2006 Corvette: Service Bulletin: 6L80 Automatic Transmission (RPO MYC)

Models: 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.

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.

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.