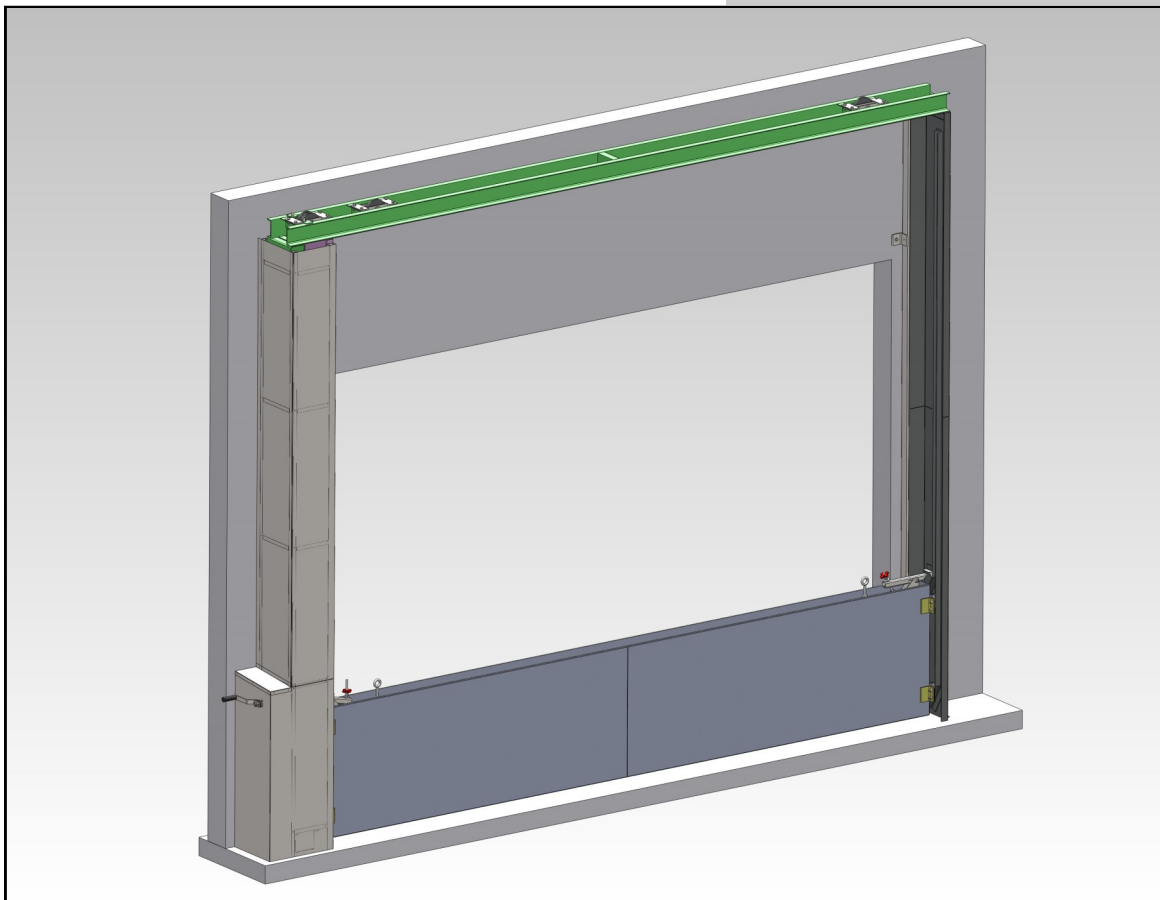




PS Flood Barriers™
Solutions That Hold Water

OPERATIONS & MAINTENANCE MANUAL

VERTICAL LIFT FLOOD BARRIER MODEL: VL-580



Manufactured By:
PS DOORS
1150 S. 48th Street
Grand Forks, ND 58201
www.pdoors.com

If you need to contact Customer Service

Please complete the following information and retain for future reference:

Serial Number:* _____

Purchase Date: _____

PS DOORS Job Number: _____

Contractor: _____

Project Name: _____

* The serial number is located on the hinge edge of the PD-520 Pedestrian Flood Door.

For Customer Service

By Mail: PS DOORS
Attn: PS Flood Barriers
1150 S. 48th Street
Grand Forks, ND 58201

Website: psdoors.com

By Phone: Phone 1-701-746-4519
Toll Free 1-877-446-1519

By Email: 4psinfo@psdoors.com

Hours of Operation: 8:00 am to 5:00 pm (Central Standard Time); Monday thru Friday

Complication and 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 DOORS 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.

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LIMITED WARRANTY

PS DOORS warrants this product and components to be free from defects in material and workmanship for a period of one (1) year from date of shipment. If within the term of this warranty, if any VL-580 or component is found to be defective upon inspection by an authorized PS DOORS representative, PS DOORS will replace or repair, at PS DOORS' discretion, any part found to be defective. Any field labor charges incurred are the sole responsibility of the customer.

To make a claim under this warranty, contact PS DOORS at the address shown below.

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

Toll Free: 800-284-0623
Phone: 701-746-4519
Fax: 701-746-8340
E-mail: 4psinfo@psdoors.com

Unauthorized modification of or to this product voids the PS DOORS Limited Warranty. Accordingly, you can expect any request for warranty repair to be charged to you, if the product requires service after unauthorized modification. Authorized modifications, received in writing from PS DOORS, as long as the modification is accomplished in strict accordance with PS DOORS' instructions, does not void warranty. To request product modifications contact PS DOORS, 1150 S. 48th Street, Grand Forks, ND 58201, phone 800-284-0623, email: 4psinfo@psdoors.com.

PS DOORS SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES.

All other warranty's, express or implied including any warranty of merchantability, are expressly excluded. Some states do not allow the exclusion or limitation of consequential or incidental damages, so the above limitation or exclusion may not apply to you.

WARRANTY DOES NOT APPLY TO ANY DAMAGE OR DETERIORATION CAUSED BY MODIFICATION, ABUSE, APPLIED PAINT FAILURE OR FAILURE TO PROVIDE REASONABLE AND NECESSARY MAINTENANCE.

This warranty gives you specific legal rights, and you may also have other rights, which vary, from state to state.

Exclusions:

Applied finish or paint is not covered.
Seal and/or Gasketing are considered a "wear-item" and are not covered under this warranty.



IMPORTANT! ACTION REQUIRED!

In order to Validate your Warranty the following information must be completed and returned to PS DOORS, failure to completely fill out this information, or to return information to PS DOORS may void warranty.

WARRANTY REGISTRATION

Owner Name: _____ Product: _____
Company: _____ Model: _____
Address: _____ Serial Number(s): _____
City: _____ Date Installed: _____
State/Province: _____ Postal Code: _____
Country: _____

Please answer the following questions:

1. Has the installed product been tested? ____ Yes ____ No
2. Test Witnessed by, Name: _____ Date: _____
3. Product Initial Inspection by, Name: _____ Date: _____

Warranty Registration must be returned to:

- Fax: 701-746-8340
- Email: 4psinfo@psdoors.com
- Mail: PS DOORS
1150 S. 48th Street
Grand Forks, ND 58201

Warranty Registration Information will be used for activation of product warranty only.

Safety precautions

We use the following icons throughout the Operations & Maintenance Manual.



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderated injury.



Indicates manufacture's statement of additional information.



Indicates a required action.



Indicates a vital component to product performance.

PEDESTRIAN FLOOD DOOR; Model PD-520

The VL-580 is a specially designed flood barrier capable of providing flood protection to the limits / heights of design.

Please keep these instructions for later reference and read them before attempting any maintenance or operation of the product.

NOTICE ADDITIONAL INFORMATION

1. No additional allowances have been included for hydrodynamic loads, debris impact loads or wave loads, unless specifically detailed in additional documentation provided.
2. All water pressure loads, impact loads, and operating loads are transferred to the building structure. Building structure design, capacity to accept loads from flood barriers, and evaluation of loads to structure is by others.
3. PS DOORS recommends that the owner implement an regular maintenance program to inspect the gaskets and doors. This program may require the replacement of gaskets; touch up painting and accounting for of all the latching devices.
4. If the water height exceeds the level of any door penetrations or water protective design height, leakage will occur.
5. This product is equipped with compressible seals, which are not dependant on inflation devices.
6. PS DOORS recommends a flood preparedness plan be developed, trained on, and implemented to be activated during times of potential flooding conditions.
7. PS DOORS AND/OR ITS RESPECTIVE SUPPLIERS MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE PRODUCT(S) OR SERVICE(S) OFFERED AND/OR THE PROGRAM(S) AT ANY TIME WITHOUT NOTICE.

IMPORTANT!

Read entire Operations & Maintenance Manual to become familiar with the product.

NOTICE

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

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Installation Sequence.

REFER TO INSTALLATION DRAWING FOR ALL DETAILS!

1. Check opening (sill, jambs, and structure) for plumb, level, square, AND dimensions.
2. Measure and mark side guide track locations. Make continuous chalk line for vertical plumb alignment.
3. Side guide tracks must sit level at base. Shim as required for level.
4. Tack weld side guide tracks in location.
 - a. Measure spacing between guides for proper spacing at bottom, top and middle.
 - b. Place upper bridge across side guide tracks. Align, drill, and bolt in place.
 - c. Re-check all alignment and spacing.
 - d. Add additional welds/anchors; enough to safely secure structure during installation. Final welding after barrier is running.
 - e. Place counterweight tower surrounding structure in place.
 - f. Place counterweight in position and set on blocking a minimum of 4 inches above ground.
 - g. Check for plumb, square, and dimensional clearance and mount counterweight tower structure in place.
 - h. Set flood barrier panel in place: Closed, Down Position.
 - i. Install flood panel side guide clips on panel to secure in tracks. (Final adjustment after operational).
 - j. Counterweight must be raised to upper location (top of counterweight 8 inches below bottom of bridge channels).
 - k. Secure counterweight in this location during installation of lift cables.
 - l. Check all cable pulley sheaves for location and tightness.
 - m. Install lift cables.
 - n. Refer to diagram detail for lift eye assembly at door panel. **(Note: Lift Eyes used for shipping and placing are not used for final assembly).**
 - o. Refer to diagram/detail for proper placement of wire rope clips. ("Never saddle a dead horse".)
 - p. Carefully release counterweight restraints allowing the counterweight to gradually tension the cables.
 - q. Using the lift eyes on flood barrier panel, adjust the door panel for level lift.
 - r. Manually test the assembly for Full Up and Down travel.
 - s. Adjust components as necessary for smooth operation.
 - t. Check all cable and cable pulleys for proper alignment and location. Tighten and lock in position. Adjust side guide clips on flood barrier panel to properly locate panel when in full closed position.
 - i. Bottom of panel should contact jambs when panel is fully down.
 - ii. Upper guide clips should hold door forward to initiate gasket contact on jambs at least half way up panel.

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INSTRUCTIONS FOR ELECTRICALLY OPERATE VL-580 (OPERATOR INSTALLATION) IF REQUIRED.

1. Install bottom idler sheave assembly at bottom of counterweight guide tower. Drill and bolt in place until final adjustment.
2. Install drive motor assembly on top of bride. Drill and bolt in place until final alignment.
3. Install roller chain between drive, bottom idler and counterweight.
 - a. Attach and tighten chain with turnbuckle.
 - i. Turnbuckle must be locked after adjustment and safety wired.
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).
5. Carefully test travel direction of motor using push buttons. Reverse polarity if needed for proper up-down direction.

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

 - a. Operation must be coordinated by owner to insure that no people are in path of moving flood barrier panel.
6. Set upper travel limit by adjusting proximity sensor targeting flood barrier panel in full raised position.
7. Set lower travel limit by adjusting proximity sensor targeting counterweight in raised position.

NOTE: counterweight should be raised approximately 2 inches additional after door is in contact with ground.

 - a. This allows cable tension to be reduced (springs at lift eyes will compensate) and bottom seal to begin compression.
8. Locate and install secondary manual panel latches at each jamb.
9. Adjust as needed for proper operation.
10. Locate WARNING labels near latches to insure latches are removed prior to any automatic operation.
11. Set latching sensor locations to indicate proper panel location relative to side gasket contact with jambs.
12. Test run door for full cycle travel and proximity sensor operation.
13. Complete all welding and locking of components.
14. Weld operator base to bridge assembly.
15. Weld bottom chain idler sheave assembly to counterweight tower.
16. Brace side tracks as needed for alignment and rigidity.
17. Test again for full travel operation without binding. Adjust as needed.
18. Install counterweight tower covers.
19. Review all operation and maintenance requirements.
20. Train appropriate personnel.
21. Notify PS DOORS of any changes, discrepancies, or safety issues.

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1. GENERAL INFORMATION

This manual contains information regarding operation and maintenance of custom water resistant flood barrier assemblies.

This product is manufactured to specific guidelines. Unauthorized alteration in any way will result in voiding Factory Warranty, and may cause product to fail.

2. OPERATION GUIDELINES

The following procedures and information are supplied for the operation of the 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.

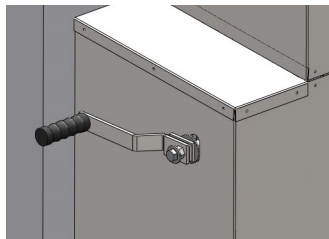
3. SAFETY PRECAUTIONS

- Ensure opening is clear of all obstructions through the entire travel of the barrier during operation.
- Use the handle / grab bars when contacting panel, staying clear of pinch points.
- Do not force panels or components if they do not operate freely.
- The Vertical Flood Barrier assembly is provided with removable cover panels for maintenance and inspection. If removing panels or hardware for maintenance, consult documents for panel weights, and use appropriate hoisting equipment. Protect all gaskets and hardware. Always consult original factory drawings for all installation dimensions, details, hardware, and specifications.

4. OPERATION

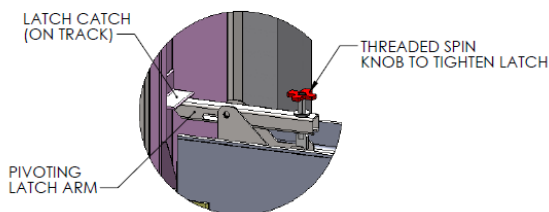
Lowering Flood Barrier: The VL-580 Flood Barrier is stored in the up (open) position.

- To lower the VL-580 into the down (closed) position operate the Manual Crank Handle until the VL-580 barrier contacts the sill surface.



Latching Flood Barrier:

- Rotate Pivoting Latch Arms to engage the Latch Catch.
- Use Threaded Spin Knob to tighten Pivoting Latch Arm. Note: Use only hand-tight pressure to engage latching.



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WARNING The flood protective barrier panel is heavy, verify panel weights and use appropriate lifting procedures and equipment.

CAUTION When operating barrier keep clear of pinch points at the latching mechanism, and track.

Keep out of the travel of the barrier panel at all times.

5. INSPECTION AND MAINTENANCE

- **Sills, Frames, and Embedded items:**
 - Inspect items for damage and misalignment. Adjust, repair, or replace as needed, to meet original design tolerances.
 - Check all embedded connections, making sure they meet original design standards (*refer to original product drawings*).
- **Fasteners and mechanical connections:**
 - All fasteners must be in place and adjusted to their original design standards. Replace any damaged components (*refer to original product drawings*).
 - Inspect flood barrier cables.
 - Inspect counterweight chain and tensioner.
- **Sealants and Water-stops:**
 - Inspect all sealants used on frames and connections to insure their effectiveness. Replace any cracked, loose, or otherwise non-performing sealants.
 - Use only factory approved products (*consult approved products list*).
- **Gasketing:** Check all gaskets around perimeter of opening.
 - Inspect for gasket and corner splice damage, and for continuous adhesion to the attached surface.
 - Visually inspect all gaskets for proper positioning and compression.
 - Replace or repair if damage or deterioration to gaskets has occurred.
 - Use only factory approved materials (*consult manufacturer for original design standards*).
 - Use only factory approved installation guidelines (*refer to Gasket Replacement Instructions*).
- **Latching:**
 - Operate all latching hardware to ensure smooth, uninhibited movement of all mechanical components.
 - Close barrier and check latches for proper engagement. If gaskets are not properly positioned and properly compressed, unlatch barrier panel and adjust latching accordingly (*refer to original product drawings*).
- **Lubrication:**
 - Periodically lubricate hardware and other components according to manufacturer's *instructions* (*refer to applicable hardware guides*).
 - Bridge drive bearings.
 - Lower counterweight tower bearing.
- **Finishes:**
 - Inspect and clean finishes periodically.
 - Touch up repair finishes, or refinish as necessary to protect the structural integrity of the product.
- **Labels and Placards:**
 - Inspect all labels and placards. Replace any labels and placards which are unreadable (*refer to Label and Placard Placement instructions*).
- **Housekeeping:**
 - Clean sill and jambs of any debris and keep the area clean throughout the operating area of the barrier.

NOTICE PS DOORS recommends all facilities subject to flooding conditions, and employ any type of flood protection have a **Flood Preparedness Plan** in place for activation prior to, or in times of flooding conditions.

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

WARNING THIS IS A FLOOD PROTECTION DOOR. NEVER OPEN DURING ANY FLOODING CONDITIONS AS WATER LEAKAGE WILL OCCUR AND YOU MAY NOT BE ABLE TO RECLOSE DOOR.

IMPORTANT! Consult drawings before replacing fasteners, as most have specific design load requirements.

INSPECTION & MAINTENANCE LOG

CRITICAL Periodic Inspection and Maintenance Required.

Date Purchased: _____

Product: _____

Model Number: _____

Serial Number: _____

Door Identifier / Number: _____

Location: _____

DATE INSPECTED	INSPECTED BY <i>(Print & Sign)</i>	INSPECTION ITEMS NOTED	CORRECTIVE ACTION	CORRECTED BY <i>(Print & Sign)</i>