

March 17, 2003: 2004 Cadillac XLR's Technology Delivers Luxury and Simplicity

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CONTACT(S):

Jeff Kuhlman, Cadillac Communications

Kelly Cusinato, Cadillac Communications

David Caldwell, GM Product Communications

XLR's Technology Delivers Luxury and Simplicity

Innovative technology should add pleasure, not complexity, to the experience of driving a luxury car. That statement guided the engineering of the 2004 Cadillac XLR luxury roadster.

The XLR's array of electronic features challenges the competition not just in its depth and sophistication, but also in its simplicity of operation and cleverly integrated design.

"The XLR contains a host of customized and personalized features befitting a world-class luxury roadster," said David Hill, vehicle line executive for GM performance cars. "These systems are integrated into the car in a way that enhances - not complicates - the driving experience, especially considering the agility and performance attributes of the XLR."

One example is the XLR's Adaptive Cruise Control system, the first application of this technology on a GM vehicle. With its settings and information communicated via the car's head-up display, drivers can monitor Adaptive Cruise Control while keeping their eyes on the road.

With the same focus on functionality, an advanced microphone installed for hands-free telephone operation can also be used to give voice commands to the DVD-based navigation and entertainment system - even when the top is down.

Power retractable hard-top

As a convertible the XLR provides 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.

An electro-hydraulic system activates the intricate folding mechanism, with a fractional horsepower electric motor/pump that sequentially operates eight hydraulic cylinders. When the top is fully retracted, the entire system is completely enclosed below the beltline of the vehicle.

Advanced seats designed for maximum comfort

Inside the XLR, the application of functional technology starts with the seats, which are the most advanced available. Underneath the luxurious perforated leather exterior trim, the seat structure employs a composite material in place of steel for the back frame, for reduced mass and suppleness. The seats are both heated and cooled in the back and the cushion. A fan blows air through the seat interior over a thermo-electric ceramic disc, which either heats or cools the air depending on the system setting. Superior to rival cool seat systems which simply re-circulate air, the XLR's cooling function can lower the temperature an impressive 15 degrees Fahrenheit below ambient.

The seat climate controls are logically incorporated into the main cabin climate control panel. And following the system integration theme, the seat climate control system is programmed to respond to the cabin air temperature. For example, as the air conditioning lowers the cabin temperature, the seat temperature will be lowered accordingly. The seats can be brought to desired temperatures within two minutes, even in extreme conditions with the top down.

Finding a comfortable seating position is easy with eight-way power seat adjusters and powered lumbar controls for upper and lower back positions. There is a two-person driver seat position memory control, which also recalls individual settings for the outside mirrors, interior climate, radio selections and steering column position. The seats are an integral part of the audio system incorporating a pair of speakers in each head restraint.

For occupant protection, side impact head and thorax air bags are contained in the sides of the seats. These are in addition to the standard driver and passenger dual stage frontal air bags. As a further feature, the seat belts have powered- pretensioners, which operate by drawing the belt tighter over the occupant's hips for optimal protection in the event of a collision.

Keyless Access with push-button start

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.

"Keyless Access is hassle-free and intuitive, and a very appropriate feature for a car that is at once advanced and easy to operate," said David Leone, chief engineer for the XLR.

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.

As well as eliminating the traditional problem of fumbling for keys, the Keyless Access system provides a high level of security. "It's hassle free, simple and logical," said Leone. When leaving the car, the access system has a convenient auto-lock function.

Advanced information and entertainment system

The same "simple to use" philosophy is taken with the XLR's sophisticated entertainment and information system. 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 and DVD entertainment (available in Park position only).

A voice command system facilitates OnStar, GM's industry-leading safety and concierge service. In a convertible car where ambient noise levels can be higher than usual when the top is down, an efficient microphone is vital to an effective voice command system.

"The XLR has a digital array microphone that works with normal voice levels even when the car top is open," said Leone.

The XLR is equipped with the industry-leading OnStar system. Virtual Advisor and Personal Calling services are also available. XLR comes standard with one-year OnStar Directions and Connections service, which provides services such as automatic emergency notification in case of a collision, tracking of a stolen vehicle, routing assistance and numerous other useful services. Virtual Advisor can provide personalized information (stock quotes, weather, e-mail, news) via the Internet and Personal Calling provides hands-free, voice activated cellular phone service.

XLR among first to offer Adaptive Cruise Control

The XLR will be among the first vehicles to be offered 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.

HUD - easy to use

A unique technical advantage for the XLR in its class is its head-up display (HUD). This system projects key driver information onto the windshield.

"It is an excellent feature for performance-oriented driving, and is in keeping with GM's philosophy to maximize the ability for drivers to keep their eyes on the road and hands on the wheel," Leone said.

In addition to speedometer and turn signal indicators, the HUD shows audio system data, gear indication, and ACC settings.

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