



Mid-June 2018, Volume 20, No. 12

# The New King of the Hill: 2019 Corvette ZR1



The most powerful and fastest production Corvette ever made. That's the 2019 ZR1, with its hand-assembled 6.2L supercharged V8 engine (RPO LT5) producing 755 horsepower and 715 lb.-ft. of torque and propelling the car to a top track speed of 212 mph (341 km/h).

The supercharged V8 engine is paired with either a standard TR6060 7-speed manual transmission with Active Rev Matching (RPO MEK) or an available 8L90 8-speed automatic transmission with paddle shifters (RPO M5U). It's the first time an automatic transmission has been offered in a ZR1. A new four-mode exhaust system using variable valves provides a range of sound profiles: Track, Sport, Tour, and Stealth.

# LT5 Supercharged V8 Engine

The all-aluminum 6.2L V8 engine is a cam-in-block deep skirt 90 degree V-configuration with five crankshaft bearing caps. The engine is equipped with variable valve timing (VVT) with two valves per cylinder. The valve rocker arm covers use a pre-molded silicon gasket for sealing and incorporate positive crankcase ventilation (PCV) fresh air passages.

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**Customer Care and Aftersales** 

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Supercharged 6.2L V8 engine

The Eaton R2650 supercharger provides 52% more displacement compared to the supercharger that is used on the LT4 6.2L V8. A larger 2.65 liter compressor generates a maximum boost pressure of 13.96 psi (96.3 kPa) at 15,860 rpm.

The Roots-type supercharger is a positive displacement pump that consists of two counter-rotating rotors installed into the lower intake manifold



Eaton R2650 supercharger

housing. The 11-rib compressor drive belt pulley is pressed onto the input shaft, which is coupled to the rotor shaft. Both the belt pulley and shaft coupling are serviced as an assembly.

# **Dual Fuel Injection**

The LT5 engine has a dual fuel injection system — a Chevrolet first — that features a primary direct injection (DI) system along with a secondary port fuel rail and injectors (PFI) that provide supplemental fueling when needed. The PFI/secondary fuel injectors are only activated at high engine loads when substantial fuel enrichment is necessary for exhaust system protection or to achieve peak engine torque/power. The E99 ECM controls the direct injection and the Fuel Injector Control Module (FICM) controls the port injection.



Direct injection system (lower inner set of injectors) and port injection system (outer set of injectors)

The structural dry-sump oil pan is cast aluminum. An external oil cooler assembly is mounted directly to the left side of the oil pan. The oil pan is sealed to the oil pump with a silicone push-in-place gasket and to the engine block with RTV sealant.



Dry-sump oil pan

# **On the Track**

For the best performance on a track, 100 octane fuel should be used. Also, Mobil 1 SAE 15W-50 full synthetic engine oil is required during track events.

For street use, the engine oil must be changed to Mobil 1 dexos2 0W-40 oil. Released for the 2019 model year, Mobil 1 dexos2 0W-40 oil can be used in 2014-2019 Corvettes with the LT1, LT4 and LT5 engines.

# **Brembo Brakes**

The ZR1 features 19-inch front and 20-inch rear aluminum wheels that are wrapped in Michelin Pilot Super Sport P285/30ZR19 front and P335/25ZR20 rear summer-only tires. The ZTK Track Performance Package adds Michelin Pilot Sport Cup 2 summer-only tires.

At each corner are high-performance Brembo aluminum calipers with carbon ceramic brake pads and rotors that provide exceptional stopping performance. Up front, the 15.5-inch (394 mm) two-piece carbon ceramic matrix rotors have fixed 6-piston aluminum calipers. At the rear are 15.3-inch (388 mm) two-piece carbon ceramic matrix rotors with fixed 4-piston aluminum calipers.

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High-performance Brembo brakes with ceramic rotors

**TIP:** A high-pitch squeak sound may be heard when the brakes are lightly applied during regular driving. This is a normal operating condition of the front brake pad material and high-temperature front carbon ceramic rotors that are designed for track use.

Several brake components, including brake cooling deflectors and brake cooling ducts, are loose shipped to the dealership. The brake cooling ducts are intended for track use only and should not be installed during the Pre-Delivery Inspection (PDI).



Short brake deflector
 Wide brake deflector

On ZR1, the wide brake deflectors should not be installed due to interference with the brake duct. Do not modify the brake duct to make the wide deflector fit. The short deflector should be installed during PDI. No change is required for track use.

# ZTK Track Performance Package

The ZTK Track Performance Package is designed to deliver faster lap times. It includes specific Magnetic Ride Control tuning, higher spring rates (30% for the front and 13% for the rear), Michelin Pilot Sport Cup 2 summer-only tires, and a high downforce aero wing spoiler and front splitter with carbon fiber end caps.

The stanchion-mounted carbon fiber high wing provides an estimated 950 pound force (lbf) (431 kg) of downforce. It can be mechanically adjusted up to five degrees for different levels of downforce, based on the track environment. The available high wing spoiler and the standard low wing spoiler are tied into the chassis for strength and stability.

**TIP:** GM does not support exchanging rear spoilers or removing the rear spoiler. Refer to Service Bulletin #18-NA-112. All ground effect parts are shipped separately from the vehicle. Refer to Service Bulletins #16-NA-330 and #16-NA-201.



High wing spoiler

# **Carbon Fiber Components**

To achieve its impressive performance on the track, the Corvette ZR1 features an extensive use of strong, lightweight carbon fiber. Available exterior carbon fiber components include:

- Visible carbon fiber package with splitter/spoiler/rockers
- Visible carbon fiber roof with body color surround on coupe models
- Carbon fiber tonneau inserts on convertible models
- Specific carbon fiber halo hood/engine cover with a visible weave
- Carbon fiber fender and quarter vents
- Carbon fiber front splitter winglets



Carbon fiber halo hood/engine cover

# **Special Tools**

Any time the supercharger's cooling system on LT4 and LT5 engines is replaced, removed or separated from the engine, it must be properly drained and filled.

Special tools GE-52079 Coolant System Fill Tool and GE-52079-10 Coolant System Fill Tool Adapter should be used when filling the charge air cooling system.

For additional information on the 2019 Corvette ZR1, refer to Service Bulletin #18-NA-196.

↔ Thanks to Jeff Strausser and Sherman Dixon

# 2019 Corvette ZR1 Ground Effects Installation

Due to the size of the aerodynamic components, or ground effects — front fascia splitter, rocker moldings, rear spoiler, etc. — on the 2019 Corvette ZR1 as well as other Corvette models, the parts are shipped from the Corvette assembly plant directly to the dealership separately from the vehicle. The parts should arrive at the dealership before the car.

The shipping box containing the ground effects may also include additional looseshipped parts. The list of parts in the package, including part numbers and the corresponding VIN, is included on the shipping label and in a document inside the package.

Directions also are provided for any parts that are damaged during shipping. Replacements for parts damaged during shipping should not be ordered through Customer Care and Aftersales. Orders

for the ZR1's hood, front splitter and end

caps, rear spoilers, and front fender vent appliques are on parts restriction.

Refer to the Pre-Delivery Inspection (PDI) form for additional information before installing any parts. The Special Inspection Items box on the form provides details about exterior parts installation for specific Corvette models.

### **ZR1 Aero Components**

The new ZR1 is available in two aerodynamic configurations. The base configuration features a low-mounted small rear wing and the available ZTK Track Performance configuration features a high-mounted large rear wing. Installing the small and high wings require a tamper-proof 5-point T-30 bit.

The low and high wing spoilers should never be interchanged. The low wing should not be installed on a car with the ZTK package and a high wing should not be installed on a car without the ZTK package. The vehicle's handling was designed specifically for the aero components on a vehicle as built. Changing the aero components affects the vehicle's handling and should not be altered. The ZR1 also should not be driven with either of



5-point T-30 bit.

the rear wings removed from the vehicle, which will affect the vehicle's handling at higher speeds.

The correct spoiler for the vehicle can be confirmed by searching the vehicle's build RPO codes.

The aero components on the Corvette ZR1 are different based on if the vehicle is equipped with the ZTK Track Performance Package and/or the ZLZ Sebring Orange Design Package.

# **Splitters**

Splitters are included for standard ZR1 models and models equipped with the ZLZ Sebring Orange Design Package.

### **End Caps**

The tall end caps are only on ZR1 coupes that are equipped with the ZTK package.

ZR1							
	SPLITTER	END CAPS	ROCKERS	STREET WING	TRACK WING	FRONT OUTER DEFLECTOR	FRONT CENTER DEFLECTOR
No ZTK	ZR1	No	Long	Yes	No	Yes	N/A
With ZTK	ZR1	ZR1 Coupe ONLY	Long	No	Yes	No	N/A
ZLZ without ZTK	ZR1 Orange	No	Long Orange	Yes	No	Yes	N/A
ZLZ with ZTK	ZR1 Orange	ZR1 Coupe ONLY	Long Orange	No	Yes	No	N/A



Standard ZR1 splitter



ZR1 Sebring Orange Design Package splitter



ZR1 coupe tall end cap

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# 2019 Corvette ZR1 Ground Effects Installation

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**TIP:** The tall end caps are for track use only. Do not install the tall end caps during PDI.

#### Rockers

Long rockers are included on both standard ZR1 models and those equipped with the ZLZ Sebring Orange Design Package.



ZR1 long rocker with Sebring Orange Design Package

# **Spoilers**

The ZR1 features a standard low wing spoiler. The ZTK Track Performance Package includes the high wing spoiler designed for the track.



ZR1 low wing



ZR1 high wing (included with ZTK Track Performance Package)

### **Front Deflectors**

Front outer deflectors are included on models without the ZTK package.

Refer to Service Bulletin #16-NA-330 for more information on the installation of the ground effects.



ZR1 front outer deflectors

S Thanks to Jeff Strausser

# 2018 Industry-wide Service Technician Satisfaction Survey Now Underway

The 2018 Service Technician Satisfaction Survey is taking place now and technicians at all GM dealerships in the U.S. and Canada are encouraged to participate. GM and other automotive manufacturers co-sponsor this annual survey to collect feedback on service trends, satisfaction levels, dealership operational issues and the level of manufacturer's support. This year's survey questions focus on Training, Workload, Customer Technology, Field Technical Support, Service Information, and more.

The survey is available at gmtechsurvey. com. To complete the survey, you will need your 6-digit BAC Code.

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Go to gmtechsurvey.com to start the survey.

The Service Technician Satisfaction Survey will be active until August 3, 2018.

The survey should take about 15 minutes to complete. If you don't have time to finish the survey once you've started, you can exit and finish it later by clicking the Save button and following the provided instructions.

All survey responses are strictly confidential and will not be shared with your dealership. You can also select to have your responses held anonymous to GM.

Your feedback is very important. Please take this opportunity to provide your comments and suggestions about your experiences.

Thanks to Diana Sancya



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# **GM TechLink on the Web:** GM GlobalConnect

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# Hoist Lift Pad Adapters for New 2019 Silverado and Sierra

The all-new 2019 Silverado 1500 and Sierra 1500 trucks will be arriving at dealerships soon. These new trucks feature a fully boxed steel frame that is 88 lbs. (40 kg) lighter than the previous models while offering 10 percent greater torsional rigidity. To properly support the vehicle, new lift pad adapters are required because the frame is wider than the previous trucks in the area where the front hoist arm lift pads need to be positioned.

The wider front frame requires a new front lift pad adapter for each one the front arms of the hoist to ensure the vehicle is lifted properly.

#### Lift Pads from GM Dealer Equipment

For U.S. dealerships that use Challenger or Rotary hoists, lift pad adapters are available from GM Dealer Equipment at www. gmdesolutions.com.

The new lift pad adapters are two inches larger than standard lift pads used with the last generation of Silverado and Sierra trucks.

# Challenger

The GM Truck One-Step Footpads, part number B2280PR, are custom drop-in footpads from Challenger.



Wider boxed frame



New front lift pad adapters

gmdesolutions.com

They fit any current Challenger 10,000 lb. or 12,000 lb. lift model.

Contact Challenger at 1-800-648-5438 with the lift model and serial number of your existing lift to ensure the pads will fit.

#### Rotary

Two lift pad adapter options are available from Rotary:

- Adapters for Trio Arms, part number ROTFJ6257
- Adapters for 3-Stage Arms, part number ROTFJ6258.

The drop-in Adapters for Trio Arms are for lifts with a hole diameter of 1-1/2 inches. The drop-in Adapters for 3-Stage Arms are for lifts with a hole diameter of 2 inches.



Previous lift pad (left) and new lift pad (right) for Rotary lifts.

Contact Rotary at 1-800-445-5438 with the lift model and serial number of your existing lift to determine the correct adapter to order.

The new lift pads can be used on current models as well as the new 2019 trucks.

Dealerships that use a different brand of hoist should contact their hoist supplier to determine the proper lift pad adapters for the hoists in their service department.

ℜ Thanks to Dave MacGillis and Kent Woiak