

# 2005 - 2019 Corvette: GM TechLink: Power Folding Top Diagnostic Tips

January 30, 2020

When servicing power folding top conditions on 2004-2009 XLR; 2005-2010 G6; 2005-2019 Corvette; 2011-2020 Camaro; and 2016-2019 Cascada convertible models, it's important to understand what is happening with the power top as well as how the top is supposed to operate. The Service Information and a scan tool can provide valuable help in order to get to a correct diagnosis and repair.

## Determine Operation

Begin diagnosis by operating the folding top to determine what works, and where does the top stop moving during its cycle. If the top operates in one direction or some functions of the top work properly, it does not necessarily mean that the top will operate correctly in the opposite direction. For example, the decklid on the Cadillac XLR opens as part of the normal folding top opening cycle. In many cases, the rear compartment will open and close correctly all by itself, but it will not operate at all when the folding top is cycled.

The next step is to check for any folding top-related messages in the Driver Information Center of the vehicle during operation. There may be a "Top Not Secure" or "Only Manual Operation of Top Possible" message displayed. If the "Top Not Secured" message is displayed, it indicates that the top is somewhere in the middle of the cycle; it's not fully closed or fully open. By

itself, this message is not an indication of a fault with the folding top system.

Also check for any DTCs that may have set. Follow the appropriate Service Information for any DTCs before making any other repairs to the folding top.

### **Folding Top Matrix**

If no DTCs are set, follow the applicable folding top sensor matrix in the Service Information. The matrix for each vehicle may be located in the Description and Operation section or it may be located in a separate bulletin/PIC. The matrix lists all the various switches and sensors in the folding top system, including what each one should be reading based on where the top is at in its cycle. (Fig. 3)

## Power Folding Top Description and Operation

**Switch Operation For Top Opening**

<b>Folding Top Position</b>	
<b>Switch</b>	<b>Parameter</b>
<b>Fully Closed</b>	
Folding Top Luggage Barrier Sensor	On
Right Folding Top Header Latched Sensor	On
Left Folding Top Header Latched Sensor	On
Folding Top Header Latch Motor Unlatched Position Sensor	OFF
Folding Top Header Latch Motor Latched Position Sensor	On
Folding Top Down Position Sensor	OFF
Folding Top Up Position Sensor	On
Folding Top Tension Bow Up Sensor	OFF
Folding Top Tension Bow Down Left Position Sensor.	On
Folding Top Tension Bow Down Right Position Sensor.	On
Folding Top Compartment Lid Open Position Sensor	OFF
Left Folding Top Stowage Compartment Lid Closed Position Sensor	On
Right Folding Top Stowage Compartment Lid Closed Position Sensor	On
<b>Tension Bow Open</b>	
Folding Top Luggage Barrier Sensor	On
Right Folding Top Header Latched Sensor	On

**Fig. 3**

With all folding top systems, the top opening or top closing cycle is broken down into a series of small steps, called phases. A folding top must always complete one phase before it continues to the next phase. A common condition is when the folding top will stop partway through its opening or closing cycle with no DTCs set. In most cases, this condition is the result of a sensor or switch that is simply not transitioning its status. Typically, if no wiring concern is present, then a DTC will not be set.

At this point, operate the folding top to the point where it stops moving. Use the scan tool to monitor each one of the folding top position sensors and switches and compare the parameters to the matrix. At least one parameter should be incorrect. Refer to the matrix to determine which switch or sensor is not transitioning correctly for further inspection.

Once an incorrect parameter has been found, it will be necessary to determine if the condition is a mechanical issue, such as a bent linkage, or an electrical issue, such as a sensor or a wiring fault.

## **Folding Top Operation**

Here's an example on a 2018 Camaro with a folding top that will open but will not close all the way. There is a "Top Not Secure" DIC message, but no DTCs are set. When closing, the top will close properly to the windshield header and the rear stowage compartment lid will lower and lock into position, but the tension bow will not lower. The folding top pump quits working and the top stops moving.

The stowage compartment lid must close completely before the tension bow is commanded down. These steps, or phases, must be completed in order. The folding top matrix shows the Camaro has two separate Stowage Compartment Lid Closed Position Sensors for the left and right side of the vehicle, which should read "On" when the lid is closed.

The scan tool sensor data shows that only one of the two sensors reads "On." (Fig. 5) The Folding Top Control Module will not command the tension bow to lower if both Stowage Compartment Lid Closed Position Sensors are not showing that they are closed and the top will not continue to cycle. In this instance, the next step in diagnosis is to inspect the Right Folding Top Stowage Compartment Lid Closed Position Sensor to determine the cause of the fault.

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	Folding Top Control Module
Folding Top Open/Close	Open	Folding Top Control Module
Right Folding Top Stowage Compartment Lid Closed Position Sensor	Off	Folding Top Control Module

Fig. 5

For more information about power folding top diagnosis, refer to #PIC6378.

– Thanks to Matt Bierlein

## Custom Fields

- **Source:** GM TechLink
- 

Online URL:

<https://www.corvetteactioncenter.com/tech/knowledgebase/article/2005-2019-corvette-gm-techlink-power-folding-top-diagnostic-tips-1410.html>