

A Division of Systems, LLC

POWERAMP[®]

Premium Loading Dock Systems

PowerSpan

Bascule Bridge

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.

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 dock leveling device or transport vehicle restraint.

Never operate a dock Bridge or transport vehicle restraint 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.

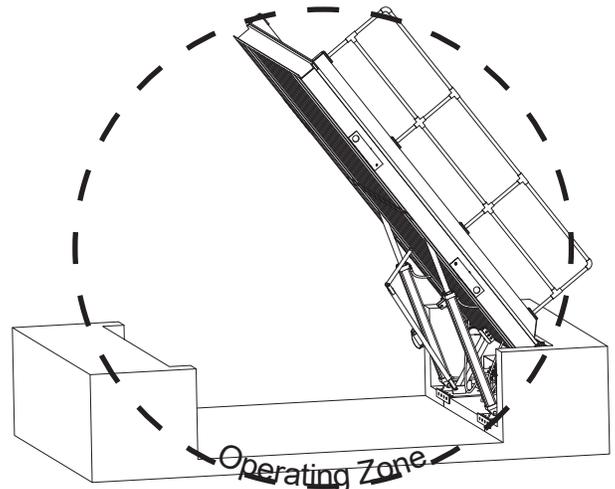


Figure 1

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.



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

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.

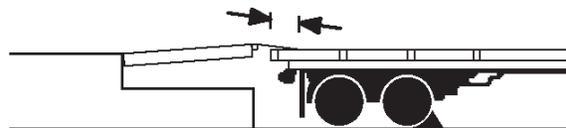
WARNING



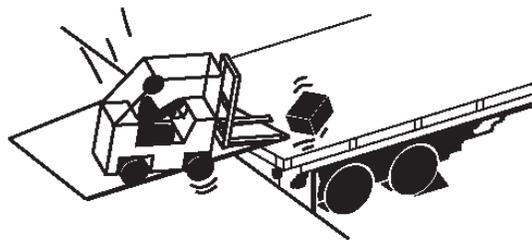
Chock/restrain all transport vehicles. Never remove the wheel chocks or release the restraining device until loading or unloading is finished, and transport driver has been given permission to drive away.



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.



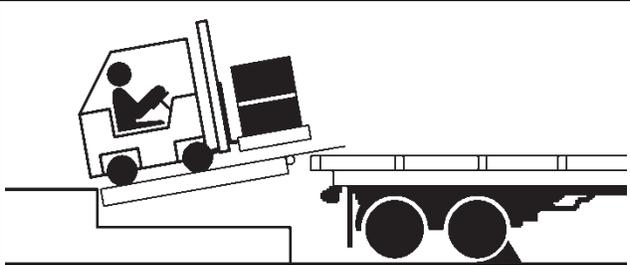
Make sure lip overlaps onto transport vehicle bed at least 4 in. (102 mm).



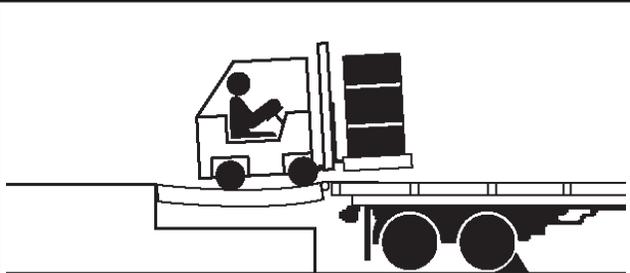
Keep a safe distance from both side edges.

Operational Precautions

! WARNING



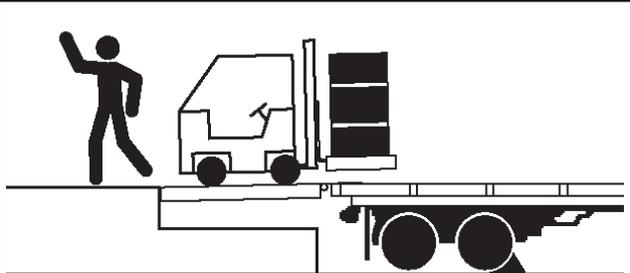
Do not use dock leveling device if transport vehicle is too high or too low.



Do not overload the dock leveling device.



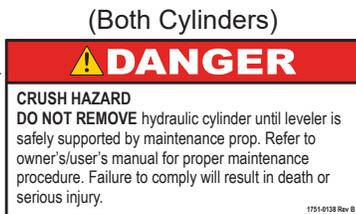
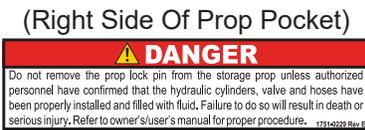
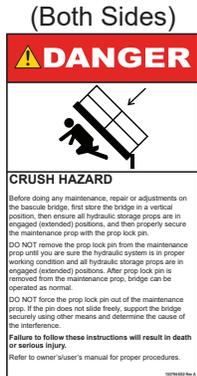
Do not operate any equipment while under the influence of alcohol or drugs.



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

PRECAUTIONS

Safety Decals



For replacement safety decals, call 1-800-643-5424.

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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) 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) Ensure 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) Ensure 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 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.
- 9) 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.
- 10) 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.
- 11) 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.
- 12) 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.

INTRODUCTION

General Information



Figure 3

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

PowerSpan bridges permit the safe crossing of railroad spurs and can also serve as a convenient connection between buildings. The PowerSpan smoothly travels from a securely stored vertical position to a solid horizontal position for safe, easy cross-traffic movement.

The PowerSpan is equipped with hydraulic storage props that automatically engage when the bridge is stored in the vertical position and automatically release when lowering. A second, supplementary maintenance prop is provided with lock-out capability for maintenance or service usage.

The PowerSpan Bascule Bridge comes equipped with an electrical control panel, which allows push button operation of the Bascule Bridge functions and can be mounted conveniently on either or both sides of the bridge, along with a compact, self-contained power unit.

Each PowerSpan Bascule Bridge unit and control panel 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).

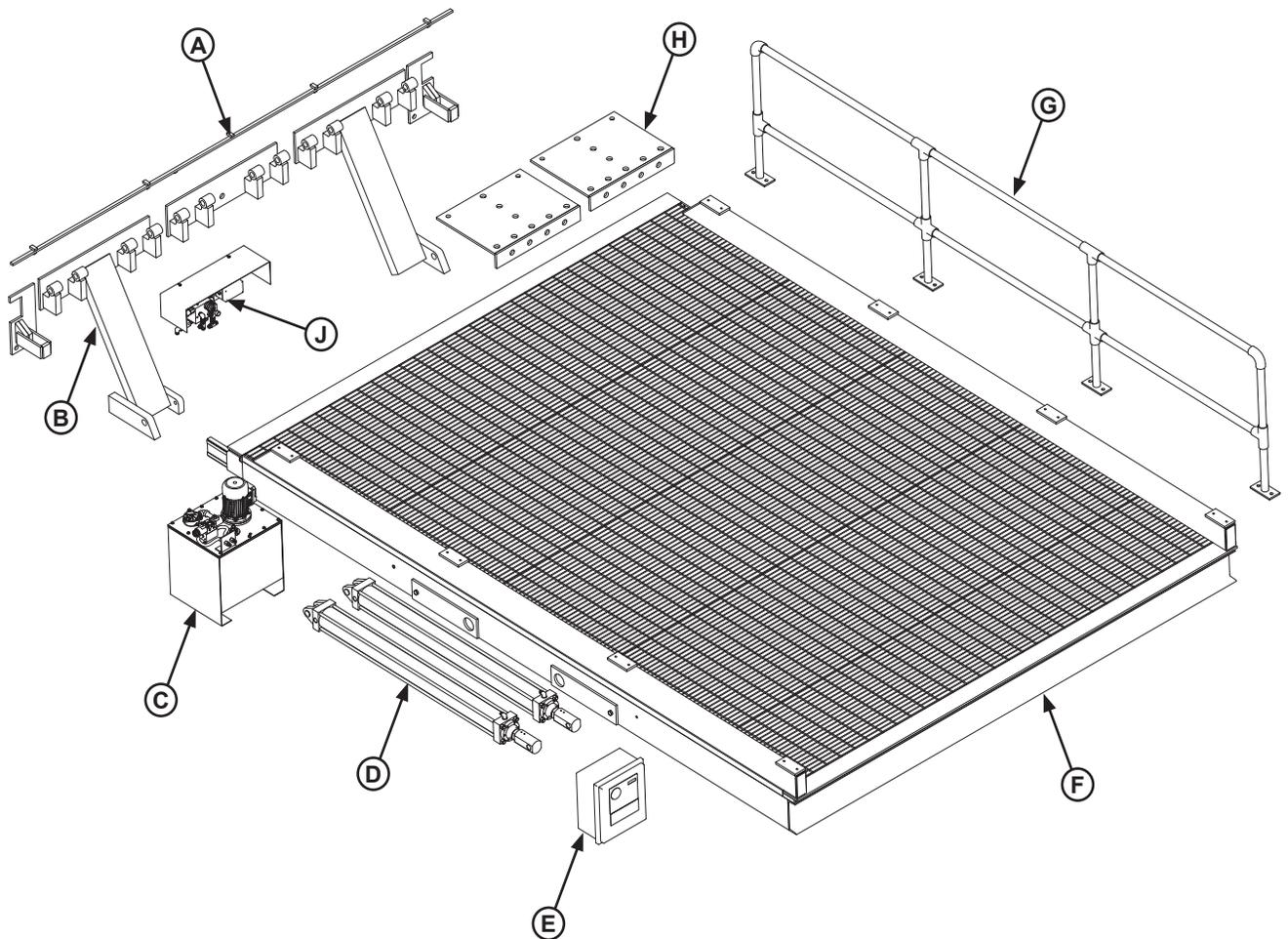


Figure 4

A - Filler Bar
B - Hinge/Frame
Weldments

C - Powerpack
D - Hydraulic Cylinders

E - Control Box*
F - Platform

G - Handrail
H - Pit Floor Weldments
(optional)

J- Valve Assembly

*Control box appearance may vary depending on options.

INSTALLATION

Installation Precautions

WARNING

Post safety warnings and barricade the work area at dock level and ground level to prevent unauthorized use of equipment before installation has been completed.

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.

WARNING

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

CAUTION

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

NOTICE

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

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

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

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INSTALLATION

Prepare Pit & Bridge

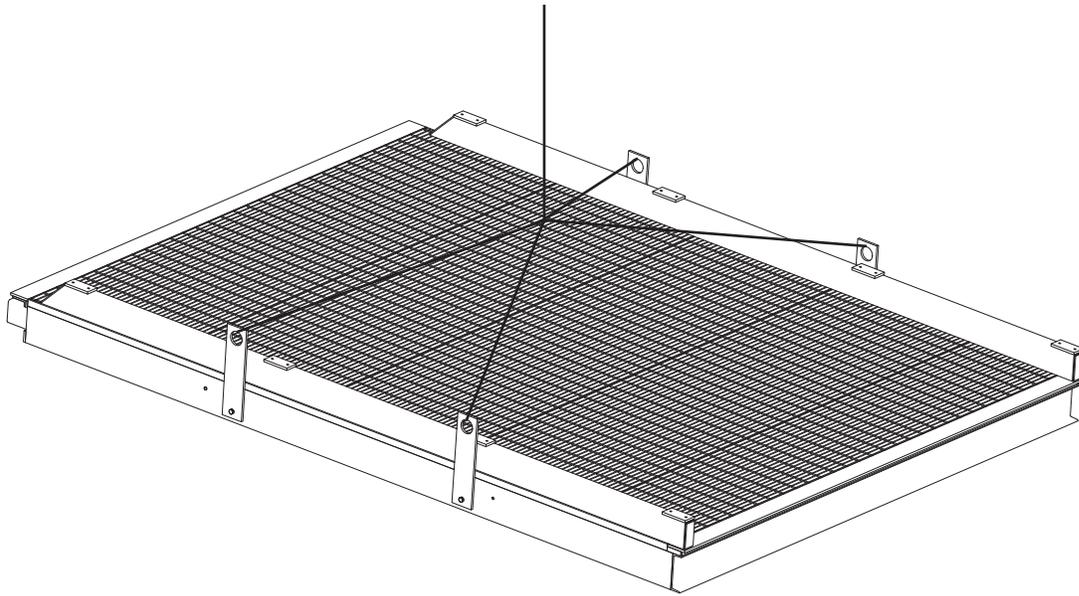


Figure 5

Before installing the Bascule Bridge in the pit, the following work must be performed:

1. Ensure all Bascule Bridge components are present and accounted for as shown on page 9.
2. Remove all debris from the pit and sweep it clean.
3. Check the entire Bascule Bridge for proper construction per the layout drawings provided by Systems, LLC.
4. Have four (4) blocks at least 8" (203.2 mm) tall and able to hold at least 2000 lbs (1000 kg) of weight to set the Bascule Bridge on once it is unloaded from the transport vehicle.
5. Remove any control panel, parts and bumpers that may be banded to the Bascule Bridge.
6. Make sure the mounting hardware or lifting hooks have the appropriate lifting capacity for the Bascule Bridge; check the Bill Of Lading (BOL) for actual shipping weight.
7. Attach lifting chains to the four lifting holes of the Bascule Bridge (see Figure 5) and to a lifting device (i.e., hoist) having the appropriate lifting capacity and reach.



WARNING

The Bascule Bridge is heavy. Use a lifting device and chains with the appropriate lifting capacity and reach.

8. If adjustments are needed to insert the Bascule Bridge into a door opening or other tight space, place the Bascule Bridge on four (4) blocks at least 8" (203.2 mm) tall and able to hold at least 2000 lbs (1000 kg) of weight.

NOTICE

Bascule Bridge must be set on blocks at least 8" (203.2 mm) tall when unloading to protect components under the Bridge.

9. Once Bascule Bridge is inside the building, or near the install position, place the Bascule Bridge on four (4) blocks at least 8" (203.2 mm) tall and able to hold at least 2000 lbs (1000 kg) of weight to prepare the hydraulic installation.

10. Review layout drawings provided by Systems, LLC to gain an understanding of the next required steps. **Figure 6 is an example of a typical installation. Always use the measurements shown on the drawings provided with your equipment.**

INSTALLATION

Prepare Pit & Bridge (continued)

Note: This is a generic pit detail of a typical installation. Always refer to layout drawings provided by Systems, LLC for exact installation dimensions and details.

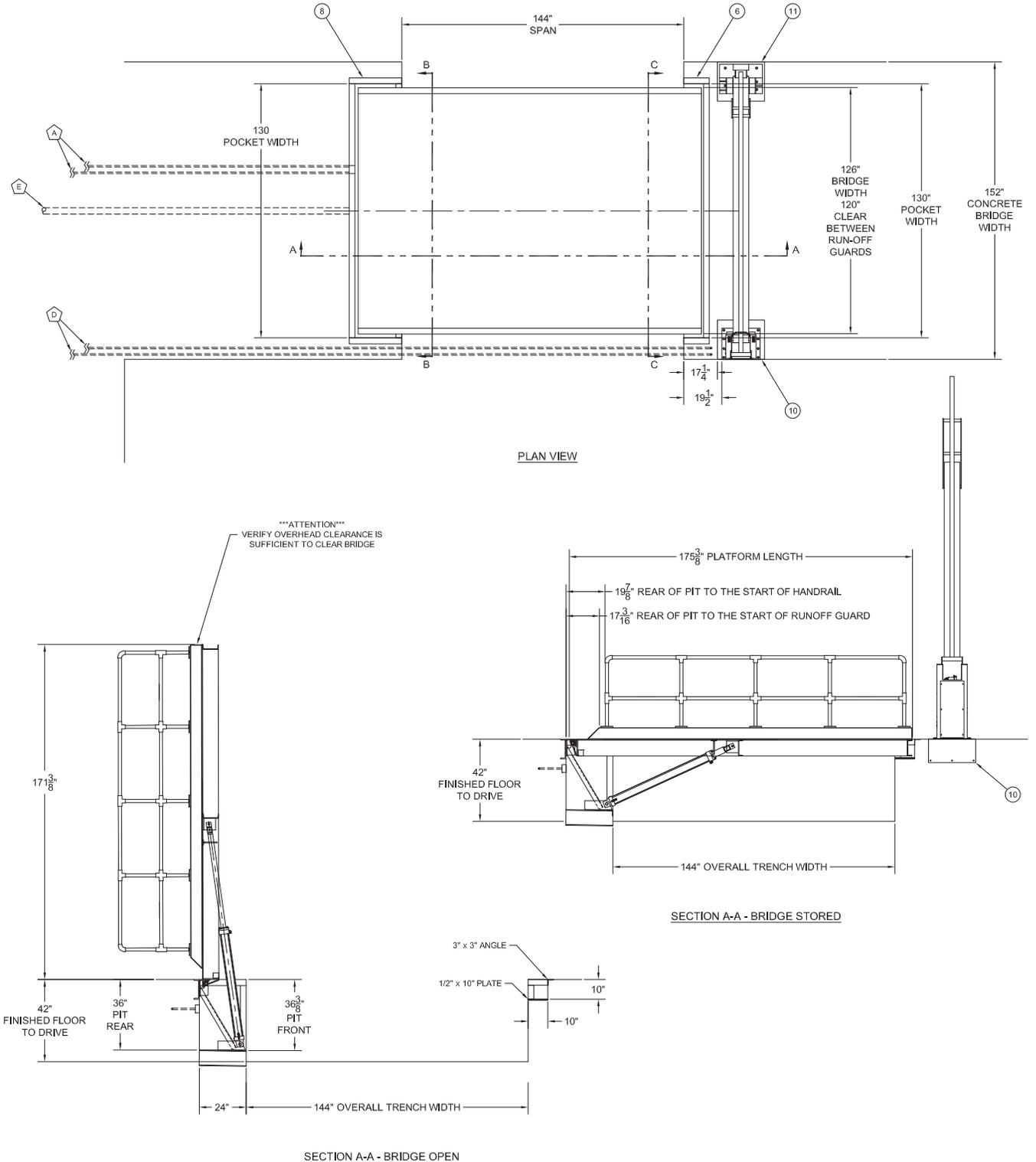


Figure 6

INSTALLATION

Welding & Platform Assembly

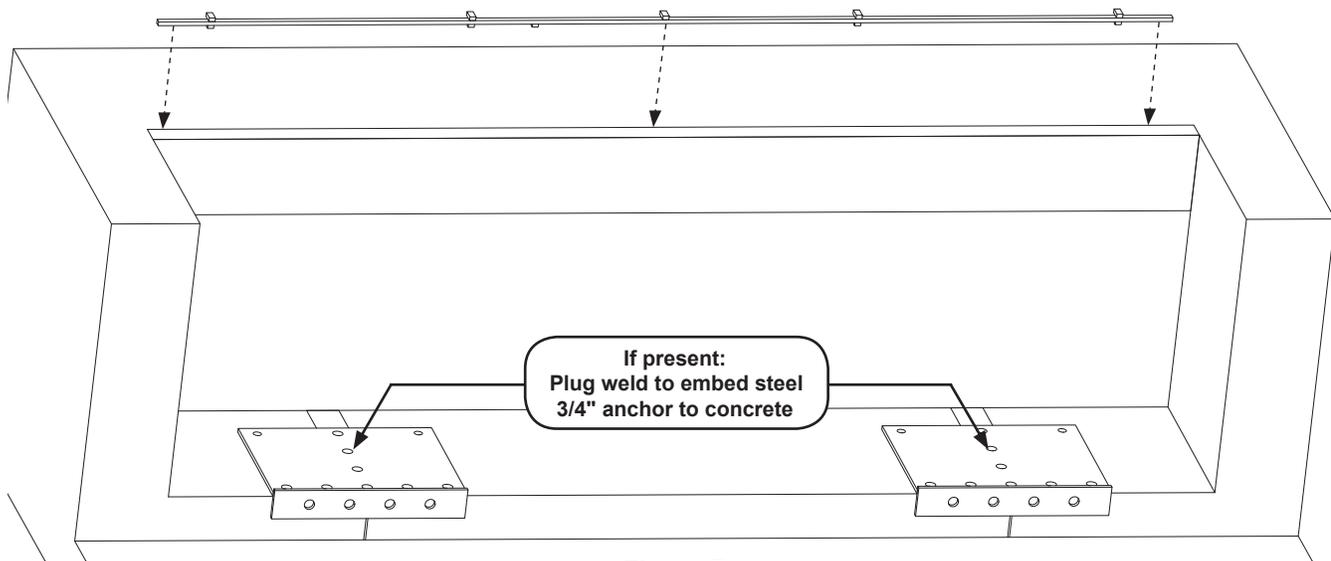


Figure 7

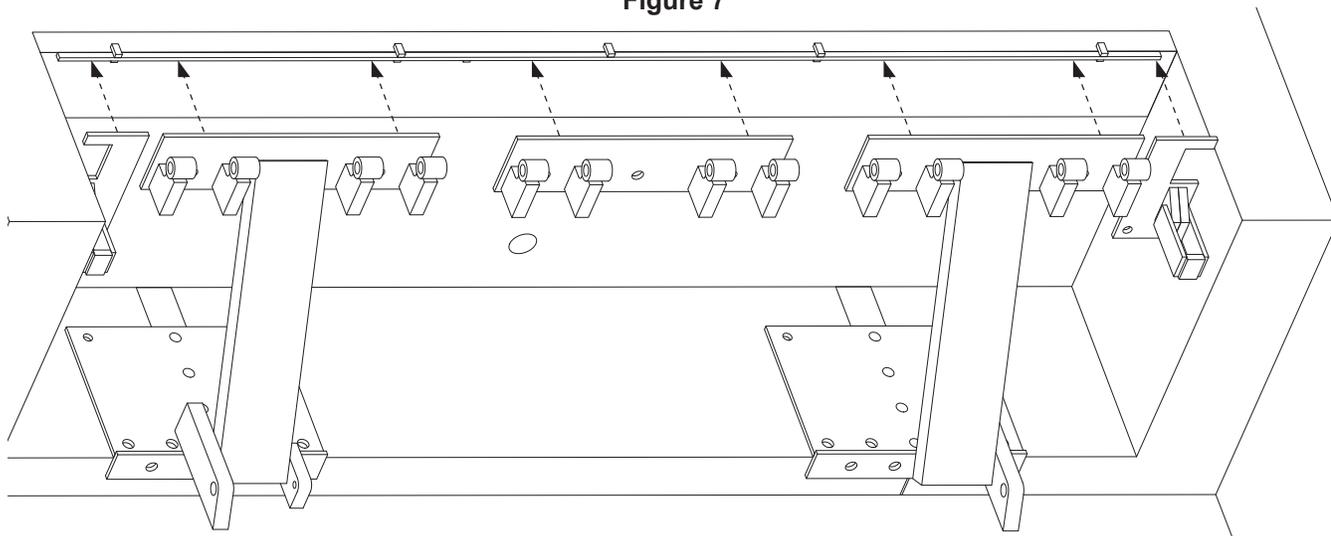


Figure 8

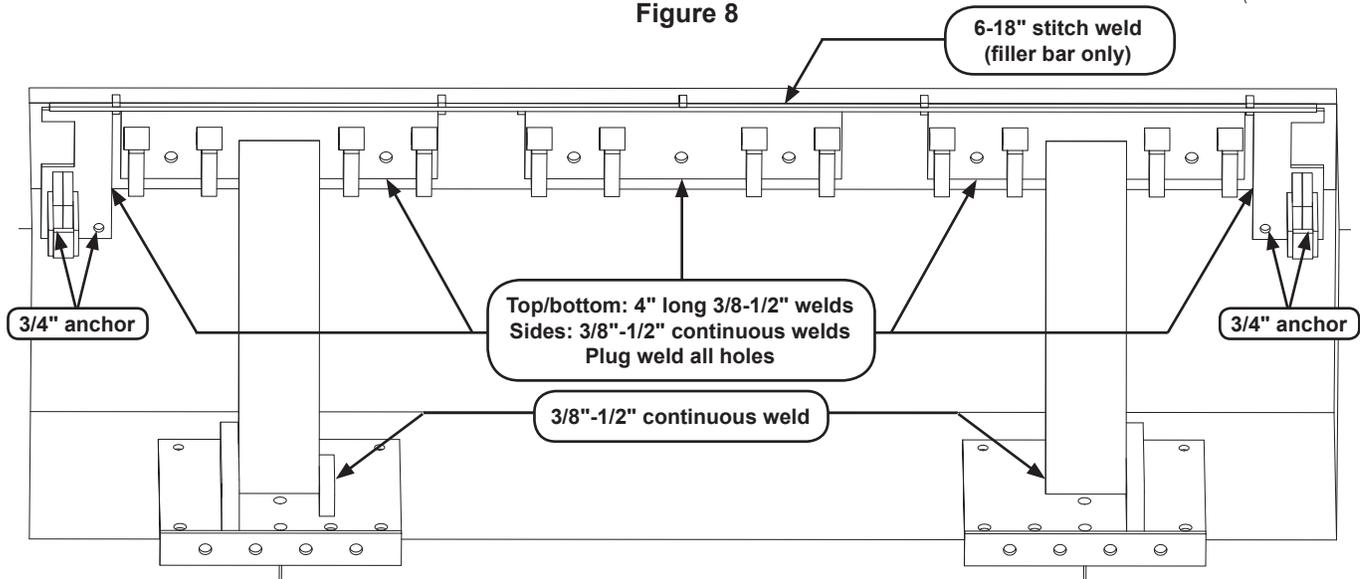


Figure 9

Welding & Platform Assembly (continued)

1. Ensure that embed channel is perpendicular with floor and is not bowed. A bowed embed will require shimming behind hinge assemblies and may project the bridge at an unsatisfactory angle.
2. Position filler/fixture bar on the top edge of the embed channel per the layout drawings provided by Systems, LLC. Tack weld filler/fixture bar in place.
3. If optional pit floor weldments are required, position over pit floor embed steel per the layout drawings provided by Systems, LLC. Plug weld pit floor weldments to embed steel. Anchor remaining holes with 3/4" x 5-1/4" min. wedge anchors. Torque all anchors to the vendor specifications. See Figure 7.
4. Position rear hinge weldments and storage prop pocket weldments against locator bar weldments per the layout drawings provided by Systems, LLC. See Figure 8. When in place, apply heavy tack weld to hinge weldments.
5. Shim between lower hoist cylinder/maintenance prop trunnions and pit floor as needed. Use pyramid or stepped shimming method. Weld all shims in place.
6. Move bridge platform section into position for test fitting, making adjustments as necessary. Ensure hinge weldments line up and bridge projects 90 degrees (perpendicular) from pit face into receiving pocket. Ensure bridge has appropriate fit in receiving pocket.
7. When all adjustments have been made and bridge alignment/fit is satisfactory, remove bridge section.
8. Anchor storage prop pocket weldments using four (4) 3/4" x 5-1/4" min. wedge anchors. Torque all anchors to the vendor specifications. See Figure 9.
9. Weld all components as shown in Figure 9:

Note: Filler/fixture bar weldment may be temporarily removed for easier welding of rear hinge weldments to embed, but must be re-fit for final welding. It may be necessary to grind off the tabs on the vertical surface of the filler/fixture bar to re-fit.

- Hinge and storage prop pocket weldments require 4" long 3/8"-1/2" welds on top and bottom, 3/8"-1/2" continuous welds on sides, and plug welds in all holes over embed steel.
- Hoist cylinder/maintenance prop trunnions require 3/8"-1/2" continuous welds to shim stacks.
- Filler/fixture bar weldment requires 6-18" stitch weld.

10. Grind the long top flanges off of the filler/fixture bar weldment and discard.

11. Lube the rear hinge pins using grease, then install the pins in the rear hinge weldments only halfway through the first hinge tube.

12. Move the bridge section into position for final assembly, centering the bridge hinges with the hinge weldments. See Figure 10.

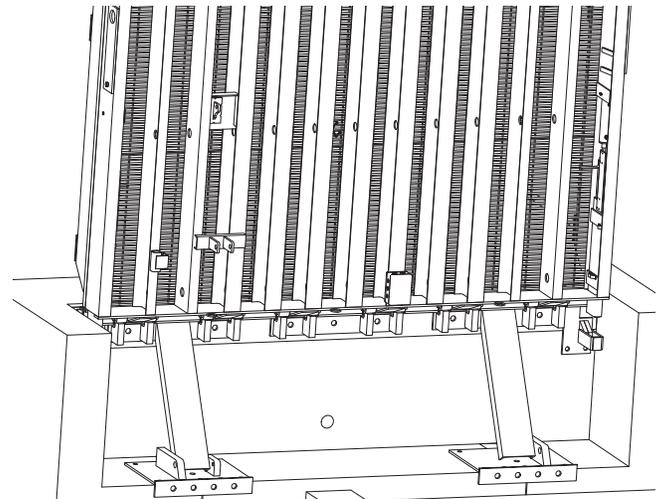


Figure 10

13. Insert the hinge pins. Start from the center and work outwards.

Bridges Shipped In Half Sections Only: Due to over-the-road regulations, bridges over a certain width are made in two half sections for field assembly/welding. At this point in installation, halves should be in position tightly along the joint line.

- a) If necessary, draw the bridge sections together using the bolts provided with the lifting plates (through the same holes).
- b) Butt weld joint with 3/8" welds (3" pass every 12") all around (where possible).
- c) Reinforce the bottom (joist side) seam with 1/4" min. fish plates as needed.

14. Proceed to "Hydraulics & Final Assembly" on page 16.

INSTALLATION

Hydraulics & Final Assembly

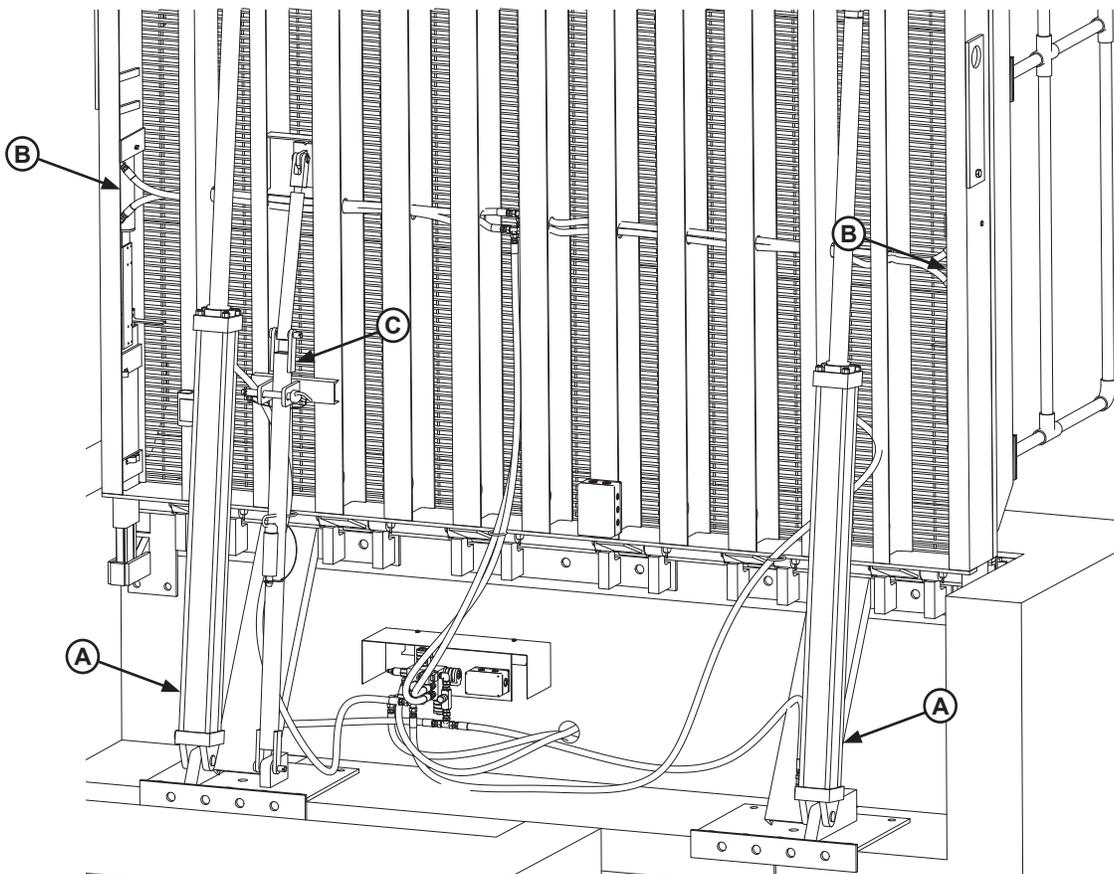


Figure 11

A - Hoist Cylinder

B - Hydraulic Storage Prop Cylinder

C - Maintenance Prop

Note: Cylinder installation should be completed with bridge in lowered position. Figure 11 shows bridge raised for visual reference only. Do not attempt to install cylinders with bridge in raised position.

1. Install hoist cylinders (A). Pin hoist cylinder(s) to base trunnion then to platform.

Note: A ratchet or sling spanning several joists and supporting the cylinder end will greatly ease installation of cylinder(s). Pad cylinder(s) to prevent damage if using this method.

2. Locate Powerpack per the layout drawings provided by Systems, LLC. Anchor the Powerpack in place using minimum 3/8" x 3" anchor bolts. Torque all anchors to the vendor specifications.

3. Connect the hydraulic hoses to each cylinder fitting, then connect these hoses to the hydraulic valve assembly as shown in Figures 11 and 12.

4. Install folding maintenance prop (C) on underside of bridge as shown in Figure 11 and install lockout pin.

5. Install handrails onto the runoff guard plates using the provided hardware as shown in Figure 13.

6. If not already installed, install the hoist cylinder limit switch, the hydraulic storage prop limit switches, and the lowered limit switch on the bridge platform. Make sure the number on the limit switch matches up with the number on the angle. See page 21 for switch locations.

Note: Flexible conduit routing should be carefully inspected, and if any excess length could interfere with bridge operation, should be bound together with plastic wire ties to prevent interference.

7. Proceed to "Install Control Box and Wiring" on page 18.

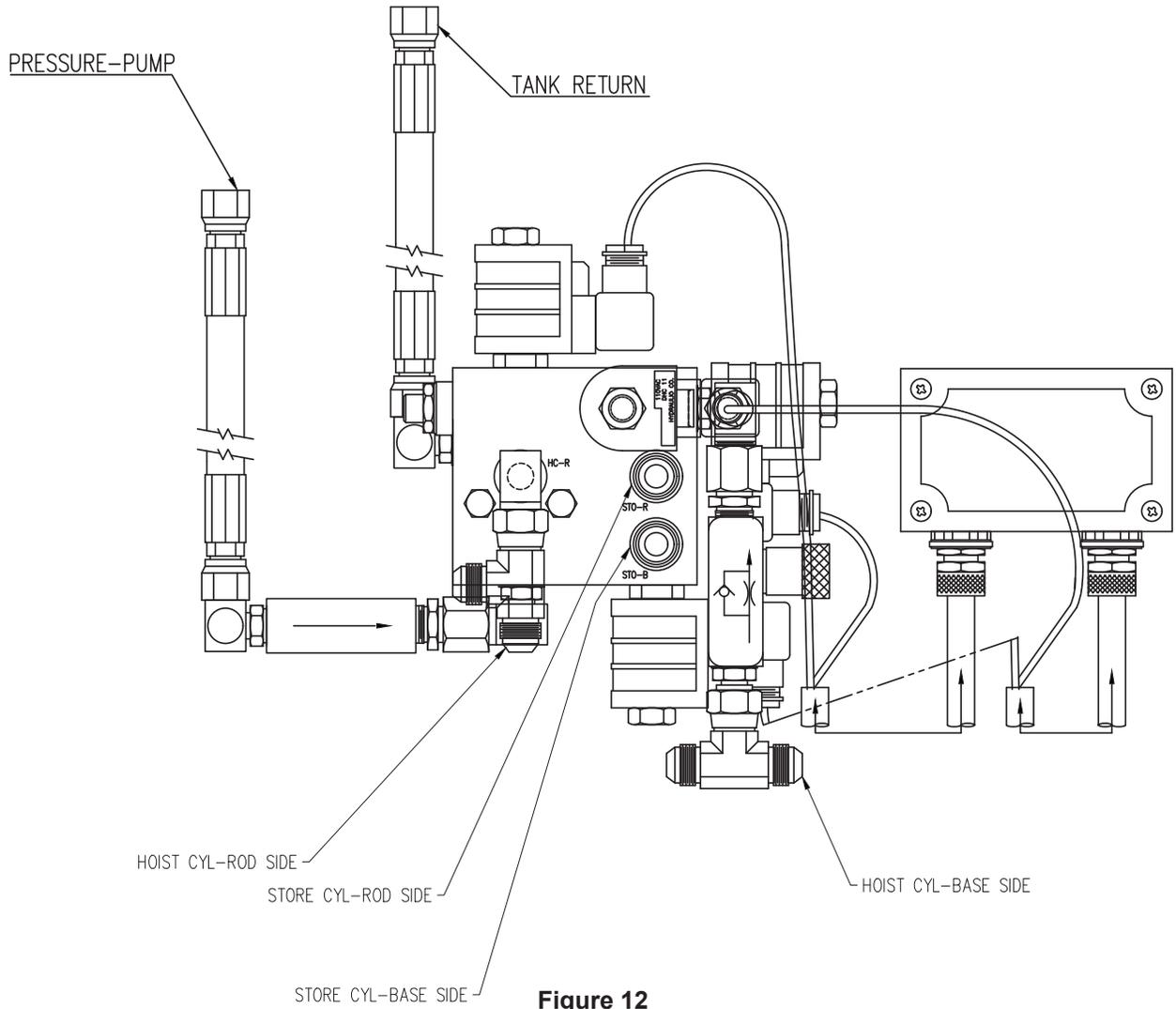


Figure 12

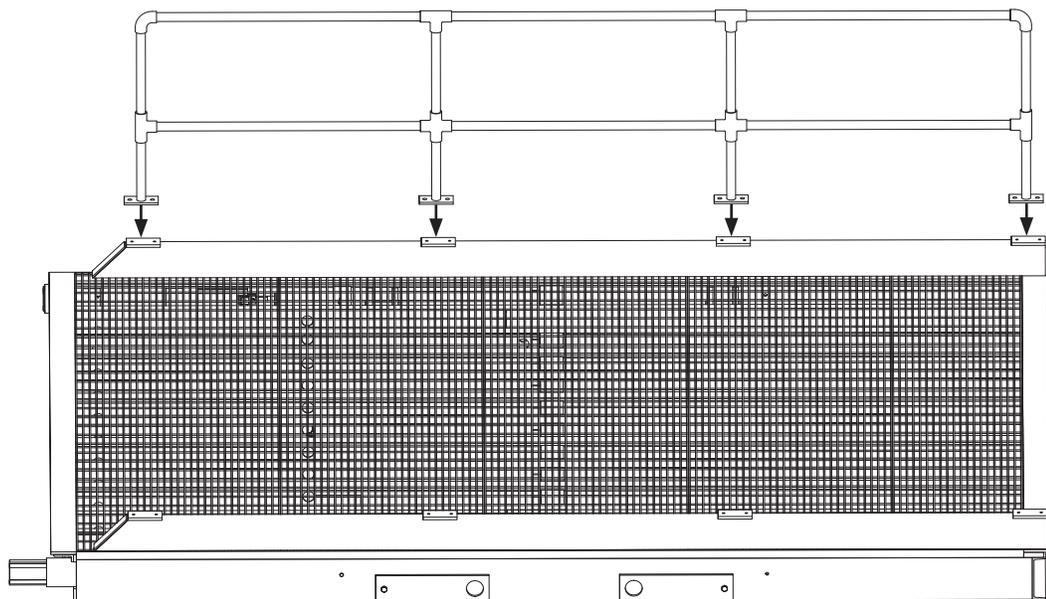


Figure 13

INSTALLATION

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

DO NOT connect the dock Bridge 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 Bridge. Always ground welding equipment to the dock Bridge 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.

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

175-4738 Rev A

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.

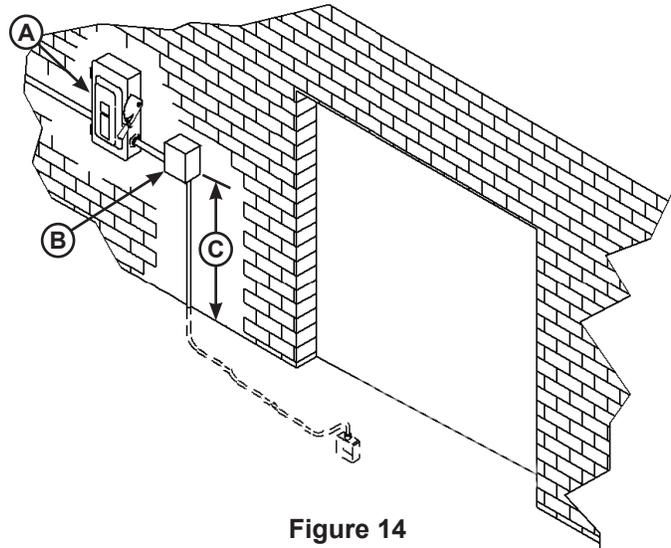


Figure 14

A— Disconnect Panel (provided by others)
B— Control Panel C— Distance, 48 in. (1219 mm)

1. Mount the push-button control panel (B) so bottom of control panel-to-floor distance (C) is 48 in. (1219 mm). See Figure 14.
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. Connect the Bascule Bridge power cable to the field wires in the junction box.
5. Seal the conduit in any location where the conduit crosses over temperature zones that could produce condensation.
6. Proceed to "Put New Bascule Bridge Into Service on page 20.

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INSTALLATION

Put New Bascule Bridge Into Service

NOTICE

Though limit switches have been preset at the factory, minor adjustment may be required during installation. Do not adjust until instructed to do so.

1. Verify that the hydraulic fluid reservoir is full.
2. Check that all hose routings are secured. Inspect for leaks on all hose connections.
3. Check that the bridge is flush with the surface and that the platform weldment contacts approach evenly.
4. If an excessive transition exists between the Bascule Bridge and the approach, contact Technical Services for further instructions.
5. Turn the main electrical power ON.
6. Position a fork truck directly behind bridge vertical plane to prevent damage in case of over toggle.
7. Press and hold RAISE button until bridge is fully raised, hydraulic storage props extend and BLUE "Bridge Stored" light turns on. See Figure 14.

Note: If hydraulic storage props do not extend or "Bridge Stored" light does not turn on, limit switches will require adjustment. Proceed through Step 14 before adjusting.

8. Release the RAISE button. The bridge will stop and remain in place. Ensure that the leading edge of the bridge is at or behind a line projected vertically from the dock face.
9. Press and hold the LOWER button until hydraulic storage props are retracted, bridge is fully lowered and GREEN "Bridge Down" light turns on.

Note: If "Bridge Down" light does not turn on, limit switch will require adjustment. Proceed through Step 15 before adjusting.

10. Release the LOWER button. Ensure that the leading edge of the bridge is fully resting in receiving pocket on the free end with a smooth and level transition from dock to bridge on both ends.

11. Perform steps 7-10 at least four times to purge any air that may be in the hydraulic system and to ensure proper operation. Check powerpack fluid level after every cycle and add fluid if required.

12. Press and hold RAISE button until bridge is approximately 85 degrees from horizontal; release RAISE button. Bridge will remain stationary.

13. From the side, observe the underside of bridge to ensure hoist cylinder limit switch roller arm is set to rest against cylinder, with the maintenance prop ready to fall into its pocket.

DANGER

Do not walk behind bridge until unit is fully stored with hydraulic storage props extended.

14. Press RAISE button until bridge is in fully stored position with hydraulic storage props extended. If set properly, hoist cylinder limit switch contact will close just as bridge reaches fully stored position and maintenance prop falls into pocket. If required, adjust hoist cylinder and/or storage prop switches at this time. See Figure 15.

15. Press and hold the LOWER button until hydraulic storage props are retracted and the bridge is fully lowered. Ensure the lowered limit switch roller arm is set to activate switch when bridge is completely lowered and resting in pocket on free end. If required, adjust switch at this time. See Figure 15.

16. Check bridge operation for satisfactory speed. Bridge should take approximately 60 seconds to move from fully lowered to fully raised position. If the bridge appears to be operating too slowly, the flow control valve on the Powerpack can be adjusted. See page 27 for adjustment instructions.

Note: The unit has safety velocity fuses on both main cylinders to ensure safety in the event of a hose break. If the flow control is opened too far, the unit will lock up under its own weight on the velocity fuse(s). Close the flow control valve slightly and try again.

17. At this point, the lifting plates on the bridge may be left in place or removed as desired. **If removed, do not throw away plates or hardware as they are necessary to raise or lower the bridge with an external device in emergencies.**

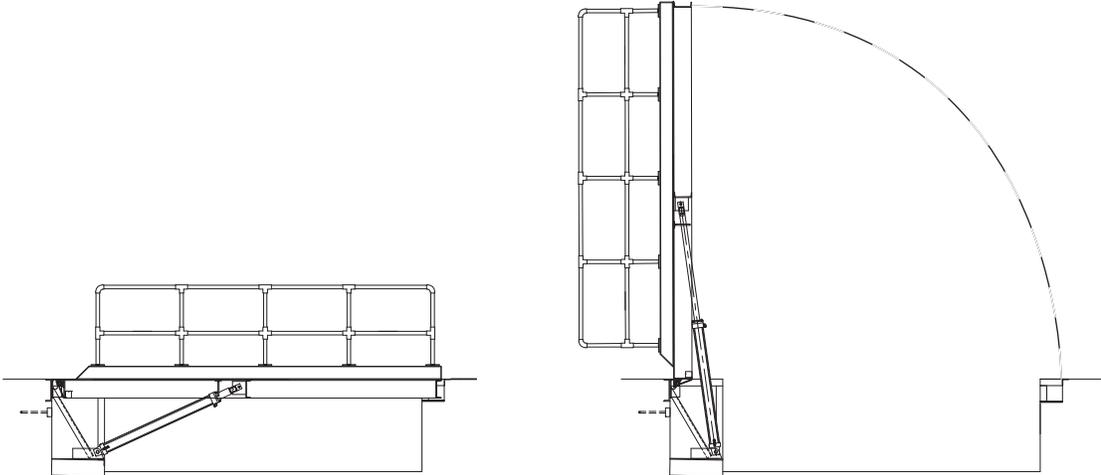


Figure 14

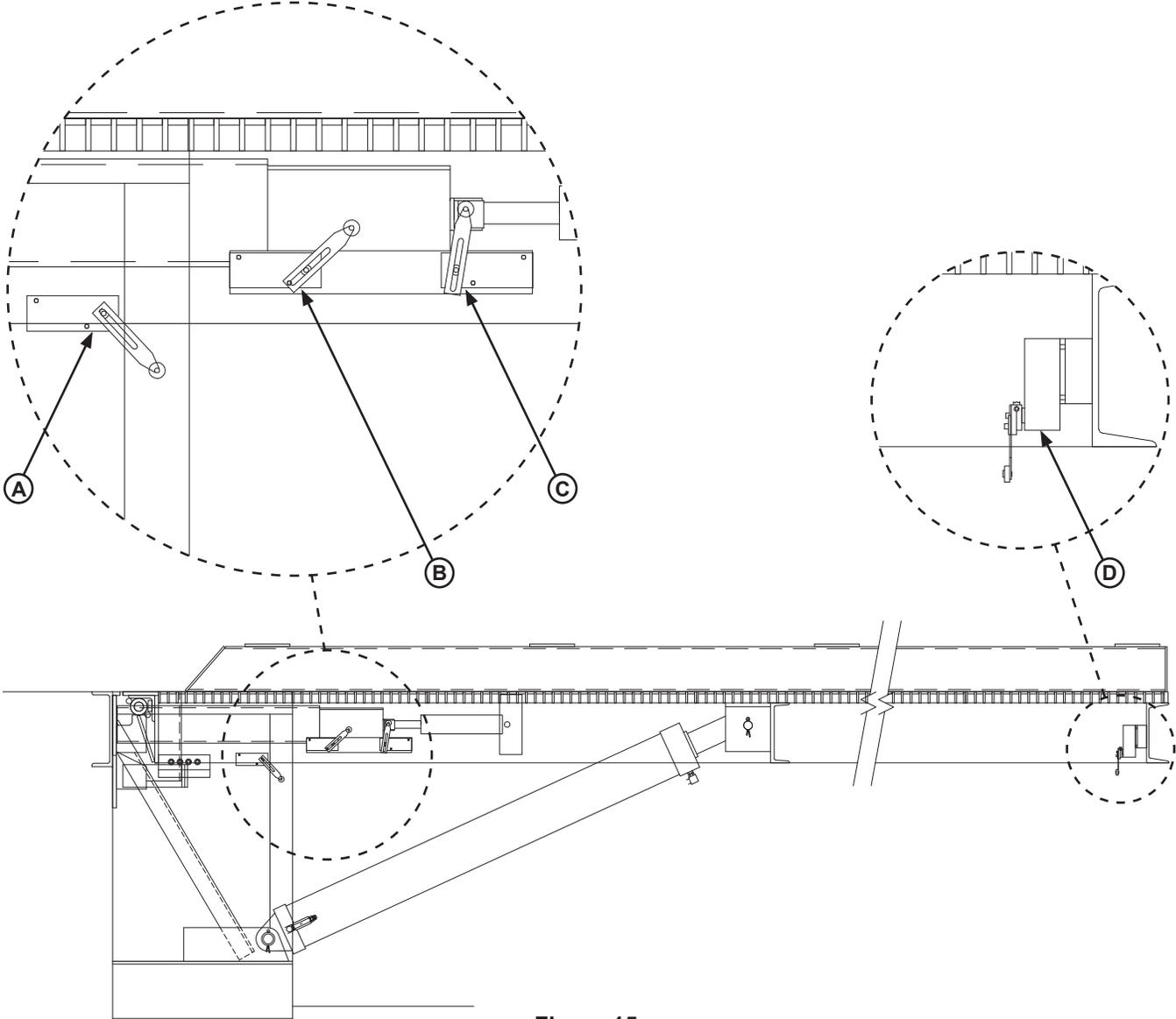


Figure 15

**A - Hoist Cylinder (Bridge Stored) Switch
B - Hydraulic Storage Prop Engaged Switch**

**C - Hydraulic Storage Prop Stored Switch
D - Lowered (Bridge Down) Switch**

OPERATION

Operational Precautions

DANGER

Stay clear of Bascule Bridge when transport vehicle is entering or leaving dock area.

DO NOT move or use the Bascule Bridge if anyone is under, on or in front of bridge.

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 Bascule Bridge.

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

Maintain a safe distance from side edges of bridge whenever driving across.

WARNING

Always fully raise or fully lower the Bascule Bridge when in use. DO NOT leave the Bascule Bridge mid-travel for long periods of time.

DO NOT overload the Bascule Bridge.

DO NOT operate any equipment while under the influence of alcohol or drugs.

DO NOT leave equipment or material unattended on the Bascule Bridge.

Operating Instructions

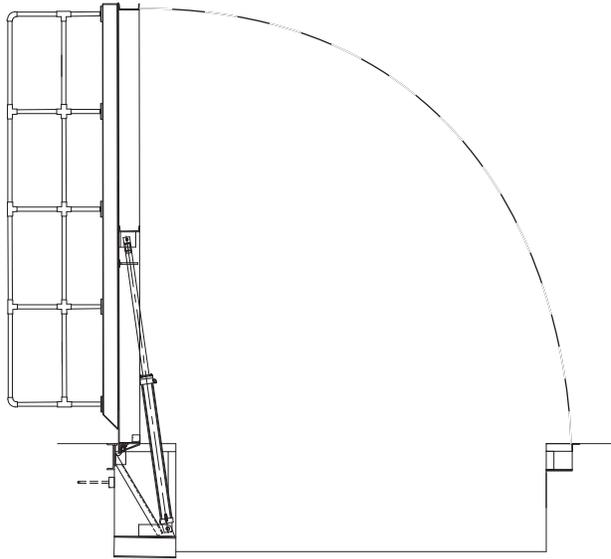


Figure 16

Raising Bridge

1. Ensure no vehicles, objects or personnel are present on the bridge surface before raising.
2. Visually check path of bridge travel to make sure it is clear of obstructions.
3. Press and hold the RAISE button. The GREEN "Bridge Down" light will turn off, indicating the bridge is mid-travel.
4. When the BLUE "Bridge Stored" light turns on, indicating the bridge is fully raised and hydraulic storage props are extended, release the RAISE button.

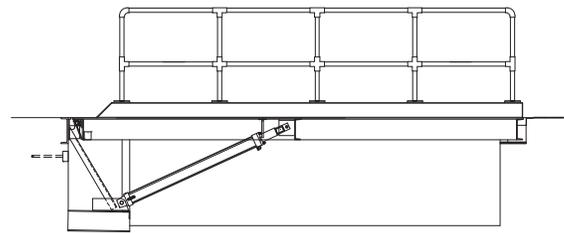


Figure 17

Lowering Bridge

1. Ensure that any potential cross-traffic is being directed away from the bridge area, and that no vehicles, objects or personnel are present underneath the bridge before lowering.
2. Visually check path of bridge travel to make sure it is clear of obstructions.
3. Press and hold the LOWER button. The hydraulic storage props will retract and the BLUE "Bridge Stored" light will turn off, indicating bridge is mid-travel.
4. When the GREEN "Bridge Down" light turns on, indicating the bridge is fully lowered and resting in its pocket on the free end, release the RAISE button.

Note: The preceding instructions are for the basic bridge configuration. Some applications will involve interlocking with other equipment such as hydraulic barriers, dock levelers, overhead doors or other equipment. Always follow the sequence of operation shown on the controls for your specific unit.

MAINTENANCE

Maintenance Precautions

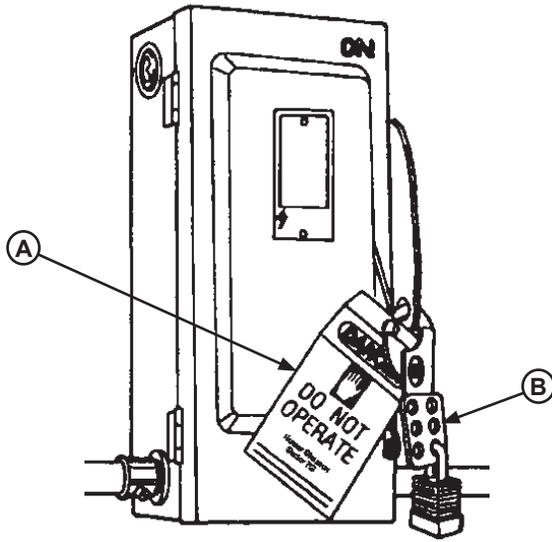


Figure 18

A - Tag Out Device

B - Lock Out Device

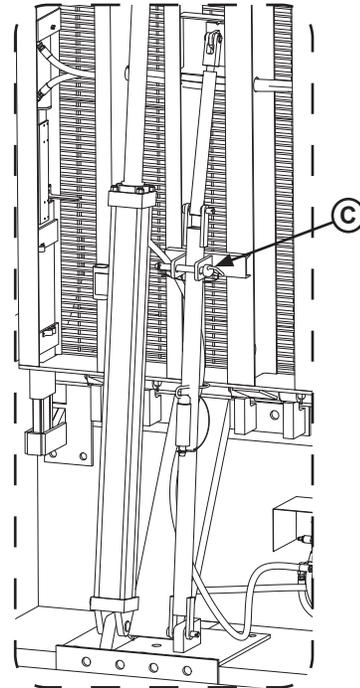


Figure 19

C - Maintenance Prop Lock Pin

DANGER

Use an additional means to support the Bascule Bridge anytime when physically working in front of or under the Bascule Bridge. 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 18).

Whenever maintenance is to be performed under the Bascule Bridge platform, secure the maintenance prop with the provided lock pin (C, see Figure 19).

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.

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 Bascule Bridge.

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

Periodic Maintenance

Weekly Maintenance

- Operate the Bascule Bridge through the complete operating cycle to maintain lubrication.
- Clean all dirt and debris from around and in pit of Bascule Bridge. Build-up of foreign material in hinge and cylinder areas will cause abnormal operation.
- Check reservoir fluid level on the sight glass (C). Add fluid as required.
- Check all hose connections for leaking fluids. Repair or replace as needed.
- Check fluid filter gauge (B) with pump running. Replace filter when indicated on dial.

Quarterly Maintenance

- Complete Weekly Maintenance.
- Inspect the following for damage/abnormal wear:
 - Inspect area under the platform for damage.
 - Check welds for cracks.
 - Cylinder pins and mounting holes.
 - Hinge pins.
 - Inspect hoses, cylinders, fittings and powerpack.
 - Control box and conduit for damage.
- Lubricate the platform hinge area by applying light weight machine oil to top of all platform hinges.
- Lubricate the following areas with white lithium grease (see Figures 20 and 21):
 - (D)— Trunnion hinge pins.
 - (E)— Platform cylinder pivots.
- Verify main system pressure (A) is set at 1700 psi. See page 27 if adjustment is required.
- Check all anchors for proper torque specification.

Approved Hydraulic Fluids

To ensure normal operation of the Bascule Bridge, use only aircraft hydraulic fluid designed to meet or exceed military specification MIL-H-5606-G. The following hydraulic fluids are recommended:

- 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.

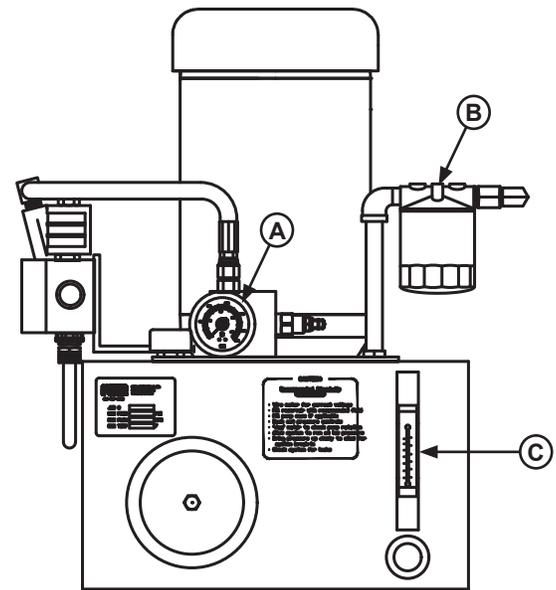


Figure 19

- A — Pressure Gauge
- B — Fluid Filter Gauge
- C — Sight Glass

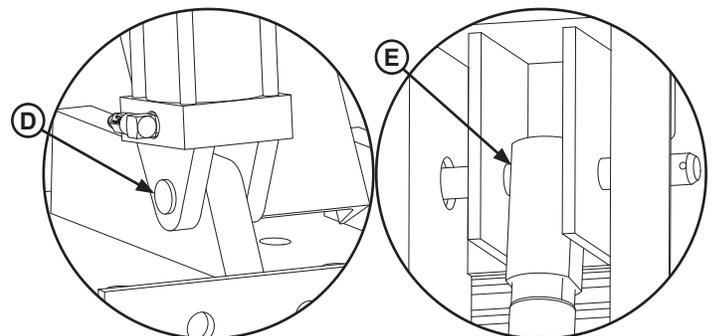


Figure 20

Figure 21

- D — Lower Cylinder Pin
- E — Upper Cylinder Pin

NOTICE

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

NOTICE

Failure to properly lubricate the Bascule Bridge will cause abnormal operation of the Bridge.

ADJUSTMENTS

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 the equipment before maintenance is complete.

WARNING

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

Note: The main pressure relief may need to be *increased* if the platform does not raise/lower, or raises/lowers slowly and the system operates in pressure relief mode.

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

The factory setting of 1700 psi should not require adjustment, however minor adjustments may eventually be required after some time in service.

See Troubleshooting section on pages 30-33 for more information.

1. Loosen jam nut (**B**).
2. Adjust hex adjusting screw (**C**) as follows:
 - To increase pressure relief, turn hex screw clockwise.
 - To decrease pressure relief, turn hex screw counter-clockwise.
3. Tighten the jam nut.
4. Cycle Bridge and verify pressure relief setting.
5. Repeat steps 1–4 as necessary.

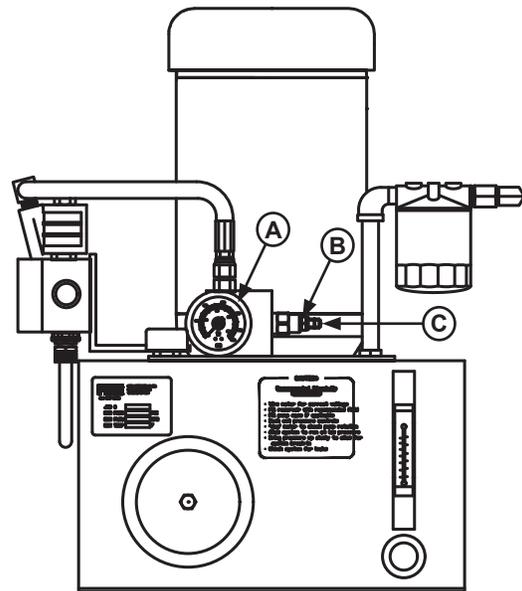


Figure 22

A— Pressure Gauge
B— Jam Nut

C—Hex Adjusting Screw

DANGER

Never, under any circumstances, set the pressure to exceed 2100 psi as indicated on the gauge!

Adjust Flow Control Valve

If the Bascule Bridge appears to be operating too slowly, the flow control valve (A) on the Powerpack can be adjusted. Turn the flow control valve clockwise to slow the unit down and counter-clockwise to increase the speed.

See Troubleshooting section on pages 30-33 for more information.

Note: The unit has safety velocity fuses on both main cylinders to ensure safety in the event of a hose break. If the flow control is opened too far, the unit will lock up under its own weight on the velocity fuse(s). Close the flow control valve slightly and try again.

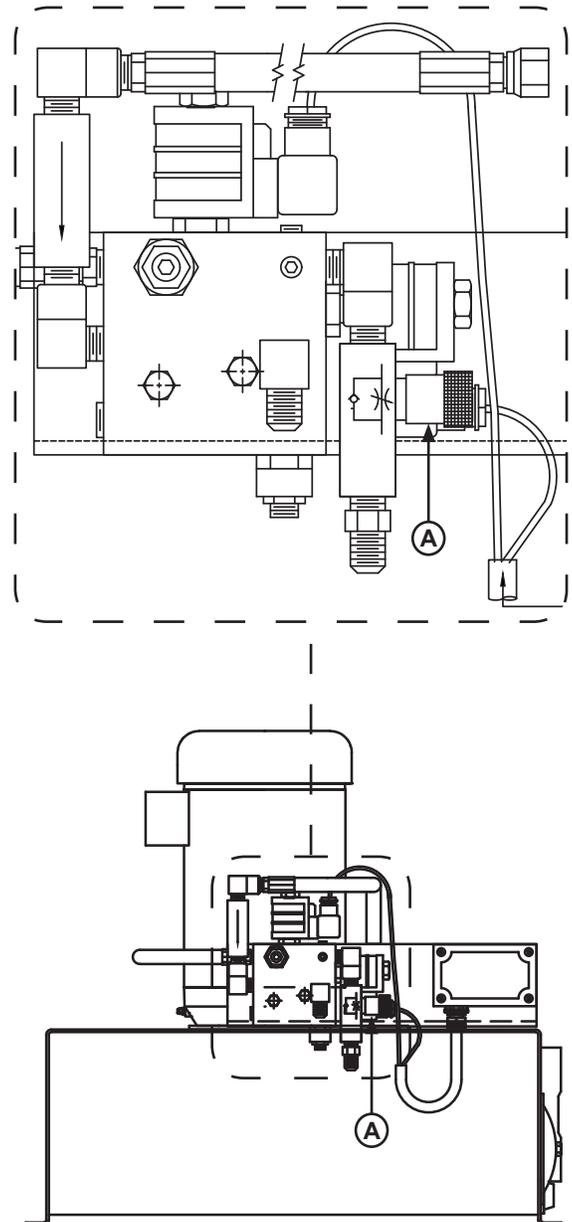


Figure 23

A — Flow Control Valve

TROUBLESHOOTING

Emergency Raise

 **WARNING**



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

 **WARNING**

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

6. When raising is complete, ensure the storage prop is moved into its pocket and the lock pin is inserted so that the bridge is supported.

7. Remove cable from lifting brackets and fork truck. Bridge is now stored.

In the event that facility power is lost or another scenario occurs where the Bascule Bridge cannot be raised hydraulically, it is possible to manually raise the Bascule Bridge from the lowered position using a suitable fork truck and the lifting plates provided with the bridge.

1. If the lifting plates were removed during installation, re-attach them to the outboards at the free end of the bridge using the hardware provided with the unit.
2. Attach a cable with clevis ends of sufficient size and capacity (provided by others) through the lifting plate. String each cable through a pulley (provided by others) at the hinged end of the bridge and suspended above the floor approximately the same height as the bridge in the stored position. Secure the second end of each cable to a fork truck capable of safely raising the bridge load.
3. Ensure no vehicles, objects or personnel are present on the bridge surface before raising.
4. Visually check path of bridge travel to make sure it is clear of obstructions.
5. Using the fork truck, raise the bridge into its vertical position.

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TROUBLESHOOTING

DANGER

Use an additional means to support the Bascule Bridge anytime when physically working in front of or under the Bascule Bridge. This additional means may include, but is not limited to a boom truck, fork truck, stabilizing bar or equivalent.

WARNING

When service under the Bascule Bridge is required, always lock all electrical disconnects in the OFF position after raising the platform.

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

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

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
Platform does not rise. Motor does not energize.	Motor overload device tripped.	Reset overload relay or breaker. Determine cause of device tripping.
	Motor starter (three-phase) or motor relay (single-phase) not energizing.	Check voltage at starter or relay coil. <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.

TROUBLESHOOTING

Symptom	Possible Cause	Solution
<p><u>Three-phase units only:</u> Platform does not rise. Motor hums, but does not run.</p>	<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>
<p><u>Three-phase units only:</u> Platform does not rise. Motor runs in reverse</p>	<p>Phase reversed.</p>	<p>Reverse any two legs at the branch circuit disconnect.</p>
<p><u>Single-phase units only:</u> Platform does not rise. Motor energizes, but does not run.</p>	<p>Line voltage too low.</p>	<p>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.</p>
	<p>Faulty motor centrifugal switch.</p>	<p>Replace motor.</p>
	<p>Faulty motor capacitor.</p>	<p>Replace motor.</p>

TROUBLESHOOTING

Symptom	Possible Cause	Solution
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 Bridge is designed to lift only the platform's own weight.
	Dock Bridge 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 26 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. <i>* The full load amp value can be found on the inside cover of the control panel.</i>
Platform rises slowly.	Low hydraulic fluid.	Add hydraulic fluid, see page 25 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 page 25 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).
	Pressure relief set too low.	Increase pressure relief. See page 26 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. <i>* The full load amp value can be found on the inside cover of the control panel.</i>
Pump motor loads down when platform reaches the full raised position.	Pressure relief set too high.	Decrease pressure relief. See page 26 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. <i>* The full load amp value can be found on the inside cover of the control panel.</i>

TROUBLESHOOTING

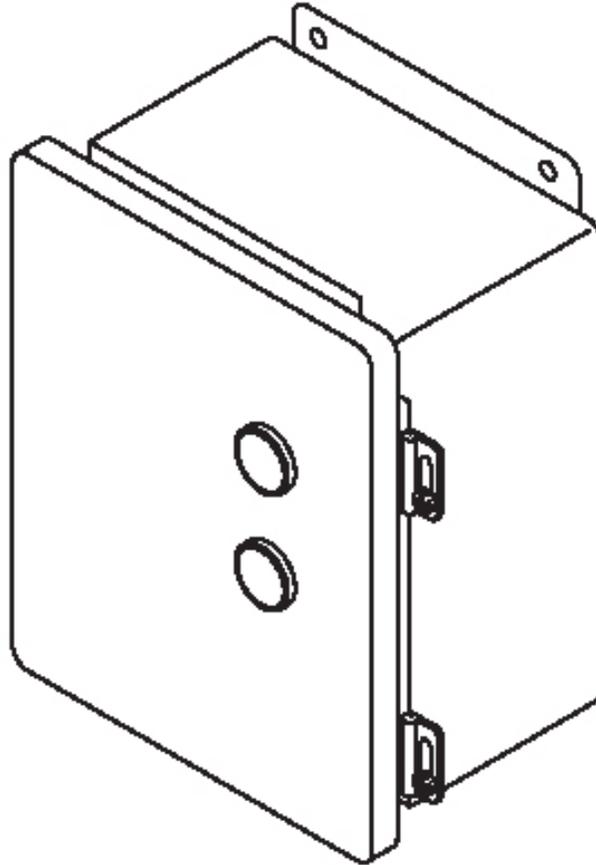
Symptom	Possible Cause	Solution
Platform does not rise to full height.	Low hydraulic fluid.	Add hydraulic fluid, see page 25 for proper fluid level and type.
Platform rises but does not lower.	Solenoid not energized.	Locate solenoid. Coil must be energized when Bascule Bridge lowers. Check valve for magnetism at the coil.
	Faulty spool valve.	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.
Platform locks into "safety" as platform lowers.	Platform lowering speed is too fast.	Adjust platform down speed control. See Adjust Flow Control on page 27. Note: Extreme cold weather and/or incorrect hydraulic fluid may also cause cylinder to lock. Decrease down speed to compensate.
	Incorrect or aged hydraulic fluid.	Replace hydraulic fluid, see page 25 for proper fluid level and type.

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

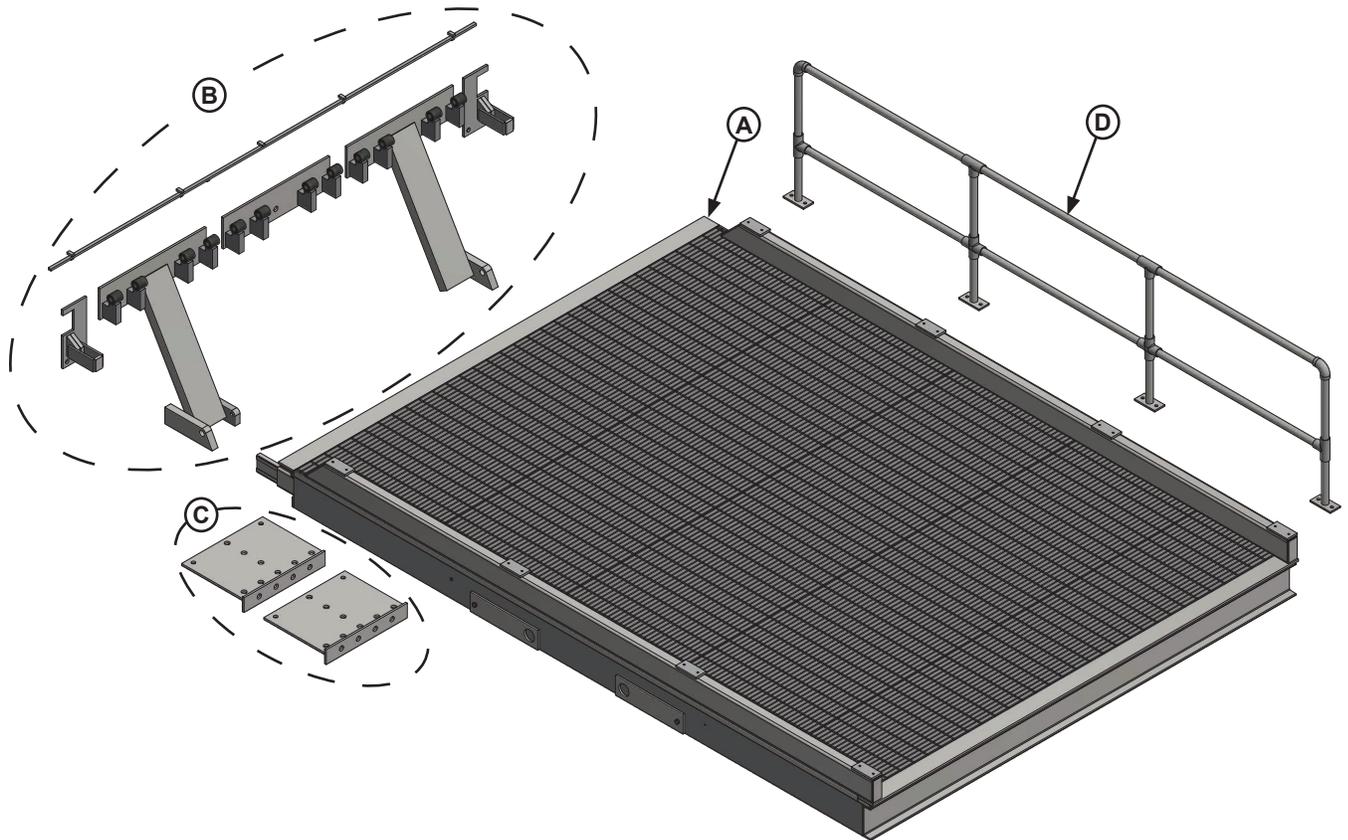
Control Box



Part Number	Description
*	Control Box

* Provide Bascule Bridge serial number, voltage, phase, and options when e-mailing, calling or faxing controller orders.

Frame and Platform

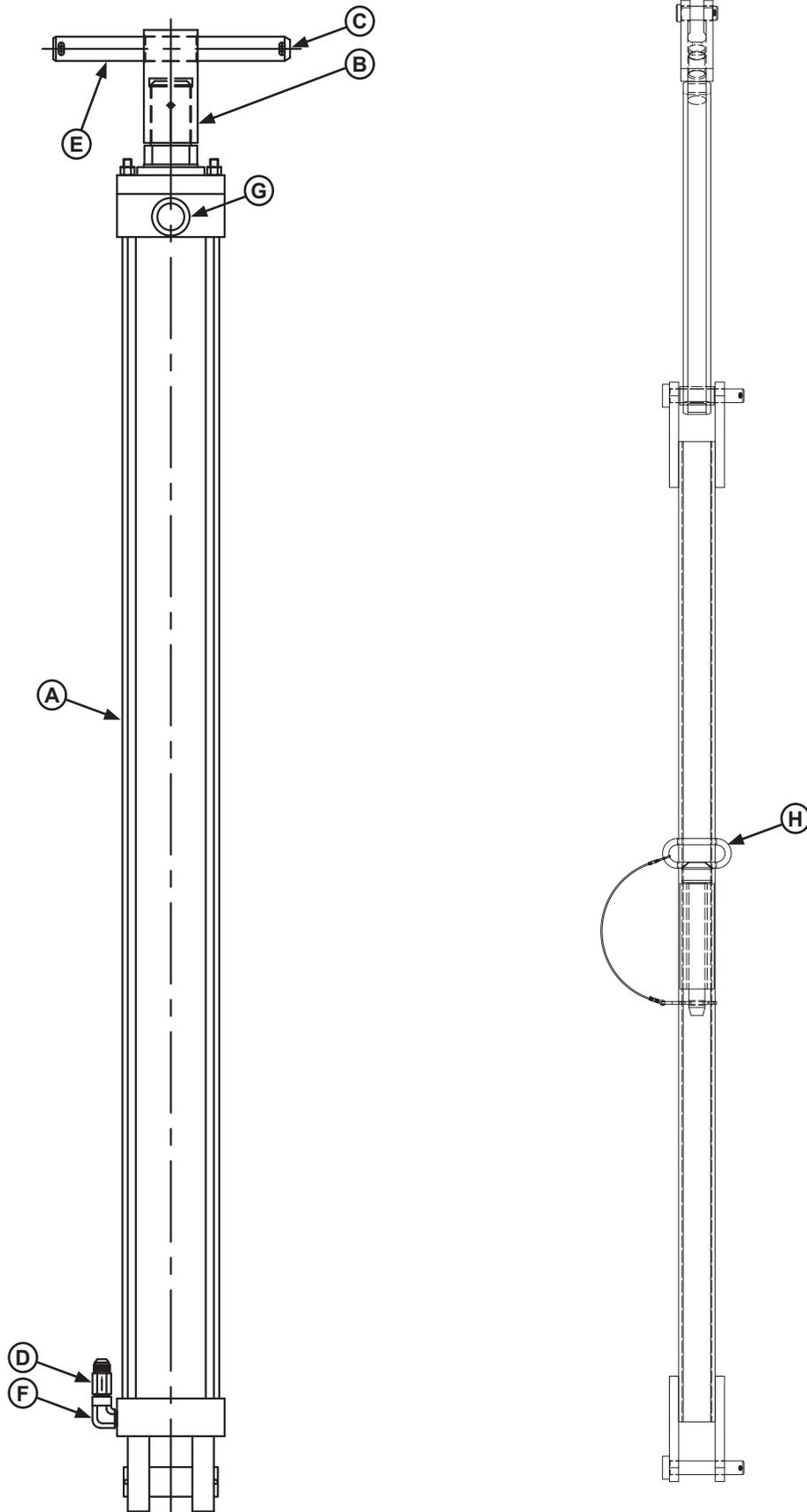


Item	Quantity	Part Number	Description
A	1	*	Platform Assembly
B	*	*	Hinge/Frame Weldments
C	*	*	Pit Floor Weldments
D	2	*	Handrail

* Provide Bascule Bridge serial number and options when e-mailing, calling or faxing orders.

PARTS

Cylinder Assembly & Storage Prop



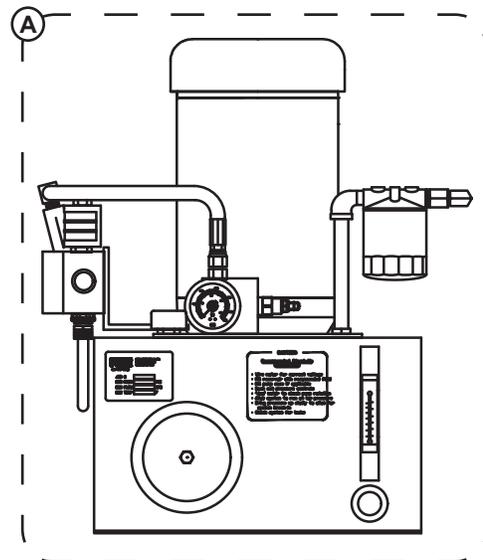
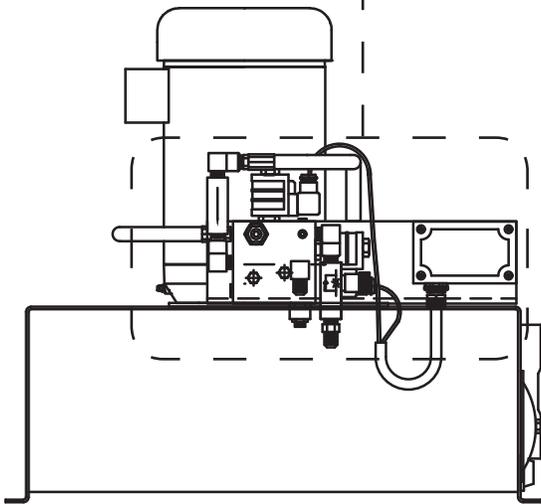
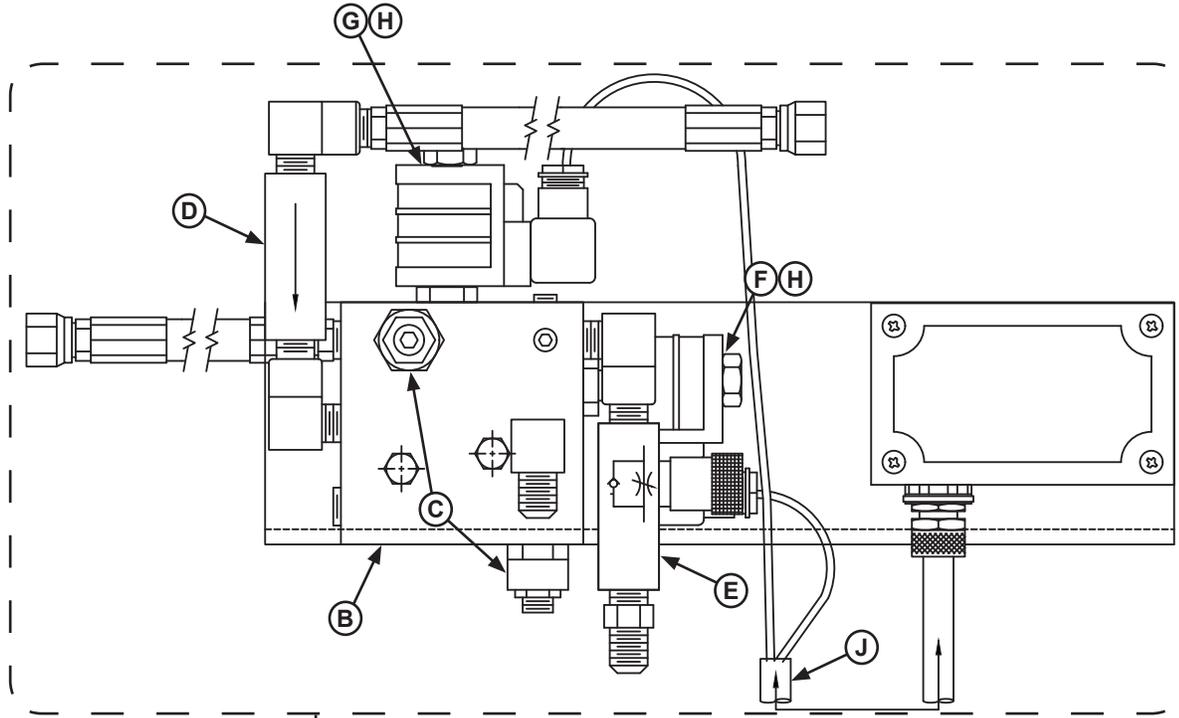
Item	Quantity	Part Number	Description
*	2	*	Cylinder Assembly, Bascule Bridge, Complete (Includes A-E)
A	1	*	Hydraulic Cylinder
B	1	0522-0108	Rod End
C	2	2101-0047	Cotter Pin
D	1	8581-0021	Velocity Fuse
E	1	9202-0002	Pin, 1-1/8 x 11
F	1	9301-0007	Fitting, Elbow, 90 Deg Street
G	1	9301-0199	Fitting, Breather Cap, W/Dipstick
*	1	0521-0061	Roll Pin, Rod End To Cylinder (Not Shown)

Item	Quantity	Part Number	Description
*	1	*	Storage Prop, Bascule Bridge, Complete
H	1	91594A340	Lock Pin (Includes Tether)

* Provide Bascule Bridge serial number and options when e-mailing, calling or faxing orders.

PARTS

Powerpack & Valve Assembly



Item	Quantity	Part Number	Description
A	1	*	Powerpack, Bascule Bridge, Complete, w/Valve Assembly
B	1	*	Valve Assembly, Bascule Bridge (Includes C-G)
C	2	8581-0038	Needle Valve, Cartridge
D	1	8581-0013	Check Valve
E	1	8581-0012	Flow Control Valve
F	1	8581-0010	Valve, 2-Way, N.C.
G	1	8581-0011	Valve, 4-Way
H	2	8581-0004	Coil, Solenoid, Delta
J	1	4305-0264	Cable Assembly, 2-Coil, 24" OAL

* Provide Bascule Bridge serial number and options when e-mailing, calling or faxing orders.

MISCELLANEOUS

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Customer Information

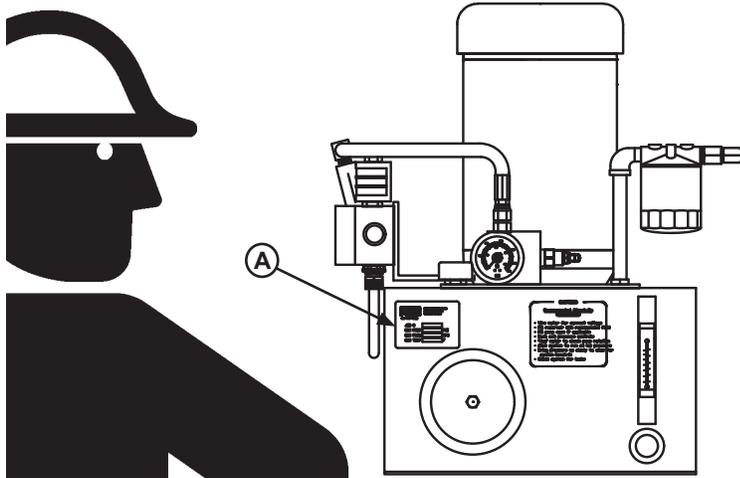


Figure 24

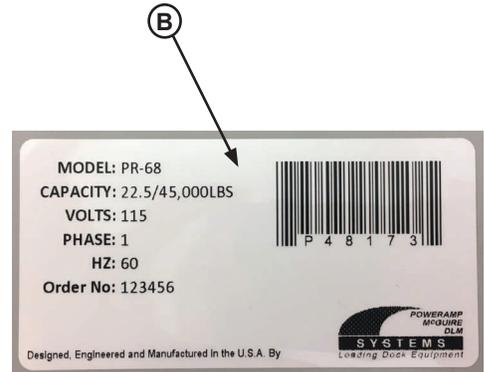


Figure 25

NOTE: Refer to Figure 24 for orientation of powerpack and Figure 25 for example of decal.

The Bridge model/serial number decal is located on the powerpack (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 Bridge 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.