Technology Overview

2. Wide lockup range

Lockup* of an automatic transmission’s torque converter enables manual-transmission-like direct transfer of engine power and improved fuel economy. Whereas a conventional AT locks up in the mid-to-high speed range, the benefit of a torque converter in a CVT is only during startup. Therefore, the new XTRONIC CVT applies precise control of ratio changes to extend the lockup operating area even further into the low-speed range and thereby boost fuel economy.

*Lockup: The condition in which torque from the engine is transferred directly to the pulley, without being affected by the torque converter.

3. Comprehensive efficiency improvements

Downsized, more efficient oil pump
The oil pump, which is the source of hydraulic power for shifting and assuring torque transmission, has been substantially downsized and made more efficient. This helps maintain control capability that closely follows accelerator pedal action, while boosting fuel economy. For Nissan’s 2-liter class CVT, we adopted a compact chain drive, which contributes to downsizing of the transmission system as a whole.

Reduced hydraulic pressure for pulley control
We improved the precision of the control system used to shift the diameters of the two pulleys, so that sufficient lateral pressure on the belt can be maintained with lower hydraulic pressure. This achieves reliable torque transfer together with high efficiency, thereby contributing to improved fuel economy.

Improved dynamic performance and powerful acceleration feel
Responsive to the driver’s intention with a natural feeling of acceleration.

Quicker CVT shift response
We improved the electronic control system and the hydraulic system components under its control. In addition, adoption of a new high-performance ATF (Automatic Transmission Fluid) enhances response and stability. As a result, the CVT shifts ratios about 30% faster than the previous version. Furthermore, the new XTRONIC CVT controls shifting so that, up to a point, engine rpm will rise along with vehicle speed. As a result, Nissan’s CVT technology provides a more pleasurable driving experience, with nearly instantaneous response and a feeling of naturally powerful acceleration, as well as dependable engine braking.

XTRONIC CVT offers rapid shifting

The vehicle accelerates as soon as the driver presses the accelerator.
Powerful acceleration is obtained immediately at any driving speed.
Sustained power delivery allows the vehicle speed to rise smoothly.

New XTRONIC CVT expands lockup range

Expanded lockup range with new XTRONIC CVT

XTRONIC CVT shifts quickly to the optimum gear, and the engine speed rises rapidly.
CVT shift control allows the engine speed to rise naturally with vehicle acceleration.