

Installation Manual

PH5 **POWERHALT**
AIR INTAKE EMERGENCY SHUT-OFF VALVE



L6447 • ECN 1-1872

800.663.0096

www.powerhalt.com



ATTENTION

Prior to installation, read through all system requirements.

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

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

CAUTION

Failure to comply with these instructions may result in PRODUCT DAMAGE:

- Maximum ambient air temperature at valve should not exceed 120°C.
- Install valve upstream of air intake flame trap, if present.
- All hoses, adapters, and fittings must be suitable for vibration of engine application.

CAUTION

Failure to comply with these instructions may result in ENGINE DAMAGE:

- Confirm overall pipe quality and integrity. Use additional support brackets for long pipe runs and/or excessive vibration applications.
- Flexible hose gaps should be kept to a minimum to avoid hose collapse during valve activation.
- Clear intake plumbing of any shavings and/or debris prior to installation.

CAUTION

Failure to comply with these instructions may result in SYSTEM FAILURE – FALSE TRIPS AND/OR IMPROPER FUNCTION:

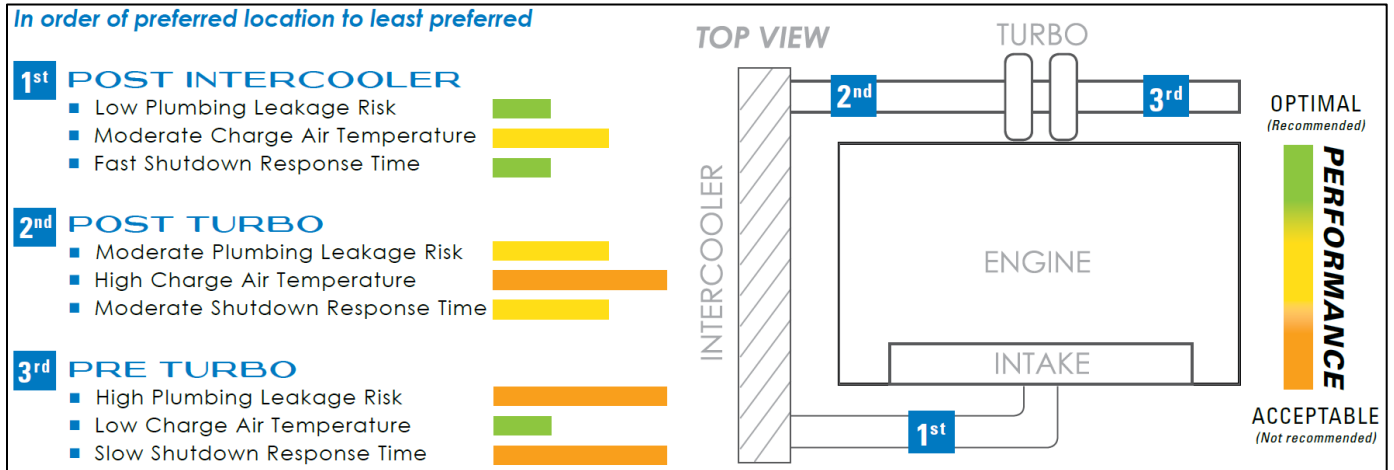
- Do NOT operate engine with any harness connections disconnected. Doing so could cause system components to fail under extreme operating conditions.
- Ensure all intake plumbing gaps are kept to a minimum to avoid system leaks preventing engine shutdown.
- Crankcase breather connections to intake system must be sealed and replaced with external breather.
- If more than one shut-off valve is installed ensure valve activation is simultaneous for all valves.

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

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

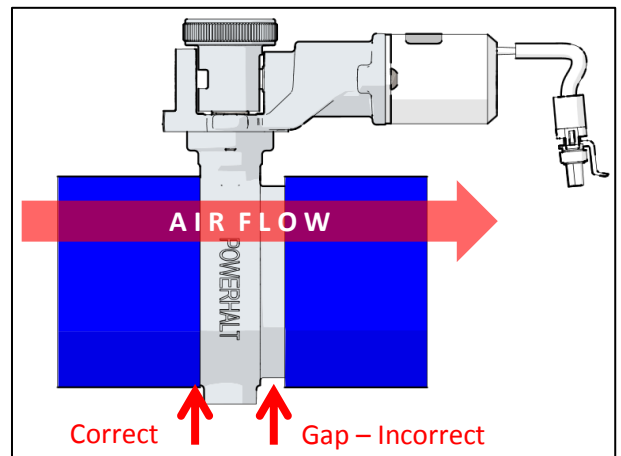
1 Valve Installation

- Choose your install location based on FIGURE 1-A.



1-A


- Ensure 1" clearance from valve to surrounding components. Valve can be rotated as long as it is correctly oriented with respect to air flow.
- Remove appropriate length from intake plumbing to allow for installation of valve. Clear intake plumbing of all shavings and debris.
- If applicable, use beaded pipe to ensure hose retention. See Page 8 for more information on optional PowerHalt Bead Ring Kit.
- Correctly orient valve to flow of air as shown in FIGURE 1-B.
- Fully seat hoses onto valve as shown in FIGURE 1-B.
- Torque provided clamps to 8.5 ± 0.6 Nm [75 ± 5 in-lbf].



1-B

2 Gear Tooth Sensor Installation (Automatic Control Kits ONLY)

2-A

 Use bottoming tap to clean port threads.

To install sensor, thread sensor into sensor port on bell housing until it contacts flywheel teeth and back off ½ turn. Tighten jam nut securely as per TABLE 2-A.

CAUTION: Sensor port must be centered over flywheel teeth as shown in FIGURE 2-B. Contact PowerHalt Representative if sensor port is offset.

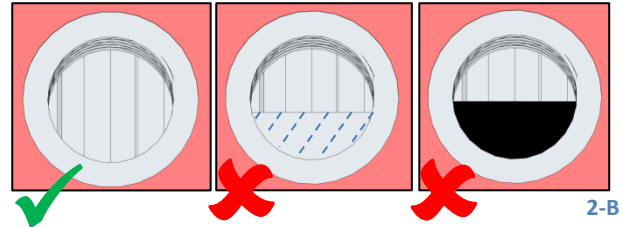
For DD 13/15/16 Engines without sensor port:

1. Replace stock engine flywheel access cover plate with Mag Adapter Plate to create sensor port.

For all other engines without sensor port:

1. Find suitable location on bell housing for mounting gear tooth sensor.
2. Drill and tap as required based on sensor thread.

Sensor Thread	Suggested Torque
3/8 – 24	5.1 ± 0.3 Nm [45 ± 3 in-lbf]
5/8 – 18	25.8 ± 1.4 Nm [19 ± 1 ft-lbf]
3/4 – 16	81.3 ± 2.7 Nm [60 ± 2 ft-lbf]




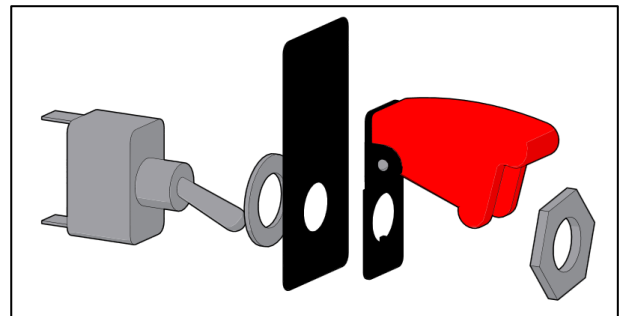
2-B

3 Switch Installation

Read requirements below and find suitable location on vehicle dash or engine control panel to install provided switch.

- For Vehicle Applications, switch must be on dash and accessible from ground outside of driver's door.
- Mount switch away from locations exposed to high pressure water and excessive UV exposure.




 Do NOT activate toggle switch for more than 5 seconds. Damage to solenoid may occur. Electrical fuse will blow after 10 seconds of constant activation.



3-A





4 Controller Installation (Automatic Control Kits ONLY)

Read requirements below and find suitable location for PowerGuard Controller. Mount using self-tapping screws or provided tie straps.

- Do NOT mount directly on engine or vehicle frame.
-  Mount controller away from locations exposed to high pressure water or steam during engine cleaning.
- Mount controller away from locations exposed to ambient temperatures above 80°C.
- Mount controller with connectors exiting from bottom to prevent ingress of standing water.
-  Mounting controller within vehicle cab underneath dash or within control panel of stationary engines is recommended.
-  Ensure controller is accessible. It will be used for set-up procedure.

5 Wiring Harness

Read requirements below and follow wiring schematic on following page to make all electrical connections.

-  Use BOTH supplied harnesses.
-  Do NOT remove pins from connectors to pass through small sized holes.
-  Mount all relays away from locations exposed to high pressure water or steam during engine cleaning. Mounting on vehicle firewall or within control panel of stationary engines is recommended.
- Mount relays using provided self-tapping screws.
- Tighten contactor relay nuts as per TABLE 5-A.
- Manual Control Wiring Harness Only: Trim and splice connections as necessary.
-  Do NOT alter lengths of Automatic Control Wiring Harness.
- Securely latch all connectors. Do NOT disconnect connectors once latched.
- Allow adequate slack in wiring harness near connections to prevent vibrating components from straining wires.
- Secure wiring harness away from moving parts or high heat sources with provided tie straps.
- Pacbrake recommends drawing power from sources indicated in schematics. Confirm sufficient power supply as per TABLE 5-B prior to choosing alternate source.

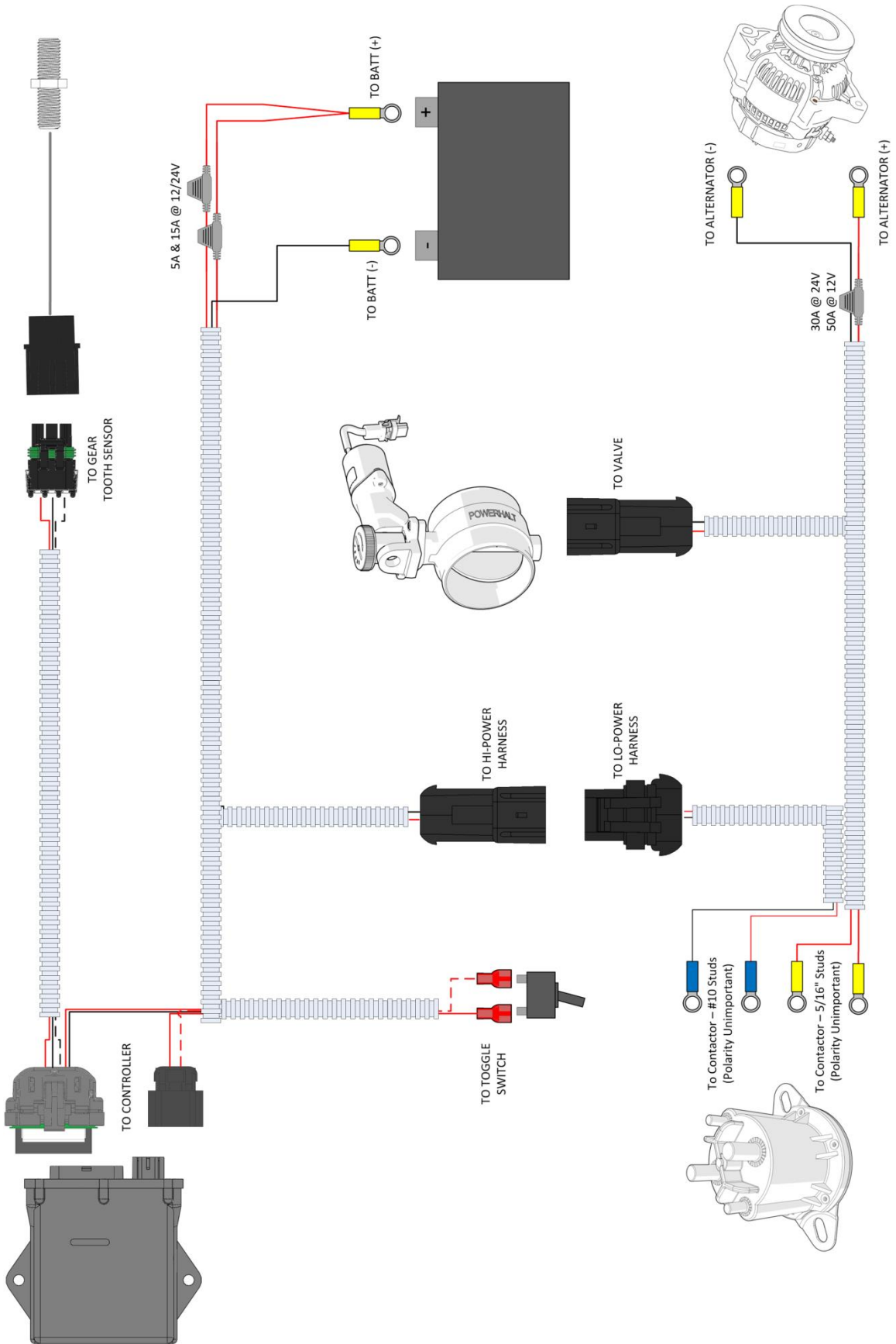
5-A

Contactor Stud Thread	Suggested Torque
5/16 – 24	5 Nm [45 in-lbf] MAX
#10 – 32	1.7 Nm [15 in-lbf] MAX

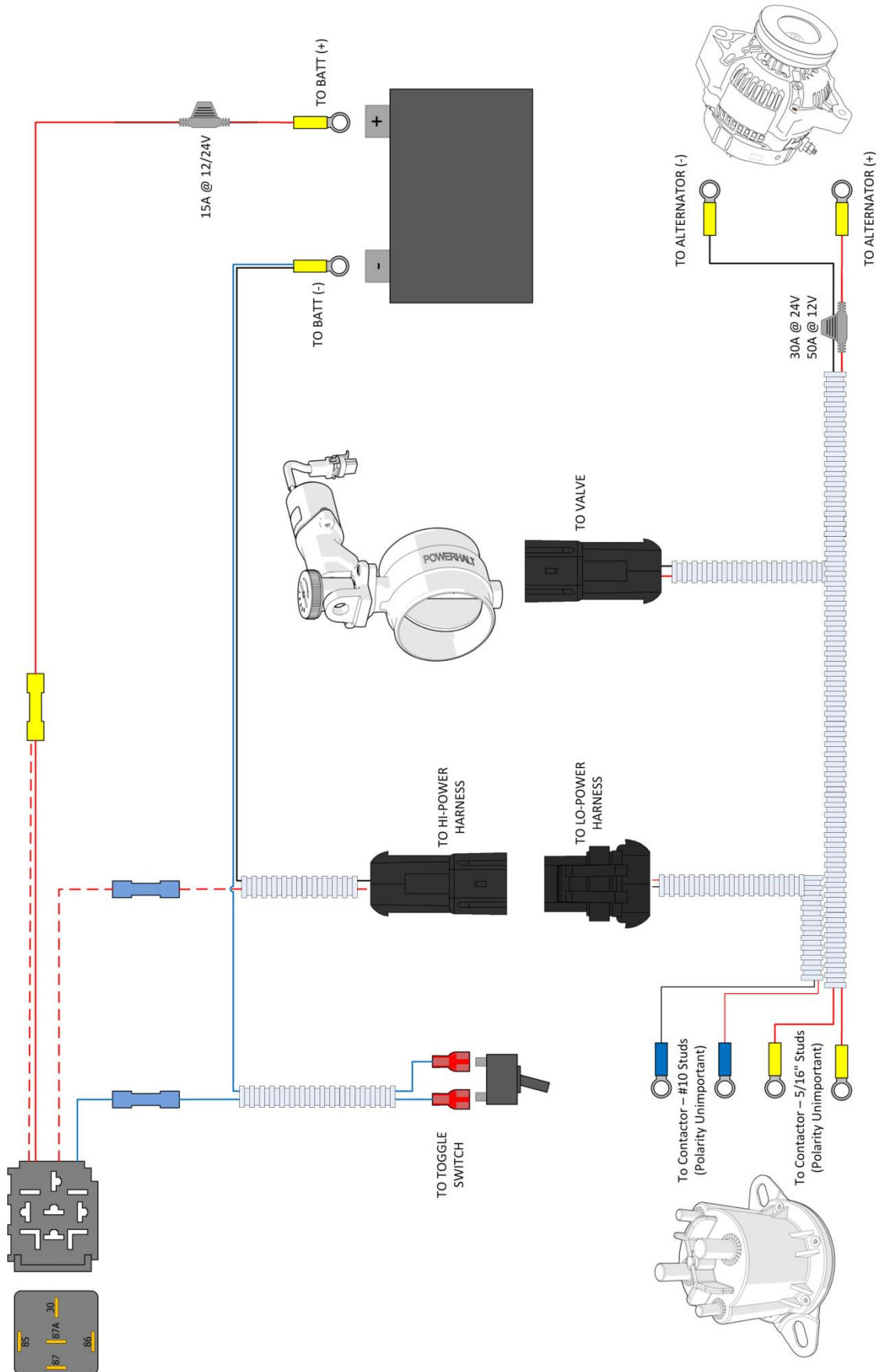
5-B

Nominal Voltage	Current Output
12 V	140 A MIN
24 V	80 A MIN

Automatic Control Wiring Schematic



Manual Control Wiring Schematic



6 Optional Accessories

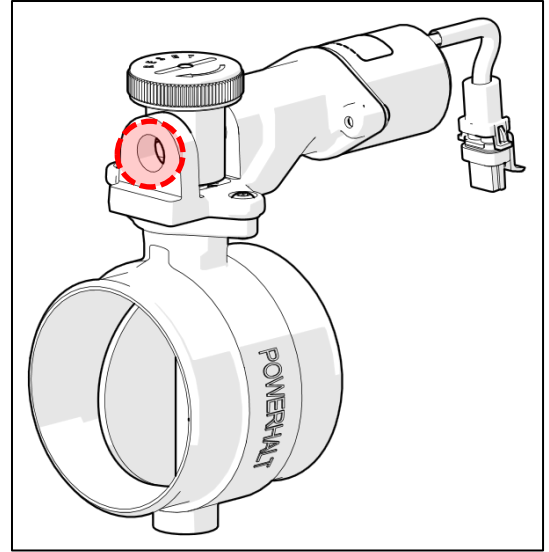
Contact PowerHalt Representative to purchase optional accessories below.

6.1 Valve Position Switch

Provides operator with secondary indicator of valve position. Available in Normally Open & Normally Closed configurations.

To install Valve Position Switch:

1. Insert into mounting port (FIGURE 6-A) and thread in completely.
2. Torque to $38 \pm 2.8 \text{ Nm}$ [$28 \pm 2 \text{ ft-lbf}$].
3. Connect included wiring harness as necessary. Ensure current does not exceed 1 Amp.

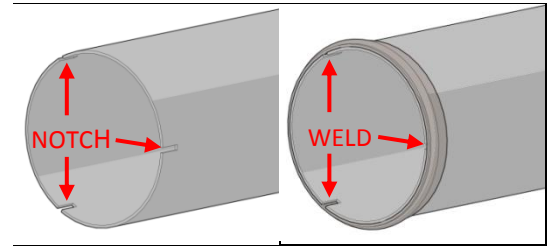


6-A

6.2 Bead Ring Kit

Creates beaded end on modified engine piping to ensure silicone hoses remain seated.

To install bead ring, notch ends of cut pipe in 3 equal places, attach machined bead ring to pipe, and tack weld at notches as shown in FIGURE 6-B.



6-B

7 Post Installation

Once installation is complete, ensure all steps, schematics, and requirements have been followed.

Refer to Programming Manual (L6448) for procedure on programming and testing system's automatic shutoff function.

Refer to PowerHalt Operator's Guide for notes on Valve Operation and Maintenance Requirements.



CUSTOMER SERVICE HOURS

MONDAY TO FRIDAY FROM 6:00 AM TO 4:30 PM PST

BUSINESS HOURS OF OPERATION

MONDAY TO FRIDAY FROM 7:30 AM TO 4:00 PM PST

CORPORATE HEADQUARTERS / R&D CENTER

19594 96TH AVENUE
SURREY, BRITISH COLUMBIA



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