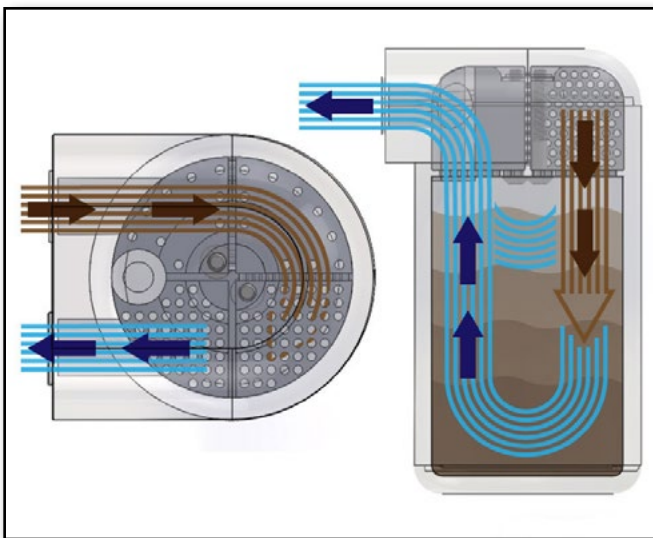




Baffled Oil Catch Can System Installation Guide



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

ECS Tuning Performance Baffled Oil Catch Can System

Our Catch Can System offers the following features:

- Constructed of strong and lightweight 6061-T6 billet aluminum
- Black anodized for corrosion resistance
- In-house designed and engineered
- Universal mounting bracket and hardware included
- Includes a dipstick to check content level
- Fully serviceable and completely reversible

ECS Difficulty Gauge



1 - Easy

Pro - 4

2 - Moderate

Advanced - 3

Excess oil coating the inside of the intake from the crank vent system on your vehicle will lead to excessive deposits and carbon build up on the back of the intake valves, resulting in power loss and poor driveability. Stop the problem from developing and prevent expensive repairs by installing our ECS Tuning catch can system. These systems utilize universal mounting brackets and hardware, but you have the ability to either custom build or locate your own hoses/lines to connect the system to your PCV system.

Thank you for purchasing our Catch Can Kit, we appreciate your business!

TABLE OF CONTENTS

Kit Contents	pg.4
Required Tools and Equipment	pg.5
Shop Supplies and Materials	pg.6
Installation and Safety Information	pg.7
PCV System Operation	pg.8
Catch Can Installation Guidelines	pg.9
Catch Can Drain System Components	pg.12
Catch Can Drain System Installation Guidelines	pg.13
Cleaning and Maintenance	pg.15
Reversing the Flow of the Catch Can	pg.21
Schwaben Tools	pg.27

CATCH CAN KIT CONTENTS



Catch Can Reservoir
(QTY 1)



Baffled Separator (QTY 1)
2.5mm Allen Key (QTY 1)



Catch Can Dipstick
(QTY 1)

UNIVERSAL MOUNTING BRACKET KIT CONTENTS



Angled Catch Can Bracket
(QTY 1)



Flat Catch Can Bracket
(QTY 1)



Riser Bracket
(QTY 1)



Bracket Mounting Hardware

REQUIRED TOOLS

Note: The tools required for each step will be listed by the step number throughout these instructions.

Standard Automotive Tools

- Protecta-Sockets (for lug nuts).....[ES#2221243](#)
- **3/8" Drive Ratchet**.....[ES#2765902](#)
- 3/8" Drive Torque Wrench.....[ES#2221245](#)
- **3/8" Drive Deep and Shallow Sockets**[ES#2763772](#)
- 3/8" Drive Extensions[ES#2804822](#)
- Hydraulic Floor Jack[ES#2834951](#)
- **Torx Drivers and Sockets**[ES#11417/8](#)
- 1/2" Drive Deep and Shallow Sockets.....[ES#2839106](#)
- 1/2" Drive Ratchet
- 1/2" Drive Extensions
- 1/2" Drive Torque Wrench.....[ES#2221244](#)
- 1/2" Drive Breaker Bar[ES#2776653](#)
- Bench Mounted Vise
- Crows Foot Wrenches
- **Hook and Pick Tool Set**.....[ES#2778980](#)

Required For This Install

Available On Our Website

- **1/4" Drive Ratchet**.....[ES#2823235](#)
- **1/4" Drive Deep and Shallow Sockets**.....[ES#2823235](#)
- **1/4" Drive Extensions**.....[ES#2823235](#)
- Plier and Cutter Set.....[ES#2804496](#)
- **Flat and Phillips Screwdrivers**[ES#2225921](#)
- Jack Stands.....[ES#2763355](#)
- Ball Pein Hammers
- Pry Bar Set.....[ES#1899378](#)
- Electric/Cordless Drill
- Wire Strippers/Crimpers
- **Adjustable (Crescent) Type Wrenches**
- Punch and Chisel Set
- **Hex Bit (Allen) Wrenches and Sockets**[ES#11420](#)
- Thread Repair Tools[ES#1306824](#)
- **Open/Boxed End Wrench Set**.....[ES#2765907](#)

SHOP SUPPLIES AND MATERIALS

Standard Shop Supply Recommendations: We recommend that you have a standard inventory of automotive shop supplies before beginning this or any automotive repair procedure. The following list outlines the basic shop supplies that we like to keep on hand. Shop supplies with a hyperlink are available on our website.

- Hand Cleaner/Degreaser - [Click Here](#)
- Pig Mats - for protecting your garage floor and work area from spills and stains - [Click Here](#)
- Spray detailer - for rapid cleaning of anything that comes into contact with your paint such as brake fluid - [Click Here](#)
- Micro Fiber Towels - for cleaning the paint on your car - [Click Here](#)
- Latex Gloves - for the extra oily and dirty jobs - [Click Here](#)
- Medium and High Strength Loctite Thread lock compound - to prevent bolts from backing out - [Click Here](#)
- Anti-Seize Compound - to prevent seizing, galling, and corrosion of fasteners - [Click Here](#)
- Aerosol Brake/Parts Cleaner - for cleaning and degreasing parts
- Shop Rags - used for wiping hands, tools, and parts
- Penetrating oil - for helping to free rusted or stuck bolts and nuts
- Mechanics wire - for securing components out of the way
- Silicone spray lube - for rubber components such as exhaust hangers
- Paint Marker - for marking installation positions or bolts during a torquing sequence
- Plastic Wire Ties/Zip Ties - for routing and securing wiring harnesses or vacuum hoses
- Electrical tape - for wrapping wiring harnesses or temporary securing of small components

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

ECS Tuning 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.

PCV SYSTEM OPERATION

In order to properly install a catch can on any application, you must first have a basic understanding of the PCV system operation on your car so you can determine the correct position of the feed and return hoses. We will begin here with a quick run-down of the PCV system.

PCV, or Positive Crankcase Ventilation, is an emission control which has been mandated for use since the 1960's.

How it works:

No piston ring seals perfectly. Some combustion gas blows past the rings into the crankcase on each power stroke. The gas contains exhaust fumes, raw fuel, and water. These blow-by gases will accumulate and build pressure inside the crankcase. If the pressure gets too great, it will push engine oil past seals and gaskets causing multiple oil leaks. The fuel and water also contaminate the engine oil.

Pre-PCV cars vented crankcase pressure to the atmosphere through a vent pipe or mesh restriction, commonly located in the oil fill cap. This was not only polluting the atmosphere, but was inefficient and left a lot of raw blow-by gas and water inside the crankcase, where it quickly contaminated the engine oil, creating sludge and oil breakdown.

The modern PCV system draws these harmful blow-by gases and vapors back to the intake plenum where they make up a small part of the combustion air charge. More importantly, the system replaces blow-by contamination with fresh, filtered air that dilutes contamination to reduce concentrations of acids, oxidants, and water in the engine oil.

To minimize the amount of liquid oil drawn through the PCV valve, many modern engine designs - including those from Euro-car manufacturers, now include a separator that removes liquid oil from recirculated gases and returns it to the crankcase before it can be sucked back to the intake. This reduces oil consumption and protects sensors and catalytic converters from contamination, however in many cases they are not completely successful at removing all of the oil.

Turbocharged engines pose special problems since boost pressure increases blow-by volume and can easily turn manifold vacuum into boost pressure greater than crankcase pressure, disrupting normal PCV flow. Special crankcase ventilation methods are required in boosted engines, such as more sophisticated oil separation devices and/or catch cans.

CATCH CAN INSTALLATION GUIDELINES

Overview:

When installing your catch can, first identify the components of your PCV system and determine where you will locate the feed and return hoses.

Next determine where you will mount the catch can.

All of our catch cans are assembled with the feed (inlet) on the left and the return (outlet) on the right. To improve your options for hose routing and catch can location, you may reverse the flow of the catch can.

Obtain the necessary hardware and hoses you will need. The fittings on our catch can separators are -10 AN ORB (O-ring boss) fittings.

We recommend the use of braided hose that is oil and fuel resistant and rated for automotive use, or our silicone hoses which are also rated for automotive use.

Our bracket kit gives you a number of different options for mounting the catch can, some examples are shown on the right.

Route your feed and return hoses so they do not interfere with or rub on any moving or hot components.

Connect the feed hose between the crankcase and the catch can.

Connect the return hose between the catch can and your intake system.

Standard Flow Shown Below:



CATCH CAN INSTALLATION GUIDELINES

Overview:

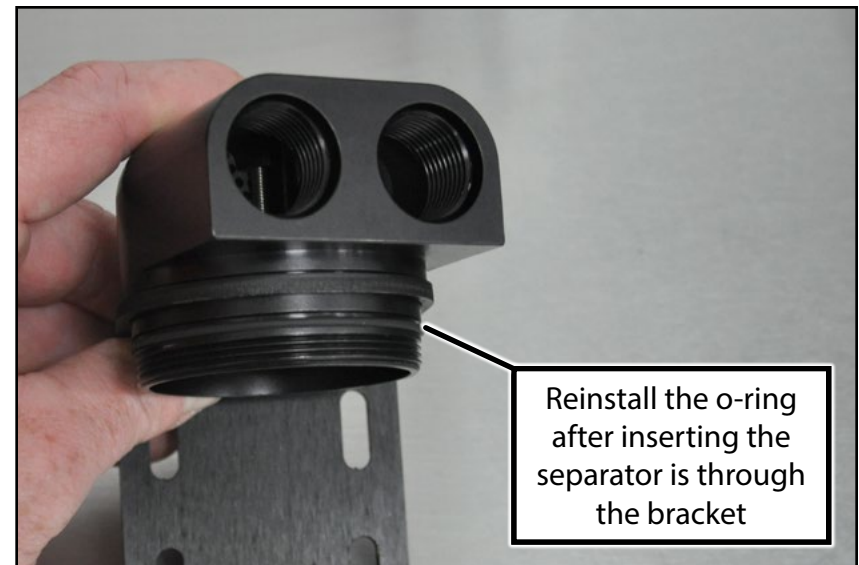
Our catch cans are designed so the separator will be installed through the top of the bracket, then the reservoir threaded on from the bottom. When the reservoir is completely tightened, it will lock the catch can in place in the bracket.

When installing the separator into the bracket, be sure and **ALWAYS** remove the o-ring seal first. Failure to do so will damage the o-ring.

After the separator is through the bracket, reinstall the o-ring seal.

Lubricate the o-ring seal with clean engine oil before threading on the reservoir.

It is only necessary to tighten the reservoir by hand. Do not use any tools.



CATCH CAN INSTALLATION GUIDELINES

System Diagram:

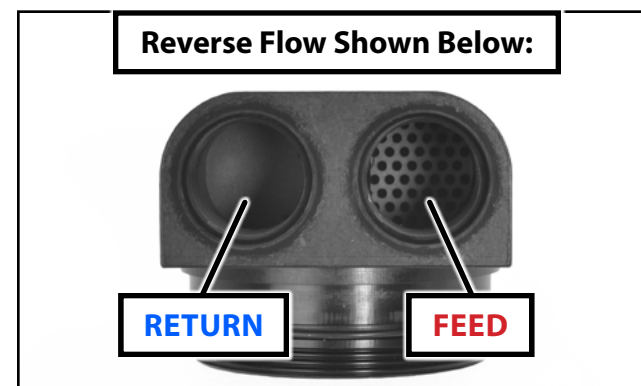
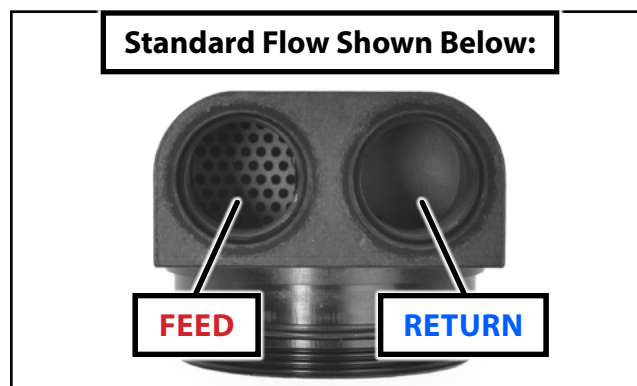
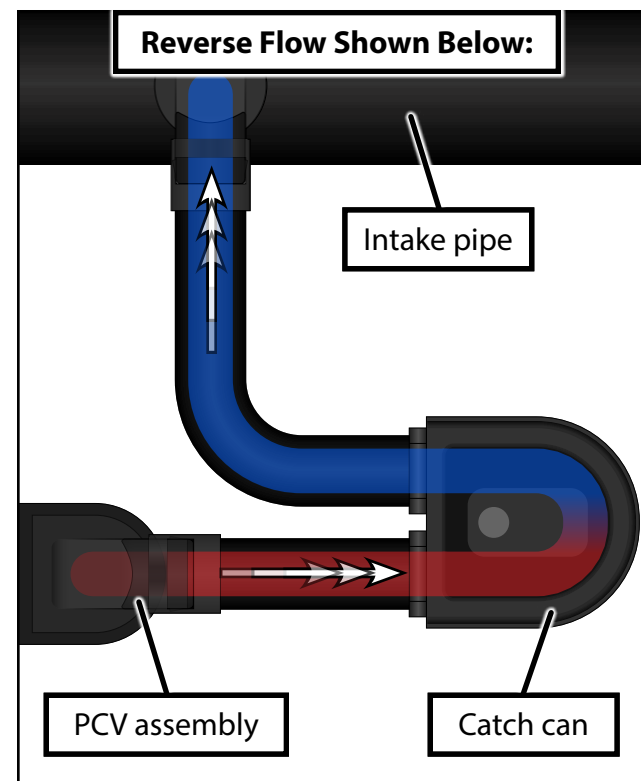
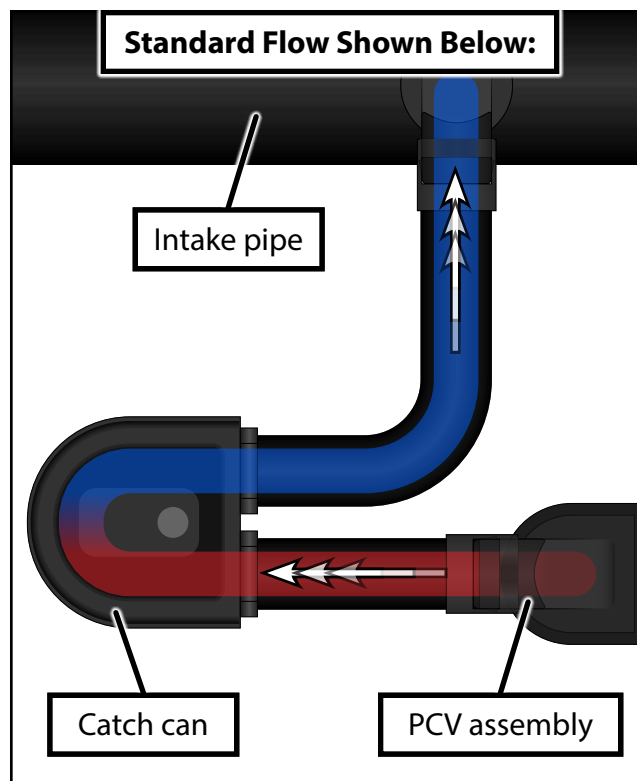
Let's take a moment and look at how our catch can system interacts with the PCV system on your vehicle.

The illustrations on the right represent the installation of our catch can kit onto an N54-equipped BMW. In this setup we removed a crank vent hose from the back of the PCV assembly and added the catch can in its place. The ultra-fine oil vapors from the PCV assembly enter the feed hose (RED), they then enter the catch can and pass through the four chamber baffle system to maximize oil/air separation. From there they are directed through the return hose (BLUE) and into the intake pipe. Note how you can utilize a reverse flow catch can as long as the feed and return hoses are positioned properly.



Select one of the following:

- Continue to the next page for drain system installation.
- Click [HERE](#) for catch can cleaning & maintenance.
- Click [HERE](#) for catch can flow reversal.



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)



1/4" Allen Key
(QTY 1)

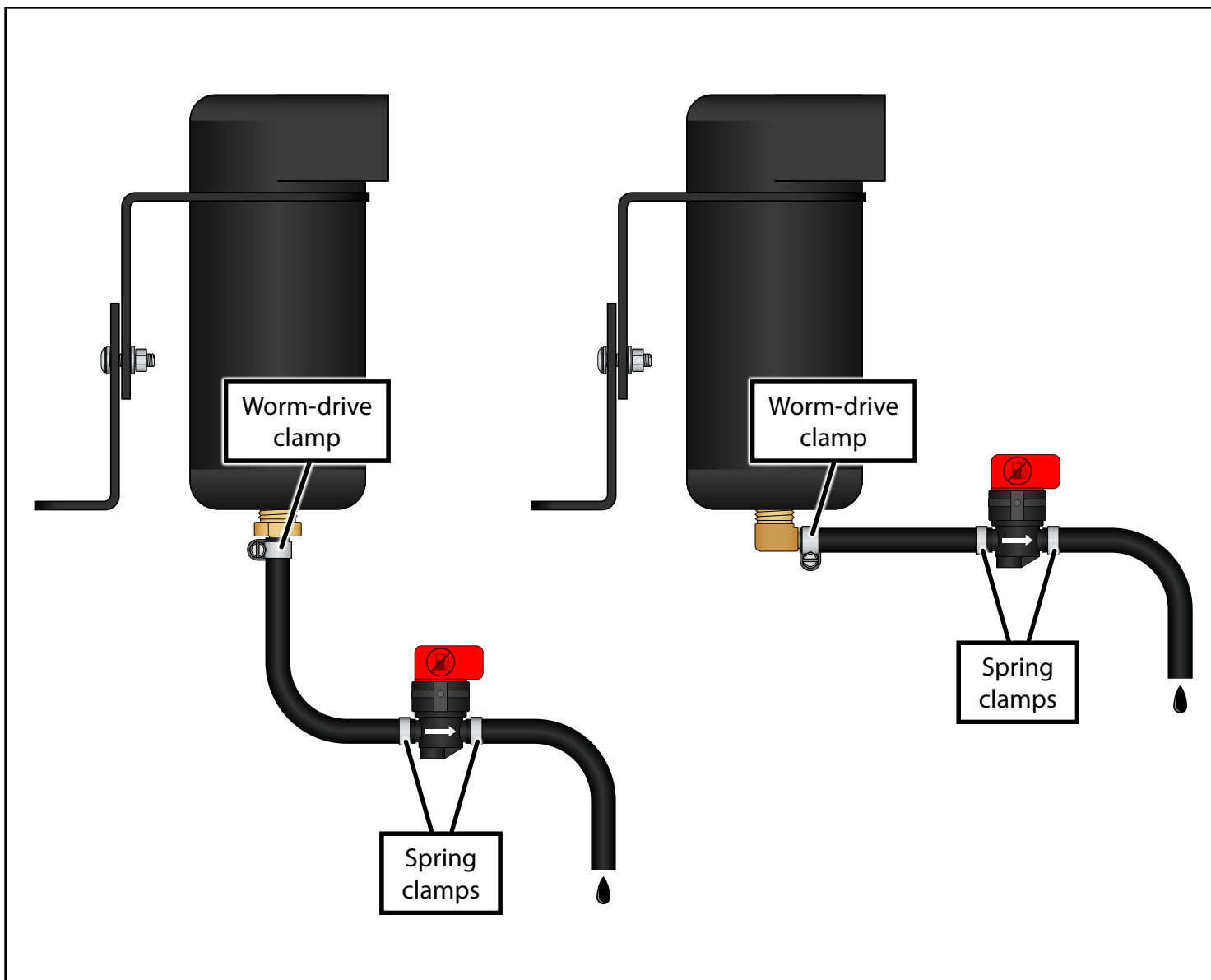
CATCH CAN DRAIN SYSTEM INSTALLATION GUIDELINES

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:

Newer REV catch can reservoirs feature a 1/4" NPT black zinc plated brass plug in the bottom of the reservoir. This plug can easily be removed with the 1/4" allen key which is included in the drain system.

Previous REV catch can reservoirs won't have this feature, but it can be added. You will need to drill a hole in the center of the reservoir with a 7/16" drill bit, then tap the hole with an NPT pipe thread tap (1/4" NPT, 18 threads per inch). Be sure to drill the hole as straight as possible.

Select the fitting which allows you to route the drain hose to wherever you want to access it from in the vehicle; one is straight, while the other has a 90° bend.

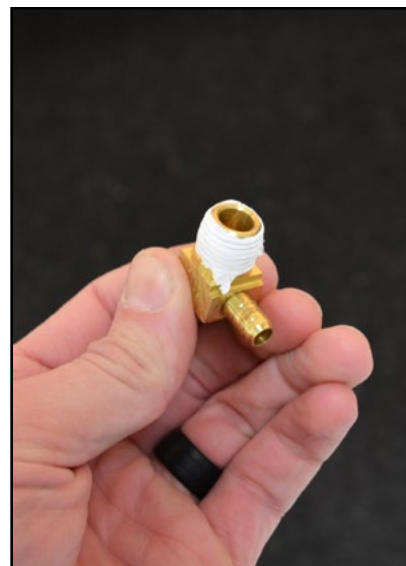
Apply thread sealant to the threads on the fitting you selected, then install the new fitting in place of the plug we removed earlier.

Route the hose to your desired location, securing it along the way with zip ties, 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 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.

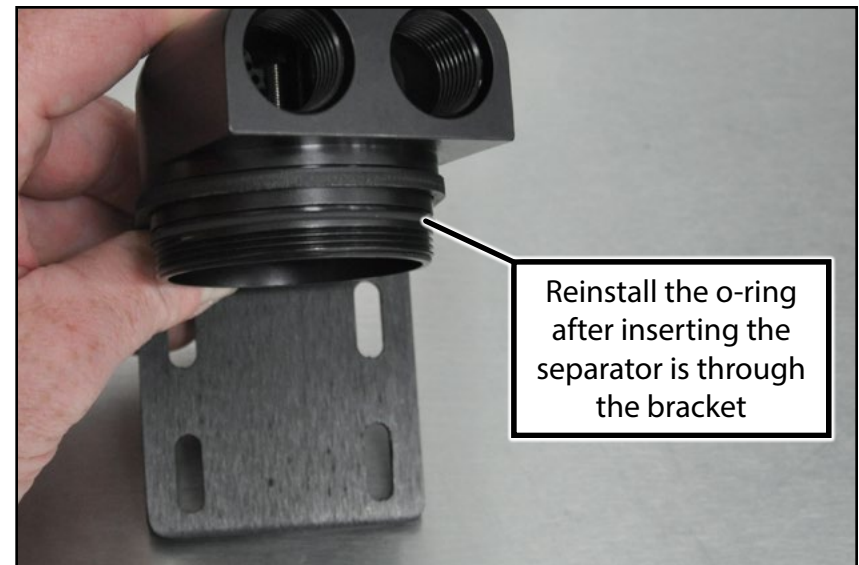
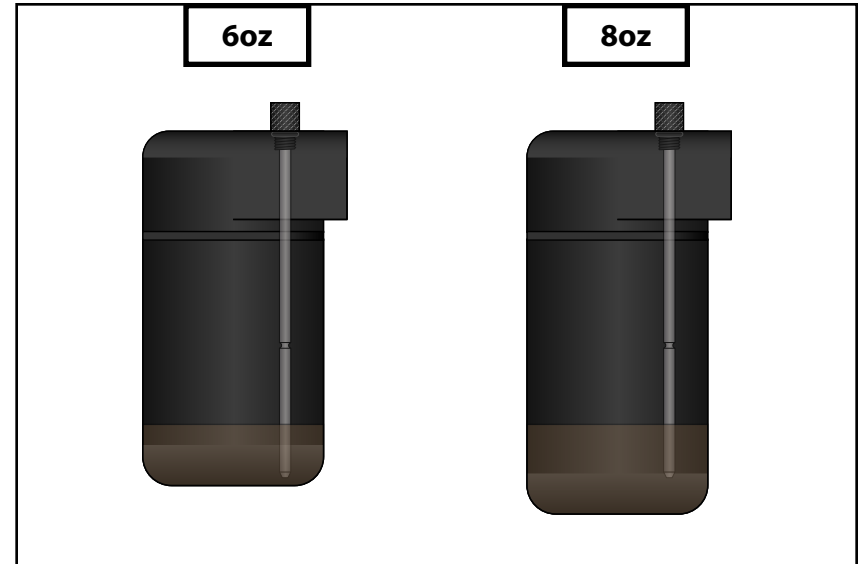
Empty and clean either reservoir when the waste registers approximately 2" up on the dipstick.

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: [ES#3097721](#).



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.



The baffle may be reversed on your separator, it is important to note the position now so the separator is reassembled in the correct order. If your catch can is set up for reverse flow, these pictures will appear backwards, but the procedure will be the same.

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:

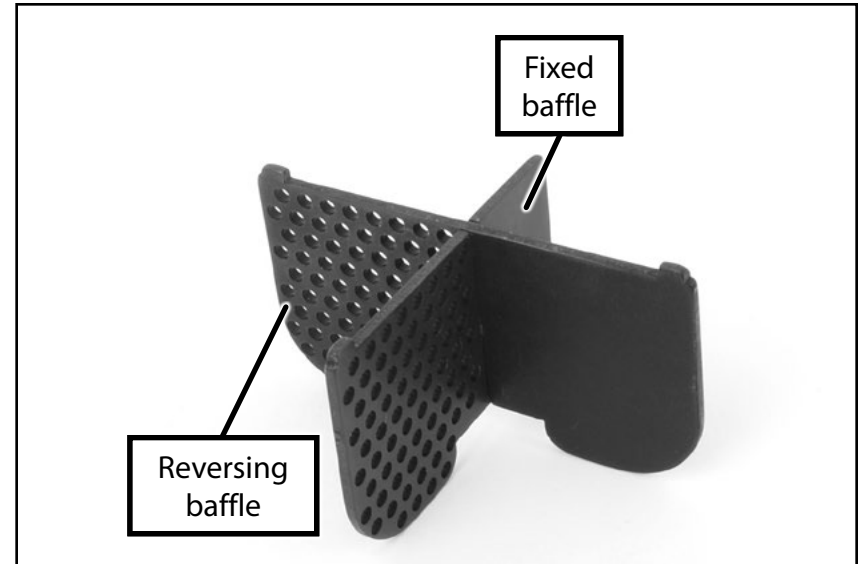
Lift the remaining baffles out of the separator housing.



CLEANING AND MAINTENANCE

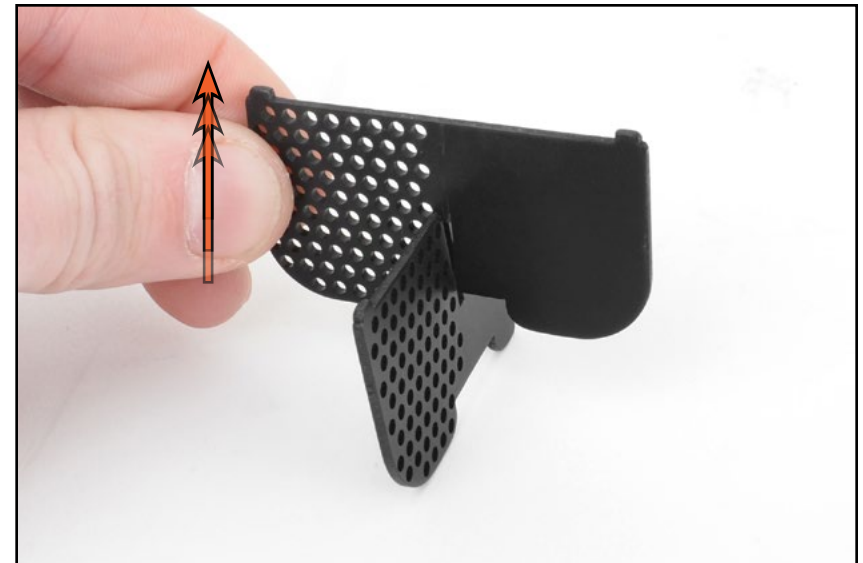
Step 7:

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



Step 8:

Slide the two baffles apart.



CLEANING AND MAINTENANCE

Step 9:

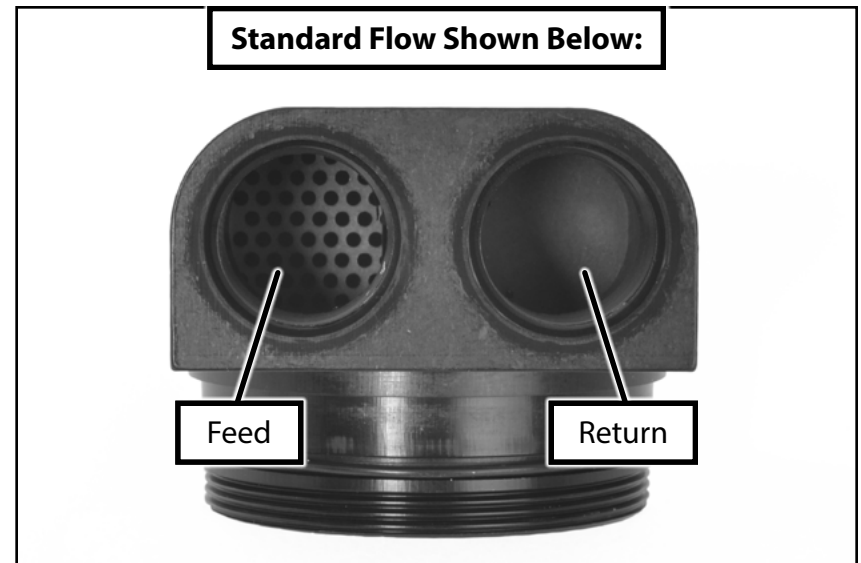
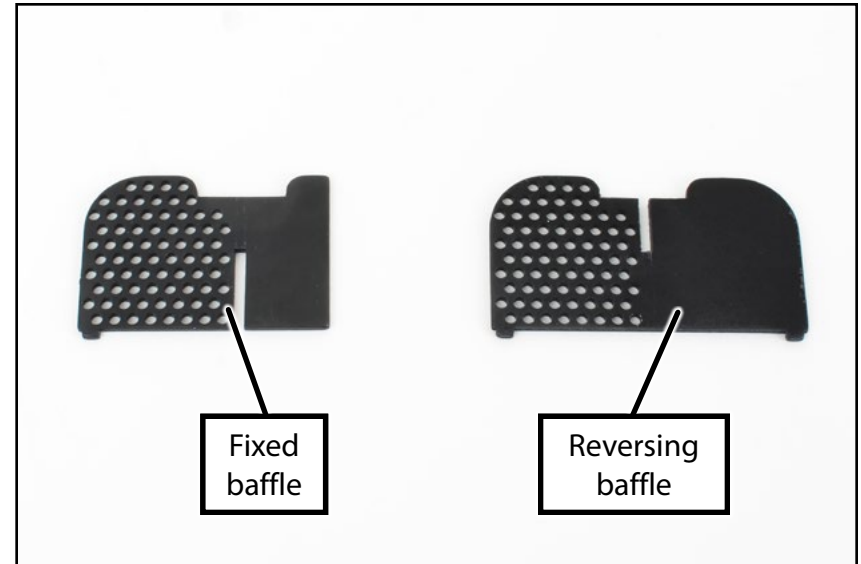
Clean the separator baffles, housing, and reservoir, using any mild cleanser or solvent. Note in the picture on the right that the fixed baffle is shorter than the reversing baffle.



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:

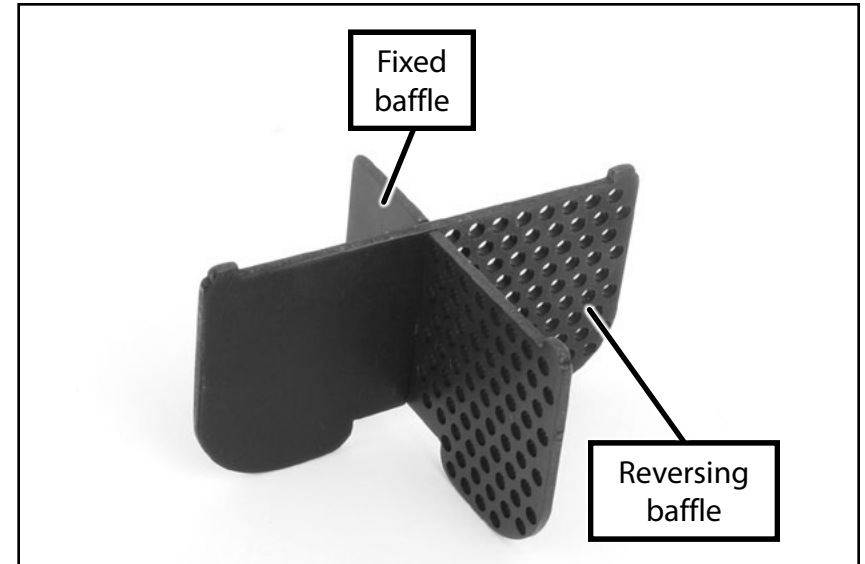
Lift the remaining baffles out of the separator housing. Note the position of the inlet screen on the reversing baffle (arrow).



REVERSING THE FLOW OF THE CATCH CAN

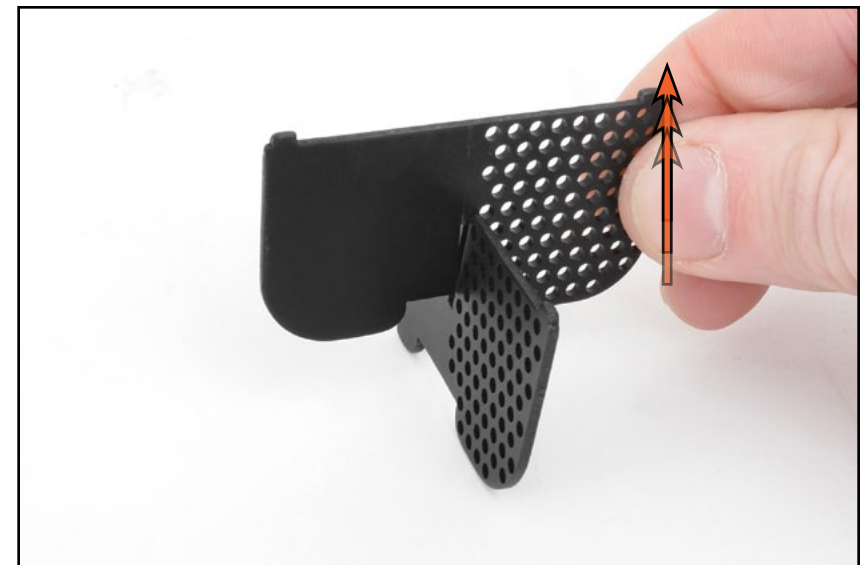
Step 5:

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



Step 6:

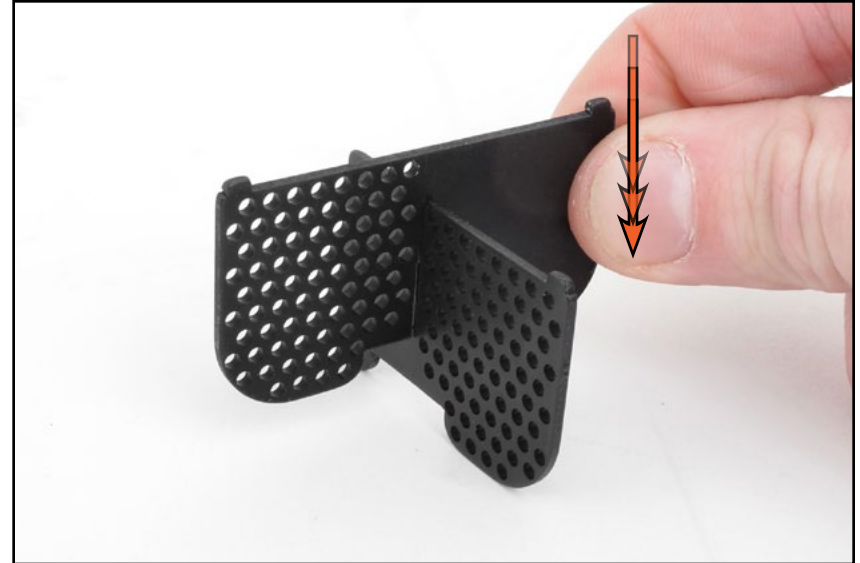
Slide the two baffles apart.



REVERSING THE FLOW OF THE CATCH CAN

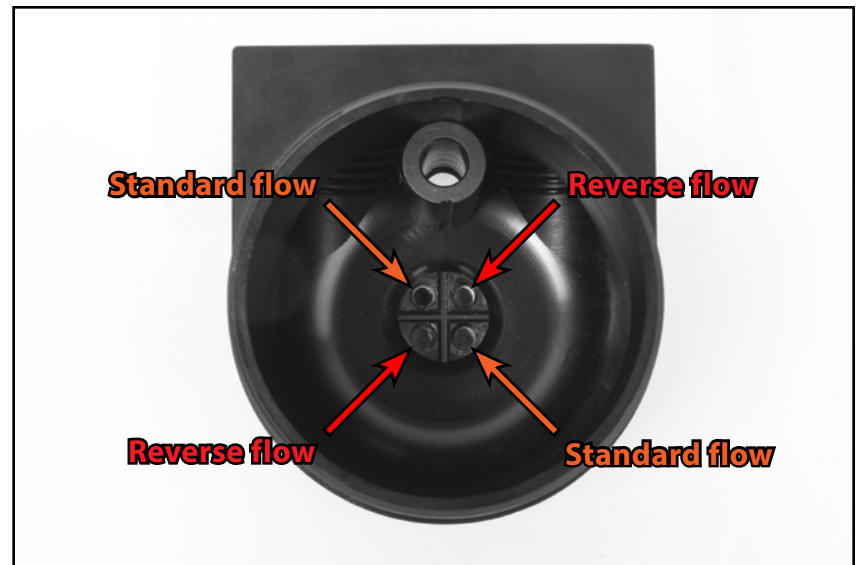
Step 7:

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:

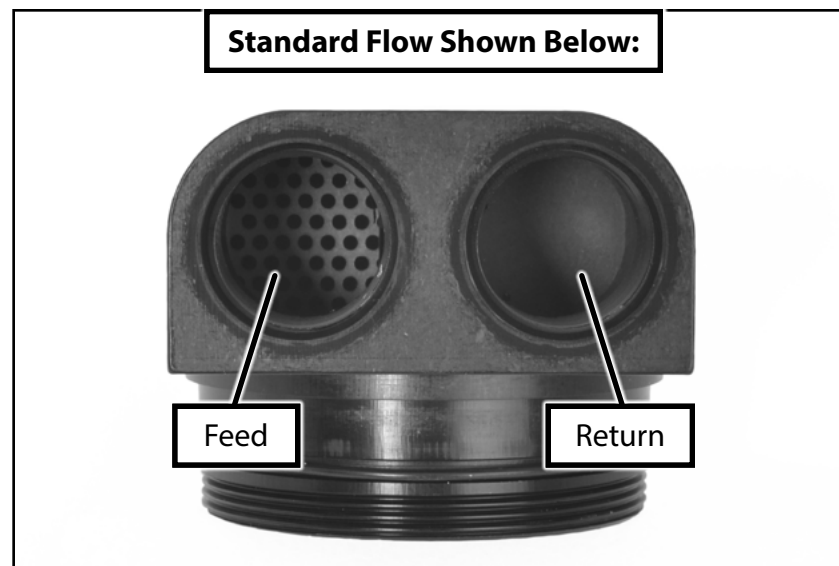
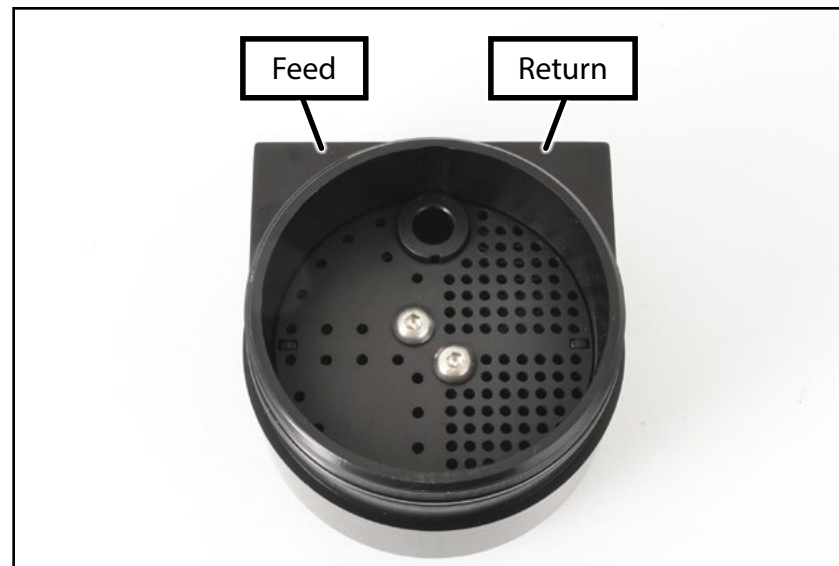
Reinstall the baffle plate screws utilizing the opposite holes in the separator housing. Compare the new baffle plate position with step 2 in this section to make sure it is properly installed for standard flow.

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](#).



SCHWABEN - BUILD THE ULTIMATE TOOL COLLECTION

At ECS Tuning, we carry a line of high quality Schwaben Tools and Equipment to help you build your ultimate tool collection. Never before has affordability and quality been so closely related. Our entire Schwaben line is subjected to strict in house testing for strength and durability. See what we have to offer and equip your garage without breaking the bank.

Your Catch Can System installation is complete!



These instructions are provided as a courtesy by ECS Tuning

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.

Although this material has been prepared with the intent to provide reliable information, no warranty (express or implied) is made as to its accuracy or completeness. Neither is any liability assumed for loss or damage resulting from reliance on this material. SPECIFICALLY, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY IS MADE OR TO BE IMPLIED WITH RESPECT TO THIS MATERIAL. In no event will ECS Tuning, Incorporated or its affiliates be liable for any damages, direct or indirect, consequential or compensatory, arising out of the use of this material.