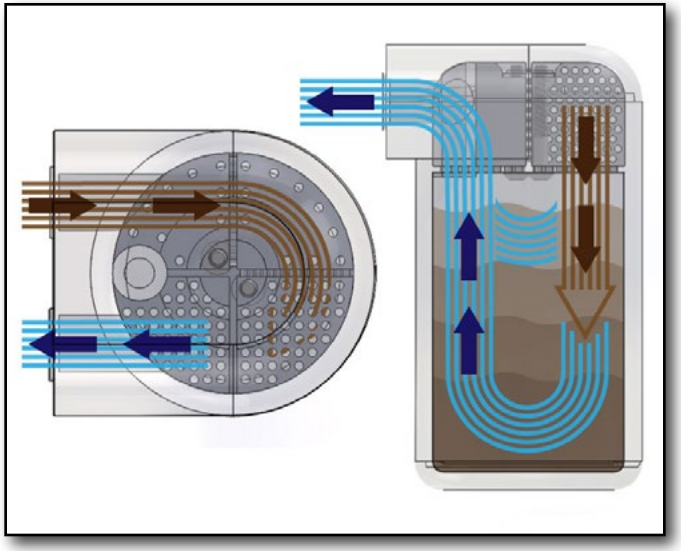
# BMW E9x N54
# Catch Can & Drain System
# Installation Guide



# INTRODUCTION

## Turner Motorsport BMW E9x N54 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
- Easy installation thanks to a chassis specific mounting bracket
- All mounting hardware included
- Vehicle specific silicone feed and return hoses
- Includes a dipstick to check content level
- Fully serviceable and completely reversible
- An optional drain system can be added for easy evacuation of collected oil from below the vehicle (sold separately)

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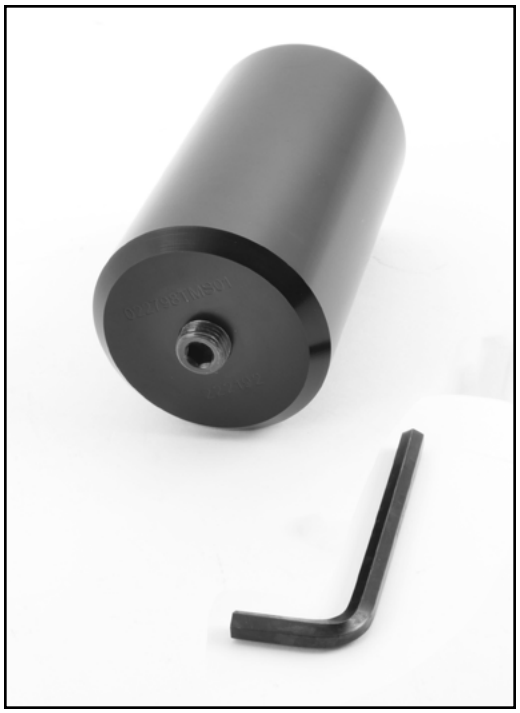
# KIT CONTENTS



Catch Can Reservoir **(QTY 1)**
(Includes a ¼" Allen Key for drain installation)

Baffled Separator (w/2.5mm Allen key for cleaning) **(QTY 1)**

Catch Can Dipstick **(QTY 1)**

-10AN ORB X ¾" Hose Fitting **(QTY 2)**

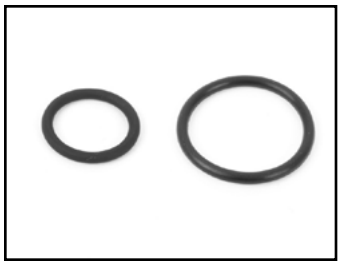
Silicone Hose Set* **(QTY 1)**
*Available in LH & RH versions

E9x Mounting Bracket* (w/M6 Nuts)
*Available in LH & RH versions

N54 PCV Plug **(QTY 1)**

20-32mm Hose Clamp **(QTY 2)**

1.05" Plastic Hose Clamp **(QTY 2)**



16mm ID O-Ring **(QTY 1)**
28mm ID O-Ring **(QTY 1)**

Fir Tree Pipe Clip* **(QTY 1)**
*LH version only

# 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.

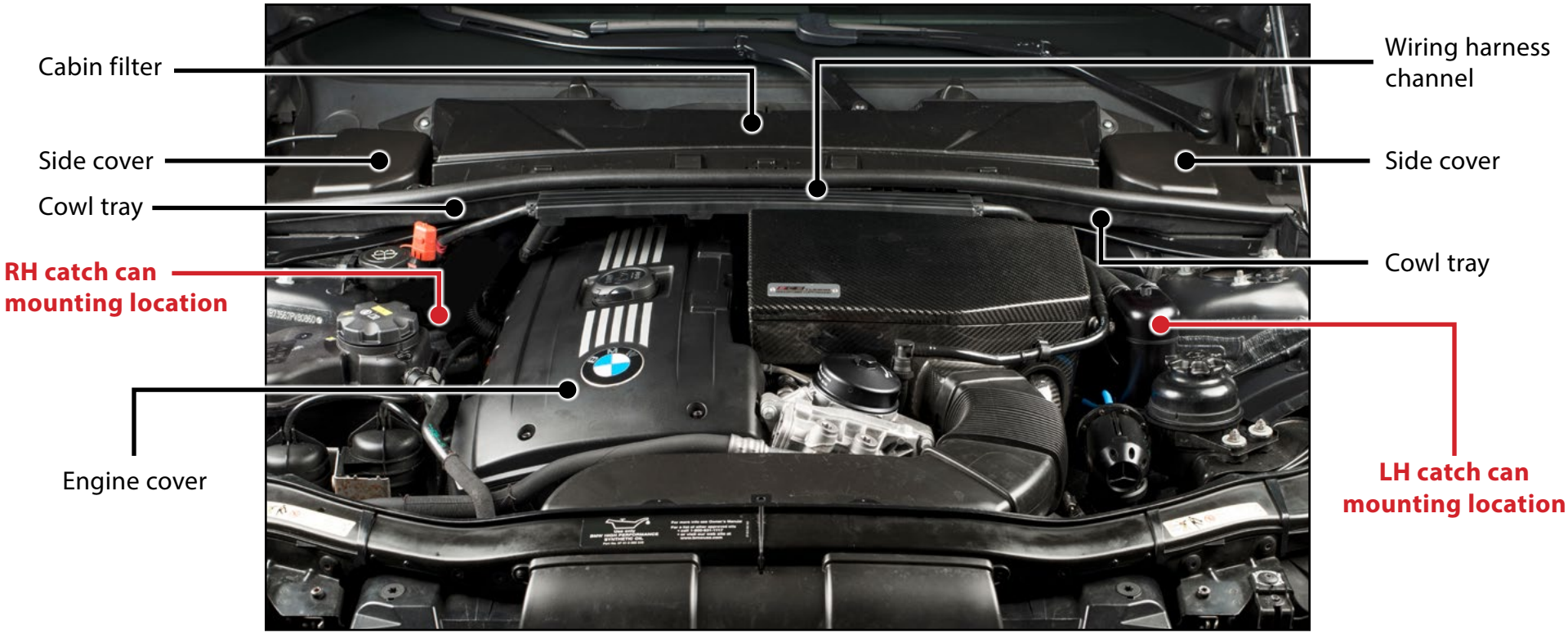
**NEVER get underneath a vehicle that is supported only by a jack, and ALWAYS make sure that the vehicle is securely supported on jack stands.**

# INSTALLING THE CATCH CAN SYSTEM

Here is a picture of the N54 Catch Can system installed on our 335i. As you can see, the Catch Can is mounted on the LH (driver's) side, but we keep in mind that we have mounting brackets to allow you to mount it on the RH (passenger's) side as well. The only things that limit access are the cowl tray and the engine cover. The cowl tray is a common design, and has to be removed for many different service procedures on these newer BMW's. As a result, they've designed them for easy removal. So now, to get started, remove the following:

- Cowl tray - remove the cabin filter, wiring harness channel, side covers, then the cowl tray.
- Engine cover - hold down screws at the front and rear.
- Air box - this is optional, but can give you some extra working room.

The catch can can be mounted onto the LH or RH side of the engine depending on which kit you purchased. These instructions will show you how to install the catch can system into both locations.

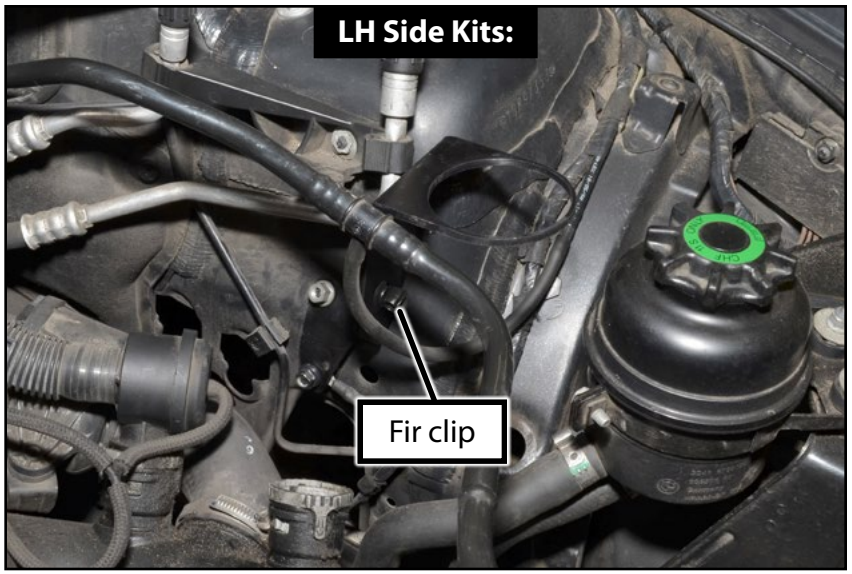


# INSTALLING THE CATCH CAN SYSTEM

**Step 1:** 10mm Socket & Ratchet

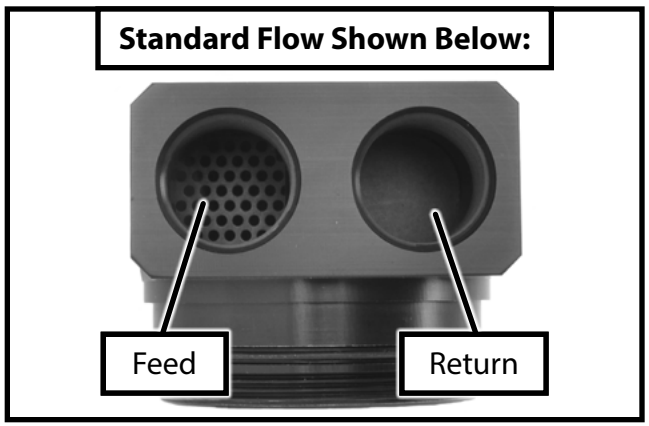
Locate the two studs on the inner fender, the lower of which will have a ground wire attached. Remove the ground wire and mount the catch can bracket in place, relocating the ground wire onto the lower stud. Two nuts are included with the kit to be used here (this will leave the one you took off as an extra). The photos on the right show both the LH and RH side mounting options.

LH mounted catch cans will include a fir clip which is used to secure the vacuum line which runs along that side of the engine bay.





Before you install the catch can into the vehicle, stop and look down the inlet ports to confirm the direction of flow. This system **MUST** be set up for ***STANDARD FLOW***. If your catch can does not match the photo on the right, skip to Page 23 and reverse the direction of flow as outlined in that section.

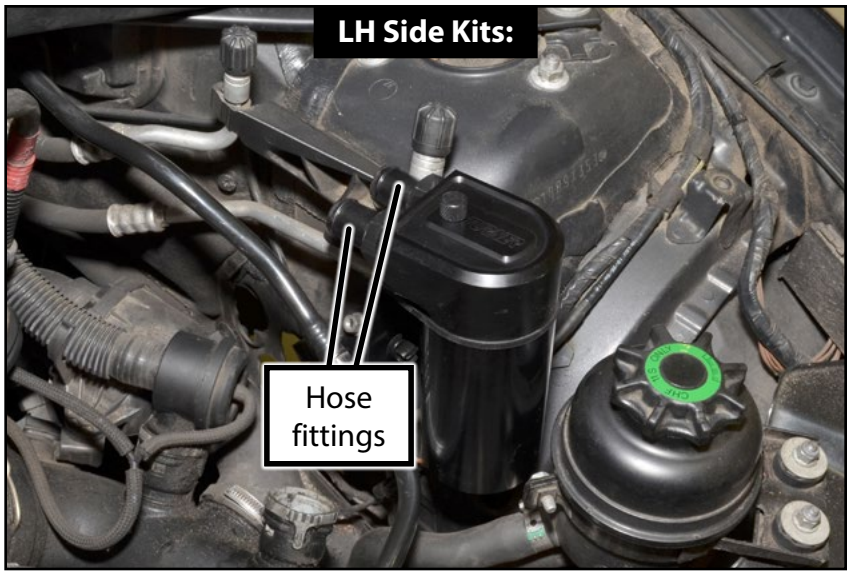
# INSTALLING THE CATCH CAN SYSTEM

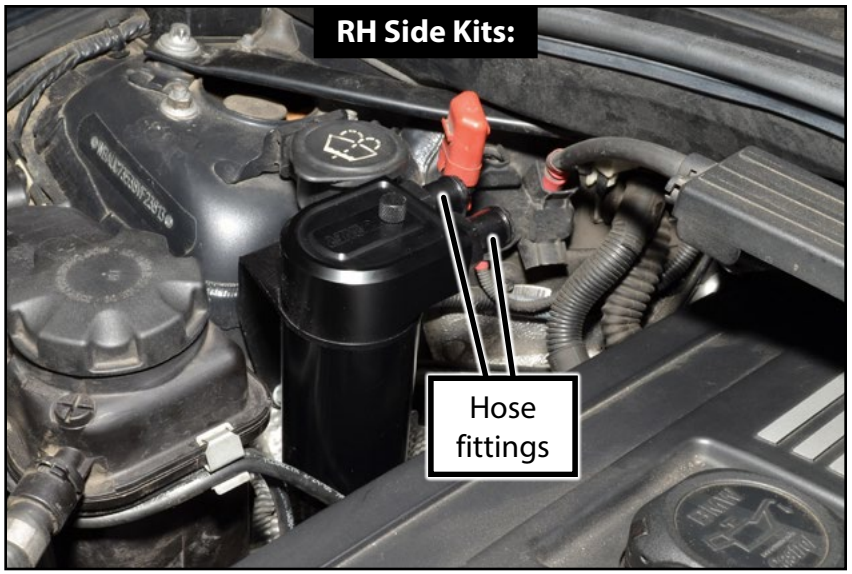
**Step 2:** 10mm Socket & Ratchet

Install the catch can into the bracket by doing the following:

- Unthread the catch can reservoir ***and*** remove the O-ring from the catch can separator.
- Thread the hose fittings into the catch can separator and tighten them.
- Place the separator into the bracket.
- Lubricate the O-ring with clean engine oil, then install it into the groove in the separator.
- Thread the reservoir onto the separator to lock the catch can into the bracket.

The photos on the right show both the LH and RH side mounting options.



# INSTALLING THE CATCH CAN SYSTEM

## Step 3: Small Angled Pick

Moving to the back of the engine, remove the crank vent hose between the valve cover and the intake tube (highlighted in **GREEN** in the photo). These are a little tricky at times, due to the self locking fittings on the end. You'll have to use a pick and gently work around the perimeter of each fitting to release it.

## Step 4: Heat Gun -or - Razor Blade

Now you'll have to separate the fittings from the crank vent hose itself, they're needed to install the system. There are two ways you can do this:

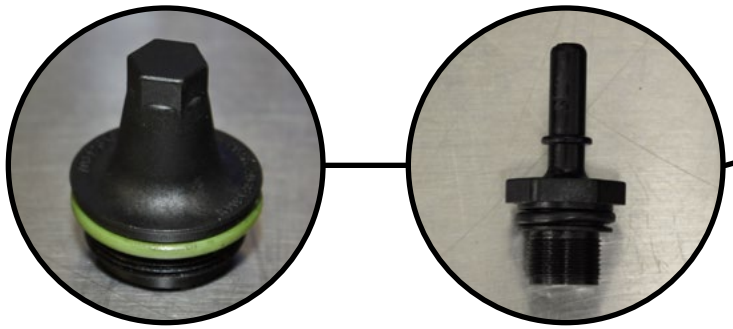
1. Heat the ends of the hose and pull the fittings out. Use caution with this method since you can easily get the fittings too hot and melt them.
2. Carefully slice the hose at each fitting using a sharp razor blade, then pull the fittings out.

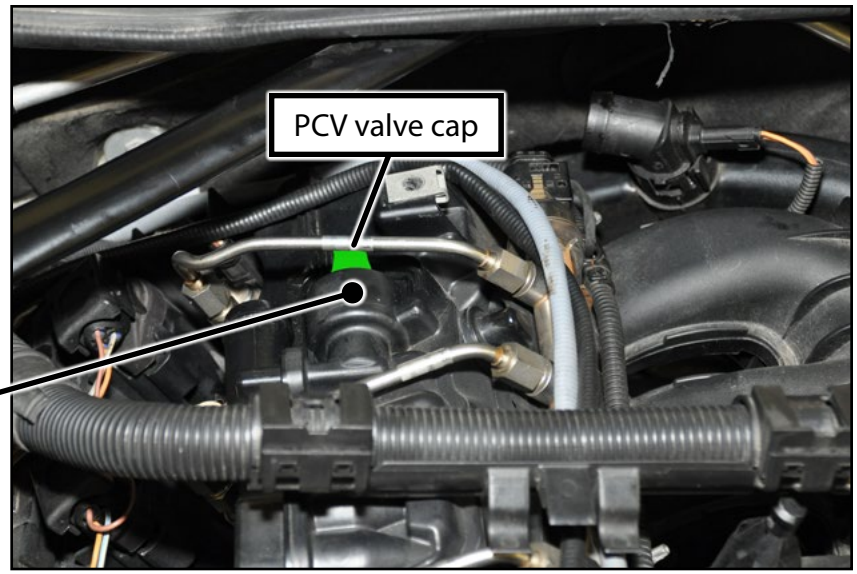
Set these fittings aside, we'll come back to them in a bit.

# INSTALLING THE CATCH CAN SYSTEM

## Step 5:

Locate the PCV valve cap (highlighted in the photo). It's threaded into the valve cover, but it's partially hidden under a fuel injector pipe. The PCV valve is located inside this cap.






## Step 6: 13mm Socket & Ratchet

Here we've taken pictures of a valve cover off the car so you get a clear picture of what's going on. The PCV valve cap has a 13mm hex on the end. Unthread and remove the cap.

Underneath the cap, you'll see the end of the PCV valve. Grab the end of it and pull it out. You can set the PCV valve aside, you will not be reusing it.

# INSTALLING THE CATCH CAN SYSTEM

## Step 7:

Replace the o-ring on the PCV valve cap with the new one from your kit, and install the remaining o-ring from the kit onto the new PCV plug.

NOTE

Be sure to lubricate both of these O-rings with clean engine oil prior to installation.

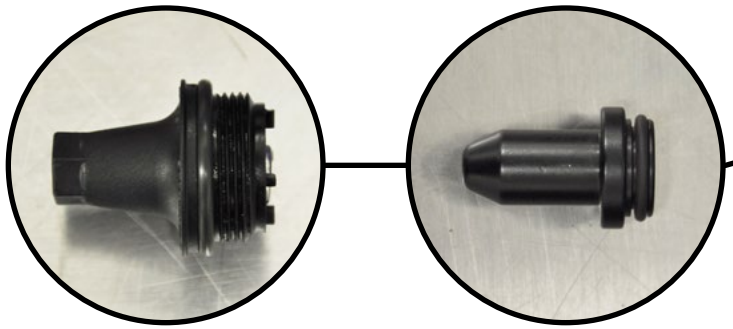
## Step 8:

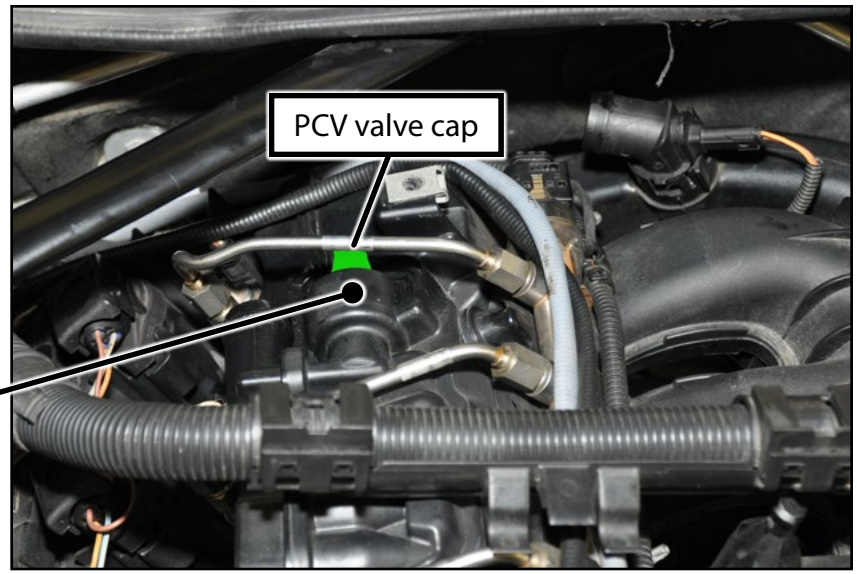
Slide the PCV plug into the PCV cap.

# INSTALLING THE CATCH CAN SYSTEM

## Step 9: 13mm Socket & Ratchet

Install the PCV plug and cap back into the valve cover.

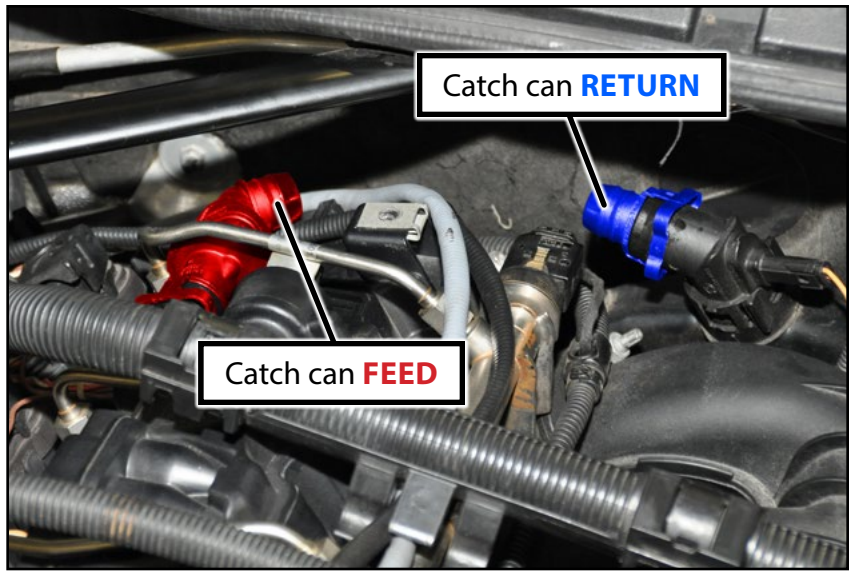





## Step 10:

Reinstall the crank vent hose fitting onto the intake tube. This will be connected to the catch can **RETURN** hose.

Reinstall the crank vent hose fitting onto the valve cover. This will be connected to the catch can **FEED** hose.



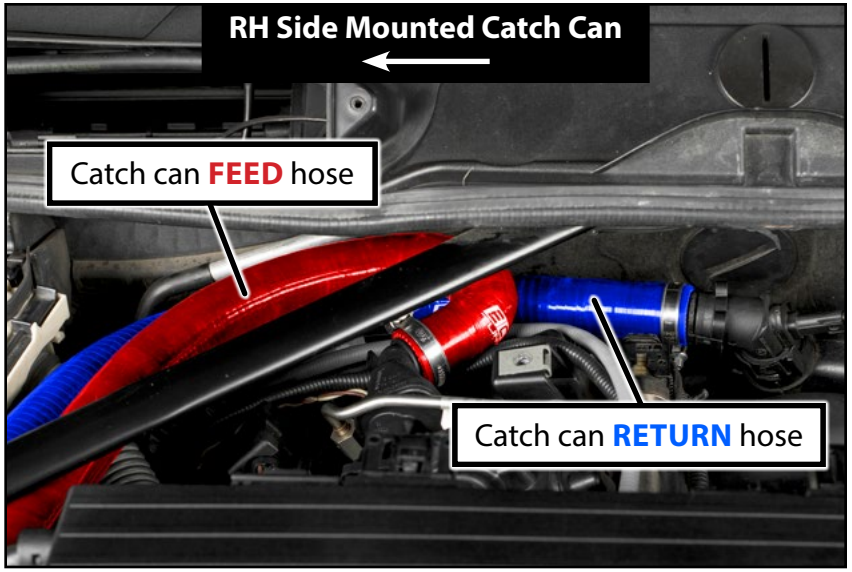
# INSTALLING THE CATCH CAN SYSTEM

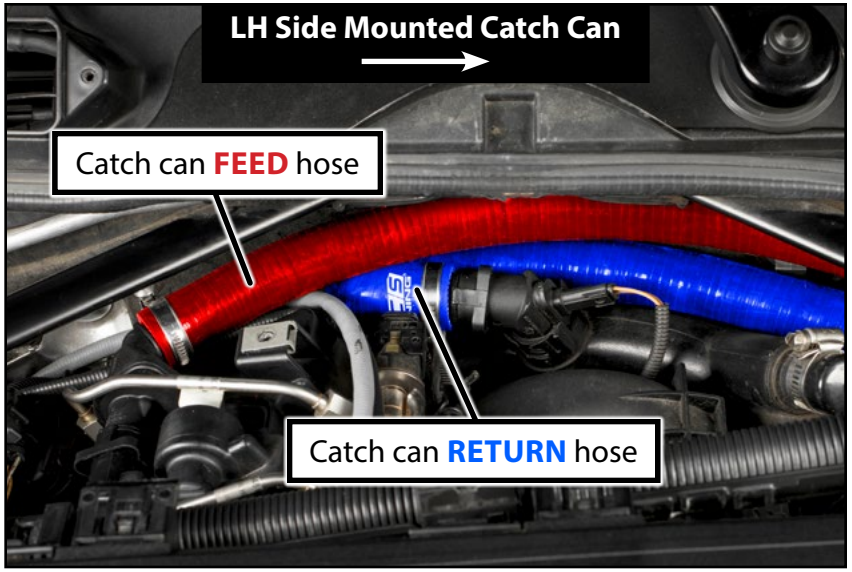
**Step 11:** Flat Blade Screwdriver

Install both of the catch can hoses onto the crank vent hose fittings and tighten the clamps until they are snug.

- The **FEED** hose connects to the valve cover fitting.
- The **RETURN** hose connects to the intake pipe.
- One hose will have a curved end:
  - For **RH** side mounted catch cans this will be the **FEED** hose.
  - For **LH** side mounted catch cans this will be the **RETURN** hose.
- One hose will be completely straight:
  - For **RH** side mounted catch cans this will be the **RETURN** hose.
  - For **LH** side mounted catch cans this will be the **FEED** hose.

The photos on the right show the hose routing options for catch cans mounted on the LH and RH side.



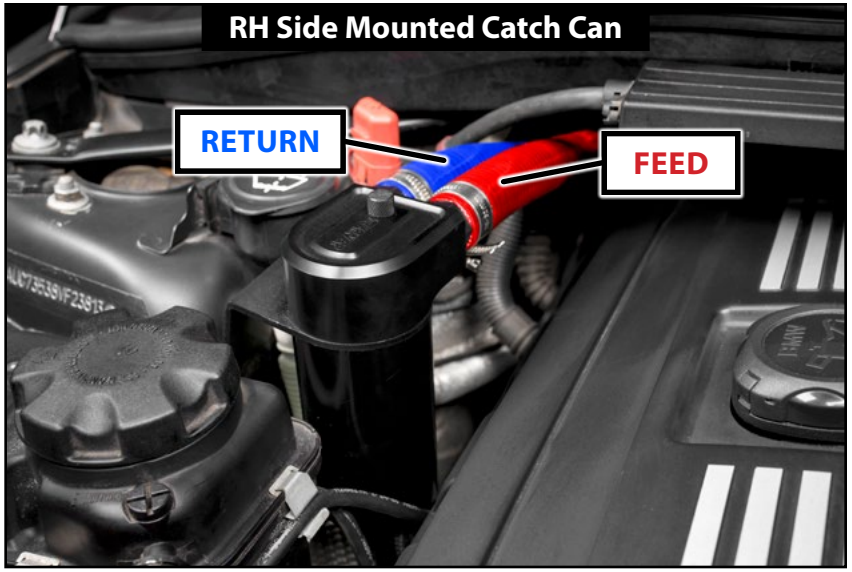
# INSTALLING THE CATCH CAN SYSTEM

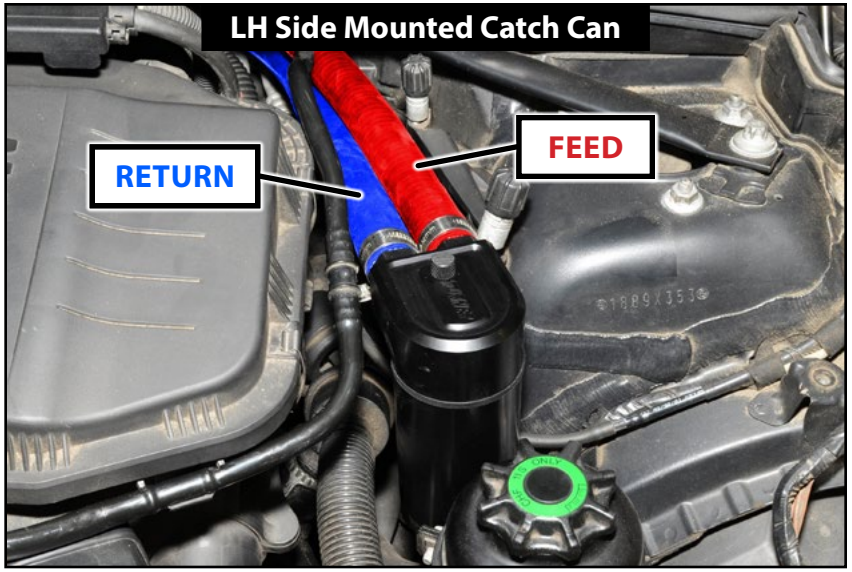
**Step 12:** Flat Blade Screwdriver

Connect both hoses at the catch can, making sure to correctly locate the feed and return hoses.

The photos on the right show both the LH and RH side mounting options, as well as the proper hose routing and orientation.

***Your catch can installation is complete!***




If you purchased a Turner Motorsport Catch Can Kit ***without*** the optional drain system:

- Your installation is complete!
- Reference the Cleaning and Maintenance section which starts on Page 17.

If you purchased a Turner Motorsport Catch Can Kit ***with*** the optional drain system:

- Proceed to Page 14 for drain system installation.
- Reference the Cleaning and Maintenance section which starts on Page 17.

# CATCH CAN DRAIN SYSTEM COMPONENTS

36″ Section of ¼″ ID Hose (**QTY 1**)

¼″ Shut Off Valve (**QTY 1**)
⅜″ Clamps (**QTY 2**)

7⁄32″ to ⅝″ Clamp **(QTY 1)**

¼″ Hose x ¼″ Male NPT Brass Hose Barb
(**QTY 1**)

¼″ Hose x ¼″ Male NPT 90° Brass Hose Barb
(**QTY 1**)

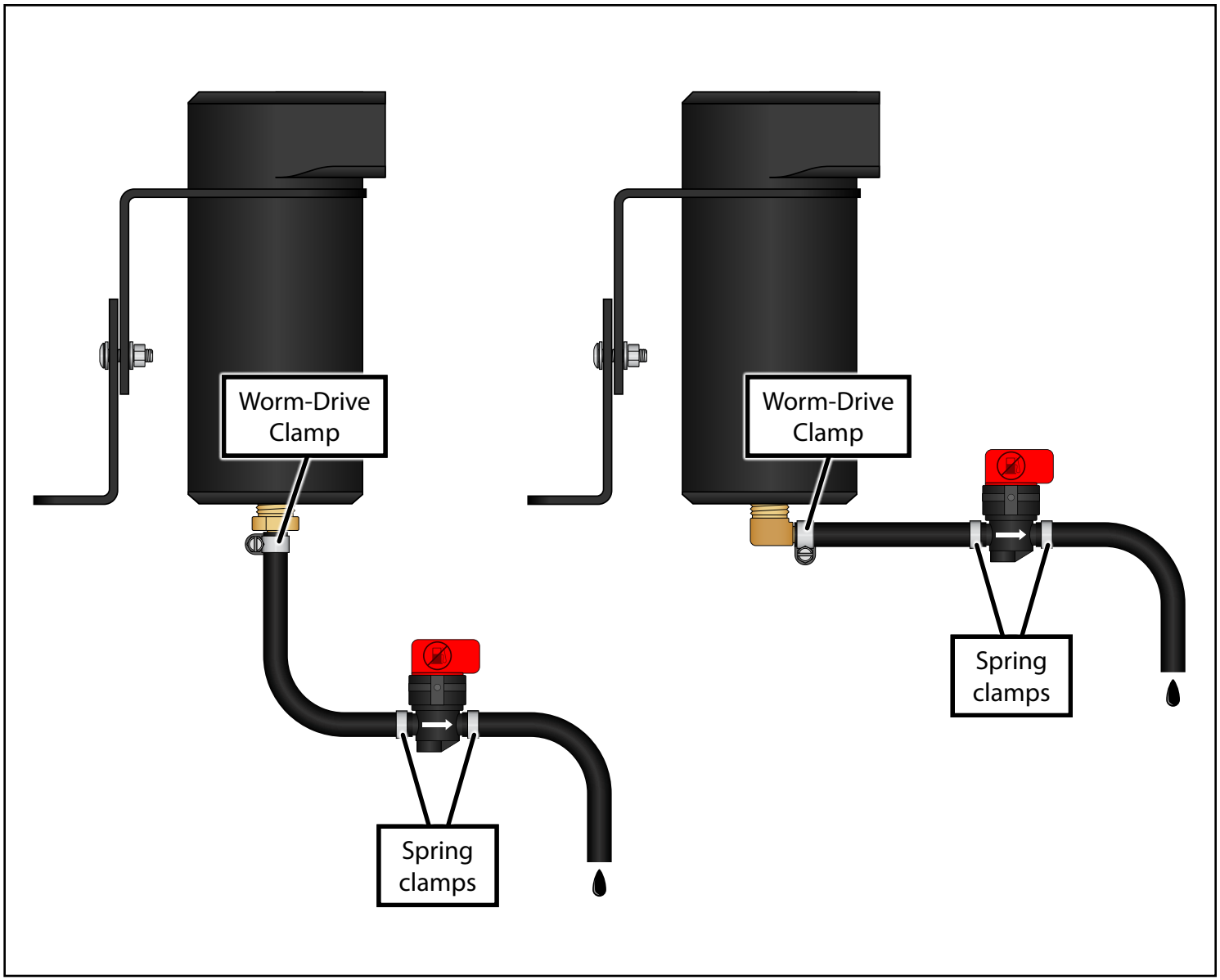
# CATCH CAN DRAIN SYSTEM INSTALLATION GUIDELINES

## 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

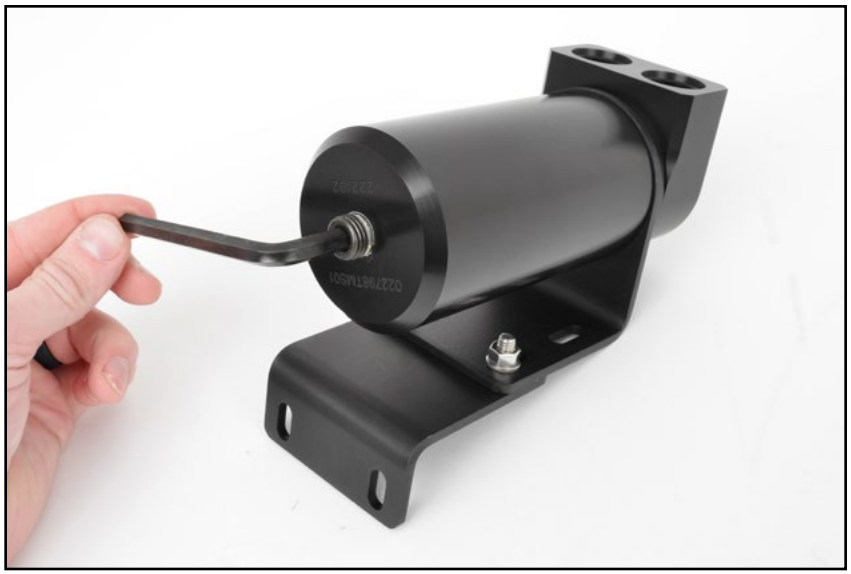
## Step 2:

All of our catch cans feature a ¼" NPT black zinc plated brass plug in the bottom of the can, you can easily remove this plug with the included ¼" allen key.

You will need to select one of the two ¼" NPT to ¼" 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.

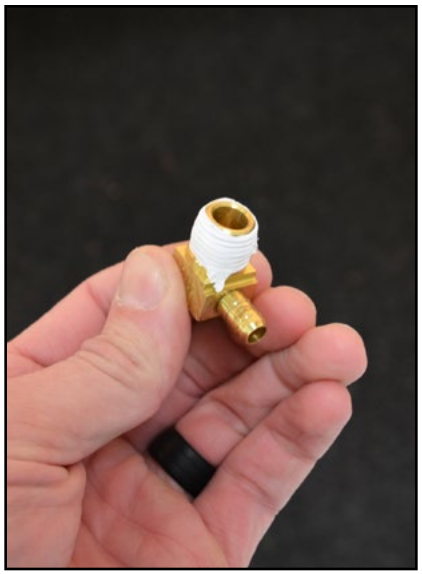
Apply thread sealant to the threads on one of the two ¼" NPT to ¼" brass hose barb fittings, then install the new fitting in place of the plug we removed earlier.

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



NOTE

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

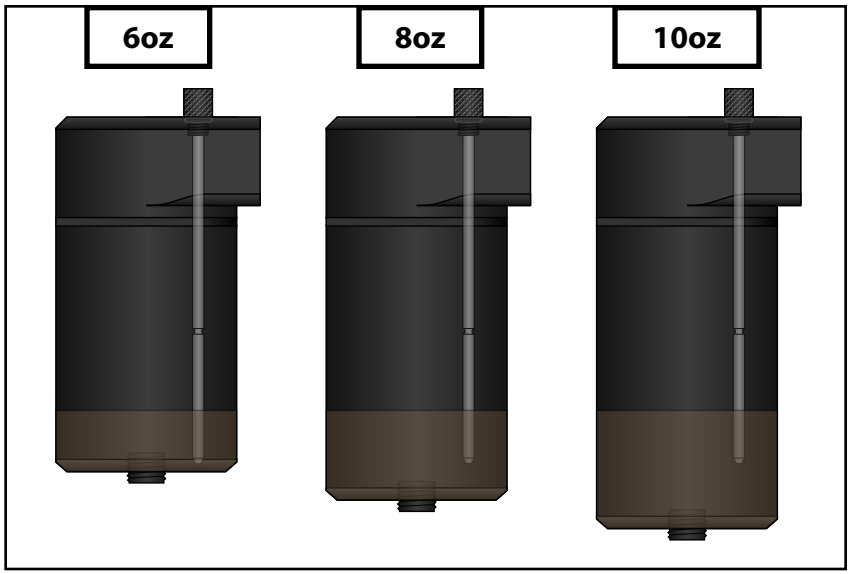
## Step 1:

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 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.

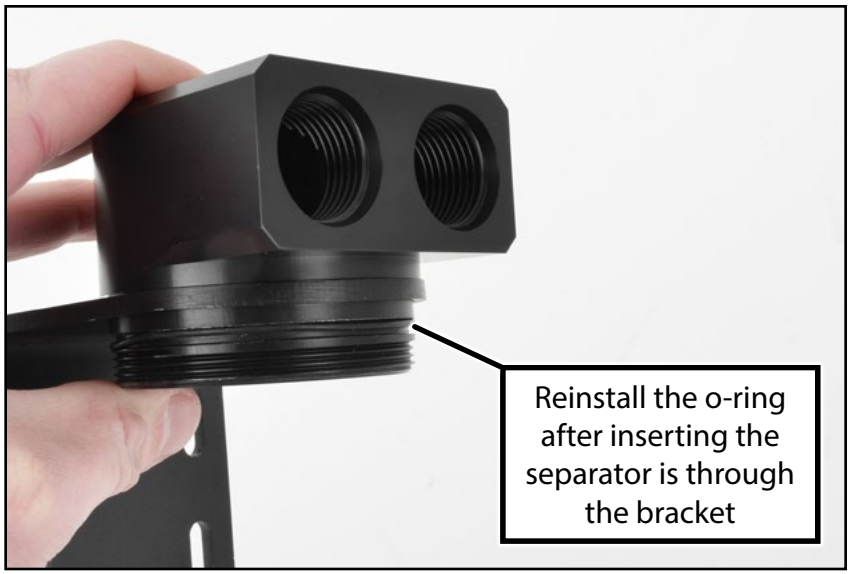



## Step 2:

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.

NOTE

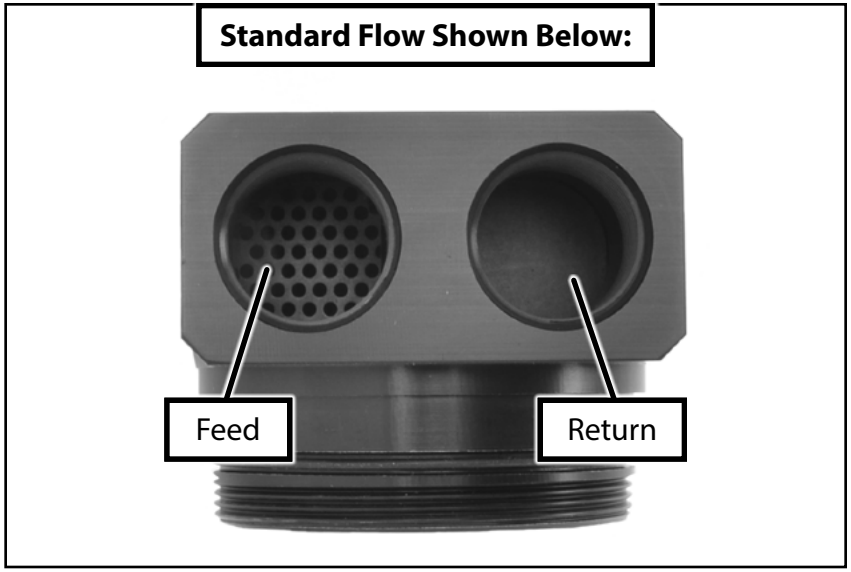
If the o-ring seal needs to be replaced, it is available as a replacement part on our website: T#402946



# CLEANING AND MAINTENANCE

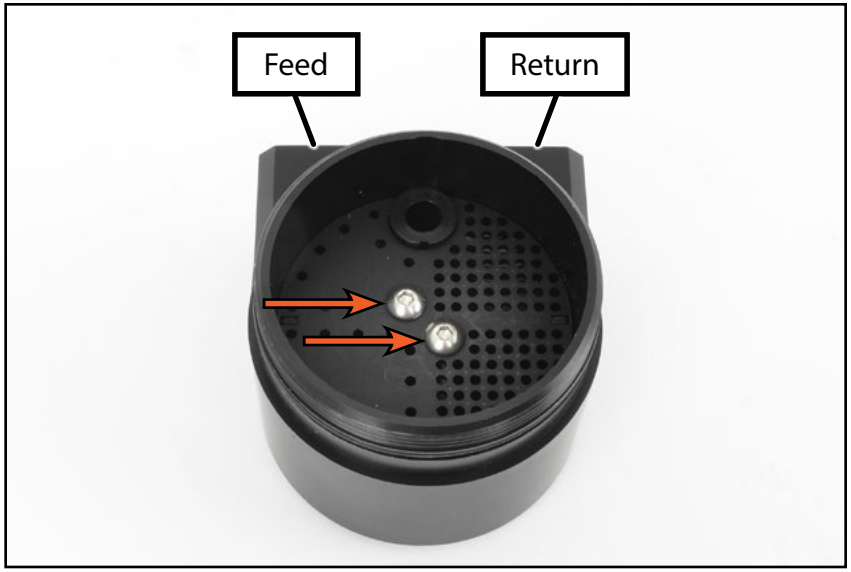
## Step 3:

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.



# CLEANING AND MAINTENANCE

## Step 5:

Lift the baffle plate out of the separator housing.

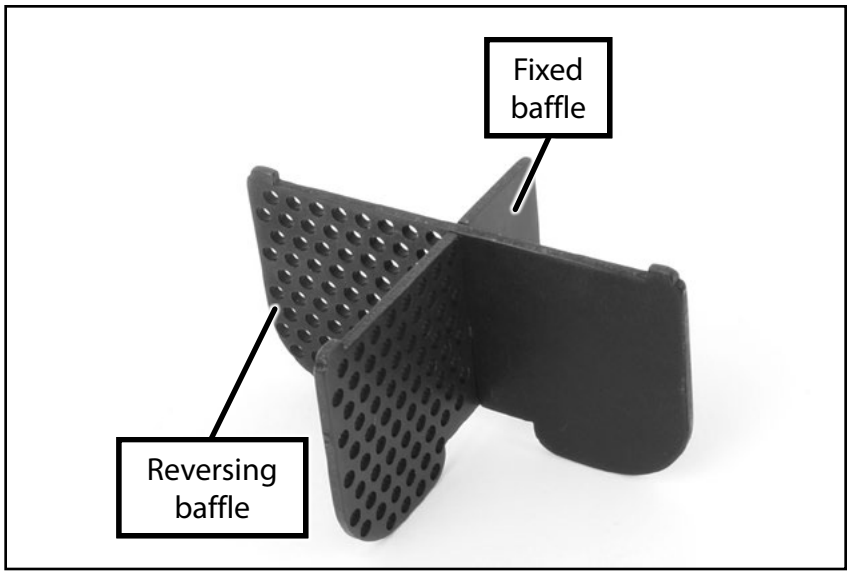
## Step 6:

Lift the remaining baffles out of the separator housing.

# CLEANING AND MAINTENANCE

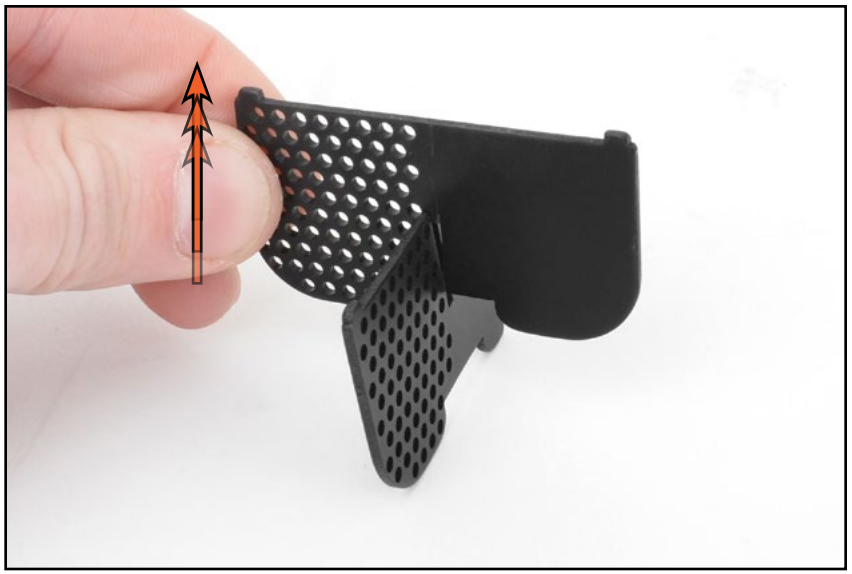
## Step 7:

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




## Step 8:

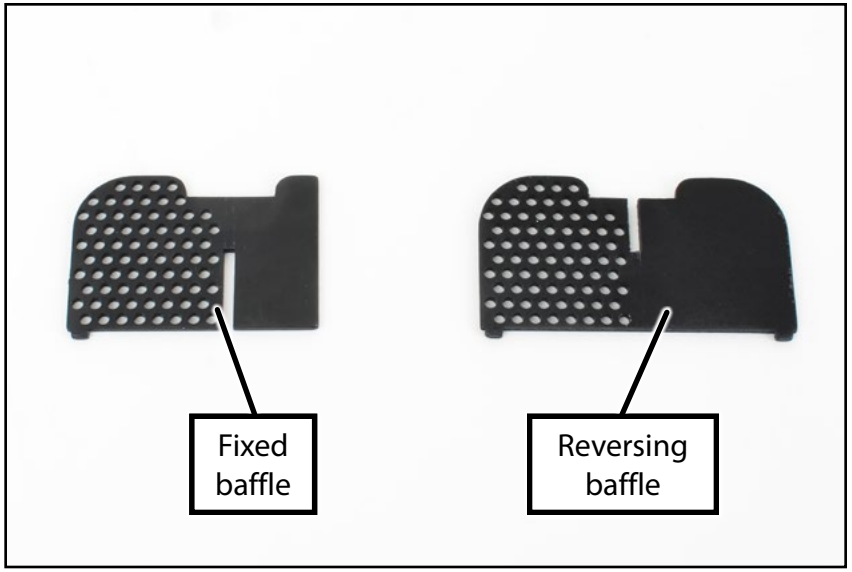
Slide the two baffles apart.



# 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.

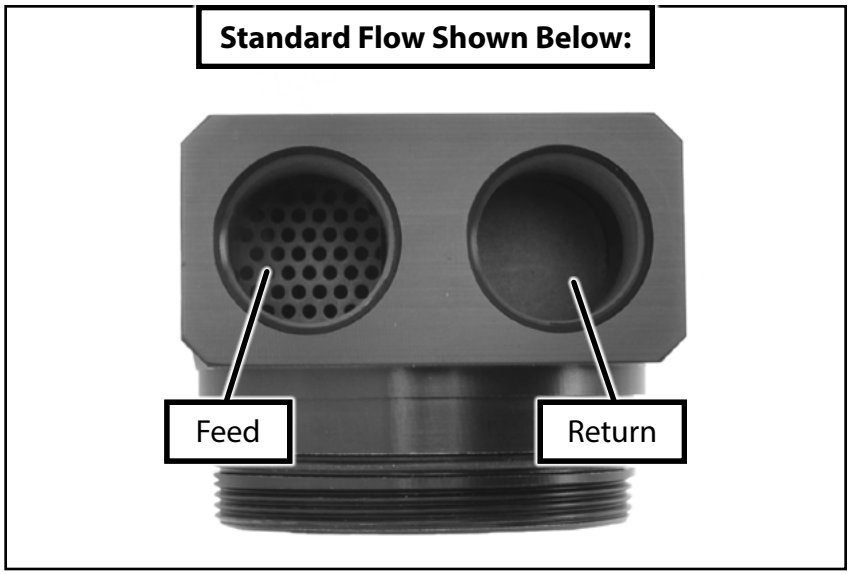



NOTE

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.

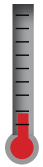
## Step 10:

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.

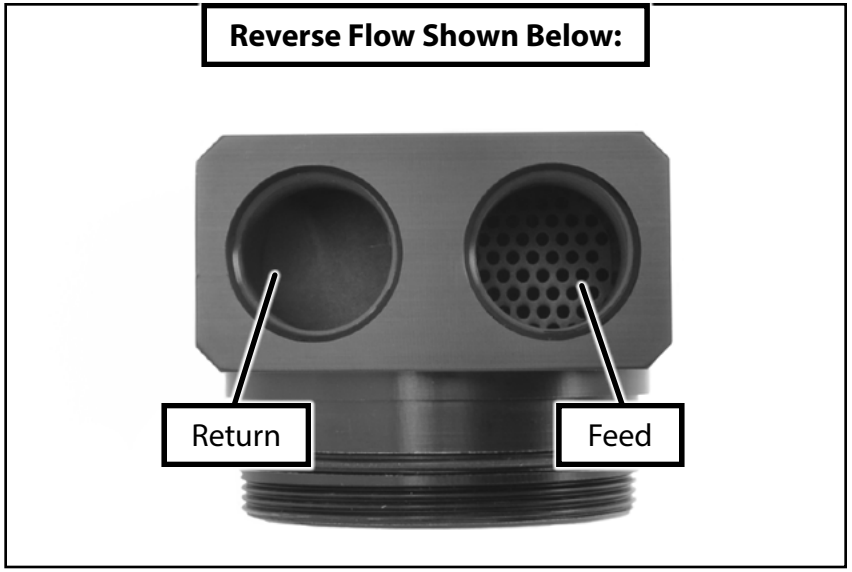
When the temperature outside approaches freezing, your catch can should be cleaned on a weekly basis to prevent freeze up of the crank vent system and damage to engine seals.

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

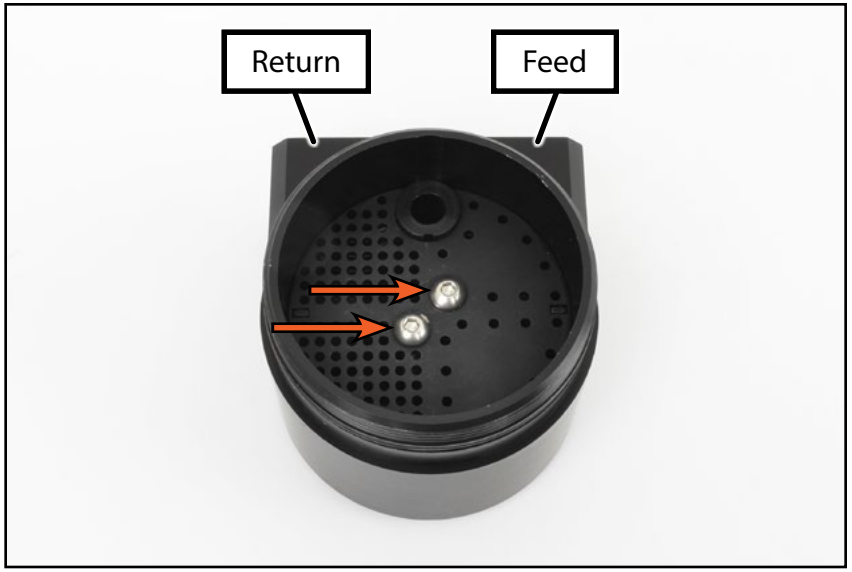
## Step 1:

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).



# REVERSING THE FLOW OF THE CATCH CAN

## Step 3:

Lift the baffle plate out of the separator housing.

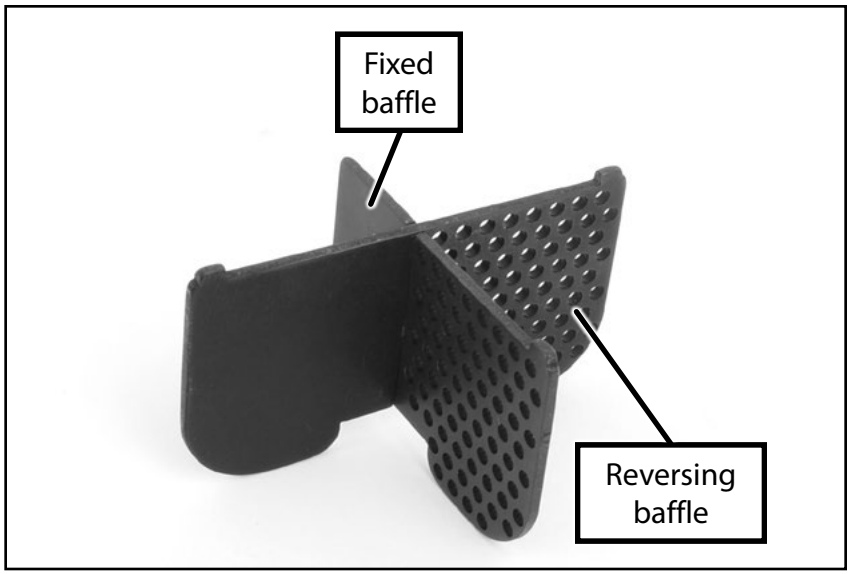
## Step 4:

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

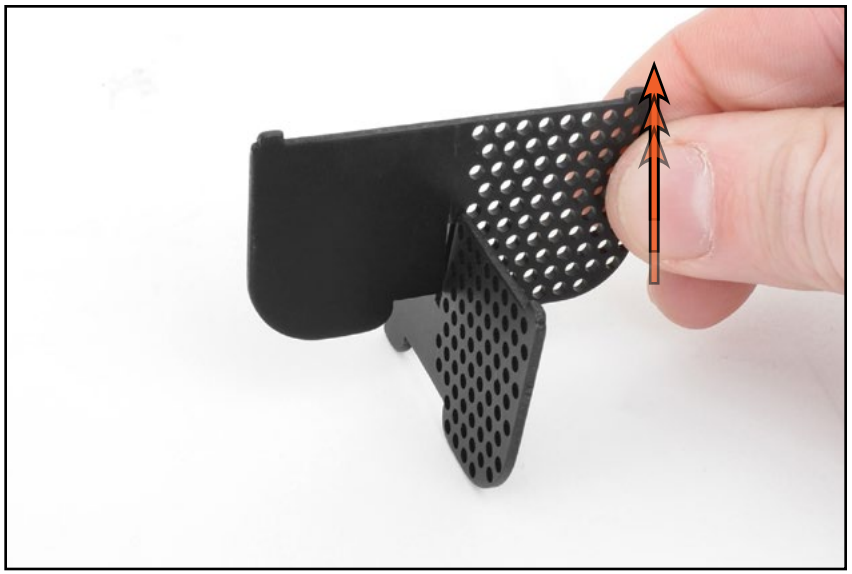
## Step 5:

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




## Step 6:

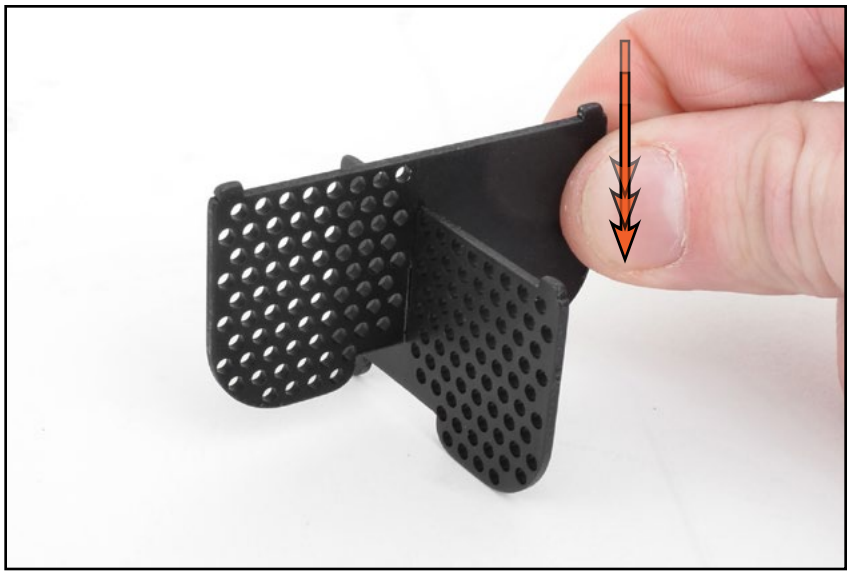
Slide the two baffles apart.



# REVERSING THE FLOW OF THE CATCH CAN

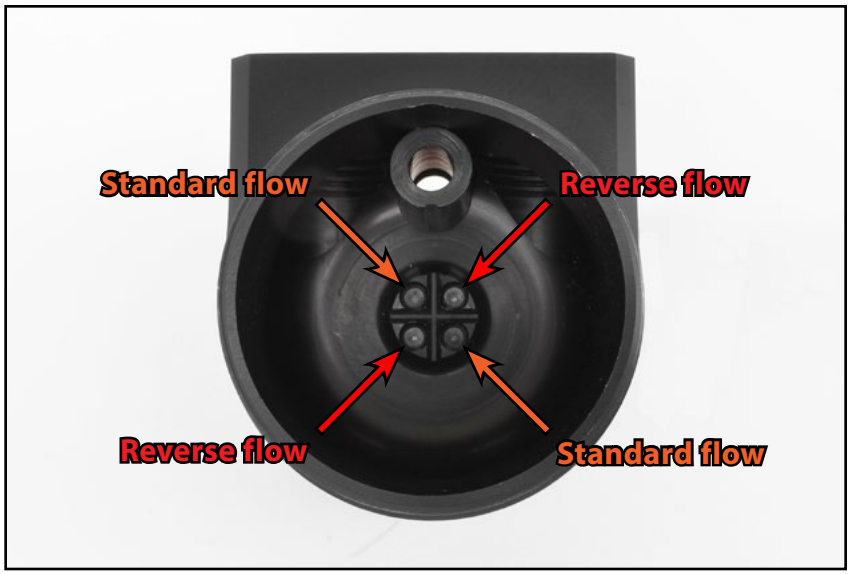
## Step 7:

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.

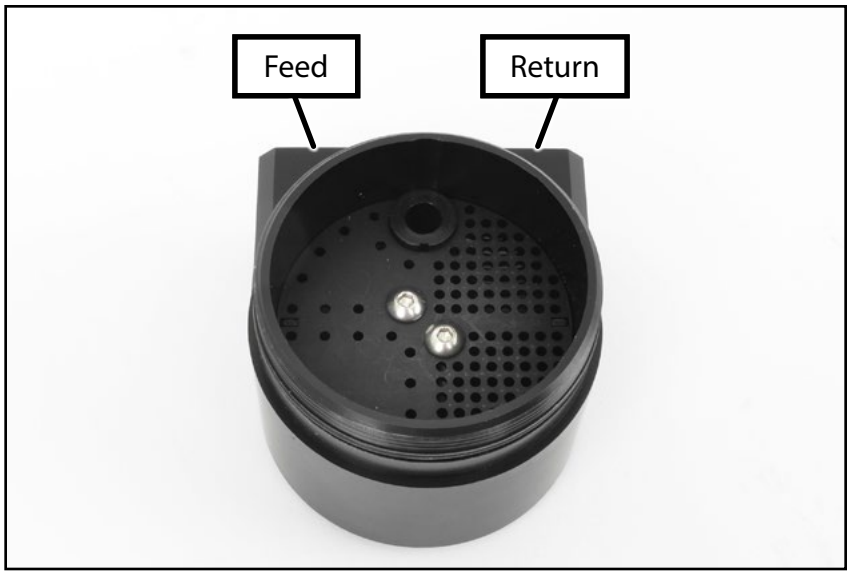
## Step 10:

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

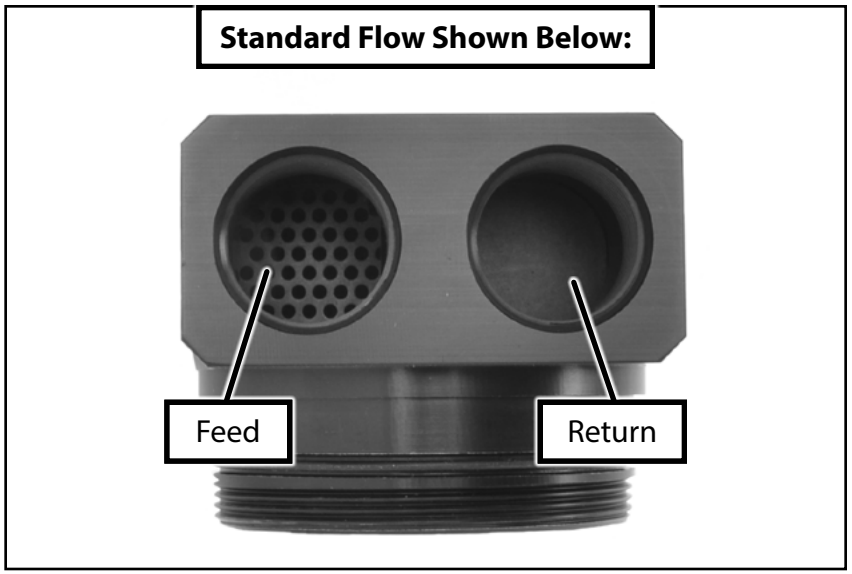
## Step 11:

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

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.

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