



# VERTICAL STORING DOCKLEVELER INSTALLATION & OPERATION MANUAL

Job Number _____
Job Name _____
Serial Numbers _____

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# Safety

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## Safety Alert Symbols



**This Safety Alert Symbol Means ATTENTION is Involved!**

The Safety Alert Symbol identifies important safety messages on equipment, safety signs, in manuals, or elsewhere. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.



**WARNING**

The use of the word "Warning" signifies the presence of hazards or unsafe practices which could result in severe personal injury or death if instructions, including recommended precautions, are not followed.

**CAUTION**

The use of the word "Caution" signifies possible hazards or unsafe practices which could result in minor injury, product or property damage if instructions, including recommended precautions, are not followed.

## General Safety Precautions

1. Do not operate this equipment until you read and understand the operating instructions and become thoroughly familiar with the equipment and its controls.
2. Never operate a machine while a safety device or guard is removed or disconnected.
3. Never remove Warning or Caution signs or decals on the equipment unless they are to be replaced.
4. Do not start the equipment until all other personnel in the area have been warned and have moved outside the operating zone.
5. Remove any tools or other foreign objects from the operating zone before starting.
6. Keep operating zone free of obstacles that could cause a person to trip or fall.
7. If so equipped, know EMERGENCY STOP procedures before operating.
8. Hydraulic and electrical power must be off when servicing equipment.

**Note:** For maximum protection, all power sources should be locked out using a lock for which only you have the key. This prevents anyone from accidentally turning on the power while you are servicing the equipment.

9. Keep alert and observe indicator lights and audible alarms (if so equipped).
10. Do not operate faulty equipment. Make certain proper service and maintenance procedures have been equipment.
11. Avoid placing fingers, hands, or any part of your body near moving parts.



**WARNING**



WHEN A HYDRAULIC CYLINDER IS EXTENDED, IT MUST BE FULL OF HYDRAULIC FLUID TO SUPPORT A LOAD. EXTENDING HYDRAULIC CYLINDERS BY A MEANS OTHER THAN HYDRAULIC POWER CAN RESULT IN SEVERE PERSONAL INJURY OR DEATH.

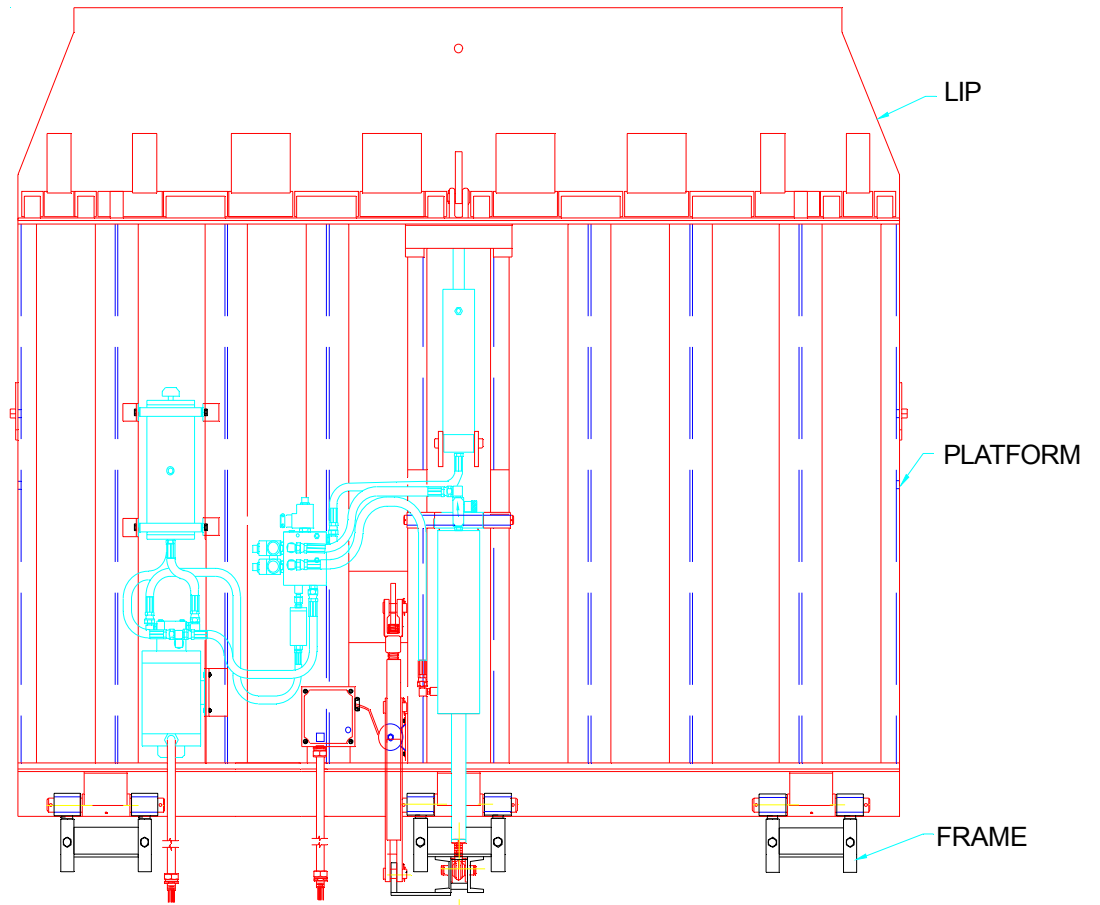


Figure 1

# Introduction

This manual covers the hydraulic VS dockleveler manufactured by Poweramp. It has been equipped with a double acting hydraulic hoist cylinder to control the raising and lowering of the platform. Operation of the unit is via constant pressure push buttons located in a control enclosure. It is the intent of Poweramp that the control enclosure be located above the loading dock floor and on the loading dock side of the VS dockleveler. This will assure operator safety, no one should ever be in the operating zone of the VS dockleveler (See Fig.2). Whenever maintenance personnel must work beneath the VS dockleveler, the VS dockleveler should be tightly secured to a reliable support at all times with maintenance props engaged and locked.

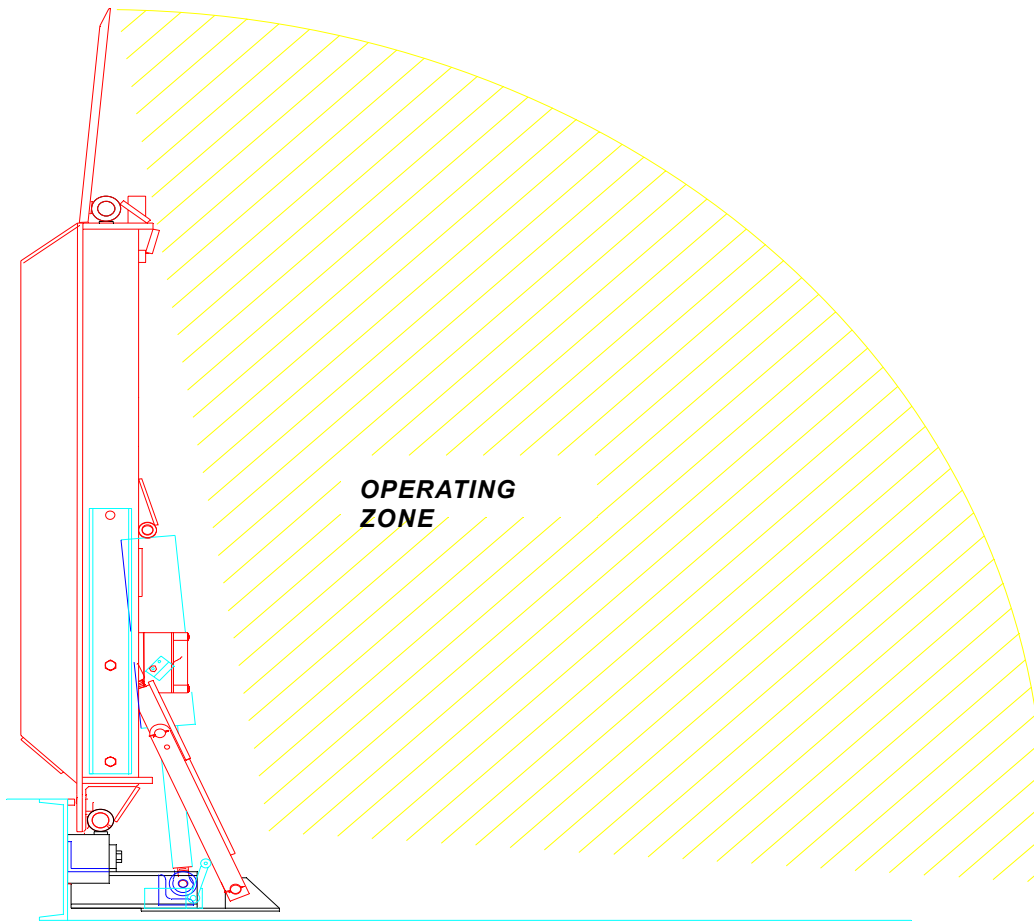


Figure 2

Poweramp has no control over the operational condition of the VS dockleveler after it leaves the factory. If, for any reason such as damage, neglect or intentional misuse, the hydraulic hoist cylinder is drained of fluid or the speed control is misadjusted, the VS dockleveler can free fall from its vertical position. Should this occur, serious injury and/or damage is possible to personnel and/or property.



## WARNING

Always operate the equipment from atop the loading dock. Never stand or work under the VS dockleveler unless it is securely supported. Use safe work habits.



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## WARNING

For the VS dockleveler to operate properly, it is necessary to have hydraulic fluid in the hoist cylinder and system. Without hydraulic fluid, the VS dockleveler can free fall endangering



## WARNING

Secure anchoring of the vertical storing dockleveler frame is essential for safe operation. Inspect all existing curb steel prior to installation.



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persons or property.

## Installation VS Dockleveler Frame

The following installation procedure has been developed to guide you. Unauthorized modifications or alterations made to any of the parts or assemblies on this product may affect its warranty and overall performance.

VS docklevelers are shipped in two major components requiring field mounting.

Prior to installing the VS dockleveler, the VS dockleveler frame must be installed. The following steps will explain this procedure.

1. Check frame and VS dockleveler for damage that may have occurred during shipment. All dimensions should be checked against a certified installation drawing. It is the contractor's responsibility to properly install the frame and VS dockleveler.
2. Verify that imbeds have sufficient anchoring. Minimum 1/2" dia. x 6" long Nelson stud anchors (or equal) on 12" centers are recommended. Remember the VS dockleveler operation is relying on sturdy anchoring. If anchoring of existing imbeds falls short of recommendations, Consult factory.
3. Clean and remove all existing protrusions from the pit face. VS dockleveler frame must fit flush with the rear pit imbed.
4. Position frame assembly against rear channel at dimension shown and tack weld in place (See drawing #A1-140-000).
5. Shim under storage prop trunnion and both sides of hoist cylinder trunnion (Item 1, page 5).
6. Finish weld hinge weldments to imbed channel, prop trunnions to shim materials and shim materials to floor imbed plate as shown.
7. Remove and discard 6 bolts and fixture bar (Items 3 & 4, page 5).
8. Locate and weld stop bars to channel as shown (Item 6, page 5).
9. Locate and weld 1/2 x 1/2 filler bar provided. Filler bar will close gap between dock floor and dockleveler. Position flush with top of imbedded channel, center with VS dockleveler (Figure 4).
10. Proceed with VS dockleveler installation page 7.

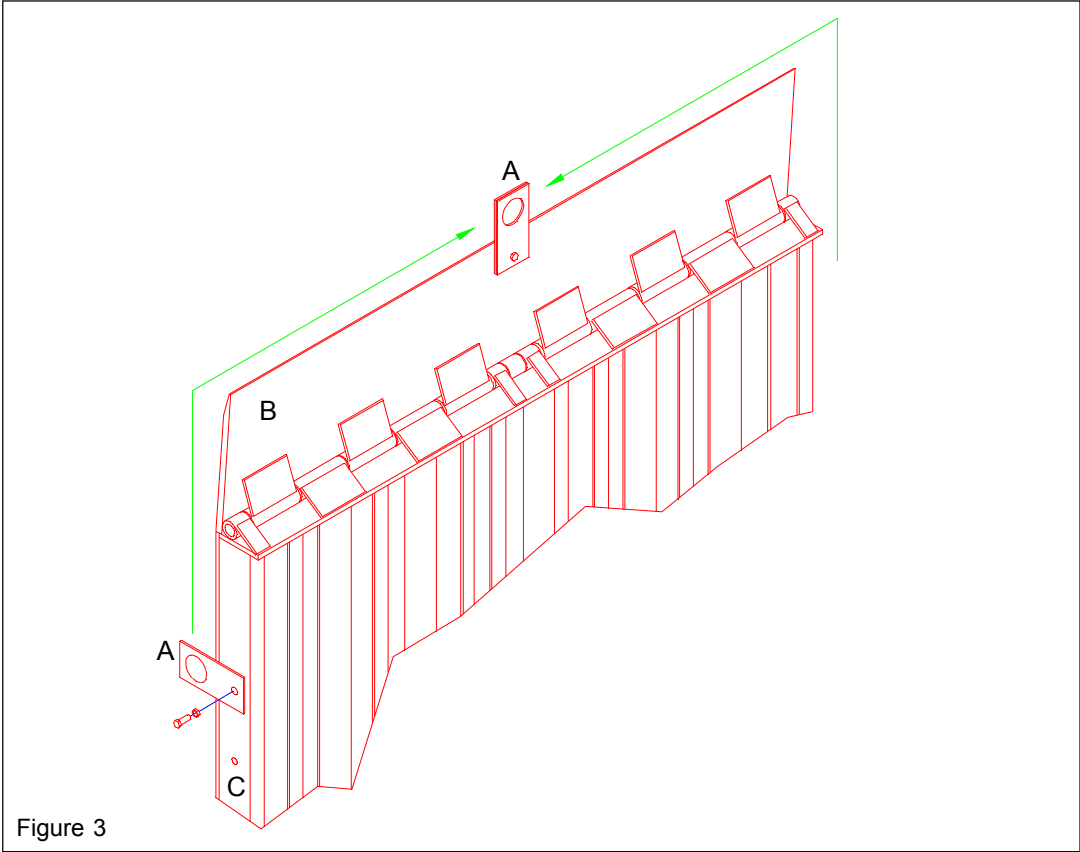


Figure 3

A. Lifting Lug

# Installation

## Vertical Storing Dockleveler Installation

With the VS dockleveler frame properly installed, the dockleveler can now be positioned.

1. Poweramp VS docklevelers are shipped with lifting lugs attached to the outboard joists. These lugs must be moved to the 3/4" hole provided in the lip for installation (See Fig. 3).
2. Lift platform into vertical position by lifting lugs and position VS leveler platform with three (3) rear hinge tubes in line with matching frame hinge weldments.
3. Insert three (3) hinge pins through hinge assemblies and lock with cotter pins provided.
4. Raise free end of collapsed storage prop from frame and pin to platform as shown in fig. 4, lock with cotter pin. Engage locking bolt in storage prop as shown on page 9.
5. Electrically connect field wire. Wire power cables to junction box on rear pit wall.  
**NOTE:** Conduit must be able to flex as the dockleveler moves. Make necessary electrical connection in control enclosure.
6. Remove 3/8" NPT pipe plug from top of reservoir and replace with breather cap (See Fig. 7).
7. Hoist cylinder must be hydraulically extended to install. **Warning: When a hydraulic cylinder is extended, it must be full of hydraulic fluid to support a load. Extending hydraulic cylinders by a means other than hydraulic power can result in severe personal injury or death.** Turn on power and press "RAISE" push button. Note: watch that rod of cylinder clears any obstructions while extending. When cylinder is fully extended release "RAISE" push button and use "LOWER" push button to retract rod about 1/2 inch for internal clearance.
8. Use adjustable rod end to position hole line up for insertion of pin and clips. Lock jam nut. No more than 1/2" of thread may show for a proper installation.
9. Mount storage prop limit switch (located in platform with tie wraps) to base plate with screws provided. Switch should be activated by fully extended prop. (Figure 4).
10. Before operating the VS dockleveler, the maintenance locks must be moved to the unlock position (See Figs. 4&5).
11. Although every effort has been made to purge all air from the hydraulic system, it is possible that air may have been introduced during shipping and/or installation. The first several operating cycles of the dockleveler should be done with the lifting mechanism attached. Caution must be used to maintain slack in the lifting mechanism to assure proper dockleveler operation.
12. Operate the dockleveler several times to purge any air that may have entered system during shipment.
13. Unhook lifting mechanism.



### WARNING

VS dockleveler must be held in place by a vertical hoist until installation is complete and unit is ready for operation.



### WARNING

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# Operating Instructions



## WARNING

Always operate the VS dockleveler from atop the loading dock. Never stand or work under the VS dockleveler unless it is securely supported. Use safe work habits.



## WARNING

Improper use of this equipment may cause personal injury or property damage.

## CAUTION

Never leave the VS dockleveler in a horizontal position unless loading or unloading.

## Controls

Poweramp VS docklevelers are operated via a remote mounted control enclosure. This enclosure has a Nema 12 rating. Included is a toggle switch to turn 115 volt control voltage on and off. Also included are three push buttons which require constant pressure to operate the dockleveler.

To lower the dockleveler, depress and hold the lower button.

To raise the dockleveler, depress and hold the raise button.

To fold the lip down, depress and hold the lower button and lip button simultaneously.

To extend the lip, depress and hold the raise and lip button simultaneously.

## Operation

Lowering the VS dockleveler:

Before lowering the dockleveler, be sure the operating zone is free and clear of obstruction. The dockleveler is designed to be supported by either the trailer bed or resting on the pit floor during use.

When operating a VS dockleveler, the operator must determine whether the lip of the leveler is obstructed by the last load in the trailer.

Partially Full Trailer:

If the trailer is not completely full, the operator may lower the unit into the trailer with the lip extended.

Completely Full Trailer:

If the trailer is completely full, the dockleveler must be lowered with the lip folded to prevent cargo damage by the extended lip.

Float Range:

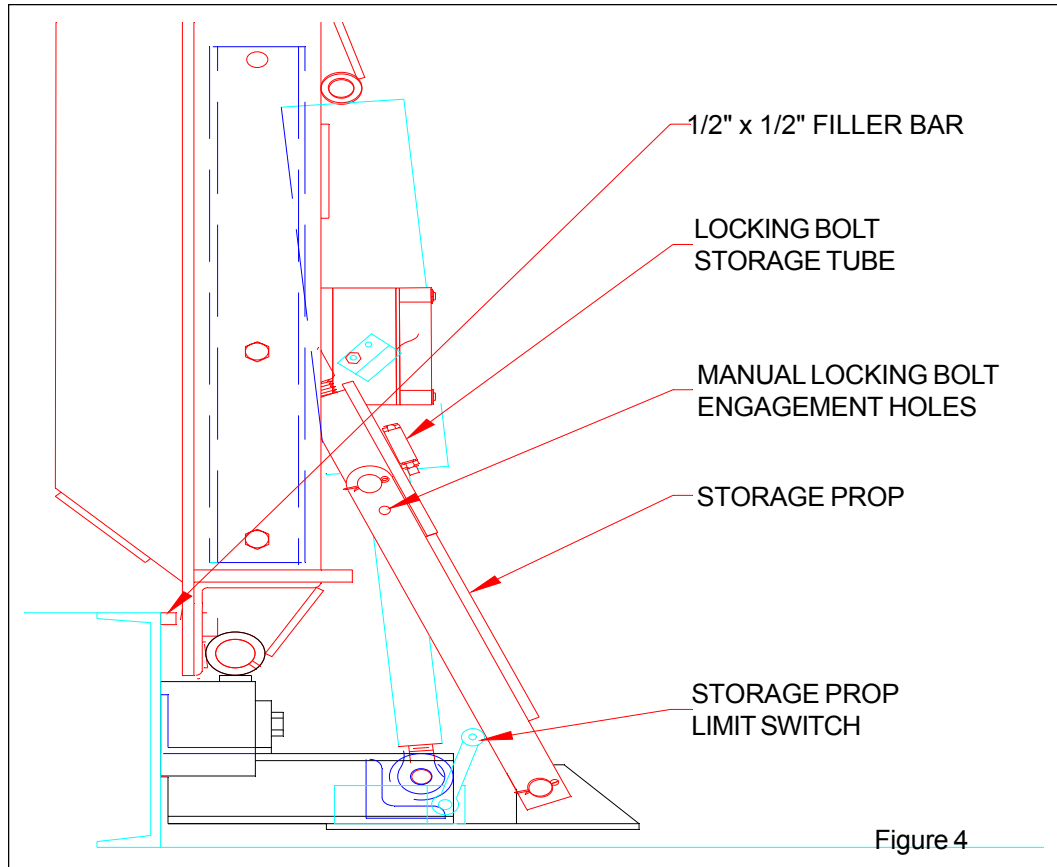
You may notice that as you lower the VS dockleveler into position, the last twelve or so inches of vertical travel do not require pressure on the lower button. This feature is designed into the operation to allow for the floating/vertical motion of the trailer during loading/unloading.

Raising the VS dockleveler:

Before raising the dockleveler, be sure the operating zone is free and clear of obstruction.

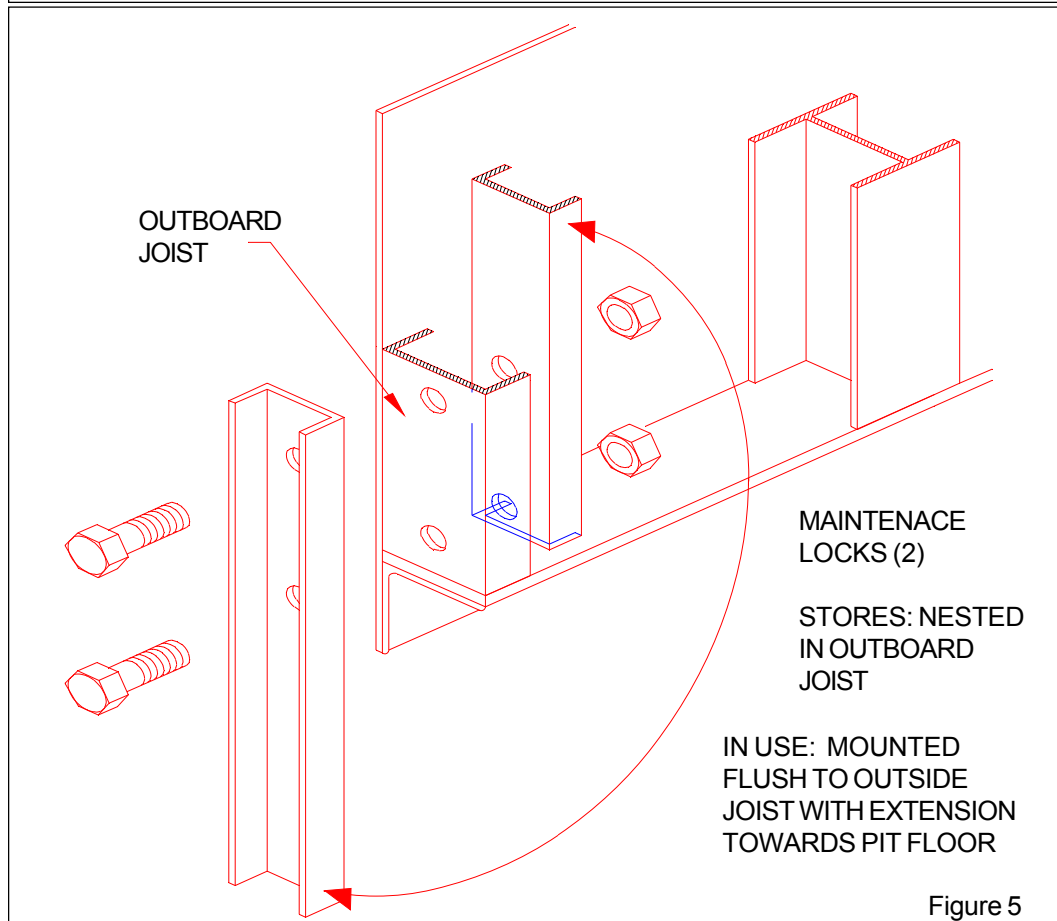
Depress and hold the raise push button until the dockleveler is fully raised. (It is recommended that the lip be stored in the extended position). After the dockleveler is in the vertically stored position, turn the toggle switch to off to avoid any accidental operation.

# Operating Instructions



**⚠ WARNING ⚠**  
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**⚠ WARNING**  
 Always utilize safe work habits whenever working under a VS dockleveler. Whenever parts are to be removed, use additional lifting device to support dockleveler.



# Preventive Maintenance

## **WARNING**

WHEN A HYDRAULIC CYLINDER IS EXTENDED, IT MUST BE FULL OF HYDRAULIC FLUID TO SUPPORT A LOAD. EXTENDING HYDRAULIC CYLINDERS BY A MEANS OTHER THAN HYDRAULIC POWER CAN RESULT IN SEVERE PERSONAL INJURY OR DEATH.

## **Servicing the VS dockleveler**

With proper care, your Poweramp VS dockleveler will provide many years of satisfactory service.

## **Recommended Hydraulic Fluids**

To assure normal operation of the unit, the following aircraft style hydraulic fluids are recommended:

- ◆ Aero Shell fluid #4 Code #60421 by Shell Oil Co.
- ◆ Mobil Aero HFA Mil-H5606A by Mobil Oil Co.
- ◆ Texaco Type BB
- ◆ Filmite No. 530
- ◆ Exxon "Univis J13"

Use of hydraulic fluids with equivalent specifications to those listed above are acceptable. Use of fluids that do not have equivalent specifications can result in abnormal operation of the unit and possible voiding of warranty.

## **Maintenance Locks**

Poweramp VS docklevelers incorporate 3 integral locking devices that must be used whenever working in front of or under a VS dockleveler. These devices are intended to avoid accidental lowering of the ramp while maintenance work is being performed. When service is complete, return locks to storage positions.

The locking devices should be engaged in the following order to prevent personnel from being in front of an unlocked leveler.

## **Dual Maintenance Locks**

The VS dockleveler is equipped with two locking arms for use any time the leveler is being serviced. The arms are stored nested in the outboard structural members of the platform held by two bolts (fig. 5) when installing, arms unbolt from storage position and rotate as shown to outside of joist with long section projecting down in front of pit wall. Bolt securely in both sets of holes. Torque bolts to 50-100 foot pounds.

## **Integral Storage Prop**

The storage prop is a folding arm assembly which is attached to the platform and frame (fig. 4). This prop automatically engages and disengages during normal use but needs to be locked mechanically during service. When servicing in front of the raised leveler, remove the locking bolt from its storage position and insert through holes shown. This prevents any folding action in the linkage.

## **Weekly Maintenance**

1. At least once each week, operate the unit through all of its operating cycles to maintain lubrication on hydraulic cylinders.
2. Inspect the VS dockleveler rear hinge area and lip hinge area. The hinge areas should be kept free of debris and dirt. Buildup of foreign material in the hinge areas can cause abnormal operation of the unit.

## **Monthly Maintenance**

1. Lubricate as shown on lube chart figure 6, page 11.
2. Check hydraulic fluid level at plug on side of reservoir. If oil level is not flush with bottom of hole, add appropriate hydraulic fluid, see recommended hydraulic fluids (See Fig. 7).

# Preventive Maintenance

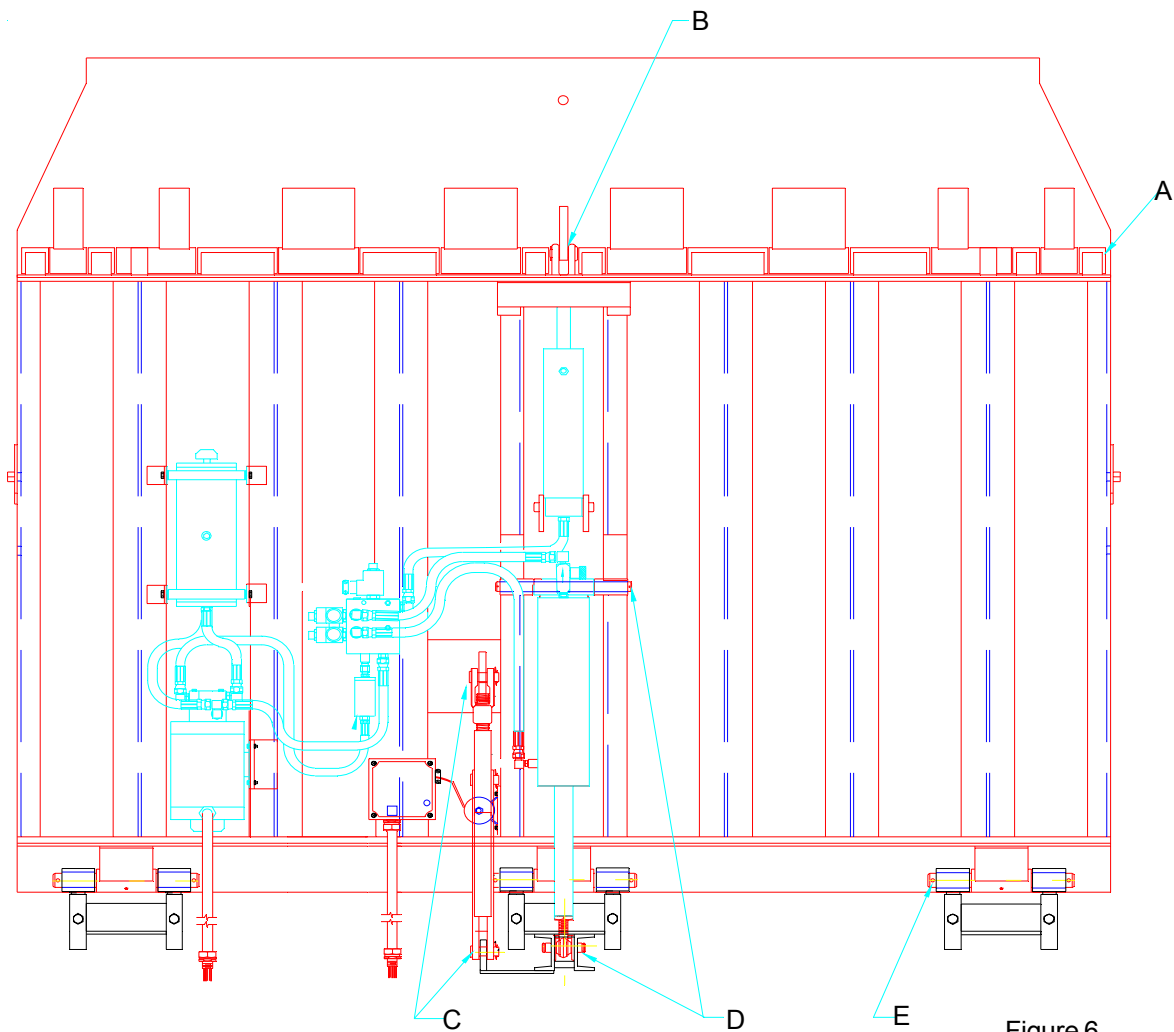


Figure 6

- A Lip Hinge Line
- B Lip Cylinder Pin
- C Storage Prop (3 Places)
- D Hoist Cylinder Pins (2)
- E Rear Hinge Pins (3)



## WARNING

Arrow on flow control valve must point away from hoist cylinder. Improper installation will allow the leveler to free fall which could result in serious injury and or property damage.



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# Preventive Maintenance

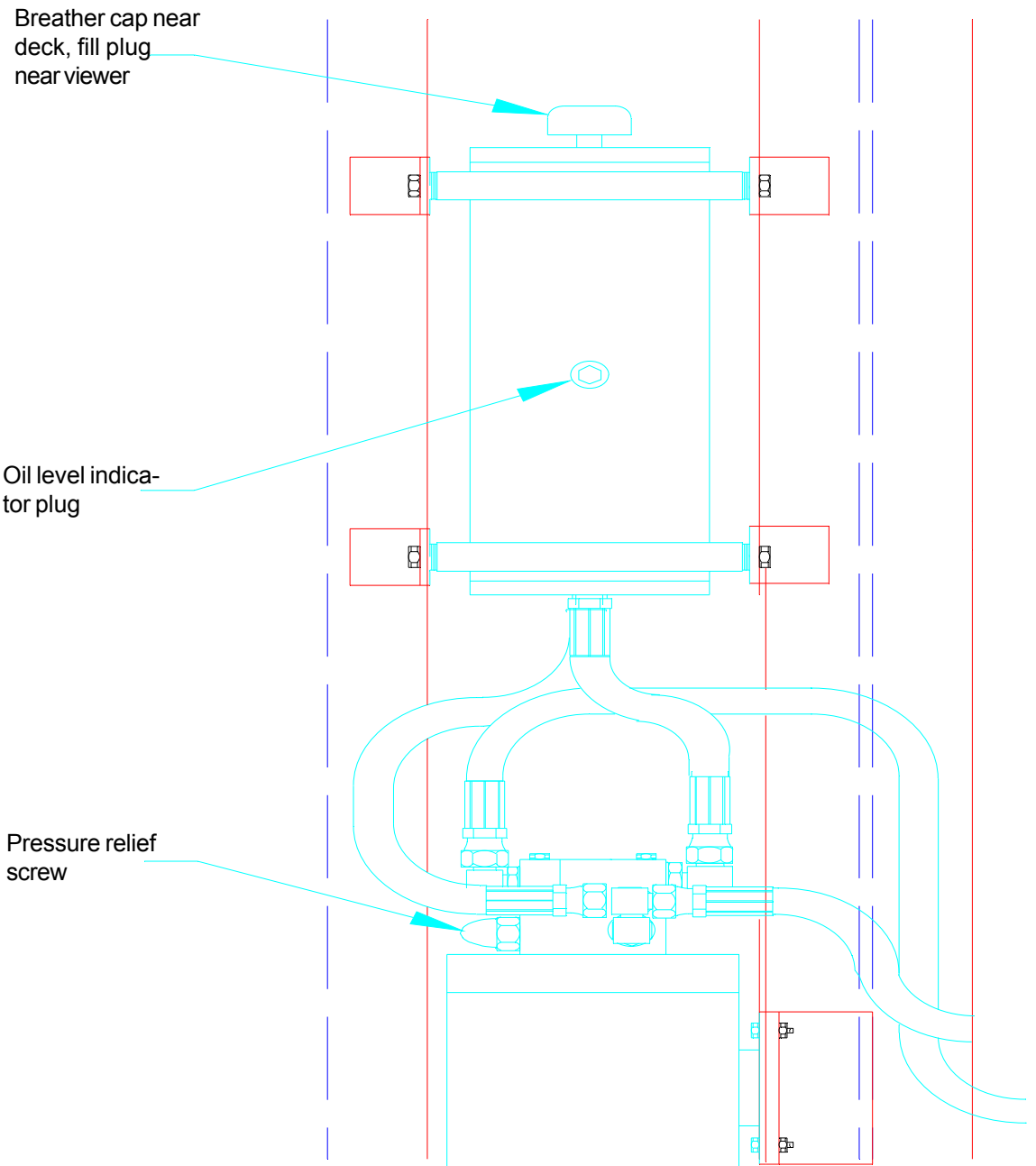


Figure 7

# Troubleshooting Guide



## WARNING

**Always engage prop locks when working under or in front of the VS leveler.**

Always barricade the work area to prevent unauthorized use of the unit during repair or maintenance procedures.

Always lock out all electrical disconnects after raising platform and setting maintenance lock(s) when service under the unit is required. More than one electrical disconnect switch may be required to de-energize the equipment.

Perform the following procedures prior to beginning detailed troubleshooting:

- A. Check all fuses inside the control assembly(s). Replace any bad fuse with one of equivalent specifications.
- B. Confirm presence of all necessary voltages inside the control assembly. Check branch circuit fuses and/or circuit breakers if all voltages are not present.

<b>Railramp</b>		
<b>Problem</b>	<b>Cause(s)</b>	<b>Solution(s)</b>
The VS dockleveler does not operate. Motor does not energize.	<ol style="list-style-type: none"> <li>1. Motor overload device tripped.</li> <li>2. Motor starter (3 phase) or motor relay (1 phase) not energizing.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset overload relay (3 phase) or replace fuse (1 phase). Determine cause of device tripping. <b>NOTE:</b> If replacing fuse, replace with device of equal specifications.</li> <li>2. Check device that sends signal to starter or relay. Device may have failed OPEN. Use meter to check for contact closure when device is ON.</li> </ol>



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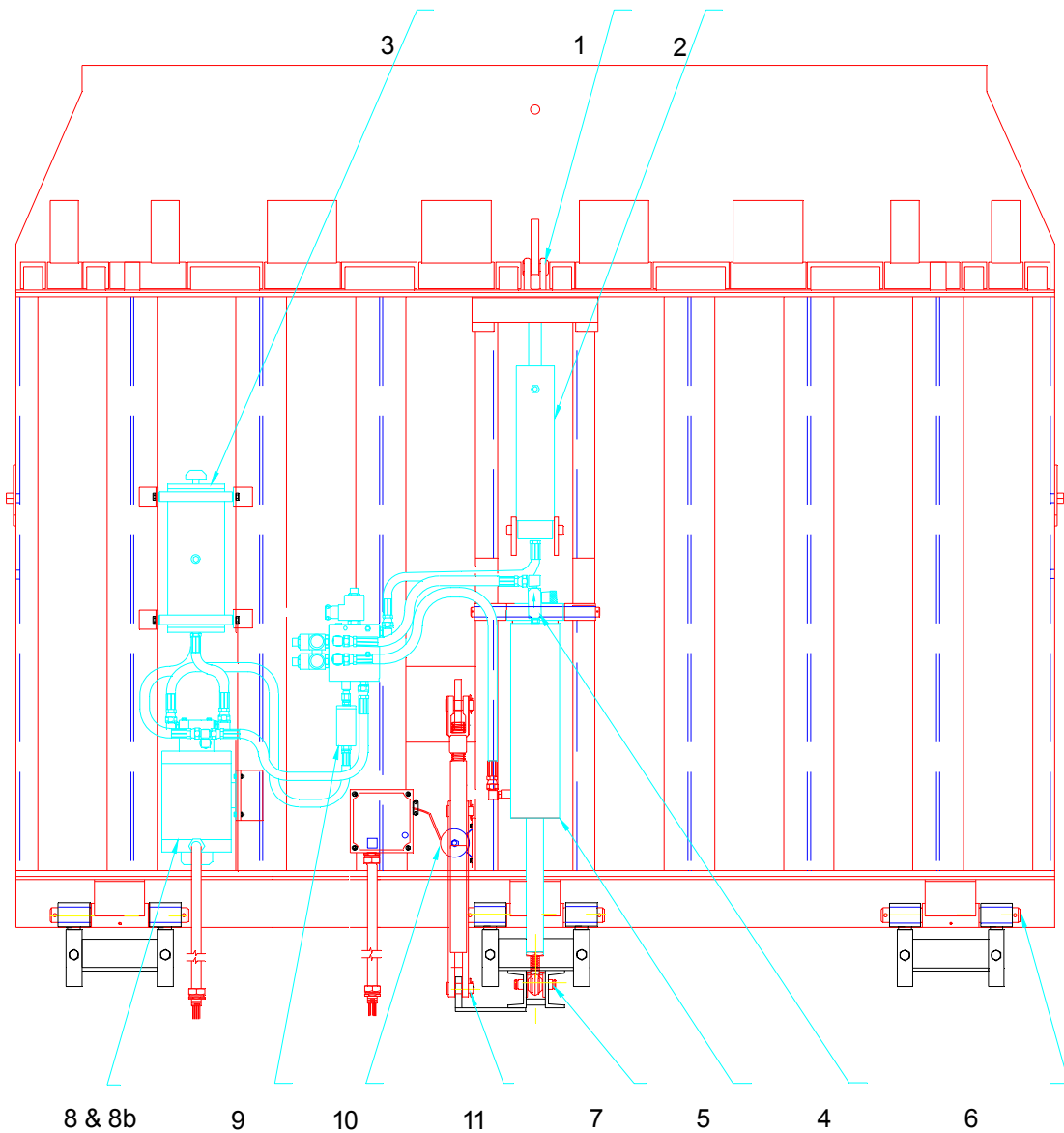
# Troubleshooting Guide

Problem	Cause(s)	Solution(s)
<p>The VS dockleveler does not operate. Motor energizes but does not run (motor hums, overload device should trip).</p>	<ol style="list-style-type: none"> <li>1. 3 phase units only--voltage at one line is absent (motor being single phased).</li> <li>2. 1 phase units only--motor centrifugal switch faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1A. Fuses at motor branch circuit overcurrent device only--check for tripped fuse. Replace fuse. Determine cause of fuse tripping.</li> <li>1B. Check motor starter for component failure. Disconnect wires at load side of starter. Use voltmeter to read line-to-line voltages at line side and load side of starter. Line side and load side voltage values should be nearly identical. Replace starter if values are not identical.</li> <li>1C. Check all wiring to motor for high resistance (loose) or no connection.</li> <li>2. Replace motor.</li> </ol>
<p>The VS dockleveler operates slowly.</p>	<ol style="list-style-type: none"> <li>1. Low hydraulic fluid.</li> <li>2. Pressure relief valve set too low.</li> <li>3. Damaged or blocked hydraulic hose(s).</li> </ol>	<ol style="list-style-type: none"> <li>1. Add fluid, see Preventative Maintenance section, page 10.</li> <li>2. Locate pressure relief valve. Turn valve 3/4 turn (CW). Increase the valve set point until the Railramp operates properly. <b>NOTE:</b> The valve set point should NOT be set at a level that will cause the motor operating current to exceed its full load amp value at any time, including when the unit is operated in pressure relief.</li> <li>3. Replace damaged hose(s). Remove blockage from hose(s).</li> </ol>
<p>The VS dockleveler does not fully raise or motor overcurrent device and/or overload device continuously tripping.</p>	<ol style="list-style-type: none"> <li>1. Low hydraulic fluid.</li> </ol>	<ol style="list-style-type: none"> <li>1. Add fluid. See Preventative Maintenance section, page 10.</li> </ol>

# Troubleshooting Guide

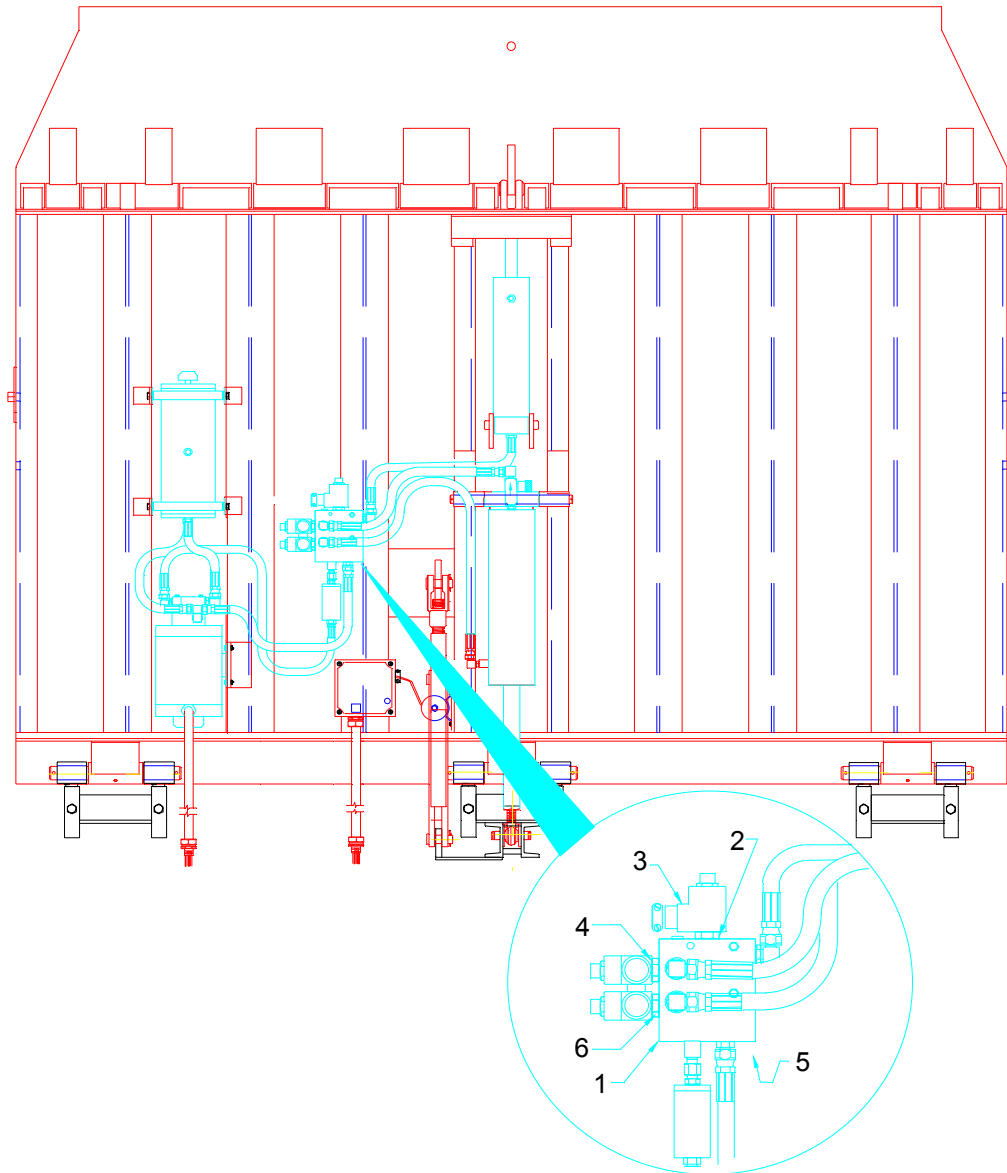
Problem	Cause (s)	Solution (s)
The VS dockleveler motor runs continuously	1. 1 phase unit only--contractor stuck on.	1. Locate and replace.
The VS dockleveler shuts off before prop is fully engaged	1. Prop limit switch misadjusted	1. Adjust (fig. 4) so that switch activates when prop is fully extended.
The VS dockleveler will not lower.	1. Locking device in place. 2. Lowering speed control shut off.	1. Reposition locks in unlock position (See figs 4 & 5). 2. Locate valve, open slightly. Adjust accordingly.
The VS dockleveler lowers too fast.	1. Down speed adjustment improper.	1. Setting can be decreased by turning knurled knob (CW), adjust to suit.
The VS dockleveler lowers without depressing button.	1. Float switch misadjusted.	1. Adjust so switch is active only when VS leveler is approximately 6" above horizontal position.
Lip will not fold.	1. Debris in hinge line. 2. Solenoid valve stuck.	1. Clean hinge, remove debris. 2. Remove and check valve and coil for proper operation. Clean, replace if necessary.
Lip will not extend.	1. Debris in hinge line. 2. Solenoid valve stuck.	1. Clean hinge, remove debris. 2. Remove and check valve and coil for proper operation. Clean, replace if necessary.

# VS Dockleveler Parts List



ITEM	DESCRIPTION	PART NUMBER
1	Lip Cylinder Pin	0522-0005
2	Lip Cylinder	0525-0085
3	Reservoir	9304-0008
4	Down Speed Valve	8581-0091
5	Hoist Cylinder	0525-0066
6	Pin (Rear Hinge)	9202-0040
7	Hoist Cylinder Pin	9202-0039
8	Motor 1P	3411-0008
8b	Motor 3P	3411-0019
8c	Pump	9301-0132
9	Hydraulic Filter	9301-0121
10	Solenoid-Prop Kicker	8581-0023
11	Storage Prop Assembly	9225-0016

# Valve Parts List



ITEM	DESCRIPTION	PART NUMBER
1	Complete Valve Assembly	8585-0080
2	3 way valve	8581-0005
3	Coil Assembly	8583-0032
4	2 way valve NC	8581-0010
5	2 way valve NC	8581-0102
6	4 way valve	8581-0011

Poweramp's hydraulic VS dockleveler has been designed to make loading or unloading trailers easier. Sections of this manual have been devoted to installation, operation, maintenance, etc. To assure that your VS dockleveler stays in top working order, visual inspections should be made monthly. These inspections should include the VS dockleveler assembly and the curb steel.

The curb steel acts as the support anchor for the pivoting end of the VS dockleveler. Any loose, chipped or missing concrete or anchors must be corrected before operating the dockleveler. Use of the VS dockleveler with any of the above conditions can result in serious personal injury and/or property damage. If any of the above conditions exist, the dockleveler must be taken out of service until repairs are made.

## **SYSTEMS, INC. WARRANTY**

### **Vertical Storing Dock Leveler**

Systems, Inc. guarantees the materials, components and workmanship in your Poweramp dock leveler to be of the highest quality and to be free of defects in material and workmanship for a period of five (5) years from date of shipment.

Systems, Inc. further guarantees the hydraulic components on all Poweramps for a period of five (5) years from date of shipment. Specifically, this guarantee applies to (1) fluid logic control assembly (2) all hydraulic cylinders (3) hydraulic pressure lines and (4) hydraulic pump and motor.

Electrical components are covered for 1 year from date of shipment.

In the event of any defect covered by this guarantee, Systems, Inc. will remedy said defect by repairing or replacing all defective parts, bearing all of the costs for parts, labor and transportation.

All warranty claims will be settled on a timely basis when defects are found to be from other than improper installation, operating contrary to instructions or beyond rated load capacities, abuse, careless or negligent use or failure to maintain the unit as recommended by the owners manual.

There are no warranties, either expressed or implied, including any implied warranties of merchantability or fitness for a particular purpose which shall extend beyond the warranty periods indicated above. This warranty is valid only if the unit(s) are unaltered from original condition as delivered from the factory.



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