TECH LINK

Mid-September, Volume 24, No. 18

Power Folding Top Does Not Cycle Completely

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Incorrect Headlamp and DRL Operation Condition

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Power Folding Top Does Not Cycle Completely

Some 2016-2023 Camaro convertible models may have a power top (RPO CM8) that does not fully complete the folding cycle. A Top Not Secure message also may be displayed on the Driver Information Center (DIC).

When opening the folding top, the canvas top may stow into the rear compartment, and the tonneau cover (folding top stowage compartment lid) may close. In this case, it appears that everything is in working order. However, the Top Not Secure message is still displayed on the DIC.

When closing the top, the tonneau cover may close, but the folding top cycle will stop.

When closing the folding top, the top will latch down onto the windshield as designed. The tonneau cover also may close, but then the folding top cycle will stop, leaving the tension bow (or 5th bow) pointing up in the air at about a 45° angle. After about five minutes, a series of rapid audible tones may be heard and the tension bow (or 5th bow) will slowly lower and come to rest gently against the body.

These opening and closing conditions may be caused by the B244L/B244R folding top stowage compartment lid position sensors not transitioning correctly when the tonneau cover has closed.

If these conditions are found, check the status of the B244L/B244R Folding Top Stowage Compartment Lid Closed Position Sensors in the scan tool data. Both sensors should read as "On" when the tonneau cover is in the closed position. Regardless of the position of the tonneau cover, both the left and right sensors should always have the same reading — On or Off — as a pair.

If one sensor does not transition as it should, the power folding top may not cycle completely, and these conditions may occur.

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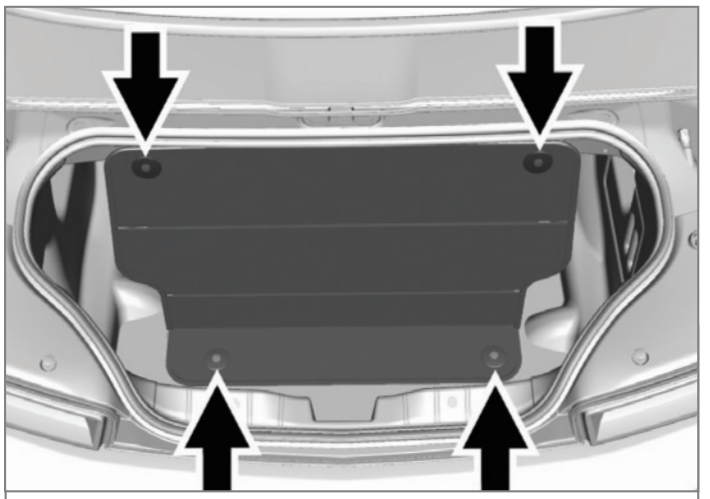
Parameter Name	Value	Unit	
Folding Top Luggage Barrier Sensor	On		Folding Top Control Module
Right Folding Top Header Latched Sensor	On		Folding Top Control Module
Left Folding Top Header Latched Sensor	On		Folding Top Control Module
Left Folding Top Header Unlatched Position Sensor	On		Folding Top Control Module
Right Folding Top Header Unlatched Position Sensor	Off		Folding Top Control Module
Folding Top Down Position Sensor	Off		Folding Top Control Module
Folding Top Up Position Sensor	On		Folding Top Control Module
Folding Top Tension Bow Up Sensor	On		Folding Top Control Module
Folding Top Tension Bow Down Left Position Sensor	Off		Folding Top Control Module
Folding Top Tension Bow Down Right Position Sensor	Off		Folding Top Control Module
Folding Top Stowage Compartment Lid Open Position Sensor	Off		Folding Top Control Module
Left Folding Top Stowage Compartment Lid Closed Position Sensor	On		ng Top Control Module
Folding Top Open/Close	Open		Folding Top Control Module
Right Folding Top Stowage Compartment Lid Closed Position Sensor	Off		ng Top Control Module

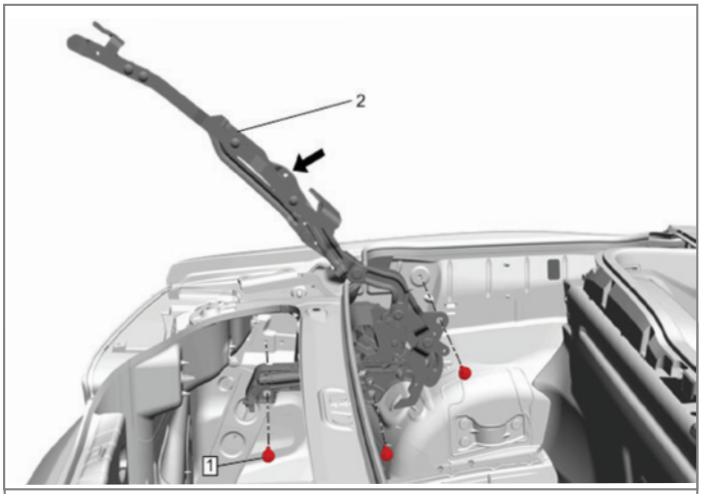
The left and right sensors should always have the same reading — On or Off — as a pair.

POWER FOLDING TOP INSPECTION

If the folding top is not cycling completely, several areas should be inspected. The first step is to determine if there is a mechanical, hydraulic, or electrical concern. Electrical issues include faulty sensors and pinched wiring, which may be more common on rental vehicles or fleet vehicles, where items may be forced into the rear compartment and may inadvertently work



Rear compartment luggage barrier



Left rear compartment hinge assembly

their way around the luggage barrier, or trunk partition, causing damage to the folding top linkage.

Mechanical issues to check include the left and right stowage compartment lid hinge assembly for any looseness or play, as compared to the opposite side. In some cases, the linkage can be moved by hand about 1/2 inch (12.7 mm) or more, which may cause the sensor to transition back and forth. Use the scan tool to view the sensor readings while moving the linkage. With the mechanical linkage secured in place, there should not be any free movement. The linkage uses an over center/cam design that, once hydraulic pressure on the component is released, will remain secured in place and will not move. Hydraulic failures that affect the mechanical linkage are rare.

These inspections will help to determine if the folding top condition is due to a faulty sensor, pinched wiring or a damaged hinge assembly.

TIP: A simple visual inspection of the left and right rear compartment hinge assembly will not be sufficient to determine if a hinge assembly is damaged or not.

Refer to #PIC6470 and #PIC6378 for additional information.

▶ Thanks to Matt Bierlein

6-speed TRANSMISSION OVERHEATING CONDITIONS

The transmission fluid temperature of some 6L80 6-speed automatic transmissions (RPO MYC) and 6L90 6-speed automatic transmissions (RPO MYD) may be too hot under some operating conditions. Affected models include 2014-2020 Tahoe, Suburban, Yukon; 2014-2021 Silverado 1500, Silverado 2500HD/3500HD, Express, Sierra 1500, Sierra 2500HD/3500HD and Savana.

Following are several diagnostic tips to help isolate the source of a transmission overheating concern.

THERMAL BYPASS VALVE

A new Thermal Bypass Valve (TBV) for the transmission cooler is available that has a lower operating temperature. The new TBV is available for some 2016-2021 Silverado, Sierra; 2016-2020 Tahoe, Suburban, Yukon; 2020-2021 Silverado 2500HD/3500HD, Sierra 2500HD/3500HD; 2021 Express and Savana models.

6L90 6-speed automatic transmission

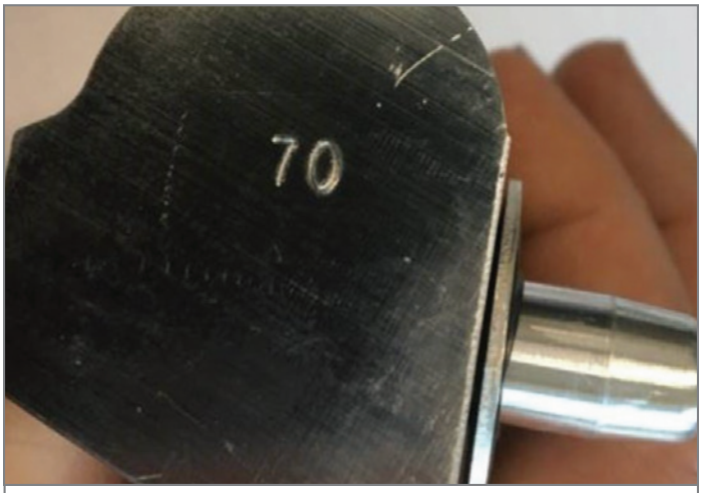
If the TBV has been replaced, the operating temperature will be lower. The previous TBV had a full-open temperature of 194°F (90°C). The new TBV has a full-open temperature of 158°F (70°C). Refer to Bulletin #21-NA-199 for more information.

Thermal Bypass Valve Installation – TechLink (gm-techlink.com)

The new TBV can be identified by the "70" stamped into the bottom of the valve. The "70" stamp is visible on the valve when it is installed on the transmission.

OPERATING INFORMATION

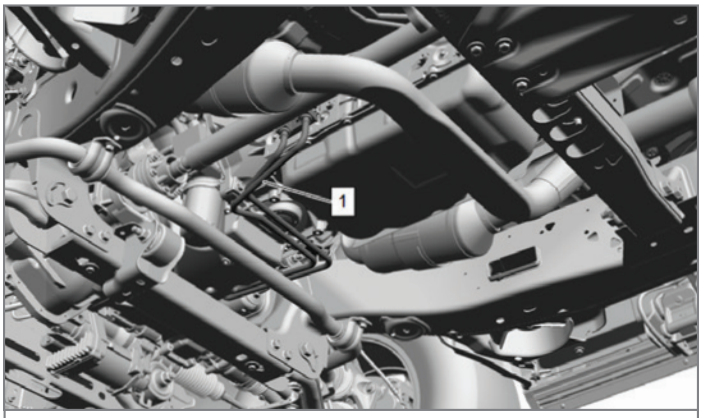
Before beginning diagnosis, drive the vehicle to bring up the transmission fluid temperature to 190°F (88°C).



New Thermal Bypass Valve with "70" stamp

Use an infrared thermometer to check the temperature of the transmission pan surface and compare it to the transmission temperature in the scan tool data. The temperatures should be similar.

Also use an infrared thermometer to check the temperature of the TBV as well as the cooler lines at approximately 6 inches (15 cm) from TBV. If the cooling system is operating properly, the cooler return line will be a lower temperature than the line going to the



Check the temperature of the TBV as well as the cooler lines (#1).

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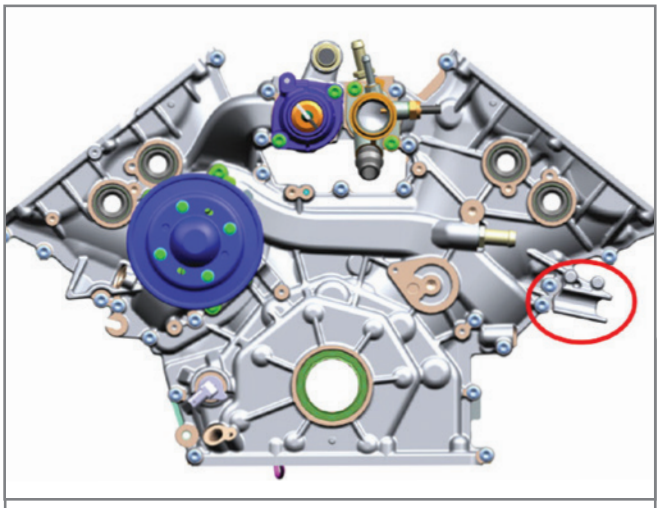
4.2L V8 Fuel System Components Retrofit Procedure

Several new design components may be needed to complete fuel system-related repairs on some 2019-2020 Cadillac CT6 models equipped with the 4.2L twin-turbo V8 engine (RPO LTA). The 2nd design components include the fuel feed pipe, fuel rail assembly, oil cooler pipe and engine front cover.

A dimensional change to th fuel feed pipe and fuel rail assembly was made during the 2019 model year, which prompted the release of the 2nd design fuel feed pipe, fuel rail assembly, oil cooler pipe and engine front cover.

The 2nd design fuel feed pipe and fuel rail assembly will not service an engine that was originally equipped with the 1st design fuel feed pipe, fuel rail assembly or engine front cover.



Engine front cover with the fuel pipe channel

To retrofit the engine to accommodate any of the 2nd design parts, it's necessary to replace the fuel rail assembly, fuel feed pipe and engine oil cooler pipe to completely update the engine to the latest service content.

There were also two designs of the engine front cover in production — one with the fuel pipe channel (shown below) and one without. Before ordering parts, determine which front cover is needed. If the engine has the 1st design front cover with the fuel pipe channel, order a new engine front cover to complete the repair. If the front cover does not have the fuel pipe channel, do not replace the engine front cover.

For additional information and part numbers, refer to Bulletin #22-NA-072.

▶ Thanks to Bryan Salisbury

TRANSMISSION OVERHEATING, CONT.

cooler. If the TBV is not opening, both cooler line temperatures will be lower than the transmission pan temperature and the TBV temperature will be higher than the pan temperature.

In addition, compare the transmission pan temperature to the transmission temperature displayed on the Driver Information Center (DIC). If the DIC temperature is more than 15°F (9°C) higher than the pan temperature, the temperature sensor may be at fault. The sensor is part of the TEHCM (Transmission Electro-Hydraulic Control Module).

If the cooler line and TBV temperature points are above the engine coolant temperature, there may be an auxiliary cooler flow issue and the flow should be checked. Also check the cooler to ensure there is not a restriction to the air flow across it.

For more information, refer to #PIP5882.

▶ Thanks to Tom Ellison

1.4L Engine Performance

In Extremely Cold Weather

Some 2011-2016 Cruze; 2012-2020 Sonic; 2013-2022 Encore and Trax models equipped with the 1.4L engine (RPO LUV) may experience a loss of power or several other engine performance conditions along with an illuminated Check Engine MIL in extremely cold weather conditions. After driving for a period of time, the engine performance issues may seem to diminish.

The following DTCs may be set: P0299 (Engine Underboost), P0234 (Engine Overboost), P0236 (Turbocharger Boost Sensor Performance), P2227 (Barometric Pressure (BARO) Sensor Performance), P2261 (Turbocharger Bypass Valve Stuck) and P00C7 (Intake Air Pressure Measurement System - Multiple Sensors Not Plausible). These conditions also may cause an increase in crankcase pressure, resulting in potential oil leaks at seals and gaskets.

If the performance and drivability issues are present, check for ice blocking the crankcase vent tube, ice accumulation in the intake manifold blocking the PCV passage in the cylinder head, ice accumulation in the charge air cooler restricting air flow to the throttle body and contamination, such as water, oil or sludge, at the charge air bypass valve.

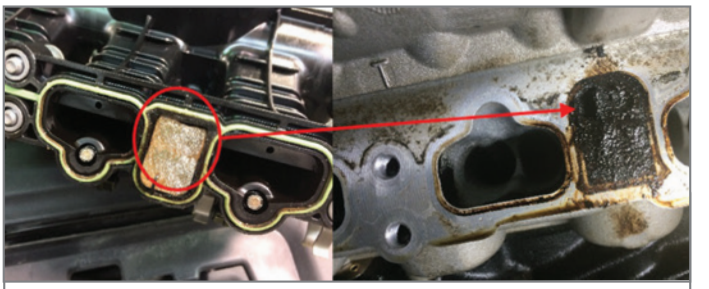
Charge air bypass valve

Disassemble and clean the charge air bypass valve if any contamination is found. Replace the intake manifold and, if necessary, the charge air bypass valve.

TURBOCHARGER, INTAKE MANIFOLD AND CYLINDER HEAD INSPECTION

If the desired boost pressure vs. the actual boost pressure is not within limits, but there is not any trouble found with the turbocharger wastegate actuator or turbocharger, do not replace the turbocharger. Clean the charge air bypass valve of any water/oil accumulation in the vacuum side port and replace the intake manifold.

In addition, inspect for any sludge/water/ice from the cylinder head, cam cover and PCV pipes, such as ice build-up blocking the cylinder head. If any contamination is found, replace the intake manifold.

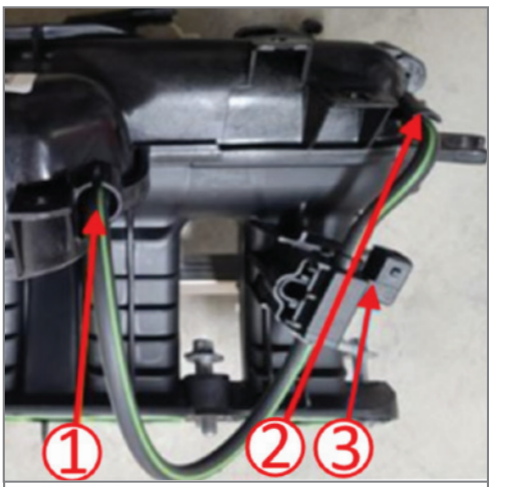


Inspect the PCV intake runner for build-up blocking the cylinder head

INTAKE MANIFOLD REDESIGN

The new intake manifold has a redesigned intake positive pressure port location. Solenoid location is forward of the electrical connector. The bypass valve vacuum feed is in the same location.

If the solenoid is loose, review the location of the electrical connector. If the connector is facing the cylinder head, it is installed backwards and should be removed



New design intake manifold:
1. Bypass valve vacuum
2. Intake positive pressure port
3. Solenoid/electrical connector

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Incorrect Headlamp and DRL Operation Condition

Headlamps may turn on automatically during daylight conditions.

The headlamps may be turning on automatically during daylight conditions instead of the Daytime Running Lamps (DRL) on some 2022 Tahoe, Suburban, Yukon, Escalade and 2022-2023 Corvette models. DTC B108E (Ambient Light Sensor Signal) also may be set.

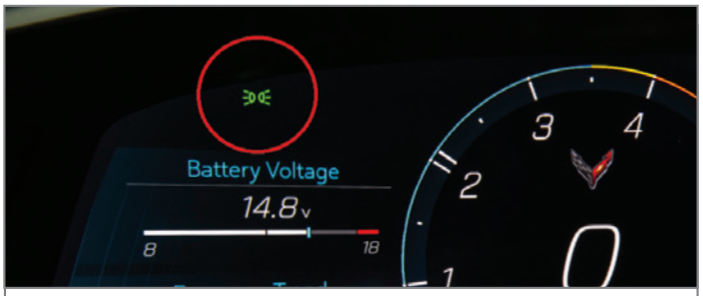
The ambient light sensor is used to monitor outside lighting conditions. The Body Control Module (BCM) monitors the ambient light sensor signal circuit to determine if outside lighting conditions are correct for either Daytime Running Lamps or automatic lamp control when the headlamp switch is in the AUTO position.

If the headlamps and DRL concern is present, do not replace the ambient light sensor or any other parts. Updated software is available to reprogram the BCM for 2022 model year vehicles to address the lighting operation.

The updated software also may be available as part of an Over-the-Air (OTA) programming event. Customers should be advised to watch for any updates on the infotainment system.

For 2023 model year Corvettes with the headlamp operation condition, updated software may not be available yet. For these vehicles, it is recommended to check the headlamp switch setting and for an illuminated Lights On Reminder symbol on the instrument cluster to ensure the headlamps are on when driving in low lighting conditions.

For more information, refer to #PIT5936A and #PIC6466.



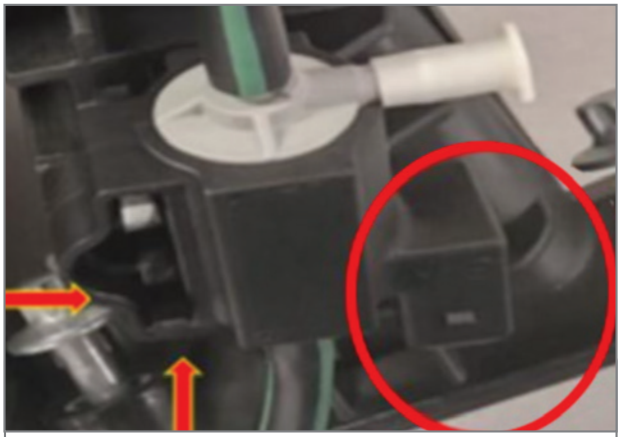
Lights On Reminder symbol

▶ **Thanks to Jim Will and Matt Bierlein**

and installed correctly. The solenoid is keyed and, if the tabs are reversed, the retainers will not be seated.

For additional information and part numbers, refer to Bulletin #22-NA-067.

▶ **Thanks to Matt Gager**



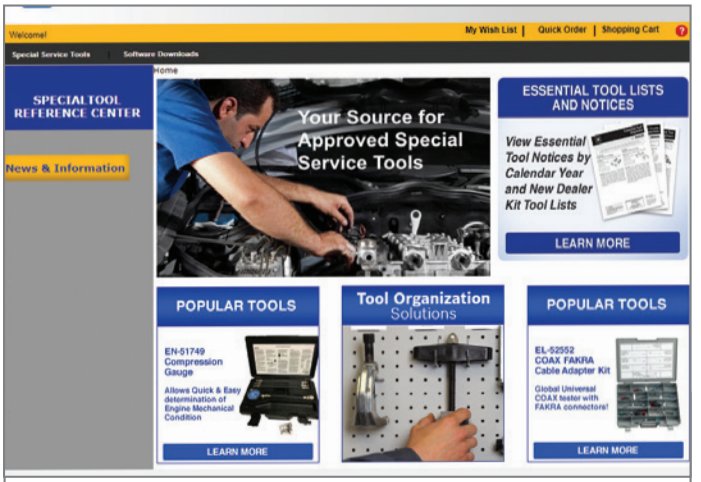
New design intake shown with incorrect solenoid installation.

Dealer Set-Up File Provides Full List of Special Service Tools

What tools should your dealership have and where are they? Those are easy questions to answer for dealerships with the right special tools organization, which can help technicians quickly find the special tools they need for proper repairs.

SPECIAL TOOLS LIST

The gmtoolsandequipment.com special tools website features the New Dealer Setup file, a full special tools list that includes all tools required by brand and vehicle architectures. The New Dealer Setup file is updated monthly and provides accurate information



Select the Special Service Tools link to access the New Dealer Setup file.

for the previous five years. It's a valuable resource for when setting up a tool room, reviewing inventory and managing new program shipments.

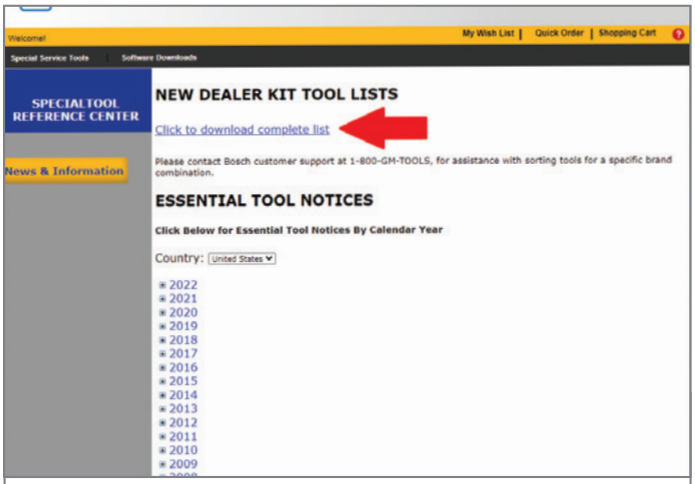
To access and download the latest list, from the gmtoolsandequipment.com home page, select Special Service Tools > Essential Tool Lists and Notices.

For assistance with sorting tools for a specific brand combination, contact Bosch customer support at 1-800-GM-TOOLS.

INVENTORY MANAGEMENT

The GM ToolNet special service tools inventory management application is available to GM dealerships to help organize and manage their special service tools. To access the site, select the ToolNet icon in GM GlobalConnect on the Service page of the App Center.

GM ToolNet includes a variety of management features, including: Tool Check-In/Out, Tool Maintenance Scheduling,



Download the New Dealer Setup file for a complete special tools list.

Storage Location Customization, User Management, and Tool Usage Reporting. With proper organization, dealerships can make their special tools inventory easier to find and use, offering a potential for time savings, more efficient repairs, and increased productivity.

GM ToolNet special service tools inventory

Additional resources on the gmtoolsandequipment.com include details on tool organization systems, best practices to maintain effective tool organization and a tool organization calculator that shows how special tools affect the dealership's bottom line.

▶ Thanks to John Staman

Rear Window Glass Will Not Open

The rear window glass on the liftgate of some 2021-2022 Tahoe, Suburban, Yukon and Escalade models may not open when using the switch on the liftgate or the Remote Keyless Entry transmitter (key fob) button. In some cases, the rear wiper arm may not be fully moving to the park position, even though the rear wiper arm looks to be in the correct position, which prevents the back glass from opening.

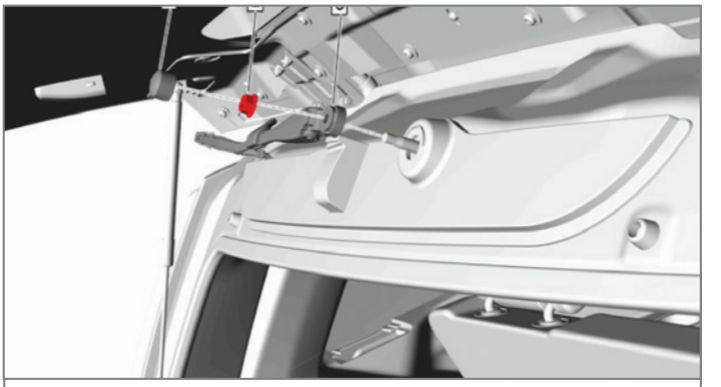
The rear window glass may not open properly.

If the rear window glass will not open, remove the wiper arm and operate the rear wiper. Turn on the rear wiper switch, allow the wiper motor to cycle and then turn off the switch.

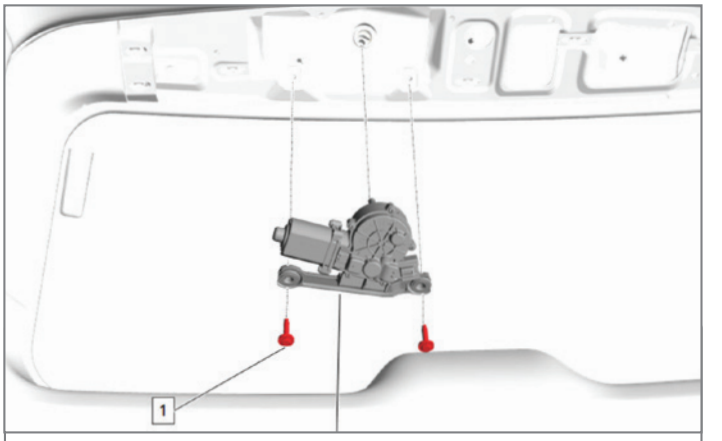
Next, reinstall the wiper arm and check that the wiper arm is in the full park position with the arm on the park ramp, allowing the back glass to open properly.

If the rear window glass will not open after cycling the rear wiper motor, replace the rear wiper motor assembly.

Refer to #PIT5941 for additional information.



Remove the wiper arm and operate the rear wiper.



Rear wiper motor

▶ Thanks to Paul Radzwilowicz

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