INSTALLATION INSTRUCTIONS

Dual Catch Can Kit

02-14 Subaru Turbo and 2015+ STi

Document# 19-0099

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This document covers the installation of a Radium dual catch can kit for the Subaru models listed above. These instructions are based on a vehicle with an OEM turbocharger and top-mount intercooler. If a front-mount intercooler is used, some steps may not apply and the installation may have to be modified according to the vehicle setup.

1. Remove the intercooler by loosening 1 hose clamp on the throttle body and 1 on the small coupler coming off the turbocharger outlet. Remove the bolts from the mounts on each side of the intercooler. Unbolt the recirculation valve from the intercooler (leave it connected to the hose).

Most Subaru models: Unbolt the hard black crank breather tube from the bottom of the intercooler. Carefully lift out the intercooler and set aside.

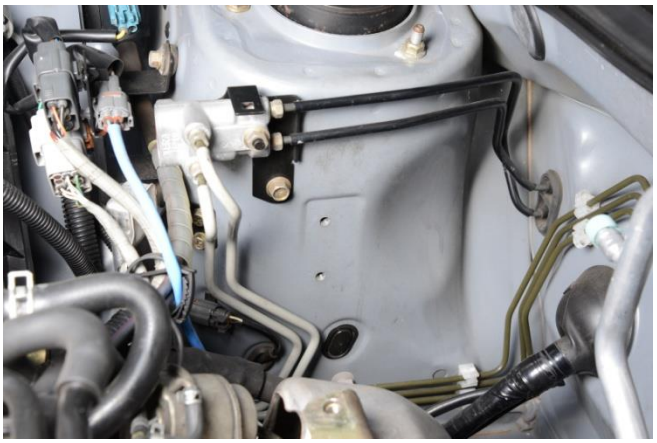
Some late Subaru models: Unscrew the two M8 intercooler bolts from the turbo using a 12mm socket wrench. Carefully lift the intercooler out and set aside.

NOTE: If removing the 2015+ STi "sound generator tube" to increase accessibility, see Subaru intake hose P/N: 46013AG020 (if still using the OEM intake).

2. Locate the two threaded holes on the RH strut tower. The 2002-2007 Subaru Impreza model is shown (2008+ are similar). These are the threaded bosses that the catch can kit will use for mounting.

Use the two M6 button head screws included in the kit and bolt the bracket to the mounting holes.

See note below if these holes are used for some other parts.

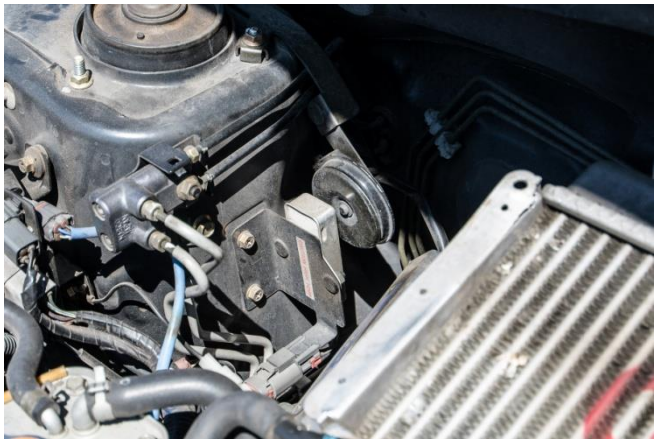


NOTE: If the mounting bosses in step 2 are already being used, these parts will need to be relocated.

As shown in the picture, the resistor pack would need to be relocated out of the way of the catch cans as well as the buzzer and bracket.

On later Subaru models, there is a wiring harness clip in this area. Remove the clip and secure the wiring harness to the metal tubing downwards near frame rail using the included zip ties.

On early Subaru models that use a cable-actuated throttle body, there is a cruise control module located in this area. Please use: Radium P/N: 13-0110, Cruise Control Relocation Bracket (sold separately).



3. Secure the Radium mounting bracket in place using the two included M6 bolts using a 4mm Allen wrench.

Next, lubricate the O-rings found on the two included -6AN adapter fittings with light engine oil. Assemble and tighten each fitting into a catch can.

This catch can will be used for the PCV valve hose. Mount it in the location closest to the firewall. Apply medium strength thread locker to two flat-head countersink M5 screw threads. Using a 3mm Allen wrench, fasten the catch can in the bracket's two countersink holes, as shown.

Do not install any other mounting screws at this time.

4. Repeat the process in step 3 using the other catch can and the -8AN adapter fittings. Install into the other location on the mounting bracket.

If you will be using the optional remote drain kit(s), this is the time to install them. Cut the hose(s) to length and place the quick drain valve(s) in a convenient location.

5. Disconnect the recirculation hose from the turbo air inlet pipe.

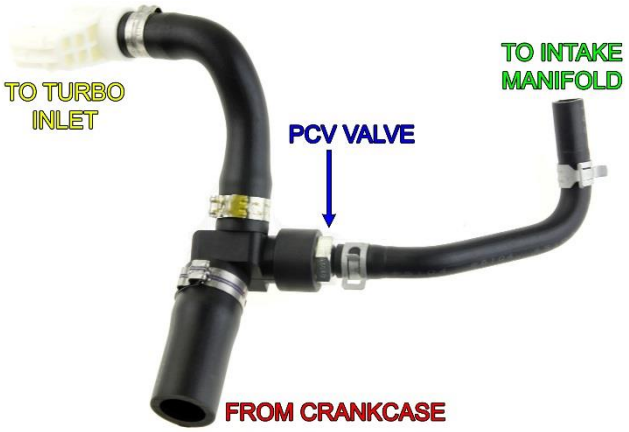
Remove the hose with the recirculation valve still attached and set aside.

Next, remove the throttle body by loosening and removing the four mounting bolts. If the gasket is not damaged, it can be reused.

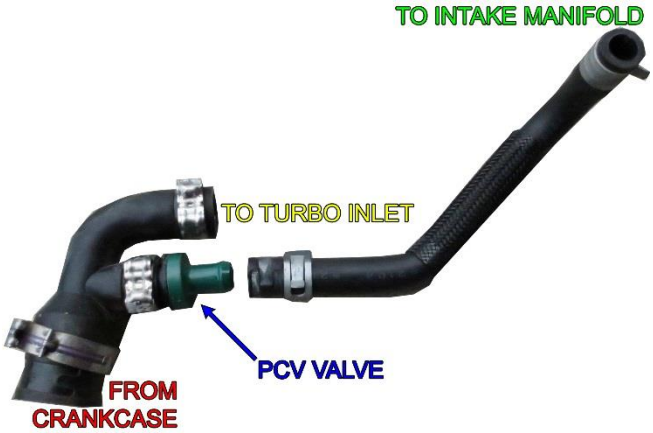
6a. The 3-way TEE and PCV valve for the crankcase hoses will now be visible. Subaru changed this assembly a few times over the years. Please reference the style used on your specific engine.

<u>Early 02-03 Models:</u> Out of all the variations, the early model PCV valve is the only one that is screwed into the intake manifold port (not shown). Also, it has a large 5/8" barb diameter. The diagram shows how the PCV system works from the factory (not with the catch can installed).

6b. **Mid Models and all STi:** the PCV valve is screwed into the 3-way TEE (shown). It has a 3/8" barb diameter. The diagram shows how the PCV system works from the factory (not with the catch can installed).

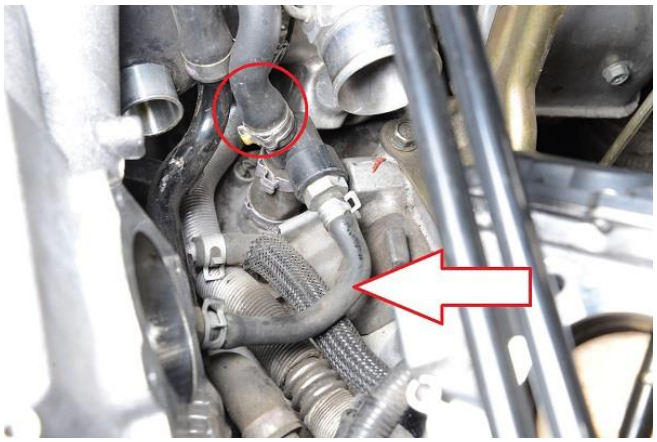


6c. **Late Models excluding STi:** This PCV valve has no threads. Instead it simply pushes into the 3-way TEE and has a 3/8" barb diameter. The diagram shows how the PCV system works from the factory (not with the catch can installed).



7. Disconnect and remove the hose (arrow) that routes from the 3-way TEE to the intake manifold. This hose will not be reused.

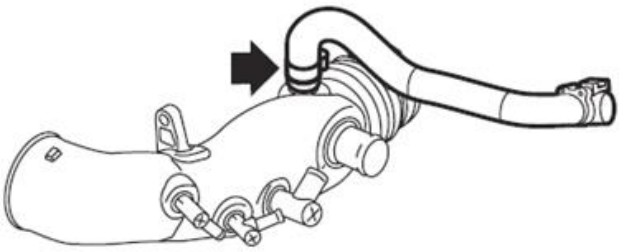
Also, remove the connection going from the 3-way TEE to the turbo inlet pipe (circled). This hose may be held on with a crimp-style clamp. Peel back the banding to undo the crimp. Follow the next step regarding this same hose.



8. Follow the hose to the turbo inlet pipe. This OEM hose will not be reused.

Early 02-03 Model:
Remove the clamp (shown). Install the provided ½" rubber cap onto the now vacant barb nipple on the turbo inlet pipe.

See the following step for all other models.



9. **Mid to Late Model Subarus**
These engines will have an electrical connector tube on the OEM hose on the turbo inlet pipe (STi model shown). This PCV leak detection plug is used to communicate to the computer for diagnostic purposes. In particular, for cases when the PCV system is mistakenly disconnected.

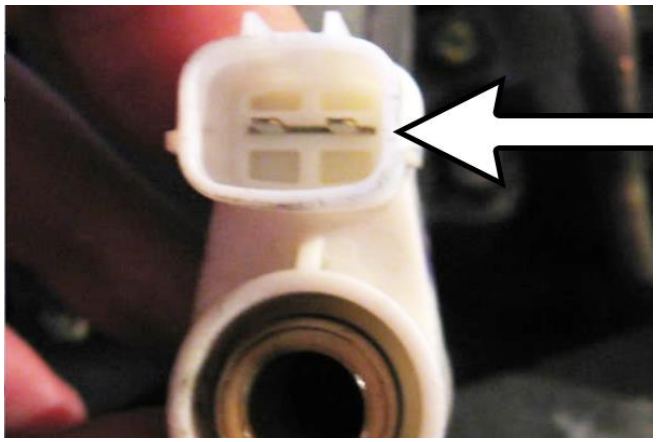
For OEM and aftermarket turbo inlets that support this diagnostic connector, leave it attached to the turbo inlet pipe. Install the provided ½" rubber cap onto the now vacant barb nipple of the diagnostic connector.

10. For aftermarket turbo inlets that do NOT support the OEM diagnostic connector, extra parts may need to be purchased. All that matters is that this port on the turbo inlet must be blocked off or plugged in some manner.

To eliminate the diagnostic connector, simply separate it from it's post using a flat blade. It will pop off as it has an internal O-ring seal.

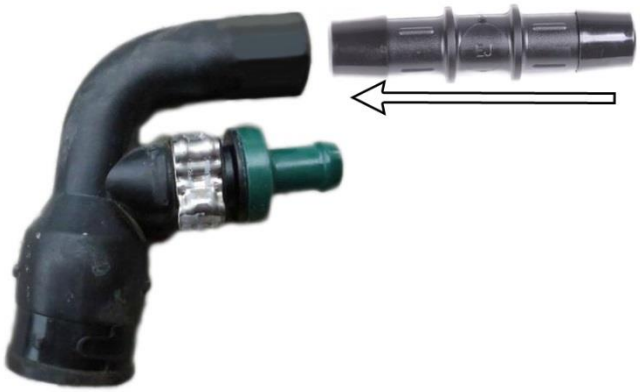
Using needle nose pliers, carefully pull to dislodge the small metal jumper shunt (shown) inside the PCV leak detection diagnosis connector. It is not a resistor.

Next, attach this piece to the wiring harness female terminals. Insulate this wiring junction with electrical tape to prevent accidental shorting. The mating connector should be tucked out of the way.



11a. **Late models (excluding STi)**: Insert the included barb to barb coupler into the top portion of the 3-way TEE (as shown). This will permit a ½" hose to be attached later.

Note: this connection does NOT require a clamp.



11b. **Early 02-03 models**: The associated large barbs found on the PCV valve and the 3-way TEE will need to be converted to 3/8" barbs in order to work with the provided 6AN hose end fittings.

First, insert the large side of the included barb to barb reducing couplers into each end of the provided 5/8" hose (as shown). These connections do NOT require clamps. Continue to the following step.

11c. **Early 02-03 models**: Cut the 5/8” hose in half.

As shown, attach one section of hose to the PCV valve (this will be screwed into the intake manifold). Attach the other section of hose to the large 3-way TEE barb.

NOTE: strategically cut the 5/8” hose for best fitment if added length is necessary for the specific application.

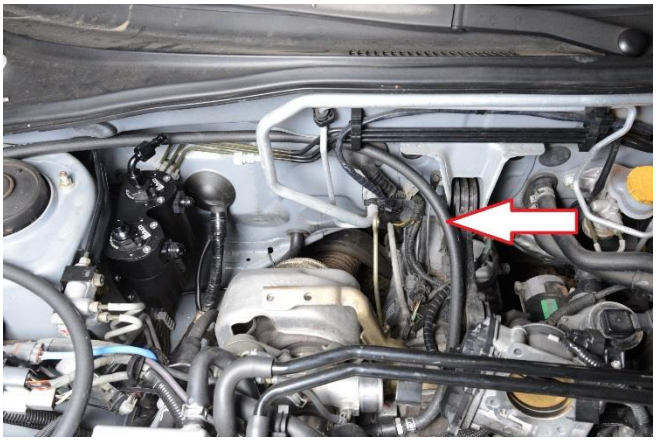
To secure these two connections, reuse the OEM spring clamp. This will now permit the 02-03 models to use 6AN hose end fittings.

12. **Mid to late models:** Attach one end of the provided 3/8” hose to the 3/8” barb on the 3-way TEE. Reference the picture to know which barb to use for the specific 3-way TEE installed. Secure using one of the OEM spring hose clamps. Route the hose back toward the firewall.

Early 02-03 models: Attach one end of the provided 3/8” hose to the plastic reducing barb fitting from the previous step. A clamp is not necessary for this connection. Route the hose back toward the firewall.

13. Loosely install one of the provided 90 degree push-lok hose ends to the top fitting of the catch can closest to the firewall, as shown.

Run the hose from the previous step along the firewall underneath the brake lines and piping over to the catch can, as shown. Measure and cut the hose to the proper length. Ensure the hose is not kinked or pinched.



14. Using light lubrication, install the push-lok hose end into the 3/8” PCV hose until all barbs are fully engaged.

Orient the hose end on the top catch can fitting and tighten down. The hose routing should resemble this picture.

15. Attach the included 3/8” hose the intake manifold’s barb fitting. NOTE: For early 02-03 models this will be the plastic reducing barb fitting.

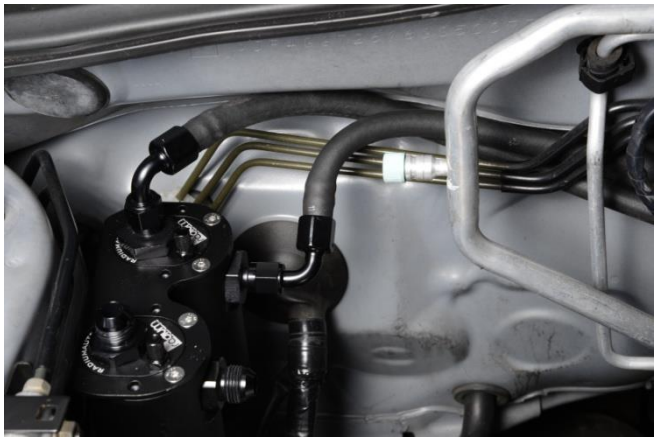
Use either the OEM hose clamp or one of the included clamps depending on which secures best for the specific application.

16. Route this hose in a similar manner to the other.

Loosely install another 90 degree push-lok hose end onto the side fitting of the catch can closest to the firewall.

Route the second hose, measure, and cut. Install the hose fully on the hose end.

The hose end in the side port of this catch can should be horizontal and pointing toward the firewall. This will ensure proper fitment for the heat shield in later steps. Tighten all fittings in place.



17. As shown, use the included cable zip-ties to keep the hoses away from moving and/or hot engine parts such as the downpipe and turbocharger.

18. Install a section of ½” PCV hose onto the 3-way TEE in the location shown. This connection to the 3-way TEE fitting is a tight fit, so light lubrication will be necessary. No clamp is required on this hose.

Leave this hose unconnected at the other end as it will connect to the included TEE fitting near the coolant tank in later steps.

19. Reinstall the recirculation hose back onto the turbo air inlet pipe and route it as it was originally.

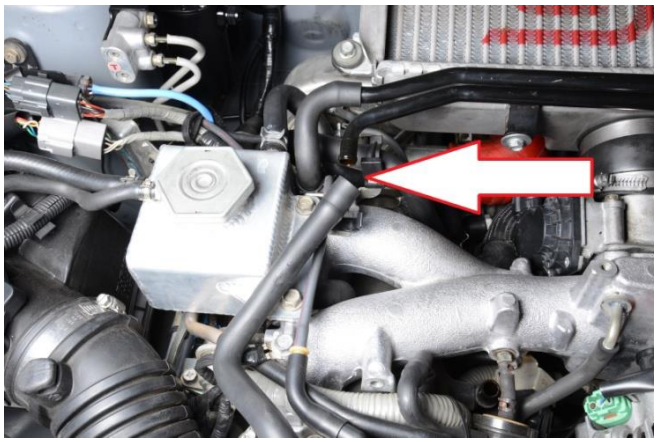
As shown, the throttle body can be reinstalled.

NOTE: Before reinstalling the intercooler, it is a good idea to clean the inside to get rid of any previous oil build up.

20a. This step is for models that use a black metal crossover tube that runs from side to side along the intercooler. NOTE: For later models with the plastic molded crossover tube, see the next step.

As shown, disconnect and remove the hose that runs from the black metal crossover tube to the turbo air inlet pipe. This hose will NOT be reused.

NOTE: the OEM hoses that connect from the vertical valve cover breather ports to the crossover tube will remain connected and unmodified.

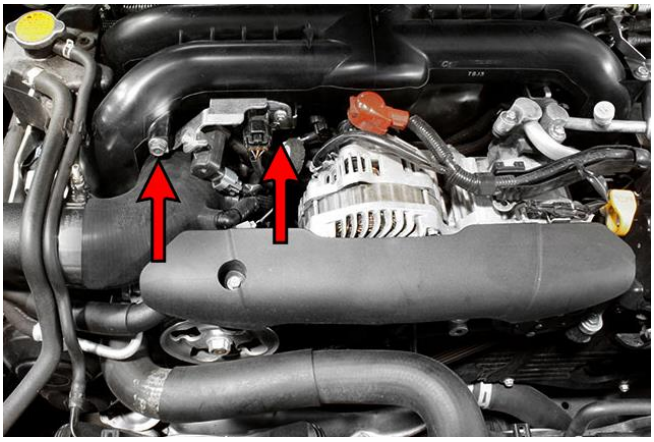


20b. This step is for models that use a black plastic molded crossover tube that runs from side to side along the backside of the intake manifold.

For accessibility, remove the bolts (shown) that hold the wastegate solenoid bracket. Temporarily move the wastegate solenoid assembly to the side.

Disconnect and remove the hose that runs from the black plastic molded crossover tube to the turbo air inlet pipe. This hose will NOT be reused.

NOTE: the OEM hoses that connect from the vertical valve cover breather ports to the crossover tube will remain connected and unmodified.



21. Loosely install both 90 degree 8AN push-lok hose ends to the top and side fittings of the front-most catch can.

Connect one end of the provided ½" PCV hose to the crossover tube. Next, route the hose over to the catch can top port hose end. Cut the hose to length and install onto the hose end, as shown in blue.

Clock the hose end for best fitment and tighten.

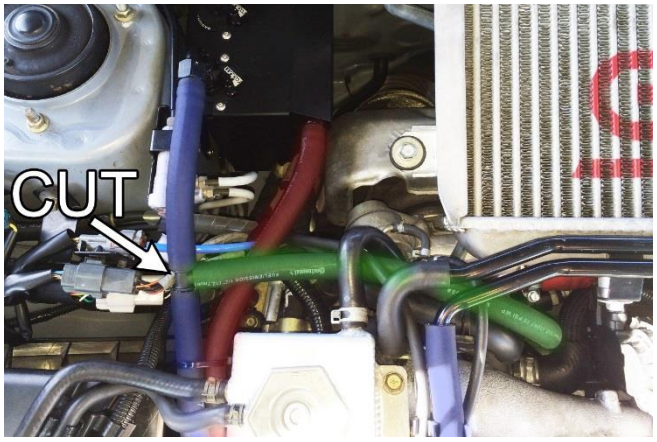
22. Connect one end of the provided ½” PCV hose to the turbo inlet pipe hose barb. Next, route this hose to the catch can side port. Cut the hose to length and install on the hose end, as shown in red.

Orientate this hose end horizontally pointing towards the front of the vehicle for proper fitment with the heat shield.

Secure the hoses together with the included zip ties, as shown.

23. Cut a ½” section out of the hose from step 21. This cut should be made just behind the coolant tank. Next, install the provided TEE fitting in line with the branch of the TEE pointing toward the throttle body.

Route the loose ½” PCV hose from Step 18 under the hoses in the area, as depicted in green. Cut it to length and secure to the included TEE fitting. A clamp is not required on these connections.



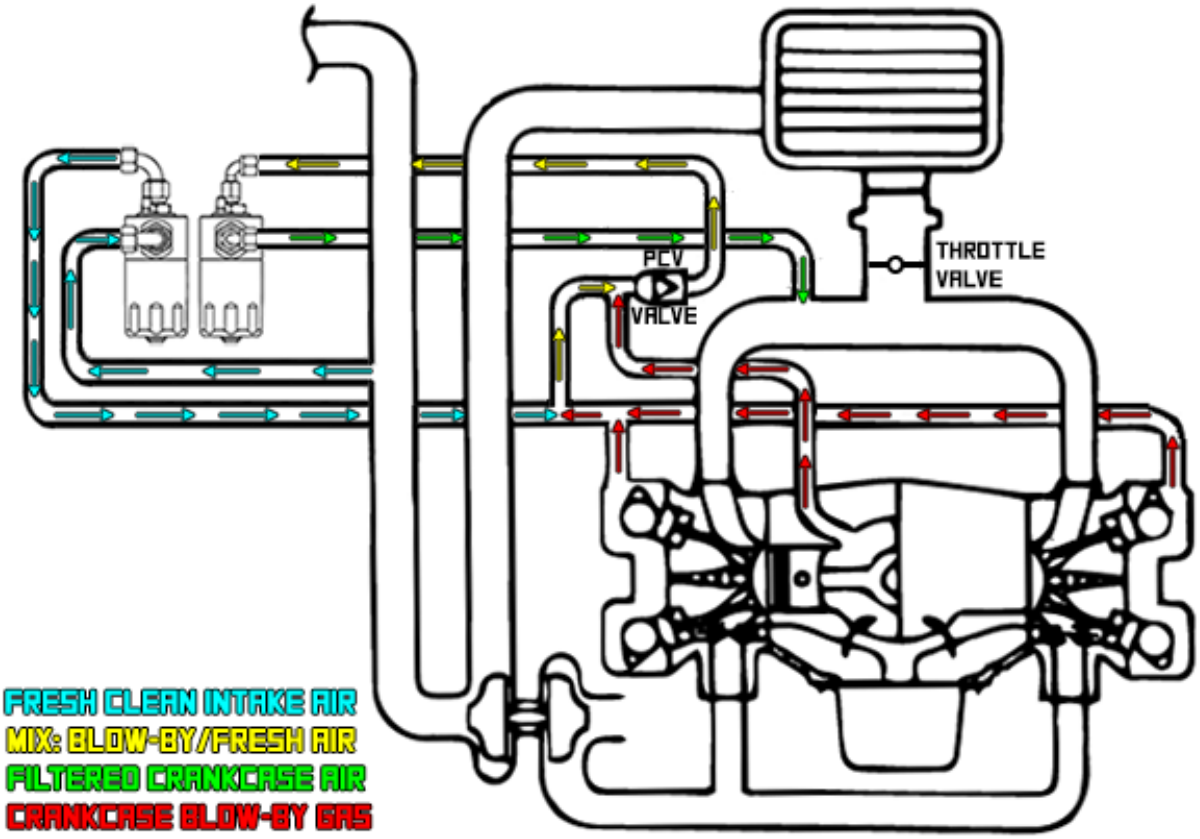
24. Slide the heat shield into position. Using a 3mm Allen wrench, secure the heat shield in place using the four M5 button-head screws, as shown. Do NOT use thread locker on these screws. **Installation complete.**

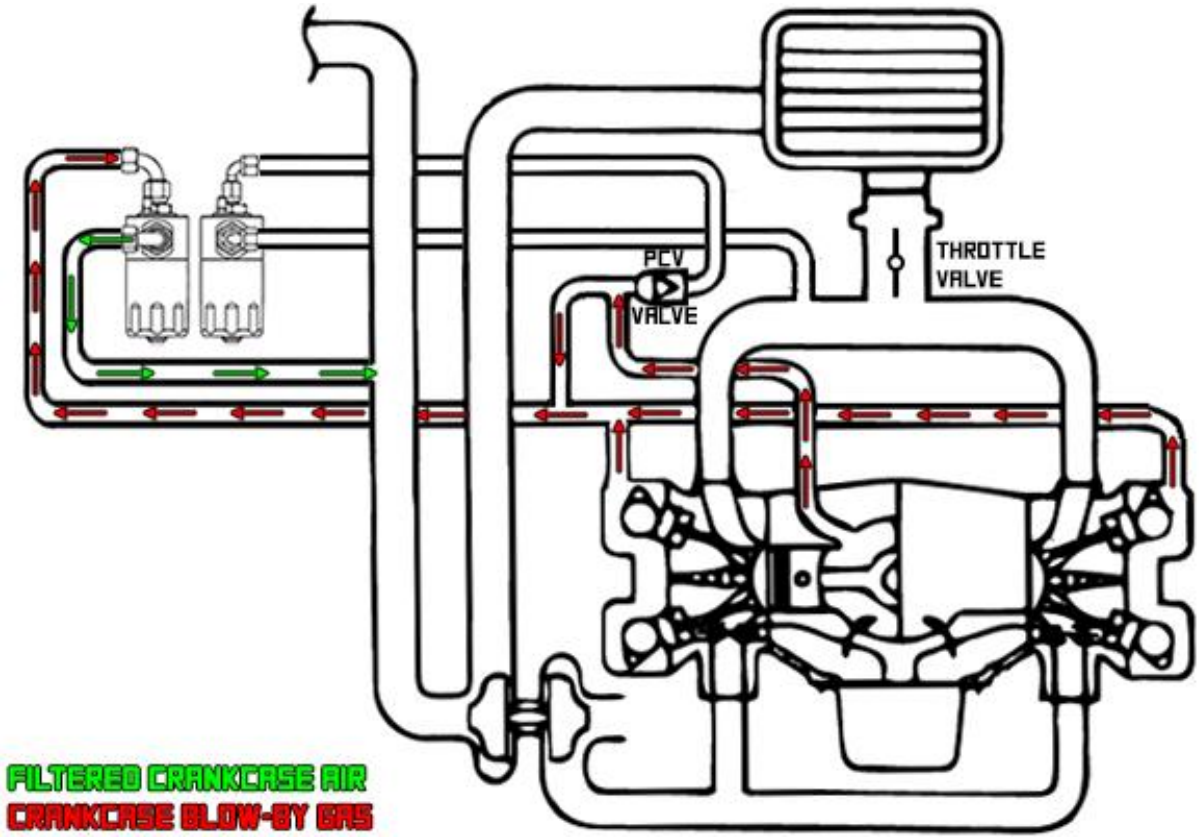
Check the oil level in the catch cans regularly by simply unscrewing the dipsticks.

To drain, service, or clean out the catch cans, simply remove the heat shield and unscrew the lower half of the catch can bodies.

The condensing filtration media can be cleaned with any standard degreaser.

Diagrams below show how the routing works with the PCV valve open and closed.


PCV
VALVE
THROTTLE
VALVE
FRESH CLEAN INTAKE AIR
MIX: BLOW-BY/FRESH AIR
FILTERED CRANKCASE AIR
CRANKCASE BLOW-BY GAS


PCV
VALVE
THROTTLE
VALVE
FILTERED CRANKCASE AIR
CRANKCASE BLOW-BY GAS