The All-New C8

Corvette Stingray
MAKES A MID-ENGINE MOVE

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In addition to its impressive performance, the new Corvette Stingray delivers supercar levels of technology, craftsmanship, and innovation, including use of GM’s Next Generation Digital Vehicle Platform electrical architecture, which minimizes wiring while allowing for faster signal transmission between different vehicle systems and the higher resolution screens. The platform enables continuous vehicle improvements through over-the-air updates and enhanced cybersecurity measures.

VEHICLE ACCESS POINTS

The Corvette Stingray features large air intakes for engine cooling and aerodynamic performance. The sculpted design also incorporates hidden hood, door, and hatch/trunk releases.

Hood – The exterior hood release is located below the driver’s headlamp in the front radiator opening.

The hood can be released from inside the vehicle using the switch above the rear hatch release on the driver’s door. There is also a manual release cable located to the left of the brake pedal below the instrument panel if the battery charge is low.

The hood is not heavy enough to latch under its own weight when closing the panel. To close, firmly press down on the front edge of the hood until the latch clicks twice. The hood will remain open until the striker is pushed into the latch.

Doors – The door releases are located up under the door handle applique. The driver’s door also has a keyed lock cylinder located under the left quarter panel cooling opening, just rear of the door opening. The key is incorporated into the key fob. Manual door release levers are located on the driver and passenger floors, just like the previous generation Corvette.

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Hatch/Trunk – The rear hatch/trunk can be released with either the interior or exterior switch. The interior switch is located in the map pocket area of the driver’s door panel. The exterior switch is located in the rear fascia above the license plate.

To open the hatch/trunk manually, use the mechanical key in the key cylinder behind the license plate. The license plate must be removed for access.

**BATTERY LOCATION**

The vehicle battery is located under the front windshield cowl panel. To access the battery cables or battery, remove the front compartment rear access cover that is held in place with two retainers and three clips.

**CHASSIS**

The new body structure of the 2020 Corvette Stingray is more than 10% stiffer than the previous generation. It features a strong, lightweight main structure with six high-pressure die cast aluminum parts that minimize the number of joints within the vehicle, making a stiffer structure that aids in handling and cornering. The Stingray also uses an industry-first carbon fiber curved rear bumper beam as well as front and rear trunk tubs and dash-board molded from ultra-lightweight fiberglass and a proprietary resin. Along with the use of other fiberglass and carbon fiber variants, the design goal was to lower mass and reduce noise and vibration while enhancing performance.

Structural repairs must be made by certified GM Collision Repair Network (CRN) or Cadillac Aluminum Repair Network (CARN) shops. Non-certified shops will not be permitted to receive the restricted structural part numbers from a GM dealership. The majority of the structural frame components for the C8 Corvette will be put on parts restriction. GM dealerships with body shops can enroll at www.genuinegmparts.com/for-professionals/general-motors-collision-repair-network.

The rigid body structure provides a solid foundation for the front and rear frames and the four-wheel independent suspension system. The front suspension is a short/long arm design with double wishbone-type control arms. The upper control arm is forged aluminum and the lower control arm is cast aluminum. The rear suspension also uses a short/long arm design with double wishbone-type control arms, replacing the transverse composite springs. Magnetic Selective Ride Control 4.0 is available with the Z51 option package.

**FRONT LIFT SYSTEM**

The E60 adjustable front lift system with memory is available to lift the front of the car when entering steep driveways or driving over road disturbances, such as speed bumps, to help reduce the potential for damage to the front spoiler. The two-position lift actuators in the front shocks can lift the front end by 1.4 in. (35 mm) in less than three seconds when the vehicle is moving...
less than 25 mph (40 km/h). The system lowers manually using a switch or automatically when the vehicle reaches 24 mph (39 km/h). The button to activate the system is located in the front of the center console.

Tip: The J55 rear brake rotors should not be machined. Removing the coating at the bottom edge of the rotor’s braking surface during the machining procedure may lead to surface corrosion.

The J55 system calipers have brake bleeders on the top and bottom of the calipers. The bottom bleeder is to help with draining the brake fluid from the calipers, which is helpful when flushing the brake system after a track event. Pressure bleeding and manual bleeding are the only recommended procedures for flushing and bleeding the brake fluid. Never use vacuum bleeding on 2020 Stingray brake system.

Copper paste also is required to be applied to the brake pad abutments for both brake systems to reduce brake noise.

Both brake systems use DOT 4 brake fluid. Prior to driving at a track event, the DOT 4 fluid must be flushed out and replaced with a higher boiling temperature brake fluid. After the track event, the brake fluid should be changed back to DOT 4 fluid for street driving.

Critical Brake System Service Step

When servicing vehicles with the Electromechanical Brake Booster, including brake pads or rotor replacements, the battery must be disconnected to prevent the brake master cylinder from pressurizing the hydraulic system during its automated self-diagnostic tests that can possibly occur when a door is opened or the key fob is activated. Failure to follow this precaution may cause personal injury. A “Brake System Failure, 62 mph Top Speed” (or 100 km/h) message will be displayed on the DIC if the battery is not disconnected prior to brake service.

If the battery is not disconnected and the DIC message appears, it will be necessary to perform a hydraulic system test. The test procedure will not be covered under warranty for failing to disconnect the battery.
INSTRUMENT CLUSTER AND INFOTAINMENT

In the driver-centered cockpit of the Corvette Stingray, the standard instrument panel includes an array of customizable gauges and a multi-color Head-Up Display.

The steering wheel controls operate the infotainment system, the instrument panel and DIC, cruise control, and Z-Mode.

The Corvette Stingray also continues to offer a Performance Data Recorder that displays and records video, audio, and vehicle data. The data is stored on a secure digital (SD) memory card. The system is operated through the infotainment screen.

In Track Mode, the Performance Data Recorder overlays the maximum level of data onto a drive video, including vehicle speed, engine speed, turn signal indicators, high beam indicators, and transmission gear displays. In addition, the lateral and longitudinal G-Forces are displayed as well as the active handling active indicator if active.

LIFTING THE VEHICLE

The spark plugs/wires, ignition coils, A/C compressor, alternator, accessory drive belt and tensioner, and fuel tanks can all be removed from under the vehicle without removing the engine.

Before lifting the Corvette Stingray, it may be necessary to put the vehicle on gradual incline ramps to allow the lift arms to fit under the vehicle.

Install the J-43625 Lift Pad Adapters into the front and rear frame rail slots and center the hoist pads under the adapters.

If the rear cradle shear plate is to be removed, position the hoist pads to allow removal of the mounting bolts. An external Torx socket is required to remove the 36 fasteners that retain the aluminum plate. When reinstalling the shear panel, finger start all of the fasteners so they do not get cross threaded into the rear cradle.

SPECIAL TOOLS

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<td>Strut Compressor Adapter</td>
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<td>Alignment Adapter Mounting Pins</td>
</tr>
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</tr>
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<tr>
<td>EN-52055-200</td>
<td>Support Mount, Transmission (lift table)</td>
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<tr>
<td>J-44748</td>
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<td>EN-52751</td>
<td>Flywheel Holding Tool</td>
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For much more information on the all-new 2020 Corvette, refer to Bulletin #20-NA-061.

Thanks to Jeff Strausser and Matt Bunting
The all-new 2020 Corvette Stingray delivers exceptional performance through a combination of rear weight bias, aerodynamics, chassis tuning and its new mid-engine small block V8 and 8-speed dual-clutch transaxle (DCT).

When equipped with the available Z51 Performance Package, the powerful V8 engine and quick shifting DCT help propel the Corvette Stingray to 60 mph (97 km/h) in 2.9 seconds and through the quarter mile (0.4 km) in 11.2 seconds at 121 mph (195 km/h).

**6.2L V8 ENGINE**

The new next-generation 6.2L V8 Overhead Valve (OHV) engine (RPO LT2) produces 495 horsepower and 470 lb.-ft. of torque when equipped with the performance exhaust. The engine features a dry sump oiling system, camshaft position actuator system (or variable valve timing) and Active Fuel Management™. The cast aluminum engine block is a cam-in-block deep skirt 90° V-configuration.

**FUEL SYSTEM**

The fuel system consists of eight separate direct injection fuel injectors, two high pressure fuel rails, a high pressure cross-over fuel pipe (connects the two fuel rails), a high pressure fuel feed pipe (connects the cross-over pipe to the high pressure fuel pump), a high pressure fuel pump and a low pressure fuel feed pipe.

The fuel injectors are each seated into their individual bores in the cylinder heads with two combustion seals to provide sealing. The Engine Control Module (ECM) supplies 65 volts to open each injector and then uses 12 volts to hold the injector open.

The high pressure fuel pump, located at the rear of the engine, is driven by a three-lobe cam on the camshaft. The high pressure fuel pump supplies the necessary high fuel pressure for direct injection and regulates the fuel pressure with an actuator. A relief valve prevents excessive pressure if a failure condition is present.
ACTIVE FUEL MANAGEMENT™

The 6.2L V8 engine features an updated Active Fuel Management™ system. On previous model years, the components included the ECM, the valve lifter oil manifold assembly, and the Active Fuel Management lifters.

The new system eliminates the need for the valve lifter oil manifold assembly. Instead, four ECM-controlled valve lifter oil solenoid valves, located in the engine valley, supply oil flow to the lifters when energized by the ECM. The Active Fuel Management cylinders are 2, 3, 5, and 8.

The valve lifter oil solenoid valves are electro-hydraulic actuator devices and mount to the top of the engine valley, below the intake manifold assembly. When the ECM energizes the solenoid coil windings, the solenoid valves open, redirecting engine oil into eight separate vertical passages in the engine lifter valley and to the lifters.

ENGINE LUBRICATION AND COOLING

Engine lubrication pressure is supplied by a two-stage oil pump assembly that is mounted to the front of the engine block and is driven directly off the crankshaft sprocket. The oil pump assembly consists of a primary vane-type variable displacement pump and a secondary set of gerotor-style pumps. Incorporated within the oil tank assembly are the oil level indicator, oil fill cap, positive crankcase ventilation centrifugal air/oil separator, and oil pick up screen.

Piston oil nozzles provide oil to the bottom side of each piston for cooling purposes. The piston oil nozzles have an internal check ball that remains in the normally closed position by the spring until the system oil pressure exceeds 300 kPa (43.5 PSI).

The structural cast aluminum dry-sump oil pan incorporates drain plugs, an oil pickup screen, and internal oil passages. An external oil cooler assembly mounts directly to the underside of the oil pan.

TIP: Due to the three oil pumps, the engine oil level should be checked with the engine running at operating temperature. The engine requires dexos2 0W-40 synthetic oil and has an oil capacity of 7.5 quarts (7 liters).

The engine cooling system of the 6.2L V8 engine requires a special bleed procedure during coolant fill. There are three bleed caps in the front of the vehicle to assist with bleeding air out of the system. One for the heater core and one for each of the front radiators.

ACTIVE EXHAUST SYSTEM

The exhaust tailpipe flow control system changes the exhaust sound for a more aggressive sound. The system uses two tailpipe exhaust valves installed in the low restriction exhaust path of the dual outlet muffler, near the exhaust tip on each side of the vehicle. When a tailpipe exhaust valve is open, the low restriction exhaust path is opened to the atmosphere and the exhaust sound becomes more aggressive.

To provide a more aggressive exhaust note during vehicle starting, the exhaust tailpipe valves are open during an engine crank event during specific modes of operation, if equipped with the Z51 option. Once the engine is running, accelerator pedal position, transmission gear, and engine speed are used to determine the commanded state (open or closed) of the exhaust tailpipe valves.

If the vehicle is driven frequently on a track, the exhaust tips may turn blue due to high exhaust temperatures. The heat changes the color of the stainless steel and the bluing cannot be removed. This is a normal condition and mufflers should not be replaced under warranty.

8-SPEED DUAL CLUTCH TRANSAXLE

The new Tremec DCT TR-9080 8-speed transaxle was designed exclusively for the 2020 Corvette Stingray and incorporates a wet dual-clutch assembly, gear train assembly, and limited slip rear differential.

The DCT is mated to a new Electronic Transmission Range Selector (ETRS) that incorporates two pull toggles for Reverse and Drive and push buttons for Park, Neutral and Low/Manual.

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The TR-9080 8-speed DCT features concentric clutches that are normally open with spring force. Closing action occurs from hydraulic pressure acting against rotating pistons. When the hydraulic pressure increases, the piston will apply and hold the desired clutch plates, which provide input to one of the two input shafts. The main control solenoid valve body, located in the bottom pan, controls and maintains clutch pressure.

The transmission control module controls all functions of the gearbox, including the hydraulic power system, the two clutches, the eight forward gears and reverse, and the park lock system.

**DRIVER MODES**

Driver Mode Control adds a sportier feel, provides a more comfortable ride, or assists in different weather and road conditions. The system simultaneously changes the software settings of various sub-systems to optimize driving performance. Depending on the option package, available features, and the mode selected, the exhaust, suspension, steering, brakes, and powertrain settings may change to achieve the desired mode characteristics.

Weather, Tour, Sport, and Track modes have preset vehicle settings for use in different driving conditions. My Mode and Z-Mode can be customized by the driver through the Settings menu on the infotainment screen. To activate My Mode, Weather, Tour, Sport, and Track Mode, turn the driver mode control knob on the center console to make a mode selection. To activate Z-Mode, press the Z-Mode button on the steering wheel. To deactivate, select a different mode or press the Z-Mode button again. When Z-Mode is de-activated through the Z-Mode button, Driver Mode Control is always set back to Tour Mode.

While in Sport, Track, My Mode or Z Mode, the transaxle may downshift while the engine RPMs stay higher, just as the C7 would in "Performance Shift Active" mode; however, the 2020 Stingray will not display the "Performance Shift Active" message in the DIC.

An external transmission cooler mounts on top of the transmission to lower the fluid temperature. There is not a required fluid flush procedure and the transmission should not be flushed.

**TIP:** The DCT requires a special transmission fluid to maintain performance and durability standards. ACDelco DCT FFL-4 automatic transmission fluid is recommended. Do not use any other type of fluid. Total capacity is 11.62 quarts.

There also is an external oil filter located on the left side of the transmission. The transmission requires a filter change at 7,500 miles. Additional filter and fluid changes are based on the customer’s driving or track driving habits. There is a transmission oil life monitoring system to help determine the oil change intervals.

If the vehicle is being driven at a track event, two additional quarts of fluid are required. Once the extra fluid has been added, it does not need to be removed until the next required transmission oil/filter service. Use the fill plug at the top of the transmission to add the additional oil.

**TRANSMISSION IDENTIFICATION**

The transmission identification label is located on the right side of the transmission. It includes the part number, build information, and the Transmission Unique Number needed for programming.
MANUALLY SHIFTING TO NEUTRAL

With the ETRS system, the transmission parking pawl cannot be disengaged unless the engine is running. If there is a loss of vehicle battery power, the DT-52388 manual park release tool can be used to shift the transmission to Neutral and move the vehicle. Due to spring pressure, the tool must be applied to the release lever and held in the release position while moving the vehicle. The manual park release is located on the right side of the transmission and can be accessed through the trunk.

For additional information on the all-new 2020 Corvette, refer to Bulletin #20-NA-061.

Thanks to Jeff Strausser and Matt Bunting
After installing an accessory tonneau cover on some 2019-2020 Silverado 1500 and Sierra 1500 models and 2020 Silverado 2500HD/3500 HD and Sierra 2500HD/3500HD models, the endgate may fail to auto open or manually close. The improper operation of the endgate may be caused by excessive interference between the endgate and the tonneau cover.

If the tonneau cover is a GM accessory, the cover can be adjusted to reduce compression at the endgate interface. GM tonneau cover part numbers are listed in Bulletin #20-NA-044.

If the tonneau cover is non-GM (IBP), contact the manufacturer of the cover for specific adjustment instructions. Non-GM tonneau covers can be identified by non-GM branding. Contact information for the manufacturer can be found with the installation instructions provided with the kit, or by searching the part number in the Electronic Parts Catalog.

First verify if the condition is related to the tonneau cover by ruling out the endgate lock actuator as the cause of the condition. Open the rear end panel of the tonneau cover and cycle the power endgate five times. Use the tailgate switch or key fob to power open the endgate and then manually close the endgate. If the endgate functions properly, continue with adjusting the tonneau cover. If the endgate does not function properly, refer to Bulletin #20-NA-040 for more information about the endgate lock actuator.

ADJUSTING THE SIDE RAILS

To make the necessary adjustments to the tonneau cover, the cover must be removed and the side rails adjusted upward and forward. There are three different tonneau cover fastener styles.

Refer to Bulletin #20-NA-044 for complete details on removing/installing the tonneau cover and adjusting the side rails.

Once all adjustments have been completed, close the tonneau cover and cycle the power endgate five times to verify the condition is corrected. Also open and close the front panel to verify the latches have efficient engagement.

If additional adjustments are necessary, reference the Hard Tri-Fold Cover Instruction Sheet.

Refer to Bulletin #20-NA-044 for additional information and fastener torque specifications.

Thanks to Kevin Minor, Dave MacGillis and Pete Allen
2020 Corvette Pre-Delivery Inspection Tips

The Pre-Delivery Inspection (PDI) of the new 2020 Corvette Stingray includes several special inspections and installation procedures. Be sure to complete all items on the PDI form. Here are a few special items to keep in mind while performing the PDI.

**CAR COVER**

The 2020 Corvette Stingray will be shipped from the assembly plant under a car cover similar to the C7 Corvettes. The cover helps to prevent paint damage during transportation. It's recommended to reinstall the cover after performing the PDI to continue protecting the paint during dealership storage.

**GROUND EFFECTS**

The RPO (Regular Production Option) ground effects are loose-shipped parts and will be delivered in the front and rear trunks. These include the front lower close-out panels. In addition, Z51-equipped vehicles will have a three-piece molded plastic front splitter and brake cooling ducts.

LPO (Limited Production Option) aero components may include the one piece front fascia splitter, rocker moldings, and “big wing” rear spoiler. All LPO parts are shipped from the local ADIs. Please use care when installing the aero components.

**BRAKE COOLING DUCTS**

Z51 models include brake cooling parts. Install the brake cooling deflectors, except the rear lower control arm brake cooling ducts.

The rear brake cooling ducts that attach to the lower control arms are for track use only and should not be installed during the PDI. Driving the vehicle on the street with the ducts installed may lead to part damage from road debris or poor road conditions.

**NAVIGATION SD CARD**

The Navigation SD card is placed in the card slot in the rear section of the center console storage compartment at the assembly plant. As always, the SD cards are VIN-specific to the vehicle and cannot be swapped with other vehicles. Incorrect cards will result in the “SD CARD ERROR. The SD card is not valid in this vehicle for navigation.” being displayed. Ensure the card is not locked.

**LIFT PAD ADAPTERS**

The J-43625 Lift Pad Adapters are required to hoist the 2020 Corvette Stingray. The adapters are the same tool used for the previous generation Corvette. Install the adapters into the front and rear frame rail slots and center the hoist pads under the adapters.

Thanks to Jeff Strausser and Matt Bunting
**GDS2 Core Software Update Increases Efficiency**

The latest update to the GDS2 core software (Version 21.3.06900) in TIS2Web recently released includes changes for Diagnostics over Internet Protocol (DoIP) diagnostics, new messaging for MDI 2/MDI usage on DoIP and dropped connection messaging.

In addition, changes to the Vehicle Wide DTC screen will include a check mark to allow the sweep to run continuously or only one time (the new default). The updated Vehicle Wide DTC sweep will reduce the amount of memory that GDS2 uses and the size of session files. These changes will be made to the CAN Bus Ping Test as well.

The GDS 2 software update is available by selecting the GDS 2 icon in TIS2Web.

**UPDATING SOFTWARE**

When updating to a new core version, many firewalls/antivirus programs will recognize it as a new application. It may be necessary to engage your local IT support to ensure GDS2 is entered as an exception in these programs to allow normal functionality. GDS2 users also need full administrative rights to install the update. If issues are encountered with GDS2 not functioning properly, right click on the GDS2 icon on the desktop and select “Run as administrator.”

For assistance, contact the Techline Customer Support Center (TCSC) at 1-800-828-6860 (English) or 1-800-503-3222 (French).

> Thanks to Chris Henley

**Intermittent Slip in Reverse**

Some 2019-2020 Colorado and Canyon models equipped with the 6L50 automatic transmission (RPO MYB) may have an intermittent slip condition or may not engage when shifted into Reverse.

The intermittent slip condition may be caused by a rough finish on the center support housing damaging the Low-Reverse piston seal. If the rough finish is found, replace the Reverse piston seal and the center support.

During installation of the output carrier assembly, apply automatic transmission fluid to the inside diameter of the output shaft seal before installing the output shaft assembly into the case. The fluid will help prevent the seal from rolling during output shaft installation.

Also, be sure to install the center support — retaining ring with the tapered side up and in the 9 o’clock position from the pan side of the case.

Refer to Bulletin #20-NA-062 for additional information and part numbers.

> Thanks to Ron Caponey

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