

A Division of Systems, LLC

POWERAMP

Premium Loading Dock Systems

CentraPower[®]

Hydraulic System

Owner's/User's Manual



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Recognize Precautionary Information

Safety-Alert Symbol



The Safety-Alert Symbol is a graphic representation intended to convey a safety message without the use of words. When you see this symbol, be alert to the possibility of death or serious injury. Follow the instructions in the safety message panel.

DANGER

The use of the word DANGER signifies the presence of an extreme hazard or unsafe practice which will most likely result in death or severe injury.

WARNING

The use of the word WARNING signifies the presence of a serious hazard or unsafe practice which could result in death or serious injury.

CAUTION

The use of the word CAUTION signifies possible hazard or unsafe practice which could result in minor or moderate injury.

NOTICE

The use of the word NOTICE indicates information considered important, but not hazard-related, to prevent machine or property damage.

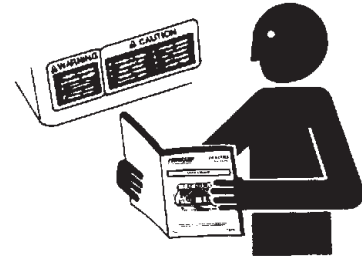
SAFETY INSTRUCTIONS

Indicates a type of safety sign, or separate panel on a safety sign, where safety-related instructions or procedures are described.



WARNING: This product can expose you to chemicals including lead, which are known to the State of California to cause cancer or birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

General Operational Precautions



Read and understand the Owner's/User's Manual and become thoroughly familiar with the equipment and its controls before operating the equipment.

Never operate equipment while a safety device or guard is removed or disconnected.

Never remove DANGER, WARNING, or CAUTION signs, Placards or Decals on the equipment unless replacing them.

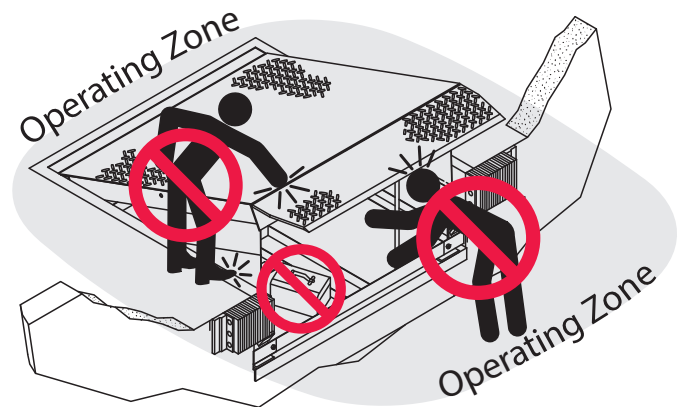


Figure 1

Do not start the equipment until all unauthorized personnel in the area have been warned and have moved outside the operating zone (Figure 1).

Remove any tools or foreign objects from the operating zone before starting.

Keep the operating zone free of obstacles that could cause a person to trip or fall.

PRECAUTIONS

Operational Precautions



Learn the safe way to operate this equipment. Read and understand the manufacturer's instructions. If you have any questions, ask your supervisor.

DANGER



Stay clear of dock leveling device when transport vehicle is entering or leaving area.



Do not move or use the dock leveling device if anyone is under or in front of it.



Keep hands and feet clear of pinch points. Avoid putting any part of your body near moving parts.

WARNING



Chock/restrain all transport vehicles. Never remove the wheel chocks or release the restraining device until loading or unloading is finished, and transport driver has been given permission to drive away.



Do not use a broken or damaged dock leveling device or restraining device. Make sure proper service and maintenance procedures have been performed before using.



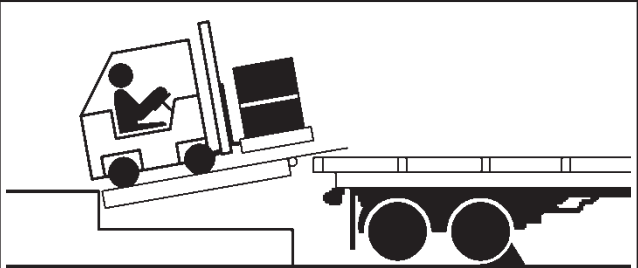
Make sure lip overlaps onto transport vehicle bed at least 4 in. (102 mm).



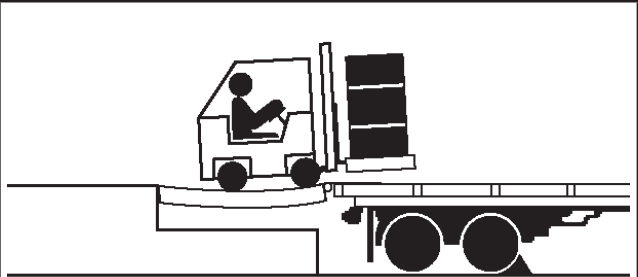
Keep a safe distance from both side edges.

Operational Precautions

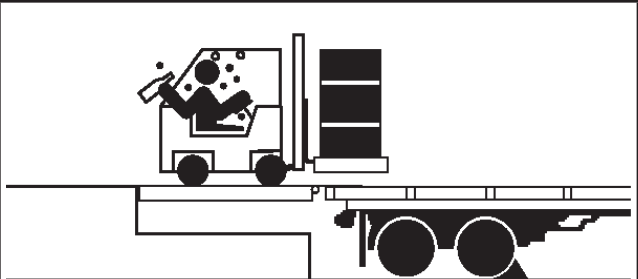
! WARNING



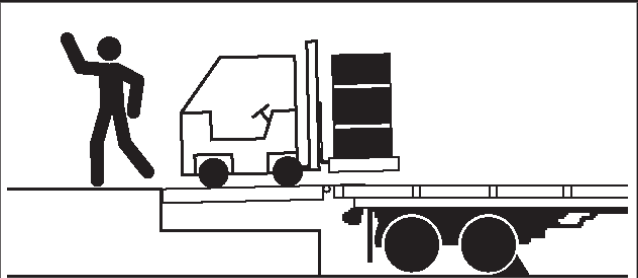
Do not use dock leveling device if transport vehicle is too high or too low.



Do not overload the dock leveling device.



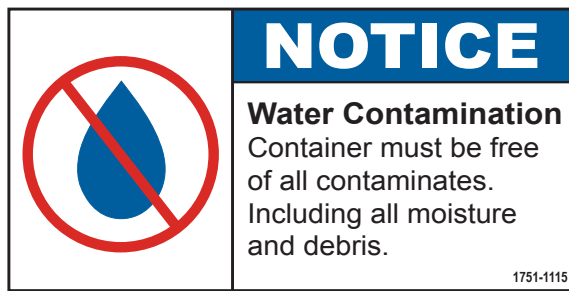
Do not operate any equipment while under the influence of alcohol or drugs.



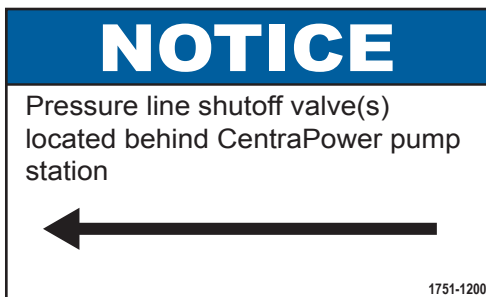
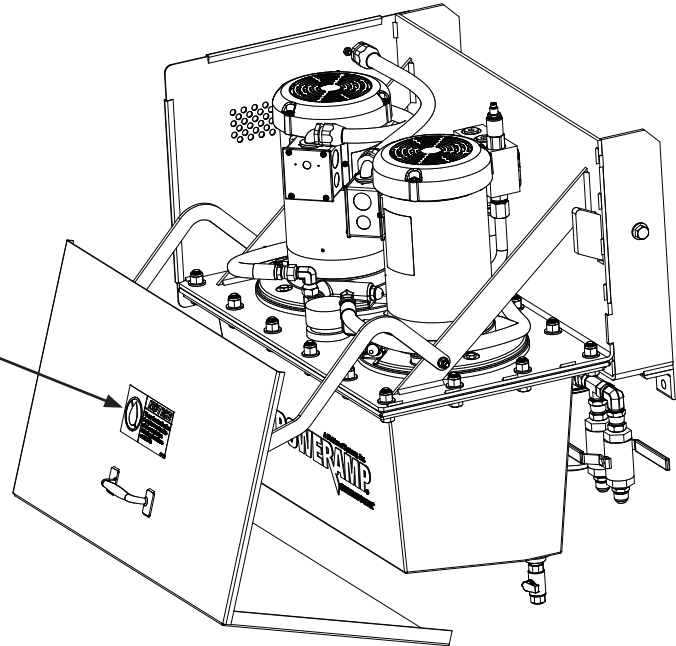
Do not leave equipment or material unattended on dock leveling device.

PRECAUTIONS

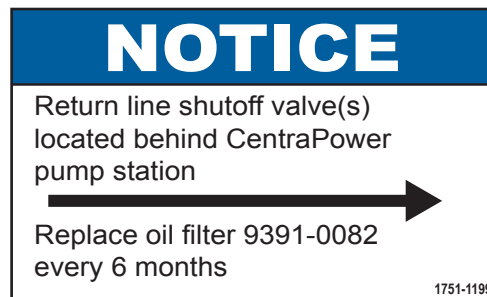
Safety Decals



1751-1115



1751-1200



1751-1199

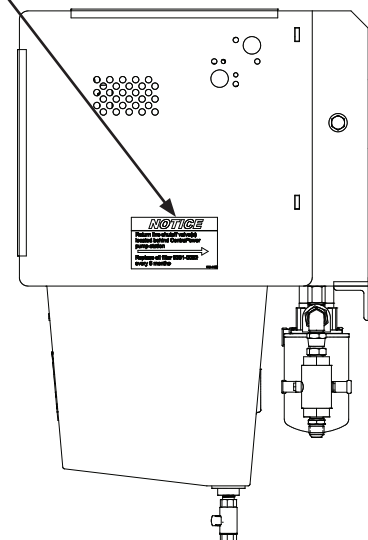
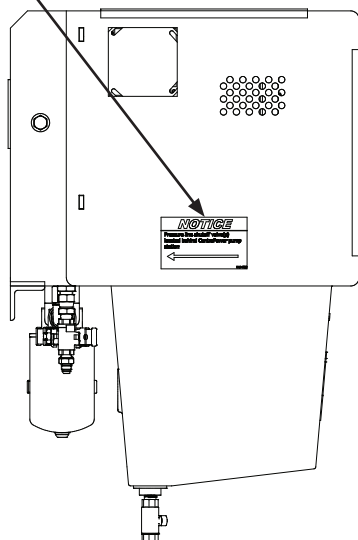


Figure 2

Safety Decals

⚠ DANGER

Arc Flash and Shock Hazard PPE [Personal Protection Equipment] Required

De-energize equipment before working on or inside. Do not open cover without appropriate PPE. Refer to NFPA 70E for PPE requirements. This panel may contain more than one power source.

Hazardous Voltage Will Result in Death or Serious Injury

175-19738 Rev A

① DO NOT FORK THIS SIDE

① DO NOT FORK THIS SIDE

1751-0329

③ FORK HERE

③ FORK HERE

1751-0330 Two positions one on top of each fork pocket.

⚠ DANGER

CRUSH HAZARD
DO NOT ENTER PIT unless dock leveler is securely supported by maintenance prop. Place barriers on driveway and dock floor to indicate service work being performed. Failure to comply will result in death or serious injury. Refer to owner's user's manual for proper maintenance procedures.

1751-0726

⚠ DANGER

CRUSH HAZARD
Maintenance prop must support leveler behind bar. Do not force maintenance prop forward of bar to support lip. Refer to owner's user's manual for proper use. Failure to comply will result in death or serious injury.

1751-0727

⚠ DANGER

CRUSH HAZARD
Do not work under dock leveler unless this maintenance prop has been secured in the upright position. Failure to comply will result in death or serious injury. See owner's user's manual for proper procedures.

1751-0729

⚠ DANGER

CRUSH HAZARD
DO NOT REMOVE hydraulic cylinder until leveler is safely supported by maintenance prop. Refer to owner's user's manual for proper maintenance procedure. Failure to comply will result in death or serious injury.

1751-0138

⚠ DANGER

CRUSH HAZARD
Open the pin latch and insert through the maintenance prop housing and snug completely. Close the pin latch to secure prop. Use every time dock leveler is serviced. Failure to comply will result in death or serious injury.

1751-0731

⚠ DANGER

Ununsupported dock leveler straps can lower unexpectedly.

Before allowing vehicle to leave the dock always:

- 1. Ensure no equipment, material or people are on dock leveler.
- 2. Return dock leveler to its stored position at dock level.

Failure to follow posted instructions will result in death or serious injury.

SAFETY INFORMATION

OPERATION:

- Read and follow all instructions and warnings on the user's manual.
- Use of dock leveler restricted to qualified personnel.
- Always use proper tie-down technique. Always truck restraint before attaching dock leveler to trailer or equipment.
- Never use straps or equipment to move any load.
- Always use proper tie-down technique.
- Check tie-down alignment to avoid damage to equipment.
- Remove any protruding objects.
- Check tie-down alignment to avoid damage to equipment.
- Always use proper tie-down technique.
- Always use proper tie-down technique.

MAINTENANCE/SERVICE:

- Read and follow all instructions, warnings and maintenance procedures in the owner's manual.
- Maintainance/SERVICE of dock leveler restricted to qualified personnel.
- Place barriers on the driveway and dock floor to indicate service work to be performed.
- DO NOT ENTER PIT unless dock leveler is securely supported by maintenance prop.
- Periodically power turn of end use and follow shipping instructions.

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⚠ DANGER

Lockout/Tagout power before servicing. Comply with OSHA 1910.147

1751-0857 Rev A

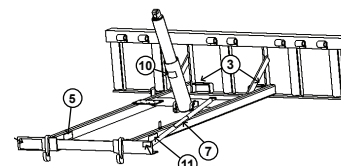
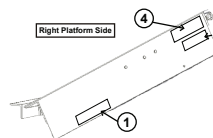
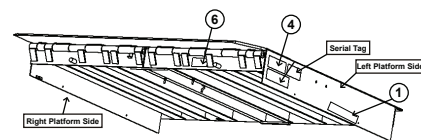


Figure 3

Note: This is an example of dock leveler safety decals. See specific model manual for correct safety decal sheet, or consult Systems, LLC Tech Services.

OWNER'S/USER'S RESPONSIBILITIES

- 1) The manufacturer shall provide to the initial purchaser and make the following information readily available to the owners/users and their agents, all necessary information regarding Safety Information, Operation, Installation and Safety Precautions, Recommended Initial and Periodic Inspections Procedures, Planned Maintenance Schedule, Product Specifications, Troubleshooting Guide, Parts Break Down, Warranty Information, and Manufacturers Contact Information, as well as tables to identify the grade(slope) for all variations of length or configuration of the dock leveling device and information identifying the maximum uncontrolled drop encountered when sudden removal of support while in the working range of the equipment.
- 2) When selecting loading dock safety equipment, it is important to consider not only present requirements but also future plans and any possible adverse conditions, environmental factors or usage. The owners/users shall provide application information to the manufacturer to receive recommendations on appropriate equipment specifications and capacity.
- 3) The owner/user must see all nameplates, placards, decals, instructions and posted warnings are in place and legible and shall not be obscured from the view of the operator or maintenance personnel for whom such warnings are intended for. Contact manufacturer for any replacements.
- 4) Dock leveling devices may become hazardous if the manufacturer's instructions regarding modifications or adjustments are not followed. Modifications or alterations of dock leveling devices shall only be made with prior written approval from the original manufacturer. These changes shall be in conformance with all applicable provisions of the MH30.1 standard and shall also satisfy all safety recommendations of the original equipment manufacturer of the particular application.
- 5) Modifications or alterations of restraining devices shall be made only with prior written approval from the original manufacturer. These changes shall be in conformance with all applicable provisions of the MH30.3 standard and shall also satisfy all safety recommendations of the original equipment manufacturer of the particular application.
- 6) The owner/user should recognize the inherent dangers of the interface between the loading dock and the transport vehicle. The owner/ user should, therefore, train and instruct all operators in the safe operation and use of the loading dock equipment in accordance with manufacturer's recommendations and industry standards. Effective operator training should also focus on the owner's/user's company policies, operating conditions and the manufacturer's specific instructions provided with the dock leveling device. Maintaining, updating and retraining all operators on safe working habits and operation of the equipment, regardless of previous experience, should be done on a regular basis and should include an understanding and familiarity with all functions of the equipment. Owners/users shall actively maintain, update and retrain all operators on safe working habits and operations of the equipment.
- 7) An operator training program should consist of, but not necessarily be limited to, the following:
 - a) Select the operator carefully. Consider the physical qualifications, job attitude and aptitude.
 - b) Assure that the operator reads and fully understands the complete manufacturer's owners/ users manual.
 - c) Emphasize the impact of proper operation upon the operator, other personnel, material being handled, and equipment. Cite all rules and why they are formulated.
 - d) Describe the basic fundamentals of the dock leveling device and components design as related to safety, e.g., mechanical limitation, stability, functionality, etc.
 - e) Introduce the equipment. Show the control locations and demonstrate its functions. Explain how they work when used properly and maintained as well as problems when they are used improperly.
 - f) Assure that the operator understands the capacity rating, nameplate data, placards and all precautionary information appearing on the dock leveling device.
 - g) Supervise operator practice of equipment.
 - h) Develop and administer written and practical performance tests. Evaluate progress during and at completion of the course.
 - i) Administer periodic refresher courses. These may be condensed versions of the primary course and include on-the-job operator evaluation.

OWNER'S/USER'S RESPONSIBILITIES

- 8) Loading dock safety equipment should never be used outside of its vertical working range, or outside the manufacturer's rated capacity. It shall also be compatible with the loading equipment and other conditions related to dock activity. Please consult the manufacturer if you have any questions as to the use, vertical working range or capacity of the equipment. Only properly trained and authorized personnel should operate the equipment.
- 9) It is recommended that the transport vehicle is positioned as close as practical to the dock leveling device and in contact with both bumpers. When an industrial vehicle is driven on or off a transport vehicle during loading and unloading operations, the transport vehicle parking brakes shall be applied and wheel chocks or a restraining device that provides equal or better protection of wheel chocks shall be engaged. Also, whenever possible, air-ride suspension systems should have the air exhausted prior to performing said loading and unloading operations.
- 10) When goods are transferred between the loading dock and a trailer resting on its support legs/ landing gear instead of a tractor fifth wheel or converter dolly, it is recommended that an adequate stabilizing device or devices shall be utilized at the front of the trailer.
- 11) In order to be entitled to the benefits of the standard product warranty, the dock safety equipment must have been properly installed, maintained and operated in accordance with all manufacturer's recommendations and/ or specified design parameters and not otherwise have been subject to abuse, misuse, misapplication, acts of nature, overloading, unauthorized repair or modification, application in a corrosive environment or lack of maintenance. Periodic lubrication, adjustment and inspection in accordance with all manufacturers' recommendations are the sole responsibility of the owner/user.
- 12) Manufacturer's recommended maintenance and inspection of all dock leveling and vehicle restraining devices shall be performed in conformance with the following practices: A planned maintenance schedule program must be followed, only trained and authorized personnel shall be permitted to maintain, repair, adjust and inspect dock leveling devices, and only the use of original equipment manufacturer parts, manuals, maintenance instructions, labels, decals and placards or their equivalent. Written documentation of maintenance, replacement parts or damage should be kept. In the event of damage, notification to the manufacturer is required.
- 13) Loading dock devices that are structurally damaged or have experienced a sudden loss of support while under load, such as might occur when a transport vehicle is pulled out from under the dock leveling device, shall be removed from service, inspected by a manufacturer's authorized representative, and repaired or replaced as needed or recommended by the manufacturer before being placed back in service.
- 14) Restraining devices that are structurally damaged shall be removed from service, inspected by a manufacturer's authorized representative, and repaired or replaced as needed or recommended by the manufacturer before being placed back in service.

INTRODUCTION

General Information



Figure 4

This manual provides current information on the CentraPower® hydraulic system. Due to ongoing product improvement, some parts may have changed, along with operation and troubleshooting methods. This manual describes these changes where applicable.

CentraPower provides our hydraulic customers with valuable savings in both money and energy every year. CentraPower eliminates the need to operate and maintain multiple individual pumping stations by combining them into one single station.

CentraPower is an easy to install, cost-effective, multi-leveler remote hydraulic system. The system consolidates the individual electric motors, pumps, and reservoirs of several standard levelers into one convenient hydraulic pumping station. The reduction of electrical runs, disconnects, and control wiring can produce significant cost savings while simplifying maintenance requirements. Additional system assurances are afforded as CentraPower comes standard with a back-up motor and pump assembly.

Each CentraPower unit and motor starter box has been factory pre-wired and tested to ensure satisfactory operation.

To illustrate which connections are to be made in the field at installation, electrical drawings are included with each order or by contacting Systems, LLC Technical Services.

Call Poweramp to discuss available voltages, phases and options to meet your specific needs.

Technical Service at 800-643-5424 or techservices@loadingdocksystems.com

Component Identification

Inspect package and all components. Report any missing or damaged items immediately and note on the shipping Bill Of Lading (BOL).

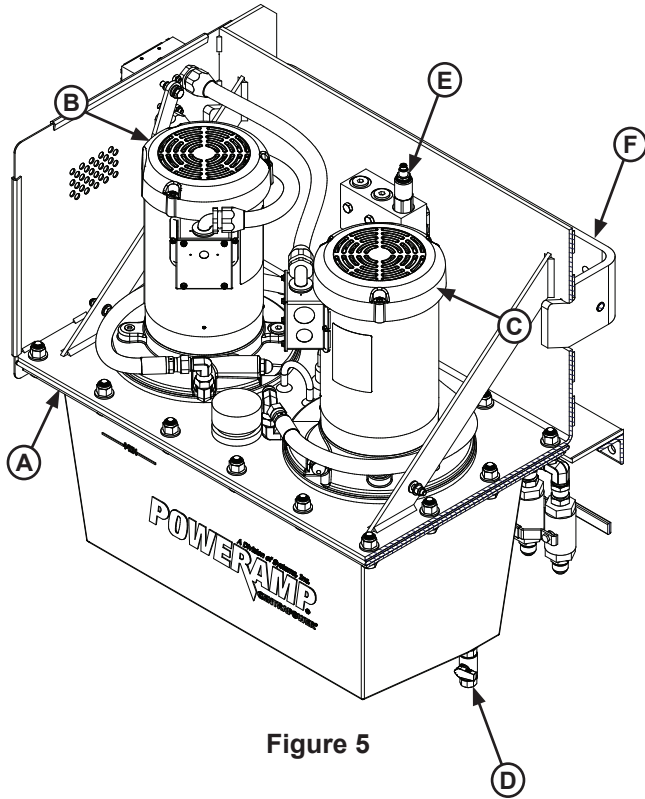


Figure 5

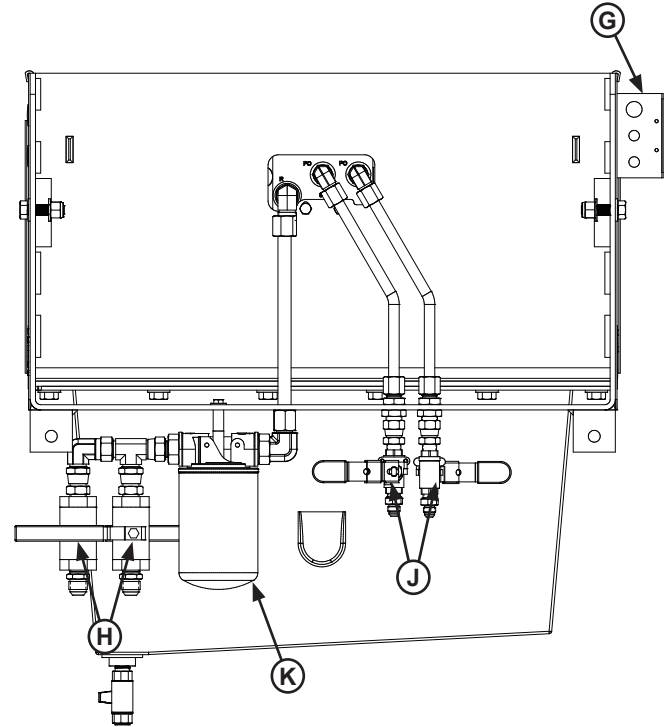


Figure 6 (rear view)

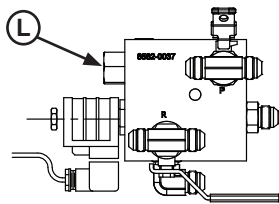


Figure 7

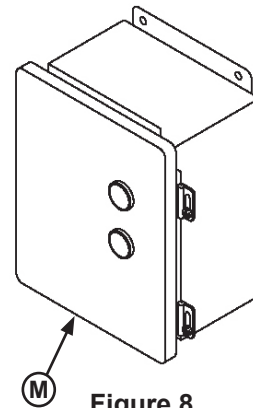


Figure 8

A — Pump Station
B — Pump Motor #1
C — Pump Motor #2

D — Drain
E — Main Valve Block
F — Wall Mount Bracket

G — J-Box
H — Return Shutoff Valves
J — Pressure Shutoff Valves

K — Fluid Filter
L — Remote Manifold*
M — Motor Starter Box*

* Remote manifold and motor starter box appearance may vary depending on equipment options.

INSTALLATION

Installation Precautions

DANGER

It is recommended and good safety practice to use an additional means to support the dock platform and lip anytime when physically working in front of or under the dock leveler. This additional means may include, but is not limited to a boom truck, fork truck, stabilizing bar or equivalent.

WARNING

Always post safety warnings and barricade the work area at dock level and ground level to prevent unauthorized use of the dock leveler before installation is complete.

A hard hat or other applicable head protection should always be worn when working under or around a dock leveler.

Always stand clear of platform lip when working in front of the dock leveler.

WARNING

DO NOT grind or weld if hydraulic fluid or other flammable liquid is present on the surface to be ground or welded.

DO NOT grind or weld if uncontained hydraulic fluid or other flammable liquid is present. Stray sparks can ignite spills or leaks near the work area. Always clean up the oil leaks and spills before proceeding with grinding or welding.

Always keep a fire extinguisher of the proper type nearby when grinding or welding.

CAUTION

Only trained installation professionals with the proper equipment should install this product.

CAUTION

In applications where adhesive anchors will be used, holes must be properly prepped and cleaned before applying adhesive into holes. Refer to adhesive instructions for further detail.

NOTICE

DO NOT connect the vehicle restraint electrical wiring and ground connections until all welding has been completed.

DO NOT ground welding equipment to any hydraulic or electrical components of the vehicle restraint. Always ground welding equipment to the vehicle restraint base, NEVER to the moving components.

Failure to follow these instructions may damage the motor, hydraulics, wiring, and/or control panel.

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INSTALLATION

CentraPower Dimensions and Preparation

Read carefully and understand the Owner's/User's Manual for the leveler and/or the restraint to be installed in conjunction with the CentraPower system.

Read carefully and understand the CentraPower layout drawings provided by Systems, LLC. The drawings will provide necessary hose charts, fluid capacity, location of the valve blocks, and other information necessary for installation.

The CentraPower pump station is typically located centrally in a facility's row of dock levelers. The pump station should be mounted so that the bottom of the reservoir is approximately 72" (1828.8 mm) off the finished floor (out of the way of damage) with a minimum of 6" side clearance per side.

When empty, the CentraPower pump station weighs 240 lbs. When filled with 12 gallons of hydraulic fluid, the pump station weighs 340 lbs. Consider these weights when lifting the CentraPower pump station for installation.

Note: The CentraPower Station comes standard with the J-Box installed on the left side (see Figure 10), but the pump station is pre-drilled for moving the J-Box and electrical harness to the opposite side if desired.

! WARNING

The CentraPower pump station is heavy. Use a lifting device and chains with the appropriate lifting capacity and reach.

Always use the lifting brackets provided with the unit whenever lowering or lifting a pump station.

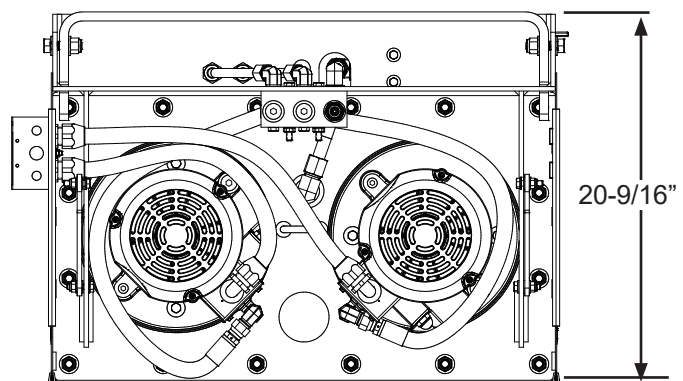


Figure 9 (top view)

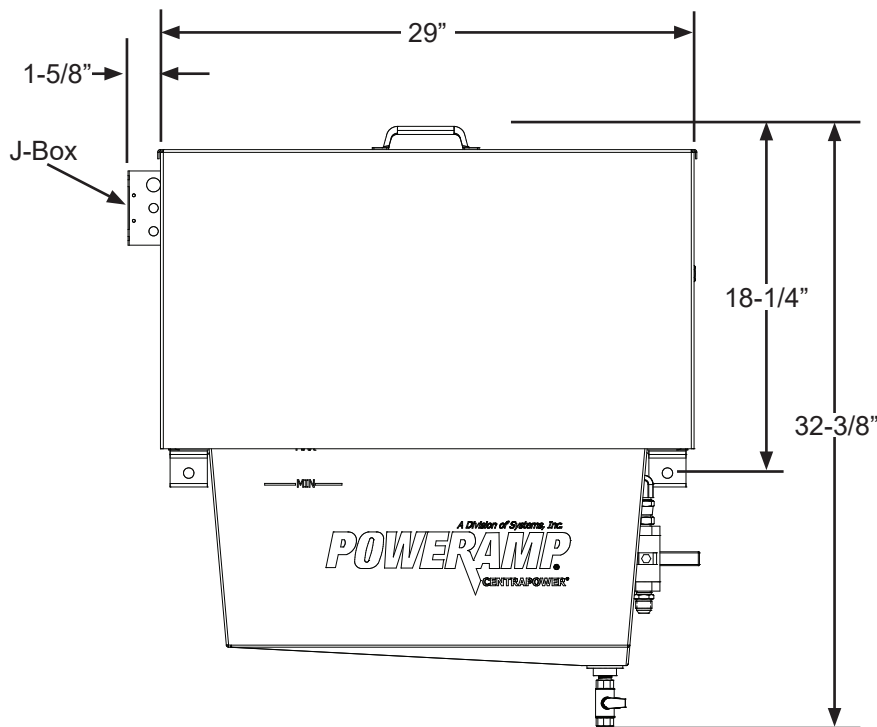


Figure 10

Install Pump Station

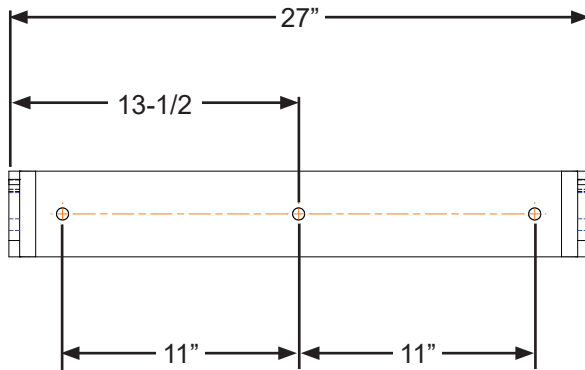


Figure 11

1. At the CentraPower pump station location specified on the layout drawings, measure 96" (2438.4 mm) off the floor and mark. This will be the center line of the wall mount bracket.
2. Measure 11" (28 cm) in each direction from the center line mark, and create a new mark as shown in Figure 11. Ensure marks are all level.

Next steps will vary depending on hardware type:

Concrete Anchor Installations:

- a. Drill 1/2" (13 mm) dia. holes 3-1/2 deep and install 1/2" concrete anchors.
- b. Install wall mount bracket and verify the mounting bracket is level.
- c. Torque the concrete anchors per manufacturer's specifications.
- d. Proceed to step 3.

Through Bolt Installations:

- a. Drill 1/2" (13 mm) dia. holes through mounting surface.
- b. Install wall mount bracket with 1/2" grade 5 fasteners of necessary length; length will vary depending on application.
- c. Torque the fasteners per manufacturer's specifications.
- d. Proceed to step 3.

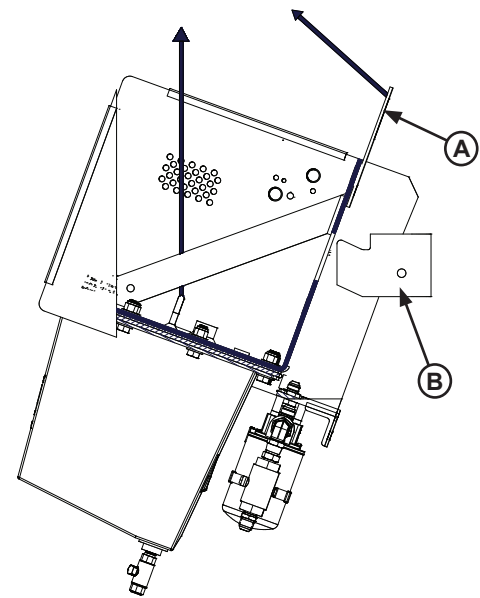


Figure 12

A - Lifting Lug

B - Wall Mount Bracket

3. Lift pump station by the two lifting lugs (A), located in the center and rear of the CentraPower pump station. See Figure 12.
4. Tilt the CentraPower pump station to a 30° angle. This will allow the pump station to slide into the wall mount bracket (B) as shown in Figure 12.
5. Verify the CentraPower pump station is fully seated on the wall mount bracket and parallel to the wall.

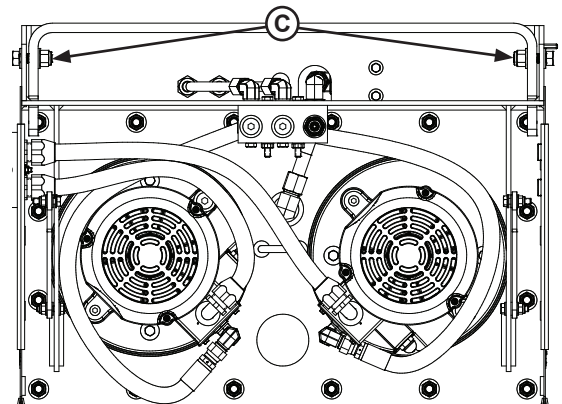


Figure 13 (top view)

C - Mounting Hardware

6. Secure CentraPower pump station to the wall mount bracket with hardware (C) provided as shown in Figure 13.

INSTALLATION

Install Pump Station (continued)

7. Once in place, remove the lifting lugs from the pump station.

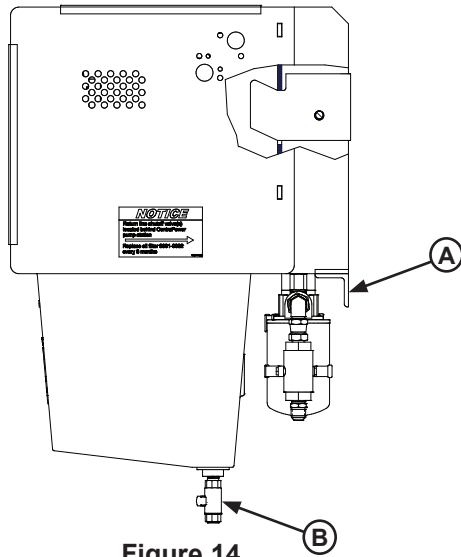


Figure 14

A - Bottom Mount

B - Drain Valve

8. Using the CentraPower pump station as a guide, drill two holes and install fasteners for the bottom mount (A). See Figure 14.

9. Remove shipping plug and install drain valve (B) on to bottom of the reservoir as shown in Figure 14.

Note: Drain valve is shipped zip-tied to pump station to prevent tank damage in shipping.

Install Pump Station Cover

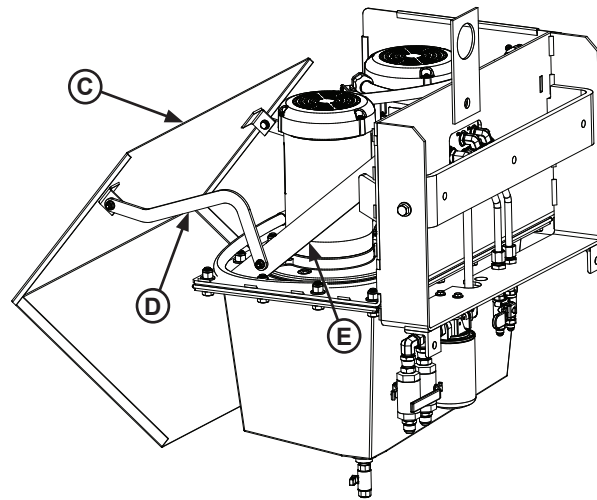


Figure 15

C - Cover

D - Hinge

E - Support

1. Install cover hinges (D) to pump station supports (E). Hinges mount to the outside of the supports; required hardware is loosely assembled on hinges during shipping. See Figure 15.

2. Connect cover to hinges to the outside of the cover mounts (C) as shown in Figure 15.

Install Motor Starter Box and Wiring

! DANGER

Make sure that the power source has been locked out and tagged according to OSHA regulations and approved local electrical codes.

! CAUTION

All electrical work — including the installation of the disconnect panel, control panel, and final connections to the pit junction box — must be performed by a certified electrician and conform to all local and applicable national codes.

NOTICE

Where indicated, all components must be connected to a SAFETY EARTH GROUND that conforms to the 1999 National Electrical Code Section 250-50 section (a) or section (c) for a grounding electrode system.

NOTICE

DO NOT connect the CentraPower electrical wiring and ground connections until all welding has been completed.

DO NOT ground welding equipment to any hydraulic or electrical components of the CentraPower system.

NOTICE

Ensure wiring for CentraPower pump station is of an appropriate gauge for the circuit length and system FLA as shown on the motor nameplate and Systems, LLC-supplied electrical drawings.

Insufficient wiring can cause poor pump station performance and damage to pump motors.

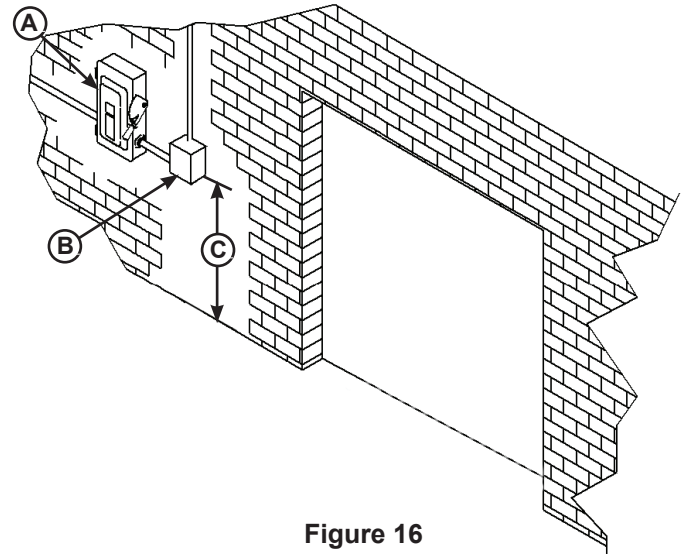


Figure 16

A— Disconnect Panel (provided by others)
B— Motor Starter Box **C**— Distance, 72 in. (1828.8 mm)

1. Mount the motor starter box (**B**) at location specified on the layout drawings; bottom of control panel-to-dock floor distance (**C**) must be at least 72 in. (1828.8 mm). See Figure 16.

Optional: Install spacers between the wall and enclosure to provide temperature insulation and air flow. If the conduit could fill with water, a drip leg may be needed.

2. Install electrical disconnect panel (**A**) if not already installed. Disconnect panel supplied by others.

3. Install and connect the control wiring (see drawings supplied with equipment).

4. Seal the conduit in any location where the conduit crosses over temperature zones that could produce condensation.

Note: The motor starter box has two indicator lights located on the door, which indicate if one or both motor starter overloads have tripped.

There is also a three-position switch mounted inside the door. The switch controls activation of one or both pump motors when equipment is activated.

Users that only need one pump motor for operation should use the selector switch to change motors every six months. This will balance component wear and extend pump station life. If a pump motor fails, the remaining pump motor can then be used to prevent facility downtime.

INSTALLATION

Install Hoses, Manifolds and Fluid

Note: When installing hoses and/or valve blocks, always keep shipping caps on fittings until hoses are connected to the manifolds.

1. Install pressure and return hoses from the chase to the CentraPower pump station. The pressure hoses will have #8 JIC fittings. The return lines will have #8 JIC fittings, or #10 JIC if optioned with PowerHook vehicle restraints. See layout drawings and hose chart provided by Systems, LLC for correct hose routing and locations.

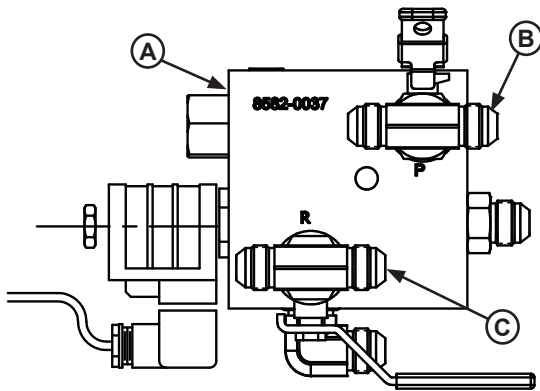


Figure 17

A - Manifold B - Pressure Line C - Return Line

2. Install hoses from pit to pit on each manifold (**A**). Pay close attention to orientation of pressure (**B**) and return (**C**) lines to prevent accidental swapping.
3. On the last position (end run) in each bank, install caps on one side of the pressure/return fittings on each manifold to close the hydraulic circuit.

Put CentraPower System Into Service

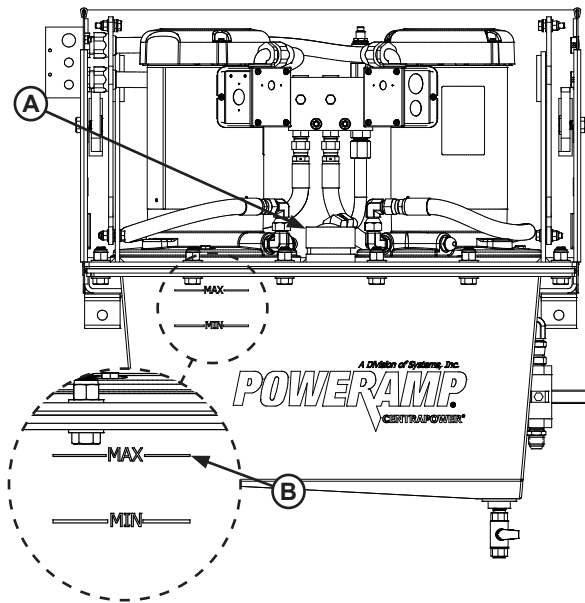


Figure 18


A - Fill Cap

B - MAX Mark

1. When all hoses, valves, and hydraulic connections are complete and tightened, remove the pump station fill cap (A) and fill the reservoir to the MAX mark (B). Tank capacity is 12 gallons.

2. Select a bank of equipment to bleed; close pump station shutoff valves connected to the equipment bank not being bled.

3. Starting with the furthest dock from the pump station, operate all the levelers and the restraints through several cycles to purge all the air out of the system. Once all levelers have been cycled several times, the fluid level must be checked again.

 DANGER

Vertical-storing dock levelers require a special bleeding process. See VS-Series Owner's/User's Manual for full procedure. Death or serious injury may result from improper bleeding!

4. Check hydraulic oil level.

Note: On pit levelers, check oil level with all levelers in the full below-dock position. On vertical-storing levelers, check oil level with all levelers stored and the lips lowered.

5. Close pump station shutoff valves connected to the equipment that has been bled, and open shutoff valves to the remaining equipment.

6. Repeat steps 3-4 on the remaining bank of equipment.

7. When both banks of equipment have been bled, open all pump station shutoff valves for both banks.



Figure 19

8. Using the three-position switch inside the motor starter box (Figure 19), ensure that both motors are wired correctly and functioning independently.

Note: For pump stations designed to run both motors, run only one motor at a time to verify operation. If wired correctly, the levelers will operate but may run slowly. If levelers do not operate and pump motor cavitates, electrical phases must be switched to reverse rotation.

9. Before entering service, installer should check and fine-tune pump station pressure relief settings as described on page 23.

10. When system is fully tested and operational, use of equipment can begin. See equipment-specific Systems, LLC Owner's/User's Manuals for operational information on dock levelers and transport vehicle restraints.

MAINTENANCE

Maintenance Precautions

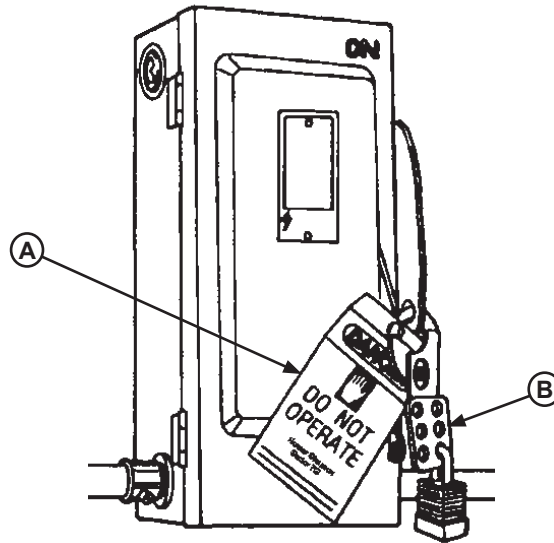


Figure 20

A— Tag Out Device

B—Lock Out Device

DANGER

Unless the dock leveler is equipped with a tethered remote, two people are required to engage the maintenance prop: one person to operate the unit, the other person to engage the maintenance prop.

In addition, it is recommended and good safety practice to use an additional means to support the dock platform and lip anytime when physically working in front of or under the dock leveler. This additional means may include, but is not limited to a boom truck, fork truck, stabilizing bar or equivalent.

When working with electrical or electronic controls, make sure that the power source has been tagged (A) and locked out (B) according to OSHA regulations* and approved local electrical codes (see Figure 20).

Only the person servicing the equipment should have the capability to remove the lockout devices. The tag out devices* must inform that repairs are in process and clearly state who is responsible for the lockout condition.

WARNING



Always post safety warnings and barricade the work area at dock level and ground level to prevent unauthorized use of the unit before maintenance is complete.

WARNING

A hard hat or other applicable head protection should always be worn when working under or around a dock leveler.

Always stand clear of platform lip when working in front of the dock leveler.

* Refer to OSHA regulations 1910.146. Confined Space and 1910.147. Lockout/Tagout

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MAINTENANCE

Periodic Maintenance

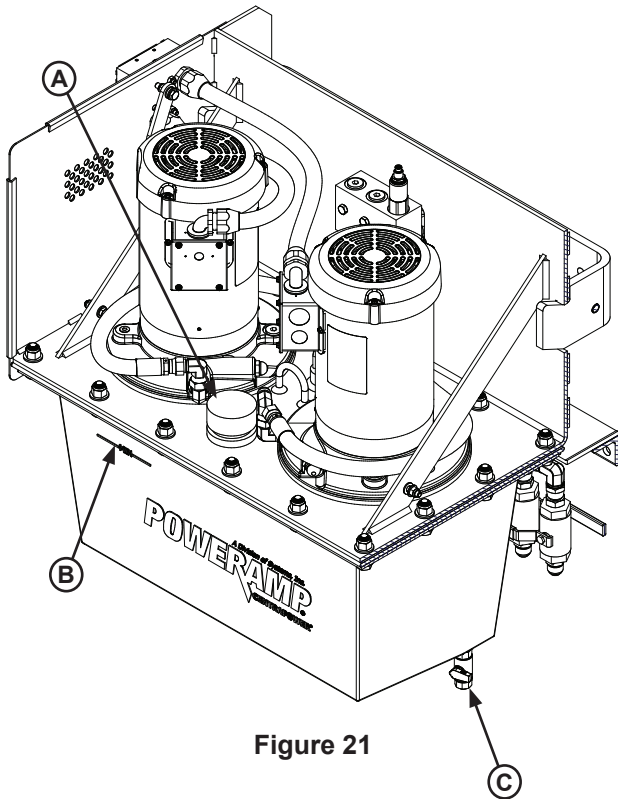


Figure 21

- A— Fluid Fill Cap
- B— MIN and MAX lines
- C— Drain Valve

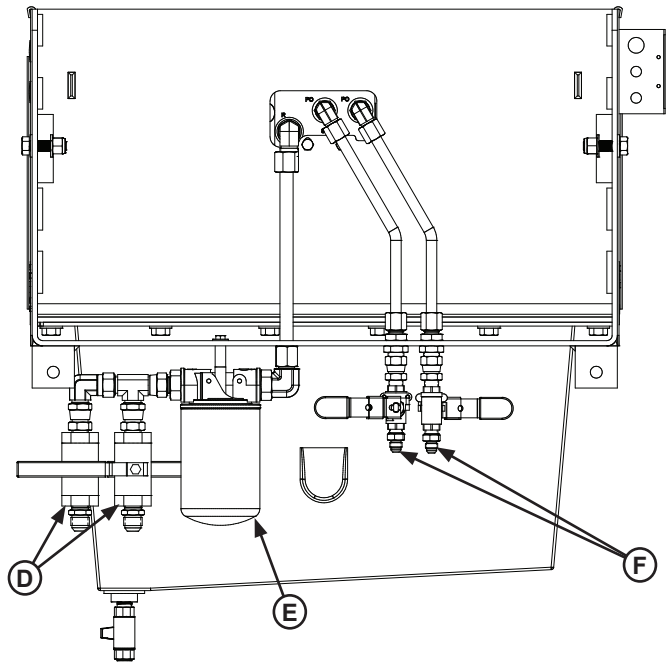


Figure 22 (rear view)

- D— Return Line Valves
- E— Fluid Filter
- F— Pressure Line Valves

To ensure normal operation of the equipment, use only aircraft hydraulic fluid designed to meet or exceed military specification MIL-H-5606-G. It is recommended that the following hydraulic fluids be used:

- ULTRA-VIS-HVI-15
- Aero Shell Fluid 4 or Fluid 41
- Mobil Aero HFA Mil-H5606A or Aero HF
- Texaco Aircraft Hydraulic Oil 15 or 5606
- Exxon Unavis J13
- Castrol Brayco Micronic 756

These fluid brands can be mixed together. Use of hydraulic fluids with equivalent specifications to those listed here are acceptable.

NOTICE

Use of fluids that do not have equivalent specifications to those in the preceding list will result in abnormal operation of equipment and voiding of warranty.

Quarterly Maintenance

- Check reservoir fluid level (see Figure 23):
 1. Prepare facility equipment for fluid level check:
 - On pit levelers, check oil level with all levelers in the full below-dock position.
 - On vertical-storing levelers, check oil level with all levelers stored and the lips lowered.
 2. Turn OFF all electrical power to the pump station.
 3. Open the cover and remove the fill cap (A).
 4. Add hydraulic fluid if necessary. Use only recommended fluid (see page 20). Fluid level should be between the MIN and MAX lines (B).
 5. Reinstall the fill cap (A) and close the cover.
 6. Turn ON electrical power to the pump station.
 7. Return all equipment to the stored position.

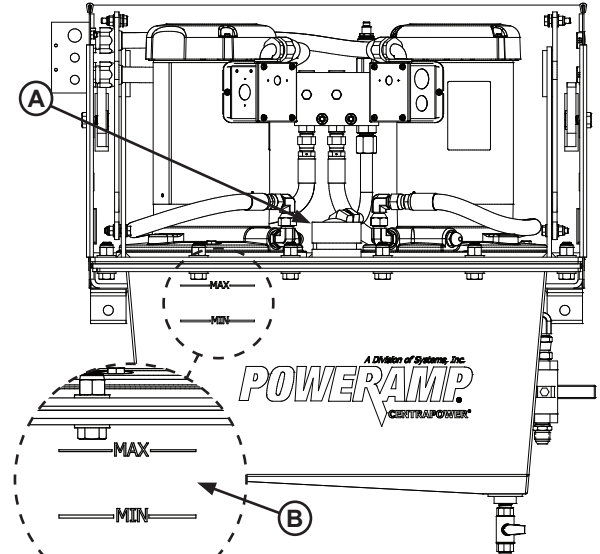


Figure 23

A - Fill Cap

B - MIN and MAX lines

Bi-Annual Maintenance

- Change fluid filter (E). See Figure 22.
- Users that only need one pump motor for operation should use the selector switch (see Figure 24) to change motors every six months. This will balance component wear and extend pump station life. If a pump motor fails, the remaining pump motor can then be used to prevent facility downtime.



Figure 24

Yearly Maintenance

- Complete Quarterly and Bi-Annual Maintenance.
- Change hydraulic oil (may be required more often depending upon conditions).

MAINTENANCE

Reservoir Removal/Installation

WARNING

When working with electrical or electronic controls, make sure that the power source has been tagged and locked out according to OSHA regulations and approved local electrical codes.

Only the person servicing the equipment should have the capability to remove the lockout devices. The tag out devices must inform that repairs are in process and clearly state who is responsible for the lockout condition.

WARNING

Always post safety warnings and barricade the work area at dock level and ground level to prevent unauthorized use of equipment before maintenance is complete.

NOTICE

Failure to follow specified torque sequence may cause fluid leaks and damage to reservoir, pump station, or both.

In some cases, it may be necessary to remove the CentraPower pump station fluid reservoir, such as for gasket or reservoir replacement.

To safely remove/reinstall the reservoir for service:

1. Turn OFF all electrical power to the pump station.
2. Drain all fluid from the pump station.
3. Support the reservoir from underneath to prevent it from falling once mounting hardware is removed.
4. Remove mounting hardware.
5. Carefully lower the reservoir.
6. Once service is complete, raise the reservoir back into position and support from underneath.
7. Install mounting hardware to hand-tight.
8. Following the sequence in Figure 25, torque all bolts in two stages:
 - a. Torque all bolts to 10 ft. lbs. (45 Nm).
 - b. Torque all bolts to 20 ft. lbs. (89 Nm).
9. Refill pump station with hydraulic fluid.
10. Turn ON electrical power to the pump station.

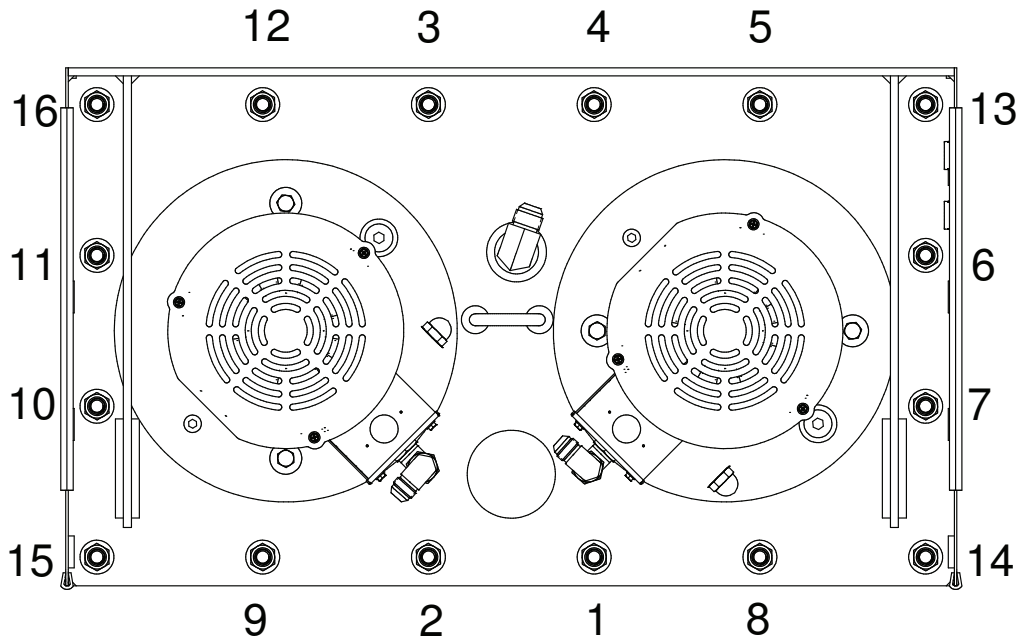


Figure 25

Adjust Main Pressure Relief

WARNING

Always post safety warnings and barricade the work area at dock level and ground level to prevent unauthorized use of equipment before maintenance is complete.

Main Pressure Relief Adjustment

Note: A multimeter with amperage draw reading capability is required to correctly set CentraPower pressure relief.

The main pressure relief may need to be *increased* if the equipment does not function or functions slowly and the system operates in pressure relief mode.

The main pressure relief may need to be *decreased* if the system loads down during normal operation, or if the motor starter box overloads trip very frequently.

See Troubleshooting section on pages 24-25 for more information.

1. Open pump station cover and locate pressure relief adjustment (**A**) on main valve block.
2. Install multimeter amp clamps on main power supply lines in pump station junction box (**B**), or at overload relay in motor starter box (**C**).
3. Loosen jam nut on pressure relief adjustment (**A**).
4. Adjust pressure relief adjusting screw as follows:
 - To increase pressure relief, turn hex screw clockwise one full turn.
 - To decrease pressure relief, turn hex screw counterclockwise one full turn.
5. Tighten the jam nut.
6. Cycle equipment and verify pressure relief setting by checking pump station amp draw under load; at no point should pump station amp draw exceed the FLA values shown on each motor nameplate.
7. Check individual amp draw for both motors in the pump station to verify that both are within the FLA value shown on the motor nameplate.
8. Repeat steps 3-6 as necessary.

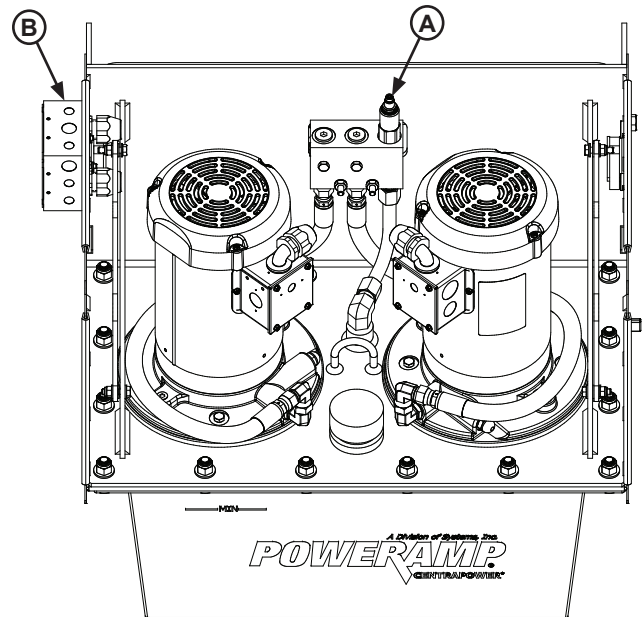


Figure 26

A - Pressure Relief Valve

B - Junction Box

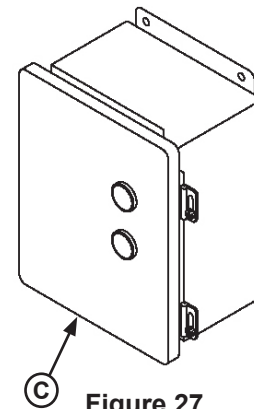


Figure 27

C - Motor Starter Box

NOTICE

Always refer to the pump motor nameplate or Systems, LLC-supplied electrical drawings for the target FLA on any pump motor.

Ensure wiring for CentraPower pump station is of an appropriate gauge for the circuit length and system FLA as shown on the motor nameplate and Systems, LLC-supplied electrical drawings.

Insufficient wiring can cause poor pump station performance and damage to pump motors.

TROUBLESHOOTING

DANGER

Unless the dock leveler is equipped with a tethered remote, two people are required to engage the maintenance prop: one person to operate the unit, the other person to engage the maintenance prop.

In addition, it is recommended and good safety practice to use an additional means to support the dock platform and lip anytime when physically working in front of or under the dock leveler. This additional means may include, but is not limited to a boom truck, fork truck, stabilizing bar or equivalent.

WARNING

When service under the dock leveler is required, always lock all electrical disconnects in the OFF position after raising the platform and engaging the maintenance prop.

Always post safety warnings and barricade the work area at dock level and ground level to prevent unauthorized use of the dock leveler before maintenance is complete.

A hard hat or other applicable head protection should always be worn when working under or around a dock leveler.

Always stand clear of platform lip when working in front of the dock leveler.

Before performing the detailed troubleshooting procedures, check the following items first:

- Check all fuses inside the control panel(s). Replace any blown fuse(s) with a fuse of equal specification.
- Make sure the correct voltages are present at the proper locations inside the control panel(s).

Symptom	Possible Cause	Solution
Equipment does not operate. Motor does not energize.	Motor overload device tripped.	Reset overload relay or breaker. Determine cause of device tripping.
	Motor starter not energizing.	<p>Check voltage at starter or relay coil.</p> <ul style="list-style-type: none"> • If voltage is present and starter or relay does not energize, replace starter or relay. • If voltage is not present, check all components in series with the starter or relay coil.
Equipment does not operate. Motor hums, but does not run.	<p>No voltage is present on one line.</p> <p>Note: A motor that is missing voltage on one line is said to be single-phased.</p>	<p>Check for blown fuses at branch circuit disconnect. Replace fuse. Determine cause of blown fuse.</p>
		<p>Check motor starter as follows:</p> <ol style="list-style-type: none"> 1. Disconnect wires at load side of starter. 2. Energize the starter. 3. Measure line-to-line voltage at line side of starter. 4. Measure line-to-line voltage at load side of starter. 5. Line-side and load-side voltages should be approximately the same. Replace starter if voltage values are considerably different from one another.
		<p>Check all wiring to motor for high resistance or no connection.</p>

TROUBLESHOOTING

Symptom	Possible Cause	Solution
Equipment does not operate. Motor runs in reverse	Phase reversed.	Reverse any two legs at the branch circuit disconnect.
Only one piece of equipment not operating.	Faulty coil on CentraPower valve block.	Locate solenoid (see pages 34 & 35). Coil must be energized when equipment is active. Check valve for magnetism at the coil.
	Faulty valve on CentraPower valve block.	Remove coil from cartridge valve and cartridge valve from valve block. -Check valve for contaminants and/or damage. -Replace valve if damaged. -Carefully wipe valve with clean rag (do not damage "O" rings on valve). NOTE: Do not over-tighten coil on valve. Max torque is 0.83 ft. lbs. (just over finger tight). Do not over-tighten valve into block. Max torque is 15 ft. lbs. which will compress O-ring and prevent leakage. Operate unit. Replace valve if problem persists after all other troubleshooting procedures.
Equipment operates when other units have been activated.	Faulty valve on CentraPower valve block.	Remove coil from cartridge valve and cartridge valve from valve block. -Check valve for contaminants and/or damage. -Replace valve if damaged. -Carefully wipe valve with clean rag (do not damage "O" rings on valve). NOTE: Do not over-tighten coil on valve. Max torque is 0.83 ft. lbs. (just over finger tight). Do not over-tighten valve into block. Max torque is 15 ft. lbs. which will compress O-ring and prevent leakage. Operate unit. Replace valve if problem persists after all other troubleshooting procedures.
Equipment struggles or runs slowly.	Low hydraulic fluid.	Add fluid, see page 20 for proper fluid level and type.
	Pressure relief valve set too low.	Adjust pressure relief; see page 23 for instructions.

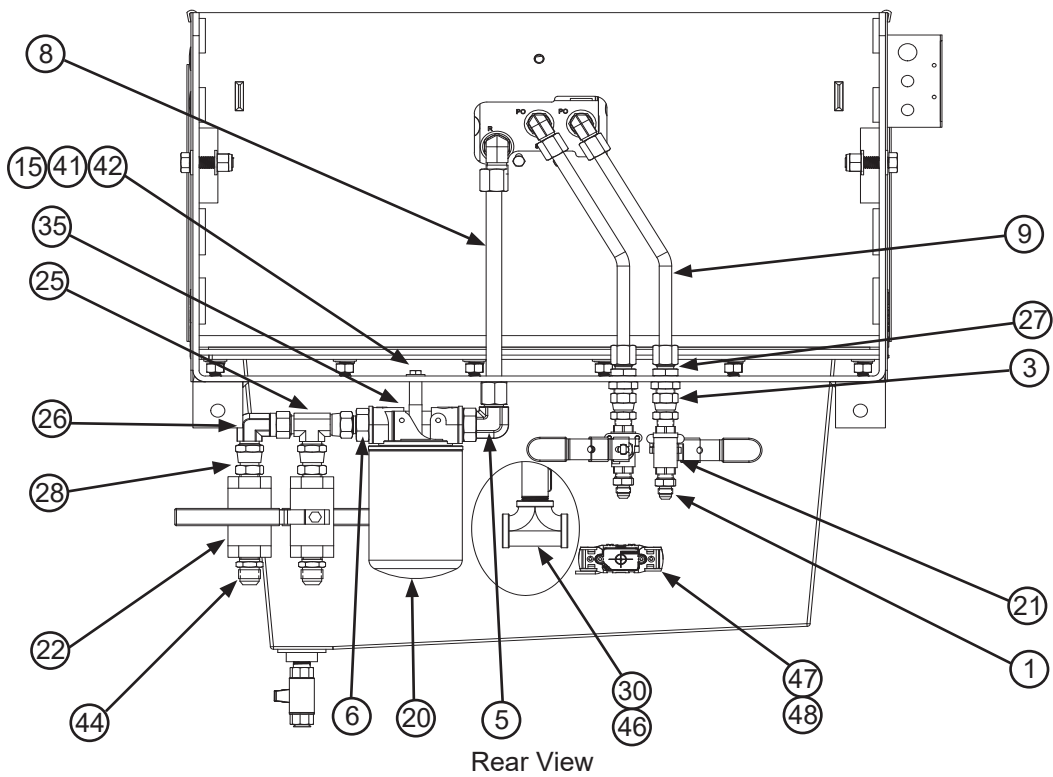
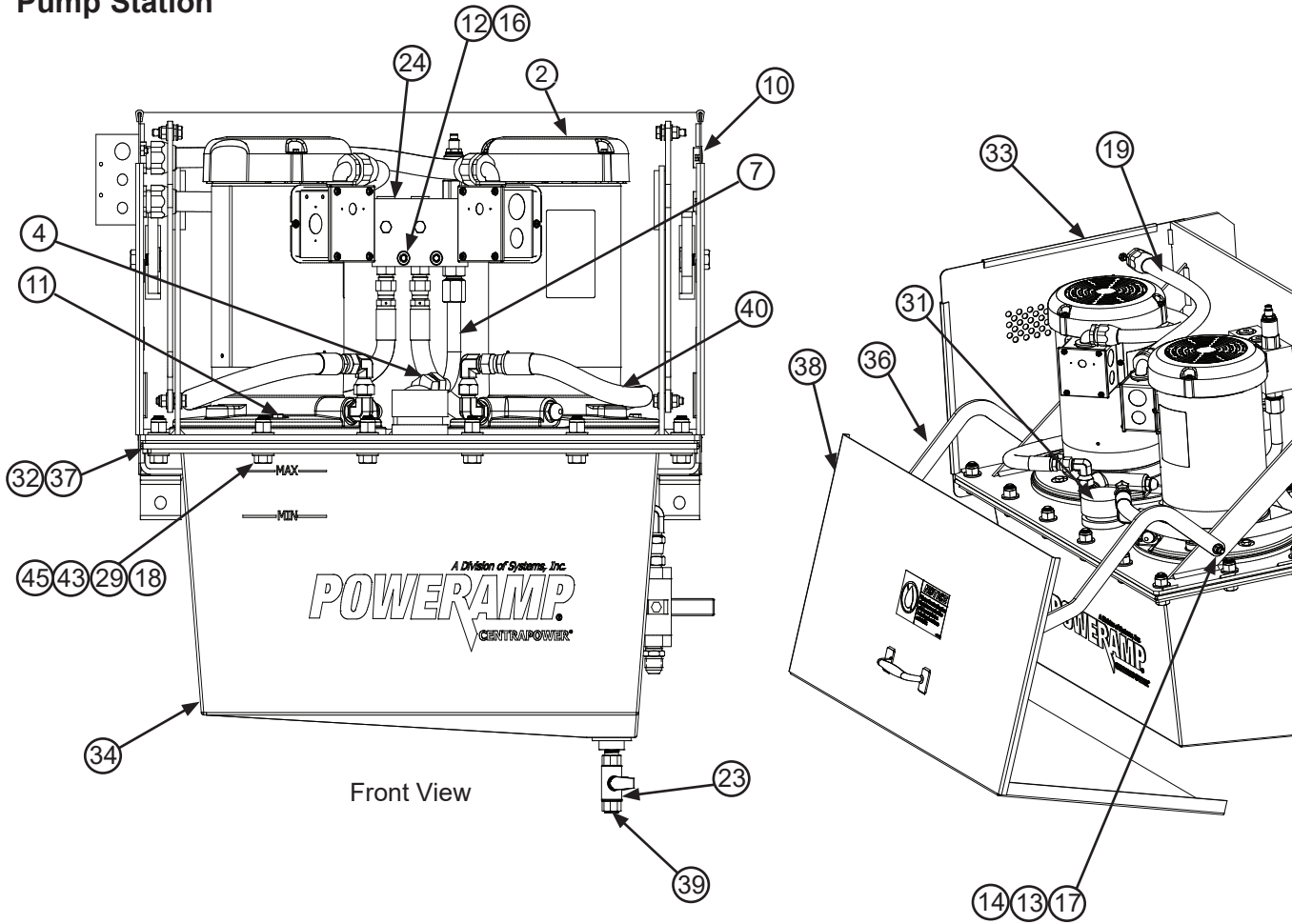
For equipment-specific issues not described in this manual, see Systems, LLC Owner's/User's Manual for the specific equipment experiencing issues.

If additional troubleshooting assistance is required, contact Systems, LLC Technical Services with equipment serial number or customer order number (CO#).

Technical Service at 800-643-5424 or techservices@loadingdocksystems.com

PARTS

Pump Station



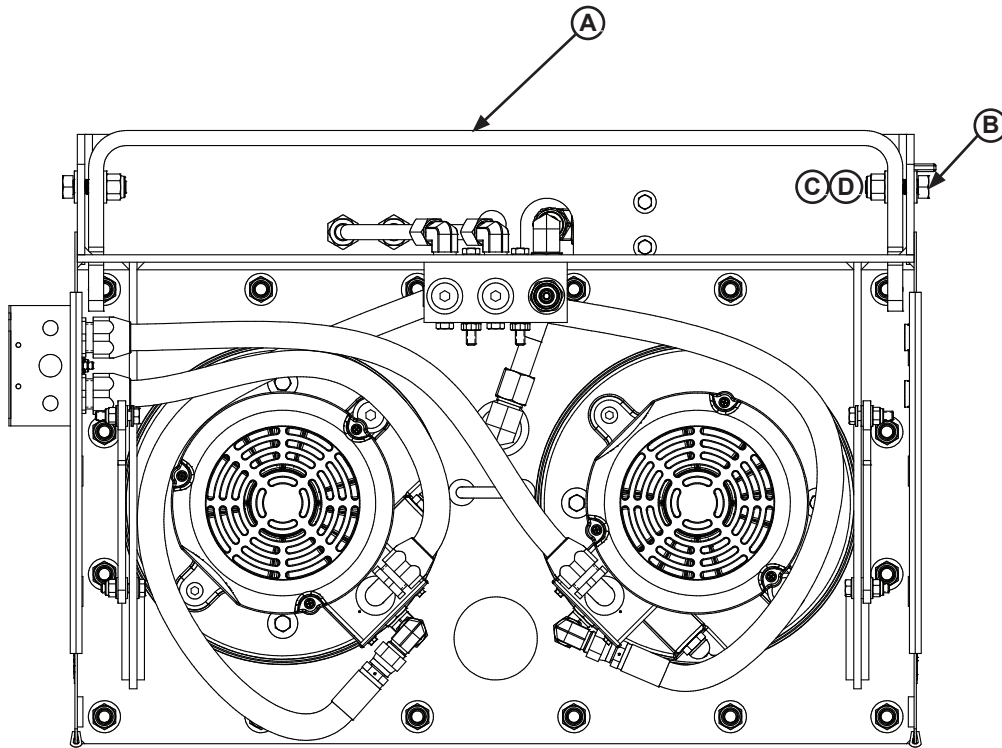
PARTS

Item	Quantity	Part Number	Description
1	2	0521-0015	Fitting Male 3/8 NPT x #8 JIC
2	2	9393-_____*	PPAC, CentraPower
3	2	0521-0032	Fitting 3/8" NPTM To #8 JICM
4	1	0521-0206	Fitting Elbow 90 Deg 3/4 NPT x #10 JIC
5	1	0521-0207	Fitting Elbow 90 Deg #12 ORBM, #10 JICM
6	1	0521-0208	Fitting #10 JICM #12 ORB
7	1	0521-0209	Tube, Steel Elbow #10 JIC Swivel
8	1	0521-0212	Tube, Steel #10 Swivel
9	2	0521-0213	Tube, Steel #8 Swivel
10	2	1431-0354	Plug, J - Box
11	4	2101-0012	Screw, Hex Head 5/16-18 UNC x 1-1/4 LG
12	2	2101-0213	Nut, WHIZ 1/4-20 UNC
13	4	2101-0214	Nut, WHIZ 5/16-18 UNC
14	4	2101-0011	Screw, Hex Head 5/16-18 UNC x 1 LG
15	2	2101-0059	Washer, Flat 1/4
16	2	2101-0116	Screw, Hex Head 1/4 - UNC x 2-3/4 LG
17	8	2101-0163	Washer, Flat 5/16
18	16	2101-0362	Screw, Hex Head 7/16-14 UNC 1-3/4 LG (3/2019-present)
		2101-0352	Screw, Hex Head 1/2-13 UNC 1-3/4 LG (Before 3/2019)
19	2	4305-0150	Conduit Assy 21 LG
20	1	9391-0082	Filter, Oil
21	2	8581-0002	Valve, Ball Steel 3/8 NPT
22	2	8581-0072	Valve, Ball Brass 1/2 NPT
23	1	8581-0182	Valve, Ball 3/8 NPT, Plastic
24	1	8585-0002	Valve, Assy, Blending
25	1	9301-0128	Fitting, Run Tee #10 JICF to #10 JICM
26	1	9301-0129	Fitting, Elbow 90 Deg #10 JIC
27	2	9301-0158	Fitting, Bulkhead Union #8 JIC
28	2	9301-0193	Fitting, 1/2 NPTM to #10 JICF Swivel
29	16	2101-0363	Nut, Hex 7/16-14 UNC (3/2019-present)
		2101-0103	Nut, Nylon Lock 1/2-13 UNC (Before 3/2019)
30	1	9301-0292	Fitting, Nipple 3/4 NPT 7 LG
31	1	9301-0283	Cap, Breather
32	1	9391-0088	Gasket (3/2019-present)
		9391-0061	Gasket (Before 3/2019)
33	4	9391-0063	Edge Trim 12" LG
34	1	9391-0089	Reservoir (3/2019-present)
		9391-0065	Reservoir (Before 3/2019)
35	1	9391-0083	Filter Mount
36	2	9391-0072	Bracket, Cover Hinge
37	2	9391-0081	Tank Brace
38	1	9393-0001	Cover
39	1	9571-0005	Plug, 3/8 NPT
40	2	9904-0106	Hose, Assy 3/8 x 28 long #8 JICF Swivel
41	2	2101-0350	Screw, Hex Head 1/4-20 UNC 1-3/4 LG
42	2	2101-0351	Spacer
43	32	2101-0364	Washer, Flat 7/16 (3/2019-present)
		2101-0079	Washer, Flat 1/2 (Before 3/2019)
44	2	9301-0194	Fitting, 1/2 NPTM, #10 JIC M
		9301-0289	Fitting, 1/2 NPTM, #8 JIC M
45	16	2101-0305	Washer, Lock 7/16 (3/2019-present only)
46	1	9301-0293	Fitting, Tee 3/4 NPT
47	1	0961-0641	Sensor, Fluid, Plastic Tank (Optional)
48	1	0961-0647	Bracket, Sensor, Plastic Tank (Optional)

*Provide Systems, LLC customer order number or equipment serial number when e-mailing, calling or faxing orders.

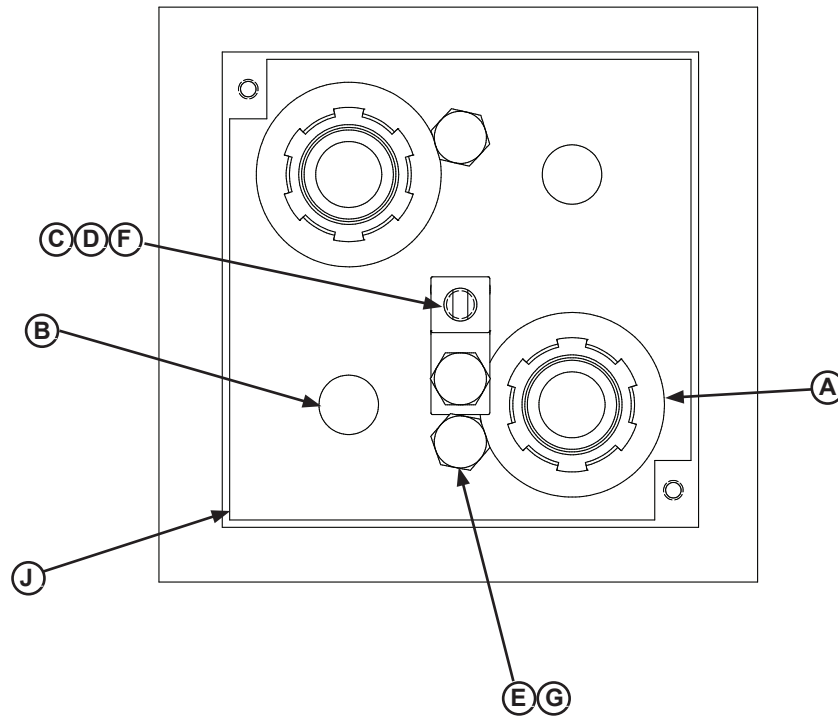
PARTS

Pump Station Mounting Bracket



Item	Quantity	Part Number	Description
A	1	9391-0078	Bracket, Wall Mounting
B	4	2101-0079	Washer, Flat 1/2
C	2	2101-0103	Nut, Nylon Lock
D	2	2101-0352	Screw, Hex Head 1/2-13 UNC x 1-3/4 LG

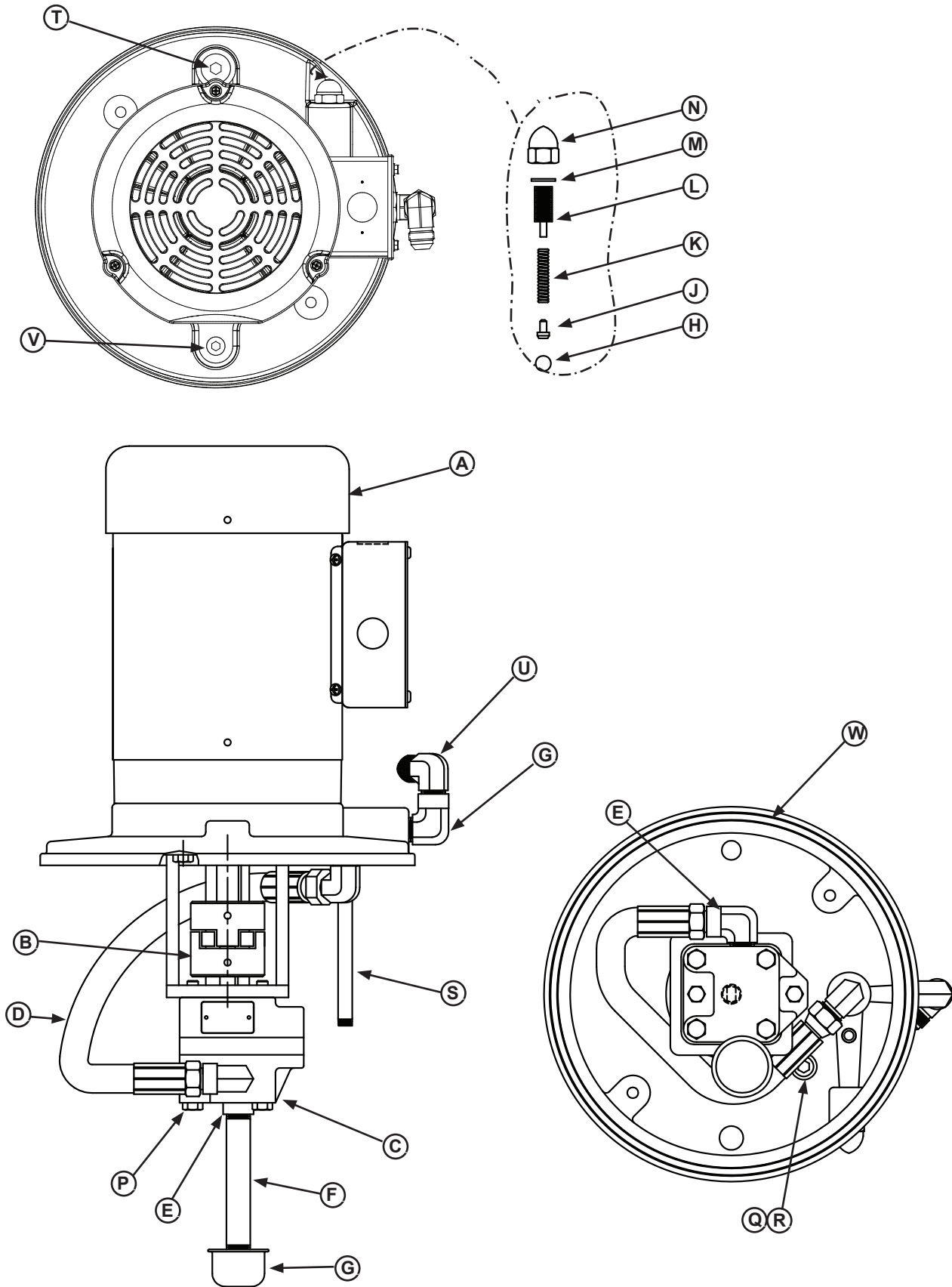
Pump Station J-Box Components



Item	Quantity	Part Number	Description
A	2	1431-0034	Washer, Reducing
B	1	1431-0046	Lug, 1 Cond
C	1	2101-0005	Washer, Lock 1/4
D	1	2101-0006	Hex Head Cap Screw 1/4-20 UNC x 3/4 LG
E	2	2101-0037	Nut, 1/4 UNC
F	1	2101-0143	Nut, Nylon Lock 1/4 UNC
G	2	2101-0153	Hex Head Cap Screw 1/4-20 UNC x 1/2
H	1	2751-0016	J-Box, Cover (Not Shown)
J	1	9511-0004	J-Box 4 x 4 x 2

PARTS

Powerpack Components



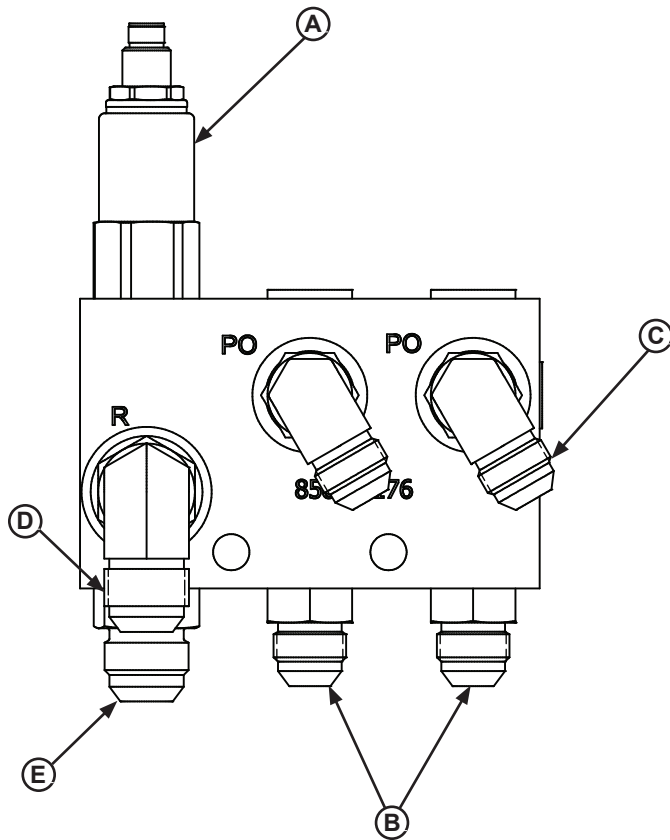
Powerpack Components (continued)

Item	Quantity	Part Number	Description
A	1	3411-0043*	Motor, 460 3 PH, 1.5HP
		3411-0045*	Motor, 460 3 PH, 3HP
B	1	9302-0065	Coupler (Lovejoy)
C	1	9301-0204*	Pump, 5 GPM
		9301-0205*	Pump, 4 GPM
D	1	9904-0001	Hose Assy - 3/8 17.500 Lg. #6 SAE to #8 JIC
E	2	9301-0007	Fitting Elbow 90 Deg 3/8 NPTM X 3/8
F	1	9301-0206	Fitting 3/8 NPT x 4-1/2
G	1	9301-0009	Strainer
H	1	0521-0014	Ball - Steel
J	1	9301-0024	Guide - Ball Check
K	1	9302-0009	Spring - Pressure Relief
L	1	9303-0003	Screw Adjusting
M	1	9301-0014	Washer - Nylon
N	1	9301-0016	Acorn Nut
P	4	2101-0016	Hex Head Capscrew 5/16 UNC x 3-1/2 Lg.
Q	2	9301-0003	Washer - Aluminum
R	2	9301-0004	Socket Head Cap Screw 3/8 UNC x 1-3/4 Lg.
S	1	9301-0069	Fitting Pipe Nipple 1/8 Npt x 5 Lg.
T	1	9301-0106	Fitting, Plug #8 ORB
U	1	9571-0006	Fitting, Plug 1/4 NPTM
V	1	9301-0145	Fitting, Elbow, 90 Degree, Swivel Nut
W	1	9301-0027	O-Ring

*Provide Systems, LLC customer order number or equipment serial number when e-mailing, calling or faxing orders.

PARTS

Main Valve Block



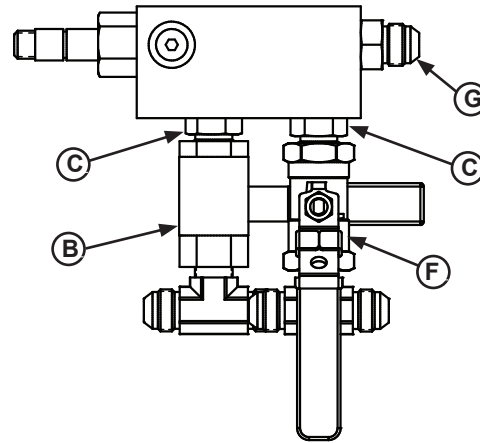
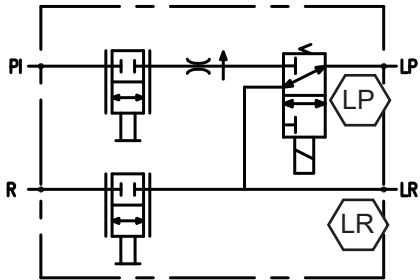
Item	Quantity	Part Number	Description
*	1	8585-0002	Valve Assembly, Blending
A	1	8581-0037	Valve, Cart, Relief
B	2	9301-0112	Fitting, #8 ORB to #8 JIC
C	2	9301-0116	Fitting, Elbow #8 ORB To #8 JIC
D	1	9301-0279	Fitting, Elbow #10 ORBM To #10 JICM
E	1	9301-0288	Fitting, Union #10 JICM TO #10 ORBM
	1	0521-0021	Fitting, #8 End Cap (not shown, for end run)

*Provide Systems, LLC customer order number or equipment serial number when e-mailing, calling or faxing orders.

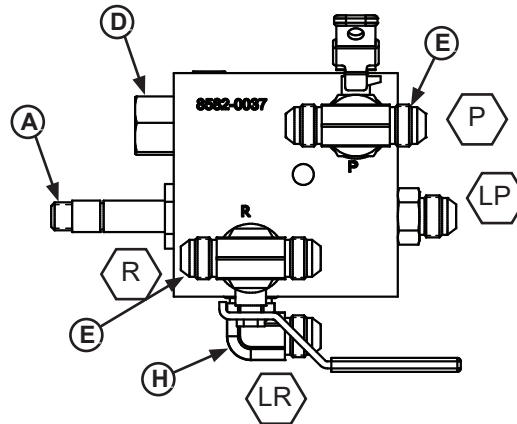
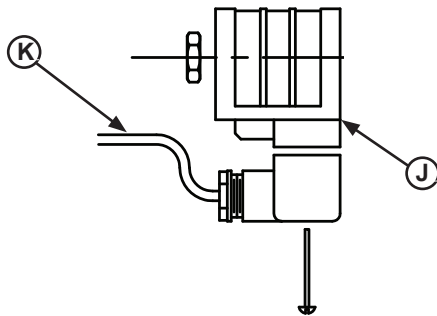
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PARTS

Remote Manifold



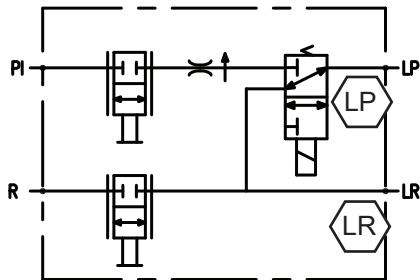
Item	Description
P	Pressure From Pump Station
R	Return To Pump Station
LP	Leveler / Restraint Pressure
LR	Leveler / Restraint Return



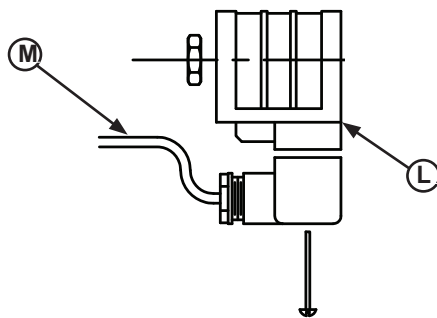
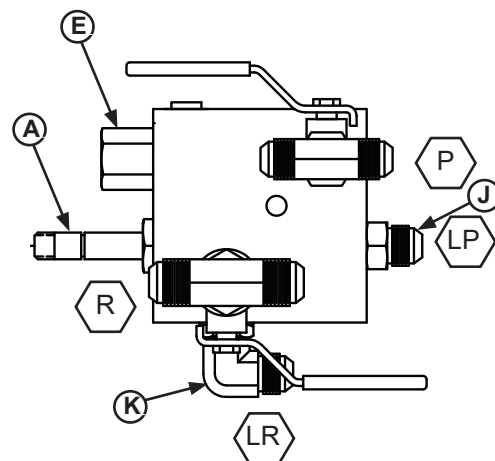
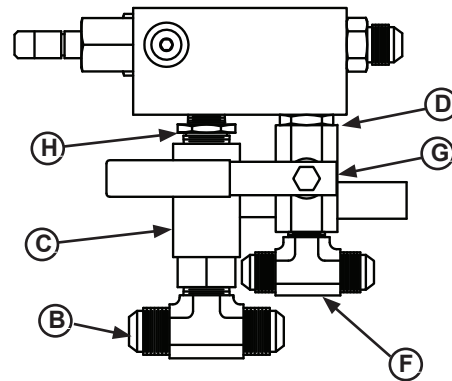
Item	Quantity	Part Number	Description
*	*	8583-0076	CentraPower Valve Assembly, w/o Restraint (Includes A-H)
A	1	8581-0005	Valve, Cartridge - 3 way
B	1	8581-0001	Ball Valve, Bronze 3/8 NPT (Return)
C	2	9301-0246	Fitting, 3/8 NPT x #8 Male
D	1	8581-0092	Valve, Flow Control - 5 GPM
E	2	9301-0054	Fitting, Branch - Tee - Male 3/8" NPT #8 JIC
F	1	8581-0002	Ball Valve, 3/8 Steel NPT (Pressure)
G	1	9301-0112	Fitting, #8 ORB x #8 JIC
H	1	9301-0116	Fitting, Elbow 90 deg #8 ORB x #8 JIC
J	1	8581-0004	Delta Coil
K	1	4301-0004	Cable Assembly
	2	0521-0021	Fitting, #8 End Cap (not shown, for end run)

*Provide Systems, LLC customer order number or equipment serial number when e-mailing, calling or faxing orders.

Remote Manifold (with restraint)



Item	Description
P	Pressure From Pump Station
R	Return To Pump Station
LP	Leveler / Restraint Pressure
LR	Leveler / Restraint Return



Item	Quantity	Part Number	Description
*	*	8583-0031	CentraPower Valve Assembly, w/Restraint (Includes A-K)
A	1	8581-0005	Valve, Cartridge - 3 way
B	1	9301-0098	Fitting, Male Branch Tee #10 JIC
C	1	8581-0072	Ball Valve, Bronze 1/2 NPT
D	1	9301-0246	Fitting, 3/8 NPT x #8 Male
E	1	8581-0092	Valve, Flow Control - 5 GPM
F	1	9301-0054	Fitting, Branch - Tee - Male #8 JIC
G	1	8581-0002	Ball Valve, Steel
H	1	9301-0247	Fitting, 1/2 NPT #8 ORB Male
J	1	9301-0112	Fitting, #8 ORB x #8 JIC
K	1	9301-0116	Fitting, Elbow 90 deg #8 ORB x #8 JIC
L	1	8581-0004	Delta Coil
M	1	4301-0004	Cable Assembly
	1	0521-0021	Fitting, #8 End Cap (not shown, for end run)
	1	0521-0106	Fitting, #10 End Cap (not shown, for end run)

*Provide Systems, LLC customer order number or equipment serial number when e-mailing, calling or faxing orders.

MISCELLANEOUS

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Customer Information

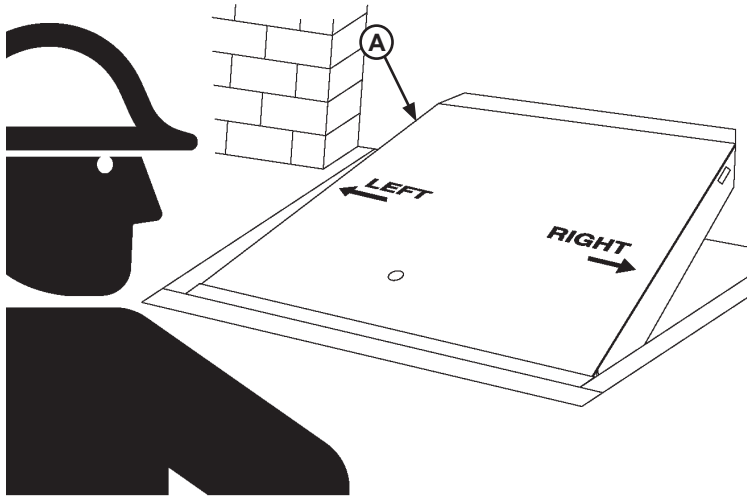


Figure 28

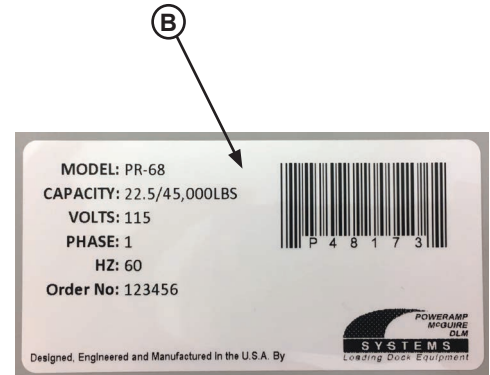


Figure 29

NOTE: Refer to Figure 28 for left/right orientation of dock leveler and Figure 29 for example of decal.

The LEVELER model/serial number decal is located on the left platform joist near the front (lip) of dock leveler (A).

When you receive your new equipment, write down the model and serial number in the form provided. This will help ensure safe keeping of the numbers in the event the model/serial number decal (A, B) becomes lost or damaged.

Also, write down Systems, LLC's order number, the company that installed the equipment, and the original owner's name. This will all help to identify the specific equipment if more information is required.

When ordering, use part numbers and description to help identify the item ordered. Do not use "item" numbers. These are only for locating the position of the parts. Always give MODEL NUMBER and/or SERIAL NUMBER.

For service, call or contact:

Systems, LLC
P.O. Box 309
Germantown, WI 53022

Phone: (800) 643-5424
Fax: (262) 255-5917

www.loadingdocksystems.com

Dock Leveler Information

Model _____

Serial No. _____

Systems, LLC, Job No. _____

Vehicle Restraint Information

Model _____

Serial No. _____

Systems, LLC Order No. _____

Original Owner Information

Name _____

Address _____

Installer Information

Name _____

Address _____

Date of Installation _____

STANDARD PRODUCT WARRANTY

SYSTEMS, LLC warrants that its products will be free from defects in design, materials and workmanship for a period of one (1) year from the date of shipment. All claims for breach of this warranty must be made within 30 days after the defect is or can with reasonable care, be detected. In no event shall any claim be made more than 30 days after this warranty has expired. In order to be entitled to the benefits of this warranty, the product must have been properly installed, maintained and operated in accordance with all manufacturer's recommendations and/or specified design parameters and not otherwise have been subject to abuse, misuse, misapplication, acts of nature, overloading, unauthorized repair or modification, application in a corrosive environment or lack of maintenance. Periodic lubrication, adjustment and inspection in accordance with all manufacturers' recommendations are the sole responsibility of the Owner/User.

In the event of a defect, as determined by SYSTEMS LLC, covered by this warranty, SYSTEMS LLC shall remedy such defect by repairing or replacing any defective equipment or parts, bearing the cost for the parts, labor and transportation. This shall be exclusive remedy for all claims whether based on contract, negligence or strict liability.

WARRANTY LIMITATIONS

THE ABOVE WARRANTIES ARE IN LIEU OF ANY OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SYSTEMS LLC AND ITS SUBSIDIARIES SHALL NOT IN ANY EVENT BE LIABLE TO ANYONE, INCLUDING THIRD PARTIES, FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND INCLUDING BUT NOT LIMITED TO, BREACH OF WARRANTY, LOSS OF USE, LOSS OF PROFIT, INTERRUPTION OF BUSINESS OR LOSS OF GOODWILL.