Bulletin No.: 17-NA-251

Date: Jul-2017

# Service Bulletin

# INFORMATION

**Subject:** **2018 Chevrolet Camaro ZL1 1LE New Model Features**

| Brand: | Model: | Model Year: | | VIN: | | Engine: | Transmission: |
|---|---|---|---|---|---|---|---|
| | | From: | To: | From: | To: | | |
| Chevrolet | Camaro ZL1 1LE — RPO A1Z | 2018 | 2018 | All | All | 6.2L Supercharged V8 — RPO LT4 | TREMEC 6060 6-Speed Manual Transmission — RPO MH3 |

| | |
|---|---|
| **Involved Countries** | **United States, Canada and Middle East** |

## Overview

***2018 ZL1 1LE on Closed Course Track***

### Bulletin Purpose

This is a special bulletin to introduce the 2018 Chevrolet Camaro ZL1 1LE. The purpose of this bulletin is to help the Service Department Personne become familiar with some of the vehicle's new high-performance features.

### Overview

The ZL1 1LE Extreme Track Performance Package is the ultimate Camaro ***track-day*** model and leads the 2018 Camaro lineup, taking the track-focused 1LE legacy to an unprecedented level. With racing-based suspension and aero technologies, as well as Goodyear Eagle F1 Supercar 3R

summer-only tires, the ZL1 1LE represents the most extreme track-focused Camaro to date. In the long, storied history of Camaro performance, there's never been another model that matches the capability of the ZL1 1LE. With the addition of the new ***650-horsepower ZL1 1LE***, the Camaro lineup is more diverse and exciting than ever, offering customers the ability to select and personalize their ultimate performance car.

## Highlights


- **Active Rev Match:** The ZL1 1LE is only equipped with a 6-speed manual transmission with Active Rev Match (ARM). ARM aids in smoother shifting by matching the engine speed to the next selected gear. By monitoring shift lever and clutch operation, ARM adjusts eng speed to match a calibrated value based on gear selection. On upshifts and downshifts, engine speed will be decreased and increased to match vehicle road speed and transmission gear position. ARM is maintained while the clutch pedal is pressed, but will deactivate if the shi lever is left in the Neutral position. The system is activated and deactivated by pressing either of the paddles marked REV MATCH on the steering wheel. The system must be activated with each new ignition cycle.
- **Brembo® Brakes**

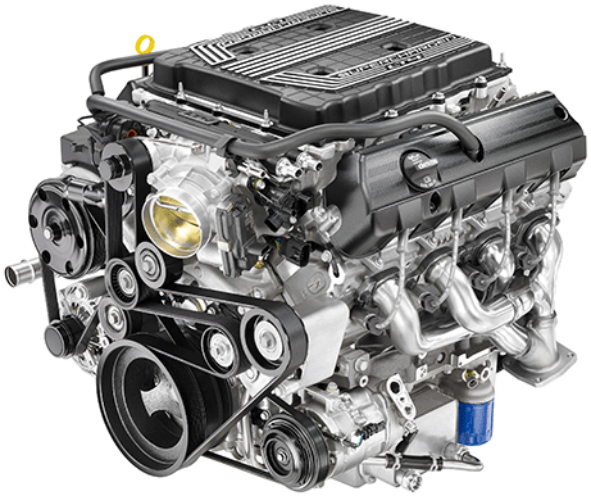
- **Downforce Producing Front Aero Package:** The front aero package has a splitter, specific air deflectors and dive planes on the front fascia that produce grip-generating downforce to help the car stick harder and drive faster in turns.

- **Downforce Producing Rear Carbon Fiber Wing:** The massive rear high-mounted carbon fiber double-sickle wing produces 300 pounds (136 kg) of downforce at 150 mph (241 km/h).
- **Dynamic Suspension Spool Valve Dampers:** Racing-derived, lightweight Multimatic DSSV® (Dynamic Suspension Spool Valve) dampers front and rear.

- **RECARO™:** Equipped with RECARO™ performance seats (6-way) with badging and red seat belts.
- **Reduced Weight:** The lighter wheels and dampers, along with thinner rear glass and a fixed-back rear seat made of stiffer foam, contribut to approximately a 60 pound (27 kg) lower curb weight than a standard ZL1 Coupe.
- **Supercharged Performance:** The power behind the ZL1 1LE is the 650-horsepower, supercharged V8 — RPO LT4 engine backed by a TREMEC 6060 six-speed manual transmission featuring Active Rev Match. Active Rev Matching simulates heel/toe shifting and engages tl throttle to match the wheel speed for smooth gear changes. Also included is dual-zone automatic climate control, a Bose premium audio system, heated/ventilated front seats and heated steering wheel.
- **Wheels and Tires:** New, specific lightweight forged aluminum wheels are an inch wider but an inch smaller in diameter, front and rear, tha standard ZL1 wheels and are used with new Goodyear Eagle F1 Supercar 3R tires, 305/30ZR19 front and 325/30ZR19 rear, that deliver a maximum lateral grip of 1.10g. The overall footprint grows approximately 10 percent over the ZL1, but the wheel-and-tire package weighs about 3.3 pounds (1.5 kg) less per corner.

## Engine

### Supercharged 6.2L V8 Engine



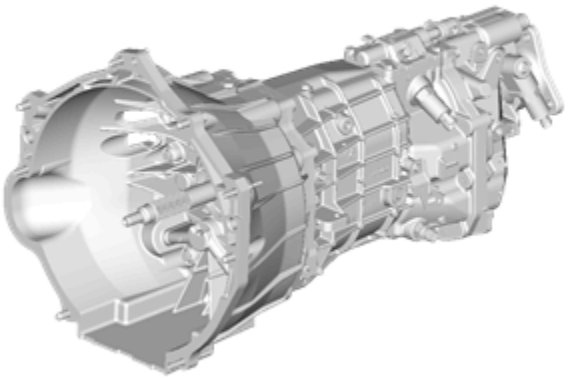
**Supercharged 6.2L V8**

- Supercharged 6.2L V8 all-aluminum engine — RPO LT4, produces 650 horsepower (485 kW) @ 6,400 rpm and 650 lb-ft. (881 Nm) of torqu @ 3,600 rpm .
- Direct injection (DI) with variable valve timing (VVT).
- A new Eaton Supercharger lid was designed to improve efficiencies in the heat exchangers by allowing the intercooler bricks to sit higher in the supercharger housing. This allows more air to circulate through the heat exchangers for prolonged and sustained power output.
- The exhaust manifolds utilize a unique Tri-Y design which improves torque production and sound quality.
- Wet sump lubrication system that provides great performance and efficiency.
- Premium fuel is required.

### Track Events and Competitive Driving — Engine Oil

For track events and competitive driving **DO NOT** use 0W-40 oil in the ZL1 1LE. Change the engine oil to MOBIL 1 15W-50. Change the engine oi after four hours of accumulative track usage. After track usage, the oil must be changed back to the engine oil listed in the Engine Oil section of the Owner Manual.

## Manual Transmission Description and Operation



***TREMEC 6060 6-Speed Manual Transmission***

Manual transmissions are identified by the number of forward gears and the measured distance between the centerline of the output shaft and the counter gear.

The TREMEC 6060 6-speed manual transmission — RPO MH3, incorporates the following features:

- An aluminum case
- Fully synchronized gearing with an enhanced synchronizer cone arrangement:
  - Triple-cone: FIRST, SECOND
  - Double-cone: THIRD, FOURTH, FIFTH, SIXTH, REVERSE
- An internal shift rail mechanism
- A remote transmission shift control mounted forward of the transmission
- An external transmission shift rod enabling the rearward mount location of the transmission shift control
- Tapered roller bearings supporting the mainshaft and countershaft
- Caged roller bearings under all speed gears
- Solenoid inhibit of SECOND and THIRD gears
- Solenoid inhibit of REVERSE gear during predefined forward motion

These features combine to yield a rugged, reliable system capable of handling input torques of 650 lb ft (881 Nm).

The gear ratios are as follows:

### *Gear Ratios*

| Gear | MH3 Ratio (:1) |
|---|---|
| FIRST | 2.29 |
| SECOND | 1.61 |

| | |
|---|---|
| THIRD | 1.21 |
| FOURTH | 1.00 |
| FIFTH | 0.82 |
| SIXTH | 0.68 |
| REVERSE | 3.11 |

### Temperature Sensor

The temperature sensor is a safety feature that provides a warning in the event the manual transmission is operating in temperatures hotter than 325°F (163°C).

## Chassis

### Overview

The primary goal for the ZL1 1LE was to engineer a vehicle that dominates on the track vs. the competition, as well as being a step up from the ZL Approximately 60-70% of the chassis on this vehicle is different when compared to the ZL1.

These are some main enablers for the increase in track performance:

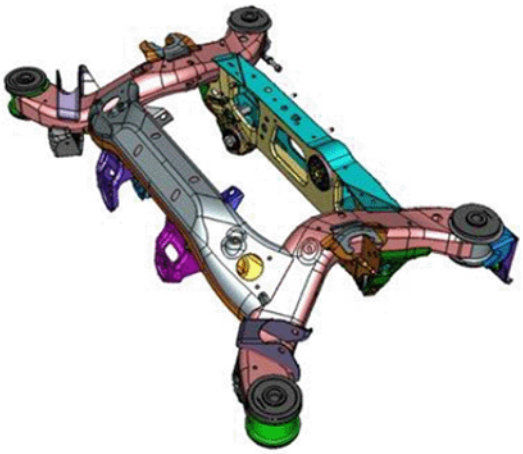
- The coil spring rates on this vehicle are higher when compared to the ZL1.


- ***Brembo® Red 6-Piston Front Calipers***

  Large Brembo® Red 6-piston fixed cast aluminum front calipers 390 mm x 36 mm and Red 4-piston fixed cast aluminum rear calipers 365 mm x 28 mm, give precise braking control while resisting fade. Both front and rear calipers have the 1LE logo. The 1LE is equipped with tw piece front rotors which can't be turned and one piece rear rotors.

- The 226 mm Electronic Limited-Slip Differential (eLSD), helps keep the ZL1 1LE planted through extreme cornering. Integrated with the Performance Traction Management system, eLSD helps the vehicle achieve quicker lap times by providing high-speed stability, improving

“turn in” response and corner exit speeds. 3.73:1 ratio with manual transmission.



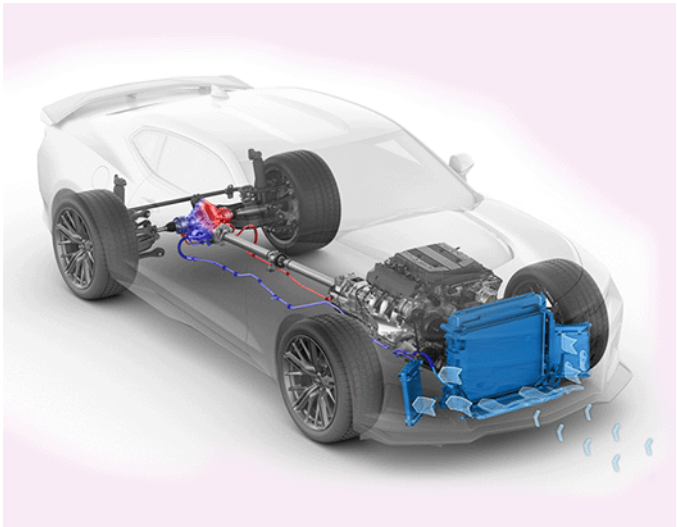
- ***Solid Mount Rear Cradle***

  The most significant enabler for track performance is the solid mounting of components. Both front and rear cradle mounts are solid mount for a faster response from the chassis to driver input for more driving precision and quicker lap times.

- Equipped with variable-ratio electrically-assisted steering, the steering calibration is unique to ZL1 1LE, focusing on providing the right character for driving on the street and the right balance of feedback and effort during competitive driving. In addition the chassis controls ar calibrated slightly differently.

- ***NPP Exhaust with Larger Bell-Shaped Tips Standard***

## Cooling System



With supercharged performance of this caliber, cooling is crucial. A 36 mm high-performance radiator with dual auxiliary outboard radiators lays th foundation for a track-honed powertrain cooling system. Standard engine oil, transmission and rear differential coolers complete the package to ke things cool during extreme driving.

# Interior

## Interior Features

Additional interior features include:

- ***Head-Up Display*** The Head-Up Display (HUD) projects onto the windshield color digital information readouts for vehicle speed, selected gear, g force, tachometer, compass, outside temperature and more.


- ***Instrument Cluster*** There is an interactive display area in the center of the instrument cluster.

- ***6-Speed Manual Suede Shift Knob***
- ***Performance Data Recorder***


The available Chevrolet Performance Data Recorder records video, audio and real-time performance data of a driving session onto an SD memory card. The SD card reader is below the instrument panel to the left of the steering wheel and just above the hood release. The recorded data is not stored anywhere else and is only accessible from the SD card. The recording must be stopped and the file closed befc removing the SD card, or the recording cannot be reviewed.

# Competitive Driving Mode

## Competitive Driving Mode

Competitive Driving Mode, Performance Traction Management (PTM) and launch control are systems designed to allow increased performance while accelerating and/or cornering. This is accomplished by regulating and optimizing the engine, brakes and suspension performance. These modes are intended for use at a closed course track and not for use on public roads. When Stabilitrak® is placed in a performance driving state by pressing traction control twice for competitive driving mode or performance traction management mode or by pressing and holding Stabilitrak® for five seconds to turn Stabilitrak® ***OFF***, the cruise buttons on the left side of the steering wheel will be inoperative.

### Performance Traction Management

Performance Traction Management (PTM) integrates the TCS, Stabilitrak® and Competitive Driving Mode systems to provide improved and consistent performance when cornering. The amount of available engine power is based on the mode selected, track conditions, driver skill and radius of each corner. To experience the performance benefit of PTM, after entering a curve and at the point where you would normally start to increase acceleration, fully press the accelerator pedal. The PTM system will modify the level of engine power for a smooth and consistent corner exit. For additional information, refer to > Chevrolet Camaro High Performance Owner Manual Supplement > Driving and Operating > Ride Contro Systems > Competitive Driving Mode > Performance Traction Management (PTM).


To select a mode while in PTM, press MODE up or down:

- PTM Wet
- PTM Dry
- PTM Sport 1
- PTM Sport 2
- PTM Race

### Custom Launch Control

Custom Launch Control is available within Competitive Driving Mode and PTM to allow high levels of vehicle acceleration in a straight line. Launch Control is a form of traction control that manages tire spin while launching the vehicle. This feature is intended for use during closed course race events where consistent 0 to 60 mph (0 to 97 km/h) and quarter mile times are desirable.

Custom Launch Control allows the following launch control parameters to be modified:

- Launch RPM
- Slip Target (5% - 15%)
- Surface Type

To adjust the Launch Control RPM, ALL of these conditions must be met:

- The vehicle must be in TRACK mode.
- Performance Traction Management mode must be enabled.
- The steering wheel must be pointed straight.
- The driver door must be closed.
- The vehicle is not moving.
- The parking brake must not be engaged.
- The clutch is fully pressed and the transmission is in 1 (First) gear.
- The accelerator pedal is rapidly applied and held to wide open throttle.

  Launch Control will initially limit engine speed as you rapidly apply the accelerator pedal to wide open throttle. Allow the engine rpm to stabilize. A smooth, quick release of the clutch, while maintaining the fully pressed accelerator pedal, will manage wheel slip.

For additional information, refer to > Chevrolet Camaro High Performance Owner Manual Supplement > Driving and Operating > Driving Informatic

> Track Events and Competitive Driving > Custom Launch Control.

### Line Lock

***Typical View of a Camaro with Line Lock Engaged.***

Line lock allows for locking the front brakes independently of the rear brakes. This allows the rear tires to spin when the throttle is applied. To enter Line Lock, all of these conditions must be met:

- The vehicle must be in TRACK mode.
- Performance Traction Management mode must be enabled.
- The steering wheel must be pointed straight.
- The driver door must be closed.
- The parking brake must not be engaged.
- The vehicle must be stopped on level ground.
- The accelerator pedal must not be applied.
- The vehicle must be in 1 (First) gear.

## Track Event and Competitive Driving

***Danger: High-performance features are intended for use only on closed tracks by experienced and qualified drivers and should not be used on public roads. High-speed driving, aggressive cornering, hard braking, and other high-performance driving can be dangerous. Improper driver inputs for the conditions may result in loss of control of the vehicle, which could injure or kill you or others. Always drive safely.***

### Boost Gauge

The boost gauge indicates vacuum during light to moderate throttle and boost under heavier throttle.

### Brake Fluid

Brake fluid should be changed to DOT 4 fluid.

### Brake Pads

New brake pads must be burnished before racing or competitive driving.

### Checking Engine Oil Level

When checking the engine oil level, 30 minutes of run time is considered warm to make sure all engine oil drains back into the pan in order to get an accurate reading. Wait 2 hours if checking the level when it's cold.

### Electronic Limited-Slip Differential (eLSD)

The Electronic Limited-Slip Differential (eLSD) is a hydraulically actuated clutch system. It can infinitely vary the clutch engagement between 0 and 200 Nm of breakaway torque between the rear wheels. It responds to full engagement within 0.150 seconds when necessary. It improves traction while cornering by changing the engagement to achieve a balance between directional control and acceleration. The eLSD on the 1LE has a unique calibration, but the final ratio is the same.

### eLSD Modes

eLSD modes change automatically when the traction control button is pressed as follows:

- **Mode 1:** The standard mode when the vehicle is started. Emphasis is on vehicle stability. Also used in PTM wet mode.
- **Mode 2:** Engaged when both TCS and StabiliTrak® are turned **OFF**. Provides more nimble corner turn-in, and is biased for better traction

out of corners.

- **Mode 3:** Engaged when PTM is engaged in Dry, Sport 1 & 2 and Race Modes. Nimble calibration with similar functionality as eLSD Mode 1 however it is integrated to work with PTM.
- **Mode 4:** Engaged when TCS is selected **OFF**, but StabiliTrak® remains **ON**. Vehicle stability is still the priority, while allowing for optimized traction out of corners.

### eLSD and Wheel Slip Displays

The upper eLSD display indicates the eLSD clutch locking percentage. The lower wheel slip display indicates the rear tire slip compared to the spe of the front tires.

### Lap Shoulder Belt

The lap shoulder belt has an Automatic Locking Retractor feature which is useful in performance driving when the driver wants to be held in the se more tightly to take advantage of the aggressive bolstering of the seat.

1. Move the seat 3-4 inches (8-10 cm) rearward from the normal driving position.
2. Pull the driver should belt out as far as it will go, until it stops, to set the lock. While holding the shoulder belt in this position, buckle the belt When the shoulder belt is released, the retractor will make a ratchet sound when it retracts. When the retractor lock is set, the belt can be tightened but not pulled out of the retractor.
3. Adjust the belt close to your body, and then move the seat forward 8-10 cm (3-4 inches) to the desired driving position. This will hold the be to your body even tighter. The belt fit should be tight, but not uncomfortable.
4. To unlatch the belt, press the button on the bucket. The belt should return to its stowed position.

### High Performance Summer Tires

**Caution: High performance summer tires have rubber compounds that lose flexibility and may develop surface cracks in the tread area temperatures below 20°F (−7°C). Always store high performance summer tires indoors and at temperatures above 20°F (−7°C) when not in use. If the tires have been subjected to 20°F (−7°C) or less, let them warm up in a heated space to at least 40°F (5°C) for 24 hours or more before being installed or driving a vehicle on which they are installed. Do not apply heat or blow heated air directly on the tires. Always inspect tires before use.**

***Lightweight Forged Aluminum Wheels***

The ZL1 1LE is equipped with new, specific lightweight forged aluminum wheels that are an inch wider but an inch smaller in diameter, front and re than standard ZL1 wheels and are used with the new Goodyear Eagle F1 Supercar 3R tires, 305/30ZR19 front and 325/30ZR19 rear, that deliver a maximum lateral grip of 1.10g. Once these tires are in the proper operating range in terms of temperature, they grab extremely well. The overall footprint grows approximately 10 percent over the ZL1, but the wheel-and-tire package weighs about 3.3 pounds (1.5 kg) less per corner. The ZL1 1LE is equipped with a tire inflator kit.

### Tire Pressure and Temperature

Tire pressure specifications will vary based on driving style, track, temperature, and weather conditions. Limit the vehicle weight to a maximum of t driver and one passenger, with no additional cargo.

Using the cluster, press SEL to enter the performance menus. Use the ***Up / Down*** arrows to scroll through the available items.

**Tire Temp:** Tire Temp displays the current tire temperature status as follows:

- **Cold** Drive with caution as tire performance may be degraded
- **Cool** Drive with caution as tire performance may be degraded

- **Normal** Tires are at normal driving temperature
- **Warm** Tires are ready for aggressive driving
- **Overheated** Tire temperature may be higher than optimal

### *Tire Pressure — Competitive Driving*

| Model | Axle | Road Course Cold Starting Pressures (1) | Road Course Target Hot Pressures (1) | Drag Strip Cold Starting Pressures | Sustained High Speed Cold Starting Pressures (2) |
|---|---|---|---|---|---|
| ZL1 1LE Tire Pressure Settings | Front | 26 psi (180 kPa) | 32–35 psi (220–240 kPa) | N/A | 44 psi (300 kPa) |
| | Rear | 26 psi (180 kPa) | 32–35 psi (220–240 kPa) | N/A | 44 psi (300 kPa) |

**(1)** Value will vary based on driving style, track, temperature and weather conditions.

**(2)** Autobahn, standing mile, etc.

**Notice: Before leaving the track event, reset tire pressures to the recommended inflation pressures on the Tire and Loading Informatio label.**

### Rear Axle Fluid

The rear axle fluid must have accumulated 1,500 miles (2,414 km) of break-in before being used in track driving.

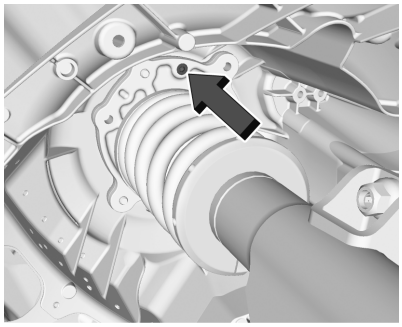
## Suspension — Adjustable Front Struts

### Camber Position for Track Events

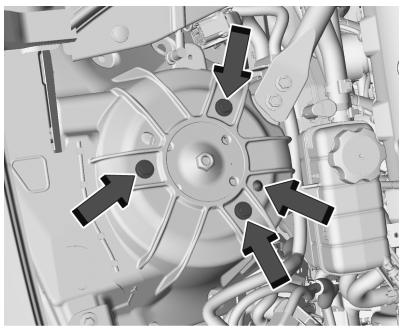
The front strut top mount can be positioned two ways. The original setting is in the street position, but it can be turned 180° to the track position for additional negative camber on the front.

To adjust the position:

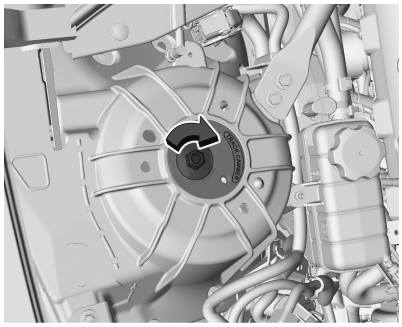
1. Raise the vehicle so the tires are slightly off the ground.



2. From the bottom side of the strut top mount, remove the Allen bolt that secures the top mount alignment pin to the top mount.



3. Remove the three strut mount bolts and the alignment pin.



4. Using the hex feature on the top of the mount, turn the top mount 180° until the TRACK CAMBER text is visible and the second set of top mount holes aligns with the strut tower holes.
5. Reinstall the top mount bolts and torque to 21.4 lb ft (29 Nm).
6. Keep the top mount alignment pin and bolt for reinstallation when the struts are returned to the street position following the track event.
7. Verify and adjust the vehicle alignment per track alignment specifications to optimize vehicle performance for the track event.
8. Verify and re-adjust the vehicle alignment as needed following the track event.

### Strut Spring Seat Adjustment

The front struts have a threaded spring seat that allows adjustment of the preload on the front springs. The vehicle corner weights and front trim heights can be adjusted.

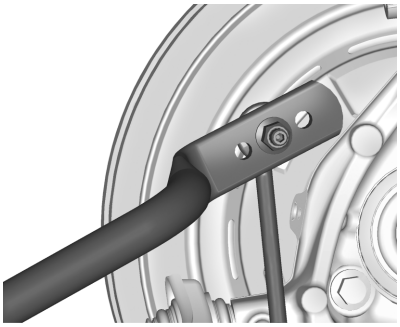
The spring seat can be adjusted approximately 0.4 inch (10 mm) up or down from the nominal position. Each complete turn of the spring perch will change the vehicle height approximately 0.06 inch (1.4 mm). Do not allow the spring seat to contact the black dust boot when adjusting in the maximum upward direction.

To adjust the lower spring seat:

1. Raise the vehicle so the tires are completely off the ground.

2. Loosen the lower spring seat bolt. Do not completely remove the bolt.
3. Turn the spring perch upward to increase spring preload, or downward to decrease spring preload.
4. Torque the spring seat bolt to 7.4 lb ft (10 Nm).
5. Verify and adjust the vehicle alignment as needed following the spring seat adjustment.

## Suspension — Adjustable Rear Stabilizer Bar



The rear stabilizer bar ends have three attachment positions that allow the rear roll stiffness of the vehicle to be adjusted.

The stabilizer bar stiffness increases approximately 15% using the rearward holes, or decreases approximately 10% using the forward holes.

To change the attachment position:

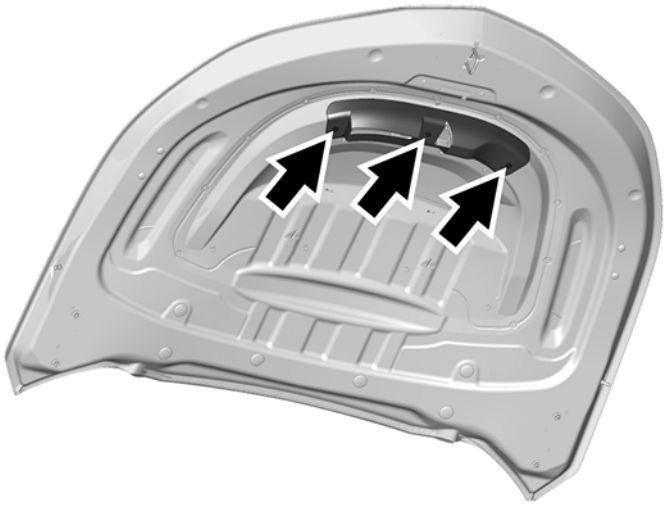
1. Raise and support the rear of the vehicle.
2. Remove the stabilizer bar link nut while holding the ball stud end.
3. Reposition the stabilizer bar link stud to the desired hole and tighten to 32 lb ft (43 Nm). Use the same hole position for both sides of the vehicle.

## Suspension — Multimatic Dynamic Suspension Spool Valve Dampers


***Multimatic DSSV® (Dynamic Suspension Spool Valve) Damper***

Additional track performance is provided by the lightweight Multimatic DSSV® (Dynamic Suspension Spool Valve) dampers and the way they're mounted to the Camaro. They're similar in basic operation to what the Z/28 was equipped with, but have been recalibrated for this car's weight and the tires. The rears are essentially identical to the Z/28 units, but have also been recalibrated. The front struts are manufactured with aluminum bodies instead of steel. The aluminum bodies on the front shocks, for example, saved 18 pounds of unsprung mass alone. In total, the DSSV shocs are 23 pounds lighter than the Magnetic Ride system found on the regular ZL1. The rubber isolator was also eliminated, so they are hard-mounted the shock towers, providing more rigidity and precise control, in addition to saving some weight.

## Water Deflector



When operating a ZL1 1LE on a closed course in hot temperatures, remove the water deflector to increase airflow and improve cooling by removin the three bolts. Replace the water deflector immediately after track use to protect the engine compartment from water intrusion.

## Wheel Alignment

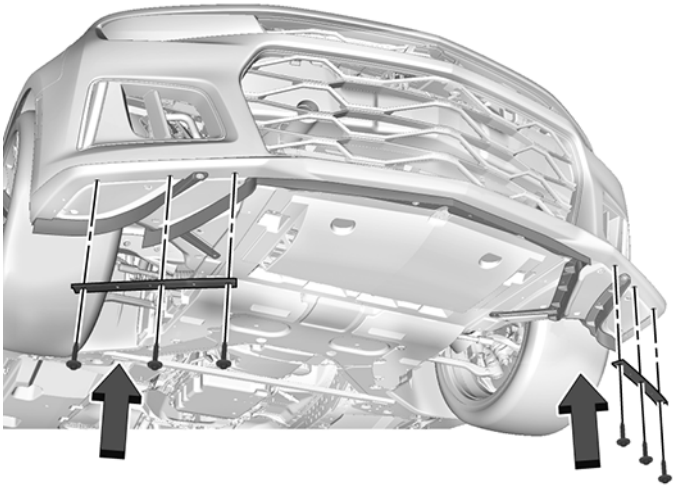
Track wheel alignment specifications are for a vehicle at curb weight conditions, meaning a full tank of fuel and zero ballast. Racing and competitiv driving wheel alignment settings may cause excessive tire wear.

Racing and competitive driving wheel alignment settings can be set as follows for increased track handling performance:

### *Track Wheel Alignment Specifications*

| Model | Axle | Caster (Not Adjustable) | | Camber | | Total Toe | Steering Wheel Angle | Thrust Angle |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Right | (Left + Right) | | (Left − Right)/2 |
| ZL1/1LE Track Alignment Settings | Front | 7.9° | 7.9° | −2.7° ± 0.15° | −2.7° ± 0.15° | 0.1° ± 0.05° | 0.0° ± 3.5° | — |
| | Rear | — | — | −2.0° ± 0.15° | −2.0° ± 0.15° | 0.1° ± 0.05° | — | 0.0° ± 0.1° |

## Underbody Air Deflector Tire Dam Kit



The underbody air deflector tire dam kit provided with the ZL1 1LE reduces the amount of aerodynamic lift on the front axle for better handling. The original tire dams must be reinstalled after a track event.

## Towing

Use only a flatbed tow truck for towing a disabled vehicle. Never use a sling type lift or damage will occur. Use ramps to help reduce approach angles if necessary. Do not lash or hook to suspension components. Use the proper straps around the tires to secure the vehicle. A towed vehicle should have its ***drive wheels off the ground***.

Due to the high spring rate and spring design used on the ZL1 1LE, ***spring spacers are not provided***.

⇒ If more clearance is needed when towing, raise the adjustable spring seat to lift the front suspension. Refer to Strut Spring Seat Adjustment this Bulletin.

## Washing the Vehicle

***DO NOT*** take the vehicle to an automated car wash. Hand wash only. The ZL1 1LE is not compatible with automatic car washes, it must be hand washed. Do not use any detergent, soap, or cleaners on the hood wrap.

## Version Information

| | |
|---|---|
| **Version** | 1 |
| **Modified** | |

## Trademark Footnotes

**Brembo® is a Registered Trademark of Brembo SpA.**

**DSSV™ and DSSV Damping Technology™, are Trademarks of Multimatic Inc.**

**RECARO™ is a Trademark of RECARO Beteiligungs-GmbH**

**StabiliTrak® is a Registered Trademark of General Motors LLC**

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