



Catch Can Options

Subject Matter Expertise

General Info Covering All Automobiles

For Your Information

Purpose of your Stock PCV System:

The PCV (Positive Crankcase Ventilation) system is designed to regulate and remove fumes from the engine crankcase, and to alleviate crankcase pressure which could cause oil leaks or seal damage. The PCV system routes crankcase fumes into the intake manifold where they can be burned to eliminate harmful emissions into the atmosphere. The PCV valve controls the amount of crankcase flow volume depending on the engine's load. With large throttle openings (high engine loads), the more blow-by gases are produced, and the more the PCV system flows oil vapor in to the intake manifold. The PCV valve also functions as a check valve to prevent intake manifold flow from reversing back into the crankcase when there is a backfire, or during periods of high manifold pressure (boost) during forced induction by turbocharger or supercharger.

Negative Effects of your Stock PCV System:

Many CST-V, Corvette, Camaro, Firebird and GTO owners can testify to the amount of oil residue that can accumulate inside the intake manifold, throttle body, intake track and even the air filter during aggressive driving conditions.

There are various negative effects when excess oil vapor contaminates the intake system from the stock PCV system - such as:

- Throttle body and/or MAFS (Mass Air Flow Sensor) malfunction or failure.
- Air filter, intercooler (if equipped) and intake ducting contamination if oil pools and run back out the intake system after engine shutdown
- Reduced octane of the air/fuel mixture, which can cause detonation and the ECM (Engine Control Module) to retard timing, thereby reducing engine power.
- Excessive carbon build-up on valves, piston crowns, combustion chambers and spark plugs. This also increases the chance of detonation and power loss.
- Increased emissions & possible contamination of catalytic converters and oxygen sensors.

Bottom line: Excessive amounts of oil vapor in the intake manifold is detrimental to your engine! This is the most

effective, and how most cans work (even an empty beer can will catch a good amount of oil of plumbed inline). The vapors traveling through the can make contact with the outer (cooling) surface and the oil is condensed to droplets where they fall to the bottom of the can and are trapped for removal. Slowing the velocity of the flow in a large enough chamber to prevent these droplets from being carried through the can and into the intake manifold.

For those of you using the Metco breather, it is an open unrestricted breather so you are introducing unrestricted unmetered air in bypassing the MAF. So be careful! Do a log and watch your fuel trims go crazy (unless you have a speed density tune...then your fine). Watch fuel trims close as you de-accelerate. If you run an open breather that does not control the amount of fresh air flow you run the risk of running lean and we know what pistons do when FI + lean is mixed.

The ingestion of the oil is a unintended negative effect of today's EPA dictated emission controls. You want NO oil on the rotors of a roots style blower. The residue builds up over time and causes two issues that damage the blower. One is the balance is so precise as soon as you have the varnish and residue begin to build up on the rotors they are thrown off balance and it increases the wear rate of the sealed bearings and premature failure. The other is just as harmful. The tolerance between the leading edges of the rotors are so close (for efficiency) that even though the varnish/residue build up is relatively soft to the touch (you can make a finger nail mark in it), at the speed these rotors spin (x2 the actual speed of one rotor as they meet counter rotating) when the buildup is high enough to cause interference the collision damages the fine finished leading edge and once the rotors begin to incur damage it accelerates. You want NO oil ingestion.

The easy method to check for pull through on ANY catch can is simple and cheap....you take a \$10 clear glass inline fuel filter available from any autoparts store and install it between a cans outlet and the vacuum source. It will show you in short order if a certain can is letting oil through and how much..

As you eliminate the oil ingestion you will see more power as there is not the detonation that the oil ingestion causes....and may be able to be more aggressive with the tune (IAT temps limited of course).

Even though most cans let a bunch of oil through and only catch a portion, that oil caught here did not enter and that is a huge benefit. if you install an inline clear glass fuel filter between the can and the blower vac port you will see how much gets past any can.

And again, beware of installing an unrestricted breather without tuning for the extra unmetered air or you may have a unpleasant surprise when pistons start to melt.

The main difference between a boosted engine and a naturally aspirated engine for these discussions is that in a boosted application the intake tract can be pressurized above atmospheric pressure. This means that where you used to have zero net pressure, you will have some positive pressure in the intake system. This changes the options of where you can vent the crank case to. You'll want to find new sources of vacuum, and you'll want to make sure you don't accidentally let boost pressure enter the crank case and pressurize it.

Another important factor with most turbocharged engines regarding crank case ventilation involves the intercooler. If the blow-by gasses are routed through the intercooler, the intercooler then in effect gets to act as a giant oil separator. Oil tends to coat the inside of the intercooler decreasing its thermal efficiency. The oil can also build up and puddle, drain into unwanted places, or be consumed by the engine in larger quantities at inopportune times.

There is *one* more difference between N/A and boosted engines that you should be aware of. Boosted engines tend to have much higher cylinder pressures than naturally aspirated engines. This produces more power obviously, but it also produces more "blow-by" which is something we'd like to limit and control. And don't forget about blow-by gasses

increasing your chances of detonation. How does blow-by lower your octane? Blow-by gasses with any amount of oil in them will lower the effective octane rating of your fuel because the vaporized oil will ignite at lower energy levels than 87 octane (R+M/2) gasoline. The more of it you allow to enter the cylinder, the more you will have to worry about detonation. This is usually not a big worry for naturally aspirated engines, but obviously forced induction is a completely different story.

These things conspire to make ventilating the crankcase of a turbocharged (or supercharged) engine more difficult and more important than on a naturally aspirated engine. Most people don't even bother messing with the crankcase ventilation system on naturally aspirated engines and only wait until they turbocharge the engine to get serious about the system, because now the ante has been raised.

For high boost setups it's recommended to remove the pcv and change it to vent crankcase pressure. The more boost, the more power, the more air, the more crankcase pressure you will need to vent and its very important to keep the crankcase from pressurizing and keep at a 0 pressure during time in boost. This is why many people remove the pcv for one to prevent intake manifold pressure trying to pressurize the crankcase even more and with those cheap plastic valves any type of age to them will allow pressure back through into the crankcase.

In a conventional positive system, the valve cover vent tube is not a one way street, it is meant to work in both directions. This is something about turbo cars that is widely misunderstood.

The tube from the air intake to the valve cover does provide fresh air to the crankcase, when under vacuum. Air goes up this vent tube, into the crankcase, and is sucked through the pcv valve and into the intake manifold to be burned in the motor. However, as soon as you hit boost the situation changes completely. Under boost the pcv valve is pushed closed. At the same time the turbo creates a large vacuum in the intake pipe. Crankcase gases are now sucked out the vent tube and into the turbo intake. It is not caused by excessive blowby or a leaking pcv valve, it is simply how the crankcase ventilation system works on a turbo car. It is designed that way. When under boost, when crankcase pressure is highest, the vacuum on the vent tube is highest, helping to evacuate crankcase gases/pressure. The vent tube is placed behind the air filter and airflow meter so that the system always receives filtered air, and no unmetered air gets added.

The reason most people disconnect the vent tube and install a breather/catch can/etc is to prevent oily crankcase gases from leaving an oily film in the intake pipes and intercooler. It works for that purpose. However, you lose the benefit of that high vacuum on the pressurized crankcase gases, which would contribute to the dipstick popping out. You also introduce unmetered air into the system. The best solution would be to use an actual sealed oil separator in that vent tube to remove the oil from the crankcase gases, but still recirculate to the air intake tube, thereby solving the oily film problem, but preserving the function of the entire pcv system.

Option#1: 42 MightyMouse Single or Dual Catch Can

<http://www.mightymousesolutions.com/#!mm-black/ca5m>

- NEW 3rd port with Sight Glass!
- Dual Pass Filtration
- Black Anodized Coating
- O-ring -AN Fittings in-6,-8,-10, 12, 3/8" and 1/2" barbs
- 'Drain in place' Knurled Thumb-Screw Drain
- 'PRO' Bolt Clamp style mount
- Integrated High Flow 'Boosted' crank case pressure relief valve.
- Stock like pcv operation with 1xxxhp

The MM 'Black' series are bigger and badass! You now get a higher flowing can, more volume, a 'no remove' drain, a more durable finish, servicable, swappable -AN O-ring fittings, and improved mounting system; and most importantly the ladies love 'em!

1. Black "Race" Can

- This is a no nonsense can for BECAUSE RACE CAR. Two dirty -AN inlets in 6,8,10 or 3/8 -1/2" barb and a wide open breather to let it all fly (except the oil).

- Use this can when you do not have need or want to put a vacuum draw on the crank case, or circulate fresh air in / dirty out.

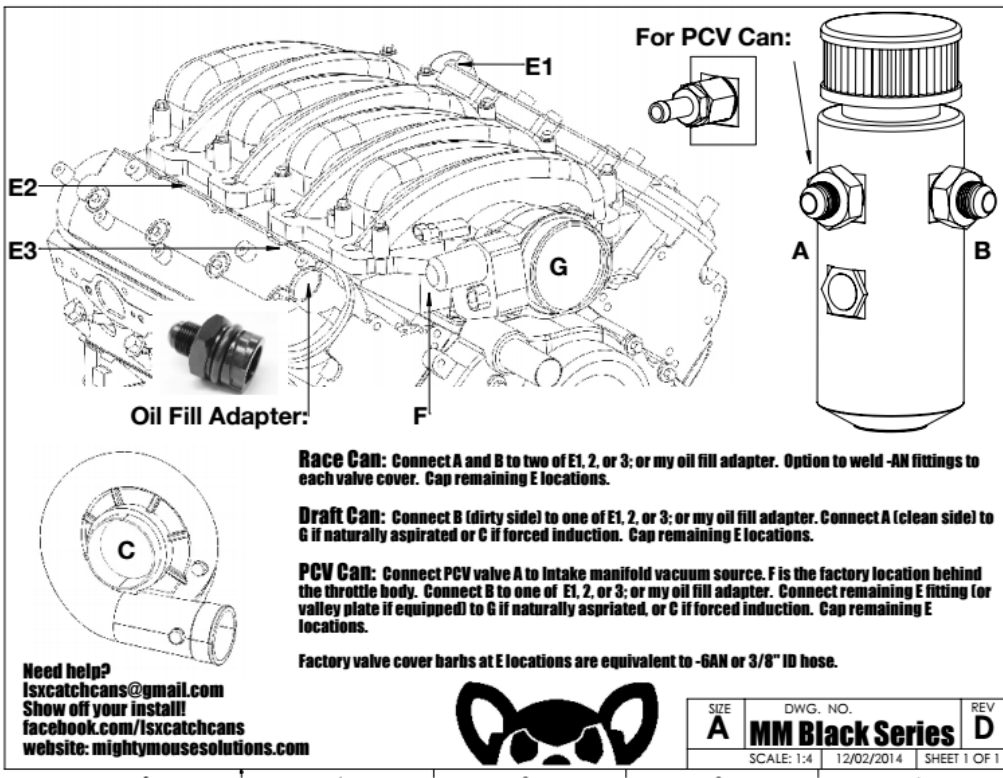
2. Black "Draft" Can

- This is one step toward the environment; Hook between your engine and low pressure S/C or TURBO Filtered inlet with your choice of -AN or barb fittings on either side. This can has a ONE WAY BREATHER so it will scavenge crankcase fumes, while venting any blow by you can hum its direction. Guaranteed not to transfer oil.

-Use this can when you want to avoid fumes or oil mist in the engine bay, and want some vacuum draw on the crank case, but do not want to circulate fresh air in / dirty out, OR IN FACTORY SYSTEMS THAT DO NOT USE A PCV VALVE.

3. Black "PCV" Can

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Option#2: 42 Draft Designs Single Catch Can

<http://www.42draftdesigns.com>

Ultimate is a strong word. Claiming that your latest creation is "the ultimate" of anything gives the word even more power. It takes some serious confidence and a gross lack of modesty to advertise a product as the best there ever was, is, and will be. We're not claiming victory, but we are confident that we have created an oil catch can that stands above the rest, in very relative terms.

Built to function, our ultimate can accomplishes the fundamental job of an oil catch can without any additional thought or modification. Bead rolled inlet and outlet fittings allow connection of 3/4" tubing. Inside, four filter screens create a maze for the PCV gases to navigate allowing oil droplets to collect as lighter gasses pass. Gravity lends a hand, collecting the oil and gunk at the bottom of the can. A bottom drain allows the can to be drained at any time.

Beyond the basics, our ultimate can offers an industrial look and features found nowhere else. A built-in dipstick, sealed with a viton o-ring, allows you to check the fluid level of your tank at any time. The 2-piece design of our oil catch can allows the inlet and outlet fittings to point in 6 different directions for installation in any engine bay. Our lid offers 6 mounting points, ready to accept a mounting bracket at any rotation of the catch can. Included with the ultimate can are two cnc machined mounting brackets. One bracket allows for the can to be bolted to a horizontal surface. The other allows for the can to be bolted to a vertical surface. Both brackets can be flipped, modified, or even bolted together if necessary.

When it comes time for maintenance, the ultimate can be disassembled for simple cleaning. Throughout the life of the can, the filter media will never need to be replaced. Tubing can be removed and re-installed from our fittings without ever damaging them. The o-rings provided are designed to stand up to oil and heat and may never need replacement. The entire catch can is built with precision from heavy duty materials proven to stand the test of time. We can't call it bulletproof (who shoots a catch can?) but we do call it ultimate.

For a CTS-V:

The 42 Draft Designs can has 3/4 inch internal diameter (ID) nozzles to accept 1 inch overall diameter (OD) hoses. The CTS-V has 3/8 inch id breather tubes. So step up hose connectors are required. You must purchase 3/4 Id or 1 inch OD hose with the can.

The can has 2 lines following connectors made by Gates:

- (2) 3/8" to 1/2"
- (2) 1/2" to 5/8"
- (2) 5/8" to 3/4"

Option #3: SMC (Saikou Michi) Dual Catch Can

<http://www.saikoumichi.com/>

The standard Saikou Michi design allows fumes/blow-by to enter into the lower chamber and pool, as the first line of defense. The second protective barrier is the layered mesh assembly. Fumes must pass through this filter and become liquid as it hits the thousands of surfaces in the material. The snorkel has relief holes to prevent "snorkel drowning" in case the occ is not drained often enough.

This is one of the finest catch tanks you can find anywhere. These are not blingy or flashy, but just the best functioning system needed to trap the nasties that creep out of your engine and make it into your manifold and intake. Every car can be different, so we are not stamping out cookie cutter OCCs for every make and model. There are several sizes and configurations depending on the vehicle you may drive and the size of connections you may need.

Option #4: E² Elite Engineering PCV Oil Catch Can

http://www.eliteengineeringusa.com/Catch_Can/

Watch this video: <http://youtu.be/3oVFA5-b8xY>

The E² Elite Engineering PCV Oil Catch Can is designed to effectively separate oil from the crankcase vapors, thereby eliminating all negative effects of excessive intake system oil contamination. Our Catch Can has been engineered to remove the oil vapor before it has a chance to contaminate your intake system.

Catch Cans on the market are just comprised of an empty container with 2 ports. While that simple design may trap a few oil droplets, our Catch Can is designed to condense the oil vapor and trap the oil inside the container.

A test proven design that incorporates a stainless steel mesh and screening mechanism that acts like a maze to collect and condense the oil vapor. Once the oil vapors condense into liquid droplets, it falls to the bottom of the can. In addition, the top assembly is specially designed to keep any liquid from climbing out the exit hole during aggressive driving conditions. Stored oil volume is approximately 8 ounces. You will be amazed by how much oil our Catch Can will catch!

The Elite Engineering PCV Oil Catch Can is constructed of the finest materials inside and out. High performance car owners insist on the best products that offer unsurpassed function as well as impressive visual enhancement. Our Catch Can does both! Our exclusive design incorporates optimum function and the finest materials, construction and finish for maximum dependability.

The 2.6" diameter by 6.0" long body is machined from billet 6061-T6 aluminum alloy, and then anodized in a variety of colors for a striking look. The internal condensing screen is stainless steel encased inside an aluminum alloy housing designed for low flow restriction. The housing can be disassembled for screen inspection, cleaning or replacement if needed. The inlet and outlet hose fittings are brass, and threaded into the body and sealed with Teflon tape. Supplied hoses are fuel and oil vapor compatible (SAE 30R7 rated). The bottom catch can reservoir screws onto the top of the unit, and is sealed with a built in O-ring. Inspection and cleaning is easy by simply removing the bottom of the unit without disturbing the mounting system or hoses.

In keeping with high quality standards, all supplied mounting hardware and screws are stainless steel. The supplied custom machined mounting bracket is black anodized 6061-T6 aluminum, and is attached to the passenger side engine head on LS1/LS6/LS7/ applications with (2) two 10 mm button head screws.

Each Catch Can kit includes everything you need to install the system. Basic mechanical skills and common hand tools are the only things required.

Option# 5 – Moroso <http://www.moroso.com>

Checkout this video: <http://youtu.be/Y9klkDCitEY>

From the factory, excess crankcase vapors and residual oil are **vented** back into the intake manifold. The **Moroso** Air-Oil Separator is plumbed into the PCV system and captures this oil mist to reduce detonation and deposits on the intake tract including the valves themselves

Ethanol enriched fuels put off more moisture during the combustion process and the **Moroso** Air-Oil Separator is an excellent tool for collecting this extra moisture . Constructed of billet aluminum body compliments any engine compartment and can be polished, chromed or powder coated for a custom look. Has a bottom drain with elbow that

makes draining the collected oil virtually mess-free.

Includes stainless steel mounting bracket, 3/8" Inlet and Outlet fittings and 84" of 3/8" rubber hose for plumbing the Air-Oil Separator inline and a billet aluminum mounting clamp for the body of the Separator.

Option# 6 – RevXTreme RX Catch Can - <http://www.revxtreme.com/rx-catch-can-dual-check-valve>

Another option is the RX catch can which has a perforated dispersion tube running down the center from the inlet that disperses the gasses to contact the most possible cooling/condensing surface, then it is large enough in area (nearly 1 qt) to allow the flow to slow enough to drop out of suspension, it then flows around an internal disc baffle system giving it one more surface to contact and cool and forces it to contact the outer cooling surface evenly before exiting through and integrated poly check valve to prevent any reversion.

The RX can requires NO dis assembly to clean. The filter media cans require disassemble & cleaning (including removing the mesh and cleaning it) every few days/weeks of use to be truly effective. The RX has a easy drain valve on the bottom and a remote 3' long drain hose to zip tie in place so you can simply put a drain pan under the car to catch it. No mess, No dis-assembly, and no internal cleaning needed ever.

The RX can is the ONLY can on the market with an integrated PCV/check valve to ensure the proper flow/metering that the LSX V8's require.

RX performance has the ONLY can specifically configured for forced induction applications with dual poly check valves integrated into the design.

SUMMARY

So as you can see, there are a lot of catch can manufacturers and we have only listed a few of them that our members have experience with on their vehicles. Do your homework and select the catch can that best fits your engine build and requirements.



A V-Series Owners Social Network and Community

Interested in joining the Texas V-Club?

Whether you have a first generation V or a late model V sedan, coupe or wagon you are welcome to submit an application to join the Texas V-Club. Full membership is limited to V owners who reside in Texas and the club consists of four chapters located in DFW, Houston, Austin and San Antonio. Affiliate memberships are also open to non-residents of Texas.

Joining our club provides each member exclusive private access to our website "member's only" pages, monthly meets, public and private club events (i.e. track rentals) as well as discounts to our sponsors. You also have the opportunity to replace your V badges with custom made Texas V club badges (see photo below). Click [HERE](#) for more details on joining.

Visit our website at www.TexasVClub.com

Visit our Facebook at www.facebook.com/texasvclub

