

September 5, 2002: GM Powertrain to Debut New Hydra-Matic 5-Speed

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2004 Cadillac XLR and SRX to Showcase GM's Most Technologically Advanced Transmission

WARREN, Mich. - GM Powertrain's new Hydra-Matic 5L50-E 5-speed automatic transmission, developed to manage the high torque and horsepower of the next-generation Northstar 4.6-liter V8 in the 2004 Cadillac XLR and SRX, is one of the most technologically advanced transmissions on any highway or autobahn in the industry.

"The Hydra-Matic 5L50-E is the first transmission to integrate three performance features found individually on various high-performance American and European luxury sport sedans but never as a total package," according to Rich Mardeusz, GM Powertrain Hydra-Matic 5L50-E assistant chief engineer. The features include:

- **Driver Shift Control (DSC)** - Lets the driver switch from automatic to a clutchless five-speed high-performance manual transmission. Once the driver moves the gearshift lever into DSC mode, a quick tap is all that is required for smooth, crisp upshifts or downshifts within a selected range. Available on various European sport sedans, this is the first GM application of DSC. The transmission control module (TCM) protects the powertrain when in DSC mode by monitoring vehicle speed, engine torque and the gear being used to determine if it should upshift automatically to assure the engine doesn't over-rev and damage the transmission. It also has coast clutches in every gear, which provide engine braking in all five gears so the vehicle doesn't free wheel if the driver removes their foot off the accelerator.

- **Performance Algorithm Liftfoot (PAL)** - PAL prevents upshifts while maintaining engine braking following continuous performance driving. The TCM monitors driver behavior to determine whether or not to enable this feature. If the system detects a drop in vehicle speed prior to entering a turn, up to two downshifts can occur to provide the driver with maximum vehicle performance.

- **Performance Algorithm Shifting (PAS)**

- The transmission controller modifies the automatic gear selection during closed throttle high lateral acceleration maneuvers, downshifting with nearly synchronous matching engine speed control for quick power up when the throttle is reopened. This feature is enabled instantaneously once the TCM recognizes a high lateral g input.

The 5L50-E transmission is a modification of the Hydra-Matic 5L40-E transmission used in Cadillac CTS.

"The 5L50-E was designed specifically to manage the high torque and horsepower of the next generation Northstar 4.6-liter V8, while combining the convenience of an automatic transmission with the feel of a high-performance manual transmission," said Mardeusz. "And it does it in the same size package as the 5L40-E."

To meet the performance demands of the new Northstar, the 5L50-E was designed to manage at least a 25 percent increase in horsepower and torque over the existing 5L40-E. Among its host of performance features, the 5L50-E gives drivers the ability to partially override the normal automatic gear selection for greater control when more aggressive driving performance is desired.

Gear	Gear Ratios
1 st	3.42
2 nd	2.215
3 rd	1.60
4 th	1.00

5 th	0.76
Reverse	3.02

GM Powertrain is a global producer of engines, transmissions, castings and components for GM vehicles and other automotive, marine, and industrial OEMs. Headquartered in Pontiac, Mich., GM Powertrain has operating and coordinating responsibility for GM's powertrain manufacturing plants and engineering centers in North America, South America, Europe, and the Asia-Pacific region.

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