

# THE *M* EDITION

## From the Prez

With the extra need for food for the unfortunate in our community because of the Covid, we are asking our members for donations in this holiday season. A grocery bag of food or, if you prefer, a check, would be greatly appreciated. We'll get it to the Toledo Northwestern Ohio Food Bank, highly rated for its efficiency and service to the community.

A drive by collection point will be available at Crescent Cleaners, 602 Phillips Avenue, Toledo at the following times:

***Saturday, December 12 before 2 pm and  
Monday, December 14 before 5 pm.***

If you prefer to write a check, make it payable to NWOHio Miata Club and mail it to arrive before December 12 to Steve and Pat Dettmer, 725 Pine Street, Wauseon, Ohio 43567. They will then write one check to the food bank.

Thank you all for your generosity, and Merry Christmas to all.

*Bill & Linda Roan*

## Welcome to New Member

Paul McCutcheon  
Bowling Green, Ohio  
2000 Evolution Orange

[PMCTOONER@gmail.com](mailto:PMCTOONER@gmail.com)

Looking forward to seeing you  
at our next event!

## Holiday Food Donations



Here are some suggestions for your donation:

- 1 Money
- 2 Canned meats
- 3 Canned vegetables
- 4 Canned fruit
- 5 Boxed meals THAT REQUIRE ONLY WATER
- 6 Low-sugar cereal like Cheerios
- 7 Peanut butter
- 8 Instant oatmeal, instant grits
- 9 Cans of beans
- 10 Pasta, pasta sauce
- 11 Biscuit or baking mixes
- 12 Powered and evaporated milk
- 13 Juice boxes, applesauce, granola bars
- 14 Diapers, plus wipes
- 15 Toothbrushes, paste, soap, shampoo
- 16 Feminine hygiene: unscented pads
- 17 Spices: oregano, basil, salt, pepper
- 18 Sliced bread
- 19 Bags of apples or potatoes
- 20 Chocolate, a nice pick-me-up

**Happy  
Holidays**

# From The Garage – What is an Oil Catch Can and Do I Need One?

by Greg Wilkins

Over the last couple of years, I have added oil catch cans to two of my cars. So why have I done this and is this modification of any value to you?

## Background

During normal operation of four cycle engines, high pressure on the top side of the piston will push combustion gases as well as some small droplets of oil and unburned fuel, past the piston rings and into the crankcase. It is not uncommon for this to contain some water vapor as well. This mixture of vapors is referred to as blow-by. In order to prevent the crankcase from becoming pressurized and creating a number of operating problems for the engine, the crankcase is vented.

In days long gone, the crankcase was simply vented to atmosphere. As air pollution became a recognized problem, numerous steps were taken to reduce harmful emissions from automobiles. One of these was routing the vapors vented from the crankcase through a positive crankcase ventilation (PCV) valve and back into the air intake system so they could be combusted.

## The Problem

Although a positive development for the environment, this can create some problems for your engine. If enough oil is emitted from the crankcase it can coat the inside of your intake system. This can be particularly detrimental if you have forced air induction (turbocharged or supercharged). These systems have a heat exchanger (intercooler) to help remove the heat that is added to the intake air when it is compressed by the turbocharger or supercharger. Coating the inside walls of the intercooler with oil will reduce the efficiency of the intercooler leading to loss of power and some of the engine cooling effect provided by the intake air.

Additionally, if the blow-by makes it past the intake system and into the engine, it has the effect of diluting the fuel. If enough dilution takes place, this can reduce the octane of the air/fuel mixture enough to lead to damaging engine knock (the

ignition of the fuel before the spark plug fires). The oil can also coat intake valves causing carbon buildup and fouling. This is a particular problem for direct injected engines where the gasoline is injected directly into the combustion chamber. In this situation, the intake valves do not benefit from the cleaning effect of the fuel passing over them.

## The Solution

Numerous manufacturers now offer oil catch cans for a variety of vehicles. The catch can is installed between the PCV valve and the intake manifold with the intended purpose of capturing the crankcase blow-by before it enters the intake system (see Figure 1). While not all catch cans are created equal, a well-designed catch can typically contains one or more baffles and a fine brass or stainless steel filter (see Figure 2). The can must be periodically opened to inspect for accumulated fluid and drained as needed.

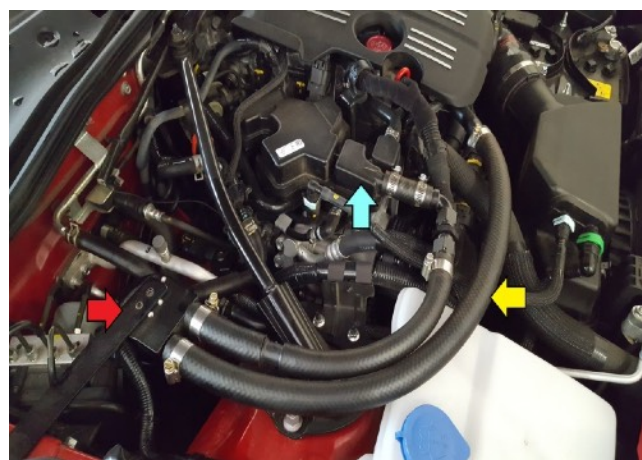


Fig. 1 - Catch can (red arrow) installed between the PCV valve (blue arrow) and hose going to intake (yellow arrow).



Fig. 2 – Catch can internals with a baffle plate

Simple systems intended to just address the PCV valve will cost around \$200, give or take \$50. Installation is straight forward and can usually be completed in under an hour. Systems can become more complex by including continuous drain systems that return the captured blow-by back to the oil pan and/or to address multiple vents. As complexity increases so does the cost and the difficulty of the installation.

### Do You Need One?

After buying my Fiat, I joined the Fiat Spider on-line forum. This is where I was first introduced to crankcase blow-by and the potential impact of blow-by on the intercooler and other engine parts. I read numerous posts on that forum from folks that had installed a catch can. It was about evenly split between those that routinely found oil in their cans and those who had never found any liquid at all. I opted to install a catch can on the Fiat. Based on what I had read, I realized it might turn out that nothing would ever accumulate in the catch can but viewed it as relatively inexpensive insurance.

For the first 2-1/2 years that I owned the car, the inside of my catch can was as clean as the day it was installed. It had captured no blow-by. This was actually good in that it was nice to know that I was not experiencing a lot of piston ring blow-by. However, through the on-line forum, I also saw a trend that it was the folks that drove their cars particular hard that were also finding oil in their catch cans. When I returned from a week at the Tail of the Dragon in October, I checked my catch can as part of my normal routine. This time, there was at least an ounce of an oily water mixture accumulated in the can (see Figure 3). While not a lot, it was a nasty mix that almost certainly would be inside the intercooler if not for the catch can.



Fig. 3 – Accumulation in catch can after one week at the Tail of the Dragon.

Based on this experience, I believe the need for a catch can is highly dependent upon your driving style. Cars that are regularly driven to the limit likely will benefit from a catch can. It is also possible that older cars with aging piston rings may benefit from the use of a catch can. Cars that are used more lightly as everyday drivers or weekend cruisers likely don't need one. After seeing what was in the Fiat's catch can and taking into account that I regularly autocross my Toyota 86, I promptly purchased and installed a catch can in that car. Based on the way that I use my Miatas I have yet to install catch cans in either of them, although aftermarket systems are readily available when and if the need arises.

Happy motoring!

## Membership Renewal

As 2020 nears an end, it is be time again to renew your club membership, unless you joined during this year. No price increase. Still a low, low \$10.00.

Expect to receive a notice asking you to remit your 2021 dues by the end of December. Those who joined in 2020 should **NOT** pay now. Your membership will continue throughout 2021.





## Holiday Party Pics from the Past



Bill Roan - 2014



2008



Sue, Sherri & Sandy - 2009



Tom & Fran Thayer- 2010

### NWOhio Officers

#### President

Bill Roan 419-345-3076  
[crescentclr@aol.com](mailto:crescentclr@aol.com)

#### Membership/Treasurer

Steve and Pat Dettmer. 419-350-5986  
[stevepatd@gmail.com](mailto:stevepatd@gmail.com)

#### Editor

Bill Potvin 419-891-9191  
[bpotvin@bex.net](mailto:bpotvin@bex.net)

#### Technical Editor

Greg Wilkins 419-619-4952  
[tandgwilkins@earthlink.net](mailto:tandgwilkins@earthlink.net)

#### Facebook Group Guy

Terry Koral 419-265-1608  
[tkoral@bex.net](mailto:tkoral@bex.net)

#### Adopt-A-Highway Chairman

Karl Schwemley 419-356-0404  
[kschwemley@bex.net](mailto:kschwemley@bex.net)



**1600 N. Countyline Street**

**Fostoria, Ohio 44830**

**419-435-8131**

**800-589-8111**

**Email: [nik@mazdadirectsales.com](mailto:nik@mazdadirectsales.com)**



Mazda6



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CX-5



MX-5 Miata

**Stop in and talk to Nik, Mark or Bill,  
 and check the club web site for  
 the latest special deals.**