

# March 23, 2005: 2006 Cadillac XLR-V: Ultra-Luxury, Under-5 Performance

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## 2006 CADILLAC XLR-V: ULTRA-LUXURY, UNDER-5 PERFORMANCE

- **440-horsepower Supercharged Northstar V-8 Engine**
- **Rear-Mounted Hydra-Matic Six-Speed Automatic Transmission**
- **Handcrafted Leather-wrapped Interior**
- **Adaptive Forward Lighting System**
- **V-Series Design Cues Throughout**

**NEW YORK** – The 2006 Cadillac XLR-V – the newest addition to the luxury nameplate's growing family of high-performance V-Series vehicles – establishes a new benchmark for the ultra-luxury class of high-performance roadsters in power, performance and personal amenities.

Like its mainstream XLR sibling, the XLR-V combines distinctively bold styling with contemporary luxury, ingenious technologies, rear-wheel-drive performance, and near 50/50 weight distribution for enhanced balance and vehicle dynamics – yet it does so on an entirely different level:

- Equipped with a supercharged Northstar engine and rear-mounted six-speed automatic transmission, the high-performance luxury roadster effectively delivers 0-to-60 performance in under 5 seconds;
- Exterior and interior appointments clearly identify the two-seater as a V-Series family member, including application of a signature wire-mesh grille, larger 19-inch wheels at all four corners, and ebony wood and aluminum accents throughout the interior;
- Chassis refinements enable surefootedness on the street or the track and include larger brakes, stabilizer bars, wheels and tires, a performance-calibrated Magnetic Ride Control (MR) system;
- An Adaptive Forward Lighting system, a first-time application on a Cadillac, which automatically adjusts headlamp direction up to 15-degrees for improved night driving vision.

Like XLR, the XLR-V will be built at GM's state-of-the-art, award-winning Bowling Green assembly center.

**Supercharged Northstar engine**

At the heart of the XLR-V is the new, 4.4-liter version of the Northstar engine outfitted with a positive displacement intercooled supercharger. The dual overhead cam (DOHC) V-8 engine delivers the highest horsepower rating of any Cadillac engine to date.

Called the Northstar V-8 SC (supercharged), the engine produces 440 horsepower (328 kW) at 6400 rpm and 425 lb.-ft. (576 Nm) torque at 3600 rpm (power and torque figures estimated) – and the engine's power is underscored by its ability to deliver 90 percent of its peak torque between 2200 and 6000 rpm.

The Northstar V-8 SC generates 120 horsepower (90 kW) and 115 lb.-ft. (156 Nm) of torque more than its naturally aspirated counterpart, while its specific output of 100-horsepower-per-liter makes it one of the world's highest specific output production V-8 engines.

However, the Northstar V-8 SC used in the XLR-V is more than just power and torque. The DOHC engine includes variable valve timing that enables outstanding top-end performance while maintaining the expected refinement and quality associated with a luxury marque.

The aggressive torque curve enabled by the choice of a supercharged engine gives the XLR-V acceleration capable of placing it firmly in the under-5-second-club for 0-to-60 time – a signature capability of V-Series vehicles.

The refined shift feel is enabled by careful electronic calibration of both the engine and transmission. During shifts, power is instantaneously lowered, then ramped back up carefully to make gear changes virtually unnoticeable.

### **Air induction & exhaust**

The air induction system on the XLR-V was redesigned to address packaging needs created by the larger engine and addition of the supercharger.

These modifications increased the flow of air to the engine by 30 percent, funneling it from the front air intake over the radiator and to the supercharger via two ducts, which converge into one prior to reaching the supercharger so only one mass air flow sensor is required.

The system was designed to be as free flowing as possible, bringing in the maximum amount of air to the supercharger. Each duct has been carefully tuned to minimize supercharger whine and resonance in order to achieve the most pleasing intake sound quality.

The exhaust system features a unique muffler design, which effectively combines the construction of a more conventional muffler with a high-performance flow-through design. In order to keep sound levels at a pleasant, throaty pitch during everyday driving on streets and expressways, the exhaust is routed through a series of internal chambers that muffle sound levels. During more aggressive driving, a vacuum-actuated Pierburg valve in the muffler opens to allow straight

exhaust flow-through. There are some perforations in the pipe to allow some dissipation into the other muffler chambers, but the overall effect is to reduce backpressure and increase power.

### **Six-speed automatic transmission**

The Northstar V-8 SC is mated to the all-new Hydra-Matic 6L80 six-speed automatic transmission – the first use of General Motors’ new six-speed automatic in a rear-mounted configuration.

The 6L80 – the only transmission offered on the XLR-V – is one of the most technologically advanced automatic transmissions in the industry, using clutch-to-clutch operation and an advanced integrated 32-bit transmission controller to deliver smooth and precise shifts. In addition, a wide 6.04:1 overall ratio spread enhances performance and fuel economy.

The 6L80 also incorporates a host of advanced driving enhancement features, including advanced Performance Algorithm Shifting (PAS), Performance Algorithm Liftfoot (PAL), and Driver Shift Control (DSC).

PAS lets the electronic transmission controller override the automatic gear selection during closed throttle high lateral acceleration maneuvers, rapidly downshifting with the release of the torque converter clutch for smooth powering up when the throttle is reopened. PAL minimizes transmission upshifts during closed throttle driving and cornering to maintain the correct gear and alleviate “busyness.” Driver Shift Control allows the driver to sequentially shift gears manually via the gearshift lever.

### **Performance-tuned chassis systems**

Chassis modifications found on the XLR-V when compared to its mainstream sibling include larger brakes; recalibrated Magnetic Ride Control (MR); larger front stabilizer bar and the addition of a rear stabilizer bar; stiffer rear lower control arm bushings; larger wheels and tires; a power steering fluid cooler; and a higher-capacity fuel pump.

The most noticeable change is in the braking system to assure strong stopping power and smooth, confident brake operation, coinciding with the increased power and handling capabilities of the XLR-V.

To achieve this, chassis engineers turned to J55 brakes, essentially the same application used in the Z51 Corvette with larger cross-drilled rotors and high-performance brake lining. Front rotors are 13.4-inches (340.4 mm) in diameter; rear rotors are 13.0-inches (330.2 mm). The thickness of the rotor cheeks on both the front and rear has been increased for added thermal capacity. The brake system incorporates dual-piston front calipers, and single-piston rear calipers.

Magnetic Ride Control on the XLR-V has been recalibrated to account for the enhanced handling characteristics the roadster’s surpercharged performance demands. The system seeks to keep the

body on an even plane at all times, giving drivers a comfortable ride by dramatically reducing disturbances to the vehicle body.

The MR recalibration – combined with a stiffer front stabilizer bar, the addition of a rear stabilizer bar, and stiffer rear control arm bushings – subtly changes the driving characteristics of the XLR-*V* when compared to the standard XLR. Another *V*-Series staple is a four channel/four-selection mode chassis control system (StabiliTrak), enabling the driver to switch between four stability settings, including a "less-governed" performance mode for the performance enthusiast.

Wheels and tires have been increased in size for enhanced sure-footedness, to 235/45R-19 on the front and 255/40R -19 rear. The tires are Pirelli run flats.

### **Cooling strategies for high performance**

To meet the increased demands of the XLR-*V* powertrain and power steering systems, a number of enhancements were made in the cooling systems to assure the vehicle can realize its full performance potential while meeting all the expectations for refinement and sophistication expected in an ultra-luxury roadster. These enhancements include:

- Auxiliary engine oil cooler (EOC);
- Auxiliary transmission oil cooler (TOC);
- Large auxiliary cooler inlet and outlet openings;
- Dedicated supercharger radiator;
- Power steering fluid cooler, which consists of a tube wrapped with wire bristles, giving it an appearance similar to a hairbrush. Unlike more traditional finned coolers, the bristle design allows air to flow through the cooler from all directions, creating more efficient and effective cooling;
- Louvers have been added in the wheel liners behind the auxiliary coolers to exit air from the coolers and to help improve brake cooling.

### **V-Series styling modifications**

Styling modifications have imparted a more aggressive character to the XLR-*V* in keeping with its enhanced performance capabilities, while retaining an aura of refined elegance. Exterior and interior design refinements include:

- Polished wire mesh upper and lower front grilles, a *V*-Series signature;
- Aggressively sculpted hood instantly marking the XLR-*V* as a supercharged-powerhouse. While the dome is enclosed and does not bring additional air into the engine, its function is to make room for the supercharger;
- New 10-spoke aluminum wheel design with sterling silver finish;
- Unique *V*-Series and Supercharged badging that subtly proclaims the XLR-*V*'s pedigree, including "XLR-*V*" and "Supercharged" badges on the front fenders, doors and deck lid;

- Four polished stainless steel exhaust tips;
- Black finish brake calipers with machined V-Series logo;
- Three exterior color offerings: Infra Red, Black Raven and Light Platinum;
- Zingana Wood, an ebony-hued wood with a distinctive grain, is used on the shifter knob, cup holder area, steering wheel, and on portions of the door and center console;
- The upper portion of the interior is ebony with either shale or ebony as the dominant lower color, maintaining a sense of quiet, restrained elegance;
- Ebony leather with French stitching wraps interior components throughout, from the top of the IP, and roll hoops to the door trim, arm rests, center console and steering wheel;
- The soft, supple leather seats with French stitching are either all ebony or shale with matching perforated suede fabric inserts on both the seats and accent trim on the door panels;
- Aluminum accent pieces throughout the interior, from the sill plates to the center stack trim plate surrounding the radio and steering wheel accents, are in a new Kinetic pattern;
- V-Series badging highlights the instrument cluster and passenger side dash.

### **Adaptive Forward Lighting**

The XLR-V is the first Cadillac to be equipped with AFS, an advanced forward lighting system that uses sensors to determine speed and steering wheel angle input in determining how fast and how far to turn the headlamps for improved night driving vision.

Using a stepper motor and controller, the system is capable of turning the headlamps from straight ahead to 15-degrees inboard and 5-degrees outboard on each lamp, which work in tandem.

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