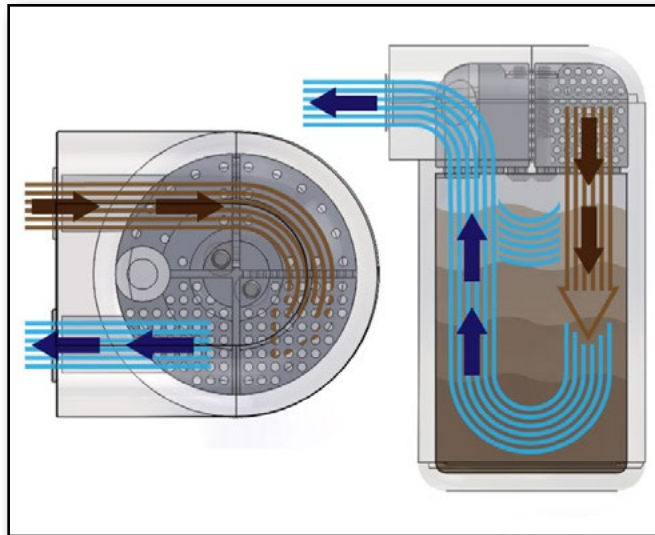




BMW E46 S54 Catch Can & Drain System Installation Guide



Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

INTRODUCTION

Turner Motorsport BMW E46 M3 S54 Catch Can System

Our Catch Can System is easy to install, fully serviceable, and completely reversible. The system features the following:

- **Catch Can**
 - Constructed of strong and lightweight 6061-T6 billet aluminum
 - Black anodized for corrosion resistance
 - Included dipstick to check content level
 - Included hex (Allen) keys for disassembly
 - Easy installation thanks to a chassis specific mounting bracket
- **Vehicle-Specific Mounting Bracket**
 - No “one size fits all” mounting hardware with our system!
- **Vehicle-Specific Hose Set**
 - Available in silicone or -10 AN braided hose

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KIT CONTENTS (WITH SILICONE HOSES)



Catch Can Reservoir
(w/Allen key for drain installation)



Silicone Feed Hose



Silicone Return Hose



E46 M3 Mounting Bracket



Baffled Separator (w/2.5mm
Allen key for cleaning)



Catch Can Dipstick

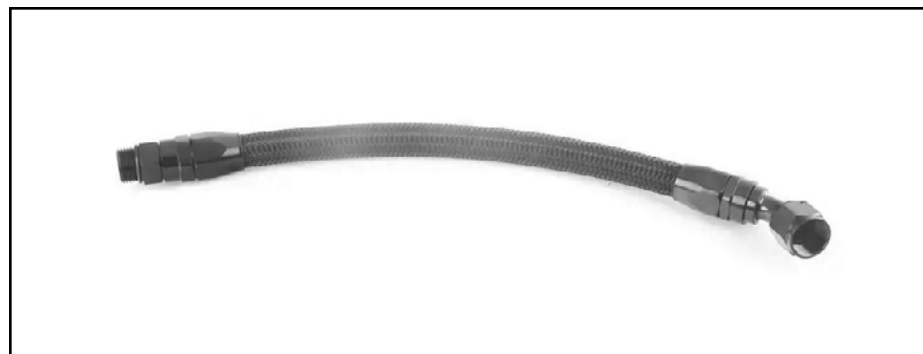


3/4" Hose Fitting
(QTY 2)

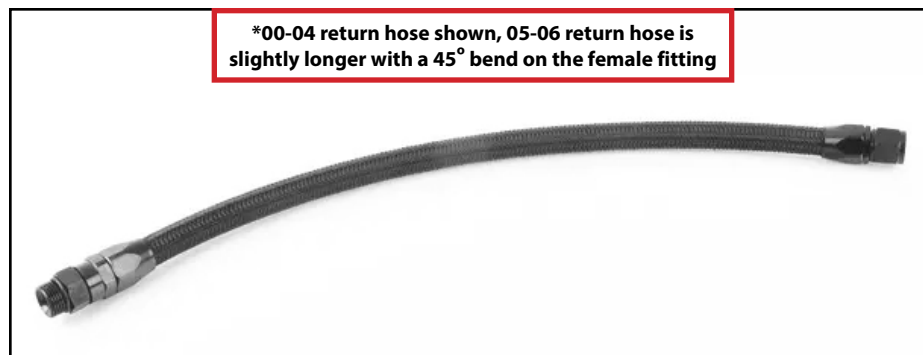
KIT CONTENTS (WITH -10AN BRAIDED HOSES)



8oz Catch Can Reservoir, Separator, Bracket, Dipstick, & Allen Keys



-10 AN Braided Feed Hose



-10 AN Braided Return Hose*



Bulb Seal



PCV Adapter (00-04 kits: **QTY 2**,
05-06 kits: **QTY 1**)



PCV Adapter (05-06 kits: **QTY 1**)**



3/8" ID PCV Hose Replacement***

INSTALLATION NOTES

- **RH** refers to the *passenger side* of the vehicle.
- **LH** refers to the *driver side* of the vehicle.
- Always use the proper torque specifications.
- If applicable to this installation, torque specifications will be listed throughout the document and at the end as well.
- Please read all of these instructions and familiarize yourself with the complete process **BEFORE** you begin.

GENERAL PREPARATION AND SAFETY INFORMATION

Turner Motorsport cares about your health and safety, please read the following safety information. This information pertains to automotive service in general, and while it may not pertain to every job you do, please remember and share these important safety tips.

- Park your car in a safe, well lit, level area.
- Shut the engine off and remove the key from the ignition switch.
- Make sure any remote start devices are properly disabled.
- **ALWAYS** wear safety glasses.
- Make sure the parking brake is applied until the vehicle is safely lifted and supported.
- Whether lifting a vehicle using an automotive lift or a hydraulic jack, be sure and utilize the factory specified lift points.
- Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear.
- **ALWAYS** support the vehicle with jack stands.
- **ALWAYS** read and follow all safety information and warnings for the equipment you are using.



NEVER get underneath a vehicle that is supported only by a jack, and **ALWAYS** make sure that the vehicle is securely supported on jack stands.

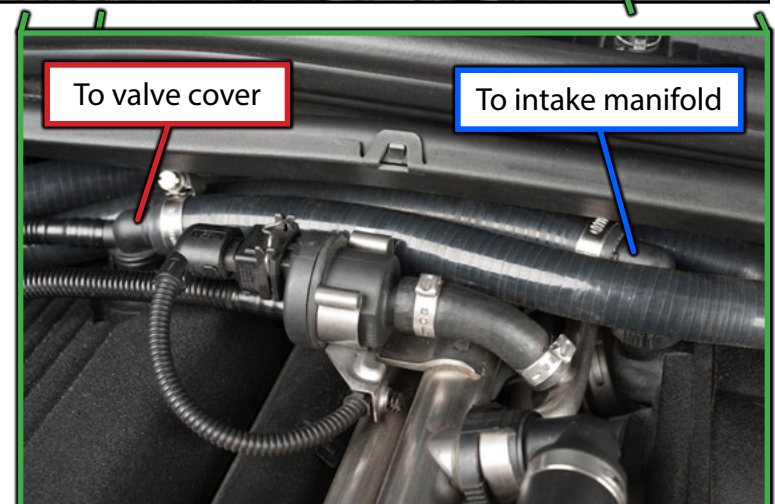
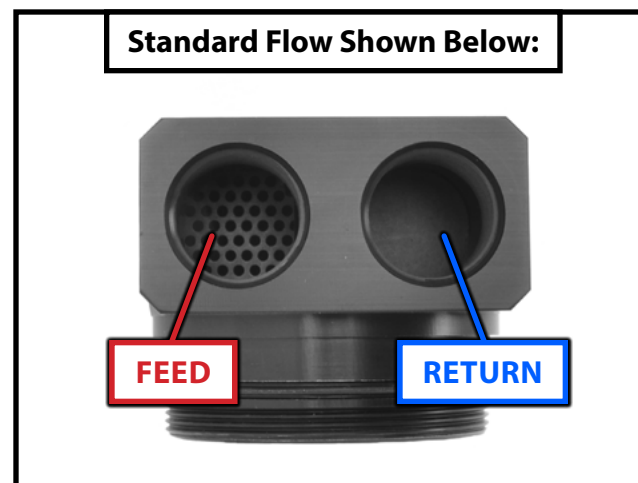
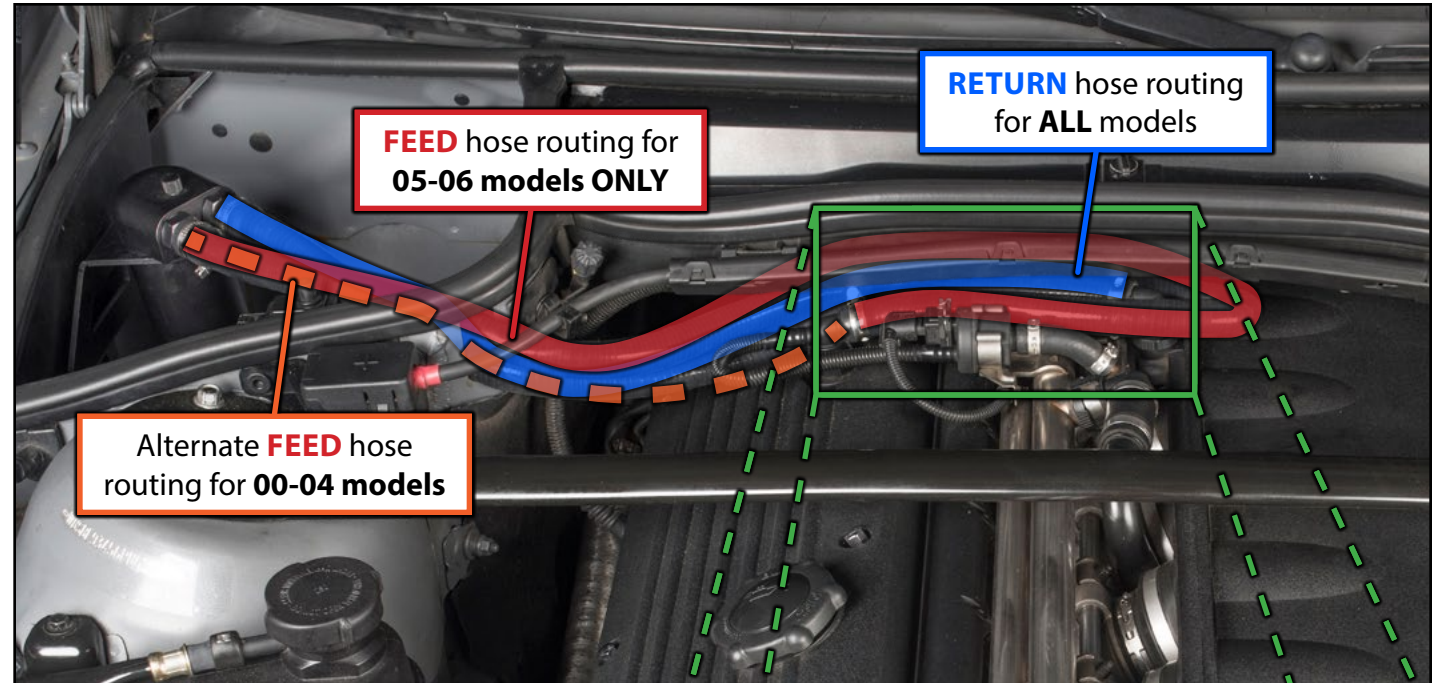
INSTALLING THE CATCH CAN SYSTEM (w/SILICONE HOSES)

System Layout:

The catch can system layout is rather straightforward for the S54, the catch can mounts in the rear RH (passenger's) corner of the engine compartment using our custom bracket. The hoses are routed to the top of the valve cover and the intake manifold. The photo on the right shows the system setup in **STANDARD FLOW**. Be sure to confirm that your catch can is set up for standard flow **BEFORE** installing it into place. Instructions on flow reversal begin on [Page 17](#).

Simply remove the breather pipe which connects the top of the valve cover to the intake manifold, then transfer the fittings on each end to the silicone catch can hoses.

2005-2006 models have a valve on top of the valve cover, if your vehicle is equipped with this valve you will need to use the **FEED** hose routing which is highlighted in **RED**. 2000-2004 models can use an alternative hose routing (highlighted in **ORANGE**).



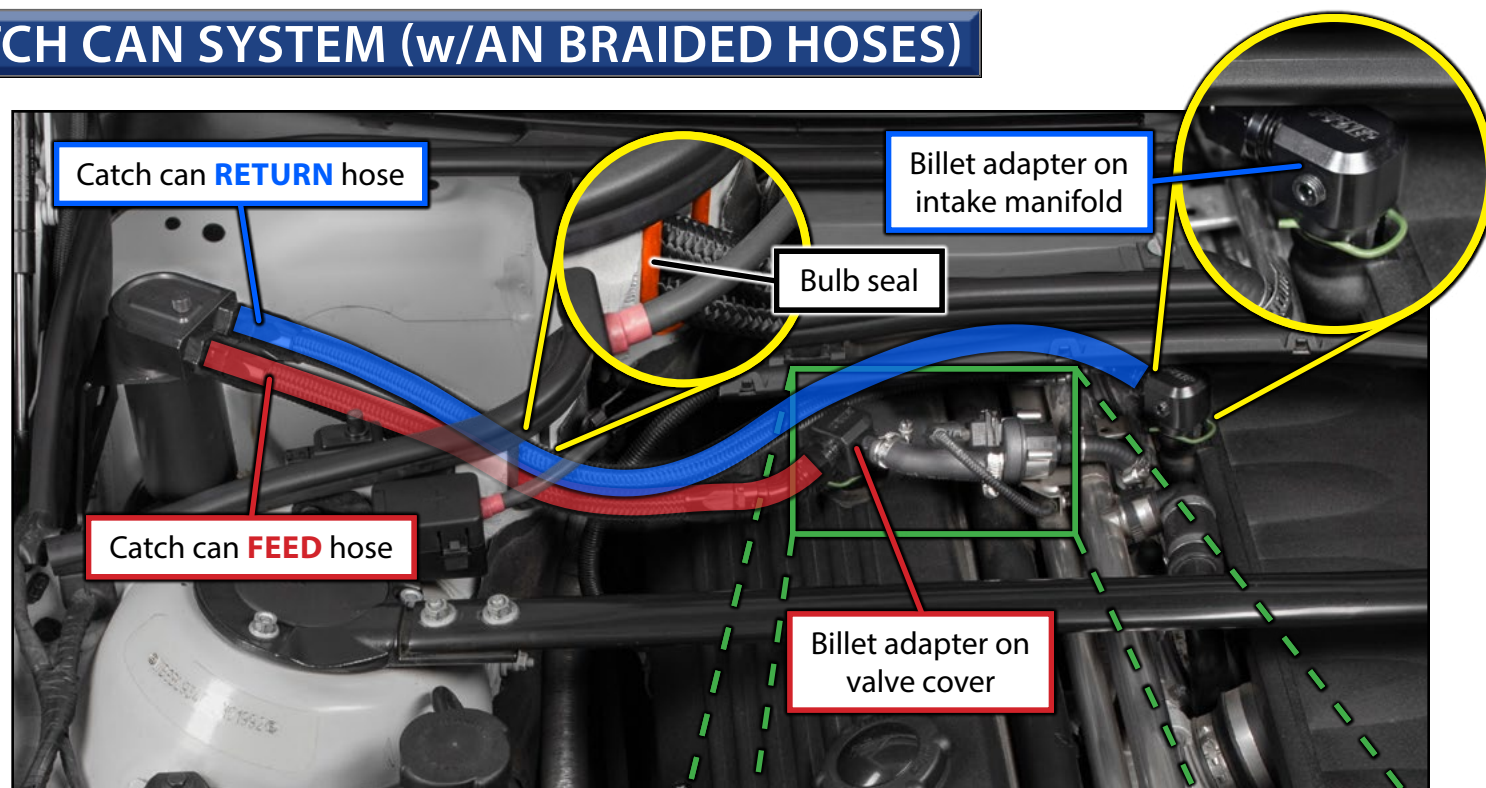
INSTALLING THE CATCH CAN SYSTEM (w/AN BRAIDED HOSES)

System Layout:

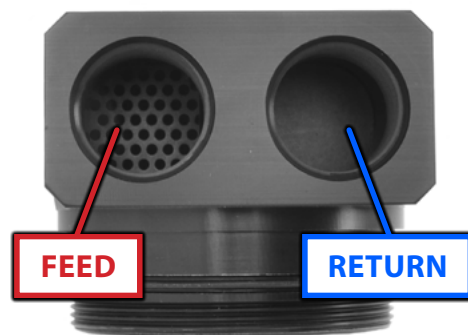
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Simply remove the breather pipe which connects the top of the valve cover to the intake manifold. Install the new billet fittings onto the intake manifold and valve cover connections, then route the braided hoses. Don't forget to install the bulb seal where the hoses route through the wiper cowl.

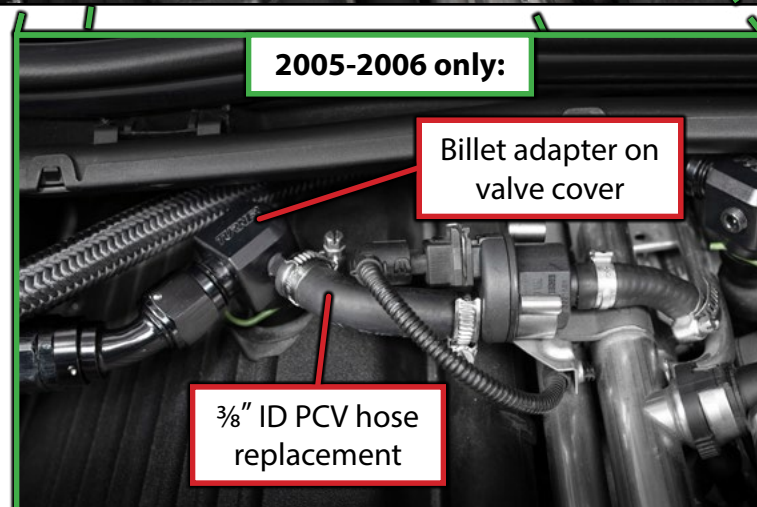
2005-2006 models have a valve on top of the valve cover. These models require an additional 3" length of $\frac{3}{8}$ " ID hose (included in the kit, shown in the bottom RH photo).



Standard Flow Shown Below:



2005-2006 only:



CATCH CAN DRAIN SYSTEM COMPONENTS



36" Section of 1/4" ID Hose (QTY 1)



1/4" Shut Off Valve (QTY 1)
3/8" Clamps (QTY 2)



7/32" to 5/8" Clamp (QTY 1)



1/4" Hose x 1/4" Male NPT Brass Hose Barb
(QTY 1)



1/4" Hose x 1/4" Male NPT 90° Brass Hose Barb
(QTY 1)

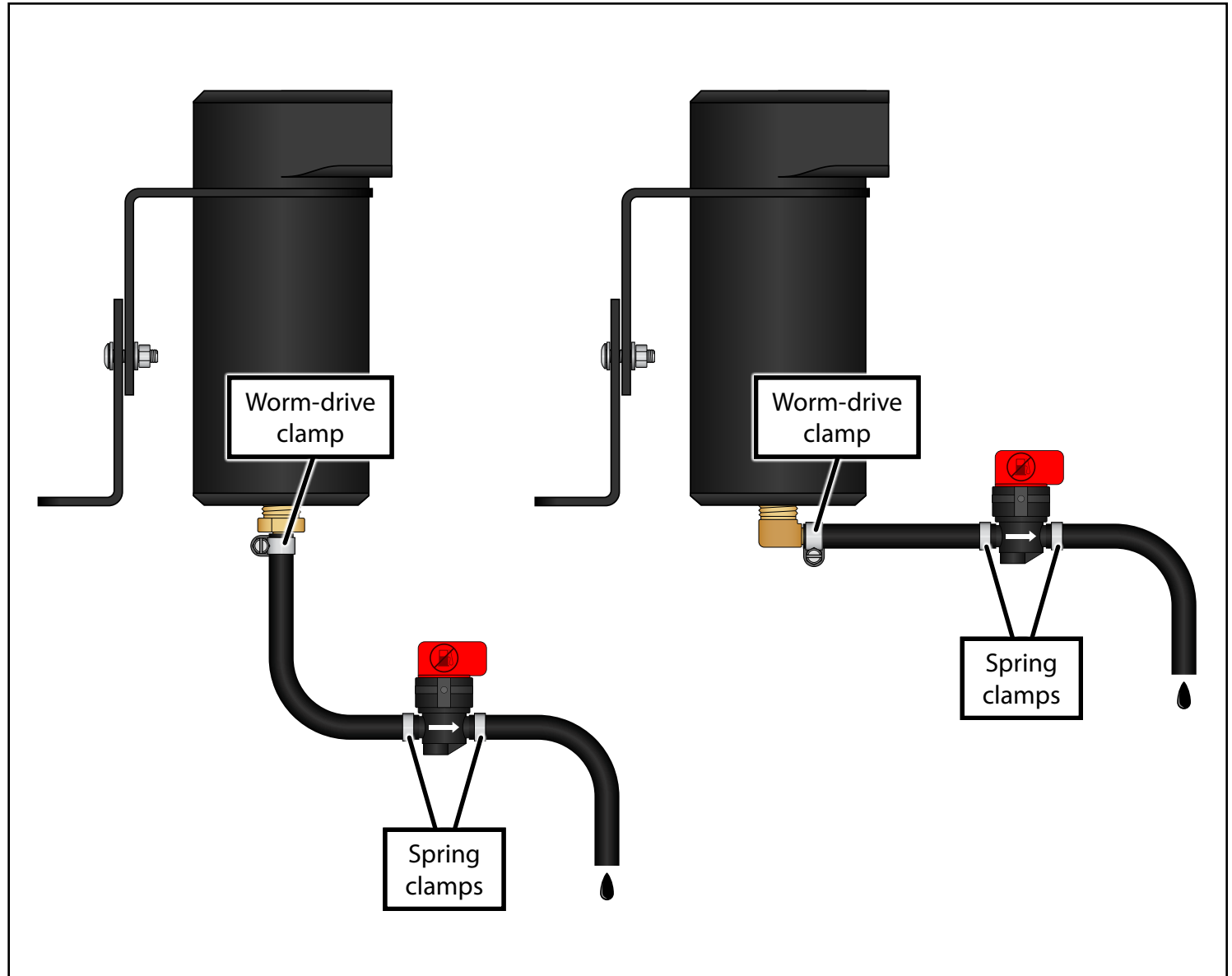
CATCH CAN DRAIN SYSTEM INSTALLATION GUIDELINES

Step 1:

Let's take a moment and look at the catch can drain system, the diagram on the right shows two different system configurations.

This system has been designed with flexibility in mind, YOU get to choose where you want the drain valve to be located in the vehicle. You want the valve mounted up high so you can drain the system from under the hood? No problem! You want to route the hose down to the bottom side near the oil pan for easy access during oil changes? You got it!

Reference the diagram on the right and familiarize yourself with the overall system layout, then proceed to the next page.



CATCH CAN DRAIN SYSTEM INSTALLATION GUIDELINES

Step 2:

All of our catch cans feature a 1/4" NPT black zinc plated brass plug in the bottom of the can, you can easily remove this plug with the included 1/4" allen key.

You will need to select one of the two 1/4" NPT to 1/4" brass hose barb fittings; one is straight, while the other has a 90° bend. Select the fitting which allows you to route the drain hose to wherever you want to access it from in the vehicle.

Apply thread sealant to the threads on one of the two 1/4" NPT to 1/4" brass hose barb fittings, then install the new fitting in place of the plug we removed earlier.

Route the hose to your desired location, securing it along the way, then attach the drain valve and tighten all of the clamps.



Use an appropriately sized wrench to turn the hose barb fitting into the catch can, stop once it is snug.

Your catch can drain installation is complete!



CLEANING AND MAINTENANCE

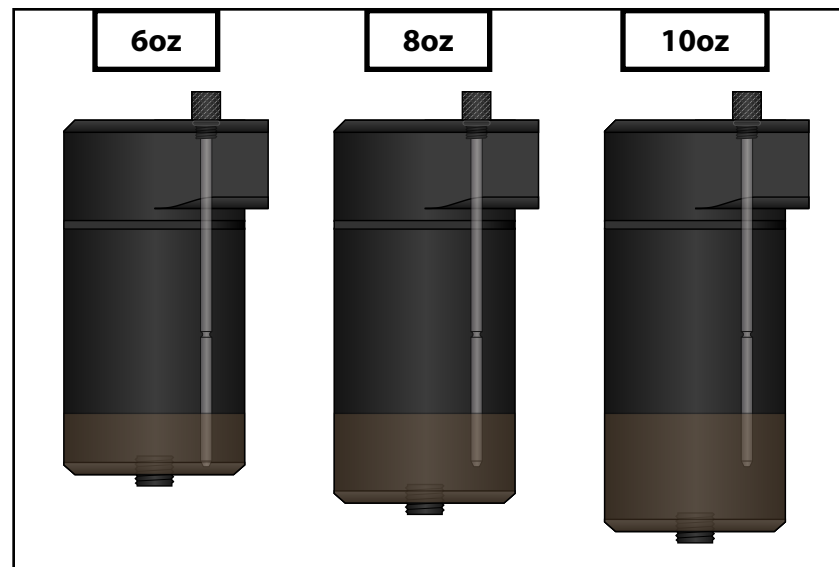
Step 1:

We recommend that you check the level of the waste in your catch can on a regular basis. Start with once a week until you determine the amount of time it takes your car to fill the reservoir.

Note that if you have the 8oz or the 10oz reservoir, the dipstick will not reach all the way to the bottom. When you begin to see waste register on the dipstick you will already have some buildup in the bottom.

The dipstick reaches the bottom on the 6oz reservoir, waste will register on the dipstick as soon as it begins to collect.

Empty and clean either reservoir when the waste registers approximately 2" up on the dipstick.

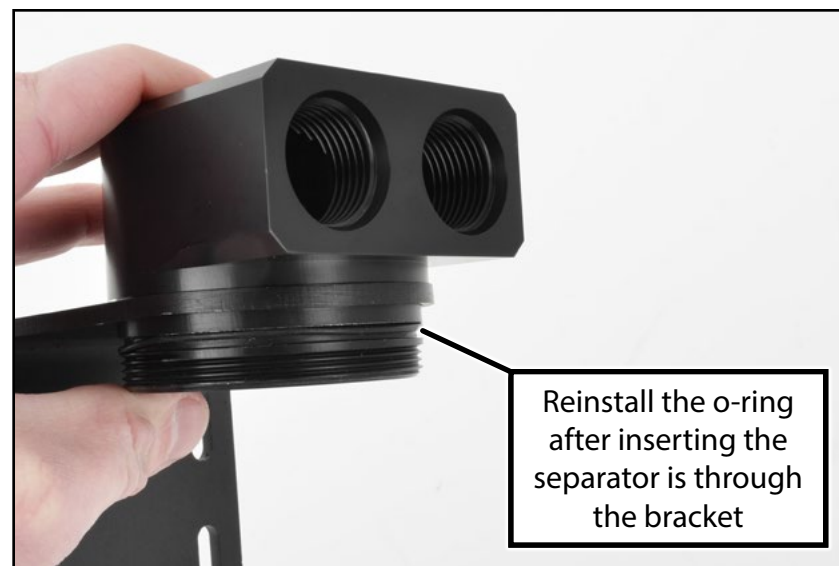


Step 2:

About twice a year, we recommend that you remove the separator for cleaning. To remove it, remove the hoses and the reservoir. Remember to remove the o-ring seal, then lift the separator out of the bracket.



If the o-ring seal needs to be replaced, it is available as a replacement part on our website: [T#402946](#)



CLEANING AND MAINTENANCE

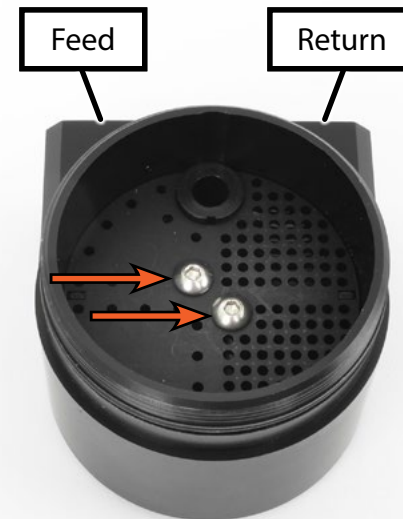
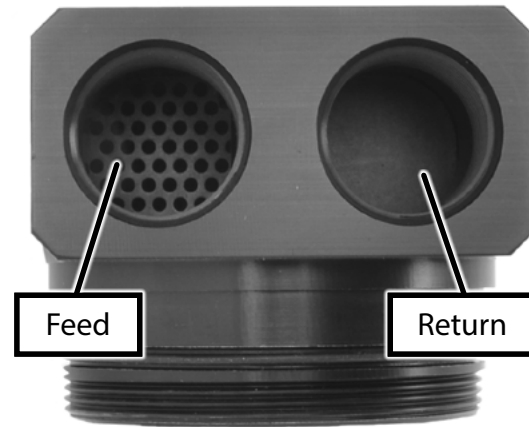
Step 3:

Once you have removed the separator, note the orientation of the baffle inside. The feed side of the separator has a number of small holes in it, the return side looks like a flat plate.

Step 4:

Using the 2.5mm allen wrench included with the kit, remove the two baffle plate screws.

Standard Flow Shown Below:



CLEANING AND MAINTENANCE

Step 5:

Lift the baffle plate out of the separator housing.



Step 6:

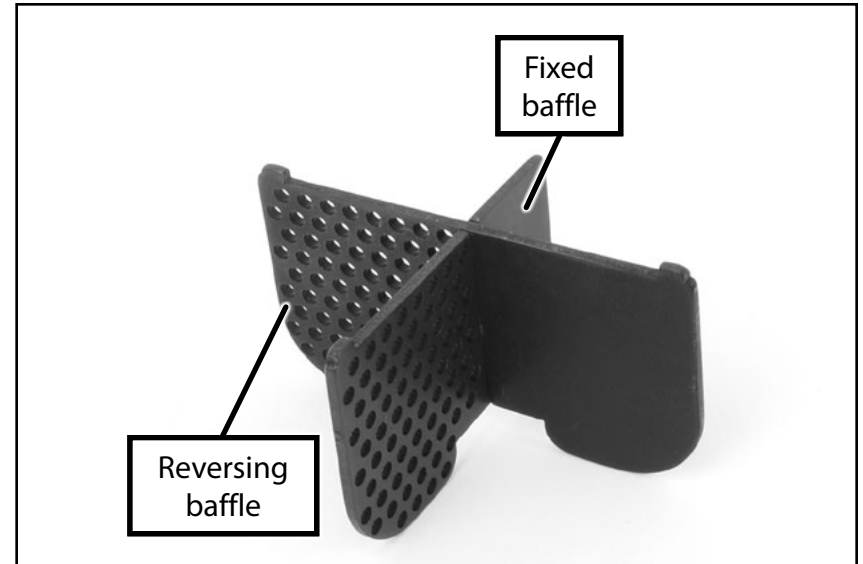
Lift the remaining baffles out of the separator housing.



CLEANING AND MAINTENANCE

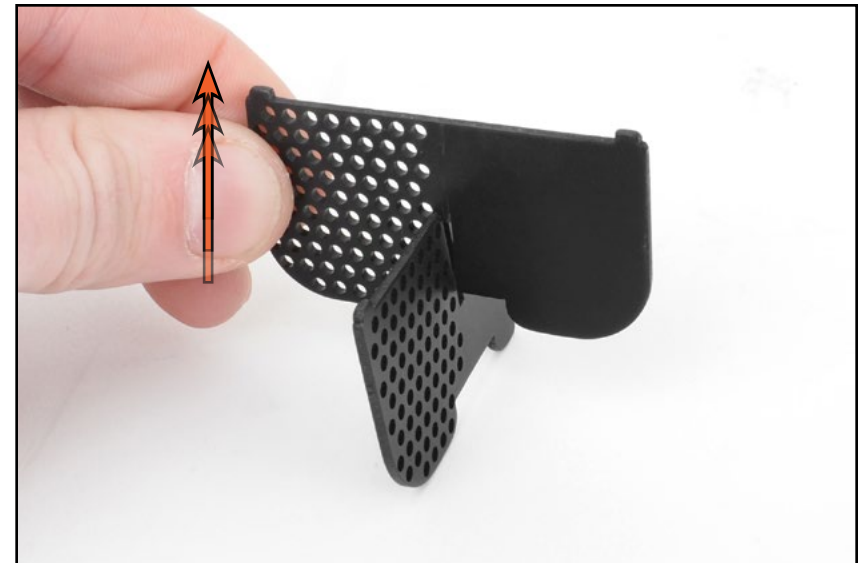
Step 7:

Note the positions of the fixed baffle and the reversing baffle.



Step 8:

Slide the two baffles apart.



CLEANING AND MAINTENANCE

Step 9:

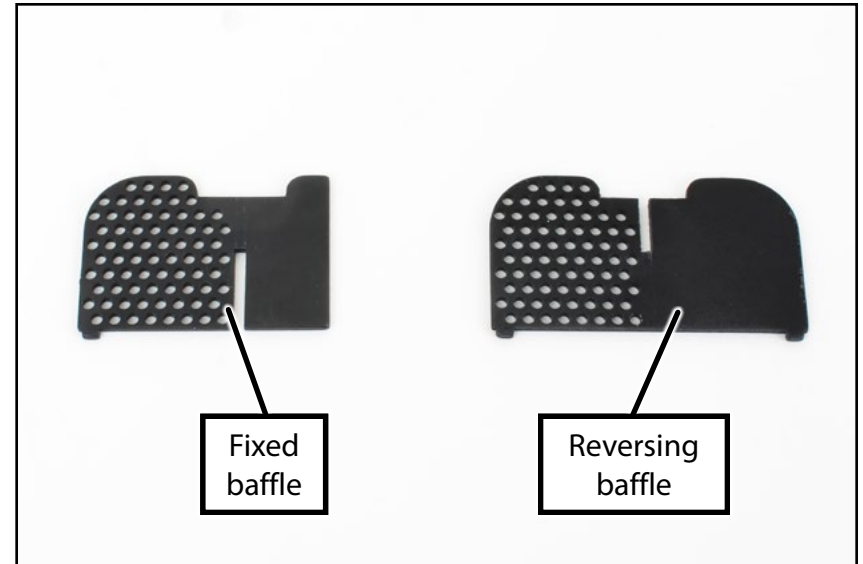
Clean the separator baffles, housing, and reservoir, using any mild cleanser or solvent. Note in the picture on the right that the fixed baffle is shorter than the reversing baffle.



Any mild cleanser or solvent can be used to clean the catch can, however we recommend that you test all cleansers on an inconspicuous area inside the reservoir to check for discoloration before you clean the outside surfaces.

Step 10:

Reassemble the baffles into the separator housing and make sure that the baffles have not been reversed and the feed and return sides are positioned correctly. Reference step 4 in this section to make sure it is properly installed.



CLEANING AND MAINTENANCE - COLD WEATHER

COLD TEMPERATURE WARNING



In cold temperatures, the crank vent system will generate a much greater amount of moisture which can present a risk of freezing.

When the temperature outside approaches freezing, your catch can should be cleaned on a weekly basis to prevent freeze up of the crank vent system and damage to engine seals.

When the temperature drops below freezing, we recommend reinstalling your original crank vent system components to prevent freeze up of the crank vent system and damage to engine seals.

REVERSING THE FLOW OF THE CATCH CAN

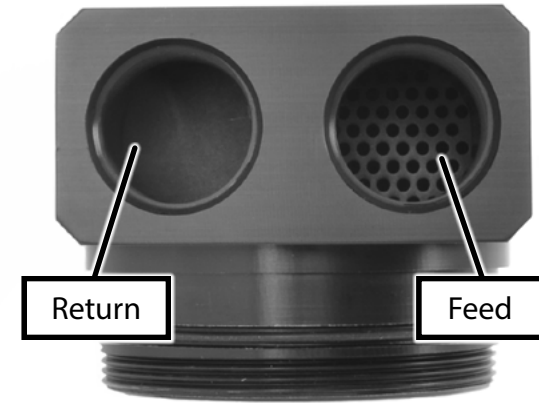
Step 1:

You can reverse the flow of your catch can in order to create the best mounting location and hose routing for your application. To begin, look into the separator and identify where the feed and return sides are oriented from when the catch can was originally assembled. The feed side of the separator has a number of small holes in it, the return side looks like a flat plate.

Step 2:

Using the 2.5mm allen wrench included with the separator, remove the two baffle plate screws (arrows).

Reverse Flow Shown Below:



Return

Feed



REVERSING THE FLOW OF THE CATCH CAN

Step 3:

Lift the baffle plate out of the separator housing.



Step 4:

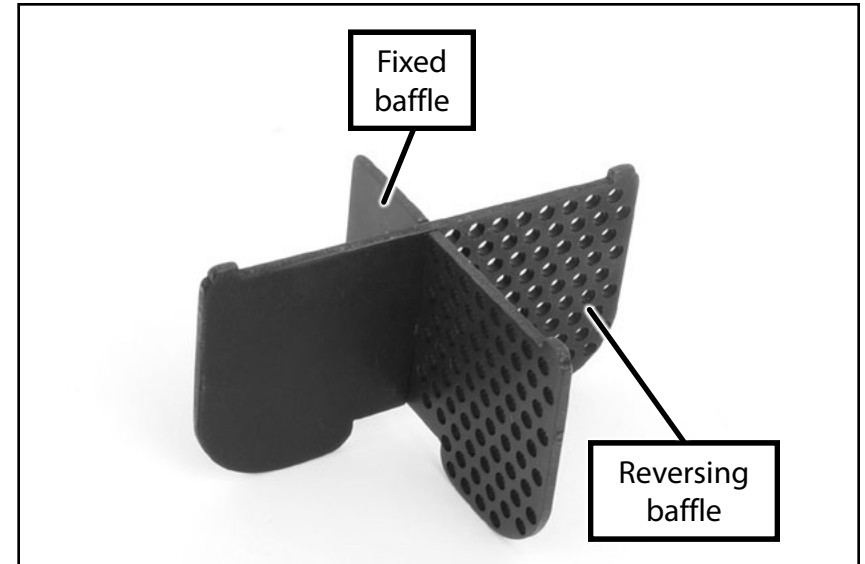
Lift the remaining baffles out of the separator housing. Note the position of the inlet screen on the reversing baffle (arrow).



REVERSING THE FLOW OF THE CATCH CAN

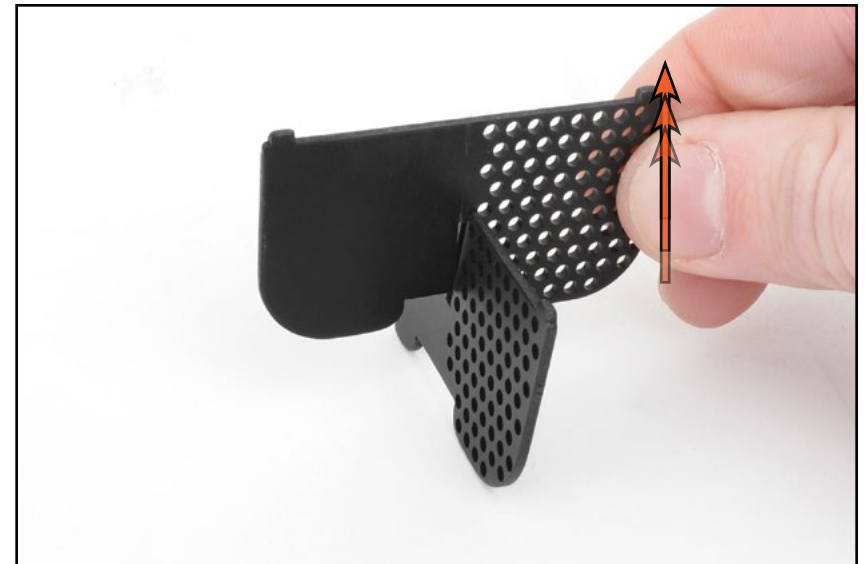
Step 5:

Note the positions of the fixed baffle and the reversing baffle.



Step 6:

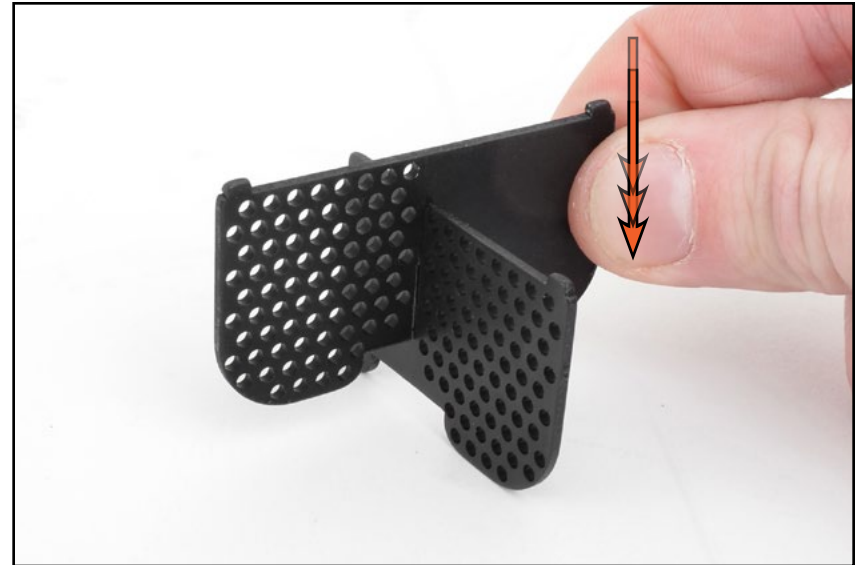
Slide the two baffles apart.



REVERSING THE FLOW OF THE CATCH CAN

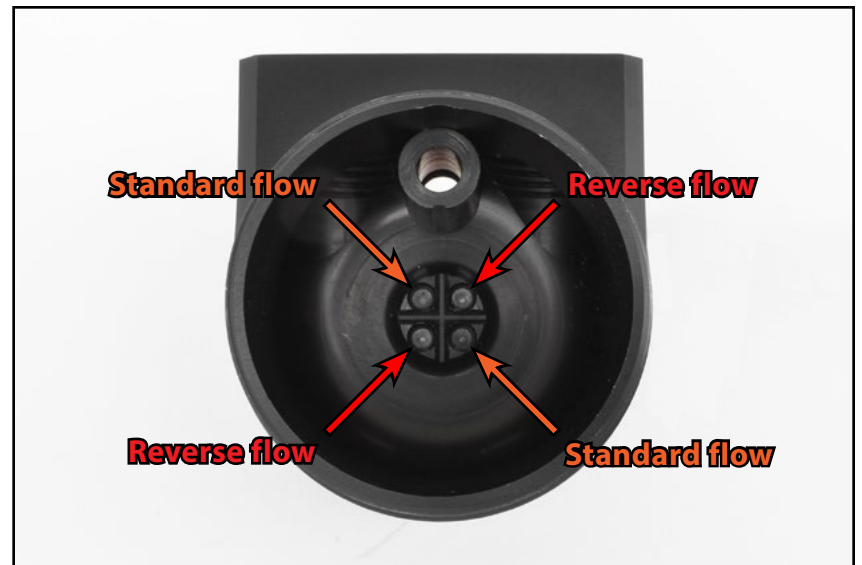
Step 7:

Flip the reversing baffle and slide it back onto the fixed baffle.



Step 8:

Inspect the inside of the separator housing. You will see that there are two sets of threaded holes for the baffle plate screws. When you reverse the flow, you will use the opposite holes when reinstalling the baffle plate screws.



REVERSING THE FLOW OF THE CATCH CAN

Step 9:

Reinstall the baffles into the separator housing. Note that the inlet screen on the reversing baffle should now be located on the opposite side.



Step 10:

Flip the baffle plate so it is opposite of the removal position and place it back into the separator housing.



REVERSING THE FLOW OF THE CATCH CAN

Step 11:

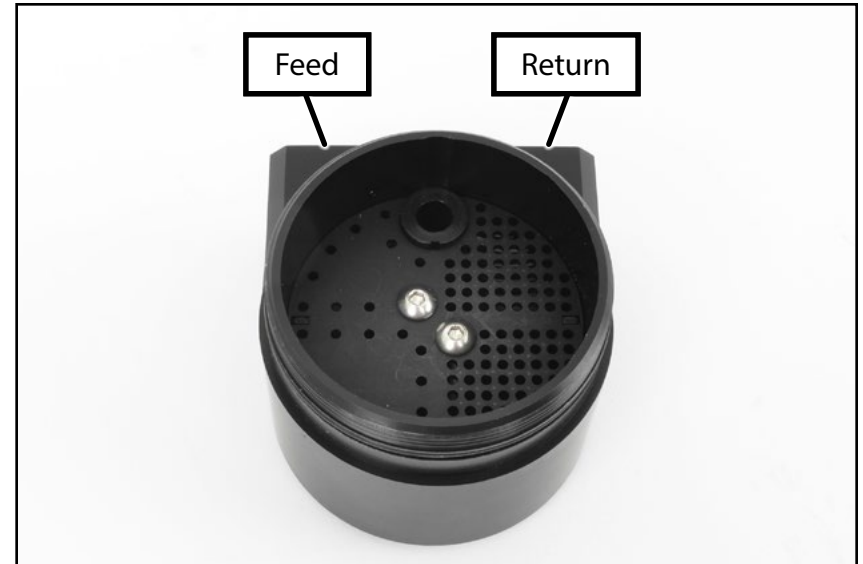
Reinstall the baffle plate screws utilizing the opposite holes in the separator housing. Compare the new baffle plate position with step 2 in this section to make sure it is properly installed for standard flow.

Step 12:

Your standard flow separator will now have the feed side and return side located as shown in the photo.



If you need to return to the installation steps please click [HERE](#).



Your Catch Can System installation is complete!



These instructions are provided as a courtesy by Turner Motorsport

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