

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation

### *Part III: F55 Switch Wiring (author: codename Bil Doe)*

Parts used (as listed in previous posts):

**15237510** - F55 console switch

**88988116** - F55 female connector plug. Dealers don't have a picture of this plug, but it is the right one. If you don't want to buy it, you can cut the one out of your wiring harness that is already in your center console and not being used.

**Add-a-circuit** - this can be picked up from Pep Boys or Autozone for a couple bucks.

*This procedure is written up for using the F55 switch to control the vacuum solenoid. A wireless switch can easily be substituted.*

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



Beginning with the hot wire you fed from the solenoid to through the trunk wall, run the wire behind the carpeting and molding along the right side of the car.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



Run the wires under the speaker panel. Feed the wire over the strut mounting point but run it under the speaker. The plastics do not have to be removed to do this operation.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



Finish by running the hot wire along the door sill and into the passenger foot well.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



Here is the F55 switch installed. Unfortunately, I took it apart and, when wired up, "sport" will function as closed and "tour" as open. If you want, you can remove the lettering.

### **IMPORTANT: READ CAREFULLY! There are 2 methods to wiring the F55 switch**

I have taken the switch apart and found through analysis of the circuit that these are two proven methods to get it to work and what to look for if it isn't working. Please read this carefully as the female plug going into the F55 switch has four wires coming off of it. If you do not follow the jumper procedure as I have wired up the switch, ***the light in the switch will work but the solenoid will not activate***. This is explained under Method 1.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



### Method 1

Since you are just using the F55 as a continuity switch, only two wires are needed. I used the two wires as shown in the picture above and cut the other two wires. **Note the two wires that are left.** Because the switch completes a circuit, it doesn't matter which wire is sent to the add-a-circuit in the next step.

**IMPORTANT!!!!** If you use these two wires, you **must** solder in a jumper on the bottom of the switch. It is not necessary to take apart the switch to do this. Just solder a jumper from the lead to the edge where the green circle is shown below.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



Solder jumper here

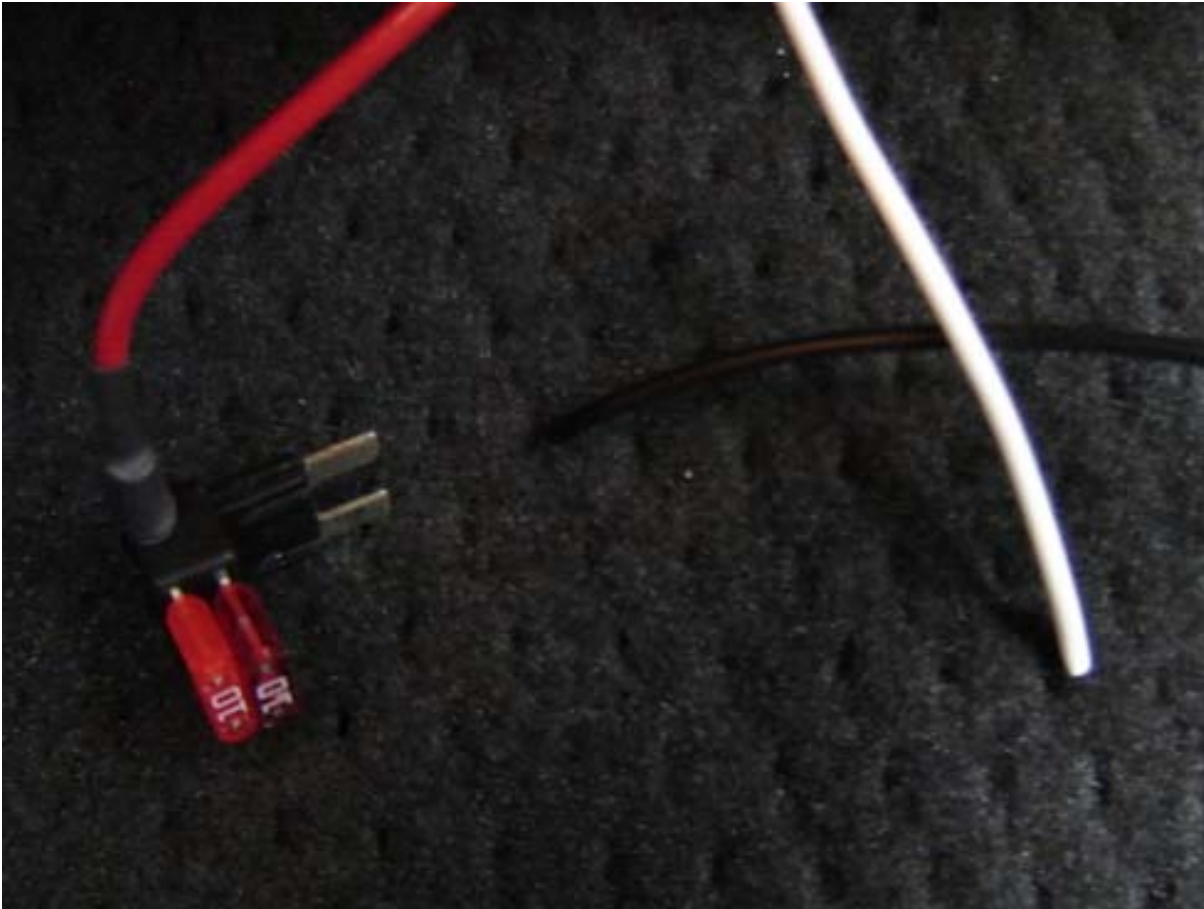
What does this jumper wire do?

With the jumper, you are making a bridge around the internal switch light. The purpose of this is as follows. Without the jumper, the closed circuit will run through the switch bulb first before going to the solenoid. This allows the light to work; but, there is internal circuitry (most likely a diode) that bleeds off excess current to ground so the battery doesn't blow the light bulb from a surge. What this does is cause the vacuum solenoid to have 12V but not enough current to switch. By adding the jumper, you are bypassing the light and creating a direct shot from the circuit block to the solenoid. It is possible to have the light function, too, but I'll leave that up to you.

### Method 2

Wire everything exactly the same except use the center two wires on the plug into the F55 switch. This bypasses any need for a jumper as these two wires bypass the bulb.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



Ok, back on track. In the foot well, you should now have 3 wires:

- Two wires from the F55 switch (I ran two black wires)
- One white wire from the vacuum solenoid.

Connect one of the F55 switch wires to the add-a-circuit. The other black wire should be connected to the white wire from the solenoid.



## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



Finally, plug the add-a-circuit into a switchable 12V source. Most people use the heated seat circuit, but you can also use the cruise control circuit.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation

### *Part IV: Running Vacuum Lines (author: codename Bil Doe)*

#### Parts used:

- ✓ 5/16" x 5/16" compression fitting (OSH or Home Depot)
- ✓ 1/2" x 1/2" x 3/8" nylon tee (brass if you can find it. haven't looked. [www.hardwarestore.com](http://www.hardwarestore.com))
- ✓ 5/16" compression x 1/8" MPT fitting ([www.hardwarestore.com](http://www.hardwarestore.com))
- ✓ 1/8" FPT x 3/8" barb (OSH or Home Depot)
- ✓ 5/16" alum tubing (picked up some from Summit Racing)
- ✓ Teflon tape
- ✓ **15782801** - #9 - Vacuum Pipe. Good for its proprietary connector to vacuum solenoid connection and to run 1/2 way up the center tunnel before splicing.
- ✓ pipe cutter or similar
- ✓ 3/8" vacuum hose, approx 1ft.
- ✓ zip ties

A quick connection before getting started. Also, make sure to use Teflon tape on all threads for extra security against leaks. Attach the 1/8" FPT x 3/8" barb to the 5/16" compression with Teflon tape. When mounted to the aluminum tubing, it will mate with the nylon tee at the brake booster line.

Just remember when spliced, the connections will look like this only pointing down instead of up. I was holding it pointed up to make it easier to see.

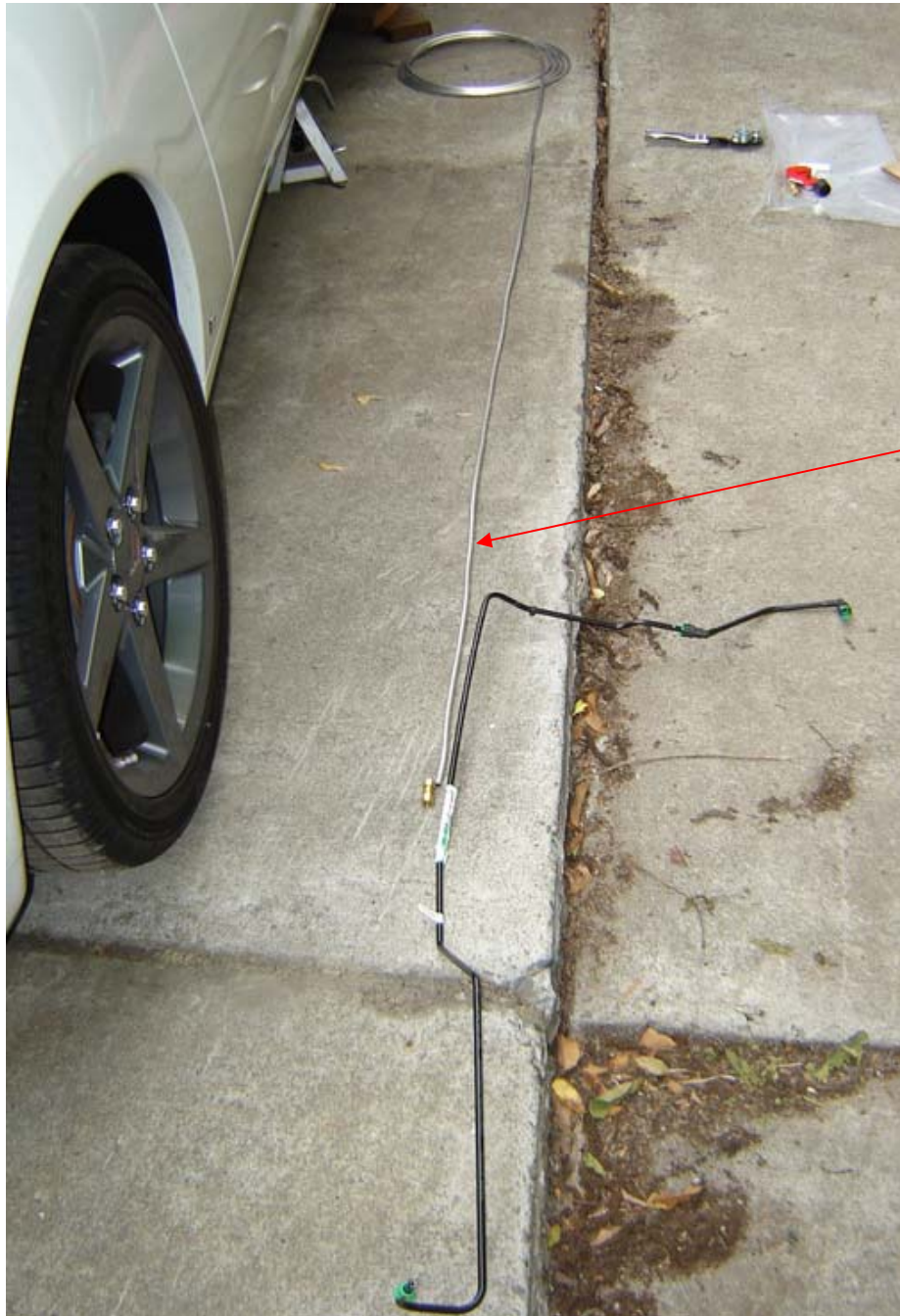
## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



- A quick connection before getting started. Also, make sure to use Teflon tape on all threads for extra security against leaks.
- Attach the 1/8" FPT x 3/8" barb to the 5/16" compression with Teflon tape. When mounted to the aluminum tubing, it will mate with the nylon tee at the brake booster line.

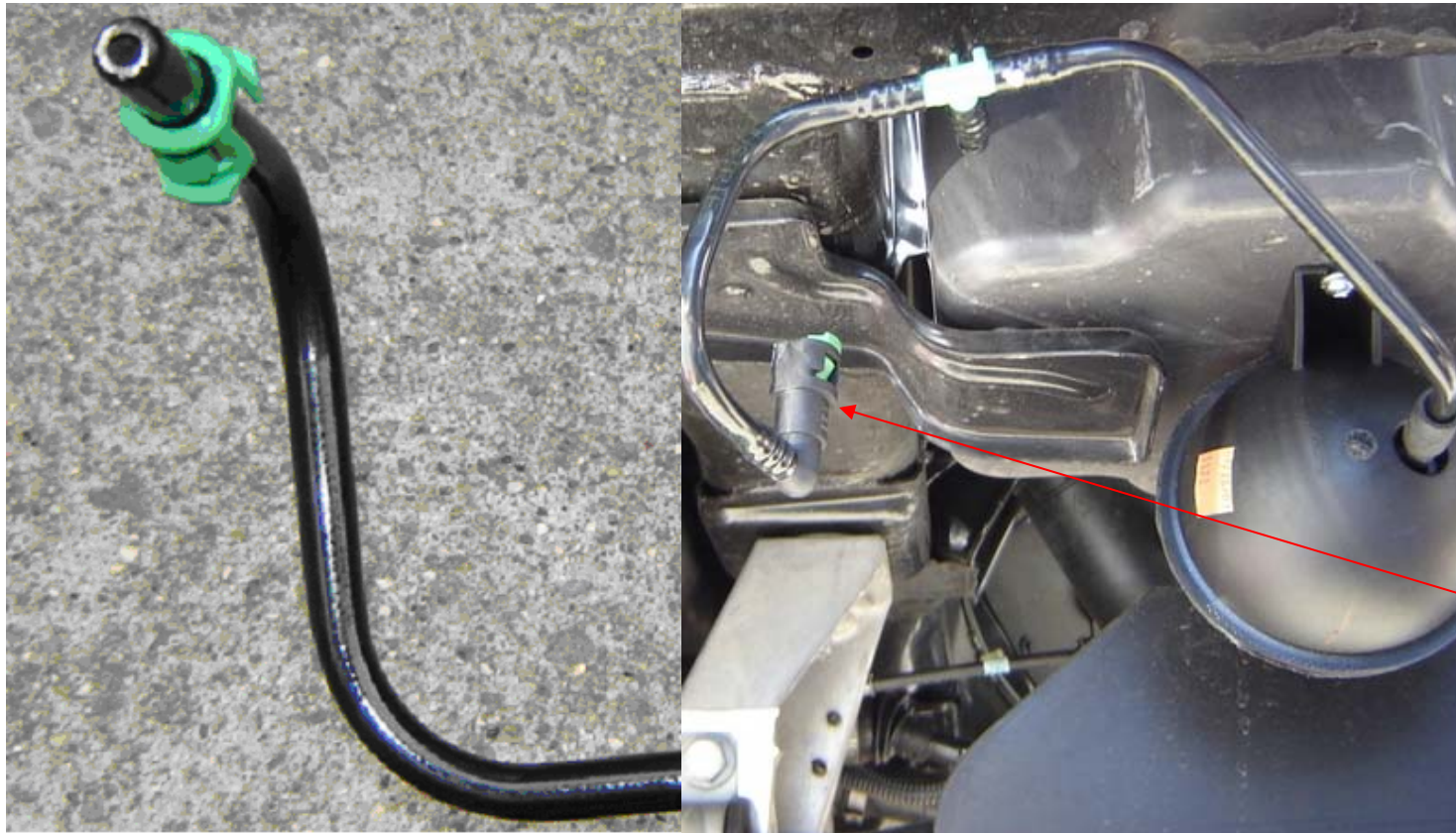
Just remember when spliced, the connections will look like this only pointing down instead of up. I was holding it pointed up to make it easier to see.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



Make sure you lay out enough tubing to reach. The aluminum tubing must be long enough to bend upwards at the front of the motor to reach the brake booster and go back far enough to reach the rear diff. It will be slightly shortened later.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



This pipe on the left is where it will insert into after routing

Here is the end of the vacuum pipe. When connected, this will be pointing down and mating up with the line coming off of the solenoid. The line from the solenoid splits, one side going to the vacuum reservoir and one side going to the vacuum pipe.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



These two pipes shown here will be joined using the 5/16" x 5/16" compression fitting.

- ✓ Wriggle the vacuum pipe in between the suspension and under the half shaft. Before doing this, you can cut it just before it makes the bend toward part #10 in the diagram. This will leave you more than enough pipe to mate to the alum tubing.
- ✓ Start by feeding the aluminum tubing **over** the tunnel plate. This will take a little patience and back-and-forth, but can be done in less than 10 minutes. Because you are going up at an angle, bend it slightly down as you feed it into the front side of the tunnel plate and life will be much easier.
- ✓ Once it comes out the other side, keep feeding it all the way through. This makes it much easier to bend it upward toward the brake booster and feed it through.
- ✓ Bend as you go to avoid contact with potential rattle points. I ran the alum tubing down the driver's side of the tunnel plate and then wrapped it over to the passenger's side under the tranny.

Use pieces of the vacuum tubing to isolate the aluminum tubing from hard contact points, such as the ends of the tunnel plate and when wrapping under the transmission and along the frame. Cut a 3" piece of tubing and then slice down its length to allow you to slip it over the tubing. Hold in place with a zip tie.

:

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



Route the aluminum tubing under the transmission and behind the X-Pipe.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



You should now have the #9 pipe and the aluminum tubing meeting each other around the area of the transmission with plenty of excess. Use the pipe cutter to shorten the tubes appropriately, attach with the compression fitting, and bend/shape the tube to avoid hard contact points. Use tubing and zip ties to cover any contact points and prevent rattles.

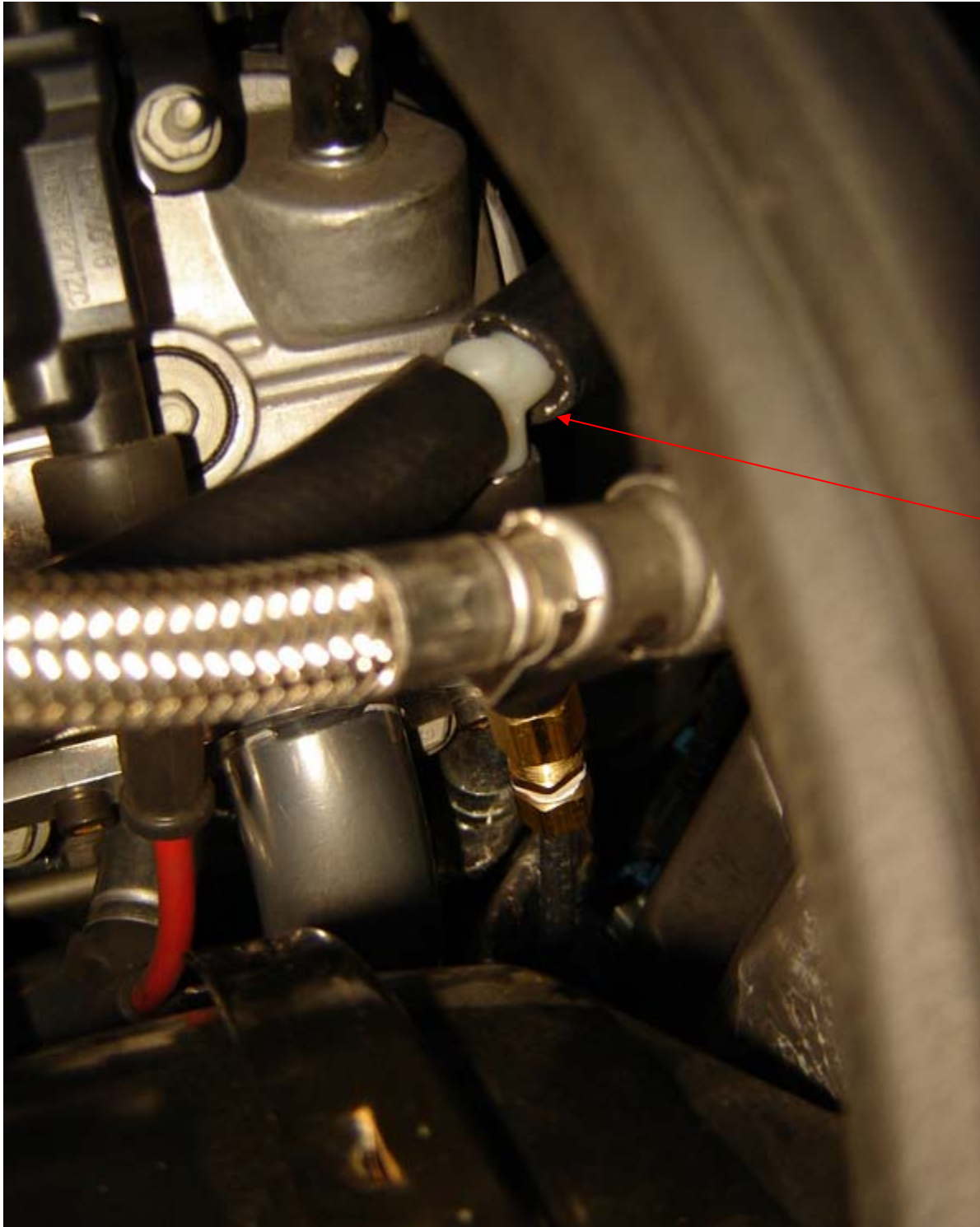


## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



Finally, attach the 3/8" barb with compression fitting to the end of the tubing that you fed up along the firewall. It should be pointing directly at the brake booster hose.

## Z06 Rear Muffler and Butterfly Valve Vacuum Assembly Installation



Splice the nylon tee into the brake booster hose. Both 3/8" barbed ends should be facing each other and can be connected with a length of 3/8" tubing.

Make 500hp, gut your cats, switch the butterflies off, and enjoy!