

## Transmission Features and Principles of Operation

### Adaptive Hydraulic Pressure Control

Pressure adaptation has been a feature of ZF automatic transmissions since the 4HP22EH. The TCM will maximize shift quality by adapting to transmission wear over time. The TCM will adjust transmission shift pressures to compensate for wear in the multi-plate clutches. This is accomplished by monitoring the input and output speeds of the transmission. When the transmission shifts, the TCM monitors the time that it takes to accomplish the shift. The time change in gear ratio is monitored and compared to an internal time value in the TCM. If the ratio change takes more time than the stored value, the TCM will compensate by adjusting the transmission shift pressures via the EDS valve solenoids. The adaptation value is stored in the TCM. This adaptation values can only be cleared by the diagnostic tester (DIS plus or GT-1).

**Note: DO NOT clear adaptation values unless directed to do so by technical assistance. Clearing pressure adaptations should not be done to resolve a customer complaint. The only time that you would need to do so is after a transmission or valve body replacement or software change.**

**Also it is important not to confuse pressure adaptation with AGS features. AGS features will be discussed later in this chapter. AGS features are not stored on a long term basis and will not be cleared when the pressure adaptations are cleared. Note: Driving style is NOT stored.**

