



Service Bulletin

Bulletin No.: 21-NA-004

Date: January, 2021

INFORMATION

Subject: Information on Transmission Flares, Slipping, Gear Hunting, Harsh Shifting, Only Shifts at Wide Open Throttle (WOT) or Hard Acceleration, Rolling in Reverse or in Wrong Direction Selected, High Engine RPM, Shift Busyness, Surging While Cruising, Will Not Upshift, Holds in a Lower Gear, Will Not Back Up Hills, Not Shifting, Jerks and/ or Loss of Power

Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:
		from	to	from	to		
Buick	Encore GX	2020	2021	—	—	1.2L (LIH) or 1.3L (L3T)	VT40 CVT Automatic (MRG)
Chevrolet	Malibu	2019				1.5L (LFV)	
	Trailblazer (VIN M)	2021				1.2L (LIH) or L3T	

Involved Region or Country	North America
Condition	<p>Some customers may comment on one or more of the following conditions:</p> <ul style="list-style-type: none"> • RPM flare, slipping and hunting • Harsh shifts, shifting hard, only shifts at WOT or hard acceleration • Rolling Reverse to Drive or rolling in wrong direction • High engine RPM, shift busyness, surging with cruise • Will not upshift • Holds lower gear • Will not back up hills/difficult to accelerate in Reverse • Not shifting or slipping • Not shifting, jerk, traction control, loss of power
Cause	These conditions may be a normal operation of a Continuously Variable Transmission (CVT).

Information

RPM Flare, Slipping and Hunting

The CVT allows the engine to operate in a range that is the best fuel economy and emissions, while still delivering the power requested by the driver. When the driver is at very light pedal or holding steady speeds on flat roads, the transmission will operate as close to full overdrive as it can which keeps the engine RPMs low. As power needs to be increased (driver steps-in to the accelerator, a slight incline is reached, etc.), a small boosted engine can make this power at a large range of speeds due to the added capability of the turbo. However, the most efficient area to operate the engine

in these cases is at higher engine RPMs and less turboboost. This provides the same power, but at a much more efficient operating condition, saving fuel and improving emissions. While the CVT allows these swings in engine RPM to happen seamlessly, a driver may comment that this is different than a step gear transmission that may hold gears rather than shifting. This can result in comments of “Engine Flare”, “Transmission Slipping”, or “Transmission Hunting.” This is normal to the CVT and enables the same overall vehicle performance as a step-gear transmission, with the added benefit of fuel savings and lower emissions.

Harsh Shifts, Shifting Hard, Only Shifts at WOT or Hard Acceleration

While most drivers operate their vehicle at low to mid accelerator pedal positions. Some may notice the CVT operates differently at higher pedals. The CVT uses "Continuous Ratio Control" while driving < 70% accelerator pedal. This means the engine RPMs can fluctuate freely from ~1000-4000 RPM in order optimize fuel economy and emissions while still delivering the power needed for the current driving conditions. As the driver steps into >70% Accelerator Pedal, the transmission control enters a performance mode. This will limit the continuous ratio control and allow the transmission to operate much like a step-gear transmission to give the feel of performance. When entering this mode, the engine will rise up to and RPM higher than 4000 RPM, and will upshift at higher RPMs with higher accelerator pedal positions. Once the driver lifts out of the pedal, normal continuous ratio control will resume.

Rolling Reverse to Drive or Rolling in Wrong Direction

Some customers may note that the vehicle can roll backwards while in a forward gear or roll forward while in Reverse gear. Due to the small engine displacement and the slip available within the torque converter, the amount of torque to the drive wheels at idle is low. This means the vehicle could roll on a grade from a stop or may continue to roll in the previous direction when doing direction change shift (D->R, R->D). Brakes should be applied when the vehicle is on a hill to prevent unwanted movement.

High Engine RPM, Shift Busyness, Surging With Cruise

The CVT allows the engine to operate in a range that is the best fuel economy and emissions, while still delivering the power requested by the driver. When holding steady speeds on flat roads, the transmission will operate as close to full overdrive as it can which keeps the engine RPMs low. As power needs to be increased (a slight incline is reached, rolling hills, driver commands a higher cruise control speed, etc.), a small boosted engine can make this power at a large range of speeds due to the added capability of the turbo. However, the most efficient area to operate the engine in these cases is at higher engine RPMs and less turbo boost. This provides the same power, but at a much more efficient operating condition, saving fuel and improving emissions. While the CVT allows these swings in engine RPM to happen seamlessly, a driver may comment that this is different than a step gear transmission that may hold gears rather than shifting. This can result in comments of "High Engine RPM", "Shift Busyness", or "Cruise Control Surging", but this is normal to the CVT and enables the same overall vehicle performance as a step-gear transmission, with the added benefit of fuel savings and lower emissions.

Will Not Upshift

The CVT utilizes a Manual Range shifter much like a step-gear transmission. In this mode, the transmission will hold the selected range and will limit the top gear to what is shown on the dash. If the driver accidentally pulls the shifter in this mode, it will force the transmission to limit the ratio based on the gear selected and this could result in the engine RPMs to reach red-line and prevent the vehicle from reaching higher speeds. This operation is the same for any GM transmission featuring Manual Range and is working as designed.

Holds Lower Gear

When operating the vehicle on steeper grades (incline or decline), a driver may notice that the transmission may not upshift to full overdrive as it does when operating on flat ground. This is the intended operation to prevent the transmission from "hunting" and helps keep the engine rpms higher to reduce turbo lag and respond quickly to changing pedal positions. This is especially helpful on rolling hills where the grade can change often.

Will Not Back Up Hills/Difficult to Accelerate in Reverse

Some customers may comment that the vehicle does not back up a steep hill or over is difficult to accelerate in Reverse. This is due to the gear ratio being less aggressive in Reverse than in forward 1st gear. Even though Reverse has less mechanical advantage, the driver can step-in to the pedal further and the engine will provide enough torque to accelerate up grades and over obstacles in Reverse. This operating condition is normal.

Not Shifting or Slipping

The CVT uses "Continuous Ratio Control" while driving < 70% Accelerator Pedal. This means the engine RPMs can fluctuate freely from ~1000-4000 RPM in order optimize fuel economy and emissions while still delivering the power needed for the current driving conditions. This can sometimes be noted as the transmission "slipping" or even "not shifting" due to its continuous change in engine RPM without a distinct shift feel. When holding steady speeds on flat roads, the transmission will operate as close to full overdrive as it can which keeps the engine RPMs low. As power needs to be increased (driver steps-in to the accelerator, a slight incline is reached, etc.), a small boosted engine can make this power at a large range of speeds due to the added capability of the turbo. However, the most efficient area to operate the engine in these cases is at higher engine RPMs and less turbo boost. This provides the same power, but at a much more efficient operating condition, saving fuel and improving emissions. While the CVT allows these swings in engine RPM to happen seamlessly, a driver may comment that this is different than a step gear transmission that may hold gears rather than shifting. These changes in engine rpm may be noticed at slight changes to the accelerator pedal and is expected with the CVT.

Not Shifting, Jerk, Traction Control, Loss of Power

During aggressive driving around corners or while driving on different slippery and/or rough surfaces, the driver may notice that the vehicle may hesitate or not shift as expected. During wheel slip conditions, there are several systems that protect the transmission and prevent the vehicle from losing control. During these events, the Traction Control system or the transmission may command different levels of torque management until the vehicle is under control and/or the wheels show no sign of slip. The CVT requires a higher level of hardware protection than a step-gear transmission and this type of operation may be more noticeable in the above listed conditions. There should be no noticeable torque control intervention during normal driving conditions.

Parts Information

No parts are required for this repair.

Version	1
Modified	Released January 12, 2021



