RX Catch Can installation & PCV system

The LS based motors have a PCV system that at best is pretty ineffective. This allows oil mist to enter the intake manifold causing undue carbon buildup on the piston tops & valve surfaces & detonation from the contaminated air charge. The catch can goes in-line in your OEM system and due to its design & surface area, condenses these vapors & mist to droplets that then fall to the bottom of the can so only the water vapors, unburnt fuel, & combustion blow-by gasses enter as designed. The result? Little or no oil contamination in the intake air charge & more consistent power & fuel economy. Just take off your throttle body sometime & reach a finger into the intake manifold snout and see how much oil is on your finger. Should be zero.

What makes the RX catch can work so well? The design. It is a full one quart capacity (anything less is not as effective due to the surface area cooling needed for the vapors & mist to condense efficiently, and the perforated down tube that evenly disperses the vapors to contact as much surface area as possible.

The mounting bracket uses the bottom threaded hole on the passenger cylinder head (very low, near the block) and use the included shoulder bolt and should be mounted angling to the left so the can will be mounted offset to clear.
Modding the routing to use a good portion of the OEM plumbing. Above shows the outlet of the can (now an integrated PCV valve) to the intake manifold. Pic above shows retaining the stock PCV valve. Note: There is no problem having both PCV valves intact.
The stock PCV valve & tubing is used in the complete PCV mod, all that is needed is a 4 1/2" 3/8 tube. You cut the stock plastic tube 2 " behind the PCV valve & slide the 4 1/2" line onto it & to the outlet on the catch can. Then you remove the line from the TB (OEM fresh air source) and the fitting on the front of the valve cover & plug each. You then cut the plastic tube running along the pass side valve cover where the foam covering has a window in it (cut at the front most opening of the window), and you reuse the tube from the TB to go between the inlet in the catch can & the plastic line you cut along the pass side valve cover. Final step is to modify the oil fill cap & bond a mini filter to it. (This is all included in the complete system kit)

NOTE: If not doing the full PCV system mod you just do the first section of this mod and leave the OEM fresh air line from the TB intact, and run the catch can inline with the PCV line
The full system mod is recommended for Heads/Cam & FI applications & is approved for off road use only.

Supplement:

Replace your oil fill cap w/the optional breathered one in the kit. This will be the fresh air source. Nothing should be open & unfiltered. Then you cap off the fitting from the throttle body (should already be on yours if modded before) where the fresh air did draw from before. That covers the fresh air source.

If OEM tubing is missing:

Then to draw the vapors out you will need to run a hose from the rear of the drivers side valve cover routed around the rear of the engine up to the catch can location at the front of the passenger side cylinder head. This you will attach to the center (inlet) fitting on the catch can. Then from the outer fitting (outlet) you run a short hose (provided) to the PCV valve (fat side towards the catch can). The OEM line that the PCV valve fit in is plastic & should be cut off app. 2" behind the PCV valve & a 3/8" hose will slide right on it. The front (narrow end) of the PCV valve then plugs into a small 2-3" hose that fits onto the vacuum source at the front passenger side of the intake manifold. (On the latest revision a PCV valve is integrated into the catch can to avoid confusion, and having the OEM valve still in place will not negatively affect the operation)

Note: On LS6 style valley covers the OEM draw is from the Valley cover & is a metered orifice but a PCV valve is still needed. Just plumb the catch can between the vacuum source & the barb on the valley cover.

Last is to cap off the other fittings (only if the breather mod is used) on the pass side valve cover & you are finished. Just remember, the vacuum source pulls from the outer (outlet) fitting on the catch can.

App. once every few months open the petcock drain valve on the bottom of the can to drain any accumulated oil/water/etc. from the can. Do NOT reuse the oil as it will be full of contaminates that have flashed off in the crankcase!
This shows the system routing for a LS6/LS2/LS3/LS7 application. The pass side fitting is capped off here since the breather mod is used.

**PCV Valve**

<table>
<thead>
<tr>
<th>Engine operating condition</th>
<th>Intake manifold pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idle, From rocker cover</td>
<td>High vacuum</td>
</tr>
<tr>
<td>Cruising</td>
<td>Medium vacuum</td>
</tr>
<tr>
<td>Acceleration</td>
<td>Low vacuum</td>
</tr>
<tr>
<td>Boost, backfire</td>
<td>Pressurized</td>
</tr>
</tbody>
</table>

Arrow size indicates relative airflow

LS6/LS2/LS3/LS7 style valley cover fitting showing the correct hose routing.
Below is an example of a dual can setup for race applications where the throttle body makeup air source is retained for emissions requirements:

Above shows the C6 corvette mounted can. Note: The fuel rail cover may need to be notched for a clean fit due to the tight space. Also, feel free to bend the bracket slightly to assist in proper location. The bracket bolts to the bottom most threaded hole on the passenger side cylinder head.

Note: If using the optional check valved breather you must cap off the OEM fresh air inlet tube fittings on the front of the pass side valve cover & the airbridge.
Note: You may notice a slight buzz or rattle when running. This is NORMAL! It is the check valve working.

Note: The clear hose running from the drain should be loosely secured (so it can rotate when opening the drain) with zip ties to the fan shroud or frame where you can easily place a drain pan or bottle to catch the trapped oil when it is time to drain. It is recommended it be drained every oil change if not sooner. This oil will be contaminated and should NOT be reused in the motor.

On the next page are some pictures of the LS3 C6 Corvette:
Note the fuel rail cover needs to be notched to fit.
Note, Light trucks use the bolt on the brake master cylinder for the mount.