How To Install:

Dual Mode Exhaust Switch: *ITEM EXS*

For Z06 and 2008 and newer Vettes with the NPP Option, a switch to turn the dual mode exhaust on and off when you want is a must. If nothing else, to hear the gurgling and popping when backing off at low speeds! The stock system shuts down below ~3000 RPM depending on year and model so you'll never hear it! Now you are in control.

Found a place to put the switch that is hidden from view, easily and readily accessible while driving and requires drilling one small hidden hole! If you want to return to stock, a small black rubber plug will go unnoticed (but anyone buying the Corvette will want this feature-even a purest! The front cup holder is a great spot! The cover can still be used to completely hide the switch if desired. It is rather useless as a cup holder anyway! See our "Real Cup Holder" CPH. You can use your ingenuity for location. If you don't have heated seats a switch can be placed next to the ashtray where they would be located.

Materials and Construction Steps:

Purchase:

- **A mini fuse size "Add-A-Circuit" from Advanced Auto, Pep Boys, etc.**

- **A 10 amp rated, two position off-on switch from Advanced Auto, Pep Boys etc. Avoid one with an LED indicator since the way GM has the circuit wired there are 12 volts available when the car is off. Then the LED will be lit when the car is shut off and the switch set to the off or quite mode! We measured a 15 milliamp draw when the LED was lit. No big deal but why add this to the other current draws when the car is parked. You'll quickly learn what position in on! Note if you purchase a switch with an LED (since the size you want may be more readily available, as we found,) just don't hook up the ground terminal.**

- **Two pieces about 6 feet long of number 16 wire.**
- **Solderless wire connectors and two female spade connectors sized to fit the switch you buy. You'll need one small male spade connector which you'll trim to fit a fuse slot. Buy two in case you mess up the trimming!**
- **You do not need a fuse; you'll use the one in the car.**
- **A switch holder container. An old metal car coffee mug that will fits the cup holder or something similar like a short metal jar with lid and a few pieces of Velcro Strips.**
- **You'll also need one rubber grommet (to protect wires leaving a hole drilled in the switch holder) and a short piece of shrink tubing or electrical tape.**

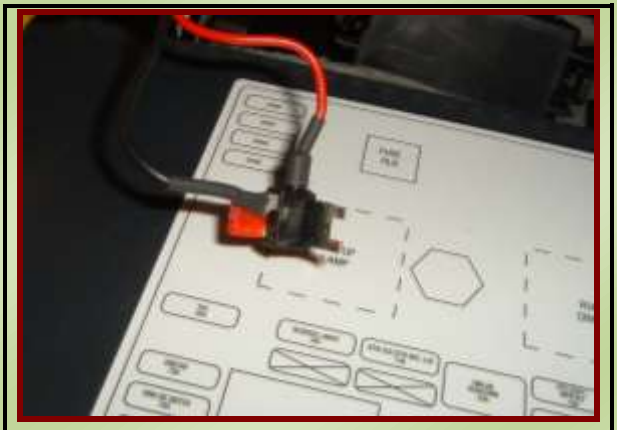
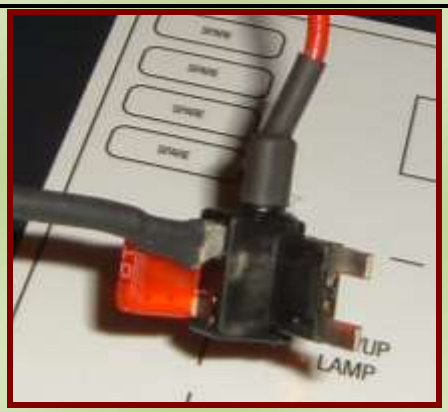
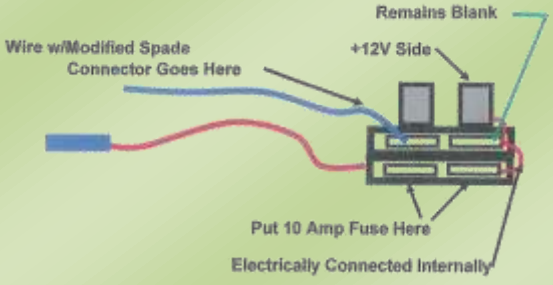
Tools:

- **A good wire crimper and two solderless wire connectors.**
- **A few wire ties will make installation neat.**
- **Hole saw or drill of the size needed to mount switch you purchased. Drill set through 3/8 inches.**
- **Hacksaw and fine file.**

Photo Sequence.

To install in the front cup holder, cut the bottom from a metal cup being "sacrificed" for the project for a "Switch Holder," We used an old stainless car coffee cup with a straight bottom section. Cut 1 3/8 inches up from bottom with hacksaw. Simply follow a line marked where the cut is needed or use a hose clamp as a guide. If you find a small metal jar with a lid that will fit, it will allow attaching Velcro strips on the lid and to the bottom of the cup holder.	
File edges as needed. Mount the cut cup section with Velcro strips on the side of the cup holder; You may need to stack two sections back to back if they are thin. The Velcro is placed vertically on either side of the rubber grommet shown below. **If you find a metal jar that will fit you can install the Velcro to the lid and the cup holder.**	

Drill the hole to mount the switch on bottom of the cup section you just cut (or the bottom of a metal jar,) which will become top of the "Switch Holder" (we used a small hole saw).	
Now drill a hole into the side of the front cup holder! The hard part is psychological! Use an 1/8 inch drill bit at about 1:30 looking down from the top of the cup holder about 1 inch from the bottom. It will go through the rubber and plastic very quickly so don't go to fast. Once through, use a 5/16 inch drill to open the hole larger. That is large enough for the two # 16 wires that will be slipped through and some inevitable misalignment.	
Now drill a hole in the side of the "Switch Holder" to line up approximately with the hole just drilled in the cup holder. Make it larger so there is room for a rubber grommet to protect the wires. The holes do not have to line up perfectly since there is a small gap between the "Switch Holder" and the side of the cup holder.	
Now for the wiring. First open up the access to the fuse panel. Pull down the top of the panel at the front of the passenger foot well. You will see the fuse panel. The 10 amp mini fuse in the lower right controls the exhaust. Use the white fuse puller supplied by GM (top of panel) and remove fuse. Without using an electrical diagram we'll explain what's happening. If you left the fuse out the exhaust would always be in the open or "loud" position. You won't tolerate the drone when cruising if you just pull the fuse - believe me! All we are doing is putting in a switch to open the circuit so power can not go to the dual mode circuit to allow it to close the butterfly valves in the exhaust. When you wish!	

We accomplish that by using the "Add-A-Circuit." Place the 10 amp fuse you just removed into the side of the "Add-A-Circuit where the wire (red color for ours) exits the device. There is no fuse in the other side. One of the open female slots in the other side will be used to get power to our new switch. **The red wire coming from the "Add-A-Circuit goes to the left when looking at the fuse panel straight on.**	
Now we must get the power back to the side of the fuse panel that powers the Dual Mode Control. It is one of the two fuse slots that are empty on the 'Add-A-Circuit. To get the power into that side; take the small male spade connector and using a pair of heavy wire cutters-(side cutters) shape the end to look similar to one side of the mini fuse. i.e. cut red area away as shown in photo.	
The cut spade connector will be connected to one of the two wires coming from the switch. It is inserted in the slot closest to the red wire which exits the "Add-A-Circuit." Carefully look at the photo - it is the slot on the top. Don't worry. If you pick the wrong slot you're just putting 12V to the side that already has 12V and nothing will happen! It just won't work!	
This is a schematic view of how the Add-A-Circuit is wired looking at the 4 fuse slots. The 10 amp fuse you removed goes into the slots on the side where the wire that comes with the "Add-A-Circuit" exits It was red in ours.) The modified spade connector to bring +12V to where it was originally, inserts, as noted, in the upper left slot if your holding as shown in the schematic.	

Now you're are ready to run the wires from the Switch to the Add-A-Circuit:

1. **Using a stiff piece of wire (bent coat hanger works fine!) tape the two pieces of 6 foot # 16 wire to one end of the coat hanger, along the length of the stiff wire with electrical tape.**
2. **Push the coat hanger with taped wire through the hole you drilled in the cup holder and have them exit the bottom side of the console, about 6 inches from the hole. You may have to wiggle the end and reach up with your fingers to grab the wire/coat hanger. You can use a small amount of Vaseline over the tape which will help it through the hole and down past the console edge. Don't worry if the wires come loose, you just need to start over!**
3. **Once through, untape the wires and remove the stiff wire or coat hanger. Now pull about 3 feet of both wires through the hole and down past the console. You will see a bracket under the dash toward the fire wall connected to the drive shaft tunnel. Run the wires above that bracket and have them exit at the firewall. You may need the coat hanger again to push the wires through.**
4. **Grab the ends of the wires and pull them toward the fuse panel. They will connect to the Ad-A-Circuit.**

Working on the fuse panel side:

1. **Strip a ¼ inch of wire insulation from the end of each wire and crimp one to the connector that came with the Add-A-Circuit.**
2. **Strip the end of the other wire, inset a 1 inch piece of shrink tubing onto it and crimp it into the modified spade connector you made. Shrink the tubing over the bare wire and spade connector round end. Inset the modified spade connector into the slot already identified.**

Now take the "Add-A-Circuit" and inset it into the now empty fuse slot where you took out the fuse. Note the location and direction from the photo, the red wire on the Add-A-Circuit goes to the left.

1. **Pull excess slack from the wires back through the cup holder and use a few wire ties to secure them in place near the console bracket. Now you can push the wires that were exiting out from the edge of the console back under the edge so they are not visible.**

Pull the wires trough in the cup holder leaving about a foot of extra.

Attach the wires into the switch by crimping on the female spade connectors and inserting onto the male connectors on the switch.

Start the car and try it out- JUST DON'T LET ANY BARE WIRES TOUCH ANY GROUND CONNECTION. Assuming it works, Insert the switch into the switch holder you made.

Carefully push the extra wires into the console while you lower the switch and switch holder into place secured with the Velcro Strips.

YOUR FINISHED-HAVE FUN.

NOTE:

YES, We Were Aware A Remote Relay Could Be Used– We Have One!

We were aware this control feature can be accomplished with a remote relay. In fact such a relay was purchased well before the Corvette for a truck project! Never did use it for what it was intended. They are still available from eBay for about $15 for 20 amp capacity! See the one we still have, photo right. Why not use it for this project? Using a remote is fine when next to a garage door and you can see it open and close. Some days that happens sooner than others. However how do you know quickly if the exhaust mode is on or off? Can't tell. If going through a quite area you want it off NOW – not when the remote decides to operate it, with a delay. Also to avoid drawing power all the time to have the remote ready requires more complex wiring and when you start the car is it off or on? With a simple $3.00 switch I can see what position it is in, instantly. Your choice but for under $15.00 you can add a switch by simply plugging in an "Add-a-Circuit" wired per these instructions. You can place the switch as did we, hidden in the front cup holder or wherever you like!

CUSTOMER TESTIMONIALS

Perry Thomasson Purchased a 50 foot Gas Saver System (GSS ™) For His Home Shop

Perry has a very well equipped home shop. For a MIG welder he uses a Millermatic 175. However the small welder cart only held a medium size shielding gas cylinder and he wanted to reduce the number of times he had to have it filled.

He purchased the largest cylinder his distributor offered for sale and chained it to a wall in his shop. He needed a much longer gas delivery hose so he added a 50 foot conventional 1/4 inch ID hose. He found he was using a great deal of gas.

He bought our patented **Gas Saver System** (***GSS***™) and saved a significant amount of shielding gas while improving his weld starts by reducing the starting gas surge. Since his regulator/flowgauge had a hose barb on the output he used a splice connector we supplied him with the ***GSS*** (See Photo Right.)

Perry emailed these pictures and said; ***" The system works great. Thanks for the professional service and a great product."*** Perry's brother recently purchased a similar ***GSS*** for his home MIG welder.

A Professional Street Rod Builder Had This to Say: They use a 250 amp MIG welder with built in feeder and a 6 foot gas delivery hose. With their standard gas delivery hose the peak shielding flow at weld start was measured at 150 CFH, far more than needed and enough to pull air into the shielding stream. Air is then sucked into the gas stream causing poor weld starts and possibly weld porosity.

With the ***GSS*** replacing their existing hose, the peak flow surge at the weld start was under 50 CFH. **With the many short welds made and frequent inching of the wire, they used less than half the gas and had better starts.**

Kyle Bond indicated a big benefit is the reduced time and effort changing cylinders since it's required less frequently. He quickly saw the improvement achieved in weld start quality as a significant advantage! Kyle, an excellent automotive painter, was well aware of the effects of gas surge caused by pressure buildup in the delivery hose when stopped. He has to deal with the visible effects in the air hose lines on the spray gun in his paint booth! It's too bad we can't see the shielding gas waste as Kyle can the effects of excess pressure when he triggers his spray gun! The paint surge is visible and creates defects unless the gun is triggered off the part being painted! Kyle can manage the surge by triggering the paint gun off the part; unfortunately we can't start our weld with the MIG gun off the part! The ***GSS*** has a built in surge flow limiting orifice that keeps the peak flow from becoming excessive. So you not only save gas you improve your weld starts!