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**IMPORTANT**

Please read and understand this manual prior to installation or operation of this equipment. Failure to do so could lead to property damage and/or serious personal injury. If questions arise, call a local representative or *Autoquip Corporation* at 1-888-811-9876 or 405-282-5200.

**PLANNED MAINTENANCE PROGRAM**

A local *Autoquip* representative provides a Planned Maintenance Program (PMP) for this equipment using factory-trained personnel. Call a local representative or *Autoquip Corporation* at 1-888-811-9876 or 405-282-5200 for more information.
IDENTIFICATION

When ordering parts or requesting information or service on this lift, PLEASE REFER TO THE MODEL AND SERIAL NUMBER. This information is on a nameplate attached to the lift platform. Replacement parts are available from a local Autoquip distributor.

INSPECTION

Immediately upon receipt of the lift, a visual inspection should be made to determine that the lift has not been damaged in transit. Any damage found must be noted on the delivery receipt. In addition to this preliminary inspection, the lift should be carefully inspected for concealed damage. Any concealed damage found that was not noted on the delivery receipt should be reported in writing to the delivering carrier within 48 hours.

The following is a checklist that will aid in the inspection of the lift.

1. Examine entire unit for any signs of mishandling. Pay special attention to the power unit and controls.

2. Thoroughly examine all connections, making sure they have not vibrated loose during transit.

3. Check to make sure there are no missing parts. If any parts appear to be missing, contact the Autoquip Customer Assurance Department immediately.
SAFETY ALERTS (Required Reading!)

The following SAFETY ALERTS are intended to create awareness of owners, operators, and maintenance personnel of the potential safety hazards and the steps that must be taken to avoid accidents. These same alerts are inserted throughout this manual to identify specific hazards that may endanger uninformed personnel. Identification of every conceivable hazardous situation is impossible. Therefore, all personnel have the responsibility to diligently exercise safe practices whenever exposed to this equipment.

---

**DANGER!**

Identifies a hazardous situation that presents the imminent probability of death or of severe personal injury!!

---

**WARNING!**

Identifies a hazardous situation that has the potential of causing death or serious personal injury.

---

**CAUTION!**

Identifies a hazardous situation that could lead to the possibility of personal injury of death, and/or may result in equipment damage.
Read and understand this manual and all labels prior to operating or servicing the bridge. All labels are provided in accordance with ANSI Z535.4.

---

**DANGER!**

To avoid personal injury, stand clear of the bridge and handrails while it is in motion.

---

**DANGER!**

**HIGH VOLTAGE!!** Disconnect and/or lock out the electrical supply to the power unit prior to any maintenance being performed.

---

**DANGER!**

NEVER go under the bridge or perform maintenance until the load is removed and the bridge is securely blocked. See “Blocking Instructions” section in this manual.

---

**WARNING!**

All warning and information decals should be in place as outlined in the “Label Identification” section. If decals are missing or damaged, they should be replaced with new ones. Contact an *Autoquip* representative for replacements.
WARNING!
Under circumstances should the flow control be modified or removed from the pump or Deltatrol to obtain faster lowering speed. A loaded lift can reach dangerous and destructive speed and/or unnecessary closing of the velocity fuses.

WARNING!
NO RIDERS when the bridge is in motion.

CAUTION!
Become familiar with this manual before operating this equipment.

CAUTION!
Use only approved oils. See “Oil Requirements” in the Maintenance Section.

CAUTION!
Precaution should be taken to prevent the introduction of contaminates such as dirt or other foreign material into the system through open fittings, pipes, or disassembled components. Contamination will ruin the hydraulic system.

CAUTION!
The bridge must be fully lowered before moving a load onto it. Serious damage to the bridge and its components can result.
HYDRAULIC VELOCITY FUSES

Each hydraulic cylinder has a hydraulic velocity fuse (HVF) installed in the cylinder port. These HVFs are installed in the predetermined hydraulic oil flow velocity as the oil returns to the reservoir. They do not affect incoming oil. Should a catastrophic rupture or breach occur in the hydraulic system and oil flows through the breach that exceeds the HVF rating, the HVF will trigger and lock up. This lock up will occur with one to two inches of downward movement of the platform carriage.

NOTE: Air in the system will also cause a lock up. Air acts like a spring when compressed. To remove air from the system, see “Air Bleeding Procedures” in the General Maintenance section.

NOTE: Small fitting leaks will trigger the HVFs. In an air-free system, the breach must be large enough to cause an uncontrolled or destructive lowering speed. Should a triggering and lock up occur, it can only be released by applying upward hydraulic flow in a functional system.

SAFETY RELEASE BYPASS VALVE (SRBV)

The SRBV is a part of the hydraulic system. Should the system pressure exceed the predetermined pressure setting, the SRBV will bypass the pump output back to the oil reservoir. The SRBV is factory set to the proper pressure, which will prevent damage to the mechanical, hydraulic, and electrical systems due to overloading, obstruction, or other circumstances.

SAFETY LEGS / SAFETY WINGS

The safety legs are automatic devices which serve two critical safety functions:

1. If the bridge is left open over a long period of time (possibly over the weekend) a slow downward drift may occur due to the normal bleeding of hydraulic pressure across the valve seats in the check valve and dump valve. In the extended position, the safety legs will make contact with the adjacent curb angles, prevent the bridge from drifting any further, and maintain the bridges vertical position.

2. If the bridge were to experience a sudden and unexpected loss of hydraulic pressure while being stored in the vertical position, the safety legs would support the bridge until repairs could be made.
## LABEL IDENTIFICATION

![Figure 1 Label Placement](image)

### Bascule Bridge

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Note: Labels shown here are not actual size.

Figure 2  Label 36400679

Figure 3  Label 36401487

Figure 4  Label 36401602
Figure 5 Label 36403046

Figure 6 Label 36403707

Figure 7 Label 36403830
Figure 8  Label 36401511
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**NOTES:**
1. Units with other specifications are available upon request.
2. Single leaf bascule bridges up to 30" long with capacities to 100,000 lbs are available.
3. For the double leaf bridge, use two single leaf bridges.
4. Double leaf bascule bridges have two power units, two automatic safety latches, and two sets of controls. Each leaf operates independently.
5. Shipping weight of double leaf bascule bridges is determined by doubling the weight of single leaf bridge and adding approximately 500 lbs for folding support legs.
DANGER!

NEVER go under the bridge or perform maintenance until the load is removed and the bridge is securely blocked.

1. Lower the empty bridge platform into the horizontal position.
2. Place temporary supports under all corners of the bridge frame.
3. Drive shims and/or blocks between the bridge frame and the supports to relieve pressure from the lifting cylinders.
4. To remove temporary supports, hydraulically raise the bridge to the vertical position.
DANGER!

NEVER go under the bridge until the load is removed and the bridge is securely blocked. See “Blocking Instructions” section in this manual.

BRIDGE (See Figures 9 through 13)
1. Set the bridge in the correct horizontal position (on “horses” or temporary welded supports). Line up accurately with the dock and hinge channel.
   NOTE: Hinge channel and clevis channel MUST be set plumb, square, and parallel by the pit contractor.

2. Tack-weld the male hinge clevises securely in place. Remove the hinge pins and raise or lower the bridge enough to expose the clevises for full welds. Weld securely 5/16” inch fillets all around (shim between the imbedded channel and the clevises, if required).

3. Grease the hinge pins and reset the bridge on the hinges.

LIFTING CYLINDERS (See Figure 14)
4. Bolt the cylinder base clevis to the tapped clevis block using only two of the ¼” thick shim plates between them. Connect the cylinder to the bridge clevis and the base clevis.

5. Line up the clevises and rams accurately, with the bottom clevis-pin-centerline exactly 15 ¾” out from the hinge channel face. Weld the clevis blocks to the base channel, 5/16” fillets all around.

POWER UNIT (See Figures 15 and 16)
6. The power unit can be mounted in any area that is less than 12 feet above the bridge and less than 30 feet away from the bridge, and is protected from the elements. The power unit must be lagged down. The electrical work is to be done in accordance with local codes by a qualified electrician. See the electrical schematic in the Maintenance section of this manual for proper electrical installation.

7. Check the motor rotation for proper direction. Switch the leads if necessary to change the motor direction. NOTE: Precautions must be taken to collect fluid pumped from the reservoir when checking the motor rotation.

8. Fill the power unit reservoir with fluid as per the instructions in the “Maintenance” section.
CAUTION!

Precaution should be taken to prevent the introduction of contaminates such as dirt or other foreign material into the system through open fittings, pipes, or disassembled components. Contamination will ruin the hydraulic system.

9. Connect the power unit to the lift and safety leg cylinders. Refer to the hydraulic schematic in the Maintenance Section of this manual. Pipe that is used must be Schedule 80 with extra heavy fittings. All hoses, fittings, and pipe is to have a rated operating pressure of 3000 PSI minimum. Apply the recommended pipe sealant to insure a pressure tight fit. Check the routing of the hydraulic lines to be sure that the hoses and pipes are clear of all moving parts and remain within the 24” cutout area (for pit mounted power units) or an 18” storage area (for remotely mounted power units). Do not use Teflon tape.

BRIDGE ADJUSTMENTS

10. Carefully raise (to only about half way) and lower the bridge a few times. Then, slowly raise it to the full vertical position but not beyond a vertical position, or you may destroy the rams.

11. If the bridge does not go all the way to the desired vertical position and the ram (or rams) are at the end of their strokes, add shims under the base clevis until the correct posture is reached. On multiple ram bridges, all rams must reach the end of their strokes in unison. Shim carefully so that no ram “bottoms out” ahead of the other rams, or it can be damaged by having to resist the forces of all other rams in addition to its own.

12. If the bridge is at its correct vertical position but the cylinders are not all the way out (which could let the bridge go beyond vertical), remove the shims from under the base clevis. Test this by carefully inching the bridge after it has reached the vertical position. If it appears capable of going beyond vertical, remove a shim and recheck it.

13. The base clevis shims control the raised position of the bridge. Adding shims pushes it away from the cylinders. Removing the shims pulls it toward them.

14. Unless otherwise noted, only the rams must stop the bridge travel. Use of any device to stop the bridge before the rams reach their full stroke can result in bending their rods by the full hydraulic pressure being applied near the maximum extended length.
INSTALLATION INSTRUCTIONS

CAUTION!

Never unbolt the clevises or try to change the shims when the bridge is not resting solidly in its fully lowered position.

15. Check the fluid level in the reservoir and replenish if necessary. See the fluid specifications in the Maintenance Section of this manual. Cycle the bridge to set the limit switch tripping locations. NOTE: Initial limit switch settings should prevent over travel of the safety legs and bridge, or damage may occur.

16. To remove air from the cylinders, raise the bridge and manually lower it 10 – 15 times by using the Manual Lowering Valve. Hold the valve open 30 to 40 seconds after the cylinders are in the fully collapsed position (the bridge weight should be resting on the bottomed out cylinders).

17. Locate the bridge position limit switch and adjust it so that when it strikes and trips against the lifting cylinder, the safety legs just clear the top of the pit curb angles.

18. Adjust the safety leg retract limit switches to trip when the safety legs are fully retracted.

19. Adjust the safety leg extend limit switches to trip when the safety legs are fully retracted.

Clean Up

1. Clean up any spilled oil and debris from the area. A clean installation makes a good impression and creates a much safer environment!

2. Touch-up paint is available by request from Autoquip for repair of damaged paint surfaces.
REMOTE POWER UNIT
FOR POWER UNIT MOUNTED REMOTELY, INSTALL THE (3)
(2) 3/8" (SCH. 80) BLACK PIPE & FITTINGS FROM
REMOTE POWER UNIT TO CUTOUT FOR LIFTING RAMS.
(1) 1/2" (SCH. 80) BLACK PIPE & FITTINGS FROM
REMOTE POWER UNIT TO CUTO OUT FOR SAFETY LEGS.

HYDRAULIC LINES & (1) CONTROL CONDUIT.
(2) 3/4" CONDUITS. (1) FOR CONTROL & (1) FOR POWER.

STEEL PLATE
POWER UNIT ON THE 24" MIN. CUTOUT IF DESIRED.

2" CLEARANCE
OPENING LENGTH AND DOCK LENGTH

Figure 9  Single Leaf Bascule Bridge – Plan View
NOTES:

1. Each end of dock will have (1) push-button station.

For complete details on pipe and conduit sizes & locations, specifications and notes, see Double Bascule Bridge Plan View.

24" Min. cutout

Remote power unit (2) 3/8" extra heavy galvanized pipes

3/4" clearance

35 1/2" C

8" L

16" min.

15 1/4"

24" min. cutout

Lifting cylinders with chrome plated rods and velocity fuses.

Shim as req'd to equalize bridge and dock height.

Check railroad clearances req'd from this point to center line of track. (Typ. both ends.)

Hinge reaction = __________ lbs. plus desired safety factor

Bridge in raised position recesses completely into 24" cutback (Typ. each bridge)

Reaction in concrete equals total bridge weight plus 1.3 times maximum load. Reinforce concrete to take reactions, plus desired safety factor. By Pit Contractor.

Cutout depth

Platform depth

1" clearance

1" clearance

Bridge length

Concrete to take reactions, plus desired weight plus 1.3 times maximum load. Reinforce reaction in concrete equals total bridge velocity fuses.

6" high wheel curbs on both bridges, both sides

6" high wheel curbs

1" clearance

Platform depth

1" clearance

3/4" clearance

3/4" clearance

1/2" extra heavy galvanized pipe

Remote power unit

(1) 1/2" extra heavy galvanized pipe

Galvanized pipes

3/8" extra heavy galvanized pipes

Figure 10 - Single Leaf Bascule Bridge – Elevation View

Autoquip

SINGLE LEAF BASCULE BRIDGE - ELEVATION VIEW
INSTALLATION INSTRUCTIONS

Figure 11  Double Leaf Bascule Bridge – Plan View
GRIND TOP SMOOTH AFTER FIELD WELDING BY INSTALLER.

HINGE REACTION

HINGE CLEVIS SUPPLIED BY AUTOQUIP. (14) HINGES TOTAL.

10" x 20.0 LB. CHANNEL. W/ #5 REINFORCING BARS NO SUBSTITUTION BY AUTOQUIP. (INSTALLATION BY PIT CONTRACTOR)

Figure 13 Bridge Hinge Clevis Detail

(4) 3/4"-10 UNC BOLTS WITH LOCKWASHERS PER CYLINDER CLEVIS. USE APPROPRIATE LENGTH BOLTS.

CYLINDER CLEVIS PRE-DRILLED AND WELDED. FURNISHED BY AUTOQUIP.

(2) 1/8" SHIMS AND (2) 1/4" SHIMS PER CLEVIS. FURNISHED BY AUTOQUIP. SEE NOTE.

BASE FURNISHED BY AUTOQUIP. PRE-DRILLED AND TAPPED. FIELD WELD TO CHANNEL BY INSTALLER.

10" x 20.0# CHANNEL. W/ #5 REINFORCING BARS NO SUBSTITUTION BY AUTOQUIP. (INSTALLATION BY PIT CONTRACTOR)

Figure 14 Cylinder Base Clevis Detail
Figure 15  Hydraulic Connection Detail – Pit Mounted Power Unit
Figure 16  Hydraulic Connection Detail – Remote Power Unit
BASCULE BRIDGE AND SAFETY LEG OPERATION


THE PUSHBUTTONS ARE CONSTANT PRESSURE (DEAD-MAN TYPE). RELEASING A PUSHBUTTON AT ANY TIME DURING BRIDGE OPERATION WILL STOP THE BRIDGE AT THAT POINT.

NOTES: THE SAFETY LEGS ARE SAFETY DEVICES WITH A TWO-FOLD FUNCTION:

(1) IF THE BRIDGE IS LEFT UP OVER A LONG PERIOD OF TIME, POSSIBLY OVER A WEEKEND, A SLOW DOWNWARD DRIFT MAY OCCUR DUE TO NORMAL LEAKAGE TOLERANCES OF ANY VALVE. THE SAFETY LEG WILL CONTACT THE CURB ANGLE, STOP THE BRIDGE AND MAINTAIN ITS VERTICAL POSITION.

(2) IF THE BRIDGE WERE TO EXPERIENCE LOSS OF HYDRAULIC PRESSURE WHEN IN THE VERTICAL POSITION, THE SAFETY LEGS WOULD SUPPORT THE BRIDGE AND MAINTAIN ITS VERTICAL POSITION. THE BRIDGE MUST BE MOMENTARILY POWERED UP AND THE SAFETY LEGS POWERED INWARD BEFORE THE BRIDGE WILL LOWER. THE BRIDGE MUST HAVE A PROPERLY FUNCTIONING HYDRAULIC SYSTEM (SUPPLYING HYDRAULIC POWER) FOR THE BRIDGE TO LOWER. THE BRIDGE WOULD MAINTAIN ITS VERTICAL POSITION UNTIL REPAIRS ARE MADE.

- THE SAFETY LEGS DO NOT REST ON THE CURB ANGLE IN NORMAL BRIDGE OPERATION. THEY PERFORM THEIR FUNCTION AS NOTED IN ITEMS #1 & #2 ABOVE.
- THE 1" CLEARANCE ALLOWS THE SAFETY LEGS CLEARANCE WHILE BEING POWERED OUT AND IN. IF THE BRIDGE SHOULD DRIFT DOWNWARD AND THE SAFETY LEGS REST ON THE CURB ANGLE, THE ENTIRE BRIDGE WILL STILL REMAIN WITHIN THE 24" CUTOUT (MINIMUM), AS STATED ON THE ELEVATION VIEW.
Figure 18  Bascule Bridge Safety Leg Detail (Sheet 2)
Familiarize yourself with this operator’s manual before operating the equipment!!!

The Bascule Bridge has a maximum capacity rating (See the “Specifications” section). The safety relief valve should not be adjusted for any reason as it could cause the motor to prematurely burn out. Applying loads exceeding the rated capacity of the bridge may result in permanent damage.

⚠️ CAUTION!

Do not continue to activate the "UP" button if the bridge is not raising or if it has reached the fully raised position. To do so may result in permanent damage to the bridge.

UNITS WITH SAFETY LEG “WINGS”

Up Pushbutton

Pressing the “UP” pushbutton energizes the motor starter and energizes the safety legs retract solenoid “B” through the bridge position limit switch circuit. The pump supplies power to lift the Bascule Bridge, and the safety legs are powered to hold their fully retracted position as the bridge rises.

When the Bascule Bridge approaches the vertical position, the safety legs will clear the curb angle on the 24” cutout, the bridge position limit switch trips, de-energizing the safety legs retract solenoid “B” and energizing the safety legs extend solenoid “A”. As the Bascule Bridge continues to rise, the safety legs are powered out until they extend over the curb angle.

When the safety legs are fully extended, the safety legs fully extended limit switches trip, de-energizing the magnetic starter.

(See Figures 17 and 18)
Down Pushbutton

Pressing the “DOWN” pushbutton momentarily changes the signal to an “UP” signal through the safety legs fully retracted limit switches. The signal energizes the motor starter causing the bridge to rise slightly. At the same time, the “DOWN” pushbutton energizes the safety legs retract solenoid “B” through the motor starter auxiliary contact, causing the safety legs to be powered inward.

When the safety legs are retracted, the safety legs fully retracted limit switches trip, causing the motor starter to de-energize and changes the signal to a “DOWN” signal by energizing the down solenoid.

When the motor starter is de-energized (above) the auxiliary contact of the motor starter opens, de-energizing the safety legs retract solenoid “B”. The Bascule Bridge will lower at this time.

Release the “DOWN” pushbutton when the Bascule Bridge is fully lowered.

NOTES:
1. The safety legs do not rest on the curb angle in normal bridge operation.

2. The pushbuttons are constant-pressure (Dead Man) type. At any time during any of the sequences, releasing the pushbutton will cause all functions to cease and Bascule Bridge and safety legs will stop until a pushbutton is once again depressed.

⚠️ WARNING!

Under circumstances should the flow control be modified or removed from the pump or Deltatrol to obtain faster lowering speed. A loaded lift can reach dangerous and destructive speed and/or unnecessary closing of the velocity fuses.
Normally the Bascule Bridge will require very little maintenance. However, a routine maintenance program could prevent costly replacement of parts and/or downtime.

⚠️ **DANGER!**

To avoid personal injury, NEVER go under the bridge or perform any maintenance until the load is removed and the bridge is securely blocked. See "Blocking Instructions" section.

**MONTHLY INSPECTION:**

1. Check oil level (see oil recommendations in this section) and add appropriate oil when necessary.

2. Check for any visible leaks. Correct as necessary.

3. Check any unusual noise when it occurs. Determine the source and correct as necessary.

4. Check the safety wing hinges for rust or dirt. Clean and lubricate.

5. Check the ram plunger surface for rust, scoring, or damage.

6. Check all wiring for looseness or wear. Repair at once.

**OIL REQUIREMENTS:**

Change oil yearly, or more frequently if it darkens materially or feels gummy or gritty. Use detergent motor oils only. Do not use hydraulic-jack oil, hydraulic fluids, brake fluids, or automatic transmission fluid.
# ROUTINE MAINTENANCE

## Oil Viscosity Recommendations

<table>
<thead>
<tr>
<th>Environment (Ambient Temperatures)</th>
<th>Recommended Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor location, variable</td>
<td>10W30 or 10W40 Multiviscosity motor oil</td>
</tr>
<tr>
<td>temperatures (30 - 100° F)</td>
<td></td>
</tr>
<tr>
<td>Indoor location, consistent</td>
<td>SAE-20W motor oil</td>
</tr>
<tr>
<td>Temperatures (70° F)</td>
<td></td>
</tr>
<tr>
<td>Outdoor location, (-10 - 100° F)</td>
<td>SAE 5W30 Multiviscosity motor oil</td>
</tr>
<tr>
<td>Cold-storage warehouse (10 - 40° F)</td>
<td>5W30 Multiviscosity motor oil</td>
</tr>
<tr>
<td>Freezer (-40° F to 0° F)</td>
<td>Consult Factory</td>
</tr>
</tbody>
</table>

## OIL CAPACITY:

Reservoir capacity for the steel tank is approximately 23 gallons.

The oil level in the reservoir should be 1” to 1 ½” below the top of the reservoir with the bridge in the fully lowered position.

## PIPE THREAD SEALANT

Loctite PST #567 pipe thread sealant or equivalent is recommended. **Do not use Teflon tape.** Tape fragments can cause malfunctioning of the hydraulic system.
GENERAL MAINTENANCE

1. Change oil once a year or when it materially darkens or feels gritty. Also, check oil for the presence of water (oil will turn milky in color.)

2. NEVER TRY TO DISASSEMBLE OR REPAIR A PUMP IN THE FIELD. These pumps are high-precision devices requiring extreme precision in fit-up. When one is damaged, there is seldom anything that can be repaired in the field. It is also more economical to replace a pump than to refit old parts with new parts.

DANGER!

To avoid personal injury, NEVER go under the bridge or perform any maintenance until the load is removed and the bridge is securely blocked. See "Blocking Instructions" section.
POWER UNIT

DANGER!

HIGH VOLTAGE!! Disconnect and/or lock out the electrical supply to the power unit prior to any maintenance being performed.

1. The power unit utilizes a heavy-duty 5 HP/208, 230, or 460 Volts/60 hertz/3 phase motor coupled to a high-pressure positive displacement gear pump, and Autoquip Corporation’s patented Deltatrol valve assembly

2. The following should be referenced in connecting the standard heavy-duty motors to power sources. Remember that heavy wire must be used all the way to the power source.

<table>
<thead>
<tr>
<th>Power Unit</th>
<th>208 Volts</th>
<th>230 Volts</th>
<th>460 Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Three Phase</td>
<td>16 AMPS</td>
<td>15.2 AMPS</td>
<td>7.6 AMPS</td>
</tr>
</tbody>
</table>

NOTE: All amperage draws shown are full-load amperages.

CYLINDER REMOVAL AND REPACKING (see Figure 14)

1. Lower the bridge and block securely. See “Blocking Instructions”.

2. Loosen and remove the cylinder hose at the hose union in the tee connection between the cylinders. Place the open end of the hose in a container to receive oil spillage.

3. Remove the pin retaining screw in the cylinder clevis or pin retaining rings, and carefully tap out the clevis pin.

4. Remove the cylinder from the bridge.

5. Push the piston rod into the tube to eject as much oil as possible into a container.

6. Pull the rod out of the cylinder tube sufficiently to gain access to the face spanner wrench holes on the rod end of the cylinder. Do not allow oil or dirt to be pulled back into the hydraulic hose.
7. Using a face spanner wrench, turn the bearing assembly clockwise until the tip of the retainer appears in the slot in the outer surface of the cylinder tube.

8. Insert a small blade screwdriver under the tip of the retainer and turn the bearing assembly counter-clockwise until the retainer is free of the slot. **NOTE:** The wire retainer may be a cutting or puncturing hazard.

9. Pull the rod out of the tube slowly to remove the rod and bearing assembly. **NOTE:** Use caution to prevent surface damage to the rod. This could result in seal failure and/or leakage.

10. Inspect the bore of the tube. Hone if necessary to remove any surface imperfections in the bore. Flush thoroughly after honing to remove chips and grit.

11. Remove the piston lock nut and slide off the piston and bearing assembly. Take care to protect the rod surface from damage.

12. Install new packing and seals on the piston, rod, and bearing assembly. Inspect all grooves and seal surfaces for any imperfections and repair or replace as necessary.

13. Grease all seals and packing liberally and install the bearing assembly and the piston on the rod and torque the lock nut to 500 ft. lbs.

14. Install the rod into the tube using care not to damage any seals or packing.

15. Align the retainer hole in the bearing assembly groove with the slot in the tube.

16. Insert the retainer hook end in the hole/slot and using a face spanner wrench, turn the bearing assembly clockwise until the retainer is completely inserted in the groove/slot in the tube.

17. Install the assembled cylinder into the bridge by carefully driving the clevis pin through the clevises. Install the pin retaining hairpin clips.

18. Connect the cylinder(s) to the hydraulic hose from the power unit using the recommended sealant. **Do not use Teflon Tape.**

19. Check all pins and other mechanical as well as hydraulic components to assure that the assembly is complete and in good working order.
20. Turn the electrical supply back on and press the “UP” button on the controller to raise the bridge. **NOTE:** 15 to 30 seconds time may elapse to fill the empty cylinders before movement is noted.

21. Press the “DOWN” button on the controller to cycle the lift to the fully lowered position. Hold the “DOWN” button 30 to 40 seconds to allow air in the cylinders to bleed back into the reservoir tank.

22. Cycle the bridge 10 to 15 times and repeat the bleeding operation by holding the "DOWN" button for 30 to 40 seconds.

23. Check the oil level in the reservoir with the bridge in the fully lowered position. Add as necessary (see “Routine Maintenance” for oil recommendations).

24. Clean the oil filler breather cap if it appears dirty.

25. Clean up any debris and or spilled oil from the area.
Figure 19 Hydraulic Cylinder
VELOCITY FUSE REPLACEMENT

![DANGER!]

Do not attempt to remove the velocity fuse until the bridge is securely supported with the blocking devices and all hydraulic pressure has been removed from the lifting cylinders and hydraulic hoses. Failure to follow these instructions could result in personal injury or death!

Never attempt to take a velocity fuse apart and repair it. These are precision devices that are factory assembled under exacting conditions. Velocity fuses should always be replaced.

1. The arrow on the exterior surface of the velocity fuse shows the direction of the restriction to the oil flow. The arrow should always point away from the cylinder.

2. **Do not use Teflon tape on the threaded connections of a velocity fuse.** Tape fragments can cause malfunctioning of the fuse.

3. Check all fitting connections for hydraulic leaks and tighten as necessary.

HOSE ORIENTATION

To prevent damage to the cylinder hose(s) and possible failure of bridge, it is necessary to establish a correct hose shape and pattern of movement as follows:

1. Lower the bridge and block securely. See “Blocking Instructions”.

2. Install one end of the new hose to the cylinder elbow fitting.

3. Raise the bridge carefully and check to see that the hose is free and clear of the cylinder and other structured members. If not, twist the hose in the direction necessary to clear it of any obstruction and then lock the swivel fitting securely.
GENERAL MAINTENANCE

ROCK SALT

It has been discovered that rock salt is being used to melt the ice and snow off of the platforms in the northern region and during the winter months. Rock salt will accelerate the deterioration of any paint. Therefore, Autoquip recommends the use of a synthetic “Ice Melt” product in lieu of rock salt.

Warranty on the paint finish will be denied when it is suspected that rock salt has been used. Please contact the Product Support Team at Autoquip at 1-888-811-9876 or 405-282-5200.
GENERAL MAINTENANCE

RELIEF FILTER CLEVIS MOUNTING. SPECIFIC MODEL.

DISPLACEMENT SUCTION PUMP FIXED LINE CHECK VALVE

FLOW CONTROL (BRIDGE LOWERING SPEED)

(2) HYDRAULIC WIRE BRAID HOSES FROM CYLINDERS TO OIL LINE, FURNISHED BY AUTOQUIP. CONNECTED BY INSTALLER.

SAFETY LEG VALVE (4-WAY, 3-POSITION, SPRING CENTERED, DOUBLE SOLENOID)

SAFETY LEG RAMS - (2) 1 1/2" BORE, 3/4" DIA. CHROME PLATED RODS, 3" STROKE. PINEYE MOUNTING.

HYDRAULIC CYLINDERS WITH CHROME PLATED ROD, CLEVIS MOUNTING, QUANTITY DEPENDS ON SPECIFIC MODEL.

HYDRAULIC WIRE BRAID HOSES FROM CYLINDERS TO OIL LINE, FURNISHED BY AUTOQUIP. CONNECTED BY INSTALLER.

COMPLETE OIL INFORMATION WILL BE IN BASCULE BRIDGE INSTALLATION MANUAL PROVIDED AT TIME OF BRIDGE DELIVERY. OIL BY INSTALLER.

HYDRAULIC DIAGRAM

Figure 20  Generic Hydraulic Schematic
Figure 21  Generic Electrical Schematic

ELECTRICAL DIAGRAM
NOTES:

1. WARNING: ELECTRICAL HAZARD
   DISCONNECT POWER BEFORE
   WIRING THIS ACCESSORY.

2. COLOR CODING SHOWN CORRESPONDS TO
   EXISTING 16/4 SQ CONTROL CORD ON
   LIFT.

3. USE APPROPRIATE WIRE, CONDUIT, ETC.
   TO SATISFY LOCAL CODES (BY OTHERS).
<table>
<thead>
<tr>
<th>QTY</th>
<th>Description</th>
<th>Vertical Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Motor, 5 HP 208/230/460 Volt 3 PH straight shaft</td>
<td>30600449</td>
</tr>
<tr>
<td>1</td>
<td>Motor Coupling, Lovejoy L-095, 1 1/8&quot; bore</td>
<td>20000154</td>
</tr>
<tr>
<td>1</td>
<td>Pump Coupling, Lovejoy L-095, 7/16&quot; bore</td>
<td>20000030</td>
</tr>
<tr>
<td>1</td>
<td>Coupling Rubber Spider</td>
<td>20000162</td>
</tr>
<tr>
<td>1</td>
<td>Pump, straight shaft</td>
<td>40300162</td>
</tr>
<tr>
<td>2</td>
<td>¼” Dyna-Seal Washer for Deltatrol</td>
<td>45901014</td>
</tr>
<tr>
<td>1</td>
<td>Sump Strainer</td>
<td>47700075</td>
</tr>
<tr>
<td>1</td>
<td>Deltatrol Kit</td>
<td>41050880</td>
</tr>
<tr>
<td>1</td>
<td>Down Solenoid, 24 VAC</td>
<td>32701380</td>
</tr>
<tr>
<td></td>
<td>Down Solenoid, 115 VAC</td>
<td>32701370</td>
</tr>
<tr>
<td>1</td>
<td>Filler/Breather Cap Assembly</td>
<td>47700208</td>
</tr>
</tbody>
</table>
DANGER!

To avoid personal injury, NEVER go under the bridge or perform any maintenance until the load is removed and the bridge is securely blocked. See "Blocking Instructions" section.

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSE AND SOLUTION</th>
</tr>
</thead>
</table>
| Bridge does not raise.          | • The motor voltage/wiring may be incorrect.  
• The hydraulic line or hose may be leaking.  
• Oil in the reservoir may be low. Add oil as necessary (See the “Routine Maintenance” section.)  
• The load may exceed the bridge rating. (See the “Specifications” section.)  
• The suction screen may be clogged. Remove and clean the screen. Drain and replace the oil.  
• The suction line may be leaking air due to a loose fitting. Tighten as needed.  
• The breather holes in the reservoir fill plug may be clogged. Remove and clean.  
• The "Down" valve may be energized by faulty wiring or stuck open. Remove the solenoid and check.  
• The power unit pump may be defective  
• The structural members of the bridge may be in a bind.  
• The manual lowering device may be engaged.                                                                                                           |
| Bridge seems bouncy during operation. | • There may be air in the hydraulic system. Bleed the air from the cylinder  
• Oil in the reservoir may be low. Add oil as necessary (See the “Routine Maintenance” section.)  
• The power unit suction strainer may be clogged.  
• The power unit suction line may be leaking.                                                                                                           |
<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSE AND SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge will not lower.</td>
<td>• The down solenoid may be malfunctioning.</td>
</tr>
<tr>
<td></td>
<td>• The structural members may be in a bind.</td>
</tr>
<tr>
<td></td>
<td>• The tubing or hose is obstructed or broken. Check for obstruction in the line.</td>
</tr>
<tr>
<td></td>
<td>• The return filter may be clogged.</td>
</tr>
<tr>
<td></td>
<td>• The velocity fuse may be locked. Do not attempt to remove the velocity fuse. The following steps should be followed:</td>
</tr>
<tr>
<td></td>
<td>1. Inspect all fittings, hoses, and other hydraulic components for leaks or damage.</td>
</tr>
<tr>
<td></td>
<td>2. If no leak or damage is noticed, attempt to pressurize the lifting cylinder by depressing the “UP” button on the controller for a few seconds.</td>
</tr>
<tr>
<td></td>
<td>Immediately up releasing the “UP” button, depress the “DOWN” button. If the bridge starts to lower,</td>
</tr>
<tr>
<td></td>
<td>continue pressing the “DOWN” button until the bridge is in the fully lowered position.</td>
</tr>
<tr>
<td></td>
<td>3. If the bridge does not lower after trying Step 2, wait approximately 10 – 15 minutes for the pressure in the hydraulic system to equalize.</td>
</tr>
<tr>
<td></td>
<td>Momentarily press the “UP” button, then, depress the “DOWN” button until the bridge is in the fully lowered position.</td>
</tr>
<tr>
<td></td>
<td>4. Once the bridge is in the fully lowered position, bleed the air from the hydraulic system by depressing the “DOWN” button. Hold the “DOWN” button for</td>
</tr>
<tr>
<td></td>
<td>approximately 60 seconds. This step may need to be repeated several times to fully remove the air in the system by raising the bridge to 50% of its travel and</td>
</tr>
<tr>
<td></td>
<td>then lowering it.</td>
</tr>
<tr>
<td></td>
<td>• Should the above steps not correct the problem, contact Autoquip to obtain instruction for further action.</td>
</tr>
<tr>
<td>PROBLEM</td>
<td>POSSIBLE CAUSE AND SOLUTION</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Bridge raises slowly.</td>
<td>• The structural members of the bridge may be binding.</td>
</tr>
<tr>
<td></td>
<td>• The tubing or hose is obstructed or broken. Where pipe is used, check for obstruction in the line.</td>
</tr>
<tr>
<td></td>
<td>• The hydraulic line or hose may be leaking.</td>
</tr>
<tr>
<td></td>
<td>• The oil viscosity is not suited for the environmental conditions. Refer to “Routine Maintenance” section for oil recommendations.</td>
</tr>
<tr>
<td></td>
<td>• Check the oil level in the reservoir.</td>
</tr>
<tr>
<td></td>
<td>• The motor voltage/wiring may be incorrect.</td>
</tr>
<tr>
<td></td>
<td>• The suction screen may be clogged. Remove and clean the screen. Drain and replace the oil.</td>
</tr>
<tr>
<td></td>
<td>• The suction line may be leaking air due to a loose fitting. Tighten as needed.</td>
</tr>
<tr>
<td></td>
<td>• The breather holes in the reservoir fill plug may be clogged. Remove and clean.</td>
</tr>
<tr>
<td></td>
<td>• The power unit pump may be defective.</td>
</tr>
<tr>
<td>Bridge lowers slowly.</td>
<td>• The structural members of the bridge is binding.</td>
</tr>
<tr>
<td></td>
<td>• The tubing or hose is obstructed or broken. Where pipe is used, check for obstruction in the line.</td>
</tr>
<tr>
<td></td>
<td>• The oil viscosity is not suited for the environmental conditions. Refer to “Routine Maintenance” section for oil recommendations.</td>
</tr>
<tr>
<td></td>
<td>• The return filter may be clogged due to dirt or damage.</td>
</tr>
</tbody>
</table>
# TROUBLESHOOTING ANALYSIS

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSE AND SOLUTION</th>
</tr>
</thead>
</table>
| Bridge will not remain in raised position. | • The cylinder packing may be leaking.  
• The pump or Deltatrol regulator is not seating.  
• The pump or Deltatrol check valve is not seating.  
• The hydraulic tubing, hose, or fitting is leaking oil.  
• The return filter may be clogged. |