Potential Issue

A sudden loss of power can occur during takeoff which can lead to rough starts and/or stalling of the vehicle.

Vehicle	2017 Camaro ZL1 Coupe with a Manual Transmission
VIN	1G1FJ1R62H019XXXX
Mileage	~1,300
Modifications	None
Owner	Travis Lambert XXXXXXXXXXX Fairmont, WV 26554 XXX-XXX-XXXX travis_lambert@hotmail.com (Please feel free to contact me with any questions.)

Steps to Reproduce

The vehicle may exhibit this behavior when gently driving from stop at seemingly random times under normal road surface conditions. Taking off on an incline and/or the presence of fine gravel on the road surface seems to greatly increase the reproducibility of the behavior.

Potentially Related Observations

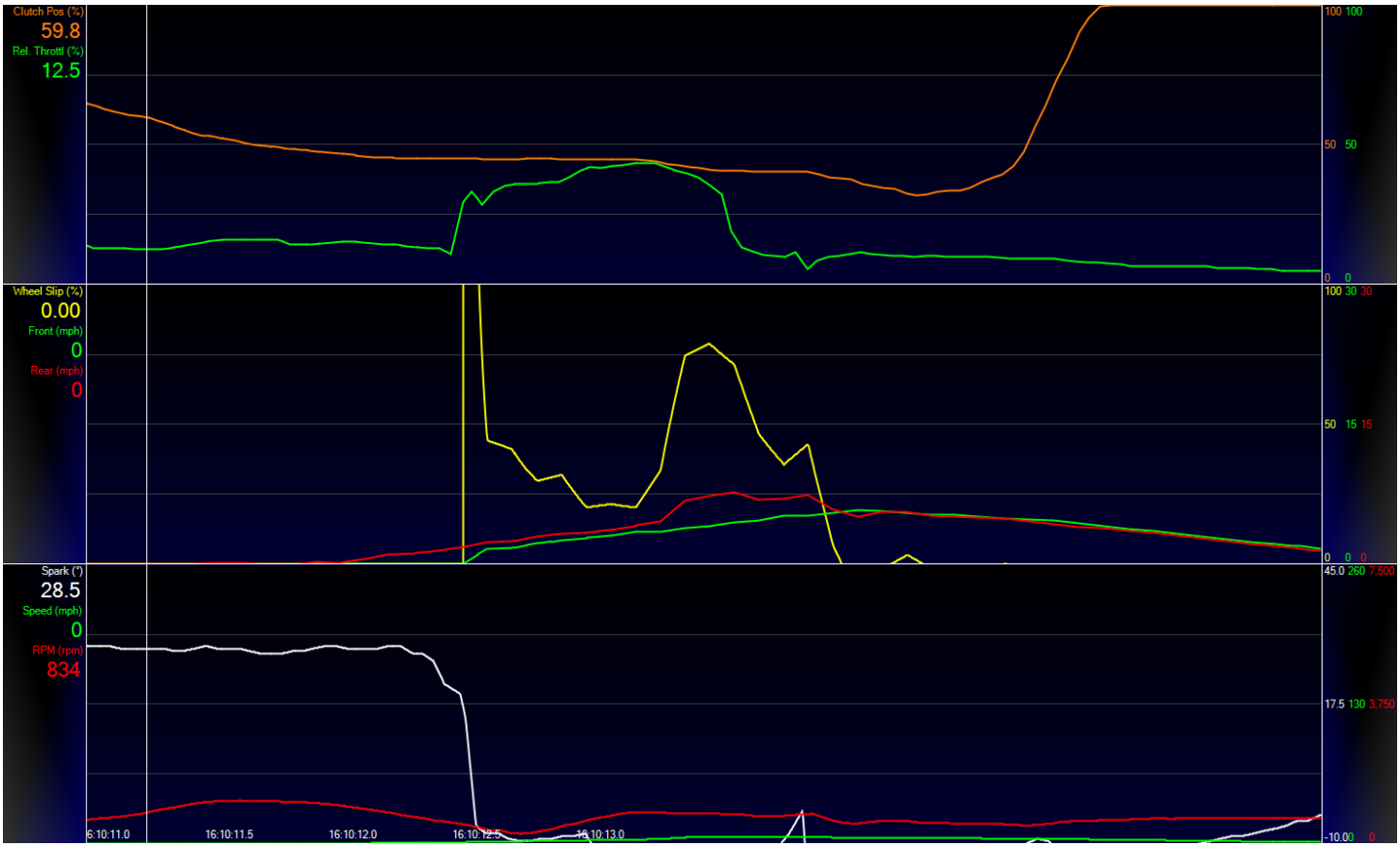
At low speeds, the **Wheel Slip %** (viewable via the eLSD display), is erratic. This appears to be primarily due to the nature of a percentage calculation (**part/whole**) where the **whole** portion is relatively small when compared to the **part** portion. In other words, while moving slow it doesn't take much actual slip or error in the calculation to produce a relatively high **Wheel Slip %**.

This can be observed by viewing the eLSD display while stopping and starting (at low speeds) as shown in this video:

https://www.youtube.com/watch?v=QwBCQCx-QrE

In order to investigate the potential issue further, I've used HP Tuners VCM Scanner to log and graph data from the Engine Control Module (ECM). Since I have little to no control of the sensor error in the Wheel Slip % calculation, I've been using a small amount of actual wheel slip (gravel surface) at very low speeds to reproduce a spike in Wheel Slip %.

The following image is a portion of a screen capture from the VCM Scanner tool while taking off on a slight incline with a gravel surface (scale indicators are on the right side of the graph).



Pay particular attention to the initial spike in Wheel Slip% (middle graph, yellow) and how the Spark timing (lower graph, white) responds aggressively.

I certainly understand that this may be viewed as the car doing what it needs to do in order to eliminate wheel slip, but when this occurs there's less than 1.8 MPH of actual wheel slip (which is almost imperceptible on gravel). The spark timing went from about 20 degrees to -6 degrees in an instant which is jarring to the driver. Also, please keep in mind that this is simply an example meant to capture behavior similar to an event cause by error in the Wheel Slip % calculation (as opposed to actual slip).

Summary (Opinion)

It appears that the sudden loss of power may be due to an overly aggressive response to wheel slip at low speeds. The wheel slip may be actual slip or a spike in the calculation due to error (latency between sensor readings, slight differences in sensors, differences in tire wear, etc.).

(Also, in my opinion, it is not meaningful to display spikes in the Wheel Slip % at extremely low speeds. From the driver's perspective, the slip is negligible. I'd recommend a driven wheel speed threshold to guard against the erratic gauge behavior.)