

June 1, 2003: 2004 Cadillac XLR - Set to Become an Icon For Cadillac's New Era



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CADILLAC XLR - SET TO BECOME AN ICON FOR CADILLAC'S NEW ERA

Replete with a dynamic design, advanced technology and a unique blend of luxury and performance, the Cadillac XLR brings a striking new presence to the elite luxury roadster class. The vehicle underscores its vibrant visual statement with a performance-oriented chassis and structure, and an all-new 4.6L Northstar V-8 VVT (variable valve timing) rear-wheel-drive engine. This combination makes it the lightest, most powerful vehicle in its class.

"XLR is a luxury roadster with performance car roots," said Jay Spenchian, XLR marketing director. "Beneath its stunning exterior style, XLR has a patented performance car architecture that is ideal for a roadster and serves as a strong foundation for a car designed for great agility and bona fide luxury."

Under its skin, the XLR offers a harmonious blend of technologies and materials meant to add pleasure, not complexity, to the driving experience. Innovative features include a head-up display, adaptive cruise control, Magnetic Ride Control, StabiliTrak, heated and cooled seats, keyless access with push-button start and DVD navigation and entertainment. XLR appears at dealerships in summer 2003.

Edgy design

The XLR is a contemporary expression of Cadillac's heritage of landmark design and advanced technology. Inspired by stealth fighter design, XLR takes the ongoing product-driven resurgence of Cadillac - led by the Escalade SUV and CTS sedan - to an entirely new level.

Bold and edgy, yet elegant and refined, the XLR's linear, crisp design creates a dramatic presence and modern icon for luxury and performance. Yet it still pays tribute to the marque's rich history. The XLR's strong grille, for example, harkens back to Cadillac's heritage but expresses itself in a new way. The vertical headlamps, on the other hand, express the division's current design philosophy.

The XLR offers the ultimate convenience of a retractable hard top. Compared to soft-top convertibles, a retractable hardtop is quieter with the top up, more secure and more visually pleasing. Car Top Systems (CTS) GmbH of Germany, the renowned designer of many of the world's top-rated convertibles, developed the XLR top. By pushing and holding a single button, the XLR can convert from coupe to open roadster in less than 30 seconds.

The top assembly for the XLR is installed as a complete module, and contributes to the car's overall structural rigidity. The top structure is made of aluminum and magnesium with composite exterior panels, a heated glass backlight and glass rear-quarter windows.

The XLR's interior design epitomizes contemporary luxury. Unique eucalyptus wood and striking aluminum accents combine to provide a luxurious and inviting environment. The gauges are designed in conjunction with Italian luxury brand Bvlgari.

Powertrain

The XLR's Northstar V-8 VVT is a 90-degree, DOHC, four-valves-per-cylinder engine featuring an aluminum block and cylinder heads, and a valvetrain configuration with roller finger followers. The engine has been extensively re-engineered for the luxury roadster, and it marks the Northstar's first adaptation to rear-wheel-drive (RWD) and all-wheel-drive (AWD) configurations.

Other Northstar firsts on the XLR include four-cam continuously variable valve timing (VVT); electronically controlled, hydraulically actuated intake and exhaust cam phasers on all four camshafts for extra control; electronic

throttle control (ETC); low restriction intake and exhaust manifolds and cylinder head ports; close coupled catalytic converters mounted directly adjacent to the exhaust manifolds; and a new air induction system, redesigned for enhanced capacity and noise attenuation. It also has a more powerful engine control module (ECM) and high-speed local area network (LAN) communication system dedicated to engine and transmission control, a new engine-mounting system and more rigid block structure for outstanding operating smoothness and quietness.

The V-8 offers smooth, refined performance throughout its entire operating range. It is quiet, yet tuned to give the driver feedback from the environment. It operates even more cleanly and efficiently than its predecessors, with excellent reliability and durability. The XLR features the first longitudinal application of the 4.6L Northstar V-8.

The V-8 is mated to the Hydra-Matic 5L50-E five-speed automatic transmission. Developed to manage the high torque and horsepower of the engine, it is one of the most technologically advanced transmissions on any highway or autobahn in the industry. The 5L50-E transmission is a modification of the Hydra-Matic 5L40-E transmission used in Cadillac CTS. It offers three performance features normally found individually on various high-performance American and European luxury sport sedans: driver shift control, performance algorithm shifting and performance algorithm liftfoot.

Another advantage of Cadillac's roadster not shared by the competition is its rear-mounted transmission. This helps give the XLR a virtual 50/50 front-to-rear weight distribution for superior balance, as well as providing occupants unusually roomy footwell space.

Compared to the Mercedes-Benz SL500, Jaguar XK8 and Lexus SC430, the XLR is not only the lightest vehicle at approximately 3,650 pounds (1,656 kg), but it also boasts the longest wheelbase, widest track, lowest height and most horsepower.

Architecture and suspension

The story starts with the XLR's backbone, upon which the car's dynamic capabilities depend. Based on GM's new performance car architecture, this unique and patented structure comprises steel hydroformed perimeter frame rails, enclosed structural "tunnel," aluminum cockpit structure and balsa-cored composite floors. Providing rigidity without bulk, and with exceptional resistance to torsional and bending forces, this architecture is the basis for the XLR's outstanding ride and handling characteristics.

The suspension system makes the XLR a true luxury roadster with the handling qualities of a performance car. To this end, the design uses double wishbones at each corner, combined with transverse-mounted, composite leaf springs front and rear. The system is designed to maintain firm control over wheel motion, while delivering a composed and compliant ride quality. During normal driving, the chassis exhibits comfortable and confident handling characteristics; when pushed harder, the car remains stable and secure with outstanding road holding. The XLR achieves a maximum lateral G-force of more than 0.9. The XLR runs on Michelin ZP tires with advanced "run flat" technology that eliminates the need for a spare and provides outstanding overall tire performance.

Magnetic Ride Control

The XLR also is one of the world's first vehicles to be equipped with Magnetic Ride Control - electronically controlled, magnetic-fluid based real-time damping. The system uses four wheel-to-body displacement sensors to measure wheel motion over the road surface and responds by adjusting the shock damping at speeds approaching one millisecond. That's five times faster than previous "real time" damping systems. The secret is the magneto-rheological fluid contained in its dampers, replacing traditional mechanical valves. Suspended in this fluid are tiny iron particles that respond to an electromagnetic charge.

In the presence of a charge, the iron particles align themselves into fibrous structures that almost instantaneously create precise and wide-ranging damping characteristics. With sensors reading the road surface at a rate of 1

inch at 60 mph (25.4 mm at 97 km/h), the system responds by commanding constant changes in damping force at all four corners. The goal is to maintain tire contact with the road surface and to keep the body on an even plane, with smooth, well-controlled body motions even during aggressive maneuvers or on uneven road surfaces.

Adaptive cruise control

The XLR will be among the first vehicles with adaptive cruise control (ACC). While not a substitute for full driver attention, this system greatly expands the convenience of cruise control. ACC uses a radar sensor mounted at the front of the car to detect objects in its path. If the lane ahead is clear, the system will maintain the set speed, just like conventional cruise control. When a vehicle is detected in the same lane in front of the car, the system will adjust vehicle speed to help maintain a constant following distance, set by the driver.

If a vehicle or object in the path of the car is stationary or moving at significantly slower speed, the system provides visible and audible alerts to the driver. ACC is set by a conventional stalk-mounted control but is monitored through a graphic representation in the head-up display.

Comfort and convenience

One of the XLR's foremost convenience features is Keyless Access. Keyless Access makes XLR a truly "keyless" car. A driver can simply keep the fob in a pocket or purse to operate the doors, trunk and ignition. The fob communicates with the XLR's computer control system via radio antennas under the car's bodywork. The system is intuitive and hassle free.

The doors are opened by touching a pad located in openings at the rearward edges of each door. Once the pad is pressed, the doors unlock and open if the fob is within a 1-meter radius. To operate the ignition the driver presses a button on the instrument panel. The same button is pressed to stop the engine. As a safety feature the engine will not start unless the fob is in the car and the brake pedal is depressed.

The XLR's seats are both heated and cooled in the back and the cushion. A 7-inch color touch screen mounted in the upper center console gives driver and passenger access to DVD navigation; a nine-speaker world-class Bose audio system with a six-CD in-dash changer and digital signal processing modes; XM Satellite Radio (continental U.S. only) and DVD entertainment (available in Park position only). The XLR also is equipped with OnStar and a head-up display that projects key driver information onto the windshield.

The XLR traces its roots to the Evoq concept car. Cadillac stunned the automotive world with the audacious Evoq, unveiled at the 1999 North American International Auto Show. The XLR began production in spring 2003 on a dedicated assembly line at General Motors' Bowling Green Assembly Plant in Bowling Green, Ky. Shipments to Cadillac dealers are slated to begin by mid-year 2003.

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