

# insider info.

## 1999 4EAT Transmission Operation

The 1999 second generation 4EAT has seven different shift schedules/maps in the TCM logic control. They are Normal, Power, Slope, Hold, 2nd, Cruise, Hot ATF and Cold ATF. The shift schedule/map will determine how and when the transmission shifts.

For example, in the Slope mode, when driving up a hill under certain load conditions, the TCM will shift the transmission back down to 3rd gear.

In most cases, the transmission will stay in 3rd gear until the vehicle reaches the top of the hill, and only then upshift. This is done to keep the transmission from needlessly upshifting/downshifting in and out of 4th gear. During the uphill control, the slope angle is estimated from the throttle angle and vehicle speed change. When the TCU calculates that the vehicle is moving uphill, upshifting is restrained by selecting a special shift map, which prevents needless upshifting/downshifting.

If the driver touches the brake pedal when driving downhill under coasting conditions, the TCM will downshift the transmission into 3rd gear to provide engine braking. This downhill control is canceled when the TCU detects the vehicle acceleration as the driver depressed the accelerator pedal and input from the throttle position sensor.

Both of these conditions are part of the slope-control logic and are a characteristic of the vehicle TCM logic.

When a customer has a 4EAT shift concern, question the customer carefully to determine how and when the condition occurs. If possible, road test the vehicle with the customer. What may be reported as a problem may be normal 4EAT operation.