Decades of experience providing valving solutions

PH3 POWERHALT

AIR INTAKE EMERGENCY SHUT-OFF VALVES by PACBRAKE

Operator's Guide

OPERATE · TEST · MAINTAIN · TROUBLESHOOT

Helping you achieve optimum results with your PowerHalt Shut-Off Valve

800.663.0096 / www.pacbrake.com

PACBRAKE®

Thank you for purchasing Pacbrake's PH3 PowerHalt air intake emergency shut-off valve.

This product is designed to provide years of trouble-free, safe operation, while reducing operating and maintenance costs.

Be assured, while on the work site, PowerHalt has you covered, keeping all equipment / personnel safe & clear of potentially dangerous runaways.

HOW THE SHUT-OFF VALVE WORKS

The PH3 shut-off valve is a butterfly-style valve mounted in your air intake system which receives a signal from the PowerGuard controller when the engine RPM exceeds a preset overspeed value. Once this signal is sent from the controller to the valve, the valve closes and the engine safely shuts down. This is an automatic system so the operator does not need to constantly monitor the engine for potential runaways.

POWERHALT MEMBRANE SWITCH

RESET Used during the setup procedure.
(Has a red light indicator above the button)

TRIP Used for a manual activation. *(Override)*

TEST Used to test the automatic function and during the setup procedures.
(Has a green light indicator above the button)

POWERHALT TEST PROCEDURE

At most work sites it is required to show the safety officer full or partial function of your emergency shut-off valve, prior to gaining access. To do so, follow the below steps:

AUTO FUNCTION TESTING

1. With the engine running, hold both the test and reset buttons on the membrane switch for 5 seconds until both the green and the red lights start flashing.
2. Press and release the test button.
3. **For vehicle application:**
    a) Bring the vehicle engine RPM up to 50% of the overspeed trip point value (example – engine rated RPM = 2000 + 20% for overspeed protection = 2400, 50% of this is 1200 RPM).
    b) The engine will shut down and the red light above the reset button will illuminate until 0 RPM is detected and either 30 seconds elapses or the test button is pressed.

    For Non-Vehicle applications:
    a) The engine will shut down immediately once step 2 is complete then the red light above the reset button will illuminate until 0 RPM is detected and either 30 seconds elapses or the test button is pressed.

    Note: *The PowerGuard controller will wait 60 seconds in this test mode before reverting back to normal operation, if the test function is not performed.*
4. Once 30 seconds elapses or you press the test button the valve will automatically reset itself and you are back to normal engine operation.

MANUAL FUNCTION TESTING

1. With the engine running, press the TRIP button on the membrane switch: the valve will close immediately and the red light will illuminate.
2. Once 30 seconds elapses the valve will automatically reset itself: the red light will extinguish and engine will be ready for normal operation.

VALVE OPERATION

- When the engine is not running no lights will flash.
- During normal operation when the engine is running the test indicator (green light) will flash every 5 seconds indicating the system is active and the RPM is being monitored.
- When the engine RPM drops to zero (during normal key-off engine shutdown), the valve will perform an anti-foul cycle (closing for a ¼ second and then opening) which keeps the valve free of debris and corrosion. This results in an extended valve life.
- When an emergency condition arises and an engine shutdown is needed, press the TRIP button and the valve will close.
- In an overspeed runaway condition the PowerGuard system will automatically shut down the engine.
- Once 30 seconds elapses: the valve will automatically reset, the red light will extinguish and the engine will be ready for normal operation.

SYSTEM ERROR

The PH3 kit is a smart system which can monitor operating conditions during the life of the product. It ensures that any potential issues are identified in a timely manner, preventing unwanted downtime and safety concerns.

If there is a system error detected during operation, the following conditions could be experienced:

1. Rapid alternating illumination of the red and green lights on the membrane switch.
2. A one second pause is followed by a flash code where the number of flashes is the error code (as per FLASH ERROR CODES).
3. This cycle repeats until the error is fixed and the power to the controller is cycled.

FLASH ERROR CODES

(The number of times the light on the membrane switch flashes within a cycle)

1-2

The valve failed to close or (1) or open (2) - the motor position is not reading:

- Ensure all connectors are fully installed and latched; cycle the power to the controller by disconnecting and reconnecting the battery power.
- Ensure continuity from the five pin connector at the shut-off valve to the controller.

3-4

The valve opens (3) or closes (4) too slowly or not all the way:

- Inspect the shut-off valve for obstructions and attempt to manually press the flap closed and open (feeling for any binding).

5

The shut-off valve draws too much current:

- Ensure continuity from the five-pin connector, to the shut-off valve, to the controller, to the two large power wires (red and black).
- Check for damage to the wiring causing shorts.

6-9

Internal controller error

- Contact Pacbrake support at 800 663 0096.

10

Motor position sensor reading is out of range, disconnected or failed.

- Contact Pacbrake support at 800 663 0096.

11

Electrical Motor – No power. Low voltage, or motor is disconnected

- Check battery voltage
- Check for damage to the wiring causing discontinuity.

12

Electrical Motor miswired – Failed to rotate in the correct direction.

- Contact Pacbrake support at 800 663 0096.

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High position deviation from calibrated range.

- Visually check for mechanical integrity of the valve.
- Cycle power and let valve recalibrate.

Contact Pacbrake Support, 800.663.0096 if you have any questions or concerns

MAINTENANCE REQUIREMENTS

To ensure the PowerHalt shut-off valve system has a long lasting life please follow the below maintenance and preventative measures:

- The PH3 system incorporates an anti-foul exercise cycle, it is not required that you test your valve, unless you have long inactive periods that your engine sits without operation.

If your engine sits for over 30 days:

- Start the engine.
- Ensure the test indicator (green light) illuminates every 5 seconds.
- Ensure there are no error codes.
- Enter test procedure.

Complete a monthly inspection:

- Inspect silicone hoses for cracks, deformation or leaks.
- Inspect the clamps for correct torque.
- Inspect the wiring harness to ensure no chaffing or loose connections.
- Inspect the PowerGuard controller for damage, dirt or poor connections.
- Confirm the green light flashes every 5 seconds when the engine is running.

PACBRAKE CUSTOMER SUPPORT

800.663.0096 (Mon-Fri, 6:30am - 4:30pm)
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