

Installation Manual

PH2 **POWERHALT**
AIR INTAKE EMERGENCY SHUT-OFF VALVE



PH2 AIR INTAKE EMERGENCY SHUT-OFF VALVE

MANUAL PULL CABLE

800.663.0096

www.powerhalt.com



INSTALLATION REQUIREMENTS & RECOMMENDATIONS:

Prior to the installation, please read through the requirements and recommendations listed below so you have a clear understanding of your system and the location you plan to install the shut-off valve.

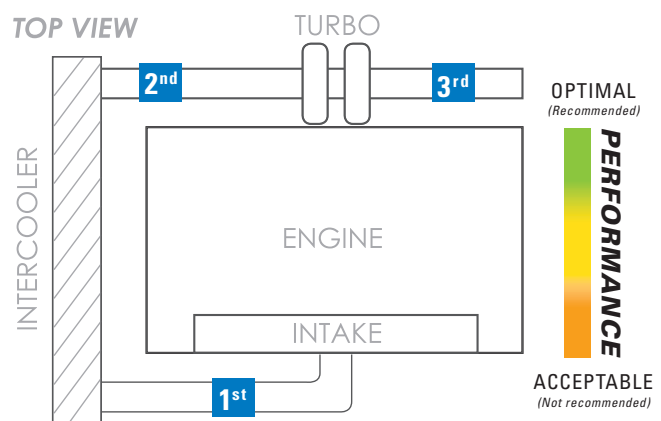
If you cannot meet these requirements, or are unsure of your system, please contact your dealer or PowerHalt representative and we can work with you to overcome your installation constraints and challenges.

PowerHalt Technical Representative can be reached Monday-Friday 6:00-4:30 (PST) at 800.663.0096

- A 1" clearance is required from the valve to any other components. The valve can be in any orientation.
- Maximum air temperature at the valve should not exceed 120°C. On a turbo-charged engine, 'Option B' (see *diagram below*) should be the last option due to high temperatures.
(For special applications only)
- All hoses, adapters, and fittings must be suitable for the vibration of the engine application, and of reinforced type. *If unsure of your vibration requirement, contact Pacbrake.
- Flexible hose gaps should be kept to a minimum and the overall pipe quality and integrity from the shut-off valve to the intake manifold should be confirmed.
NOTE: - Failure to ensure this may result in hose collapse during valve activation and possible system leaks, preventing engine shutdown
- For excessive vibration applications, and installations with long pipe runs, additional support brackets may be required.
- If an air intake flame trap is used, the valve must be installed upstream of the trap.
- Crankcase breather connections in the intake system between the valve and engine (or in engine intake parts) must be sealed and replaced by an external breather.
- If you need to cut the existing intake piping to allow for the shut-off valve installation, please make sure to cut the pipe off of the engine and that it is cleaned thoroughly to ensure no shavings are present.
NOTE: Failure to do so may result in engine damage caused by foreign debris ingesting into the engine.
- It is highly recommended that the pipe is rolled with a bead to ensure hose fitting retention on both the inlet and outlet sides of the shut-off valve.
- If more than one shut-off valve is installed on one engine it is imperative that the control method is consistent with this requirement, ensuring valve activation is simultaneous for both valves.

In order of preferred location to least preferred

1st	POST INTERCOOLER	<ul style="list-style-type: none"> Low Plumbing Leakage Risk Moderate Charge Air Temperature Fast Shutdown Response Time
2nd	POST TURBO	<ul style="list-style-type: none"> Moderate Plumbing Leakage Risk High Charge Air Temperature Moderate Shutdown Response Time
3rd	PRE TURBO	<ul style="list-style-type: none"> High Plumbing Leakage Risk Low Charge Air Temperature Slow Shutdown Response Time



KIT LAYOUT

Please ensure that you have all the parts listed in this kit **before** you start the installation.



KIT CONTENTS

- A** (1) PH2 Manual Pull Cable Shut-off Valve.
- B** (12) Tie Straps
- C** (4) Pre-Tension Clamps
- D** (2) Silicone Hoses
- E** (1) Pull Cable with T-Handle
- F** (1) Pull Cable Nameplates
- G** (1) Cable Attachment Bracket
- H** (1) Activation Pin
- I** (1) Coupling Cap Nut
- J** (2) M6 Flat Washer
- K** (2) M6 x 1 x 14 mm Hex Head Cap Screw
- L** (1) Loctite

REQUIRED TOOLS

- Drill
- 11 mm Drill Bit
- Ratchet with a 16 mm Deep Socket
- Torque Wrench
- 14 mm, 17 mm & 19 mm Crowfoot Wrench
- 13 mm, 14 mm & 17 mm Open Ended Wrench
- Hack Saw
- Utility Knife

Thank you for your purchase of a PowerHalt Air Intake Emergency Shut-Off Valve by Pacbrake. Please read the entire manual before beginning to ensure you can complete the installation once started.

Should you have any issues during the installation, please call technical support at 800.663.0096.

1

Remove the pull cable, ball end, coupling cap nut from the activation pin.

Install the activation pin assembly into the valve, apply a couple drops of the supplied Loctite 242, to the threads. Install and torque the pin to 16.3 - 17 ft-lbs (22-23 N•m). using a 16 mm deep socket and torque wrench. (See picture 1A).



1A

2

Install the cable attachment bracket to the Power Halt valve using the supplied M6 x 1 x 14mm Allen head cap screws and M6 flat washer. Apply a couple drops of the supplied Loctite 242 to the threads of the cap screws. Torque to 55 in-lbs +/- 3 in-lbs (6 +/- .5 N•m). (See picture 2A).



2A

3

VALVE INSTALLATION

Remove the engine panels or covers to gain access to the intake hose location where the shut-off valve will be installed.



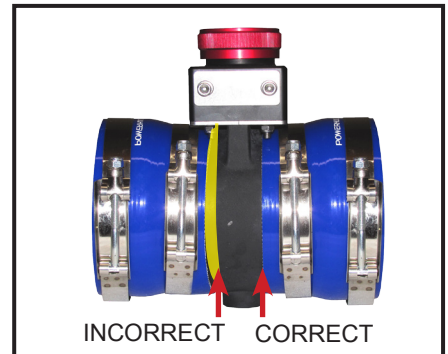
2A

4

Remove the stock clamps and hoses from the air cleaner and intake manifold.

Take the provided silicone hoses, install them on the air cleaner outlet and intake manifold.

NOTE: Ensure the hoses are fully sealed onto the valve (see photo 4A).



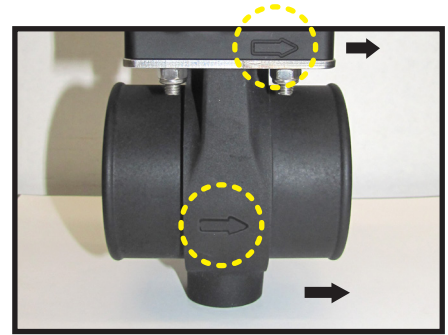
4A

5

Install provided the pre-tension clamps on the hoses and leave them loose.

- 6** The PowerHalt valve may only be installed in one direction, please make note of the flow direction arrows, the indented arrows on the valve (see photo 6A).

Install the PH2 valve into the hoses openings.



6A

- 7** Torque all 4 clamps to 70-80 in-lbs (7.9-9 N·m).

8 PULL CABLE PARTS IDENTIFICATION

FIGURE 8A

- 1 T-Handle Bulk Head Fitting
- 2 M10 Nuts
- 3 M10 Flat Washers
- 4 M5 Nut
- 5 T-Handle

FIGURE 8B

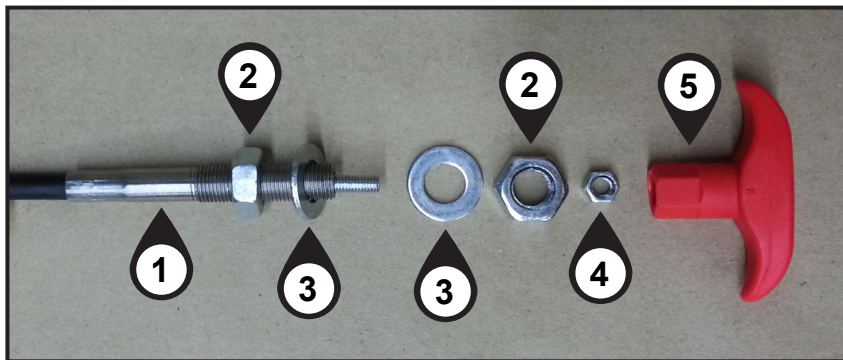
- 1 Threaded end fitting
- 2 M8 Pretention adjusting nuts
- 3 M8 Flat washers
- 4 Cable Ball End

FIGURE 8C

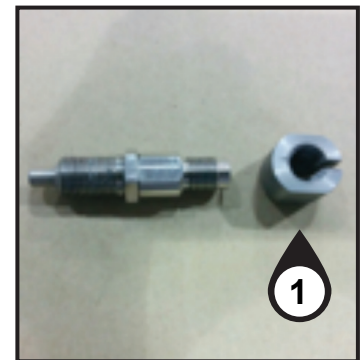
- 1 Coupling Cap Nut

FIGURE 8D

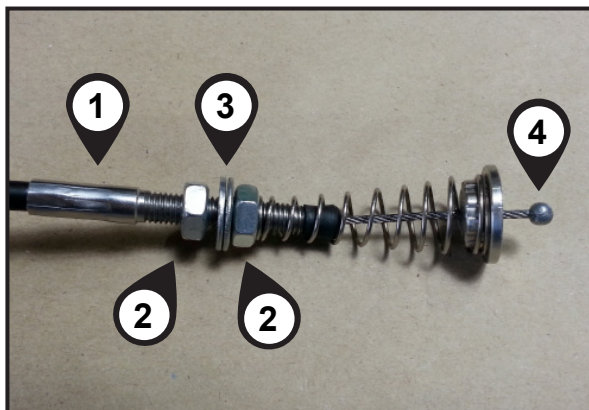
- 1 Activation Pin



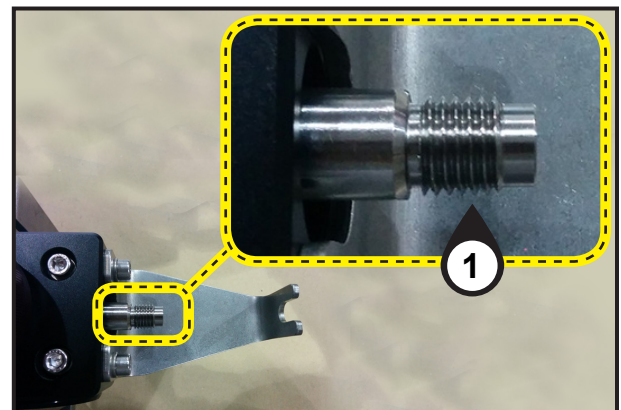
8A



8C



8B



8D

9 PULL CABLE INSTALLATION

Locate a 5" by 5" flat area for the pull cable activation station.

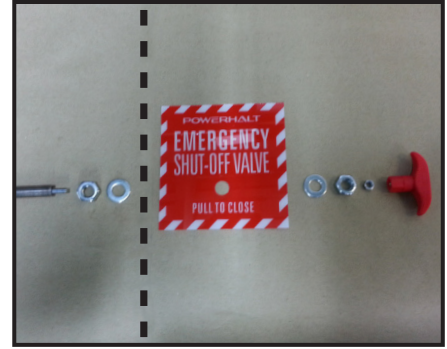
Using the Name plate as a template ensure the location is highly visible, mark the center of the hole in the name plate, drill a $\frac{7}{16}$ ", (11mm) hole at this location.

NOTE: Ensure the pull cable station is close to the operating panel and is easy to access.

Remove the T-handle, the M5 nut, one M10 nut and one M10 washer from the T-handle bulkhead fitting. Pass this bulkhead fitting end through the $\frac{7}{16}$ " (11mm) hole.

NOTE: A MINIMUM BEND RADIUS OF 4" MUST BE MAINTAINED

Do not secure the cable with the provided tie straps until step 12.



9A



9B

- 10** Install the cable, ball end, into the coupling cap nut. Thread it onto the activation pin of the valve assembly. (see pictures 10A-10C).



10A

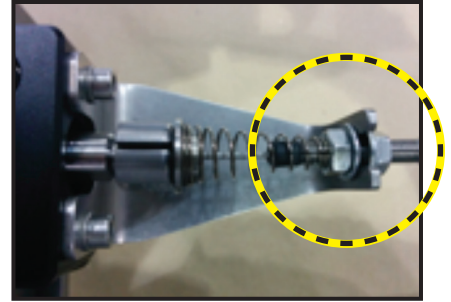


10B



10C

- 11** Loosen the nuts of the threaded end fitting, insert them over the valve bracket. Make sure that one washer and one nut is on either side of the bracket, hand tighten the nuts to the bracket.



11A

- 12** Torque the coupling cap nut to the activation pin to 25 +/- 5 ft-lbs, (34 +/- 7 N•m) using a 19mm crows foot wrench and a 13mm backup wrench.



12A

- 13** Cable pretension is achieved when the T-handle M5 jamb nut is just being pulled against threaded end of the bulkhead fitting.

Adjust the threaded end fitting, M8 adjusting nut, with a two M14 wrenches to ensure the cable pretension is correct. Torque adjusting nuts to 11 +/- 1 ft-lbs (15 +/- 1.3 N•m).

Torque the nuts of the threaded end fitting to the valve bracket to 9 +/- 1 ft-lbs (12 +/- 1.3 N•m). Installed in step 11.

NOTE: Secure the pull cable with the provided tie straps, away from any moving parts or high heat sources.



13A



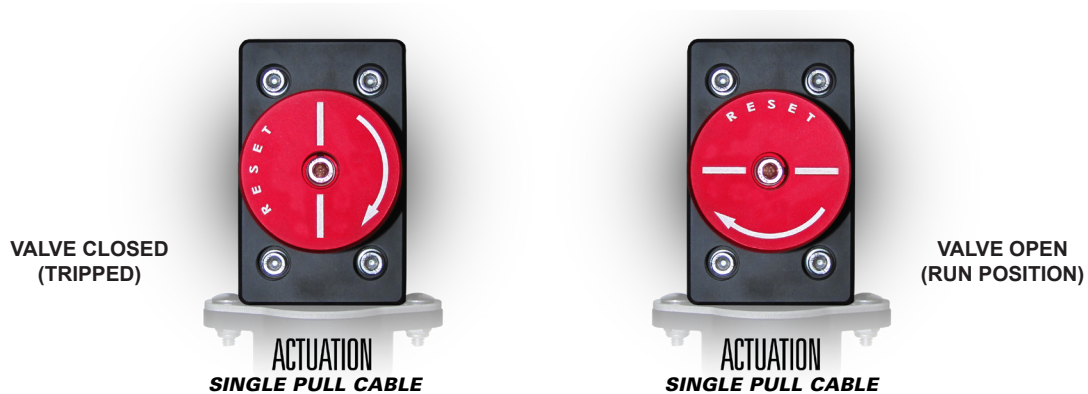
13B

NOTE: A MINIMUM BEND RADIUS OF 4" MUST BE MAINTAINED.

POST INSTALLATION TESTING OF YOUR POWERHALT SHUT-OFF VALVE

Once the installation is complete, ensuring that all the steps, schematics and recommendations have been followed, it is time to test your system.

1. Activate the manual pull cable (no engine running).
2. View valve and confirm valve has tripped. The reset knob should be in the tripped position
This will have the line direction on the reset knob facing 90° from the air flow direction.
3. Reset the valve.
4. Start the engine and run.
5. Activate the manual pull cable. The engine should stop within a few seconds.
 - If the engine does not shutdown in the specified time please check all intake piping and hoses for leaks between the valve and intake system.
 - If the system is leak-free and your valve still does not shutdown the engine, please consult a PowerHalt Service Representative for support.
6. Once the engine stops, wait 30 seconds, then reset the valve by turning the red reset knob clockwise to the open "Run" position with knob line in line with the air flow direction.



VALVE OPERATION

Prior to running your system you must ensure that the valve is latched (clockwise) into its open position and that the above installation procedure was completed as described. It is recommended that the engine be shipped with the shut-off valve system in its active/open and ready-to-use state.

To carry out the emergency shutdown procedure, the pull cable handle must be pulled as this will shut the valve and stop the engine.

CAUTION: *No attempt to restart the engine should happen until the activation information/details are understood and the valve is confirmed to be returned back to the open “Run” position.*

NOTE: *Please reference your specific operation procedures defined by your organization for additional operation specifics/details. If you require additional recommendations on the steps to operate your shut-off valve, please reference PowerHalt’s operation manual based on your application.*

VALVE MAINTENANCE

To ensure a trouble-free long life of your PowerHalt shut-off valve a scheduled maintenance procedure is mandatory. It is recommended that you follow the requirements & procedures stated below:

MONTHLY REQUIREMENTS

- Inspect all clamps, pull cables and support brackets to ensure they are in good condition and to the required torque.
- Inspect all wiring & cable runs to ensure there is no corrosion or wear.
- Inspect all hoses to ensure there are no cracks or damage.
- Activate the valve to ensure it is exercised.
See procedure below.

3 MONTH REQUIREMENT (or at oil change interval's whichever comes first)

- Lubricate the PH2, flap O-ring, with Parker® Super O-Lube, Part # SLUBE 884-2, or equivalent.

VALVE ACTIVATION PROCEDURE:

- 1 Run engine at low RPM (preferably at idle).
- 2 Activate the PowerHalt shut-off valve by pulling the cable handle.
The engine should stop within a few seconds.

NOTE:

- *If the engine does not shutdown in the specified time, please check all intake piping and hoses for leaks between the valve and the intake system.*
 - *If the system is leak free and your valve still does not shut down the engine, please consult PowerHalt’s service representative for support.*
- 3 Once the engine stops, wait 30 seconds, then reset the valve by turning the red reset knob clockwise to the open “Run” position with knob arrow in line with air flow direction.

CAUTION: The #1 failure mode of any valve in the market is seizing due to lack of use. As this is a safety device, it is imperative that you employ safety activation testing at a minimum of once per month.