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REF: Engine Mechanicals - Sub-05J

Aftermarket Breather Valves

Plumbing an External Breather Valve

The only Sportster engines that are 'set up' for an external breather valve are '77-'90 models. Basically you just need to remove the internal valve and rearrange the existing cam cover vent tube / hose to accept the external valve.

Below is a run down of possible changes needed to swap to an external breather valve.

- **Cam cover breathing engines:**

- **57-76 engines** can also utilize an external valve but would require some rearranging of parts to use it.
- **77-78 engines** only need to remove the foo-foo valve from the breather tube and install a 90° fitting in the lower 6:00 position to accept the valve.
Plumb the Krankvent to be in the vertical position to past the can and ease a slow bend in the hose toward and ziptied to the frame.
- **79-90 engines** with the reed or umbrella valves can simply remove the OEM valve itself from the assembly and plug the external valve into the hose.
Plumb the Krankvent off the 10:00 nipple fitting.
Run it vertical to past the can and ease a slow bend in the hose toward and ziptied to the frame.
- For 79-85 models, if you don't want to run the hose into the air cleaner, you can plug the 10:00 hole, remove the 6:00 plug and pipe a hose for the valve.
It's also a good idea to measure crankcase pressure anytime changes are made to the system.

- **Head breathing engines:**

- **91-present engines** CAN use an external valve piped from the heads. But installing the Deimus mod in the cam cover is a more aesthetic alternative.
[Click here](#) to read more on Converting Head Breathers to Cam Chest Breather.
Most people, using the Deimus mod drop the breather valve from the bottom of the cam cover.
That seems to defeat the purpose of oil draining back into the gearcase however.

- This 77-78 vent line mod was done due to problems fitting the stock tube as it hit the exhaust pipes.

- Thread size for the breather fitting is 5/8"-11.
- A piece of aluminum threaded rod, cut a small length to thread into the breather and drill / tap the hole for an 1/8" pipe thread.
- A 45 ° hose barb fitting was installed to connect a length of hose that leads back along the frame.

This way the oil mist gets directed out back and doesn't collect along the frame and engine.

Stock 77-78 tube removed, fitted w/ 1/8" 45° barb fitting. An external valve can be plumbed inline now.

¹⁾



List of Aftermarket Breather Valves

Finding a better breather valve: ²⁾

The breather valves that work best on crankcase breathers have several features:

- Low-inertia, i.e. they don't take more than a breath to open and close.
- They operate at low pressures ~1-30psi.
- They preferably have a floating type seal.
- They should be transparent, so you can see if they block up with blowby, solids, bugs etc.
- They should be easy to open and clean occasionally.
- They should push-fit into your breather line.

Metal diaphragm valves with e.g. springs are hopeless.

Also avoid other types of valves designed to work at high pressures e.g. plumbing valves.

Avoid car PCV valves as they are metering as well as non-return valves and are unsuitable.

Automotive PCV valves are designed to let some air back in.

The ball and spring valves will not be able to work fast enough to keep all the air out.

When air is allowed to be drawn back into the engine, it creates a mass that must be compressed by the pistons on downstroke as it is being vented out.

This robs some power and will cause the engine to work harder (creating more internal heat at higher RPM). ³⁾

Aftermarket PCV's: ⁴⁾

- Mercedes Benz P/N# 271-018-00-29 ~\$13.

- Reed type PCV valve. Fast acting. Used for their C 230 Kompressor engine.
- Dims: 2-1/2" long by 1-1/8" with an I.D of 1/4".
- McCaster Carr P/N# 4610K17 ~\$6.
 - Umbrella valve. Vacuum check valve.
- Autozone P/N# PCV1174 (PV272) ~\$5.
- Ball/spring based PCV valve.
 - Makes a clicking noise during operation.

Here is a 2-stroke reed valve.⁵⁾



Mercedes Benz P/N# 271-018-00-29⁶⁾



Reed Valve⁷⁾



Doherty Power Vent⁸⁾



Aftermarket Breather Valves for Harley's:

- Sifton Crankcase Breather⁹⁾
 This appears to be a cheaper version of the Hayden Crankvent also with an umbrella valve installed inside.
 It is, however, a one time use part as it cannot be taken apart to replace the umbrella valve.

Aftermarket PCV's:¹⁰⁾

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Hayden Krankvent

Sub Documents

- [Dissecting the Hayden KVP38 Crankcase Breather Valve](#)
- [Frequently Asked Questions About the Hayden Krankvent](#)

The Hayden valve was built for Harley Davidson motorcycles in mind. Click on the “Dissecting the Hayden” link in the sub docs above to see more.

It is a very good external rubber umbrella valve alternative for 1977-present Sportsters. But, they are rather expensive.

It uses (1) 91-03 umbrella valve in a custom sealed 2-piece compartment. The umbrella is replaceable by unscrewing the 2 body halves.

Hayden KVP38 breather valve, used with the [Deimus Mod](#) (cam chest breather conversion). ¹¹⁾



Hayden Krankvent installed (Deimus mod also) ¹²⁾



Hayden breather opened up. ¹³⁾



CBVC Breather Valve

This was for sale some time ago on Ebay that seems to be a generic version of the Hayden valve. The add is no longer available.

- Features:
 - Chrome body.
 - Can be taken apart to replace the umbrella.
 - Same functionality as Krank, Spike etc...
 - It can be taken apart for umbrella replacement (same umbrella as 91-up models... easily found)
 - No power gains from using this breather valve.

It was unbranded and with no directional arrow for installation so you'll have to blow into it first before installing to make sure how to plumb it.

Doherty Power Vent

Made in the USA by Doherty Machine.

Available for head or crankcase breathing engines, with kits for both Evo & Twin Cam engines.

Doherty Power Vents are no longer being made by Doherty Machine. ¹⁴⁾

However, there is another company making this product (see Doherty Style Breather below)

- CNC-machined T-6 billet aluminum
- Show-quality polished finish
- One-way valve prevents backflow
- Kits include machined bolts and plastic washers for a tight seal
- Work with most CV carb and EFI applications
- Accepts 1/8" NPT fitting
- Sold in pairs
- Made in the U.S.A.
- Fitment
 - DS21101123, 93-99 80" Evolution
 - DS21101122, 99-08 Twin Cam
 - DS21101124, 91-08 XL
 - DS289600, 70-92 80" Big Twin

Doherty Power Vents with the line routed up then down and attached to the bottom of the frame. ¹⁵⁾



Doherty Style Breather

These are made In the USA By Speed Dealer Customs. [Click here to go to their website.](#)

- Features:
- Internal rubber umbrella valve
- Billet aluminum.
- Reduce blow by oil mist.
- Decrease crankcase pressure.
- Stop gasket leaks.
- Will fit 1993 and up Evo type Harley motors.
- Knurled bodies.
- Available in 2 Finishes; black anodized or polished.
- Kit includes:
 - (2) 6061 billet aluminum machined bodies.
 - (2) Machined 304 Stainless Steel Bolts.
(either 1/2"x13 or 3/8"x16 thread patterns) and each 1-5/16" long.
 - 4 Hi-Temp O-Rings.
- Also comes in other styles.
- Will not fit 98-01 magnetti marelli fuel injection and '08 and later FLH models.

Reed Valve by Heiden Tuning

Part number (15-0677) Developed by Heiden Tuning in Holland.

It is sold for Yamahas out of Tampa, FL. Here is a link to view / purchase at [Mikes SX.com](#)

This reed type was Positive Crankcase Ventilation valve hooks to the engine top breather vent and allows expelled air out.

But the reed prevents air re-entering quickly so a very small vacuum is created in the crankcase.

Sifton Breather Valve

This one is a one time use part.

Link to Ebay add from paniccycles: [SIFTON CASE BREATHER VENT](#)

- Features:
 - Chrome body.
 - Rubber umbrella valve.
 - Dims: OD - app. 1-1/4", length - app. 1-3/4" long.
 - Fittings: 3/8" hose barb inlet/outlet (one end removable thru 1/8" NPT hole)
 - Includes: two Gates type hose clamps, two tie-wraps, and one 3/8" ID clear tubing.
 - Non serviceable Asian imported part.

Also an unbranded part.

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1)

photos by ericfreeman of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/179539-foo-foo-breather-fitting-alternatives?t=1928882>

2)

bunny32 of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-motor-engine/sportster-motorcycle-motor-top-end/10013-blowby-article/page2?t=15705&page=2>

3)

Deimus of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-motor-engine/sportster-motorcycle-bottom-end/35356-install-new-crankcase-vent-04/page18?t=67658&page=18>

4) 10)

electronbee of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-motor-engine/sportster-motorcycle-bottom-end/36799-installing-the-ultimate-crankcase-vent-%C2%93how-to%C2%94/page10?t=72099&highlight=reed+valve&page=10>

5)

photo by norseXL of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/frame-mount-evo-sportster-talk-1986-2003-models/131026-my-mods-to-venting-and-oiling?t=1386341&highlight=reed>

6)

photo by electronbee of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-motor-engine/sportster-motorcycle-bottom-end/36799-installing-the-ultimate-crankcase-vent-%C2%93how-to%C2%94/page10?t=72099&highlight=reed+valve&page=10>

7)

photo by Bluto of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-motor-engine/sportster-motorcycle-bottom-end/197307-sportster-crankcase-pressure-engine-breathing-wetsumping-and-mods/page2#post4317506>

8) 12)

Photo by goblin_dust of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-motor-engine/sportster-motorcycle-bottom-end/36799-installing-the-ultimate-crankcase-vent-%C2%93how-to%C2%94/page23?t=72099&highlight=wet+sumping&page=23>

9)

<https://www.ebay.com/itm/SIFTON-CASE-BREATHER-VENT-PCV-VALVE-HARLEY-EVO-SHOVELHEAD-PANHEAD-TWINCAM-KRANK/253213372444?epid=1665559744&hash=item3af4b1701c:g:F4cAAOSwzrxUuDhj>

11)

photo by 60Gunner of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-general-discussion-and-problems/197471-crankcase-breather-mod#post5763918>

13)

photos by leucadiaGuit of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/187973-oil-gremlin-help?t=2004869> cropped by Hippysmack

14)

<http://www.cas4.com/engine/engine-crankcase-breathers-breather-valves2.html>

15)

photo by RIORoosen of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-intake-and-exhaust/sportster-motorcycle-air-intake-carburetor-efi-fuel-and-exhaust/44522-show-me-your-non-stock-breather-systems/page18?t=146084&page=18>

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