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MaxSpeed NHP Valved Exhaust Installation

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MaxSpeed NHP Valved Exhaust Installation

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Vehicle: 2006 Cayman S [Arctic Silver with IPD Plenum, Softronic Tune, Short Shifter]

Why this system? I wanted a valved system with a bit deeper growl, with a richer sound going through the gears and the gurgle when decelerating. I also wanted no/minimal drone during cruising and a good looking, high quality construction and finish. This system allows me to enter/leave the neighborhood without waking everyone as I head off to cars and coffee or the Blue Ridge Mountains, but when switched to the louder mode, sounds very exotic and rewarding, especially with the IPD Plenum and Softronics Tune. Guessing this 2006 Cayman S is putting out close to 325-330 bhp.

Overview:

2006 987.1 NHP Valved Exhaust Install Components and Finished Install

- Box was well packed with the mufflers nicely tucked away. All necessary install bolts and gaskets were included. There was nothing I had to buy or order to complete the install.
- I am glad I spent the extra for the X-Pipe with Chrome Tips. They flow the exhaust very well and reduce turbulence.
- The Finished Install can be seen here.



Review MaxSpeed links for features and benefits including videos (open link for details):

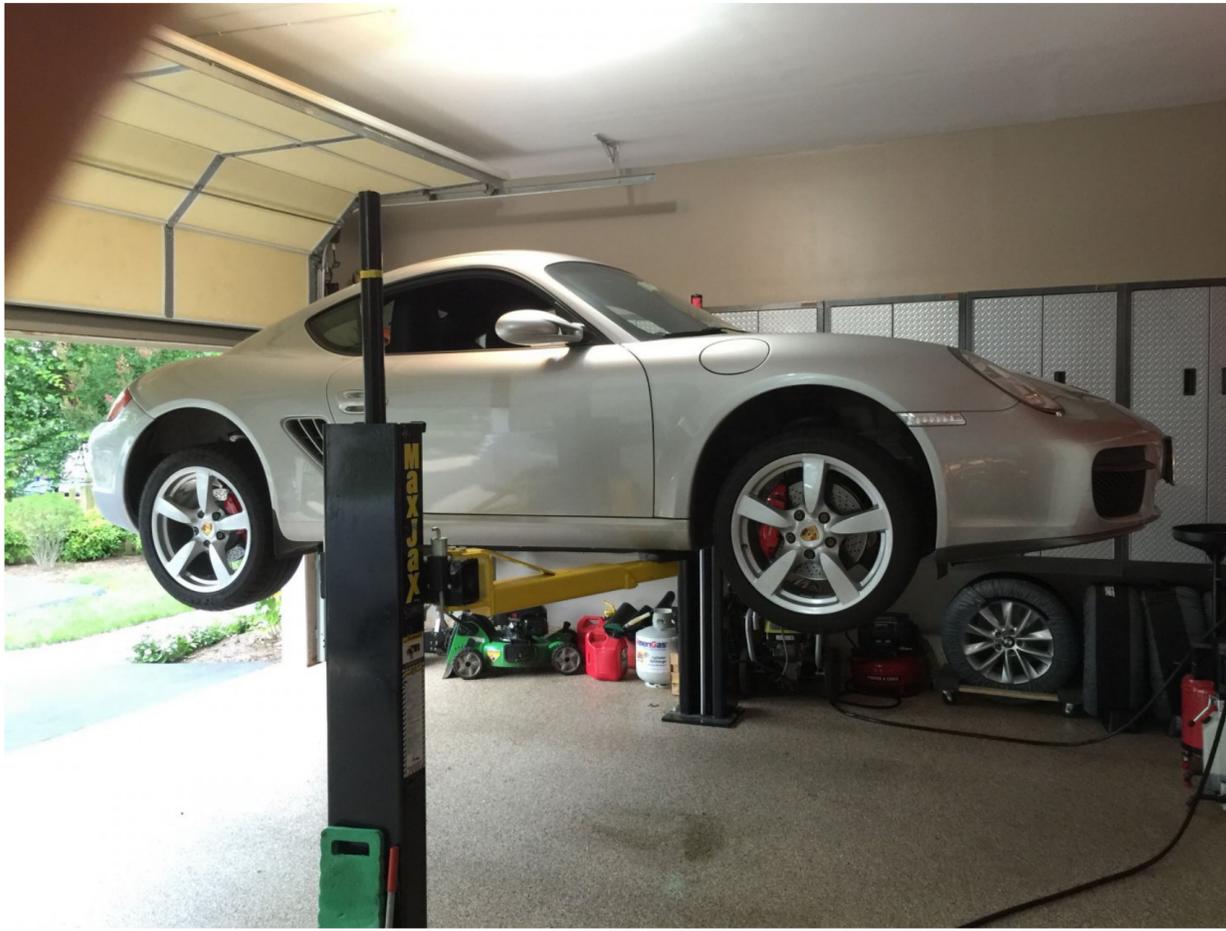
http://www.maxspeed-motorsports.com/...d_Valves_.html

http://www.maxspeed-motorsports.com/...with_Tips.html

Safety: Car must be safely elevated with ramps, jack and jack stands or proven lift system. Car should be cool to touch during installation.

Tools Recommended: 1/4" drive and 3/8" drive metric socket set with a variety of extensions to reach the header bolts, in particular. Torx screwdrivers - 25 and 30mm. Voltmeter to test for 12V circuit (direct or ignition switchable). Interior Tool Set for removing carpet in trunk.

Tools that make the job easier: Optical scope to see areas under intake manifold for vacuum line installation - I used a Milwaukee scope. Lift vs. Jack and Stand - I used my MaxJax installed last Fall (has paid for itself)



Posts that show the first three steps in the job: [Many, many thanks to the authors Gator Bite and Apex!]

1. Remove Rear Trunk Carpeting using Gator Bite Article on Rear Trunk Carpeting Panels:
<http://caymanregister.org/showthread.php?t=30383>

2. Removed Engine Panel Cover using Apex's Article on Engine Panel Cover Removal <http://caymanregister.org/showthread.php?t=29062>

3. Remove Stock Exhaust using Gator Bite Article on Exhaust Removal <http://caymanregister.org/showthread.php?t=28660>

4. Prepare new NHP exhaust for installation:

Unpacking the box:



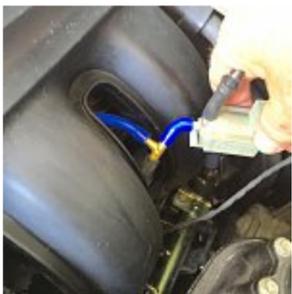
Recommend laying all parts out on a blanket on the floor and examining each part to get familiar with them and remove packing material.

5. Installing the vacuum system:

[SIZE="3"]First, locate the vacuum solenoid on the passenger side of the engine intake manifold. It has a vacuum line on the bottom and the side facing the center of the engine. Use a screwdriver to unlock the tab on the side of the solenoid and lift it up to see the lower vacuum line. Note my other line is plugged since I have an IPD Plenum and do not use it now [ties to stock plenum butterfly valve]. [/SIZE]



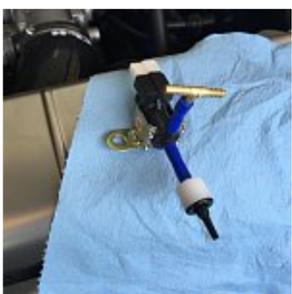
Pull off the lower line and install a one inch piece of the blue line to the solenoid and install the base of the brass T-pipe provided by MaxSp reconnect the line. Then install a blue vacuum line on the other end long enough to reach the back of the engine where the NHP valve will be installed near the throttle body.



Secure the new blue line to the manifold with a zip tie to keep it above the engine block to avoid high heat



Prepare the NHP solenoid by attaching a 1 inch blue hose and the nipple valve with the arrow on the valve pointing away from the engine in the same direction as the arrow on the solenoid. Install a one inch blue hose to the top of the solenoid and fit another brass T-Junction into the hose. This will be used to attach the hoses to the exhaust later.



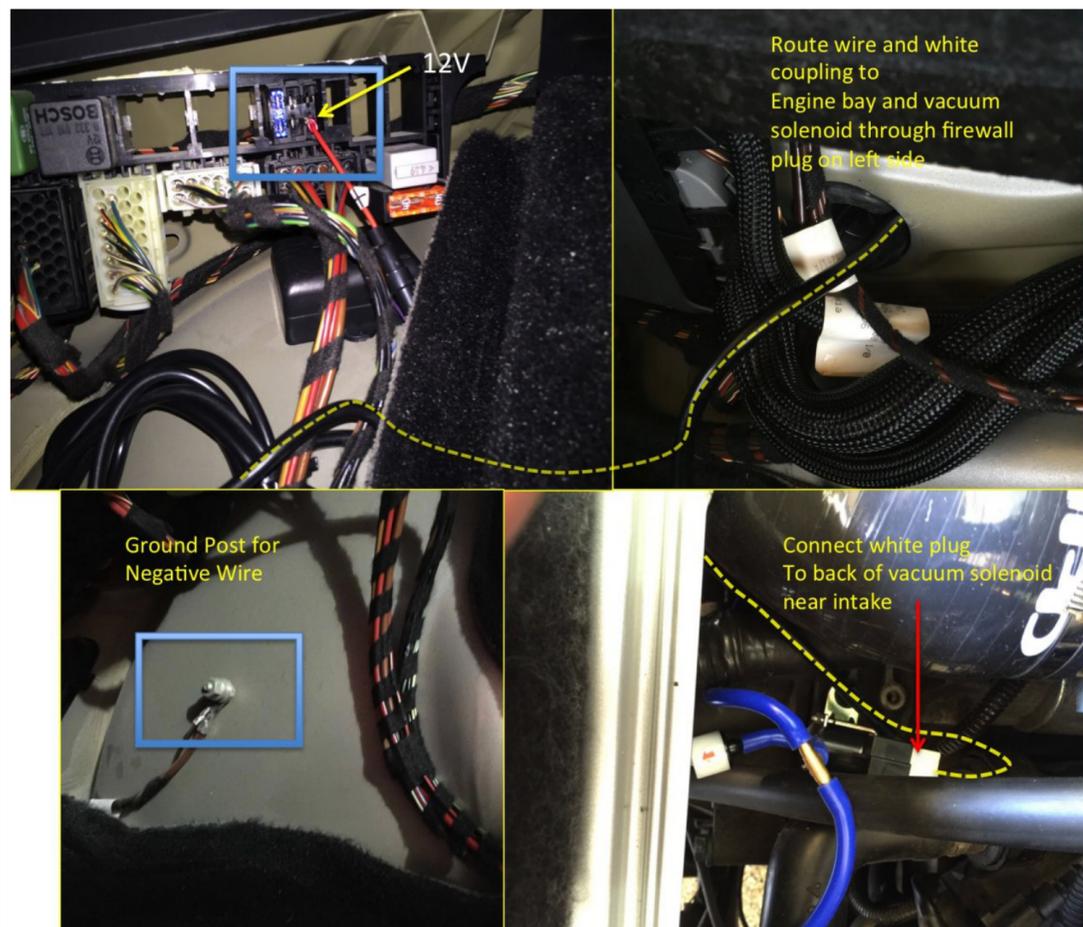
Install the NHP solenoid onto the engine. I used the bolt hole under the throttle body assembly. For stock engines there is a bracket installed in that hole so attach the solenoid to the bracket if that is the case.



Next install the blue hose from the stock solenoid T-Junction to the nipple end of the NHP solenoid. You will plug the 12V clip into the back of the solenoid body. In the next section, I will describe installing and routing the electrical circuit through the back firewall.

6. Finding a 12V circuit and installing the radio switch to connect to the vacuum system

You have two options for a 12V circuit. One would be to tie into a switched circuit at the fuse box [not shown here]. Or you can use the 12V I found in the drivers side rear junction box area shown in the picture below. I installed the red wire into the 12V clip and grounded the black wire onto the grounding stud shown in the lower right photo. I used velcro to clip the box up under the box and double sided tape to secure the antenna vertically beside it. Then I routed the wire through the back of the firewall rubber grommet. You will need to cut a slit in it for the wire going to the engine. This will allow you to re-secure it properly in the firewall. Then route it along the firewall and plug it into the new vacuum solenoid.



7. Installing the exhaust and tailpipe

Install the right and left sides of the exhaust loosely onto the headers. The nuts should not be tightened but only installed to hold the pipe on each side.

Next install the mid-piece between the left and right side using some WD40 or other thin lubricant. This is important and I had the most difficulty since my first try only got the pipes in part way to the mid-pipe due to tension between the three sections. Slide each exhaust pipe mid-way into the Y-pipe almost to the shoulder. To achieve this, I had to remove the left side to remove the tension on the pipe and twist it back and forth so it could slide in the max amount - and - so I could align the exhaust tailpipe correctly. You may also want to use jacks or boxes or some type of support under the right muffler while you are doing this. I had a friend help you hold the opposite exhaust while you are twisting the left one back and forth. If you don't do this you will not be able to properly install the u-clamps to the pipes and brackets on each side.



[SIZE="3"]
Now, tighten all the nuts on the header bolts and then install the clamps on each side./SIZE]



If you have done this correctly, the u-clamps should fit properly around each pipe and allow you to put the nuts on each end of the u-clamp and tighten them.





Now the exhaust should be tight. Be sure to check all nuts before you finish.



Now, check the Y-pipe alignment by fitting the exhaust tips on without tightening. Once you have them the way you want, tighten the Y-pi

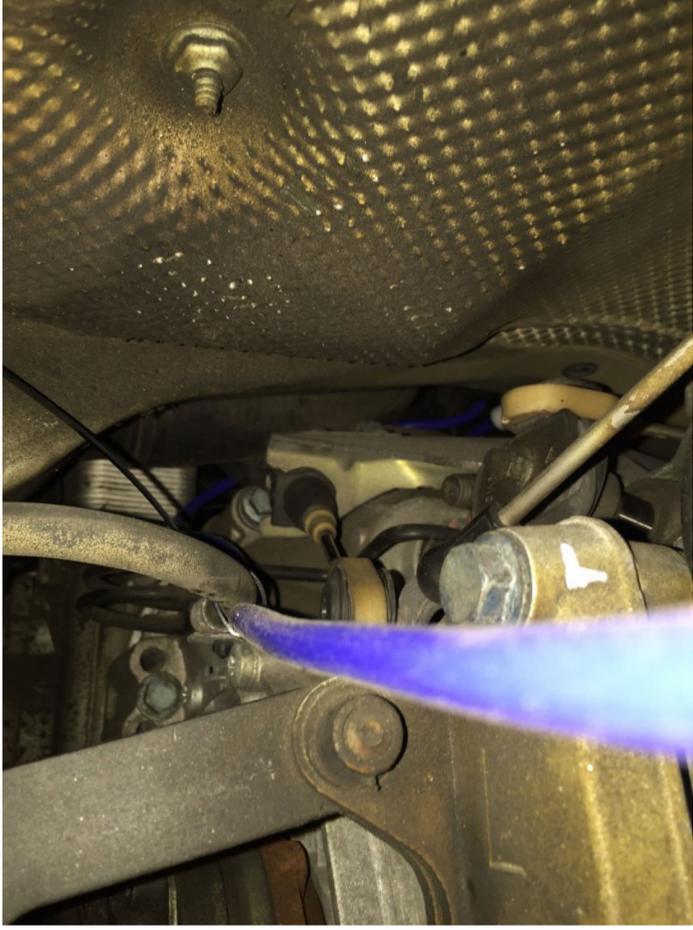


8. Installing the vacuum lines

The following photos show the final step of routing the vacuum lines from the vacuum solenoid at the back of the engine alongside the transmission on each side to the vacuum valves on each side of the mufflers. I secured them with metal screws and/or plastic ties being careful to avoid hot spots.

Driver's side routing the line up by the transmission.





Passenger side routing along the transmission





9. Testing the system



Once installed, the fun begins and you can start the car and check the operation of the valves on each side of the engine. Fortunately mine worked first time since I had checked the electrical solenoid earlier and heard it click using the switch. I will upload some videos soon so you can hear the difference in the valve open (routing exhaust through the less aggressive side of the muffler) and valve closed going through the restrictive side of the muffler.

The system has met my expectations and has very little drone (2500-3000 rpm) under load -- this can be eliminated by shifting down. It has an awesome cold start sound and a superb note at high rpm but can also be driven quietly as needed.

The only issue I have had was with the vacuum nipple pointing down on the passenger side valve causing the hose to split when the engine shifted so I worked with Nello at Maxspeed and we decided to turn the nipple to the top which was an easy 5 minute task. The system is of high quality and works well.

10. Drive



https://www.youtube.com/watch?v=https://www.youtube.com/edit?video_id=dRIn01orwDM&video_referrer=watch
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