ALL NEW 2021

Chevrolet Tahoe/Suburban

GMC Yukon/Yukon XL

HAVE MORE POWER/CAPABILITY/CONTENT

2021 Tahoe/Suburban and Yukon/Yukon XL Air Ride Adaptive Suspension see page 6

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All-New 2021 Chevrolet Tahoe/Suburban and GMC Yukon/Yukon XL Have More Power, Capability, Content

The all-new 2021 Chevrolet Tahoe and Suburban and 2021 GMC Yukon and Yukon XL are ready to live up to their legendary nameplates and segment leadership. The fully redesigned models feature three different engine offerings – updated 5.3L and 6.2L V8s and an all-new 3.0L Duramax diesel – along with a standard 10-speed transmission and a new independent rear suspension. Based on the new full-size truck architecture, the vehicles boast a variety of standard safety features and infotainment and technology options.

The Tahoe/Suburban offers six trim choices: LS, LT, street-inspired RST, off-road Z71, Premier with premium equipment and technology, and High Country.

The Yukon/XL is available in four trim levels: SLE, SLT, off-road AT4, and Denali.

POWERTRAIN

The 5.3L V8 engine (RPO L84) generates 355 horsepower and 383 lb.-ft. of torque. For those looking for more power, the 6.2L V8 engine (RPO L87) produces 420 horsepower and 460 lb.-ft. of torque. Both engines feature Dynamic Fuel Management, with more than 12 modes of cylinder deactivation to optimize engine efficiency in a broad range of driving applications, including when towing a trailer. Other engine technology includes automatic engine stop/start, direct injection, and variable valve timing.

Dynamic Fuel Management can deactivate any combination of cylinder valves, with millisecond-accurate torque control, to optimize fuel consumption. The cylinder deactivation system uses electrically-operated valve lifter oil solenoid valves, bolted at each cylinder in the engine block valley below the intake manifold assembly, to control the application of engine oil pressure to the intake and exhaust valve lifters on the cylinders selected to deactivate.

The Dynamic Fuel Management solenoid requires a magnetic tool to remove the valve lifter oil solenoid valves. The tool helps gain leverage to remove the valve lifter oil solenoids from the block. Once installed on top of the solenoid, place your hand over the remover and solenoid with a finger under the solenoid. Twist while pulling up on the tool and the solenoid.

The 3.0L Duramax inline 6-cylinder turbo-diesel (RPO LM2) – the only diesel offering in the full-size SUV segment – is rated at 277 horsepower and 460 lb.-ft. of torque. It features cast-in-place iron cylinder liners within the aluminum alloy engine block, a forged...
steel crankshaft and connecting rods, and blended silicon/aluminum pistons for outstanding durability.

The 3.0L diesel engine is part of the Cylinder Set Strategy (CSS) family of engines, which deliver reduced friction, weight, and exhaust emissions. The turbocharger system includes an electronically-operated wastegate valve that provides good low-end torque as well as high-end performance. The engine also incorporates a variable geometry turbocharger, active thermal management, automatic engine stop/start, a variable intake manifold, and a variable pressure oiling system.

The new active thermal management system helps the engine warm up and achieve its optimal engine temperature more quickly. The system eliminates the need for a conventional thermostat. A rotary valve system is used to distribute coolant through the engine. The mechanical water pump is mounted on the right side of the engine. Coolant flows from the mechanical water pump into the engine cylinder block and cylinder head. The pump also provides cooled coolant flow from the radiator directly to the engine coolant flow control valve, which is attached to the engine block under the intake manifold.

The 10L80 10-speed automatic transmission (RPO MQC) is a heavy-duty, electronically-controlled transmission. It features an electronic shifter (Electronic Transmission Range Selector, or ETRS) located on the instrument panel. The Park, Neutral, and Low controls are push buttons. The Reverse and Drive controls are pull switches.

The transmission architecture features a case with integral bell housing for enhanced powertrain stiffness. A unique off-axis pump drive design allows for very low mounting in the transmission. The Transmission Control Module (TCM) is externally mounted at the left front of the vehicle to the rear of the underhood fuse box.

**NEW FOUNDATION**

The all-new chassis of the Tahoe/Suburban and Yukon/XL features an independent suspension and longer wheelbase, providing enhanced passenger accommodations, cargo capacity, and driving dynamics. The structure uses a mix of materials, including advanced high strength steel, high strength steel, steel, and aluminum.
Compared with the previous live axle design, the independent multilink rear suspension, which includes three lateral arms, a longitudinal arm, coil springs, and a stabilizer bar, helps isolate road variations for a better ride quality and steering responsiveness while still providing the capability requirements for full-size SUVs.

In addition, the available Air Ride Adaptive Suspension and Magnetic Ride Control systems deliver enhanced body control and handling. The Air Ride Adaptive Suspension has automatic load-leveling and up to 4 inches (100 mm) of ride-height adjustment.

In highway driving, the system automatically lowers the ride height 3/4-inch (19 mm) to improve aerodynamics and fuel efficiency. A driver-selectable setting lowers the suspension 2 inches (51 mm) to aid passenger entry and exit when the vehicle is parked. Drivers can also raise the body for additional ground clearance when driving off-road by 1 inch (25 mm) at low speeds in 4WD HI, and an additional 1 inch (25 mm) at lower speeds in 4WD LO.

The brake system includes 4-wheel, 17-inch disc brake rotors as standard equipment. The brakes are equipped with a new brake pad lining wear sensor system and an electronic parking brake system. When the brake pad lining wear sensor system is active, brake pad life percentage is displayed on the Driver Information Center, along with a distance for each axle. When the system has determined that the brake pads need to be replaced, a message displays that may include mileage remaining. After replacing the brake pads, the axle brake pad life monitor reset learn must be performed.

It may be necessary to turn off the system if aftermarket brake pads without wear sensors are installed. When the system is turned off, the front and rear brake pad life percentages will not display.

SAFETY FEATURES

The Tahoe/Suburban and Yukon/XL offer 30 safety and driver convenience technologies. These include:

- HD Rear Vision Camera and HD Surround Vision
- Head-Up Display
- Automatic Emergency Braking
- Forward Collision Alert
- Front Pedestrian Braking
- Rear Pedestrian Alert

INSIDE THE CABIN

The interior features of the Tahoe/Suburban and Yukon/XL include larger displays and more connectivity options for all passengers.

A 10-inch diagonal color touchscreen is standard on all models on the center of the instrument panel. Infotainment systems IOR, IOS, and IOT (with navigation) are available. The systems support wireless Android Auto and Apple CarPlay, which can be set up to automatically connect to a paired, compatible mobile phone.
An 8-inch diagonal configurable color instrument cluster and Driver Information Center is available. The uplevel cluster, available on Denali models and some other trim levels, features enhanced graphics with electronic gauges across the top of the screen.

Rear seat passengers can enjoy an available rear seat media package with dual 12.6-inch diagonal LCD touchscreens. Each rear screen has independent connections so passengers can watch different content. Navigation points of interest also can be sent to the front infotainment screen.

The available Power Sliding Center Console can slide back up to 10 inches (254 mm) for expansive storage flexibility. The console slides back for access to an open space and an additional hidden drawer underneath the main storage bin. Moving the console back also increases access to the controls on the rear of the console for rear seat passengers.

**VEHICLE INTELLIGENCE PLATFORM**

The Tahoe/Suburban and Yukon/XL are built on the next generation Vehicle Intelligence Platform (VIP). The advanced data communication platform has five times more data processing power than the current system and offers incredible speed for new technologies, vehicle health monitoring, over-the-air updates, and industry-leading cybersecurity protection.

Next generation networks include two-wire CAN buses and two wire Ethernet buses to ensure high speed data transfer and multiple single-wire LIN buses to exchange information between master control modules and other smart devices. Low speed General Motors Local Area Network (GMLAN) networks are eliminated. CAN buses are used where data needs to be exchanged at a high rate, primarily by a control device using the information to adjust a vehicle system, such as powertrain or body controls.

**TRAILERING**

The Tahoe/Suburban and Yukon/XL offer many of the trailering technologies found on the Silverado and Sierra. The available trailering package includes a high-capacity radiator and cooling fan, an integrated trailer brake controller, and up to nine camera views. Plus, the available trailering app offers customization options for several trailer profiles, additional cameras, and trailer tire pressure and temperature monitoring.

**PDI INSTRUCTIONS**

During the Pre-Delivery Inspection, check the following special items:

- To use the 110V A/C power outlet, at each new ignition cycle, push the 110V power button located on the left side of the instrument panel.
- Enable the deployment function of the running boards by selecting the Settings icon on the Home Page of the infotainment screen. Go to Vehicle > Running Boards > Automatic Running Boards > Deploy Running Boards. Open any door and confirm the running board on that side of the vehicle deploys.
- If the vehicle has the navigation system option (RPO IOT), ensure that the Nav SD card that is located beneath the USB hub in the armrest console is inserted correctly and is functional.

**SPECIAL TOOLS**

<table>
<thead>
<tr>
<th>Tool Number</th>
<th>Tool Name</th>
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<tbody>
<tr>
<td>DT-52896</td>
<td>Installer, Pinion Seal and Side Bearing</td>
</tr>
<tr>
<td>DT-52898</td>
<td>Replacer, Pinion Bearing Cup</td>
</tr>
<tr>
<td>DT-52899</td>
<td>Replacer, RDM Mount Bushing</td>
</tr>
<tr>
<td>DT-52900</td>
<td>Spreader, RDM Rear Cover</td>
</tr>
<tr>
<td>DT-52901</td>
<td>Bridge, RDM Side Bearing Cap</td>
</tr>
<tr>
<td>DT-52902</td>
<td>Fixture, RDM Rotating</td>
</tr>
<tr>
<td>DT-52903</td>
<td>Remover, Axle Flange and Shaft</td>
</tr>
<tr>
<td>DT-52904</td>
<td>Installer, Pinion Seal</td>
</tr>
<tr>
<td>DT-52905</td>
<td>Installer, RH Output Seal</td>
</tr>
<tr>
<td>DT-52906</td>
<td>Installer, LH Output Seal</td>
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</tbody>
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For much more information on the all-new 2021 Tahoe/Suburban and Yukon/XL, refer to Bulletin #20-NA-137.

► Thanks to Hassan Abdallah and Tom Renno
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The Air Ride Adaptive Suspension available on the redesigned 2021 Tahoe/Suburban and Yukon/Yukon XL is an automatic level control suspension with a variable rate spring design.

The Air Ride Adaptive Suspension has automatic load-leveling and up to 4 inches (100 mm) of ride-height adjustment. It can lower to make it easier to enter and exit the vehicle and lower automatically on the highway to improve aerodynamics and fuel efficiency. Drivers also can raise ride height in off-road conditions for more ground clearance.

The K5 automatic level control module controls the system functions and monitors the suspension system for proper operation. In addition to the driver-selected ride height, the control module uses the following vehicle parameters to establish a target ride height:

- vehicle speed
- lateral acceleration
- longitudinal acceleration
- throttle position
- cruise control status
- transmission range selection status
- stability control system status
- semi-active damping system status
- vehicle power mode
- suspension position sensors
- air spring pressures

SYSTEM COMPONENTS

The airflow to the four air springs is determined by the pneumatic control unit, which contains the pressure sensor and control solenoid valves for each spring. The pneumatic control unit, along with the automatic level control module and air compressor, are located above the spare tire under the rear of the vehicle. System components include:

1. Air Suspension Compressor
2. Air Dryer Assembly
3. Automatic Level Control Module
4. Pneumatic Control Unit
5. Air Intake Muffler
6. Air Intake Port
7. Air Intake Particulate Filter
8. Exhaust Air Vent

The air compressor is a dual-stage, positive displacement, piston air pump with boost mode driven by a 12-volt DC permanent magnet motor. The air compressor draws air from the atmosphere through the air intake or reservoir and supplies the air to the pneumatic control unit. The air dryer removes moisture from the intake air, which is stored in the air suspension reservoir.

CONTINUED ON PAGE 7
**AIR SPRINGS**

The four air springs raise or lower vehicle height based on the automatic level control module inputs, which determines vehicle height. The position sensors send a pulse-width-modulated signal that corresponds to the current height of the vehicle.

**DRIVER CONTROLS**

The driver control system enables four different ride heights to be selected. The selected mode is shown on the Driver Information Center.

1. Rear air spring
2. Rear suspension position sensor

The selected ride height is shown on the DIC.

**Entry/Exit Ground Clearance** – Lowers the vehicle for entry and exit.

**Normal Ground Clearance** – Standard vehicle height for normal driving

**Increased Ground Clearance** – Raises the vehicle 1 inch (25 mm) from Normal (4WD HI)

**Maximum Ground Clearance** – Raises the vehicle 2 inches (51 mm) from Normal (4WD LO)

**TIP:** Heavy use of the air suspension may cause the system to temporarily suspend all height changes to allow the air compressor to cool down.

Aero mode, which lowers the vehicle automatically when vehicle speed exceeds 65 mph (105 km/h) for a period of time, cannot be user selected.

Increased Ground Clearance mode can be driver-selected or, when Off-Road mode or Terrain mode is active, ground clearance is increased automatically by 1 inch (25 mm).

Entry/Exit mode can be programmed to lower the vehicle automatically in the Settings menu on the infotainment screen. The vehicle must be in Park and a door opened in order for the air suspension to activate automatically. Lowering the vehicle 2 inches (51 mm) to the entry/exit position takes approximately 8 seconds.

The Entry/Exit mode does not operate when Tow/Haul mode is active, the Off-Road driver mode is active, or a trailer is attached to the vehicle.

**SERVICE MODE**

When the air suspension system is in service mode, all air suspension operations, including raising and lowering the vehicle and air compressor operation, are disabled. Service mode is useful when the vehicle is being towed on a flat bed or during vehicle service when the vehicle is placed on the hoist.

Service mode is automatically enabled when the vehicle is raised on a hoist or a floor jack. Service mode automatically disables when vehicle speed exceeds 10 mph (16 km/h). Service mode also can be manually enabled and disabled in the Settings menu by selecting the Suspension option.

**TIP:** If the vehicle automatically enters suspension service mode, the vehicle must be driven at a speed of 10 mph (16 km/h) to disable service mode, or manually disable service mode using GDS2.

**ALIGNMENT MODE**

Alignment mode optimizes the vehicle height to provide the most accurate wheel alignment. Enable this mode when the vehicle is driven onto the alignment rack.

To enable alignment mode, select the Normal ride height and shift the vehicle into Neutral. Alignment mode automatically disables when vehicle speed exceeds 10 mph (16 km/h). Alignment mode also can be manually enabled and disabled in the Settings menu by selecting the Suspension option.

For much more information on the all-new 2021 Tahoe/Suburban and Yukon/XL, refer to Bulletin #20-NA-137.

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Thanks to Hassan Abdallah and Tom Renno
The GM Technical Assistance Center, or TAC, (U.S.) has established an Action Center for the all-new 2021 Chevrolet Tahoe and Suburban and 2021 GMC Yukon and Yukon XL.

TAC Action Centers are designed to gather early product feedback and provide support for the introduction of new GM models. Dealership service departments are asked to report all vehicle issues that require immediate attention, not just concerns that require technical assistance. The goal is to develop a quick resolution to any product concerns, such as fit and finish, performance, and operation, as well as to address customer expectations of the vehicle.

TAC Action Centers have a direct connection to GM Engineering, Brand Quality and the assembly plant, which offer combined resources to immediately address product concerns seen in the dealership.

CONTACTING THE TAC ACTION CENTER

If any concerns are encountered with a new Tahoe/Suburban or Yukon/XL in your dealership, create a TAC case using the Dealer Case Management (DCM) system. Refer to the latest version of Bulletin #08-00-89-014 for more information on using the DCM system.

Once a case has been submitted, your concern will be answered by a Tahoe/Suburban or Yukon/XL specialist who will provide diagnostic direction as needed through the DCM system. After a case has been started, feel free to contact the TAC if any additional support is needed.

CASE DETAILS

Service department personnel are encouraged to contact the action center to report all product concerns and provide digital photos of a concern when applicable. Photos are extremely important to show engineering where the concern is located, whether it’s a pinched harness or a backed out terminal.

It is imperative to follow up on an action center case, even if it’s as simple as a cannot duplicate concern or waiting for parts. All case information is reviewed daily and used by GM to resolve launch issues as quickly as possible.

For additional information on the 2021 Tahoe/Suburban and Yukon/XL, refer to Bulletin #20-NA-137 and training courses 10220.04 (April 2020 Emerging Issues) and 10321.20W (2021 Chevrolet Tahoe, GMC Yukon New Model Launch).

Thanks to Hassan Abdallah
 Owners of some 2020 Encore GX and 2021 Trailblazer models equipped with the 1.3L engine (RPOT L3T) may notice an unstable engine RPM at idle and an illuminated Check Engine MIL.

Any of the following DTCs also may be set: P0011 (Intake Camshaft Position System Performance), P0014 (Exhaust Camshaft Position System Performance), P0016 (Crankshaft Position - Intake Camshaft Position Not Plausible), P0017 (Crankshaft Position - Exhaust Camshaft Position Not Plausible), P05CC (Cold Start Intake Camshaft Position System Performance), and/or P05CE (Cold Start Exhaust Camshaft Position System Performance).

These conditions may be caused by the camshaft position actuator valve solenoid bolt becoming stuck internally when the engine oil is hot. The intake and exhaust camshaft position actuator valve solenoid bolts should be replaced if these conditions occur.

**TIP:** These repairs apply only to customers’ vehicles. Refer to Bulletin #20-NA-151. For vehicles in dealer inventory, refer to A202304840-01: Service Update - Camshaft Actuator Oil Control Valve Center Bolt Binding.

Before removing the camshaft cover, the camshaft position actuator magnet (intake/exhaust) should be removed. If the camshaft cover is removed or installed with the actuator magnet installed, the protrusion of the camshaft position actuator valve solenoid bolt can be broken due to interference with the cover.

Refer to Bulletin #20-NA-151 for additional information and part numbers.

Thanks to Jeff Kropp
The latest software update for the EL-52545 TPMS/RF Tool is now available. The update adds the following features and enhancements:

- Trailer Tire Pressure Monitoring System (TPMS) learn and simulation (for vehicles with the Trailering app)
- Enhanced Passive Signal Detection functions with improved workflow and icons
- New Universal Garage Door Opener (UGDO) Signal Detection function
- Enhanced Rotate–Diagnose–Relearn (RDR) procedure to support the flat tire TPMS relearn procedure
- 2021 model year VIN support

TIP: When connecting the EL-52545 tool for the first time, be sure to complete the tool registration when prompted.

The latest software can be downloaded at no charge for GM dealerships through the Service Workbench selection of “Special Tools and Software Updates” in GM GlobalConnect.

TIP: To keep the EL-52545 software up to date with the latest tool, use the WebVT app on your Techline PC. With the app, the software will be automatically updated when connected to the laptop/PC application.

TPMS ENHANCEMENTS

The software update includes the TPMS Relearn for trailer TPMS sensors, which now can be completed using the EL-52545 tool. In addition, the Trailer TPMS Simulator allows for complete diagnostics of the trailer TPMS system without needing the customer to bring in the trailer to the dealership. However, the EL-52641 Trailer Presence Simulator Tester is required.

ENHANCED PASSIVE DETECTION INFORMATION

The update also add icons and a graphic when selecting the Passive Detection feature within the Signal Detection menu. The...
new features clearly indicate the proper positioning of the tool, which should be held with the left side of the tool facing the signal source (vehicle antenna).

UGDO FUNCTION

The new UGDO function can be used to verify that the vehicle’s UGDO system is sending a signal to the buttons located within the vehicle. The UGDO feature is located in the Signal Detection menu accessed from the Main Menu.

ENHANCED RDR PROCEDURE

To support the flat tire TPMS relearn procedure on 2020 and 2021 GM models using the new Vehicle Intelligence Platform electrical architecture, the Rotate–Diagnose–Relearn (RDR) procedure has updated with prompts that ask if the vehicle had a flat tire.

For more information about the EL-52545 TPMS/RF Tool, visit gm-toolsandequipment.com or call 1-800-GM-TOOLS.

Thanks to Mike Waszczenko and Rick Jackson

Some 2014-2019 Corvette models equipped with the 6.2L V8 engine (RPO LT1) and 8L90 automatic transmission (RPO MSU) may have a warble-type sound coming from the rear of the vehicle with engine speed around 1,500 rpm. The sound may be more noticeable when driving up a slight grade with little throttle input.

The warble sound may be due to the bushing in the left-side differential cover having too much clearance. If the condition is found, replace the left-side differential carrier cover and shaft seal.

1. Rear axle shaft seal
2. Differential carrier cover

Use the DT-45000 Seal Remover to remove the differential rear axle shaft seal and the DT-48076 Rock Guard Installer to install the seal.

Refer to Bulletin #20-NA-041 for additional information and part numbers.

Thanks to Jeff Strausser
A quick look at the exhaust pipe crossover section on 2019-2020 Silverado and Sierra models equipped with a V6 or V8 engine shows that it is not a completely round shape as other parts of the pipe. The unique shape of the exhaust pipe is by design. The kinks or shape of the pipe does not indicate the pipe is damaged.

The exhaust pipe is distinctly formed in order to make it higher from the ground than the adjacent frame members. Due to its unique shape, it is not the lowest part on the vehicle and is protected by the frame from contact while traversing over areas with low ground clearance, which helps prevent it from being struck by objects passing under the vehicle. While driving off road, for example, an object would strike the frame first. The design of the crossover section of the exhaust pipe is hydroformed, or shaped by hydraulic pressure, to an ovate shape that has the same cross-section as a round part of the pipe.

There is no flow restriction from the shape of the pipe.

The exhaust pipe is designed to be higher from the ground than the adjacent frame members.

Thanks to David MacGillis
1.2L Engine Oil Pan Installation

Proper installation of the engine oil pan on the 2020 Encore GX and 2021 Trailblazer equipped with the 1.2L engine (RPO LIH) requires that the room temperature vulcanizing (RTV) sealant be correctly applied on the lower crankcase extension.

Before applying the RTV sealant, all sealing surfaces must be free of contamination. Do not allow cleaning solvents to contact the oil pump drive belt that is located close to the rail of the oil pan. Ensure that the inside edge of the lower crankcase extension is wiped clean of excessive engine oil to prevent contamination of the sealing surface after the sealant is applied and prior to oil pan installation.

On the 1.2L engine, the oil pan sealing surface on the lower crankcase extension has a small edge or groove.

When applying a 4 mm (0.16 in.) bead of RTV sealant, it must be centered on and follow this groove. The illustration example shows the sealant properly applied to the lower crankcase extension.

Thanks to Raymond Haglund

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