

Getting The Hatch to Latch in C7; Comment on Grand Sport



Memory Wire Activated Hatch Vent

Where my 2008 C6 had a motorized pull down motor to latch the hatch, GM made a very big deal of using a patented idea they have been working on for years, a Shape-Memory Wire Actuated Vent for the C7.

This technology has been around since 1962, when the U.S. Naval Ordnance Laboratory observed the properties of nickel titanium (NiTi) alloy and branded it Nitinol. The story goes that the Navy presented a badly bent sample of the alloy at a laboratory management meeting. A technical director wanted to see what would happen if the sample was subjected to heat, so he held his pipe lighter underneath it. To the amazement of those attending the meeting, the sample stretched back to its original shape.

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Use on the C7

In the late '90s, GM became interested in the potential benefits the alloy and it's R&D teams started exploring ways to use the technology. For the past several years, prototype systems were developed that could last the 10-year vehicle lifespan and perform well across a temperature range of -22 to 185 degrees F.

Soon after the release of the Corvette Z06 in 2006, some owners were complaining that pressure inside the cabin was making it difficult for them to close the rear hatch. The base Corvette coupe, utilized a cinching latch to address the problem. The hatch drops into the primary latch position, and then a motor yanks it down, compresses all the seals and struts, and gets it into final latching position. That is a bulky mass mechanism so it was initially omitted from C6 Z06 models. The C7 team wanted the weight reduction so a memory wire activated vent was used instead of the motorized pull down employed in the C6.

The weight savings achieved of only 1.1 pounds and doesn't justify the marketing hype this feature received! It also doesn't work for all cars and for some of us, after 1 ½ years still require leaving a door open to have sufficient vent area to latch!

This report discusses a Window Valet that plugs into the OBD II and allows remotely lowering the windows using the key FOB to increase the vented area allowing the hatch to latch!

At the end are some comments about the Grand Sport Motorized Pull Down

Photo Sequence

Unlike some sports cars the Corvette has a large hatch area that holds a great deal. Mine is a Daily Driver and I use it all the time for groceries, carrying boxes to FedEx etc. This picture is from the first C7 I saw after paying for one several months before! This was a prototype at Laguna Seca in August of 2013 before production started.

This fellow was moving to the next venue.



Don't let the cubic foot specs for the C7 versus the C6 confuse the issue. GM changed their method of measure in 2014. They no longer quote the number of ping pong balls the area can hold! The C7 hatch holds more than a Cadillac CTS when compared using these new measurements. This is my hatch with a large Nylon organizer. It folds flat when not in use and I made a wooden separator that provides 4 sections when needed. It also lays flat. See Rear Cargo Area PDF (link at end.)



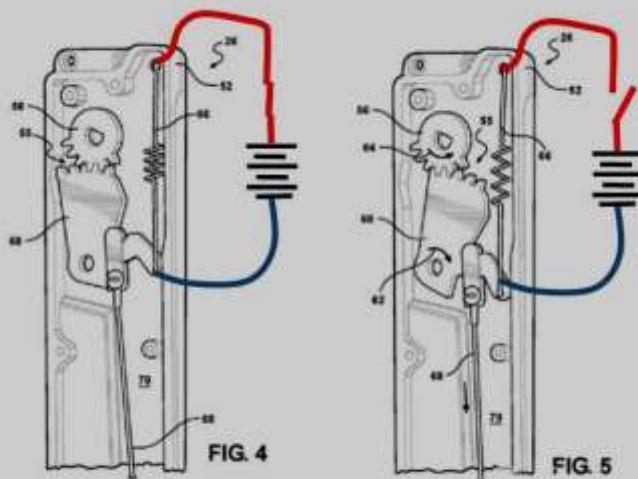
Note: If your vent is not providing enough area, do not push in the center of the hatch frame to latch. A recent forum poster, who was using that technique, reported not just his paint cracking - the hatch frame cracked!

Museum Delivery folks were told to use 2 hands and press at the peaks near the window edge.

To avoid using the "heavy" motor to pull down the latch for final latching, GM developed a memory wire activated vent that lets the air out as it compresses when the hatch is closed. Sounds like a good idea and was promoted with a great deal of hype. Unfortunately for some cars it does not provide enough venting volume. Mine is over 1½ years old and still won't latch without a door open.

I tried pushing to latch when I first got the car and watched as the bottom of the hatch fame was bending! I stopped. It was later reported by folks attending Museum Delivery that you should not push on the hatch center as paint cracks were reported! A large forum dealer mentioned 20% of cars he sold had paint cracks!

Shape-Memory Wire Activated Vent



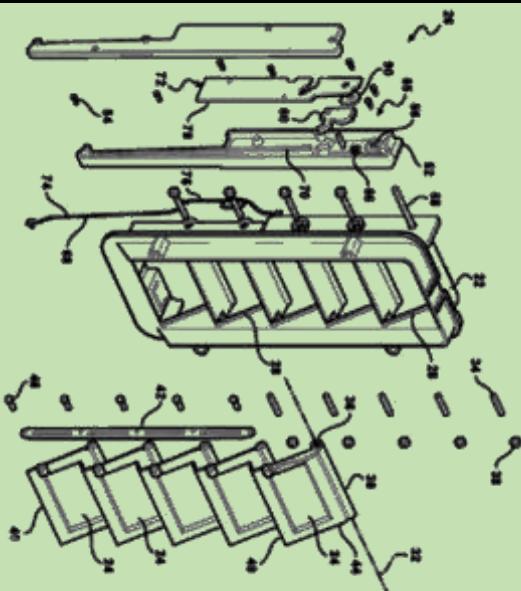
Made from Alloys Like NiTi and AlCuNi

Even though the memory wire vent does not work for all cars and a fix was apparently not simple (whatever the issue is, GM has never said) they went back to a motorized pull down like the C6 for the 2016 model!

The memory wire mechanism is of interest. A wire made into a spring, when heated by a small electrical current contracts. When the current is removed it cools and lengthens.

Using a simple geared arrangement this movement is used to open louvers in a vent on the rear panel.

You can watch to see if your vent is working thru a large rectangular hole behind the license plate. Just remove the plate and with a flashlight look thru and you'll see the vent. Then push the hatch opening button above the plate and watch the vent louvers open. When you close the hatch the louvers close. My vent worked as designed, it is just not large enough, like many other C7's!



The vent does work for some cars and those of us where it doesn't were told in forum posts , “*Just do as shown in this video.*” It was made by a Vette salesman on a car where it did work. Most forum posters were being very serious and trying to help. Some just said “*You don't know what you're doing, mine works fine!*”

Some suggested it got better with time and “*Just wait until the hatch seal breaks in.*” My hatch seal is a soft as a baby's bottom and after 1 ½ years still no help!

Tried a number of tests to get it to latch. Tried high and low force from maximum height as well as from as low as possible. No help in latching. However if I left my door open it latched with very little force! In fact that has been my solution up to now. I can stand just behind my drivers open door and with my right hand push lightly on the corner of the open hatch and it latches every time. Just takes thinking ahead. No big deal since 95% of the time when getting into the hatch the door will have to be opened before or after. Just think ahead and close the hatch before the door!



Being mechanically inclined I tried several other things. Was it that some cars had different hatch alignment, is that why they worked? I tried adjusting the hatch stops to a point of misalignment both high and low. No help with latching.

I stopped worrying about it and would post on Vette forums so new owners did not think "it was them" or worse press in the center of the hatch frame and after flexing enough times have the paint crack!

In fact if I press on the edges of the window it still takes quite a bit of force and the hatch frame still starts to bend so I do not latch that way.

Finally a solution or in my case an option! The Window Valet is a patented device that uses the key FOB to lower and raise the windows! It has been available for older Vettes and was just released for the C7. They are available at:
<http://TopDownTech.com>



Even for a non-DIY person the device simply plugs into the OBD II port near the edge of the driver's side dash bottom. It is very small and sits up high enough so it will not bother your leg. The instructions state: "It does NOT reprogram any of the car's computers! Just plug it in and it works!"

Installation:

The Window Valet™ plugs into the diagnostics port, located along the edge of the dash trim, above the driver's leg area. There's no configuration required. Just plug it in! The Window Valet™ does NOT reprogram any of the car's computers. The unit must be plugged in for the features to be available.

Usage:

To lower the windows, press the stock remote UNlock button three times. To raise the windows, press the remote lock button three times. (Or to prevent the car from blowing its horn multiple times, unlock-unlock-lock may be used to raise the windows.) For the feature to activate, the buttons must be pressed in rapid succession, with less than one second between two sequential "clicks".

Special Window Venting Feature:

The "window venting" feature allows you to use the remote to leave the windows down about half-an-inch for airflow on hot days. To use this feature, simply raise the windows with the Window Valet™ and then, once the windows are up, press lock one additional time. The windows will lower a fraction of an inch. If the windows were already up, press lock three times, wait a few seconds, then press lock again and the windows should vent. This feature, just like the remote window control, does not require any additional configuration.



Note: in 2016 GM admitted the "Magic Memory Wire Activated Vent" did not work for all cars! They reverted back to what did work fine in my C6 a motorized pull down as used on many cars.

It is very simple and instructions are simple as well. Really nothing to do but plug it in. If you don't like the horn blowing twice when you shut the windows they have a procedure to stop it. I didn't bother as the horn doesn't bother me and I know the windows have gone up.

The horn doesn't blow when lowering the windows. So if you're getting into the car lower the window first, close the hatch and when you get into the car raise the windows with the door buttons. In fact one reason I bought the device is to lower the windows before entering in the hot summer!

To use, just press the door open button three times fairly quickly, the instructions say within a second, which is no problem.

To close them remotely do the same with the lock button.

HOW DID IT WORK HELPING LATCHING THE HATCH??

GREAT! In fact it was exactly the same as with the door open.

Opened the windows with 3 clicks of the door open button and using the hand hold, with little force it latched fine!

The Grand Sport latches when the doors and windows closed with a slight push as the motor grabs. However if a door is open, with modest closing force using the handhold, the motor grabs and latches without the need to push!

The Window Valet works for the Grand Sport and although not needed to have the hatch latch it will definitely be a help on hot summer days when getting into the parked car. .

WA Technology

Other 2017 Grand Sport & 2014 Stingray PDF's Available:



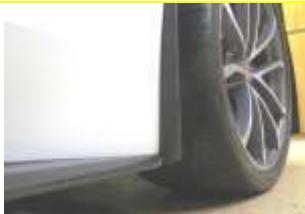
Some 40 items discuss improvements or information about a 2017 Grand Sport and 2014 Stingray function and/or esthetics. Some are minor and others, like the installing ceramic brake pads, include detailed install information.

Below are the PDF's available. Click on picture (may need Ctrl pressed.) Or just copy and paste the PDF info (Blue type) into your browser. Or email me at GUtrachi@aol.com and state the title desired, shown in Yellow:

Note: GS indicates the info was updated from that available for the C7 Z51 PDFs.

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| <p>Rusty GS/C7 Muffler</p> <p><i>Why the C7 muffler is rusted and a simply way to make rust turn matte black.</i></p> <p><i>Bottom pic rusted, top pic treated</i></p> <p>http://netwelding.com/Muffler_Rust.pdf</p> | A close-up photograph showing a heavily rusted metal component, likely a muffler or exhaust pipe, with visible orange-red rust and some remaining metallic surfaces. |
| <p>Change GS/C7 Oil</p> <p><i>WHY change your own oil and HOW to do it</i></p> <p><i>Revised, includes C7 Lifting Methods</i></p> <p>http://netwelding.com/Changing_Oil.pdf</p> | A photograph showing various tools and containers used for changing oil, including a large oil drain pan, several oil filter wrenches, and several plastic jugs of motor oil. |
| <p>C7 Carbon Fiber Side Skirts</p> <p><i>How to install side skirts with jacking information for DIY's without lifts</i></p> <p>http://netwelding.com/Side_Skirts.pdf</p> | A photograph of a red 2014 Corvette Stingray with its carbon fiber side skirts installed. The car is shown from a front-three-quarter angle, highlighting the new body kit parts. |
| <p>C7 Carbon Fiber Splitter w/End Plates</p> <p><i>How to install Splitter & Nylon bra fit</i></p> <p>http://netwelding.com/CF_Splitter.pdf</p> | A photograph of a red 2014 Corvette Stingray from a front-on perspective, showcasing the newly installed carbon fiber front splitter and end plates. |
| <p>C7 Removing GM Plastic Film</p> <p><i>How To Remove The Rocker Panel Film</i></p> <p>http://netwelding.com/Rocker_Panel_Film.pdf</p> | A close-up photograph of a red car panel, possibly a rocker panel or bumper, with yellow painter's tape applied to protect specific areas during the removal of GM plastic film. |

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| <p>GS/C7 Mirror Proximity Alarm <i>Limit switch alarm warns when passenger mirror is too close to door frame</i> http://netwelding.com/Mirror_Proximity_Alarm.pdf</p> |  |
| <p>Jacking Pads for GS/C7 <i>Jacking Pads must 2 1/2 inch max OD. Made four. Bought 2 1/2 inch OD x 2 inch high pads after installing side skirts; Bought pads right for the GS.</i> http://netwelding.com/Jacking_pads.pdf</p> |  |
| <p>GS/C7 Radar Power <i>For C7 tapped rear fuse panel. For GS tapped mirror</i> http://netwelding.com/Radar_Detector_Power.pdf</p> |  |
| <p>GS/C7 Belt Rattle <i>Passenger seat belt rattles against the seat back. The solution, add a shoulder belt pad.</i> http://netwelding.com/Eliminate_Rattle.pdf</p> |  |
| <p>Aluminum C7 Chassis and Weld Repair <i>The C7 has an all aluminum chassis, made from 117 welded pieces</i> http://netwelding.com/Aluminum_Chassis.pdf</p> |  |
| <p>GS/C7 Ceramic Brake Pads <i>The Z51 has very dusty brakes. These pads help!</i> http://netwelding.com/Ceramic_Pads.pdf</p> |  |
| <p>GS/C7 License Plate Frame; <i>Must Meet South Carolina Law</i> http://netwelding.com/License_Plate_Frame.pdf</p> |  |
| <p>Manage GS/C7 Spilled Gas <i>Protect the side of the Vette when filling up with gas</i> http://netwelding.com/Manage_Spilled_Gas.pdf</p> |  |
| <p>GS/C7 License Plate & Cargo Lights <i>LED license plate light & cargo area bulbs are brighter and whiter</i> http://netwelding.com/License_Plate_Light.pdf</p> |  |
| <p>GS/C7 Rear Cargo Area <i>Rear cargo area needs storage device and rear protector</i> http://netwelding.com/Rear_Cargo_Area.pdf</p> |  |

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| <p>GS/C7 Door Panel Protector <i>Black plastic protector added to prevent scuffing of door when exiting</i></p> <p>http://netwelding.com/Door_Panel_Protector.pdf</p> |  |
| <p>GS/C7 Improved Cup Holder <i>A solution to the cup holder spilling under hard braking or shape turns.</i></p> <p>http://netwelding.com/Improved_cup_Holder.pdf</p> |  |
| <p>GS/C7 Wheel Chatter/Hop <i>Why sharp, low speed turns with cold tires causes the front tires to chatter/hop.</i></p> <p>http://netwelding.com/Wheel_Chatter.pdf</p> |  |
| <p>C7 Carbon Fiber Grille Bar <i>Install genuine carbon fiber grille bar overlay</i></p> <p>http://netwelding.com/CF_Grille_Bar.pdf</p> |  |
| <p>Jacking a GS/C7 Vette <i>Safely jacking either front only or back & front</i></p> <p>http://netwelding.com/Jacking_A_C7.pdf</p> |  |
| <p>Deer Whistle Installed on GS/C7 <i>Do they work? Plus Install Info</i></p> <p>http://netwelding.com/Deer_Whistle.pdf</p> |  |
| <p>Replacing C7 Battery <i>After using a GM type charger and showing fully charged a voltage low, replaced battery with AGM!</i></p> <p>http://netwelding.com/Battery_Issues.pdf</p> |  |
| <p>GS/C7 Window Valet <i>Lower Windows with FOB</i></p> <p>Window Valet Helps 2014/2015 Latch Hatch</p> <p>http://netwelding.com/Hatch_Latch.pdf</p> |  |
| <p>GS/C7 Splash Guards <i>GM offers splash guards for the C7 Corvette. An easy DIY installation. ACS Best Front Guards for GS.</i></p> <p>http://netwelding.com/Splash_Guard.pdf</p> |  |

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| <p>GS/C7 Blind Spot Mirror</p> <p><i>Smaller rear and side windows cause C7 blind spots. Small "blind spot mirrors" help</i></p> <p>http://netwelding.com/Blind_Spot.pdf</p> |  |
| <p>GS/C7 Skid Pad Protector</p> <p><i>After the air dam, the aluminum "skid pad" hits driveway ramps etc. Plastic protector helps.</i></p> <p>http://netwelding.com/Skid_Pad_Protector.pdf</p> |  |
| <p>GS/C7 Wheel Locks</p> <p><i>Wheel locks, torqued to required 100 ft-lbs, help protect your expensive wheels from theft.</i></p> <p>http://netwelding.com/Wheel_Locks.pdf</p> |  |
| <p>GS/C7 OnStar Lights</p> <p><i>The OnStar LED's in the rear view mirror, at a quick glance, look like a police car flashing light! This is a fix.</i></p> <p>http://netwelding.com/OnStar_Lights.pdf</p> |  |
| <p>GS/C7 Skip Shift Eliminator</p> <p><i>Skip Shift Eliminator install with suggestions on jacking a C7.</i></p> <p>http://netwelding.com/Skip_shift_Eliminator.pdf</p> |  |
| <p>C7 Catch Can & Clean Oil Separator</p> <p><i>Direct inject engines like the LT1, are particularly subject to "coking." What is Coking and how to reduce the potential?</i></p> <p>http://netwelding.com/Catch_Can.pdf</p> |  |
| <p>GS/C7 Round Shift Knob</p> <p><i>A round shift knob shortens throw.</i></p> <p>http://netwelding.com/Shift_Knob.pdf</p> |  |
| <p>GS/C7 Stingray Sill Plate</p> <p><i>Stingray sill plate replaces original.</i></p> <p>http://netwelding.com/Sill_Plate.pdf</p> |  |
| <p>GS/C7 Nylon Bra</p> <p><i>Nylon Bra Stops Bugs on Front and Grill. Fits with Stage 3 Winglets</i></p> <p>http://netwelding.com/Nylon_Bra.pdf</p> |  |

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| <p>GS/C7 Clutch Fluid Change</p> <p><i>Clutch fluid after 3000 miles gets dirty</i></p> <p>http://netwelding.com/Clutch_Fluid.pdf</p> |  |
| <p>C7 Carbon Fiber Hood Vent</p> <p><i>Replaces Plastic Hood Vent</i></p> <p>http://netwelding.com/Hood_Vent.pdf</p> |  |
| <p>GS/C7 Cold Air Intake</p> <p><i>Low Restriction Air Filter & Duct</i></p> <p>http://netwelding.com/Cold_Air_Intake.pdf</p> |  |
| <p>Garmin GPS for GS Cubby</p> <p><i>Garmin Mounts in GS Cubby</i></p> <p>http://netwelding.com/GPS_In_Cubby.pdf</p> |  |
| <p>GS Splitter Stage 3 Winglet</p> <p><i>Stage 3 Winglets Integrate with Spats</i></p> <p>http://netwelding.com/Stage_3_Winglets.pdf</p> |  |
| <p>GS 2LT to 2.5 LT</p> <p><i>Red Upper Dash Pad Like 3LT</i></p> <p>http://netwelding.com/Red_Dash_Pad.pdf</p> |  |
| <p>Jake Emblem/Decals for GS</p> <p><i>Jake Symbols Support GS Racing Image</i></p> <p>http://netwelding.com/Jake_Emblems.pdf</p> |  |
| <p>GS Splitter Protector</p> <p><i>Rugged Plastic Protection for Splitter</i></p> <p>http://netwelding.com/Splitter_Protectors.pdf</p> |  |
| <p>GS: Vitesse Throttle Controller</p> <p><i>Adjustable Throttle-by-Wire Control</i></p> <p>http://netwelding.com/Throttle_Control.pdf</p> |  |
| <p>May Be Of Interest:</p> <p>Engineering a ProStreet Rod</p> <p><i>How Our '34 ProStreet Rod Was Designed and Built 8.2 Liter Engine, 4 Wheel Disk Brakes & Coilovers</i></p> <p>http://netwelding.com/Engineering%20Street%20Rod%203-08.pdf</p> |  |