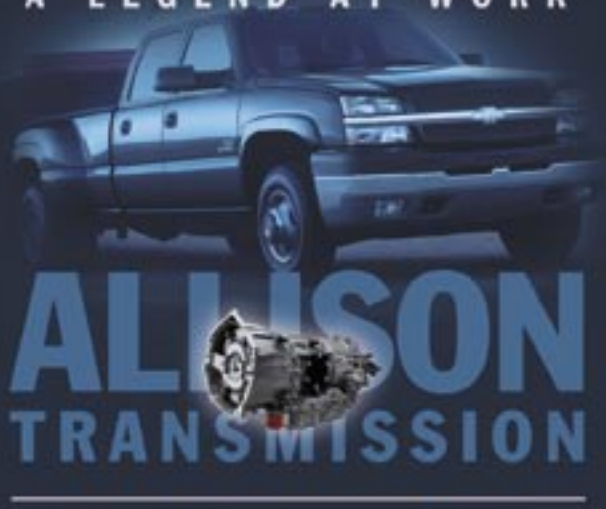
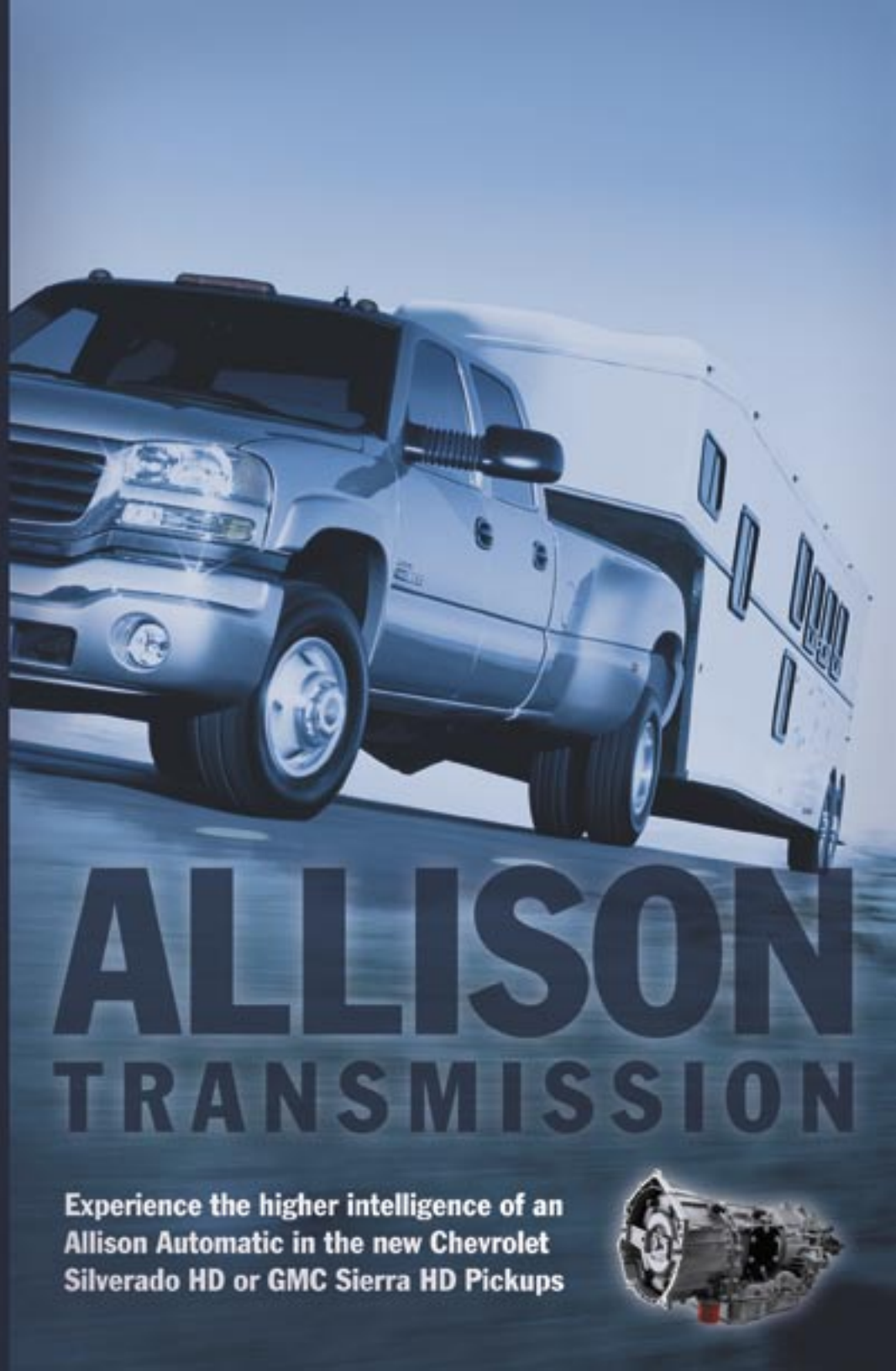
A LEGEND AT WORK



www.allisontransmission.com

Allison Transmission P.O. Box 894 Speed Code PF3 Indianapolis, IN 46206-0894
Information or specifications subject to change without notice or obligations.

SA3931EN (2004/05) Litho in U.S.A.



Experience the higher intelligence of an Allison Automatic in the new Chevrolet Silverado HD or GMC Sierra HD Pickups

ALLISON TRANSMISSION

GETTING TO KNOW THE ALLISON AUTOMATIC

The smart choice is the smart transmission, an Allison automatic transmission. Advanced electronic controls enable constant communication and feedback between engine and transmission, resulting in more precise, more efficient, faster, smoother, fully automatic shifts. With technology to match its legendary durability, the Allison Automatic is the perfect match for GM's 8.1-liter gas and 6.6-liter Duramax diesel engines.

The following descriptions will help you better understand and appreciate the special features and benefits of an Allison automatic transmission.

GRADE BRAKING

By constantly monitoring vehicle speed, acceleration, engine torque and brake pedal usage, the transmission control module (TCM) detects a downhill condition and automatically implements a shift schedule that effectively utilizes the engine and transmission to slow the vehicle and, in turn, reduce wear on the traditional braking system. The method used to slow the vehicle is by automatically pre-selecting the next lower gear range.

NOTE: When driving on a downhill grade with a heavy load, the vehicle's weight and inertia can be great enough to increase vehicle speed and engine rpm without applying the throttle. The vehicle is designed to operate in the dashed red zone. This is normal and will not cause engine damage. However, the vehicle should not be operated in the solid red zone of the tachometer. The traditional brake system should be utilized to prevent engine operation in the solid red zone.

FUEL ECONOMY

Because the vehicle is equipped with an Allison transmission that is electronically optimized to shift at just the right point in the power curve, smoothness and swiftness are not the only benefits. Less wasted rpms means less wasted fuel, which means lower costs along with extended range.

TOW/HAUL

The tow/haul shift mode significantly changes the transmission's shift pattern to reduce shift cycling and to deliver better performance, control and cooling when towing or hauling heavy loads. You can enable or disable tow/haul with the same selector button used for overdrive disable, simply tap the button one time.

When Tow/Haul is engaged, the following functions occur:

- Upshift points are raised from light- to mid-throttle to use more of the engine's available power for acceleration.
- Downshift points are raised to help slow the vehicle using engine braking.
- During deceleration, the torque converter clutch (TCC) remains applied to much lower vehicle speeds to significantly improve engine braking effectiveness.
- During acceleration, the TCC is applied in 2nd range and remains applied in 3rd, 4th and 5th ranges. [In normal shift mode, the TCC generally applies only in higher ranges and is dependent on throttle position.]
- Grade braking can command downshifts to 2nd range. [In normal shift mode, grade braking will not command downshifts below 4th range.]

The result of these various tow/haul functions is a more positive shift feel especially when operating the vehicle lightly loaded.

OVERDRIVE DISABLE

This feature prevents the transmission from shifting into 5th gear. The selector button is located on the end of the column shift lever. You can turn overdrive disable on and off simply by pressing and holding the selector button until the instrument panel indicator light illuminates. Overdrive disable can be activated in either Normal or Tow/Haul shift modes.

NOTE: Care should be taken to avoid selecting the overdrive disable function when only the tow/haul function is intended. If this happens, you will sense that grade braking is not working due to the fact that in normal shift mode, grade braking does not command downshifts below the 4th range.

HEATER PERFORMANCE MODE

In vehicles with diesel power, the Allison transmission has a feature to shorten engine and cab warm-up times. When cold weather conditions are detected, the transmission raises part-throttle upshift points [2-3, 3-4, 4-5] to increase engine speed.

NOTE: When the transmission is in this mode, upshifts may seem to "hang" or be delayed. This is normal and does not indicate an operational problem.

COLD OPERATION

When temperatures are very cold, the transmission will inhibit certain operations to protect against damage. The chart below shows shift range availability based on transmission sump temperature:

- All shift ranges available – 5 degrees F and above
- 1st thru 4th shift ranges only – -13 degrees F to 5 degrees F
- 2nd and 3rd shift ranges only – -31 degrees F to –13 degrees F
- 2nd shift range only – -31 degrees F or lower

Torque converter clutch operation will also be inhibited when the transmission sump temperature is below a certain level. For vehicles with gas engines, torque converter clutch operation is inhibited below 68 degrees F sump temperature. For diesel-powered vehicles, it is below 86 degrees F.

NOTE: Shifts may be more noticeable with a cold transmission. This slight difference in shift quality is normal.

ALLISON
TRANSMISSION

ALLISON TRANSMISSION

ADAPTIVE SHIFT CONTROLS

This electronic process continually compares key shift parameters to pre-programmed 'ideal' shift profiles stored in the transmission's computer. The adaptive shift control process makes adjustments in order to approach the ideal shift for vehicle speed, load and road conditions.

NOTE: During this process, some shifts may feel different, as optimum settings are determined for a particular shift or condition.

SHIFT STABILIZATION

Unnecessary upshift/downshift cycling is minimized by analyzing engine torque and vehicle speed before allowing an upshift. The transmission is designed to determine before making an upshift whether the engine will be able to maintain vehicle speed in the next higher range. If not, it will prevent the upshift from occurring. Shift stabilization is also utilized when the vehicle is in cruise control.

PARK PAWL

The Allison transmission in the vehicle is equipped with a Park Pawl designed to hold 26,000 lbs. GCVW. To accommodate this safety feature, the transmission incorporates much larger parts than other automatic transmissions.

NOTE: An occasional "clunk" may be heard when the selector lever is moved from drive or reverse to park. This is normal and there is no damage occurring during these shifts.

SHIFT ENERGY MANAGEMENT (SEM)

This electronic control process uses engine-transmission communication to reduce excess torque during upshifts for smoother, more efficient shifts and reduced transmission component wear.

4 WHEEL DRIVE OPERATION

NOTE: When operating the vehicle in 4LO there is a very deep gear ratio reduction and the resulting shift will feel exaggerated.