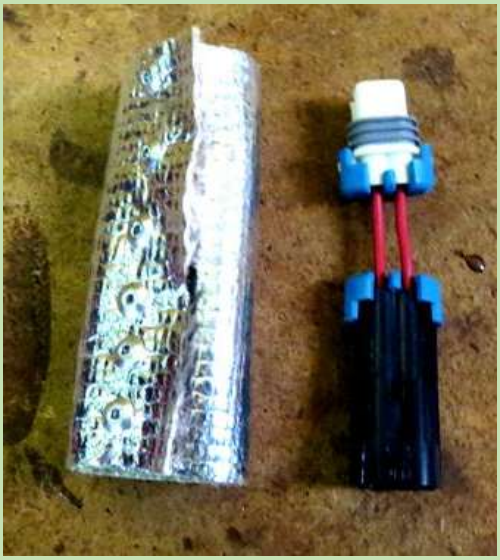
WA Technology

Ship Shift Eliminator for C7 & Grand Sport



To increase EPA specific mpg tests, the standard transmission Corvette blocks the 1st to 2nd or 3rd shift and forces a 1st to 4th. It doesn't happen that often but in my opinion when it does, it is a potential safety problem in addition to an irritant. Most often folks, including me, shift above 20 mph out of 1st gear so the ship shift is not activated. However when in slow traffic the ship shift blocking may occur more frequently. For example, if the traffic is moving in a stop and go fashion, you may want to shift into 2nd at say about 15 mph. When you go to shift to 2nd, you're blocked by a solenoid operated blocking pin in the transmission. More of a problem today with some folks distracted while on the phone or worse, texting while they drive. The person behind you, as they look down at their phone, was expecting you to move at a faster speed and not hesitate as caused by the skip shift!

The upper picture is a Ship Shift Eliminator purchased from Apex Motorsports. In fact Paul at Apex has been a big help in answering questions, like how come their unit works without tripping codes and some others did not. He said they were concerned when they saw those comments but have checked with customers who are not tripping codes. You can find them at: http://www.apex-speed.com/

Having installed a Skip Shift Kit in my C6 it was natural to avoid the irritation and do the same for the C7 and Grand Sport. Had an opportunity to check the solenoid connection location when the car was on a lift at the local Chevy Service Center having the differential fluid checked per a GM request (it was fine.) It was, as expected, in the same place as the C6; but there was an insulated cover over the electrical connector as well as the temperature sensor. Seeing that, decided to make one for the Ship Shift Eliminator as I waited for it to warm-up and the rain to stop! Details are provided of this insulated cover in the picture overview that follows.

Also, there have been Forum comments about a safe way to raise the car when working underneath. Decided to provide details on what I do that to feel safer when working under the car. I would never say it is safe, since there is always a risk, but by properly using chocks and jack stands the risks can be minimized. Some have asked how to raise both front and rear. Even one of my 4 sets of jack stands warns to only use them on one end of the car! For my street rod I used 12 inch high wheel stanchions designed for that purpose. That was safe and all the work I was doing, required substantial supports.

The following is the picture sequence of the Skip Shift Eliminator install:

Photo Sequence

To install the Skip Shift Eliminator you need to raise the rear of the car.

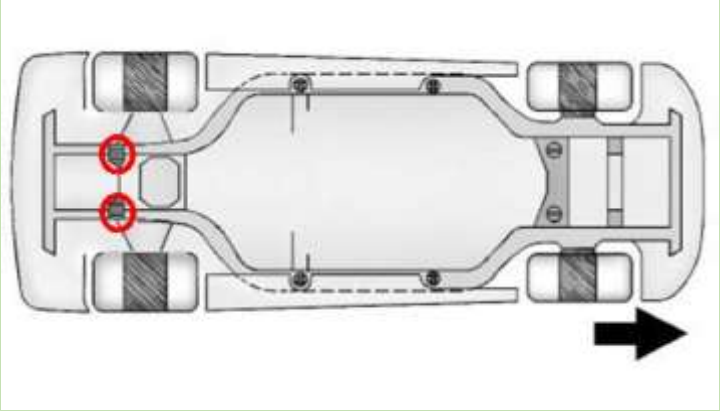
First thing needed before jacking is to put chocks in front of the front wheels. Then you must use a jack pad in the "shipping slots" in the aluminum frame. There are four, two on each side.

For the C7, the Owner's Manual says to use a jacking pad 2½ inches or smaller. Unlike the 3 inch diameter aluminum jacking pads I used for my C6, there is less room around the "shipping slots" where they fit.

I purchased The Reverse Logic jack pads shown on the right. They have a unique feature of in addition to being used just when jacking the car they can temporally be bolted in so the dealer/tire shop uses them! That is accomplished by unbolting the parts, removing the white part shown below the TEE. Then assembling and tightening the TEE so it pressuring into the slot with the supplied Allen wrench.

After putting jack pads in the rear shipping slots,, low profile jacks are slipped under and centered under the jack pad. Only needed to raise the car sufficiently to get my large jack under the rea. Note you must have a hard surface. Do not use jacks or jack stands on a soft surface. Per GM do not put a jack in the center of the C7 hollow cross members, only at the ends of those designated. I used a home-made wooded cross brace to lift in the designated locations. Details discussed below

This figure is from the Owner's Manual. It shows the preferred and acceptable lifting points. If I recall correctly from the C6 Service Manual (the one for the C7 is not yet available) the round areas shown are acceptable, while the rectangular are preferred. You'll see the rear preferred lift areas shown located on the rear cradle and are close together (red circles.)



This is one I made from a 2 X 6. @x$ pads are placed at the ends and fit the 12 to 13 inch lift locations in the C7 front and rear cross braces.

To locate the cross brace in the hole where the jack saddle fits, I cut a shot section of steel pipe that was the same diameter. The places a short fat screw in the center of the 2X6 board and placed the pipe section over the screw.

Then filled the gap between the fat short wood screw with 5 minute epoxy! !

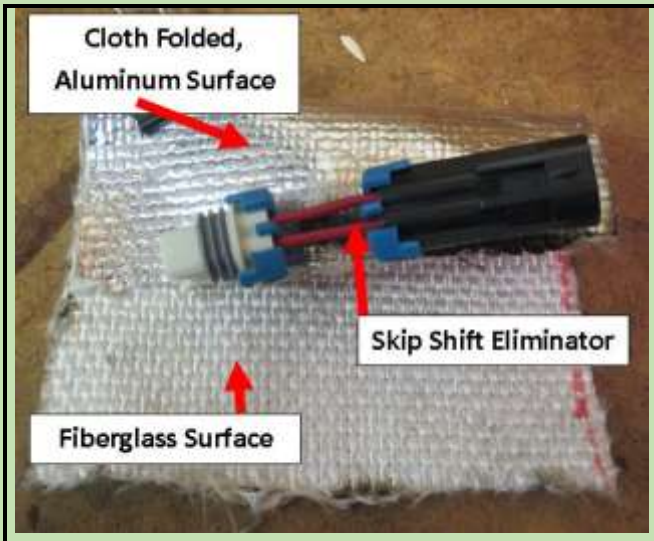
For the C7 the 2X6 Cross Brace need only be 14 inches in length,

Although I made my cross brace for the 2 ½ ton jack, they can be purchased. This one has pads that can be slide in and out. However All I have found including this inexpensive one from Harbor Freight would have to be modified. Could remove the threaded pads from this unit and epoxy the rubber pads 13 inches apart on the metal brace.

Install CAGS Eliminator in C7

Finally, installing the Skip Shift Eliminator! As mentioned, this was purchased from Apex Motorsports (http://www.apex-speed.com/)

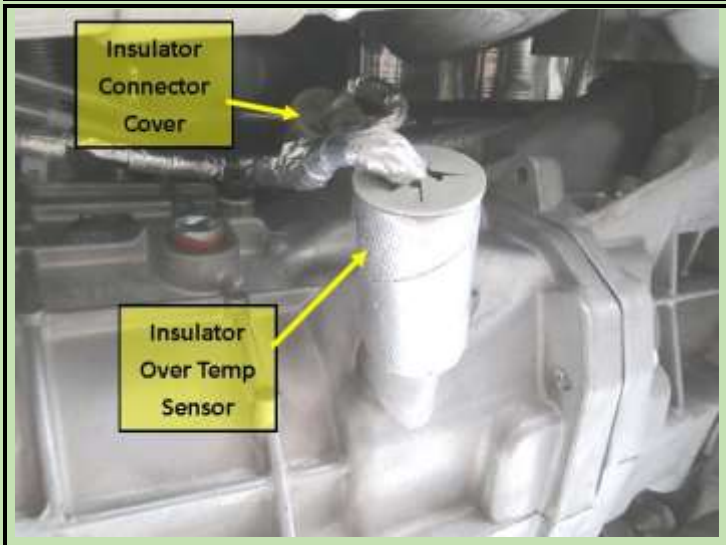
Unlike the speculation when I made the "How To" for the C6 Skip Shift Eliminator install, I can validate this has a resistor that simulates the solenoid resistance. Since I saw that insulation was being used, decided to make a sleeve from some high temp aluminum faced fiberglass insulation I had used on my street rod fabrication. Probably "belt and suspenders" but had the material so "why not!"



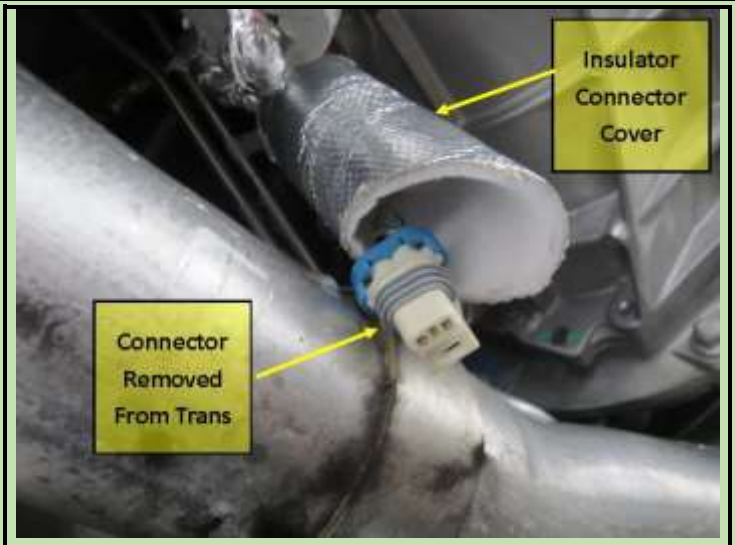
Cut the material and unlike the high temp sealer/glue I used when installing on parts of the street rod (since I did not have any left) decided my seldom used rivet gun would work fine. Used an awl to punch holes into the folded material and the rivet gun make quick work of installing the rivets. Held the shape in place with duct tape that was peeled back as the string of rivets was put in along the seam.

This is the Skip Shift Eliminator placed into the insulated sleeve that was fabricated. Not sure it is really needed but since GM thought the connector, even though it was located high on the transmission, needed it, can't hurt.

Hard to see the insulated tube over the solenoid connector since it is up rather high on the transmission left side. However the same type of insulation is installed over the temperature sensor that is located near the bottom. The lower one is close to the exhaust pipe and is no doubt why it is used. The wires also have an insulation covering.

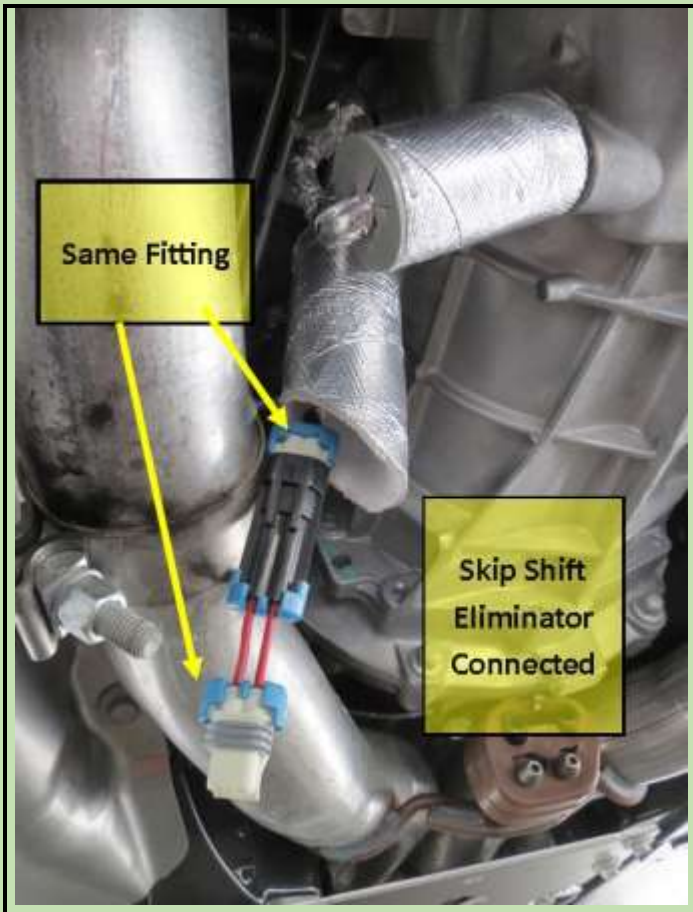


The first step is to cut the existing plastic tie that holds the wires going to both the skip shift solenoid and the temperature sensor. It Chevy apparently asked for a tab to be added to the transmission casting for a plastic tie location. Guess they thought it was essential.



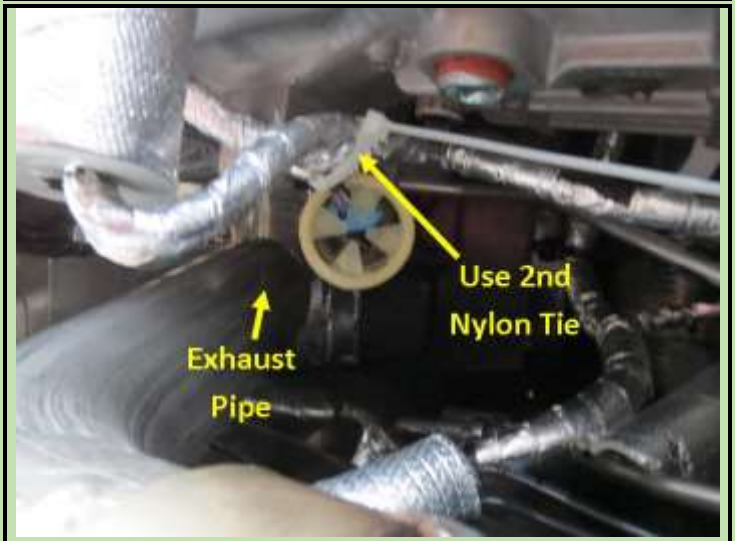
This is the electrical connector removed from the solenoid and pulled down. Look carefully at the clip on the male Ship Shift Eliminator as it is the same connector that installs in the solenoid. See how you need to bend the tab out to remove it. Found by pulling with both thumbs and pushing the connector away from the transmission at the same time, it came loose. It is very tight to get both hands up in the space and the plastic clip is also very stiff. Had tried using a screw driver but the location made that difficult to bend the tab, while pulling to remove it. The two thumb approach worked better. Be sure the car has not run for a while since you'll brush against the exhaust pipes.

Now you can snap in the female Skip Shift Eliminator connector over the male one that was removed from the solenoid. Note you're left with the same shape male connector you removed. After slipping on the insulator sleeve I fabricated, it was ready to install in the transmission. It was not difficult but be sure you hear the connector snap in place. Remember which direction the connector was in when it was removed and be sure to place it in the same direction when installing.



After the connector is installed, be sure to push the Skip Shift Eliminator connector back up into the insulated tube. You'll see there are plastic tabs that hold it in place. Then install a Nylon tie and place it to the side that creates the most space from the exhaust pipe. In this photo you can see on the right, the lower insulted tube that covers the temperature sensor.

When looking at the installation after the Nylon tie was installed, it appeared the wire tie and the insulator covering the Skip Shift Eliminator could slip around and get very close to the exhaust pipe. However another Nylon tie could pull it over so it was further away and could not rotate back.



This shows the 2nd Nylon tie installed, before trimming the excess tail. Note it pulls the insulated tube covering the Skip Shift Eliminator further way from the exhaust pipe. The bottom of the Skip Shift Eliminator is visible just beyond the plastic tabs at the bottom of the tube.

Install CAGS Eliminator in Grand Sport

Since I had the left rear wheel removed to install ceramic brake pads, just raised the GS a bit more and put my other large jack with homemade cross brace under the proper spots on the rear cross member. Note, per GM don't lift in the center of the hollow cast aluminum used on the C7 to reducer the cradle weight 25%.

Note used jack stands, did not get under car with just a jack holding the car.

Best access to get at the skip shift solenoid that is high on the transmission is to slide in just before the rear wheel.

Did not have any of the hi-temp insulation material used for the 2014. Had a less rugged material but when I used the rivets as before they were not holding as well or sealing the seam. However had some Permatex hi-temp RTV that worked well over the rivets,

As in the 2104, reach up and unclip the plug from the skip shift solenoid. When removed note the locking tab is on the top. Insert the Skip Shift Eliminator plug in the same direction and it snaps in easily. Note the product I have comes as one part some are two. The one piece just helps when using nylon wire ties to keep it away from the exhaust.

You can see in this pic, I slipped the insulator I fabricated over the bottom Ship Shift plug then connected it into the mating plug coming from the cars harness.

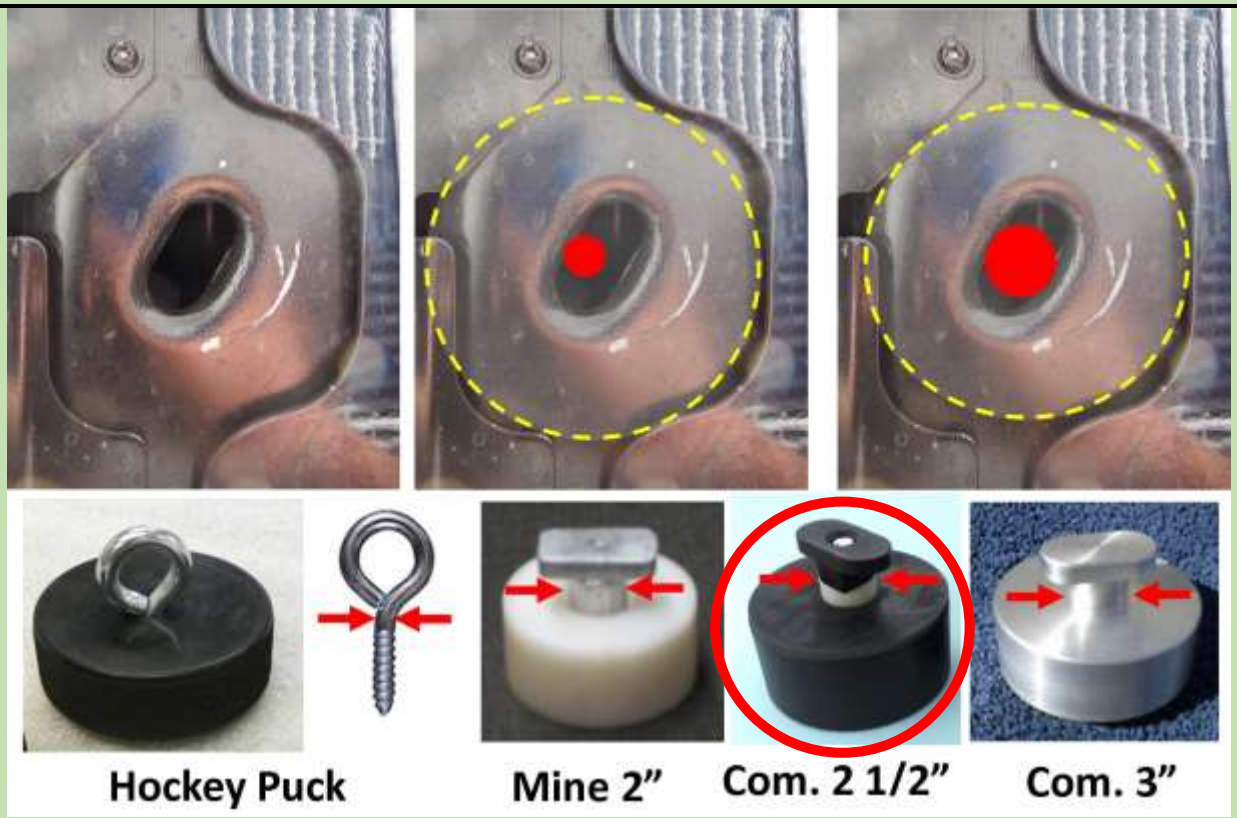
Use as many Nylon ties as needed to assure no wires are hitting the exhaust pipes.

PS: be user the car has not run when you make the install or you will get burned on the hot exhaust!

APPENDIX:

Received a private message from a forum member who said their home-made hockey puck pads used on their C6 worked fine on their C7 and had clearance from the plastic. Thought about possible reasons.

The picture right was taken by me in August of 2013 at Laguna Seca. Note the small clearance to the panel. However, thought about the ~10 cars at that event, they were preproduction and probably did not have production tolerance control or even final parts.



Also, depending on how the Hockey Puck pad is made, the relatively small diameter of the eye bolt screw allows that type of pad to be inserted to one side of the shipping slots and therefore a 3 inch diameter pad can have the same clearance as a 2 ½ inch pad that uses are larger diameter support, which is close in diameter to the slot itself! Most commercial pads use a support that is close to the slot width so have similar issues to the ones I made. Bottom Line, carefully look at the clearance of the pad you use and check with the manufacturer and ask about the OD size.

Note, bought the Reverse Logic pads (red circle) when I got my Grand Sport. They can be assembled to temporarily stay in place when going to a dealer/tire store!

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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 GUttrachi@aol.com **and state the title desired, shown in Yellow:**

Note: **GS indicates that info may only be in the process of being added to C7 PDFs.**

Rusty GS/C7 Muffler ***Why the C7 muffler is rusted and a simply way to make rust turn matte black.*** ***Bottom pic rusted, top pic treated*** **http://netwelding.com/Muffler_Rust.pdf**	
Change GS/C7 Oil ***WHY change your own oil and HOW to do it*** ***Revised, includes C7 Lifting Methods*** **http://netwelding.com/Changing_Oil.pdf**	
C7 Carbon Fiber Side Skirts ***How to install side skirts with jacking information for DIY's without lifts*** **http://netwelding.com/Side_Skirts.pdf**	
C7 Carbon Fiber Splitter w/End Plates ***How to install Splitter & Nylon bra fit*** **http://netwelding.com/CF_Splitter.pdf**	
C7 Removing GM Plastic Film ***How To Remove The Rocker Panel Film*** **http://netwelding.com/Rocker_Panel_Film.pdf**	

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GS/C7 Mirror Proximity Alarm ***Limit switch alarm warns when passenger mirror is too close to door frame*** **http://netwelding.com/Mirror_Proximity_Alarm.pdf**	
Jacking Pads for GS/C7 ***Jacking Pads must 2 1/2 inch max OD. Made four. Also Hockey Puck pad and 2 1/2 inch OD x 2 inch high pads bought after installing side skirts.*** **http://netwelding.com/Jacking_pads.pdf**	
GS/C7 Radar Power ***The C7 cannot tap the mirror or sun visor for power !*** **http://netwelding.com/Radar_Detector_Power.pdf**	
GS/C7 Belt Rattle ***Passenger seat belt rattles against the seat back. The solution, add a shoulder belt pad.*** **http://netwelding.com/Eliminate_Rattle.pdf**	
Aluminum C7 Chassis and Weld Repair ***The C7 has an all aluminum chassis, made from 117 welded pieces*** **http://netwelding.com/Aluminum_Chassis.pdf**	
GS/C7Ceramic Brake Pads ***The Z51 has very dusty brakes. These pads help!*** **http://netwelding.com/Ceramic_Pads.pdf**	
GS/C7 License Plate Frame; **Must Meet South Carolina Law** **http://netwelding.com/License_Plate_Frame.pdf**	
Manage GS/C7 Spilled Gas ***Protect the side of the C7 when filling up with gas*** **http://netwelding.com/Manage_Spilled_Gas.pdf**	
GS/C7 License Plate & Cargo Lights ***LED license plate light & cargo area bulbs are brighter and whiter*** **http://netwelding.com/License_Plate_Light.pdf**	
GS/C7 Rear Cargo Area ***Rear cargo area needs storage device and rear protector*** **http://netwelding.com/Rear_Cargo_Area.pdf**	

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

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GS/C7 Blind Spot Mirror

Smaller rear and side windows cause C7 blind spots. Small "blind spot mirrors" help

http://netwelding.com/Blind_Spot.pdf

GS/C7 Skid Pad Protector

After the air dam, the aluminum "skid pad" hits driveway ramps etc. Plastic protector helps.

http://netwelding.com/Skid_Pad_Protector.pdf

GS/C7 Wheel Locks

Wheel locks, torqued to required 100 ft-lbs, help protect your expensive wheels from theft.

http://netwelding.com/Wheel_Locks.pdf

GS/C7 OnStar Lights

The OnStar LED's in the rear view mirror, at a quick glance, look like a police car flashing light! This is a fix.

http://netwelding.com/OnStar_Lights.pdf

GS/C7 Skip Shift Eliminator

Skip Shift Eliminator install with suggestions on jacking a C7.

http://netwelding.com/Skip_shift_Eliminator.pdf

C7 Catch Can & Clean Oil Separator

Direct inject engines like the LT1, are particularly subject to "coking." What is Coking and how to reduce the potential?

http://netwelding.com/Catch_Can.pdf

GS/C7 Round Shift Knob

A round shift knob shortens throw.

http://netwelding.com/Shift_Knob.pdf

GS/C7 Stingray Sill Plate

Stingray sill plate replaces original.

http://netwelding.com/Sill_Plate.pdf

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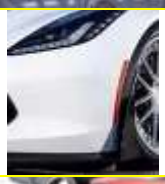
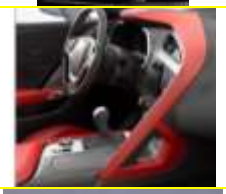
GS/C7 Nylon Bra ***Nylon Bra Stops Bugs on Front and Grill.*** **http://netwelding.com/Nylon_Bra.pdf**	
GS/C7 Clutch Fluid Change ***Clutch fluid after 3000 miles gets dirty*** **http://netwelding.com/Clutch_Fluid.pdf**	
C7 Carbon Fiber Hood Vent ***Replaces Plastic Hood Vent*** **http://netwelding.com/Hood_Vent.pdf**	
GS/C7 Cold Air Intake ***Low Restriction Air Filter & Duct*** **http://netwelding.com/Cold_Air_Intake.pdf**	
Garmin GPS for GS Cubby ***Garmin Mounts in GS Cubby*** **http://netwelding.com/GPS_In_Cubby.pdf**	
GS Splitter Stage 3 Winglet ***Stage 3 Winglets Intergrate with Spats*** **http://netwelding.com/Stage_3_Winglets.pdf**	
GS 2LT to 2.5 LT ***Red Upper Dash Pad Like 3LT*** **http://netwelding.com/Red_Dash_Pad.pdf**	
Jake Emblem/Decals for GS ***Jake Symbols Support GS Racing Image*** **http://netwelding.com/Jake_Emblems.pdf**	
GS Splitter Protectors ***Cone Washers Protect Splitter Bottom*** **http://netwelding.com/Splitter_Protectors.pdf**	
May Be Of Interest: **Engineering a ProStreet Rod** ***How Our '34 ProStreet Rod Was Designed and Built 8.2 Liter Engine, 4 Wheel Disk Brakes & Coilover*** **http://netwelding.com/Engineering%20Street%20Rod%203-08.pdf**	

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