



Corvette Intakes A Breath of Fresh Air

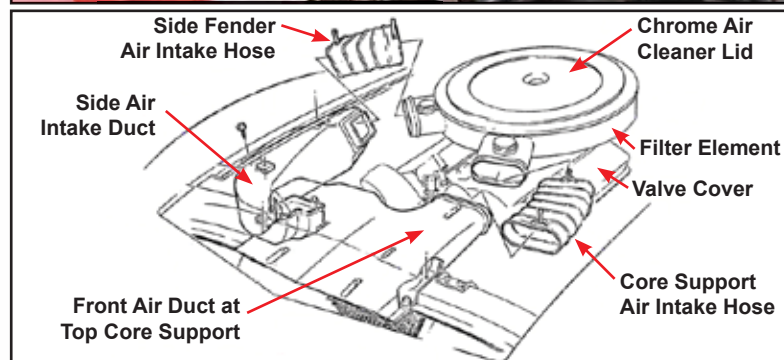
The intake manifold of your Corvette breathes for the car. Yes, you read that right. Think of your intake as the lungs of your Corvette. It takes in oxygen (inhale) for that magical air-fuel mixture that makes movement possible and lets out exhaust (exhale). Mid America Motorworks reviews basic operation of Corvette intakes, as well as the options available to boost performance.

The Basics

The intake manifold is made up of multiple inputs that supply the air-fuel mixture to the ignition system. They are designed to evenly distribute the mixture to each of the intake ports for optimal combustion.

Most internal combustion engines run on a four-stroke process and during the first stroke (called the intake stroke) air from the intake manifold is sucked into each cylinder through a valve or valves. These intake valves are then closed for the other three strokes (compression, combustion and exhaust) and reopen when the cycle starts all over again. The intake manifold is responsible for making sure that enough air is available when the valve opens for each intake stroke and that each cylinder gets the same amount of air as the others.

A partial vacuum exists in the intake manifold, created by the downward movement of the pistons and the restriction caused by the throttle valve. In cases where the vacuum is considerable, it can be used as ancillary power for cruise control, power assisted brakes, windshield wipers, ignition advance, power windows and more.



Improved Function

Because the engine requires a precise mix air and fuel to run at peak performance, both have to be upgraded to give your Corvette more power. Installing a Supercharger or Turbocharger is a sure way to force more air into you engine. They also both include a hefty price tag. If your budget calls for a more economical option, the only way to naturally aspirate more air is by giving the engine less restriction (less restrictive air filter) or suck in colder air (cold air intakes).

The Filter

High performance air filters are available from several brands and all perform the same function. Each filter is engineered to deliver the cleanest air with the least amount of restriction. Any name brand filter does a good job performing both tasks. A plus of high performance filters it that they're washable, giving you the biggest bang for your buck. We recommend using the same brand cleaner and filter.

Some companies make a replacement high flow air filter. This is different from a complete system, in that the filter does not move from the stock location. It is still washable and has all the benefits of the aftermarket filter.

Cold Air

The engine bay is full of heat, so the goal to a "cold" air intake is to suck in the air as far away from the hot engine compartment as possible. Colder air has denser oxygen molecules, and can fit more oxygen in a smaller space. More oxygen means more fire and a bigger explosion, which means more power for your engine.

Cold Air Intake styles can vary, from under-the-hood intakes that make for a quick afternoon project, to Air Dam intakes that replace the front spoiler to pull air from under the front bumper and require some additional "duct work."





Engine Trouble Codes

If you notice an Engine Trouble code/Check Engine light soon after installing a new filter or intake, don't be alarmed. Why not? The service light is a warning from the car's computer that something appears abnormal with the car. It does not always mean something is, in fact, wrong with the car and some conditions can cause a false warning. A Service Light can be triggered because the engine is sensing denser air than it expects, based on ambient conditions and expected restriction. In that instance, it would trigger a code signifying a Mass Air Flow (MAF) sensor error or lean condition because the Engine Control Module (ECM) is reading air density outside the range it is expecting.

Most brands, like K&N, offer support in the unlikely event that the Service Light comes on within the first week of installing a K&N High Flow air filter. If the Service Light comes on after the product has been installed for more than one week and the code is related to the MAF sensor or a "Lean" code, visually inspect your air intake path and air filter for leaks. If no holes or cracks can be seen, and you experience no drivability issues, it is reasonable to assume you have received a false service light. In that case, have the light reset and it should not recur.

Installation

For the most part, a weekend project is all that separates your Corvette from a performance boost. Filters and intakes are relatively easy to install with the right tools and instructions. A Mid America Motorworks installation expert shows how it's done in this [intake installation video](#).

