

VERTICAL LIFT FLOOD BARRIER

Installation Instructions/Operation and Maintenance Manual



Models:

VL-580

Table of Contents:

Safety Precautions 2
 Product Information 2
 Installation Instructions 4
 Electric Operator Installation..... 6
 Inspection and Maintenance..... 8
 Warranty Registration Form..... 11

Contact Information

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IMPORTANT! Read entire Instruction and Operations Manual to become familiar with the product.

NOTICE This product is a flood protection product. The effectiveness of the product is directly related to the proper installation and operation of this product. Failure to properly maintain this product **will** affect performance.

Publication Notice

This manual has been compiled and published covering the latest product descriptions and specifications.

The contents of this manual and the specifications of this product are subject to change without notice.

PS Flood Barriers reserves the right to make changes without notice in the specifications and materials contained herein and shall not be responsible for any damages (including consequential) caused by reliance on the materials presented, including but not limited to typographical and other errors relating to the publication.

PS Flood Barriers and/or its respective suppliers may make improvements and/or changes in the product(s)/ service(s) offered and/or the program(s) at any time without notice.

Retain this manual for future reference.

If you would like to download a copy of this manual, please go to psfloodbarriers.com

Safety Precautions

The following icons are used throughout this Manual.

- ▲ DANGER** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
- ▲ WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- ▲ CAUTION** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderated injury.
- NOTICE** Indicates manufacturer's statement of additional information.
- IMPORTANT!** Indicates a required action.
- CRITICAL** Indicates a vital component to product performance.

Product Information

NOTICE Unauthorized modification of or to the Product voids this Limited Warranty. Authorized modifications, received in writing from PS INDUSTRIES INCORPORATED, as long as the modification is accomplished in strict accordance with PS INDUSTRIES INCORPORATED's instructions, does not void warranty. To request product modifications contact PS INDUSTRIES INCORPORATED, 1150 S. 48th Street, Grand Forks, ND 58201, phone 877-446-1519, email: 4psinfo@psindustries.com

I. General Information

This manual contains information regarding operation and maintenance of custom water-resistant Vertical Lift Flood Barrier assemblies.

II. Operation Guidelines

The following procedures and information are supplied for the operation of the PS Flood Barriers' VL-580 Vertical Lift Flood Barrier assemblies. Operation in a manner other than intended could result in damage or less than acceptable performance at time of need, for which the manufacturer will not be held responsible.

▲ CAUTION Always plan for potential leakage and condensation that can occur during flooding conditions.

▲ WARNING The Vertical Lift Flood Barrier components MAY BE heavy, consult Approved for Construction drawings and included documents for weights and use appropriate lifting procedures and equipment.

III. Safety Precautions

- A. Ensure opening is clear of all obstructions or debris through the entire travel of the Flood Barrier during operation.
- B. Use the handle /grab bars when contacting panel, staying clear of pinch points.
- C. Do not force panel or components if they do not operate freely.
- D. Protect all gaskets and hardware. Always consult original Approved for Construction drawings for all installation dimensions, details, hardware and specifications.

IV. Pre-flooding or Potential Flooding Conditions

- A. Conduct Inspection and Maintenance activities as described in this Operation and Maintenance Manual, at a minimum, annually and seasonally if seasonal flood conditions exist, prior to the flood season. This may require the replacement of gaskets, sealants, anchors, and accounting for all of the latching devices.
- B. Ensure VL-580, Vertical Lift Flood Barrier system is operational prior to flood waters reaching the opening.

▲ WARNING THIS IS A FLOOD PROTECTION BARRIER; NEVER UNLATCH OR DISASSEMBLE DURING ANY FLOOD CONDITIONS AS WATER LEAKAGE WILL OCCUR AND YOU MAY NOT BE ABLE TO RESEAL THE BARRIER.

Product Information

V. Operation

- A. Lowering Flood Barrier: The VL-580 Vertical Lift Flood Barrier is stored in the up (open) position
 1. To lower the VL-580 into the down (closed) position operate the Manual Crank Handle until the VL-580 barrier contacts the sill surface.
- B. Latching Flood Barrier
 1. Rotate Pivoting Latch Arms to engage the Latch Catch.
 2. Use Threaded Spin Knob to tighten Pivoting Latch Arm. Note: Use only hand-tight pressure to engage latching.
 3. Making certain to tighten both latch sides evenly to compress panel uniformly.

VI. Additional Information

- A. Model VL-580 is specifically manufactured to meet the opening dimensions and Water Protective Height (WPH) of each customers' specific site requirements. **DUE TO THE CUSTOM NATURE OF EACH VL-580 THEY DO NOT ALL LOOK THE SAME NOR LATCH OR OPERATE EXACTLY THE SAME. REFER TO THIS DOCUMENT AND APPROVED FOR CONSTRUCTION DRAWINGS FOR YOUR SPECIFIC INSTALLATION AND OPERATION.**

NOTICE Please keep these instructions and Approved for Construction Drawings for later reference and read them before attempting any maintenance or deployment of the product.

- B. No additional allowances have been included for hydrodynamic loads, debris impact loads or wave loads, unless specifically detailed in additional documentation provided.
- C. All water pressure, impact, and operating loads are transferred to the building structure. Building structure design and capacity to accept loads from flood barriers, as well as, evaluation of loads to structure is by others, not PS Flood Barriers.
- D. If the water height exceeds the level of any door penetrations or water protective design height, leakage will occur.
- E. This product is equipped with compressible seals, which are not dependent on inflation devices.

NOTICE PS Flood Barriers recommends completing installation steps fully, testing, and completing a Training Drill for activation prior to storage of Flood Barrier System.

- F. The following information is available upon request:
 1. Structural Calculations:
 - a. A copy of PS Flood Barriers' design calculations by a qualified engineer, to verify the flood barrier's ability to withstand the design loading, is available upon request.
 2. Optional Stamped Structural Calculations:
 - a. Registered professional engineer stamped calculations from within the state or territory where the building will be constructed or substantially improved are available at additional cost.

Vertical Lift Installation

VII. Installation of Vertical Lift Flood Barrier

NOTICE Operation in a manner other than intended could result in damage or less than acceptable performance at time of need for which the manufacturer will not be held responsible.

NOTE: *Inspect all components of Flood Barrier before deployment, making sure to properly clean and remove contaminants. Contact PS Flood Barriers at 877-446-1519 for purchase of replacement components, if necessary.*

NOTICE Only use Approved for Construction Drawings.

STEP 1. Review all Approved for Construction Drawings sent with the crated Vertical Lift Flood Barrier. The Approved for Construction Drawings are located inside a plastic bag inside the crate. Review all installation labels prior to installation.

STEP 2. Check opening (sill, jambs, and structure) for plumb, level, square, and dimensions. All sealing surfaces must be sound, flat/level, and without blemish for best performance. Permissible tolerance is +/- $\frac{1}{16}$ " per 10 foot length.

STEP 3. Measure and mark side guide track locations.
a. Make continuous chalk line for vertical plumb alignment.

STEP 4. Side guide tracks must sit level at base.
a. Shimming may be required to level.

STEP 5. Tack-weld Side guide tracks in location.

STEP 6. Measure spacing between guides for proper spacing at bottom, top, and middle.

STEP 7. Place upper bridge across side guide tracks.
a. Align, drill, and bolt-in-place.

STEP 8. Re-check all alignment and spacing.

STEP 9. Add additional welds/anchors enough to safely secure structure during installation.
a. Final welding after barrier is running.

STEP 10. Place counterweight tower surrounding structure in place.

STEP 11. Place counterweight in position and set blocking.

CRITICAL Blocking to be a minimum of 4 inches above ground.

STEP 12. Check for plumb, square, and dimensional clearances.
a. Mount counterweight tower structure in place.

STEP 13. Set flood barrier panel in closed/down position.

Vertical Lift Installation

- STEP 14.** Install flood panel side guide clips on panel to secure in tracks.
a. Final adjustment after operational.
- STEP 15.** Raise counterweight to upper location, top of counterweight 8” inches below bottom of bridge channels.
a. Secure counterweight in this location during installation of lift cables.
- STEP 16.** Check all cable pulley sheaves for location and tightness.
a. Install lift cables.
- STEP 17.** Refer to diagram detail on Approved for Construction Drawings for lift eye assembly at door panel.
a. Lift eyes used for shipping and placing are not used for final assembly.
- STEP 18.** Reference to diagram/detail on Approved for Construction Drawings for proper placement of wire rope clips.
a. “Never saddle a dead horse.”
- STEP 19.** Carefully release counter weight restraints allowing the counterweight to gradually tension the cables.
- STEP 20.** Adjust the door panel for level lift, using the lift eyes of the flood barrier panel.
- STEP 21.** Manually test the assembly for full up and down travel.
- STEP 22.** Adjust components as necessary for smooth operation.
- STEP 23.** Check all cable and cable pulleys for proper alignment and location.
a. Tighten and lock in position.
b. Adjust side guide clips on flood barrier panel to properly locate panel when in full closed/down position.
- IMPORTANT!** Bottom of panel should contact jambs when panel is fully down. Upper guide clips should hold door forward to initiate gasket contact on jambs at least half-way up panel.

Electrical Operator Installation

XIII. Installation of Optional Electrical Operator

NOTICE Operation in a manner other than intended could result in damage or less than acceptable performance at time of need for which the manufacturer will not be held responsible.

NOTE: *Inspect all components of Flood Barrier before deployment, making sure to properly clean and remove contaminants. Contact PS Flood Barriers at 877-446-1519 for purchase of replacement components, if necessary.*

NOTICE Only use Approved for Construction Drawings.

STEP 1. Install bottom idler sheave assembly at bottom of counterweight guide tower.

- a. Drill and bolt-in-place until final adjustment.

STEP 2. Install drive motor assembly on top of bride.

- a. Drill and bolt-in-place until final alignment.

STEP 3. Install roller chain between drive, bottom idler, and counterweight.

- a. Attach and tighten chain with turnbuckle.

CRITICAL Turnbuckle must be locked after adjustment and safety wired.

STEP 4. Locate brackets for mounting proximity sensors, travel limits, and indicators.

- a. Upper limit travel targets flood barrier panel in raised position.
- b. Lower limit travel targets counterweight in raised position.
- c. Latching sensors target top of door panel in latched position (down and pulled tight to jambs).

STEP 5. Carefully test travel direction of motor using push buttons. Reverse polarity if needed for proper up-down direction.

NOTICE This flood barrier is designed for automatic closure - REMOTE ACTIVATION. There is no reversing or detector edge on panel or in system.

▲ WARNING Ensure path of moving flood barrier panel is blocked off from personnel.

STEP 6. Set upper travel limit by adjusting proximity sensor targeting flood barrier panel in full-raised position.

STEP 7. Set lower travel limit by adjusting proximity sensor targeting counterweight in full-raised position.

NOTICE Counterweight should be raised approximately 2 inches additional after door is in contact with ground. This allows cable tension to be reduced (spring at lift eyes will compensate) and bottom seal to begin compression.

STEP 8. Locate and install secondary manual panel latches at each jamb.

STEP 9. Adjust as necessary for proper operation.

STEP 10. Locate WARNING labels near latches to insure latches are removed prior to any automatic operation.

STEP 11. Set latching sensor locations to indicate proper panel location relative to side gasket contact with jambs.

Electrical Operator Installation

STEP 12. Test run Flood Barrier for full cycle travel and proximity sensor operation.

STEP 13. Complete all welding and locking of components.

STEP 14. Weld operator base to bridge assembly.

STEP 15. Weld bottom chain idler sheave assembly to counterweight tower.

STEP 16. Brace side tracks as needed for alignment and rigidity.

STEP 17. Test again for full travel operation without binding. Adjust as necessary.

STEP 18. Install counterweight tower covers.

NOTICE Please keep these instructions and Approved for Construction Drawings for later reference and read them before attempting any maintenance or deployment of the product.

NOTICE PS Flood Barriers recommends completing installation steps fully, testing, and completing a Training Drill for activation prior to storage of Flood Barrier System.

Inspection and Maintenance

IX. Inspection and Maintenance (Minimum Annually)

A. Panel, Jambs, and Embedded items:

1. Inspect items for damage and misalignment. Adjust, repair, or replace as needed, to meet original design tolerances.
2. Check all connections, making sure they meet original design standards (refer to Approved for Construction Drawings and Anchor Specifications).

B. Fasteners and mechanical connections:

1. All fasteners must be in place and adjusted to their original design standards. Replace any damaged components (refer to Approved for Construction Drawings and Anchor Specifications).
2. Inspect Flood Barrier Cables and sheaves, replace any damaged components.
3. Inspect counterweight chain and tensioner. Make sure they meet original design standards (refer to Approved for Construction Drawings).

C. Sealants and Waterstops:

1. Inspect all sealants used on jambs and connections to insure their effectiveness.
2. Replace any cracked, loose, or otherwise non-performing sealants.
3. Use only factory approved/supplied products.
 - a. Factory approved sealant/waterstops: Sika; Sikaflex-227, Quellpaste Typ E

D. Gasketing:

1. Inspect all gaskets for damage, continuous adhesion to the attached surface, and proper positioning and compression.
 - a. Inspect all panel gaskets as required.
2. Replace or repair if damage or deterioration to gaskets has occurred.
3. Use only factory approved materials (refer to Approved for Construction Drawings).

CRITICAL Gaskets are a critical component of the Flood Barrier protective performance and must meet minimum compression tolerances in the latched position.

E. Latching:

1. Operate all latching hardware to ensure smooth, uninhibited movement of all mechanical components.
2. Place flood barrier and check latches for proper engagement. If gaskets are not properly positioned and properly compressed, unlatch barrier panel and adjust latching accordingly.

F. Lubrication:

1. Periodically lubricate hardware and other components according this document and Approved for Construction Drawings.
2. Periodically lubricate Bridge Drive bearings.
3. Periodically lubricate Lower counter weight tower bearing.

G. Finishes:

1. Inspect and clean finishes annually.
2. Touch-up repair finishes, or refinish as necessary to protect the structural integrity of the Flood Barrier.

H. Labels and Placards:

1. Inspect all labels and placards.
2. Replace any labels and placards which are unreadable/missing.

I. Housekeeping:

1. Clean sill and jamb of any debris and keep the area clean throughout Bottom Hinged Flood Barrier opening.

PS FLOOD BARRIER WARRANTY REGISTRATION FORM

PS Flood Barriers™ Product Warranty Registration: For PS Flood Barriers™ Products, the Limited Warranty will only be valid if the Owner completes, and returns, this PS Flood Barrier Warranty Registration Form within thirty (30) days of Product installation.

To request additional copies of the Warranty Registration Form, contact PS INDUSTRIES INCORPORATED, 1150 S. 48th Street, Grand Forks, ND 58201, phone 877-446-1519, email: 4psinfo@psindustries.com. For a fillable form, download a copy from www.psfloodbarriers.com/download-center/

The following information is required:

Owner Name: _____ Product Name: _____

Company: _____ Model: _____

Address: _____ Serial Number: _____

State/Province: _____ Date Installed: _____

Zip/Postal Code: _____

Country: _____

Although testing of flood barriers is not required, PS INDUSTRIES INCORPORATED recommends testing flood barriers after installation to verify the suitability of the installation and ensure proper adjustment of flood barrier for optimum performance.

The following information and signatures are required to ensure warranty coverage of installed product.

- Was the flood barrier field tested after installation? Yes No
- If tested, which type(s) of testing was conducted?
 - Hose Test per PS Flood Barriers testing procedure.
 - Hydrostatic Test per PS Flood Barriers testing procedure.
 - Other Testing Method (*describe below*):

Owner or Installer Name (Please print.)

Test Witness Name (Please print.)

Signature

Signature

Date

Date

Return form to:

PS Flood Barriers
Attention: Warranty
1150 S. 48th Street
Grand Forks, ND 58201

Fax: 701-746-8340
E-mail: 4psinfo@psindustries.com

(Make additional copies as necessary)



877.446.1519

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