

**Document ID# 1701750  
2006 Cadillac STS**

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# **Info - New Product Announcement - Hydra-Matic 6L80 Automatic Transmission #05-07-30-023 - (Sep 2, 2005)**

New Product Announcement -- Hydra-Matic 6L80 Automatic Transmission

2006 Cadillac STS-V, XLR-V

2006 Chevrolet Corvette

with 6L80 Automatic Transmission (RPO MYC)

## **Purpose**

This bulletin introduces and highlights features of the new Hydra-Matic 6L80 Automatic Transmission.

## **Introduction**

The Hydra-Matic 6L80 is the first member of a new family of fully automatic, six-speed, clutch-to-clutch, rear-wheel drive, electronic-controlled transmissions that General Motors will be offering. The transmission consists primarily of a four-element torque converter, an integral fluid pump and converter housing, a single and double planetary gear set, friction and mechanical clutch assemblies, and a hydraulic pressurization and control system.

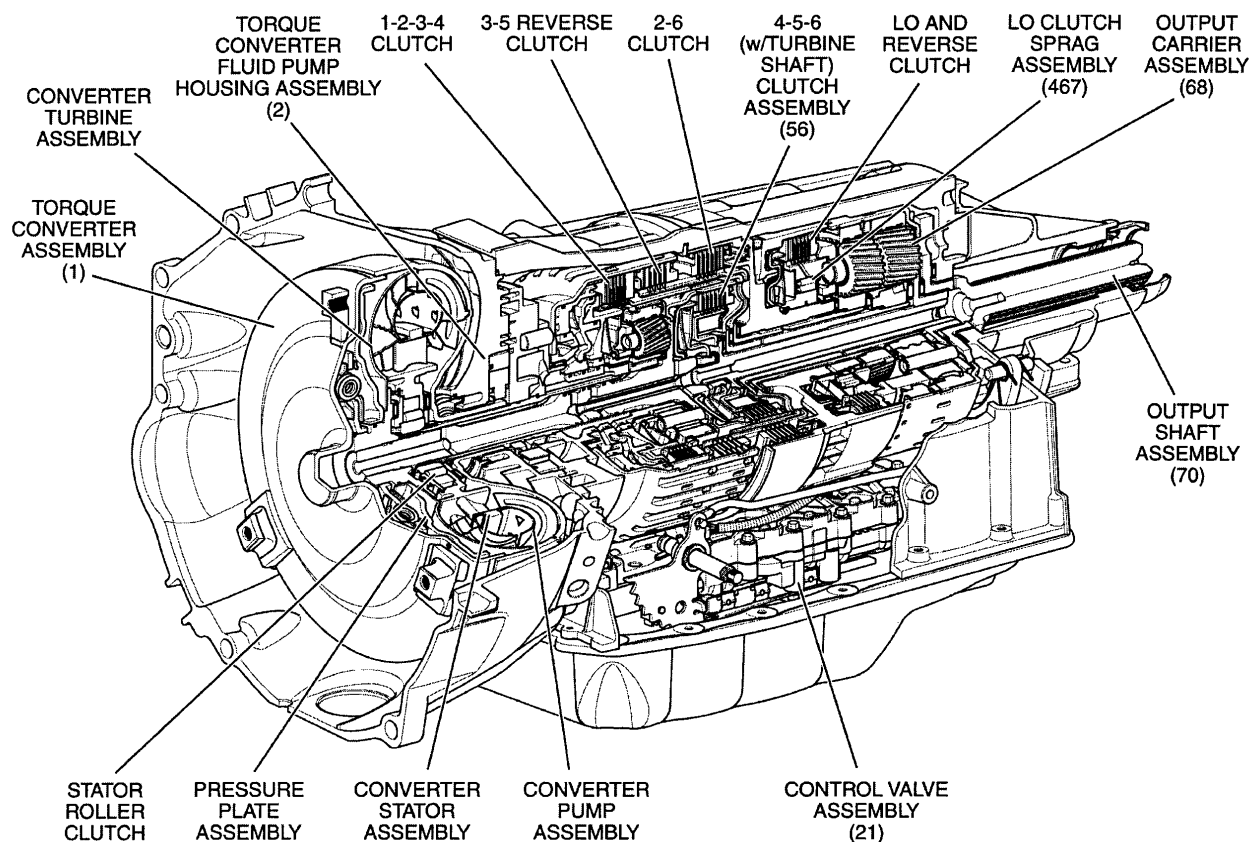
The four-element torque converter contains a pump, a turbine, a pressure plate splined to the turbine, and a stator assembly. The torque converter acts as a fluid coupling to smoothly transmit power from the engine to the transmission. It also hydraulically provides additional torque multiplication when required. The pressure plate, when applied, provides a mechanical "direct drive" coupling of the engine to the transmission.

The planetary gear sets provide the six forward gear ratios and reverse. Changing gear ratios is fully automatic and is accomplished through the use of a Transmission Control Module (TCM) located inside the transmission. The TCM receives and monitors various electronic sensor inputs and uses this information to shift the transmission at the optimum time.

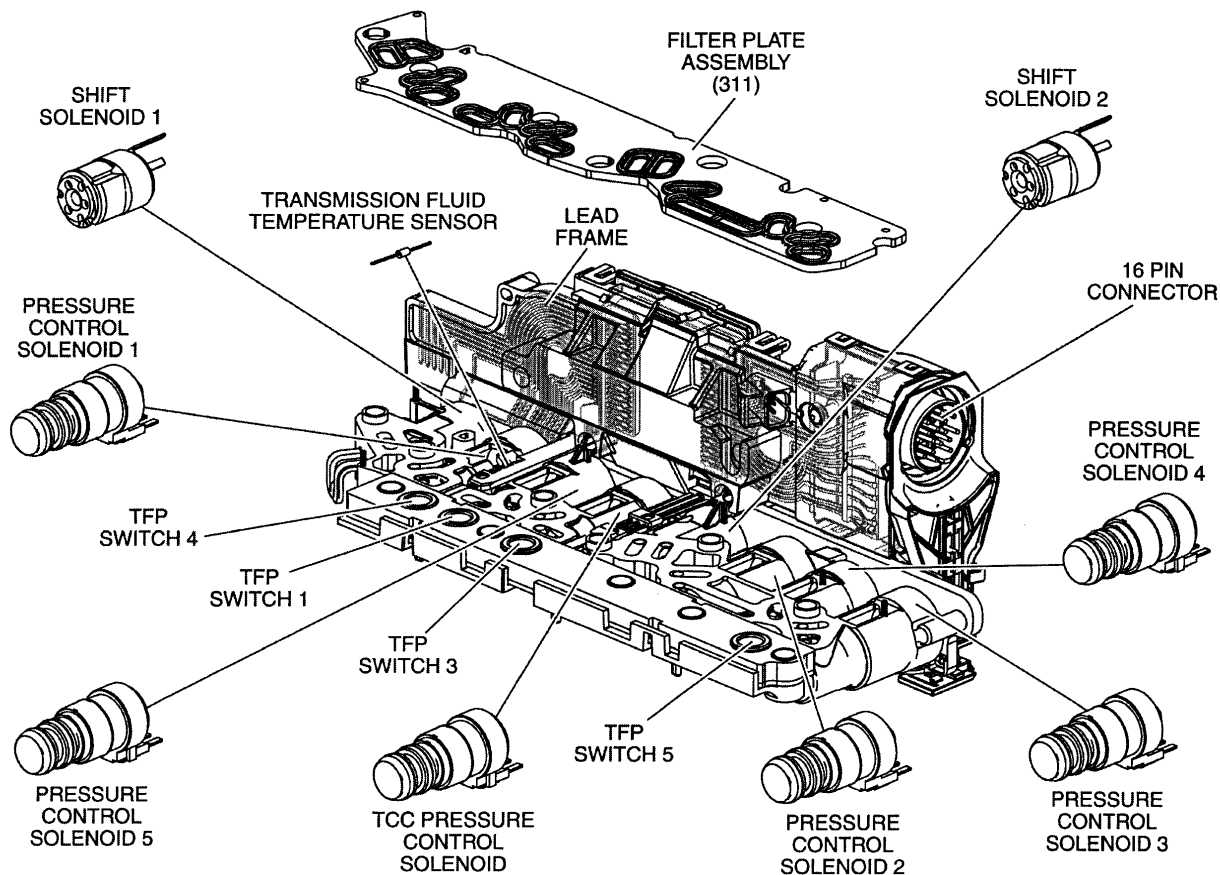
The TCM commands shift solenoids and variable bleed pressure control solenoids to control shift timing and quality. The TCM also controls the apply and release of the torque converter clutch which allows the engine to deliver the maximum fuel efficiency without sacrificing vehicle performance. All the solenoids, including the TCM, are packaged into a self-contained control solenoid valve assembly.

The hydraulic system primarily consists of a vane-type pump, two control valve body assemblies, converter housing and case. The pump maintains the working pressures needed to stroke the clutch pistons that apply or release the friction components. These friction components (when applied or released) support the automatic shifting qualities of the transmission.

The friction components used in this transmission consist of five multiple disc clutches. The multiple disc clutches combine with one mechanical sprag clutch to deliver seven different gear ratios (six forward and one reverse) through the gear sets. The gear sets then transfer torque through the output shaft.

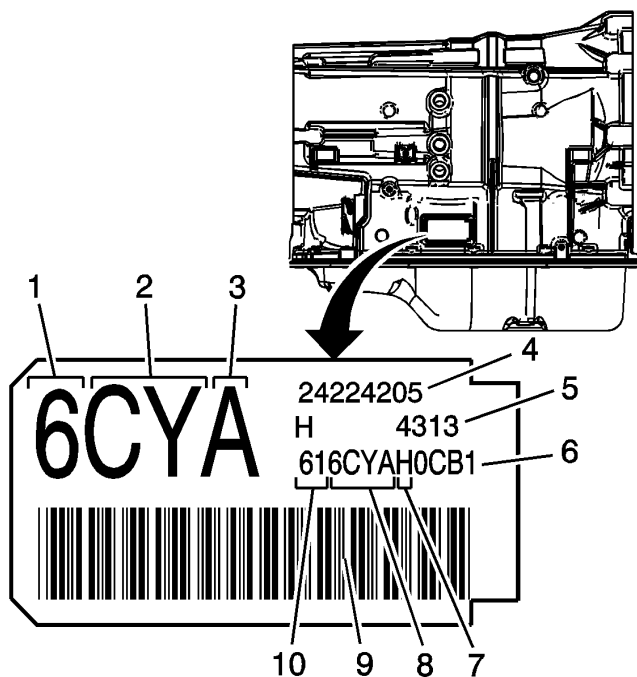


[Control Solenoid \(with Body and TCM\) Valve Assembly](#)



The control solenoid (with body and TCM) valve assembly, or solenoid assembly, is perhaps the most unique component in the 6L80 transmission. The solenoid assembly attaches directly to the upper and lower valve body assemblies and utilizes a lead frame design which connects all the electrical control components to the TCM, thus eliminating the need for an internal wiring harness. The TCM, shift solenoids, pressure control solenoids, transmission fluid pressure (TFP) switches and the transmission fluid temperature (TFT) switch are all integrated into the solenoid assembly. Because of this integrated design, these electrical control components will not be serviced separately, even though the components may be diagnosed separately. The fluid passages to the switches and solenoids are protected from debris by a filter plate assembly.

### [Transmission Identification Information](#)



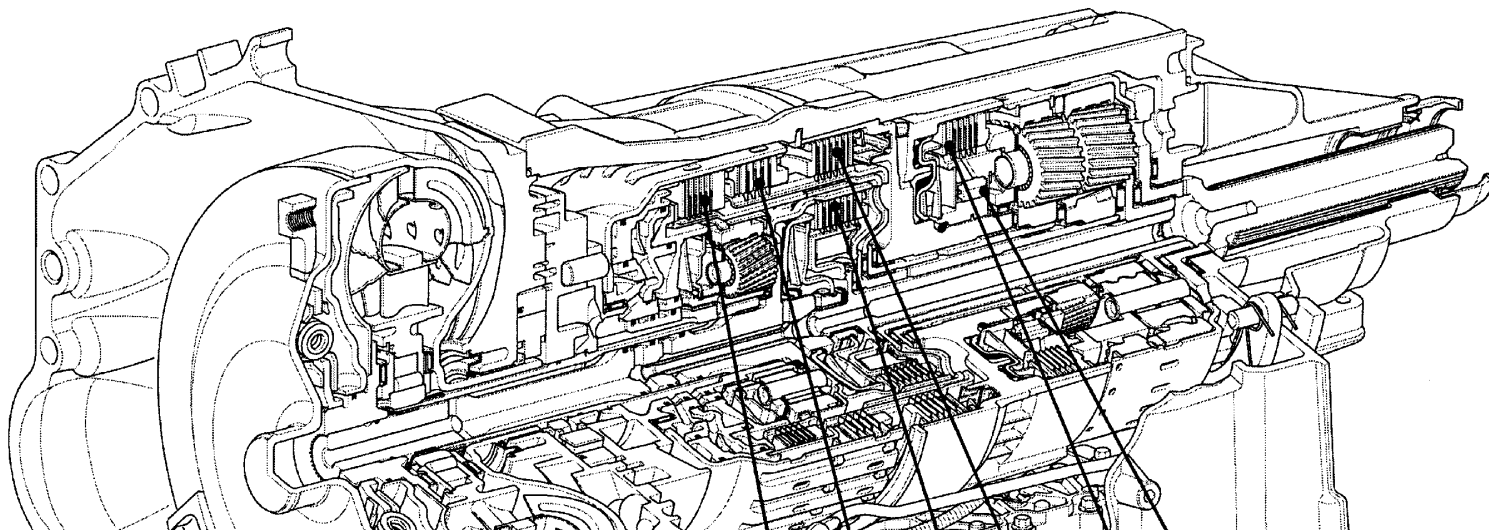
1. Model Year
2. Model Code
3. Transmission Family
4. Transmission Assembly Number
5. Julian Date
6. Sequential Serial Number
7. Source Code
8. Broadcast Code
9. Bar Code
10. Transmission I.D.

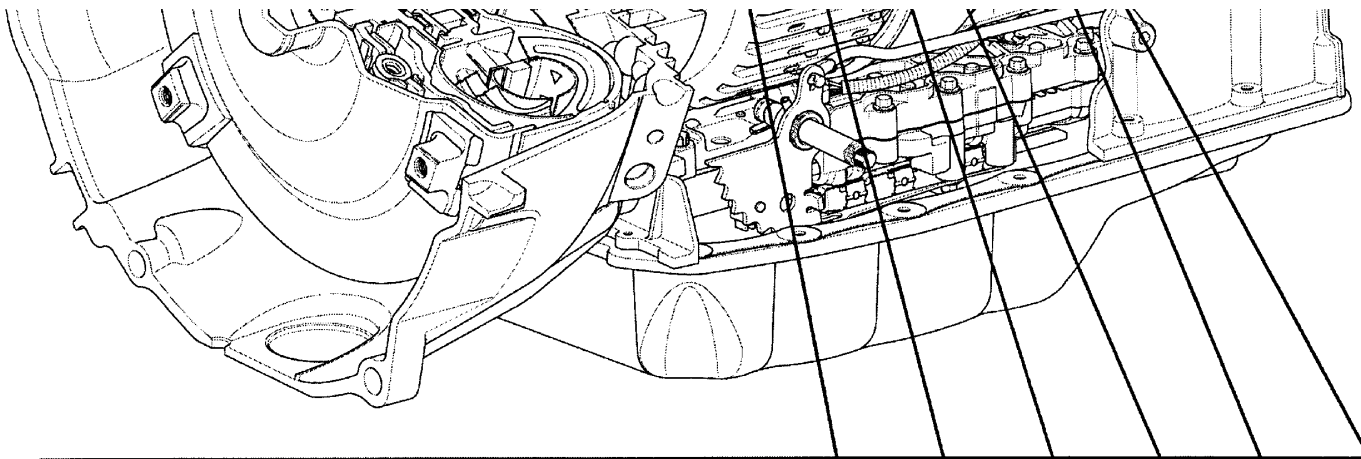
### Transmission General Specifications

Name	6L80
RPO Code	MYC
Production Location	Ypsilanti, Michigan (USA)
Transmission Drive	Rear Wheel Drive
1st Gear Ratio	4.027
2nd Gear Ratio	2.364
3rd Gear Ratio	1.532
4th Gear Ratio	1.152

5th Gear Ratio	0.852
6th Gear Ratio	0.667
Reverse Ratio	3.064
Torque Converter Size (Diameter of Torque Converter Turbine)	258/300 mm
Pressure Taps	Line Pressure
Transmission Fluid Type	DEXRON® VI
Transmission Fluid Capacity	9.54L (10.08 qt) -- STS-V (6CDA)
	9.71L (10.27 qt) -- XLR-V (6CZA)
	11.92L (12.60 qt) -- Corvette (6CYA)
Transmission Type: 6	Six Forward Gears
Transmission Type: L	Longitude Mount
Transmission Type: 80	Product Series
Position Quadrant	P, R, N, D, S (some models)
Case Material	Die Cast Aluminum
Transmission Net Weight	95.1 kg (209.7 lb) -- STS-V (6CDA)
	96.7 kg (213.2 lb) -- XLR-V (6CZA)
	103.7 kg (228.6 lb) -- Corvette (6CYA)
Maximum Trailer Towing Capacity	N/A

### [Range Reference Chart](#)





RANGE	GEAR	SHIFT SOL 1	SHIFT SOL 2	1-2-3-4 CL PC SOL 5 N.L.	2-6 CL PC SOL 4 N.L.	3-5 REV CL PC SOL 2 N.H.	LOW REV 4-5-6 CL PC SOL 3 N.H.	1-2-3-4 CLUTCH	3-5 REV. CLUTCH	4-5-6 CLUTCH	2-6 CLUTCH	LOW & REV. CLUTCH	LOW CLUTCH SPRAG
PARK	P	ON	ON	OFF	OFF	OFF	ON					APPLIED*	
REV	R	ON	OFF	OFF	OFF	ON	ON		APPLIED			APPLIED	
NEU	N	ON	ON	OFF	OFF	OFF	ON					APPLIED*	
D	1st Braking	ON	ON	ON	OFF	OFF	ON	APPLIED				APPLIED	HOLDING
	1st	OFF	ON	ON	OFF	OFF	OFF	APPLIED					HOLDING
	2nd	OFF	ON	ON	ON	OFF	OFF	APPLIED			APPLIED		
	3rd	OFF	ON	ON	OFF	ON	OFF	APPLIED	APPLIED				
	4th	OFF	ON	ON	OFF	OFF	ON	APPLIED		APPLIED			
	5th	OFF	ON	OFF	OFF	ON	ON		APPLIED	APPLIED			
	6th	OFF	ON	OFF	ON	OFF	ON			APPLIED	APPLIED		

NOTE: FOR SHIFT SOLENOIDS 1 AND 2, "ON" = SOLENOID ENERGIZED (PRESSURIZED), "OFF" = SOLENOID DE-ENERGIZED (NO PRESSURE).

NOTE: FOR PRESSURE CONTROL (PC) SOLENOIDS, "ON" = PRESSURIZED, "OFF" = NO PRESSURE.

\* = APPLIED WITH NO LOAD.

## Driving Features

*Driver Shift Control (DSC)* -- DSC allows the driver to manually shift gears, similar to a manual transmission. When the shift selector lever is moved to the DSC position, the driver may manually select upshifts or downshifts. The specific method that the driver uses to accomplish this varies with vehicle application. Refer to the vehicle Owner Manual for more specific DSC information.

*Performance Algorithm Shifting (PAS)* -- PAS is a transmission algorithm that looks at lateral acceleration,

throttle, and vehicle deceleration activity to determine if the vehicle is being driven in a competitive manner. If the algorithm recognizes these conditions, it can force downshifts and hold lower gears for optimized vehicle performance.

*Performance Algorithm Lift Foot (PAL)* -- PAL minimizes upshifts during closed throttle driving and cornering to prevent unnecessary shifting.

## General Service Information

*Service Plan* -- Refer to Corporate Bulletin Number 05-07-30-022 for details regarding the initial transmission exchange program that is being utilized for an undetermined amount of time before authorization of normal transmission servicing. The exchange program is used to collect a specified number of transmissions to be returned to GM Powertrain Engineering for analysis. Corporate Bulletin Number 05-07-30-022 explains the complete process and details of the exchange program.

*Automatic Transmission Fluid (ATF)* -- The Hydra-Matic 6L80 requires the use of DEXRON®-VI ATF. DEXRON®-VI significantly improves fluid viscosity, shift performance and fluid durability. GM tests have demonstrated that DEXRON®-VI delivers more than twice the durability and stability in friction tests compared to existing fluids. DEXRON®-VI has also demonstrated superior performance in pitting, foaming, oxidation and shear stability tests.

*Transmission Fluid Checking Procedure* -- Refer to the appropriate service manual for the complete fluid checking procedure. Vehicle applications that are equipped with the 6L80 do not utilize a fill tube or dipstick to check the fluid level. Instead, a fluid level control plug is located in the bottom pan. The control plug looks like a drain plug, but it is used to measure fluid level. The fluid checking procedure has very specific fluid temperature requirements and instructions.

## Training\*

The GM Service Technical College (STC) is initially offering two 6L80 training courses:

The 6L80 Functions and Features Video course component (17041.60V) will begin showing in late September, 2005 on General Viewing. While the main focus of this video is on overhaul procedures and techniques, other topics include an introduction to the transmission's key components and the special tools required to service the 6L80. A DVD containing an English and Spanish version of the video will also be shipped to Cadillac and Chevrolet dealers in late September 2005. Please reference the GM Training Website for the future available broadcasts at [www.gmtraining.com](http://www.gmtraining.com), under Menu>Schedule>Schedule at a Glance.

Also offered is a new IDL course -- Transmissions: New and Updates (17440.10D). Available in mid September, this course will include a basic introduction to the new 6L80 and some specific diagnostics associated with it.

If you have any questions, please contact the GM Training Help Desk at 1-888-748-2687 or visit them online at the "Contact Us" tab found at [www.gmtraining.com](http://www.gmtraining.com).

\* Dealers in Canada should refer to latest training availability in the GM Canada Product Service Training Course Catalogue located on GM infoNET under Service & Body Training.

## Technician's Guides

Technician's Guides for the 6-Speed RWD transmission will soon be available through Helm Incorporated. You can contact them at 1-800-782-4356 or online at [www.helminc.com](http://www.helminc.com).

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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