedan into an already highly competitive – high dollar – event series; but that's what Volvo team leader Derek Bell and his colleagues faced when they took to the tracks for the final three rounds of the 2004 SCCA SPEED GT World Challenge series.

Going head to head with fully competitive teams from the likes of BMW, Audi, Cadillac and Porsche was always going to present a great challenge for the AT SPEED Motorsport team and the Volvo S60 R project, with its amazingly short gestation period. In fact, with components for the sophisticated AWD system, transmission and the Cosworth developed engine only being mated together in late July, the team's progress in 2004 has been nothing short of miraculous - with three finishes from five race starts already in the bag.

And confidence that the team will add another great chapter to Volvo's illustrious and varied motorsports history is running high, both within the team, and back at Volvo Cars of North America headquarters. "Clearly we are in a good position given Bell's history as both racing champion and development guru. Who better than this racing legend to oversee the development and set-up of our racing sedans," said Volvo Cars North America President and CEO, Vic Doolan "He's a bit like Captain Kirk of Star Trek – taking a turbocharged AWD S60 R where no Volvo has gone before, despite our success in other forms of motorsport."

Determined that his new racecar will be competitive in the SCCA SPEED GT World Challenge series, legendary five time Le Mans winner and team leader, Derek Bell, is confident in his team's abilities and the foundation provided by the S60R. Under his supervision the team has already carried out extensive testing and now has some race experience under its belt.

"I honestly have to say that I can never get very excited about a new car until I see it come together," says an enthusiastic Bell. "When you actually see the parts unite and there is a chassis, an engine and a transmission; well then, that's when the heart begins pumping and your interest in the whole project shifts into a higher gear. When the engine and gearbox wizards start delivering what they're best at, things get really interesting. David Ford is the team's concept major and he is doing a superb job.

"To have a racing car so soon after its conception is remarkable. I am disappointed we were not more competitive straight 'out of the box', but that is my nature. We learned a considerable amount and that will help us develop a competitive car for 2005."

Now with the close of the season upon the team, development work, testing and re-building are underway to ensure that when the S60 R's take to the tracks in 2005, Volvo will be in sight of the chequered flag once more.

VCNA, part of the Volvo Car Corporation of Gothenburg, Sweden, provides marketing, sales, parts, service, technology and training support to Volvo automobile retailers in the United States, Canada, Mexico and Puerto Rico.

The 2005 Volvo Cars model line-up includes: the award-winning new S40 and its wagon counterpart the all-new V50; the award-winning XC90; the sporty S60 sedan – including the award-winning performance sedan – S60 R and the performance wagon version – V70 R; the flagship S80 luxury sedan; versatile V70 wagon and rugged XC70 (Cross Country); and, the C70 convertible.

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