Table of Contents

Precautions
Recognize Precautionary Information ................................................................. 1
General Operational Precautions ........................................................................ 1
Operational Precautions ....................................................................................... 2
Safety Decals ........................................................................................................ 4
Placard .................................................................................................................. 5
Owner's/User's Responsibilities ........................................................................... 6

Introduction
General Information ............................................................................................... 8
Component Identification ....................................................................................... 9

Installation
Installation Precautions ....................................................................................... 12
Fixed RCR Installation ......................................................................................... 13
RCR w/Side Shift Installation ............................................................................... 14
Install Control Panel and Wiring ......................................................................... 18
Purging Air from RCR Hydraulic System & Adjusting Rod Eye ...................... 20
Put New Dock Leveler Into Service ...................................................................... 21

Operation
Operational Precautions ....................................................................................... 22
Ramp Loading/Unloading ..................................................................................... 24
End Loading/Unloading ......................................................................................... 25
Optional Side Shift ................................................................................................. 26

Maintenance
Maintenance Precautions .................................................................................... 27
Periodic Maintenance ............................................................................................ 28

Adjustments
Adjust Flow Control .............................................................................................. 30
Adjust Main Pressure Relief .................................................................................. 31

Troubleshooting
Troubleshooting .................................................................................................... 32

Parts
J-Box ..................................................................................................................... 36
Platform Hydraulic Hoses ..................................................................................... 37
Carriage, Lip and Platform .................................................................................... 38
Hydraulic Side Shift ............................................................................................... 40
Carriage .................................................................................................................. 41
Valve Blocks .......................................................................................................... 42
Hoist Cylinder Parts ............................................................................................... 50
Lip Cylinder Parts .................................................................................................. 51
Powerpack Assembly ............................................................................................. 52
Flow Control Valve ................................................................................................. 55

Miscellaneous
Customer Information ............................................................................................ 57
Warranty .................................................................................................................. Back Cover
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.

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.

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.

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

Figure 1
**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**

1. Do not use dock leveling device if transport vehicle is too high or too low.
2. Do not overload the dock leveling device.
3. Do not operate any equipment while under the influence of alcohol or drugs.
4. Do not leave equipment or material unattended on dock leveling device.
SAFETY INFORMATION

1. Read and follow all instructions and warnings in the manual and on decals.

2. Always check transport vehicle's weight or other weight limitations before operating dock levelers.

3. Before using dock levelers, check all dock equipment for proper closures and positions. Check all dock equipment for damage or loose components.

4. Use of dock levelers restricted to authorized personnel.

5. Use only in areas where safety is not a major concern. (OSHA, MUTCD, blacktop, etc.)

6. Be sure dock equipment is properly positioned and closed before loading or unloading.

7. Maintain dock equipment in good working order at all times.

8. Manage dock levelers and associated equipment in a safe manner at all times.

SAFETY INFORMATION

1. Read and follow all instructions, warnings and maintenance schedules in this manual and on decals.

2. Check and maintain equipment as required.

3. Be sure all components are properly positioned and closed.

4. Before allowing dock levelers to be moved, be sure all equipment is properly positioned and closed.

5. Turn off power and use OSHA lockout/tagout procedures.

6. Turn off power and use OSHA lockout/tagout procedures.

7. Turn off power and use OSHA lockout/tagout procedures.

8. Turn off power and use OSHA lockout/tagout procedures.

SAFETY INFORMATION

1. Read and follow all instructions, warnings and maintenance schedules in this manual and on decals.

2. Always check transport vehicle's weight or other weight limitations before operating dock levelers.

3. Before using dock levelers, check all dock equipment for proper closures and positions. Check all dock equipment for damage or loose components.

4. Use of dock levelers restricted to authorized personnel.

5. Use only in areas where safety is not a major concern. (OSHA, MUTCD, blacktop, etc.)

6. Be sure dock equipment is properly positioned and closed before loading or unloading.

7. Maintain dock equipment in good working order at all times.

8. Manage dock levelers and associated equipment in a safe manner at all times.

SAFETY INFORMATION

1. Read and follow all instructions, warnings and maintenance schedules in this manual and on decals.

2. Check and maintain equipment as required.

3. Be sure all components are properly positioned and closed.

4. Before allowing dock levelers to be moved, be sure all equipment is properly positioned and closed.

5. Turn off power and use OSHA lockout/tagout procedures.

6. Turn off power and use OSHA lockout/tagout procedures.

7. Turn off power and use OSHA lockout/tagout procedures.

8. Turn off power and use OSHA lockout/tagout procedures.

SAFETY INFORMATION

1. Read and follow all instructions, warnings and maintenance schedules in this manual and on decals.

2. Check and maintain equipment as required.

3. Be sure all components are properly positioned and closed.

4. Before allowing dock levelers to be moved, be sure all equipment is properly positioned and closed.

5. Turn off power and use OSHA lockout/tagout procedures.

6. Turn off power and use OSHA lockout/tagout procedures.

7. Turn off power and use OSHA lockout/tagout procedures.

8. Turn off power and use OSHA lockout/tagout procedures.

SAFETY INFORMATION

1. Read and follow all instructions, warnings and maintenance schedules in this manual and on decals.

2. Check and maintain equipment as required.

3. Be sure all components are properly positioned and closed.

4. Before allowing dock levelers to be moved, be sure all equipment is properly positioned and closed.

5. Turn off power and use OSHA lockout/tagout procedures.

6. Turn off power and use OSHA lockout/tagout procedures.

7. Turn off power and use OSHA lockout/tagout procedures.

8. Turn off power and use OSHA lockout/tagout procedures.
PRECAUTIONS

Placard

DANGER

• Read and follow all instructions, warnings, and maintenance schedules in the manual and on placards.
• Operation and servicing of dock leveler is restricted to authorized personnel.
• Before activating rail ramp, ensure lip avoids contact with rail car sides and cargo. If lip does not lower to rail car bed, reposition rail ramp or rail car.
• Ensure that the rail car floor supports extended lip or the endload arms are supported by the rail car floor before driving out onto rail ramp.
• Stay clear of hinges and front and sides of moving rail ramp.
• Never use hands or equipment to raise or lower rail ramp platform or lip.
• Never use damaged or malfunctioning rail ramp. Report problems immediately to supervisor.
• Always store rail ramp upon completion of loading or unloading product from rail car.
• DO NOT STAND in front of rail ramp unless ramp is securely supported by maintenance props.
• Disconnect power and follow proper lockout/tagout procedures for the rail ramp before doing any repair or inspection under the rail ramp.

FAILURE TO FOLLOW THESE INSTRUCTIONS WILL RESULT IN DEATH OR OTHER SERIOUS INJURY.

OPERATING INSTRUCTIONS

RAIL RAMP LEVELERS

NORMAL OPERATION
1. To lower the rail ramp, Press and hold the LOWER button until lip is supported by the rail car.

NOTE: At about 12” to 15” above dock height the rail ramp will enter the float range.

STORING LEVELER
1. To store the rail ramp, Press and hold the RAISE button until the rail ramp is slightly past the full vertical position. Once ramp reaches slightly past the full vertical position, release the RAISE button.

LIP OPERATION
1. To fold the lip the rail ramp must be in the lower mode. With the LOWER button Pressed simultaneously Press the LIP button. With both buttons Pressed, the lip will fold.
2. To extend the lip the rail ramp must be in the raise mode. With the RAISE button Pressed simultaneously Press the LIP button. With both buttons Pressed the lip will extend.

NOTE: The lip will only operate while the rail ramp is being operated outside the float range.

BELOW DOCK ENLOADING
1. Extend the endload arms. The endload arms must contact the rail car floor to provide support for the ramp. Press and hold the LOWER button. Before the leveler reaches the float range, simultaneously Press the LIP button to fold the lip completely. Once the lip is completely folded (pendant) the LIP button can be released. Continue Pressing the LOWER button until the leveler reaches the float range. The rail ramp will lower until the endload arms are supported by the rail car floor. Endloads can now be removed from or placed on the rail car.
2. Once endloads have been removed the rail ramp can be placed into the rail car by Pressing the RAISE button. Once the rail ramp is outside the float range, the lip can be extended by simultaneously Pressing the LIP button and the RAISE button. With the lip fully extended, both buttons can be released. The rail ramp can now be lowered or stored.

WARNING: CANCER AND REPRODUCTIVE HARM
www.P65Warnings.ca.gov
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) 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.

6) 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

7) 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.

8) It is recommended that the transport vehicle is positioned as close as practical to the dock leveling device and the dock leveling device is centered in the door opening as much as possible. 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.

9) 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.

10) Manufacturer’s recommended maintenance and inspection of all dock leveling 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.

11) 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.
This manual provides current information on the RCR-series dock leveler (Figure 3). Due to ongoing product improvement, some parts may have changed, along with operation and troubleshooting methods. This manual describes these changes where applicable.

The RCR series dock leveler comes equipped with an electrical control panel, which allows push button operation of the dock leveler functions. Each RCR dock leveler unit and control panel has been factory prewired 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.

RCR dock levelers are available in the following sizes, weight capacities, and options:

### Width
- 6 ft (1829 mm)
- 6-1/2 ft (1981 mm)
- 7 ft (2134 mm)
- 7-1/2 ft (2286 mm)
- 8 ft (2438.4 mm)
- 8-1/2 ft (2590 mm)
- 9 ft (2743 mm)

### Length
Varies (based on track center line dimensions)

### Capacity (CIR*)
- 40,000 lb (18 144 kg)
- 50,000 lb (20 412 kg)
- 60,000 lb (22 680 kg)

* CIR (Comparative Industry Rating)

Call Poweramp to discuss available Powerpack mounting configurations, voltages, phases and options to meet your specific needs.
Component Identification (Fixed RCR)

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

*A Models may be equipped with 1 or 2 cylinders.

**Powerpack may be mounted on underside of leveler or remotely. Remote unit shown, see pages 50-52 for Powerpack options.
INTRODUCTION

Component Identification (RCR w/Manual Side Shift)
Inspect package and all components. Report any missing or damaged items immediately and note on the shipping Bill Of Lading (BOL).

A — Lip
B — Platform
C — Lip Cylinder(s)*
D — Flow Control Valve
E — Platform Cylinder(s)*
F — Lip Hinge Pin
G — Maintenance Props
H — Carriage
J — Cam Followers (bearings)
K — Roller Track
L — Platform Hinge Pin
M — Roller Track Stops
N — Side End Load Support
P — Control Box
Q — Powerpack**

* Models may be equipped with 1 or 2 cylinders.
**Powerpack may be mounted on underside of leveler or remotely. Remote unit shown, see pages 50-52 for Powerpack options.

Figure 5

TOLERANCES
(UNLESS OTHERWISE NOTED)
FRACTIONAL:

DECIMAL:

ANGULAR:

DRAWN BY CHECKED BY

S   Y   S   T   E   M   S,   I   N   C.

This print is the property of Systems, Inc. and represents a proprietary article in which Systems, Inc. retains any and all patent and other rights, including exclusive rights of use and/or manufacture and/or sale. Possession of this print does not convey any permission to reproduce, print or manufacture the article or articles shown therein, such permission to be granted only by written authorization signed by an officer or other authorized agent of Systems, Inc.
Component Identification (RCR w/Hydraulic Side Shift)

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

A — Lip  
B — Platform  
C — Lip Cylinder(s)*  
D — Flow Control Valve  
E — Platform Cylinder(s)*  
F — Lip Hinge Pin  
G — Maintenance Props  
H — Carriage  
J — Cam Followers (bearings)  
K — Roller Track  
L — Platform Hinge Pin  
M — Side End Load Support  
N — Side Shift Cylinder  
P — Side Shift Cylinder Mount  
Q — Powerpack**  
R — Control Box

* Models may be equipped with 1 or 2 cylinders.  
**Powerpack may be mounted on underside of leveler or remotely. Remote unit shown, see pages 50-52 for Powerpack options.
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.

⚠️ DANGER
CRUSH HAZARD
DO NOT WORK UNDER OR IN FRONT OF RAIL RAMP unless ALL maintenance props have been properly positioned and secured. Side maintenance props must be positioned and secured with screw and nut as shown in figure “A” below. Failure to do so will result in death or serious injury. Refer to owner’s/user’s manual for proper procedure.

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.

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.

NOTICE
Installation of RCR dock levelers from inside is recommended, as combined height of leveler and proper lifting equipment may be greater than outside door height.
Fixed RCR Installation

Installation of Platform to Embed

1. Check the embed for proper construction according to approved/certified pit drawings. Make sure embed is level, plumb and square.

2. Remove any control panel, bumpers or palletizing that may be banded to the dock leveler. Do not remove banding on hoist cylinder.

3. Make sure the mounting hardware of lifting brackets (A) is snug. The brackets should pivot without binding on the mounting cap screw.

4. Attach lifting chains to lifting brackets (A) and to a lifting device (i.e., hoist or fork truck) having the appropriate lifting capacity and reach.

5. Lube the rear hinge pins using grease. Install the hinge pins in one side of the rear embed hinge tubes, leaving room for the platform hinge tubes.

6. Ensure maintenance props (B) are in the lowered position and tightly secured.

7. Lower the RCR leveler down, centering the leveler’s hinge tubes with the embed’s.

8. Insert the hinge pins, working from the outside to the inside. Install and secure cotter pins in hinge pins.

9. Complete all hydraulic connections.


Note: Do not connect hoist cylinder(s) at this time. System must be purged of air before connecting.

WARNING

The dock leveler 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 dock leveler.
**INSTALLATION**

**RCR w/ Side Shift Installation**

1. Check the roller track (A, Figure 8) for proper installation by concrete contractor according to approved/certified pit drawings. Make sure roller track is level, free from damage and clear of foreign material. See Figure 9.

2. Remove any control panel, bumpers or palletizing that may be banded to the dock leveler.

3. To separate RCR platform from the carriage, support the platform on its back side (diamond plate) and support the carriage, then:
   a. Remove and cap any hydraulic hoses.
   b. Remove (B) hoist cylinder pins at carriage.
   c. Remove rear hinge pins (C, platform to carriage). See Figure 12.

4. Make sure the mounting hardware of lifting brackets (D) is snug. The brackets should pivot without binding on the mounting cap screw.

5. With the carriage separated from the RCR platform, the carriage must be oriented so that the rollers will slide into the roller track when lifted.

6. Position the carriage (F) so that it can slide into the roller track (A) from the side. The carriage must be installed slowly and as level as possible to prevent damage to the rollers. See Figure 12 for view of carriage installed into roller track.

**WARNING**

The dock leveler 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 dock leveler.

7. Step 7 differs depending on RCR model:

**Manual Side Shift models:**

a. Weld on roller track stops (K, Figure 13) and proceed to step 8.

**Hydraulic Side Shift models:**

a. Install side shift cylinder mount (G, see supplied engineering drawings for exact mounting location). Anchor to dock face or weld to embed.

b. Install side shift cylinder (H).
RCR w/Side Shift Installation (continued)

c. Weld on roller track stops (K, Figure 11) and proceed to step 8.

8. Lube the rear hinge pins using grease. Install the hinge pins (C) in one side of the rear embed hinge tubes, leaving room for the platform hinge tubes.

9. Ensure maintenance props (E) are in the lowered position and tightly secured.

10. Lower the dock leveler down, centering the leveler’s hinge tubes with the carriage’s. While lowering, take care to avoid damaging the hoist cylinder rod ends.

11. Insert the hinge pins, working from the outside to the inside. Install and secure cotter pins in hinge pins.

12. Complete all hydraulic connections.

**Note:** Do not connect hoist cylinder(s) at this time. System must be purged of air before connecting.


**Additional views of RCR w/Side Shift installation are shown on pages 15-16.**
Figure 14 shows the carriage being installed into the roller track; Figure 15 provides a side view of this process.

The crane is positioned inside the building as the combined height of the leveler and lifting equipment is greater than the outside door height. The maintenance props are lowered and the platform is awaiting install.
Figure 16 shows the leveler platform being installed onto the carriage.

The forklift is positioned inside the building to allow clearance for installation of the hinge pins. The maintenance props remain lowered to keep the platform upright.

**NOTICE**

Installation of RCR levelers from inside is recommended, as combined height of leveler and proper lifting equipment may be greater than outside door height.

**NOTICE**

Overall length of lifting chain and bracket must be kept to a minimum to prevent interference between the lifting equipment and the building ceiling or door as the dock leveler is lowered into the pit.
Install Control Panel and Wiring

**DANGER**
Make sure that the power source has been locked out and tagged according to OSHA regulations and approved local electrical 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 dock leveler electrical wiring and ground connections until all welding has been completed.

DO NOT ground welding equipment to any hydraulic or electrical components of the dock leveler. Always ground welding equipment to the dock leveler frame, NEVER to the platform.

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

**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.

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

DO NOT ground welding equipment to any hydraulic or electrical components of the dock leveler. Always ground welding equipment to the dock leveler frame, NEVER to the platform.

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

**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

**Figure 17**
A—Disconnect Panel (provided by others)
B—Control Panel
C—Distance, 48 in. (1219.2 mm)

1. Mount the push-button control panel (B) so bottom of control panel-to-dock floor distance (C) is approximately 48 in. (1219.2 mm). See Figure 17.

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.

**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.

5. Install placard (see page 19).
Placard Installation Instructions

• Owner/Users are responsible for the installation and placement of product placards.

• Make sure placard is in plain view of dock leveler and/or vehicle restraint operations.

• Suggested placement of placard is near control box attached to electrical conduit by using nylon cable tie. If there is no control box present, mount placard on wall to the immediate left of leveler at eye level.

A - Control Box  B - Placard  C - Nylon Cable Tie  D - Conduit

Figure 18
1. Using an external lifting device, support the RCR leveler in the stored position, with the maintenance props lowered in the maintenance position and all hardware tight.

2. Lock-out and tag-out the leveler.

3. If present, remove band from hoist cylinder(s).


5. Fully open the down speed flow control valve (A) by turning knob (B) counter-clockwise (see Figure 19). Flow control valve location varies depending on options; see Component Identification on pages 9-11 for location or contact Technical Services.

6. Restore power to the leveler.

7. With the cylinder disconnected from the embed/carriage, cycle the hoist cylinder(s) up and down at least 6 times using the leveler’s own hydraulic power.

8. Reconnect the hoist cylinder rod eye(s) to the base of the embed or carriage by completing the following steps (see Figure 20):
   
   a. Fully extend the hoist cylinder by pressing and holding the RAISE button until the rod stops extending and the powerpack goes into pressure relief.

   b. Using the external lifting device, position the leverer platform so that it is leaning 4 degrees towards the inside of the building/dock.

   c. With the platform leaning 4 degrees towards inside, loosen the jam nut (D) and adjust the rod eye (E) so that the cylinder pin (F) easily slides through both the trunnion and rod eye.

   d. Install washers (G) between rod eye sides and trunnion to limit rod eye movement, and lock rue clip into place.

9. Fully close the down speed flow control valve by turning clockwise. Then, set the down speed flow control valve by incrementally opening the valve until the leveler takes 15-20 seconds to descend from stored to full below dock position.

10. Once ideal down speed flow control setting is achieved, lock the adjustment in place by tightening the hex screw (C) on the adjustment knob.

11. Raise the maintenance props to the stored position and tighten all hardware.

12. Lower the leveler to a 45 degree angle.

13. Cycle lip by pressing the LOWER and LIP buttons together to lower the lip, then press the RAISE and LIP buttons together to raise the lip. Lip cylinder is now purged.

14. Raise leveler to stored position and top off hydraulic fluid as required.
Put New Dock Leveler Into Service

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.

1. Purge air from hydraulic system, adjust rod eye and install cylinder pin as instructed on page 20.

2. Check and top off hydraulic fluid as required. See page 28 for acceptable fluid specifications.

3. Disconnect the external lifting device and chains from the lifting bracket(s).

4. Test leveler for operation:

   a. Lower dock leveler and check to make sure the leveler goes into float mode approximately 15” above the dock floor. Allow the leveler to float to full below dock position. Then, press and hold the RAISE button until the leveler is fully stored.

   b. Lower dock leveler to approximately 45 degrees, then press the LOWER and LIP buttons simultaneously; the lip will fold. Then, press and hold the RAISE and the LIP button and the lip will extend.

**Note:** If the dock leveler encounters issues during testing and must be raised with an external lifting device, the hydraulic system must be purged again.
**Operational Precautions**

**DANGER**

Stay clear of dock leveler and vehicle restraint when transport vehicle is entering or leaving dock area.

DO NOT move or use the dock leveler or restraint if anyone is under or in front of leveler.

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

**WARNING**

Only trained personnel should operate the dock leveler.

DO NOT use a broken or damaged dock leveler. Make sure proper service and maintenance procedures have been performed on leveler before using.

Transport vehicle wheels must be chocked unless a vehicle restraint is used. Never remove the wheel chocks until loading/unloading is finished and transport driver has been given permission to leave.

Make sure platform lip rests on the transport vehicles bed with at least 4 in. (102 mm) of overlap.

Maintain a safe distance from side edges of leveler during the loading/unloading process.
Operating Instructions

**Ramp Loading/Unloading**

1. Before activating dock leveler, ensure lip will avoid contact with transport vehicle frame, sides and cargo during dock leveler activation. If contact is likely or observed, reposition transport vehicle.

2. Instruct driver to remain at the dock until the loading or unloading process has been completed.

3. Lower the dock leveler onto the transport vehicle as follows:
   
   a. Press and hold the LOWER button (A) until leveler reaches float zone, then allow leveler to descend into transport vehicle.

   b. Make sure that the lip is fully extended and supported on the transport vehicle along the entire width of the platform, with at least 4 in. (102 mm) of lip contacting the transport vehicle bed. See Figure 22.

4. Proceed with loading or unloading the transport vehicle.

5. When loading or unloading is finished, raise the platform by depressing and holding RAISE (B) button.

6. Indicate to transport operator that transport vehicle may leave the dock.
Operating Instructions (continued)

Below Dock End Loading/Unloading

1. Before activating dock leveler, ensure lip will avoid contact with transport vehicle frame, sides and cargo during dock leveler activation. If contact is likely or observed, reposition transport vehicle.

2. Instruct driver to remain at the dock until the loading or unloading process has been completed.

3. Slide out Side End Load Supports on each side of the dock leveler platform.

4. Lower the dock leveler onto the transport vehicle as follows:
   a. Press and hold the LOWER button (A) until unit is about 45 degrees forward, then press the LIP button (C) simultaneously and the lip will fold pendant. Once the lip is pendant, continue to press (B) until the Side End Load Supports make contact with transport vehicle.
   b. Make sure that the Side End Load Supports are fully extended and supported on the transport vehicle with at least 4 in. (102 mm) contacting the transport vehicle bed. See Figure 24.

5. Proceed with loading or unloading the transport vehicle.

6. When loading or unloading is finished, raise the platform by depressing and holding RAISE (B) button until unit is about 45 degrees forward, then press the LIP button (C) simultaneously and the lip will fold upright. Once the lip is upright, continue to press (B) until the leveler is fully stored.

7. Store the Side End Load Supports on each side of the dock leveler platform.

8. Indicate to transport operator that transport vehicle may leave the dock.

![Diagram of Side End Load Supports](image-url)
Operating Instructions (continued)

Optional Side Shift

Note: Levelers with optional Side Shift function identically to regular levelers, except that the leveler can be hydraulically shifted from side to side for optional positioning.

1. Before activating dock leveler, ensure lip will avoid contact with transport vehicle frame, sides and cargo during dock leveler activation. If contact is likely or observed, reposition transport vehicle.

2. Instruct driver to remain at the dock until the loading or unloading process has been completed.

3. If leveler is not centered with transport vehicle opening, press the LEFT or RIGHT button (see Figure 25).

3. When the dock leveler is centered, the leveler can be operated as normal.

4. Proceed with loading or unloading instructions on pages 24-25.

Note: Side Shift function can be operated with the dock leveler either fully raised or lowered in the transport vehicle.
Maintenance 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 unit before maintenance is complete.

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 26).

When maintenance is to be performed on the dock leveler, place the maintenance props (C) in their service/down position with hardware fully secured. See Figure 27. The lip may fold down if the platform has rested on the maintenance props.

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
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
MAINTENANCE

Periodic Maintenance

To ensure normal operation of the dock leveler, 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 Univis 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.

Weekly Maintenance

- Operate the dock leveler through the complete operating cycle to maintain lubrication. Make sure the dock leveler floats in the working zone (approximately 15 inches above horizontal).

- Verify lip operates up and down.

- Lock out and tag out the dock leveler, then place the maintenance props in their service/down position with hardware fully secured.

- Remove any debris or foreign objects from the lip hinge and rear hinge areas.

- Inspect warning decals and placards. Replace if damaged or missing.

**NOTICE**

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

• Complete Weekly Maintenance.

• Lubricate the following areas with light weight machine oil (see Figure 28):
  
  (A) — Lip hinge area unless equipped with grease fittings (apply oil to the top of the entire length of lip hinge when platform is in the stored position and lip is folded)

  (B) — Platform hinge area (apply oil to top of all platform hinges when platform is in the stored position.)

  (E) — Lip Cylinder pins.

  (F) — Side Shift Cylinder pins.

• Lubricate the following areas with white lithium grease (see Figure 28):

  (C)(G) — Hoist cylinder grease fittings and pins.

  (D) — Cam roller bearing grease fittings.

NOTICE

Failure to properly lubricate the dock leveler will cause abnormal operation of the leveler.

• Inspect the following for damage/abnormal wear:
  • Check welds for cracks.
  • Coils for cracks and/or bent valves.
  • Lower pin and mounting holes.
  • Rear hinge pins and cotter pins.
  • Verify rue clip in manual lock position.
  • J-box for water damage.
  • Inspect hoses, cylinders, fittings and powerpack.
  • Control box and conduit for damage.

Yearly Maintenance

• Complete Quarterly Maintenance.

• Change hydraulic oil (may be required more often depending upon conditions).
ADJUSTMENTS

Adjust Flow Control

![Figure 30](image)

**Figure 30**

A— Flow Control Valve  
B— Adjusting Knob  
C— Hex Screw

**Flow Control Adjustment**

If the dock leveler lowers too rapidly or too slowly, the flow control valve (A) requires adjustment. When properly adjusted, the leveler takes 15-20 seconds to descend from stored to full below dock position.

Depending on equipment, the flow control valve (Figure 30) may be located on the hoist cylinder, on the hoist cylinder tee on hydraulic lines, or on the main valve block.

1. Raise the platform fully, engage the maintenance props in the service position and secure all hardware.
2. Turn OFF all electrical power to the dock leveler.
3. Attach lock out/tag out devices.
4. Loosen the allen head set screw (C).
5. Set adjusting knob (B) as follows:
   - To decrease the lowering speed, adjust knob (B) clockwise.
   - To increase the lowering speed, adjust knob (B) counterclockwise.
6. Once ideal down speed flow control setting is achieved, lock the adjustment in place by tightening the hex screw on the adjustment knob.

**Note:** Do not overtighten the set screw.

7. Turn ON electrical power to the dock leveler.
8. Store maintenance props, and check leveler operation.
9. Repeat steps 1–9 as necessary.

---

**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**

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.

---

**CRUSH HAZARD**

DO NOT WORK UNDER OR IN FRONT OF RAIL RAMP unless ALL maintenance props have been properly positioned and secured. Side maintenance props must be positioned and secured with screw and nut as shown in figure "A" below. Failure to do so will result in death or serious injury. Refer to owner's/user's manual for proper procedure.
Adjust Main Pressure Relief
Main Pressure Relief Adjustment

Note: The main pressure relief valve (A, Figure 31) may need to be increased if the platform does not rise or rises slowly and the system operates in pressure relief mode.

The main pressure relief may need to be decreased if the pump motor loads down when platform reaches the full raised position.

Depending on equipment, the pressure relief valve (A, Figure 31) may be located on the dock leveler platform or on the remote mount valve block. Platform-mounted valve block is shown; see pages 50-52 for Powerpack options and Troubleshooting section on pages 36-39 for more information.

1. Raise the platform fully, engage the maintenance props in the service position and secure all hardware.
2. Turn OFF all electrical power to the dock leveler.
3. Attach lock out/tag out devices.
4. Loosen jam nut (B).
5. Adjust slotted head adjusting screw (C) as follows:
   • To increase pressure relief, turn hex screw clockwise one full turn.
   • To decrease pressure relief, turn hex screw counterclockwise one full turn.
6. While holding the adjusting screw, tighten jam nut.
7. Turn ON electrical power to the dock leveler.
8. Store maintenance props, and check leveler operation.
9. Repeat steps 1–8 as necessary.
TROUBLESHOOTING

**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**

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).

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Motor starter (three-phase) or motor relay (single-phase) not energizing.</td>
<td>Check voltage at starter or relay coil.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If voltage is present and starter or relay does not energize, replace starter or relay.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If voltage is not present, check all components in series with the starter or relay coil.</td>
</tr>
<tr>
<td>Symptom</td>
<td>Possible Cause</td>
<td>Solution</td>
</tr>
<tr>
<td>---------</td>
<td>---------------</td>
<td>----------</td>
</tr>
<tr>
<td>Three-phase units only: Platform does not rise or lower. Motor hums, but does not run.</td>
<td>No voltage is present on one line. <strong>Note:</strong> A motor that is missing voltage on one line is said to be single-phased.</td>
<td>Check for blown fuses at branch circuit disconnect. Replace fuse. Determine cause of blown fuse.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check motor starter as follows: 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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check all wiring to motor for high resistance or no connection.</td>
</tr>
<tr>
<td>Three-phase units only: Platform does not rise or lower. Motor runs in reverse.</td>
<td>Phase reversed.</td>
<td>Reverse any two legs at the branch circuit disconnect.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check wiring to motor for high resistance. Check for loose or corroded connections. Check if gauge of wires to motor are of correct size and specification for load requirement. Replace if necessary.</td>
</tr>
<tr>
<td>Single-phase units only: Platform does not rise or lower. Motor energizes, but does not run.</td>
<td>Faulty motor centrifugal switch.</td>
<td>Replace motor.</td>
</tr>
<tr>
<td></td>
<td>Faulty motor capacitor.</td>
<td>Replace motor.</td>
</tr>
</tbody>
</table>
## TROUBLESHOOTING

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
</table>
| **Platform does not rise. Pump operates in pressure relief mode.** | Heavy object(s) on platform. | Remove object(s) from platform.  
*Note:* For safety reasons, the dock leveler is designed to lift only the platform’s own weight. |
| | Dock leveler binds. | Check for visible obstructions that could cause binding. Remove obstructions. If no obstructions found, contact Systems, LLC Technical Services. |
| | Pressure relief set too low. | Increase pressure relief. See page 30 for instruction.  
*Note:* The pressure relief valve must not be set at a level that causes the motor operating current to exceed the full load amp value* at any time, including when operating in pressure relief.  
*The full load amp value can be found on the inside cover of the control panel.* |
| **Platform rises slowly.** | Low hydraulic fluid. | Add hydraulic fluid, see pages 28-29 for proper fluid level and type. |
| | Contaminated hydraulic system. | Clean and inspect valves. Flush contaminated oil from hydraulic system. Fill system with new oil; see pages 28-29 for proper fluid level and type. |
| | Damage or blocked hydraulic hose(s) and/or valve(s). | Replace damaged hose(s). Check and remove blockage from hose(s) and/or valve(s). |
| **Pump motor loads down when platform starts to raise from the lowered position.** | Pressure relief set too low. | Increase pressure relief. See page 30 for instruction.  
*Note:* The pressure relief valve must not be set at a level that causes the motor operating current to exceed the full load amp value* at any time, including when operating in pressure relief.  
*The full load amp value can be found on the inside cover of the control panel.* |
| | Pressure relief set too high. | Decrease pressure relief. See page 30 for instruction.  
*Note:* The pressure relief valve must not be set at a level that causes the motor operating current to exceed the full load amp value* at any time, including when operating in pressure relief.  
*The full load amp value can be found on the inside cover of the control panel.* |
<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform does not rise to full height.</td>
<td>Low hydraulic fluid.</td>
<td>Add hydraulic fluid, see pages 28-29 for proper fluid level and type.</td>
</tr>
<tr>
<td>Platform does not rise.</td>
<td>Float coil energized.</td>
<td>Remove the wire to the float coil, if leveler raises relay may be faulty.</td>
</tr>
<tr>
<td></td>
<td>Faulty spool valve.</td>
<td>Remove and clean spool valve, or replace with new valve.</td>
</tr>
<tr>
<td>Lip does not extend.</td>
<td>&quot;C&quot; coil not energized.</td>
<td>Check power to the solenoid coil; coil should have a magnetic pull when energized.</td>
</tr>
<tr>
<td></td>
<td>Faulty spool valve.</td>
<td>Remove and clean spool valve, or replace with new valve.</td>
</tr>
<tr>
<td>Lip does not lower.</td>
<td>&quot;C&quot;, &quot;D&quot; and &quot;E&quot; coils not energized.</td>
<td>Check power to the solenoid coils; coil should have a magnetic pull when energized.</td>
</tr>
<tr>
<td></td>
<td>Faulty spool valve.</td>
<td>Remove and clean spool valve, or replace with new valve.</td>
</tr>
<tr>
<td>Platform does not lower. Pump operates in pressure relief mode.</td>
<td>&quot;D&quot; and &quot;E&quot; coils not energized.</td>
<td>Check power to the solenoid coil; coil should have a magnetic pull when energized.</td>
</tr>
<tr>
<td></td>
<td>Faulty spool valve.</td>
<td>Remove and clean spool valve, or replace with new valve.</td>
</tr>
<tr>
<td>Leveler does not side shift, or is difficult to move.</td>
<td>Debris in roller track.</td>
<td>Remove debris from the track.</td>
</tr>
<tr>
<td></td>
<td>Grease cam rollers.</td>
<td></td>
</tr>
<tr>
<td>Leveler does not side shift hydraulically.</td>
<td>Diverter coil not energized.</td>
<td>Check power to the solenoid coil; coil should have a magnetic pull when energized.</td>
</tr>
<tr>
<td></td>
<td>Faulty spool valve.</td>
<td>Remove and clean spool valve, or replace with new valve.</td>
</tr>
<tr>
<td></td>
<td>Side Shift coil not energized.</td>
<td>Check power to the solenoid coil; coil should have a magnetic pull when energized.</td>
</tr>
<tr>
<td></td>
<td>Faulty spool valve.</td>
<td>Remove and clean spool valve, or replace with new valve.</td>
</tr>
</tbody>
</table>
## PARTS

### J-Box

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>2751-0042</td>
<td>J-Box Fiber Glass 5” x 5” (Includes Cover)</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>0961-0054</td>
<td>Mercury Switch</td>
</tr>
</tbody>
</table>
Platform Hydraulic Hoses

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
<td>0521-0162</td>
<td>Fitting, Tee #6 JIC</td>
</tr>
<tr>
<td>B</td>
<td>As Req.</td>
<td>9904-_____</td>
<td>Hose, Lip Cylinder</td>
</tr>
<tr>
<td>C</td>
<td>As Req.</td>
<td>9904-_____</td>
<td>Hose, Hoist Cylinder Blind End</td>
</tr>
<tr>
<td>D</td>
<td>As Req.</td>
<td>9904-_____</td>
<td>Hose, Hoist Cylinder Rod End</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>9904-_____</td>
<td>Hose, Hoist Cylinder Blind End Tee to Valve Block</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>9904-_____</td>
<td>Hose, Hoist Cylinder Rod End Tee to Valve Block</td>
</tr>
<tr>
<td>G</td>
<td>1</td>
<td>9904-_____</td>
<td>Hose, Lip Cylinder Tee to Valve Block</td>
</tr>
<tr>
<td>H</td>
<td>1</td>
<td>2751-0035</td>
<td>J-Box, Fiber Glass 3&quot; x 5&quot; (Includes Cover)</td>
</tr>
</tbody>
</table>

Provide dock leveler serial number, platform size, and lip size when e-mailing, calling or faxing orders.

1

© 2018 Systems, LLC
Carriage, Lip and Platform
## Carriage, Lip and Platform

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>0595-_____</td>
<td>Lip, Weldment</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>9516-_____</td>
<td>Platform, Welded Assembly</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>9202-_____</td>
<td>Pin, Lip Hinge</td>
</tr>
<tr>
<td>D</td>
<td>As Req.</td>
<td>9202-0040</td>
<td>Rear Hinge Pin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9202-0041</td>
<td>Rear Hinge Pin Stainless Steel</td>
</tr>
<tr>
<td>E</td>
<td>As Req.</td>
<td>2101-0047</td>
<td>Cotter Pin, 1/4 x 2.00&quot;</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>8436-_____</td>
<td>Carriage Assembly (Not required with fixed applications)</td>
</tr>
<tr>
<td>G</td>
<td>2</td>
<td>9222-0221</td>
<td>Maintenance Prop</td>
</tr>
<tr>
<td>H</td>
<td>4</td>
<td>2101-0262</td>
<td>Bolt 5/8-11 UNC X 1.75 Grade 8</td>
</tr>
<tr>
<td>I</td>
<td>4</td>
<td>2101-0042</td>
<td>Nut 5/8-11 UNC Grade 5</td>
</tr>
<tr>
<td>J</td>
<td>As Req.</td>
<td>0525-0085</td>
<td>Lip Cylinder</td>
</tr>
<tr>
<td>K</td>
<td>As Req.</td>
<td>9202-0004</td>
<td>Pin - Lip Cyl. 3/4 Dia. x 4-3/8 Lg. (1 per cylinder)</td>
</tr>
<tr>
<td>L</td>
<td>As Req.</td>
<td>2101-0049</td>
<td>Hairpin Clip, 5/8&quot; (2 per cylinder)</td>
</tr>
<tr>
<td>M</td>
<td>As Req.</td>
<td>9301-0209</td>
<td>Fitting, Straight Thread, #6 ORBM, #6 JICM (1 per cylinder)</td>
</tr>
<tr>
<td>N</td>
<td>2</td>
<td>0000-_____</td>
<td>Side End Load Supports</td>
</tr>
<tr>
<td>P</td>
<td>As Req.</td>
<td>0525-_____</td>
<td>Hoist Cylinder</td>
</tr>
<tr>
<td>Q</td>
<td>As Req.</td>
<td>9202-0071</td>
<td>Pin, Cylinder Mounting, Hoist, Lower (1 per cylinder)</td>
</tr>
<tr>
<td>R</td>
<td>As Req.</td>
<td>2101-0093</td>
<td>Washer, Flat, 3/4 (6 per cylinder)</td>
</tr>
<tr>
<td>S</td>
<td>As Req.</td>
<td>9461-0002</td>
<td>Rod Eye (includes jam nut, 1 per cylinder)</td>
</tr>
<tr>
<td>T</td>
<td>As Req.</td>
<td>2101-0259</td>
<td>Ring Clip, Rue (1 per cylinder)</td>
</tr>
<tr>
<td>U</td>
<td>2</td>
<td>9513-0017</td>
<td>Support Arm lock</td>
</tr>
<tr>
<td>V</td>
<td>As Req.</td>
<td>0522-0005</td>
<td>Clevis Pin (1 per cylinder)</td>
</tr>
<tr>
<td>W</td>
<td>As Req.</td>
<td>2101-0045</td>
<td>Cotter Pin, 1/8 x 1 (1 per cylinder)</td>
</tr>
<tr>
<td>X</td>
<td>As Req.</td>
<td>9202-0072</td>
<td>Pin, Platform, Hoist, VS3/RR/CA, 49/64 Dia. x 10.75, SW85</td>
</tr>
<tr>
<td>Y</td>
<td>As Req.</td>
<td>2101-0357</td>
<td>Cotter Pin, 3/16 (2 per cylinder)</td>
</tr>
</tbody>
</table>

Provide dock leveler serial number, platform size, and lip size when e-mailing, calling or faxing orders.
# PARTS

Hydraulic Side Shift

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>0525-0071</td>
<td>Cylinder</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>0000-_____</td>
<td>Cylinder Mount</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>2101-0237</td>
<td>Cap Screw 3/4-10 x 5-1/2 Lg. Grade 8</td>
</tr>
<tr>
<td>D</td>
<td>2</td>
<td>2101-0148</td>
<td>Nut 3/4-10</td>
</tr>
</tbody>
</table>

1 Provide dock leveler serial number, platform size, and lip size when e-mailing, calling or faxing orders.
### Carriage

Torque Specifications:
- 1-7/8” or 2” Roller: 65-75 ft/lbs.
- 3” Roller: 170 ft/lbs.

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8</td>
<td>9461-0004</td>
<td>Cam Roller 1-7/8” Dia. (before 2004)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9461-0007</td>
<td>Cam Roller 2” Dia. (after 2004)</td>
</tr>
<tr>
<td>B</td>
<td>8</td>
<td>2101-0199</td>
<td>Nut, Hex 7/8”-14 (One Per 9461-0007 Cam Roller)</td>
</tr>
<tr>
<td>C</td>
<td>8</td>
<td>2101-0200</td>
<td>Washer, Lock 7/8” (One Per 9461-0007 Cam Roller)</td>
</tr>
<tr>
<td>D</td>
<td>4</td>
<td>9461-0003</td>
<td>Cam Roller 3” Dia.</td>
</tr>
<tr>
<td>E</td>
<td>4</td>
<td>2101-0160</td>
<td>Nut, Hex 1-1/4”-12 (One Per 9461-0003 Cam Roller)</td>
</tr>
<tr>
<td>F</td>
<td>4</td>
<td>2101-0161</td>
<td>Washer, Lock -1-1/4” (One Per 9461-0003 Cam Roller)</td>
</tr>
<tr>
<td>G</td>
<td>1</td>
<td>2751-0035</td>
<td>J-Box, Fiber Glass 3” x 5” (Includes Cover)</td>
</tr>
<tr>
<td>H</td>
<td>1</td>
<td>9516-_____1</td>
<td>Carriage Assembly</td>
</tr>
<tr>
<td>J</td>
<td>4</td>
<td>0521-0128</td>
<td>Fitting, Grease Zerk, 1/4”, Straight</td>
</tr>
<tr>
<td>K</td>
<td>4</td>
<td>0521-0129</td>
<td>Fitting, Grease Zerk, 3/16”, 65°</td>
</tr>
<tr>
<td>L</td>
<td>4</td>
<td>0521-0073</td>
<td>Fitting, Grease Zerk, 3/16”, Straight</td>
</tr>
</tbody>
</table>

1 Provide dock leveler serial number, platform size, and lip size when e-mailing, calling or faxing orders.
**PARTS**

Valve Block (Deck Mounted)

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>1</td>
<td>8585-0089</td>
<td>Valve Assembly - Complete</td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>8581-0005</td>
<td>Valve Cartridge 3-Way Delta</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>8581-0102</td>
<td>Valve Cartridge 2-Way Bi-Dr Delta</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>8581-0011</td>
<td>Valve Cartridge 4-Way 2 Pos Delta</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>8581-0010</td>
<td>Valve Cartridge 2-Way N.C. Poppet Delta</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>8581-0105</td>
<td>Valve Cartridge Relief</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>**</td>
<td>Valve Manifold</td>
</tr>
<tr>
<td>G</td>
<td>2</td>
<td>9391-0104</td>
<td>Fitting Plug</td>
</tr>
<tr>
<td>H</td>
<td>2</td>
<td>9301-0111</td>
<td>Fitting #6 ORB X #8 JIC</td>
</tr>
<tr>
<td>I</td>
<td>3</td>
<td>9301-0113</td>
<td>Fitting 90 Deg #6 ORB X #6 JIC</td>
</tr>
<tr>
<td>J</td>
<td>4</td>
<td>8581-0004</td>
<td>Delta Coil 115V (Includes 1/2 UNF Jam Nut)</td>
</tr>
<tr>
<td>K</td>
<td>2</td>
<td>4301-0003</td>
<td>Cable Assy, 24&quot; Lg Two Coil</td>
</tr>
<tr>
<td>M</td>
<td>1</td>
<td>8581-0139</td>
<td>Orifice Check (Lip Flow Control) #6 SAE</td>
</tr>
</tbody>
</table>

*A-I & M Included in 8585-0089
**Not Sold Separately*
# Valve Block (Remote Mount Powerpacks)

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>1</td>
<td>8585-0088</td>
<td>Valve Assembly - Complete</td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>8581-0005</td>
<td>Valve Cartridge 3-Way</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>8581-0102</td>
<td>Valve Cartridge 2-Way Bi-Dr</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>8581-0011</td>
<td>Valve Cartridge 4-Way 2 Pos</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>8581-0010</td>
<td>Valve Cartridge 2-Way N.C. Poppet</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>8581-0105</td>
<td>Valve Cartridge Relief</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>**</td>
<td>Valve Manifold</td>
</tr>
<tr>
<td>G</td>
<td>2</td>
<td>9301-0104</td>
<td>Fitting Plug</td>
</tr>
<tr>
<td>H</td>
<td>1</td>
<td>9301-0111</td>
<td>Fitting #6 ORB X #8 JIC</td>
</tr>
<tr>
<td>I</td>
<td>3</td>
<td>9301-0113</td>
<td>Fitting 90 Deg #6 ORB X #6 JIC</td>
</tr>
<tr>
<td>J</td>
<td>1</td>
<td>8581-0139</td>
<td>Orifice Check (Lip Flow Control)</td>
</tr>
<tr>
<td>K</td>
<td>1</td>
<td>8581-0115</td>
<td>Fitting 90 Deg #6 ORB - #8 JIC</td>
</tr>
<tr>
<td>L</td>
<td>1</td>
<td>8581-0145</td>
<td>Fitting 90 Deg #8 JICF SWIVEL X #8 JIC</td>
</tr>
</tbody>
</table>

* A-L Included in 8585-0088
** Not Sold Separately
PARTS

Side Shift Diverter Valve Block

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>8583-0013</td>
<td>Valve, RCR, Leveler/Side-Shift Diverter - Complete</td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>8581-0005</td>
<td>Valve Cartridge 3-Way</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>9301-0113</td>
<td>Fitting 90 Deg #6 ORB X #6 JIC</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>9301-0115</td>
<td>Fitting 90 Deg #6 ORB X #8 JIC</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>9301-0116</td>
<td>Fitting 90 Deg #8 ORB X #8 JIC</td>
</tr>
</tbody>
</table>
Side Shift Directional Valve Block

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>8583-0014</td>
<td>Valve, RCR, Side-Shift - Complete</td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>8581-0011</td>
<td>Valve Cartridge 4-Way</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>9301-0113</td>
<td>Fitting 90 Deg #6 ORB X #6 JIC</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>9301-0115</td>
<td>Fitting 90 Deg #6 ORB X #8 JIC</td>
</tr>
</tbody>
</table>

To Rod End of Cylinder B

Pressure From Diverter Valve B

Return To Tank C

To Blind End of Cylinder B
Remote Mount Valve Block Assembly

HB  Hoist Cylinder (Blind End)
HR  Hoist Cylinder (Rod End)
LC  Lip Cylinder
### Remote Mount Valve Block Assembly

#### Hydraulic Schematic

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>2101-0011</td>
<td>Hex Head Cap Screw 5/16-18 x 1&quot;, Grade 2</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>2101-0039</td>
<td>Nylon Lock Nut 5/16-18</td>
</tr>
<tr>
<td>C</td>
<td>4</td>
<td>2101-0163</td>
<td>Washer, Flat 5/16</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>9394-0020</td>
<td>Powerpack Mounting Weldment</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>9395-____</td>
<td>Powerpack, Complete</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>9301-0115</td>
<td>Fitting, Elbow, 90° STR, #6 ORB - #8 JIC</td>
</tr>
<tr>
<td>G</td>
<td>1</td>
<td>9904-0090</td>
<td>3/8&quot; Hose, 17-1/2&quot; Lg, #8 JICF Swivel Both Ends</td>
</tr>
<tr>
<td>H</td>
<td>1</td>
<td>8585-0088</td>
<td>Valve, Assy, Remote</td>
</tr>
<tr>
<td>J</td>
<td>2</td>
<td>2101-0014</td>
<td>Hex Head Cap Screw 5/16-18 x 2.25</td>
</tr>
<tr>
<td>K</td>
<td>2</td>
<td>2101-0058</td>
<td>Washer, Lock, 5/16</td>
</tr>
<tr>
<td>L</td>
<td>1</td>
<td>2751-0080</td>
<td>J-Box, Fiber Glass 5&quot; x 5&quot; (Includes Cover)</td>
</tr>
<tr>
<td>M</td>
<td>2</td>
<td>2101-0102</td>
<td>RHMS -Slotted #8-32 x 3/4</td>
</tr>
<tr>
<td>N</td>
<td>1</td>
<td>4305-____</td>
<td>Conduit Assembly</td>
</tr>
<tr>
<td>P</td>
<td>2</td>
<td>4305-0264</td>
<td>Cable Assy 2 Coils 24&quot; long</td>
</tr>
<tr>
<td>Q</td>
<td>4</td>
<td>8581-0004</td>
<td>Coil, 115VAC</td>
</tr>
</tbody>
</table>

1. Provide dock leveler serial number and type of installation when e-mailing, calling or faxing orders.
Remote Mount Valve Block w/ Side Shift Assembly

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HB</td>
<td>Hoist Cylinder (Blind End)</td>
<td>BS</td>
<td>Side Shift Cylinder (Blind End)</td>
</tr>
<tr>
<td>HR</td>
<td>Hoist Cylinder (Rod End)</td>
<td>RS</td>
<td>Side Shift Cylinder (Rod End)</td>
</tr>
<tr>
<td>LC</td>
<td>Lip Cylinder</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Remote Mount Valve Block w/ Side Shift Assembly

### Hydraulic Schematic

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>0521-0022</td>
<td>Fitting, Tee, Run Swivel #8 JICF #8 JICM</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>2101-0011</td>
<td>Hex Head Cap Screw 5/16-18 x 1&quot;, Grade 2</td>
</tr>
<tr>
<td>C</td>
<td>6</td>
<td>2101-0039</td>
<td>Nylon Lock Nut 5/16-18</td>
</tr>
<tr>
<td>D</td>
<td>2</td>
<td>2101-0077</td>
<td>Hex Head Cap Screw 5/16-18 x 3</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>2751-0080</td>
<td>J-Box, Fiber Glass 5” x 7” (Includes Cover)</td>
</tr>
<tr>
<td>F</td>
<td>2</td>
<td>2101-0102</td>
<td>RHMS - Slotted #8-32 x 3/4</td>
</tr>
<tr>
<td>G</td>
<td>2</td>
<td>2101-0116</td>
<td>Hex Head Cap Screw 1/4-20 x 2-3/4</td>
</tr>
<tr>
<td>H</td>
<td>3</td>
<td>2101-0143</td>
<td>Nylon Lock Nut 1/4-20</td>
</tr>
<tr>
<td>I</td>
<td>4</td>
<td>2101-0163</td>
<td>Washer, Flat 5/16</td>
</tr>
<tr>
<td>J</td>
<td>1</td>
<td>2101-0269</td>
<td>Hex Head Cap Screw 1/4-20 x 3, Grade 5</td>
</tr>
<tr>
<td>K</td>
<td>1</td>
<td>4305-_____</td>
<td>Conduit Assembly</td>
</tr>
<tr>
<td>L</td>
<td>3</td>
<td>4305-0264</td>
<td>Cable Assy 2 Coils 24” long</td>
</tr>
<tr>
<td>M</td>
<td>6</td>
<td>8581-0004</td>
<td>Coll, 115VAC</td>
</tr>
<tr>
<td>N</td>
<td>1</td>
<td>8583-0013</td>
<td>Valve, Leveler/Side-Shift Diverter</td>
</tr>
<tr>
<td>O</td>
<td>1</td>
<td>8585-0014</td>
<td>Valve, Side-Shift</td>
</tr>
<tr>
<td>P</td>
<td>1</td>
<td>8585-0088</td>
<td>Valve, Assy, Remote</td>
</tr>
<tr>
<td>Q</td>
<td>1</td>
<td>9394-0020</td>
<td>Powerpack Mounting Weldment, Side-Shift</td>
</tr>
<tr>
<td>R</td>
<td>1</td>
<td>9395-_____</td>
<td>Powerpack, Complete</td>
</tr>
<tr>
<td>S</td>
<td>2</td>
<td>9904-0078</td>
<td>3/8” Hose, 35” Lg, #8 JICF Swivel Both Ends</td>
</tr>
<tr>
<td>T</td>
<td>1</td>
<td>9904-0090</td>
<td>3/8” Hose, 17-1/2” Lg, #8 JICF Swivel Both Ends</td>
</tr>
<tr>
<td>U</td>
<td>1</td>
<td>9904-0106</td>
<td>3/8” Hose, 28” Lg, #8 JICF Swivel Both Ends</td>
</tr>
<tr>
<td>V</td>
<td>1</td>
<td>9904-0155</td>
<td>3/8” Hose, 21” Lg, #6 JICF Swivel Both Ends</td>
</tr>
</tbody>
</table>

1 Provide dock leveler serial number and type of installation when e-mailing, calling or faxing orders.
# Hoist Cylinder Parts

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>0525-0125*</td>
<td>Hoist Cylinder, Complete Assy*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0525-0126*</td>
<td>Hoist Cylinder, Complete Assy*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0525-0127*</td>
<td>Hoist Cylinder, Complete Assy*</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>9301-0109</td>
<td>Fitting Connection Str Thread #6 ORBM/#6 JICM (1 per cylinder)</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>1751-0138</td>
<td>Decal, Cylinder Fluid</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>0521-0073</td>
<td>Grease Zerk, 3/16&quot; Straight</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>2101-0159</td>
<td>Hex Nut, 3/4-16 UNF</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>9461-0002</td>
<td>Rod Eye</td>
</tr>
</tbody>
</table>

*Provide dock leveler serial number when e-mailing, calling or faxing orders.

## NOTICE

Seal kits are not available for vertical hoist cylinders.

---

**TOLERANCES**

(FRACTIONAL: \( \frac{1}{32}" \))

(DECIMAL: \( \frac{0.00}{0.01}" \))

(ANGULAR: \( \frac{1}{\text{arity}} \))

---

This print is the property of Systems, Inc. and represents a proprietary article in which Systems, Inc. retains any and all patent and other rights, including exclusive rights of use and/or manufacture and/or sale. Possession of this print does not convey any permission to reproduce, print or manufacture the article or articles shown therein, such permission to be granted only by written authorization signed by an officer or other authorized agent of Systems, Inc. thereof.
## Lip Cylinder Parts

**Item** | **Quantity** | **Part Number** | **Description**
--- | --- | --- | ---
A | 1 | 0525-0085 | Lip Cylinder (Without Fittings E-F)
   |   | 0526-0016 | Lip Cylinder (With Fittings E-F)
B | 1 | 0522-0191 | Yoke (included in 0525-0085)
C | 1 | 0521-0005 | Roll pin (included in 0525-0085)
D | 1 | 0525-0014 | Seal Kit (before 1992)
   |   | 0525-0059 | Seal Kit (1992 and up)
E | 1 | 9301-0109 | Fitting, Connector Str. #6 ORB #6 JIC
F | 1 | 0521-0028 | Fitting, Breather-Brass (Not Shown)

*Provide dock leveler serial number when e-mailing, calling or faxing orders.

---

*Provide dock leveler serial number when e-mailing, calling or faxing orders.*

---

© 2018 Systems, LLC
PARTS

Powerpack Assembly (Remote Mount or Carriage Mounted w/Dual Hoist Cylinder)
# Powerpack Assembly (Remote Mount or Carriage Mounted w/Dual Hoist Cylinder)

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9395-____</td>
<td>Powerpack, Complete (Includes all items except L and W)</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>2</td>
<td>2101-0039</td>
<td>Nylon Lock Nut, 5/16-18 UNC</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>9301-0029</td>
<td>Seal, Thread</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>9302-0014</td>
<td>Reservoir</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>9301-0199</td>
<td>Breather Cap, 3/8 NPT Male</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>9301-0027</td>
<td>O-Ring (Reservoir)</td>
</tr>
<tr>
<td>F</td>
<td>2</td>
<td>9302-0012</td>
<td>Tie Rod (Reservoir)</td>
</tr>
<tr>
<td>G</td>
<td>1</td>
<td>9301-____</td>
<td>Pump Only</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>2101-0077</td>
<td>Cap Screw, 5/16-18 UNC x 3 in., Grade 5</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>9301-0028</td>
<td>Gasket, Pump</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>9303-0002</td>
<td>Coupling Assembly</td>
</tr>
<tr>
<td>H</td>
<td>1</td>
<td>9302-0054</td>
<td>Plate, Drive</td>
</tr>
<tr>
<td>J</td>
<td>1</td>
<td>9904-0071</td>
<td>Hose</td>
</tr>
<tr>
<td>K</td>
<td>1</td>
<td>9301-0116</td>
<td>90° Elbow, #8 ORBM - #8 JICM</td>
</tr>
<tr>
<td>L</td>
<td>1</td>
<td>9301-0116</td>
<td>90° Elbow, #8 ORBM - #8 JICM (Pressure Fitting)</td>
</tr>
<tr>
<td>M</td>
<td>1</td>
<td>3411-____</td>
<td>Motor Only</td>
</tr>
<tr>
<td>N</td>
<td>1</td>
<td>9301-0106</td>
<td>Fitting, Plug, #8 ORB</td>
</tr>
<tr>
<td>P</td>
<td>1</td>
<td>0521-0014</td>
<td>Ball, Check</td>
</tr>
<tr>
<td>Q</td>
<td>1</td>
<td>9301-0024</td>
<td>Guide, Check Ball</td>
</tr>
<tr>
<td>R</td>
<td>1</td>
<td>9302-0009</td>
<td>Spring, Relief Valve</td>
</tr>
<tr>
<td>S</td>
<td>1</td>
<td>9303-0003</td>
<td>Screw, Adjusting</td>
</tr>
<tr>
<td>T</td>
<td>2</td>
<td>9301-0014</td>
<td>Washer, Nylon, 11/16 in. OD x 1/2 in. ID</td>
</tr>
<tr>
<td>U</td>
<td>1</td>
<td>9301-0015</td>
<td>Nut, Jam, 1/2-20 UNF</td>
</tr>
<tr>
<td>V</td>
<td>1</td>
<td>9301-0016</td>
<td>Nut, Acorn, 1/2-20 UNF</td>
</tr>
<tr>
<td>W</td>
<td>1</td>
<td>0521-0016</td>
<td>45° Elbow, 3/8 NPT Male x #8-JIC Male (Return Fitting)</td>
</tr>
<tr>
<td>X</td>
<td>1</td>
<td>9301-0009</td>
<td>Strainer, Suction</td>
</tr>
<tr>
<td>Y</td>
<td>1</td>
<td>9301-0082</td>
<td>Magnet</td>
</tr>
<tr>
<td>Z</td>
<td>1</td>
<td>9301-0212</td>
<td>Fitting, Adapter, #8 ORB / 3/8” NPT</td>
</tr>
<tr>
<td>AA</td>
<td>1</td>
<td>0521-0019</td>
<td>Fitting, Nipple, 3/8” NPT, 2.00” LG</td>
</tr>
<tr>
<td>AB</td>
<td>2</td>
<td>9301-0003</td>
<td>Washer, Aluminum, 9/16 in. OD x 3/8 in. ID x 1/16 in.</td>
</tr>
<tr>
<td>AC</td>
<td>2</td>
<td>9301-0004</td>
<td>Screw, Socket Head, 3/8-16 UNC x 1-3/4 in.</td>
</tr>
<tr>
<td>AD</td>
<td>2</td>
<td>2101-0063</td>
<td>Nut, Jam 5/16-18 UNC</td>
</tr>
</tbody>
</table>

---

1. Provide dock leveler serial number and type of installation when e-mailing, calling or faxing orders.
2. Provide dock leveler serial number, voltage, and phase when e-mailing, calling or faxing orders.
### Parts

**Powerpack Assembly (Carriage Mounted w/Single Hoist/Single Lip Cylinder)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>9395-____</td>
<td>Powerpack, Complete</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>0521-0007</td>
<td>Elbow, 1/4 NPT Male x 1/4 Tube</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>9301-0218</td>
<td>Breather Cap, Push In</td>
</tr>
<tr>
<td>D</td>
<td>2</td>
<td>9301-0120</td>
<td>Fitting 45 Degree, #8 ORB x #8-JIC Male</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>3411-____</td>
<td>Motor Only</td>
</tr>
<tr>
<td>F</td>
<td>4</td>
<td>2101-0225</td>
<td>Cap Screw, 5/16 x 1.25</td>
</tr>
<tr>
<td>G</td>
<td>4</td>
<td>2101-0039</td>
<td>Nylon Lock Nut, 5/16-18 UNC</td>
</tr>
<tr>
<td>H</td>
<td>8</td>
<td>2101-0163</td>
<td>Washer, Flat, 5/16</td>
</tr>
<tr>
<td>J</td>
<td>1</td>
<td>9301-0226</td>
<td>O-Ring (Not Shown, Seal Between Reservoir and Manifold)</td>
</tr>
<tr>
<td>K</td>
<td>1</td>
<td>9301-0224</td>
<td>Plastic Reservoir</td>
</tr>
<tr>
<td>L</td>
<td>1</td>
<td>2401-0001</td>
<td>Grommet, Reservoir (plastic)</td>
</tr>
</tbody>
</table>

*Provide dock leveler serial number, voltage, phase and type of installation when e-mailing, calling or faxing orders.*
Flow Control Valve

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9303-0025</td>
<td>Flow Control Valve (Down Speed)</td>
</tr>
</tbody>
</table>

*Provide dock leveler serial number when e-mailing, calling or faxing orders.*
Customer Information

NOTE: Refer to Figure 32 for left/right orientation of dock leveler and Figure 33 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 dock leveler, and the original owner’s name. This will all help to identify the specific dock leveler 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 dock leveler 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
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, INTERUPTION OF BUSINESS OR LOSS OF GOODWILL.