Load Based Shifting
In Drive, the UltraShift will adapt to the changing conditions of the vehicle. Right after power-up or after changing loads, UltraShift needs to learn the new conditions. While learning, it may hold a gear instead of upshifting. Simply push the Up button to start the upshift. It may take three or four shifts for the UltraShift to learn the new conditions. After that it will handle upshifts and downshift automatically.
Depending on conditions, UltraShift can activate the engine brake in order to bring the engine down faster for an upshift. This can happen even if the engine brake dash switch is OFF.

Coast Mode
When coasting to a stop in lower gears, UltraShift may not finish downshifting until the driver gets back on the throttle. This is normal for the UltraShift.

Clutch Protection
Excessive clutch slippage creates heat, which is detrimental to clutch life. When clutch abuse is detected, a warning tone will sound and at the same time the gear display will flash a “C” then an “A” followed by the selected gear position. The alarm will continue until the clutch system cools, the throttle is released, or the clutch is fully engaged. If one of these is not done and the clutch heat continues to rise, the launch quality may be adversely affected and the clutch may be damaged. Selecting 1st gear as the start up gear will reduce the risk of clutch abuse.

Note: The transmission is not intended to provide hill-hold capability. The service brakes should be used to stop and hold the vehicle on an incline. To prevent the vehicle from rolling when starting on an incline, place both feet on the brake pedal before sliding the right foot to the throttle pedal. Gradually back off the brake while applying as little throttle as necessary to move along the incline.

For more detailed information, consult the “UltraShift Driver Book TRDR-0082”. This literature should be located in the Driver Information Packet of the vehicle.
Operation

Driving the UltraShift

Start-up
1. Turn the ignition key to “ON” and allow the UltraShift to power-up.
   - Engine cranking is delayed until the transmission power-up is complete and the gear display shows a solid “N”.
2. Start the engine.
3. Apply service brake.
4. Release the vehicle parking brakes.
5. Select the desired mode and starting gear, on the shift console.
6. Release service brake and apply accelerator.
   - The transmission is not intended to provide hill-hold capability. The service brakes should be used to stop and hold the vehicle on an incline. To prevent the vehicle from rolling when starting on an incline, place both feet on the brake pedal before sliding the right foot to the throttle pedal. Gradually back off the brake while applying as little throttle as necessary to move along the incline.

Power Down
1. Select Neutral on the shift control.
   - If gear display does not show solid “N”, neutral has not yet been obtained.
2. Set the vehicle parking brakes.
3. Turn off the ignition key and allow the engine to shut down.

“D” DRIVE Mode
Depending on the transmission model and Shift Control configuration, there may be alternate forward starting gears available. While the vehicle is stopped in Drive, the up/down buttons are used to change the starting gear. This selection is used until it is changed again, or the UltraShift is powered down.
In Drive mode, all upshifts and downshifts are performed automatically based on vehicle and transmission conditions. The driver can advance a shift (by about 75 rpm) by pressing the proper up/down button (up for upshifts, down for downshifts) when the transmission is within 75 rpm of the load based shift point.
The Gear Display shows the status of the shift:
  - The current gear is displayed solid.
  - At the start of the shift, the current gear is displayed solid until the transmission is pulled to the neutral position.
  - While the transmission is in neutral and synchronizing for the target gear, the target gear is flashed.
  - When the shift is complete, the new current gear is displayed solid.

MANUAL Mode
- Can be selected while moving or from a stop.
- Must use the up and down buttons to shift. (See Note 1)
- Shifter will “beep” if shift cannot be completed due to engine RPM and road speed.

LOW Mode
- Can be selected while moving or from a stop.
- Selecting LOW from a stop engages and maintains 1st gear.
- Selecting LOW while moving will allow for downshifts only and downshifts will be performed at higher RPM to maximize engine braking. (See Note 1)

“R” REVERSE Mode
Selecting REVERSE from NEUTRAL or DRIVE will engage REVERSE and an “R” or “R1” will appear on the gear display.
Reverse gear can only be engaged at less than 2 mph.

Note 1: The UltraShift system may perform automatic shifts in extreme situations (overspeeding the engine or excessively slipping the clutch).

Driving Tips

Proper Starting Gear
Choose a starting gear appropriate for the load and grade conditions while at a stop in Drive and MANUAL modes by using the up/down buttons. Refer to Drive Mode for detailed information.

Optimal Engine Braking
The LOW mode can be selected while moving. This initiates downshifts as soon as possible.

Skid Conditions
If a skid condition occurs, the UltraShift senses the vehicle speed dropping rapidly. In this case, the UltraShift delays downshifting.

Cruise Control
The UltraShift is totally compatible with cruise control. If a shift is required while cruise control is active, cruise is temporarily interrupted while the shift is performed and then automatically resumed after the shift.