

2022 CHEVROLET CORVETTE SERVICE MANUAL

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Folding Top Description and Operation

Overview

The operation of the folding top is fully-automatic and consists of the engine tonneau, rear window, roof panels, the header, multiple sensors, and modules. The user of the vehicle must press and hold the folding top switch or the button on the transmitter and the control module latches and unlatches the folding top while electric motors provides the force to open the tonneau cover then remove and stow the top. The transmitter button will only operate the system when the vehicle is OFF and will only open the top not close it. The folding top operation begins with the vehicle lowering the rear window and opening the tonneau. The rear window must be normalized and operational for the folding top to operate. If the rear window fails to open the tonneau will open but the folding top roof panels will not open. While the tonneau is opening the folding top header is unlatching. The header latch consists of one motor and two latches. There are two sensors to detect if the header is latched or unlatched as well as a sensor on each latching hook. After the window is lowered and the tonneau is open the two folding top roof panels will move to the stowed position. Once the roof panels are locked in their stowed position the tonneau will lower back into position and the rear window will remain lowered. The rear window can be raised and lowered as normal through the rear window switch.

To close the roof the user of the vehicle must pull up and hold the folding top switch while the vehicle is ON/in service mode. The top cannot be closed by using the transmitter. To close the folding top first the rear window will lower, if the window does not lower the folding top panels will not close. After the tonneau opens the roof panels unlatch from the stowed position, move to the closed position and then latch to the header. Once the folding top panels are latched the rear window will raise and the tonneau will close. During the folding top close operation the side windows will temporarily drop a very small amount and then return to their position.

The folding top system is specifically aligned and positioned. Anytime it is serviced or any components are removed the system should not be moved or it could be put out of alignment. When the engine tonneau is raised there is a pin to mechanically lock it in the open position. The modules hold the tonneau in the open position so if they are removed the tonneau could fall closed.

The folding top system consists of the following:

- K23L Folding Top Control Module "Left"
- K23R Folding Top Control Module "Right"
- K223L Folding Top Stowage Compartment Control Module "Left"
- K223R Folding Top Stowage Compartment Control Module "Right"
- S79D Front Side Door Window Control Switch "Driver"
- 370U Folding Top Front Latch Striker "Roof Closed Unlocked Sensor"
- B370L Folding Top Front Latch Striker "Roof Closed Locked Sensor"
- B371 Folding Top Side Rail "Roof Panels Closed and Locked Sensor"
- B372 Folding Top Side Rail "Roof Panels Stowed and Locked Sensor"
- B373 Folding Top Side Rail "Roof Panels Stowed Sensor"
- B374L Folding Top Stowage Compartment Locked Sensor "Left"
- B374R Folding Top Stowage Compartment Locked Sensor "Right"
- B375 Folding Top Side Rail "Folding Top Stowage Compartment Open Sensor"
- B369O Folding Top Front Latch Actuator "Opened Sensor"
- B369C Folding Top Front Latch Actuator "Closed Sensor"
- M86 Folding Top Front Latch Actuator Motor

- M141L Folding Top Motor “ Left
- M141R Folding Top Motor “ Right
- M142L Folding Top Stowage Compartment Lid Motor “ Left
- M142R Folding Top Stowage Compartment Lid Motor “ Right

Folding Top Control Modules

Folding Top Control Module Left

The folding top control module left is the logical master for the folding top system and determines folding top movement by controlling the activation and direction of the built in electric motor along with the folding top control module right. The motor uses two internal sensors to determine position and direction. It uses CAN 4 BUS to interact with other sub-systems, communicate folding top status and position, and interface with the driver via the driver information center.

Module inputs:

- S79D Front Side Door Window Control Switch “ Driver
- 370U Folding Top Front Latch Striker “ Roof Closed Unlocked Sensor
- B371 Folding Top Side Rail “ Roof Panels Closed and Locked Sensor
- B372 Folding Top Side Rail “ Roof Panels Stowed and Locked Sensor

Folding Top Control Module Right

The folding top control module right follows the commands of the folding top control module left and contains a built in electric motor. The motor uses two internal sensors to determine position and direction.

Module inputs:

- B370L Folding Top Front Latch Striker “ Roof Closed Locked Sensor
- B373 Folding Top Side Rail “ Roof Panels Stowed Sensor

Folding Top Stowage Compartment Control Module Left

The folding top stowage compartment control module left follows the commands of the folding top logical master and contains a built in electric motor. The motor uses two internal sensors to determine position and direction. It determines engine tonneau movement along with the folding top stowage compartment control module right. The folding top stowage compartment control module left is also part of the folding top system which is controlled over all by the logical master which is the folding top control module left. It uses CAN 4 BUS to interact with other sub-systems, communicate engine tonneau status and position, and interface with the driver via the driver information center.

Module inputs:

- B374L Folding Top Stowage Compartment Locked Sensor “ Left
- B375 Folding Top Side Rail “ Folding Top Stowage Compartment Open Sensor

Folding Top Stowage Compartment Control Module Right

The folding top stowage compartment control module right follows the commands of the folding top stowage compartment control module left and contains a built in electric motor. The motor uses two internal sensors to determine position and direction.

Module inputs:

- B369O Folding Top Front Latch Actuator “ Opened Sensor
- B369C Folding Top Front Latch Actuator “ Closed Sensor
- B374R Folding Top Stowage Compartment Locked Sensor “ Right
- M86 Folding Top Front Latch Actuator Motor

Switches and Sensors

Control Switches

The folding top interior control switch is located on the door panel and is connected directly to the folding top control module. Pushing down on the switch opens the top and pulling up closes the top. The folding top transmitter control switch is located on the keyless entry transmitter. Pushing the transmitter lock button once followed by pressing and holding the folding top button opens the engine tonneau and pressing the transmitter unlock button once followed by pressing and holding the folding top button opens the top when the vehicle OFF. When the engine tonneau is open, pressing the lock button once followed by pressing and holding the folding top button will close the engine tonneau. The folding top cannot be closed using the transmitter. There is a window switch for the rear window located on door. The rear window can be operated independently of the folding top but when the folding top is operated the rear window will automatically go down when opening the top and go up when the top is closed.

370U Folding Top Front Latch Striker "Roof Closed Unlocked Sensor

The sensor is a current sensing hall effect sensor that provides either an open or closed position to the module and shares a 12V reference with the other sensors on the folding top control module left.

B371 Folding Top Side Rail "Roof Panels Closed and Locked Sensor

The sensor is a current sensing hall effect sensor that provides either an open or closed position to the module and shares a 12V reference with the other sensors on the folding top control module left.

B372 Folding Top Side Rail "Roof Panels Stowed and Locked Sensor

The sensor is a current sensing hall effect sensor that provides either an open or closed position to the module and shares a 12V reference with the other sensors on the folding top control module left.

B370L Folding Top Front Latch Striker "Roof Closed Locked Sensor

The sensor is a current sensing hall effect sensor that provides either an open or closed position to the module and shares a 12V reference with the other sensors on the folding top control module right.

B373 Folding Top Side Rail "Roof Panels Stowed Sensor

The sensor is a current sensing hall effect sensor that provides either an open or closed position to the module and shares a 12V reference with the other sensors on the folding top control module right.

B374L Folding Top Stowage Compartment Locked Sensor "Left

There is a left and right sensor. They are current sensing hall effect sensor that provides either an open or closed position to the module and shares a 12V reference with the other sensors on the folding top stowage compartment control module left and right.

B374R Folding Top Stowage Compartment Locked Sensor "Right

B375 Folding Top Side Rail "Folding Top Stowage Compartment Open Sensor

The sensor is a current sensing hall effect sensor that provides either an open or closed position to the module and shares a 12V reference with the other sensors on the folding top stowage compartment control module left.

B369C Folding Top Front Latch Actuator "Closed Sensor

The sensor is a current sensing hall effect sensor that provides either an open or closed position to the module and shares a 12V reference with the other sensors on the folding top stowage compartment control module right.

B369O Folding Top Front Latch Actuator "Opened Sensor

The sensor is a current sensing hall effect sensor that provides either an open or closed position to the module and shares a 12V reference with the other sensors on the folding top stowage compartment control module right.

Folding Top Operation

Once folding top movement has begun, the switch must be held active for the full range of motion. If the switch returns to the OFF position while the power folding top is in motion all motion will cease. When the folding top is lowered using the transmitter the rear lights will flash once to indicate the vehicle received the message and will attempt to open the folding top.

Open/Down

When the folding top control module sees the open signal from the folding top control switch, it will start to open the folding top provided all of the following are true.

Condition	Source of Info

Condition	Source of Info
System Power Mode is Run or Accessory when using the vehicle switch or only OFF when using the transmitter to open the top	Serial Data
Voltage is between 9V-16 V	Module inputs
No Diagnostics Faults are detected	Module inputs
Ambient Temperature is above -4.5°C (23°F) and below 84.5°C (184.1°F)	Serial Data
None of the motors are in an over temperature condition	Module software algorithm
Vehicle Speed Below 50 kph (31 mph)	Serial Data
Trunk is not Open	Serial Data
Valet mode is off	Serial Data
Rear window normalized and operational	Module inputs

Once folding top movement has begun, the switch must be held active for the full range of motion. If the switch returns to the off position while the power folding top is in motion all motion will cease.

Switch Operation For Top Opening

Folding Top Position	
Parameter	Value
Fully Closed	
Folding Top Status (circuit 4706)	Fully Closed
Roof Closed Sensor (circuit 7816)	On/Active
Roof Panels Closed Locked Sensor (circuit 7714)	On/Active
Roof Locked Stowed Sensor (circuit 7712)	Off/Inactive
Roof Closed Locked Sensor (circuit 7711)	On/Active
Roof Stowed Sensor (circuit 7715)	Off/Inactive
Tonneau Locked Sensor Left (circuit 7716)	On/Active
Tonneau Locked Sensor Right (circuit 7717)	On/Active
Tonneau Open Sensor (circuit 7718)	Off/Inactive
Power Hard Top Latch Closed Sensor (circuit 7707)	On/Active
Tonneau Ajar Sensor (circuit 7709)	Off/Inactive
Fully Open	
Folding Top Status (circuit 4706)	Fully Open
Roof Closed Sensor (circuit 7816)	Off/Inactive
Roof Panels Closed Locked Sensor (circuit 7714)	On/Active
Roof Locked Stowed Sensor (circuit 7712)	On/Active
Roof Closed Locked Sensor (circuit 7711)	Off/Inactive
Roof Stowed Sensor (circuit 7715)	On/Active
Tonneau Locked Sensor Left (circuit 7716)	On/Active
Tonneau Locked Sensor Right (circuit 7717)	On/Active
Tonneau Open Sensor (circuit 7718)	Off/Inactive
Power Hard Top Latch Closed Sensor (circuit 7707)	On/Active
Tonneau Ajar Sensor (circuit 7709)	Off/Inactive

Close/Up

When the folding top control module sees the close signal from the folding top control switch, it will start to close the folding top provided all of the following are true.

Condition	Source of Info
System Power Mode is Run or Accessory	Serial Data
Voltage is between 9V-16 V	Module inputs
No Diagnostics Faults are detected	Module inputs
Ambient Temperature is above -19.5°C (-3.1°F) and below 84.5°C (184.1°F)	Serial Data
Vehicle Speed Below 50 kph (31 mph)	Serial Data
Trunk is not Open	Serial Data

Condition	Source of Info
Valet mode is off	Serial Data
Rear window normalized and operational	Module inputs

Driver Information Messages

- Reduce Vehicle Speed to Operate Top
- Service Convertible Top
- Battery Voltage Too Low “Top Disabled
- Temperature Too Low “Top Disabled
- Valet Switch Active “Top Disabled
- Close Trunk to Operate Top
- Top System Overheated, Please Wait
- Top Obstructed, Clear Obstacles
- Top Not Secure
- Speed Limiting
- Folding Top Motion Complete

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