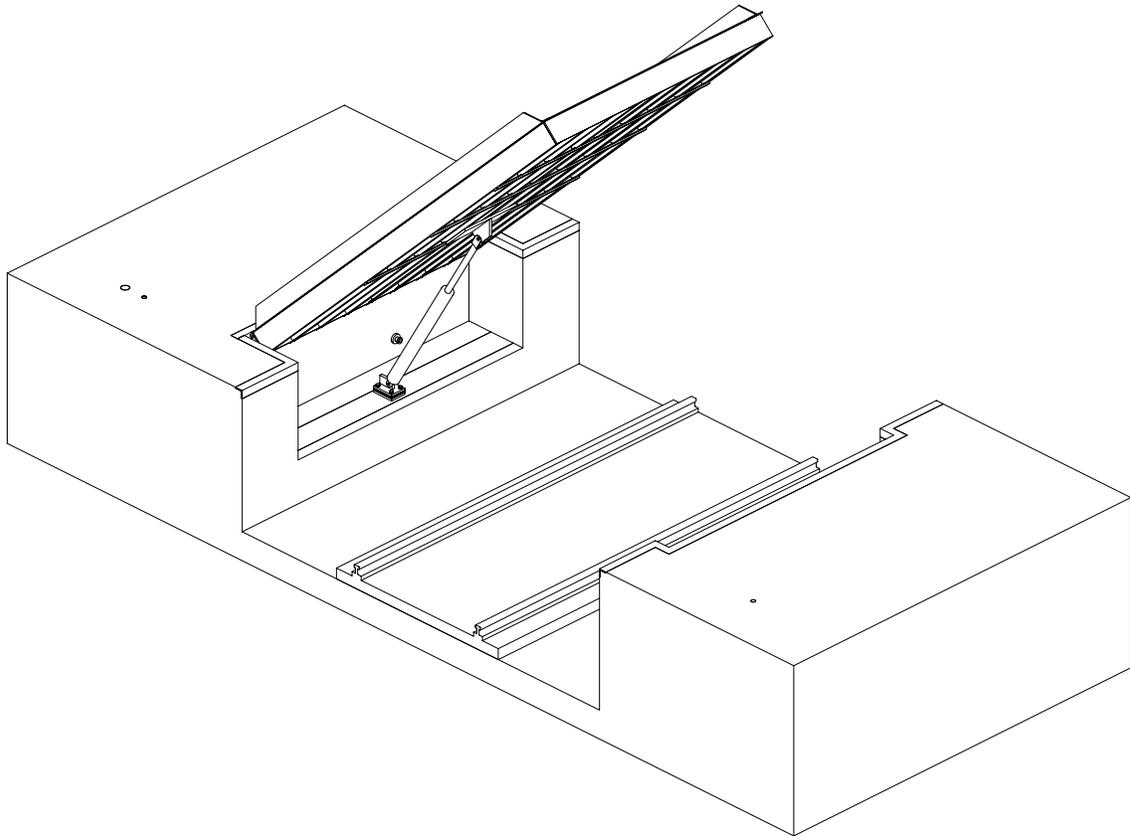


INSTALLATION, OPERATION AND SERVICE MANUAL

BASCULE BRIDGE SINGLE LEAF & DOUBLE LEAF



P.O. Box 1058 • 1058 West Industrial Avenue • Guthrie, OK 73044-1058 • 405-282-5200
• FAX: 405-282-8105 • www.autoquip.com



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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.

INSPECTION

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 tat there are no missing parts. If any parts appear to be missing, contact the *Autoquip Customer Assurance Department* immediately.

DANGERS, WARNINGS & CAUTIONS

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.

DANGERS, WARNINGS & CAUTIONS

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.

DANGERS, WARNINGS & CAUTIONS



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 contaminants 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

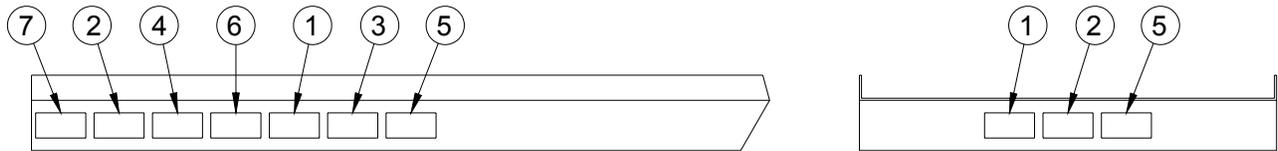


Figure 1 Label Placement

Bascule Bridge			
Item No.	Qty	Description	Part No.
1	3	Caution: Do not go under Lift Platform	36400679
2	3	Caution: Familiarize Yourself With Operators Manual	36401487
3	2	Capacity	36401602
4	2	Caution: Stay Clear of Lift Mechanism	36403046
5	3	Warning: No Riders	36403707
6	2	Warning: Stay Clear While Platform is Tilting	36403830
7	1	<i>Autoquip</i> Serial Number Nameplate	36401511

LABEL IDENTIFICATION

Note: Labels shown here are not actual size.



Figure 2 Label 36400679



Figure 3 Label 36401487



Figure 4 Label 36401602



Figure 5 Label 36403046

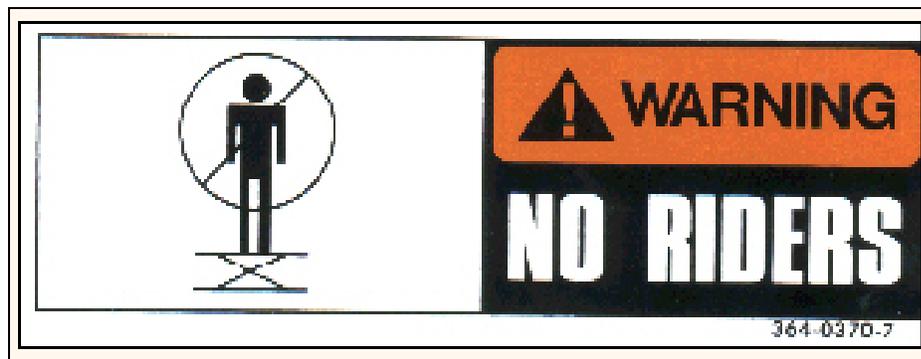


Figure 6 Label 36403707



Figure 7 Label 36403830



Figure 8 Label 36401511



Model	Plat. Width (feet)	Face to Face of Cutouts (inches)	Load Cap. (lbs)	Axle Load Cap. (lbs)	Act. Plat Length	Plat. Depth (in.)	Speed (sec)	# of Rams	Hinge Channel Length	Total Reaction In KIPS	Ship Wt.								
BB-1	6	16	10,000	8,000	15' 10 1/4"	8 1/4	60	1	6' 10"	19	4100								
BB-2			15,000	12,000		8 1/4	60	1		20	4500								
BB-3			20,000	16,000		10 5/16	90	2		23	5200								
BB-4			30,000	24,000		10 5/16	90	2		24	5500								
BB-5		17	10,000	8,000	16' 10 1/4"	8 1/4	60	1		21	4300								
BB-6			15,000	12,000		8 1/4	60	1		22	4700								
BB-7			20,000	16,000		10 5/16	90	2		25	5500								
BB-8			30,000	24,000		10 5/16				26	5800								
BB-9		18	10,000	8,000	17' 10 1/4"	8 1/4	90	2		23	4800								
BB-10			15,000	12,000		8 1/4				24	5100								
BB-11			20,000	16,000		10 5/16				27	5800								
BB-12			30,000	24,000		10 5/16				28	6100								
BB-13		19	10,000	8,000	18' 10 1/4"	8 1/4				90	2	25	5000						
BB-14			15,000	12,000		8 1/4						26	5300						
BB-15			20,000	16,000		10 5/16						29	6000						
BB-16			30,000	24,000		10 5/16						30	6400						
BB-17		20	10,000	8,000	19' 10 1/4"	8 1/4						90	2	27	5200				
BB-18			15,000	12,000		8 1/4								28	5500				
BB-19			20,000	16,000		10 5/16								31	6200				
BB-20			30,000	24,000		10 5/16								32	6700				
BB-21	8	16	10,000	8,000	15' 10 1/4"	8 1/4			130					3	8' 10"	24	5400		
BB-22			15,000	12,000		8 1/4										25	5800		
BB-23			20,000	16,000		10 5/16										28	6500		
BB-24			30,000	24,000		10 5/16										31	7100		
BB-25		17	10,000	8,000	16' 10 1/4"	8 1/4										130	3	26	5700
BB-26			15,000	12,000		8 1/4												27	6100
BB-27			20,000	16,000		10 5/16												30	6800
BB-28			30,000	24,000		10 5/16												33	7400
BB-29		18	10,000	8,000	17' 10 1/4"	8 1/4	130	3										28	6000
BB-30			15,000	12,000		8 1/4												29	6400
BB-31			20,000	16,000		10 5/16												32	7200
BB-32			30,000	24,000		10 5/16												35	7800
BB-33		19	10,000	8,000	18' 10 1/4"	8 1/4				130	3							32	6400
BB-34			15,000	12,000		8 1/4												34	6900
BB-35			20,000	16,000		10 5/16												38	7700
BB-36			30,000	24,000		10 5/16												41	8300
BB-37		20	10,000	8,000	19' 10 1/4"	8 1/4						130	3					34	6700
BB-38			15,000	12,000		8 1/4												36	7200
BB-39			20,000	16,000		10 5/16												40	8000
BB-40			30,000	24,000		10 5/16												43	8600

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.

BLOCKING INSTRUCTIONS



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.

INSTALLATION INSTRUCTIONS



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 1/4” 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 3/4” 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.

INSTALLATION INSTRUCTIONS



CAUTION!

Precaution should be taken to prevent the introduction of contaminants 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 remote ly 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.

INSTALLATION INSTRUCTIONS

SBB_DETAIL

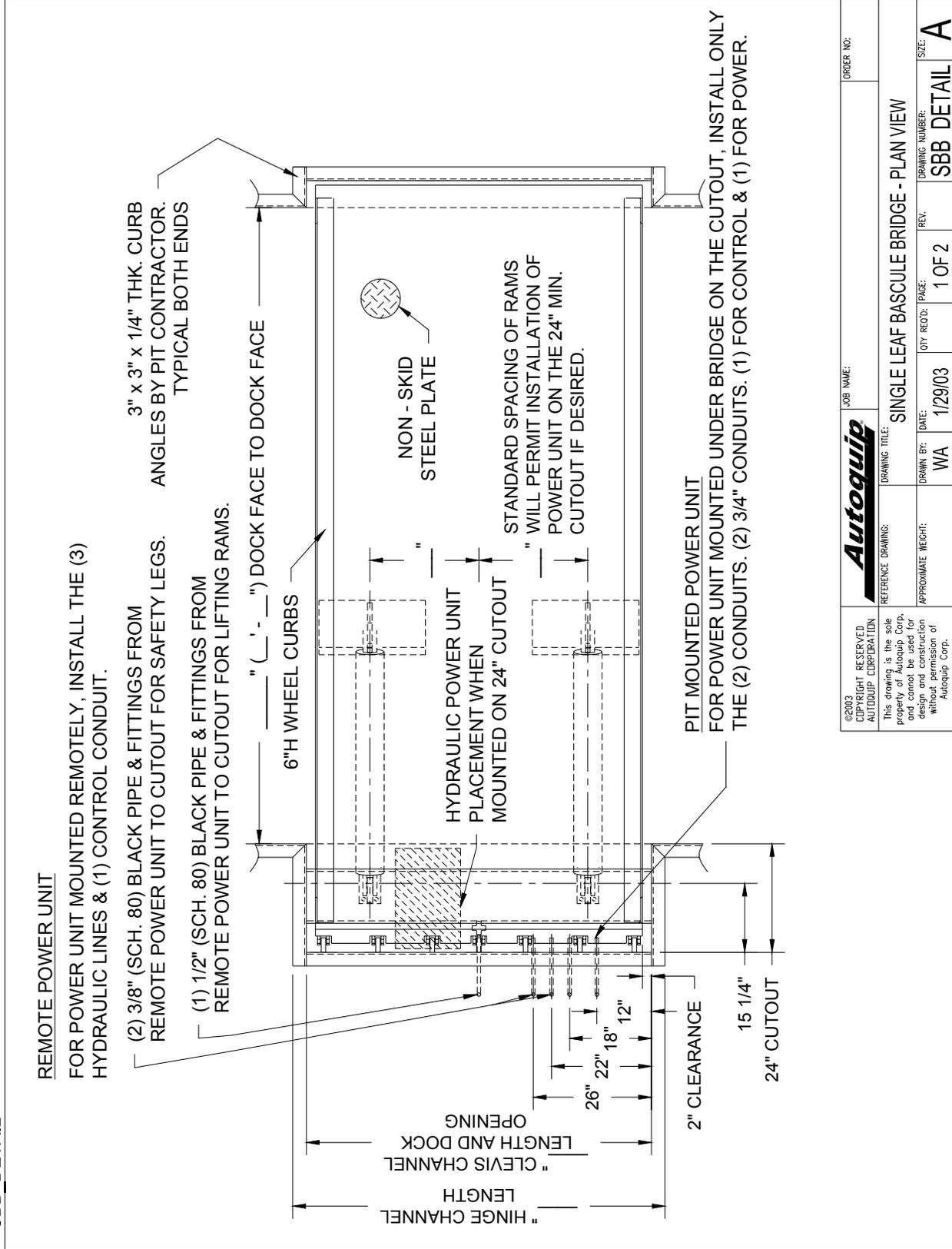
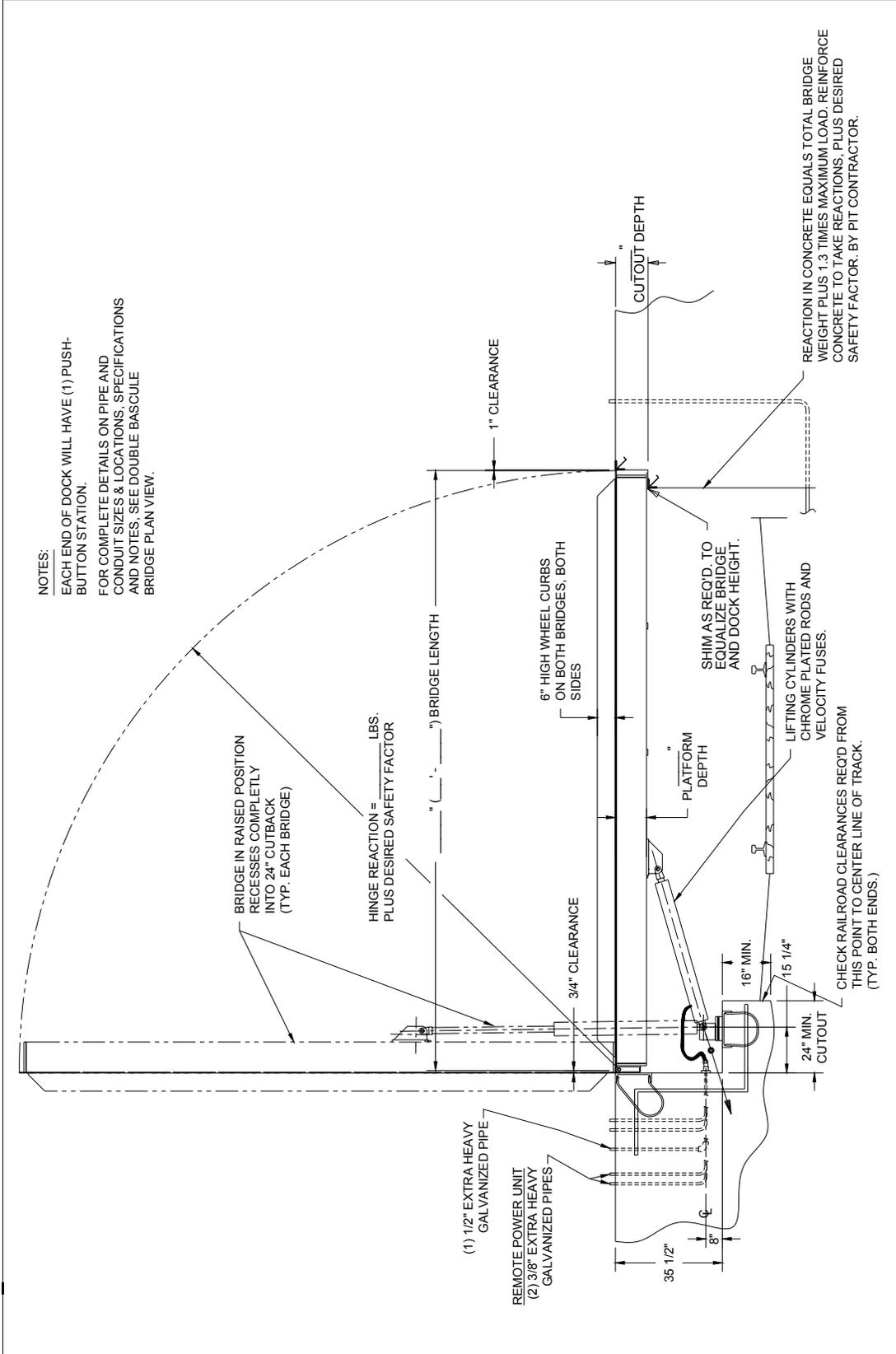


Figure 9 Single Leaf Bascule Bridge – Plan View

INSTALLATION INSTRUCTIONS

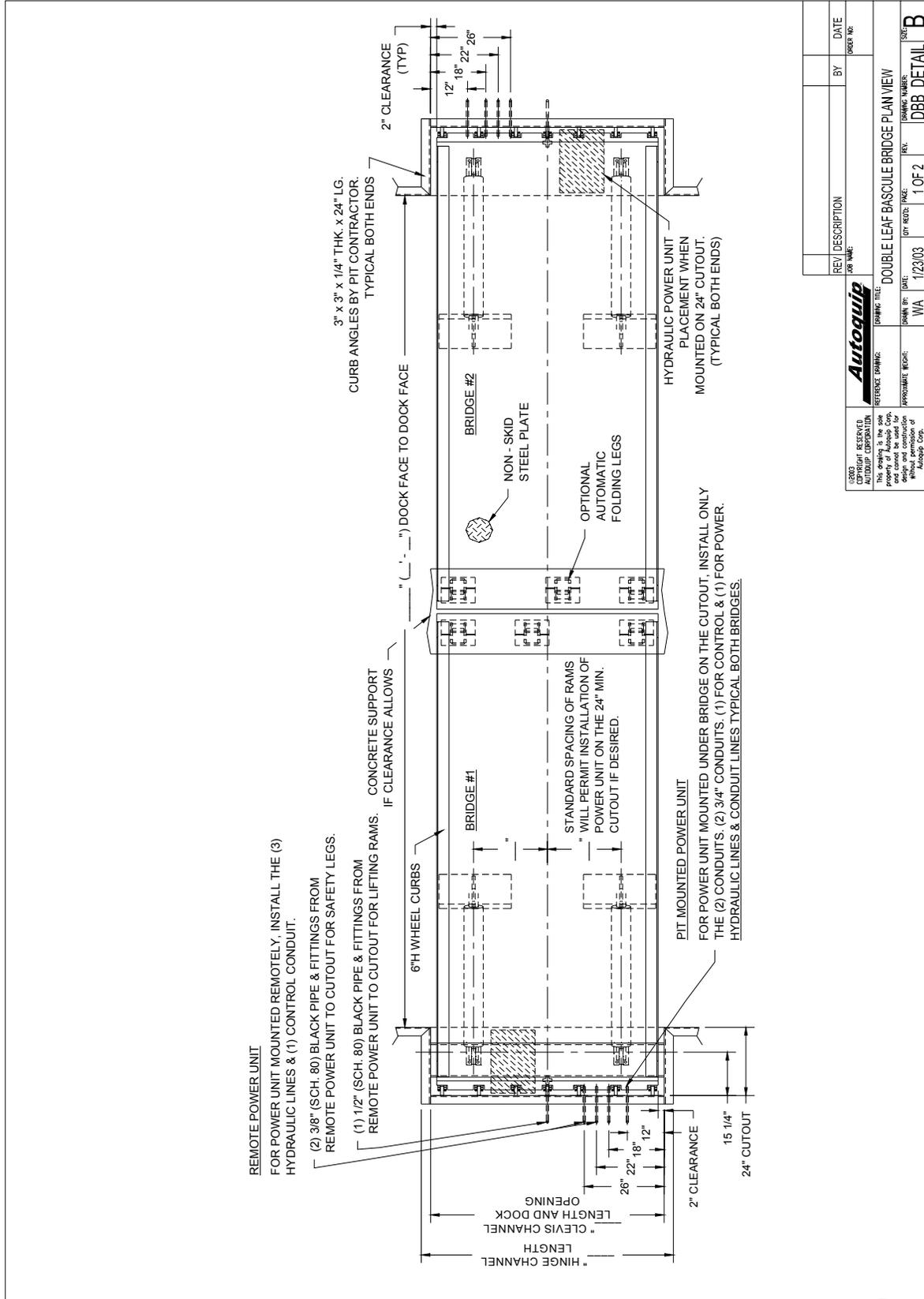
SBB DETAIL



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Figure 10 Single Leaf Bascule Bridge – Elevation View

INSTALLATION INSTRUCTIONS

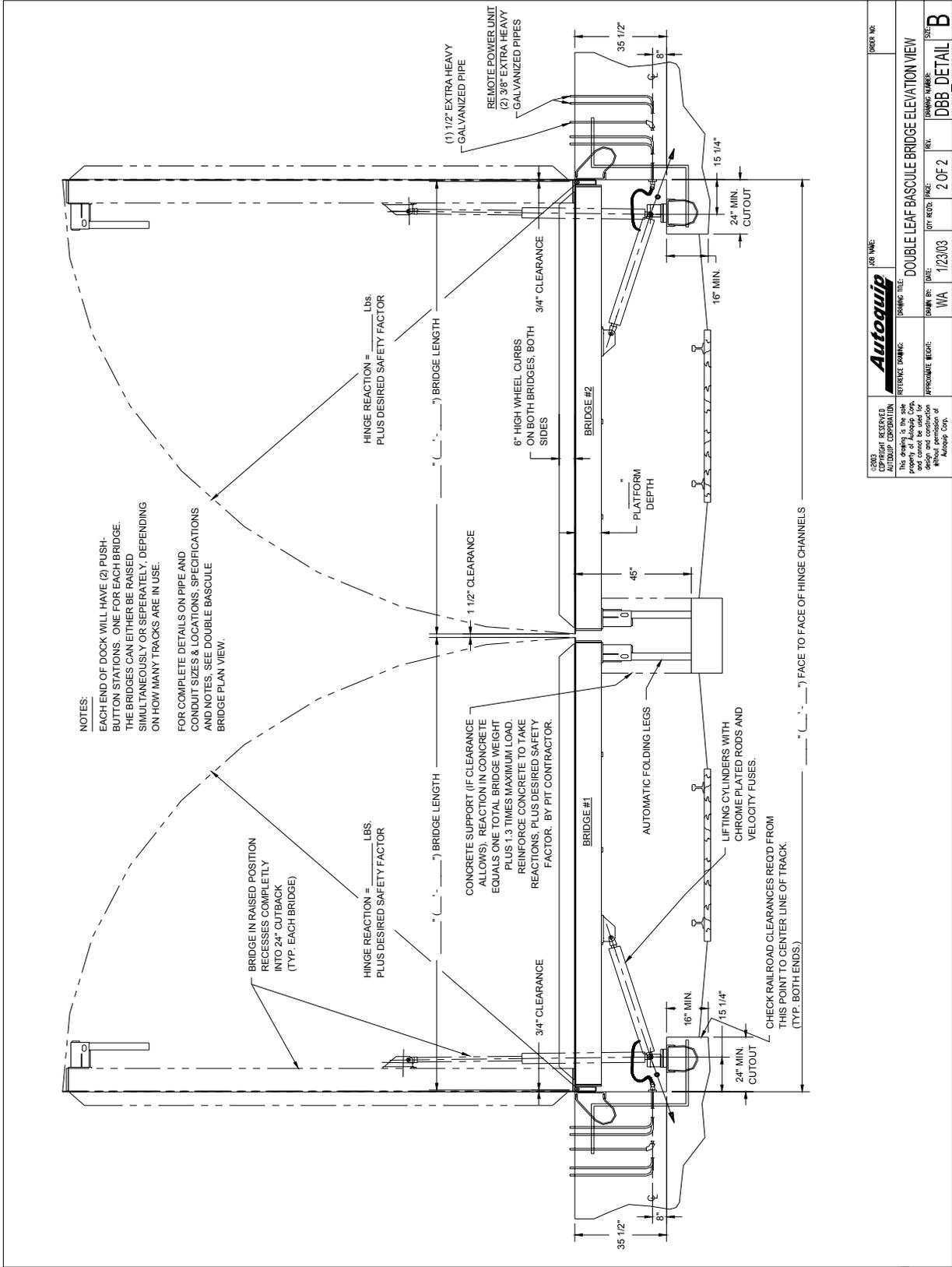


DBB DETAIL

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<p>DATE: 1/23/03</p> <p>DRAWN BY: WA</p> <p>APPROXIMATE WEIGHT: 1 OF 2</p>	<p>DRAWING TITLE: DOUBLE LEAF BASCULE BRIDGE PLAN VIEW</p> <p>DRAWING NUMBER: DBB DETAIL</p> <p>SCALE: B</p>	<p>REV. 1</p>	<p>BY</p>	<p>DATE</p>

Figure 11 Double Leaf Bascule Bridge – Plan View

INSTALLATION INSTRUCTIONS



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DRAWN BY:	DATE:	REV:	DRAWING NUMBER:
WA	1/23/03	2 OF 2	DBB DETAIL B

Figure 12 Double Leaf Bascule Bridge – Elevation View

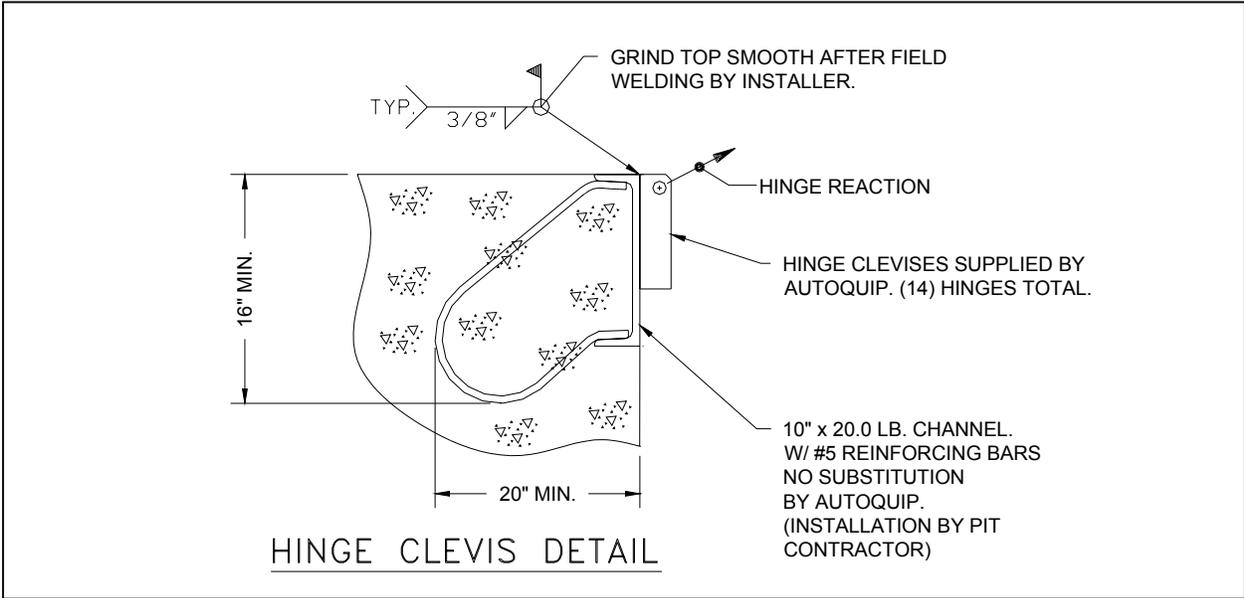


Figure 13 Bridge Hinge Clevis Detail

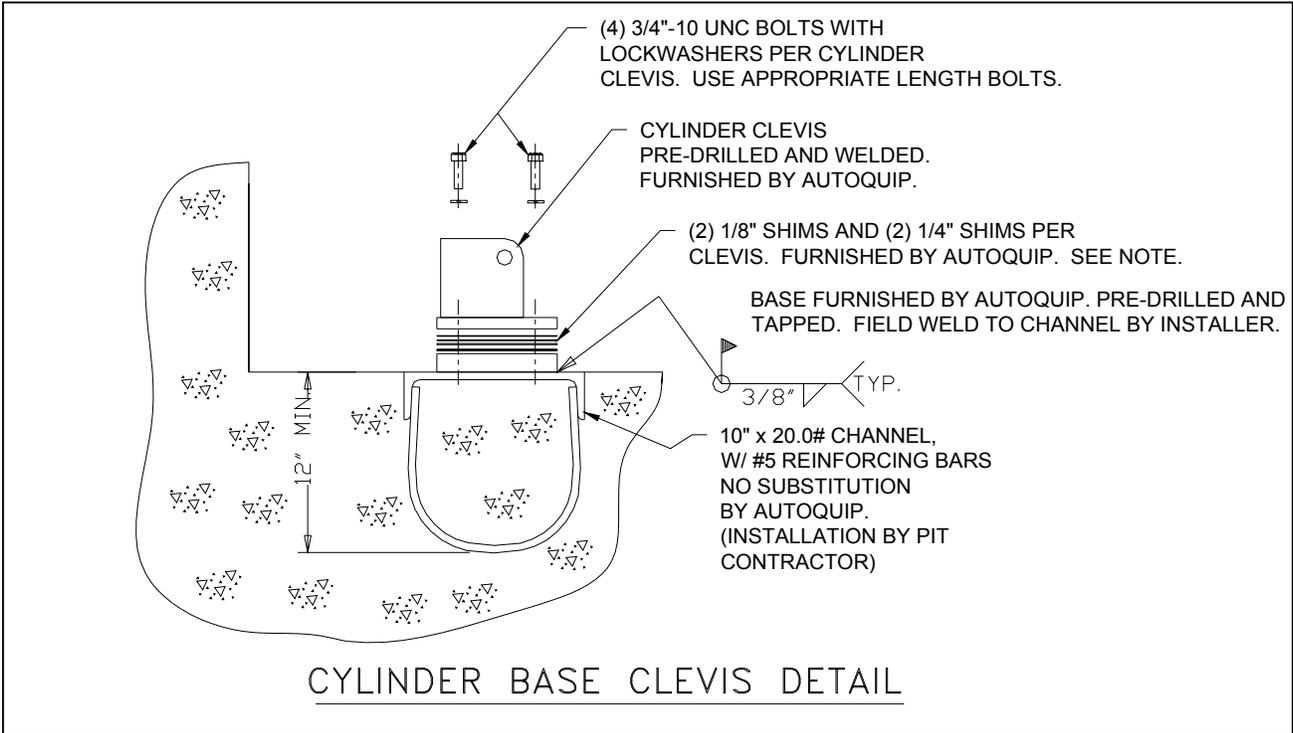


Figure 14 Cylinder Base Clevis Detail

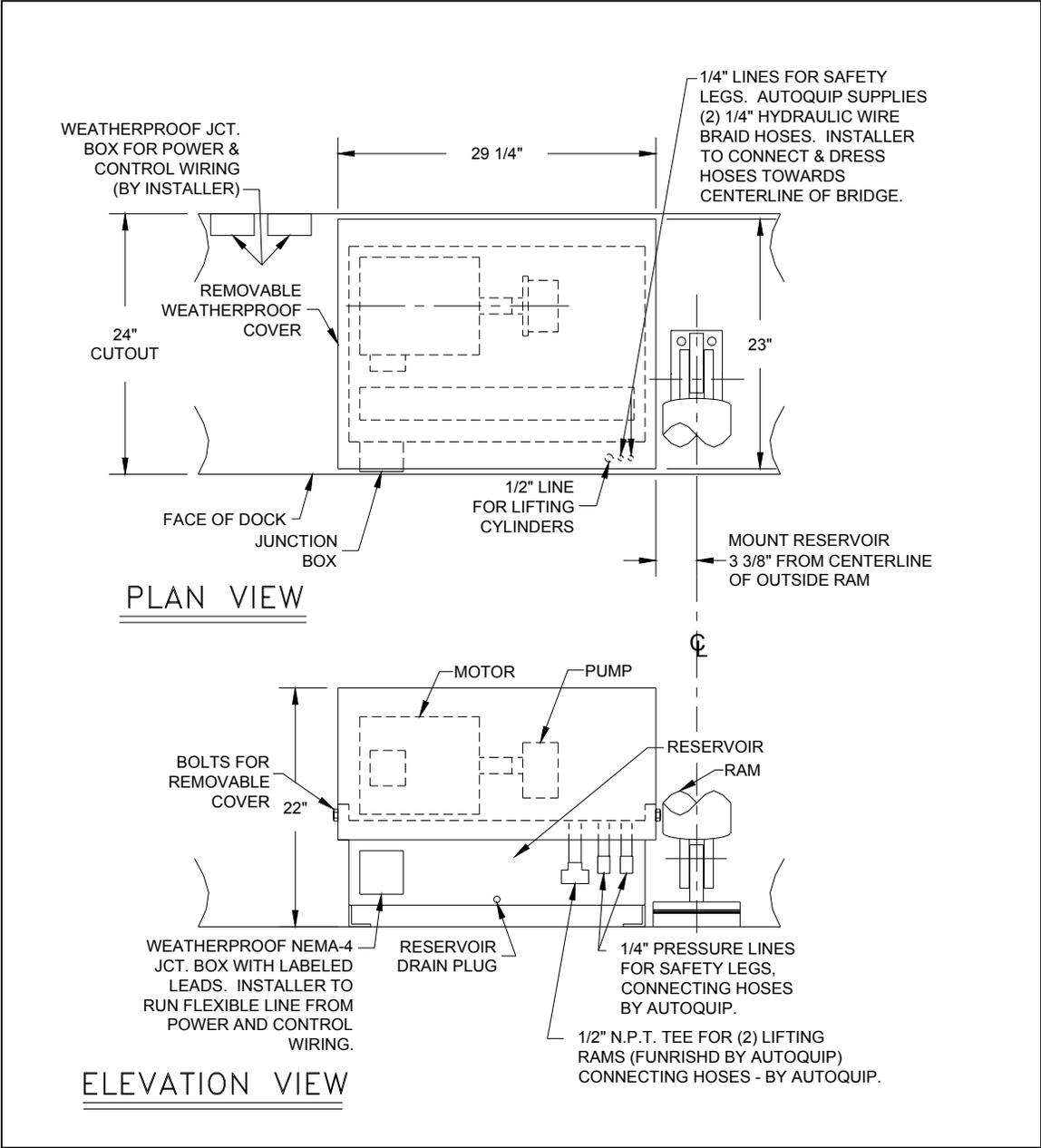


Figure 15 Hydraulic Connection Detail – Pit Mounted Power Unit

INSTALLATION INSTRUCTIONS

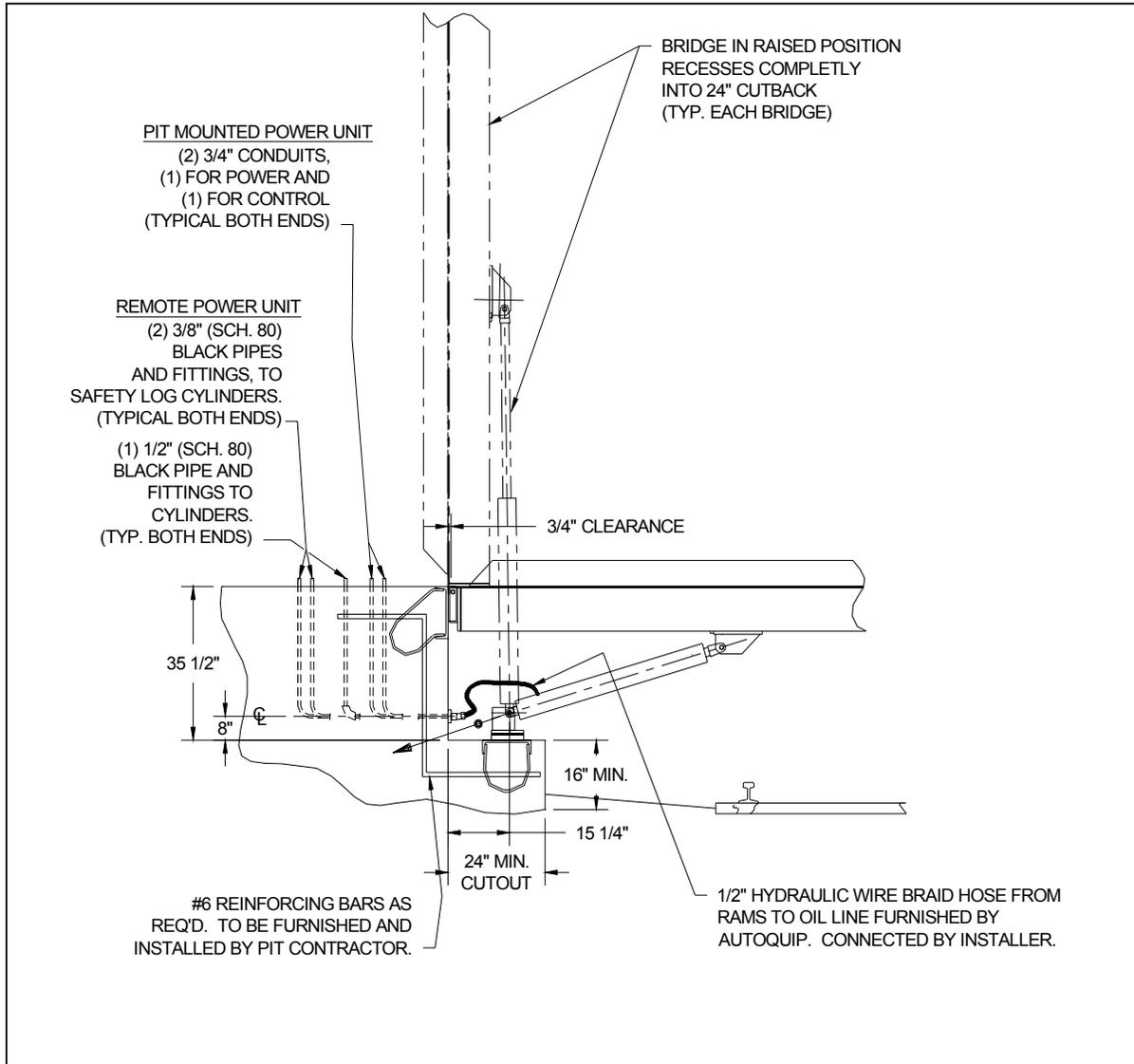


Figure 16 Hydraulic Connection Detail – Remote Power Unit

BASCULE BRIDGE AND SAFETY LEG OPERATION

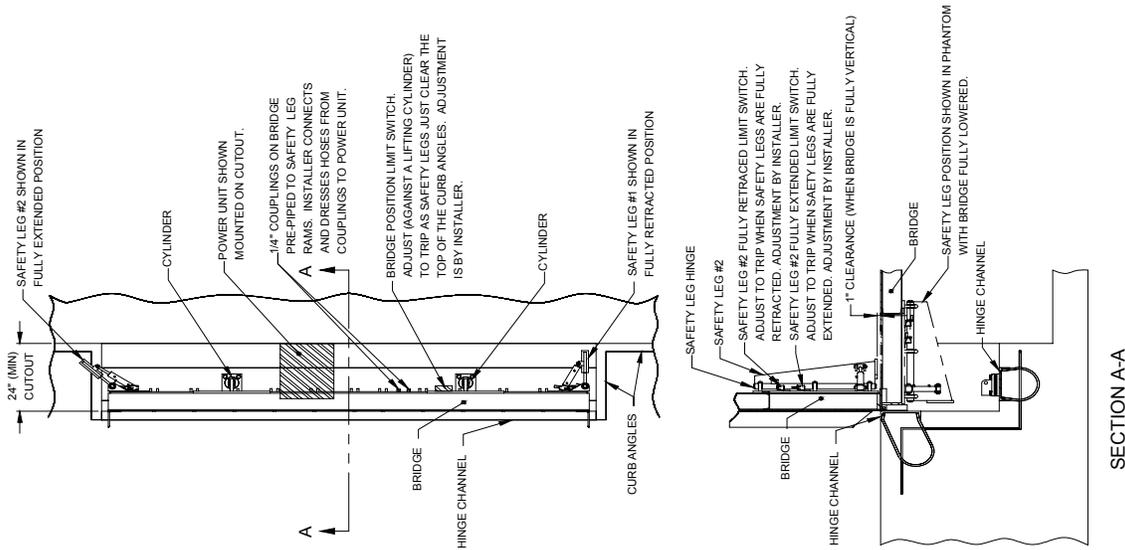
- UP: PRESSING THE "UP" BUTTON WILL CAUSE THE PUMP MOTOR TO START AND THE BRIDGE TO RAISE. AS THE BRIDGE APPROACHES VERTICAL AND THE SAFETY LEGS CLEAR THE CURB ANGLE, THE SAFETY LEGS WILL BE POWERED OUT. WHEN THE SAFETY LEGS ARE FULLY EXTENDED, THE POWER UNIT IS AUTOMATICALLY SHUT OFF. THE "UP" PUSHBUTTON CAN BE RELEASED AT THIS TIME.
- DOWN: PRESSING THE "DOWN" PUSHBUTTON WHEN THE BRIDGE IS UP WILL CAUSE THE PUMP MOTOR TO START MOMENTARILY. THE BRIDGE WILL RAISE SLIGHTLY AND THE SAFETY LEGS WILL BE POWERED IN. THE PUMP MOTOR THEN STOPS AND THE BRIDGE WILL LOWER. WHEN THE BRIDGE IS FULLY LOWERED RELEASE THE "DOWN" PUSHBUTTON.

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.

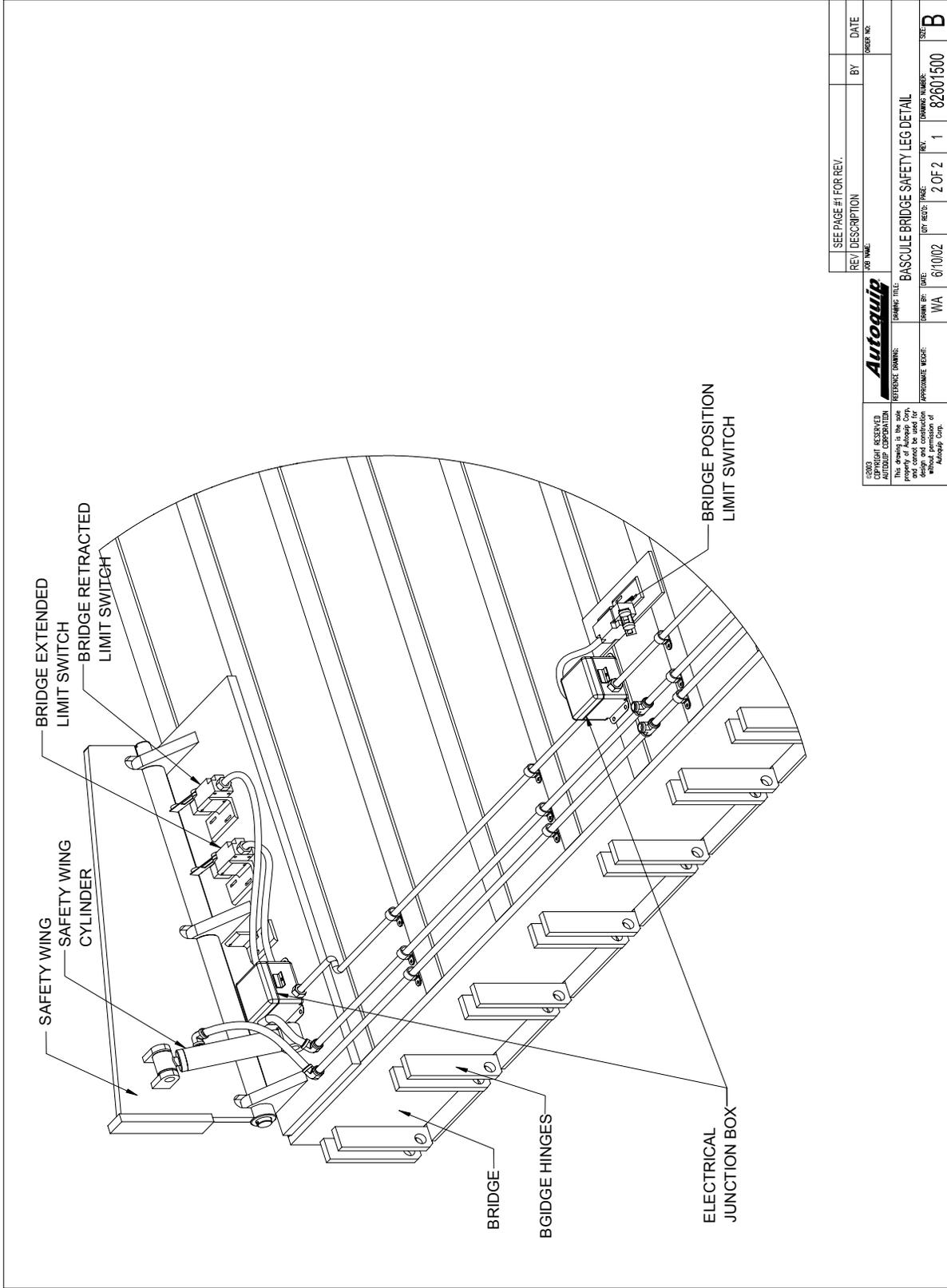
NOTE:
INSTALLER TO CONNECT AND DRESS ALL HYDRAULIC HOSES SUCH THAT THEY WILL REMAIN WITHIN THE 24 3/4" CUTOUT AREA.



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82601500

Figure 17 Bascule Bridge Safety Leg Detail (Sheet 1)



82601500

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Figure 18 Bascule Bridge Safety Leg Detail (Sheet 2)

OPERATING INSTRUCTIONS

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)

OPERATING INSTRUCTIONS

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.

ROUTINE MAINTENANCE

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

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

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.

GENERAL MAINTENANCE

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.

Power Unit	208 Volts	230 Volts	460 Volts
Standard Three Phase	16 AMPS	15.2 AMPS	7.6 AMPS

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.

GENERAL MAINTENANCE

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.

GENERAL MAINTENANCE

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.

GENERAL MAINTENANCE

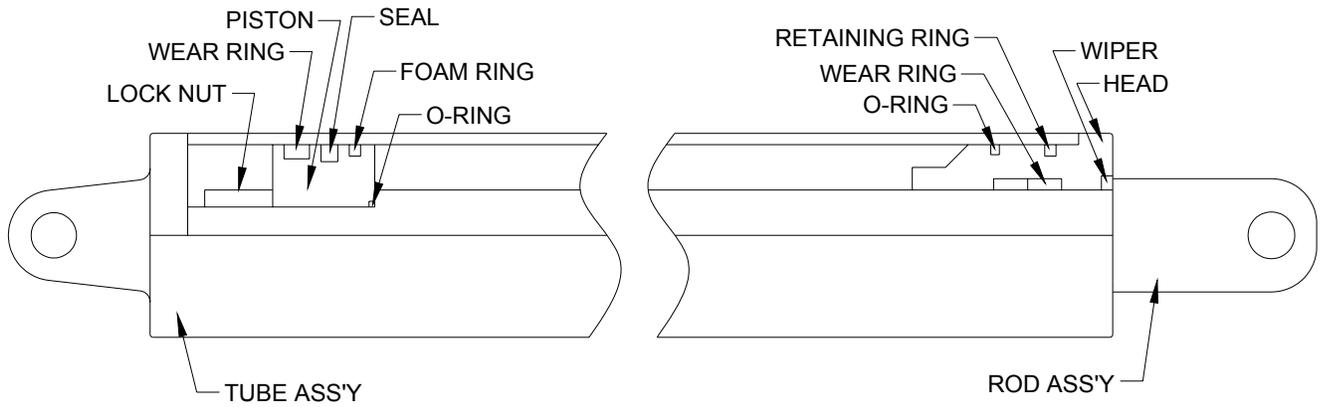


Figure 19 Hydraulic Cylinder

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

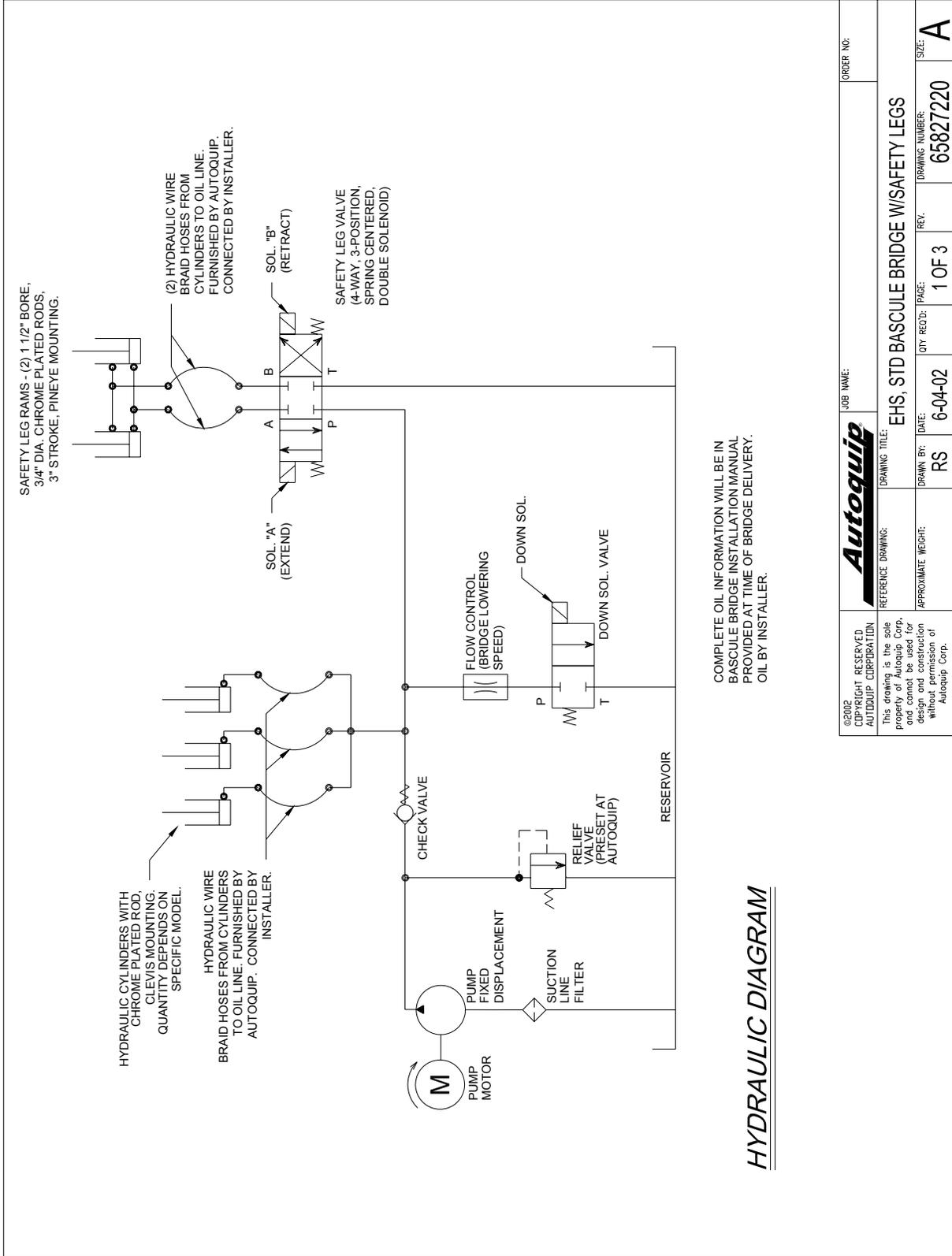
ROCK SALT

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

65727220



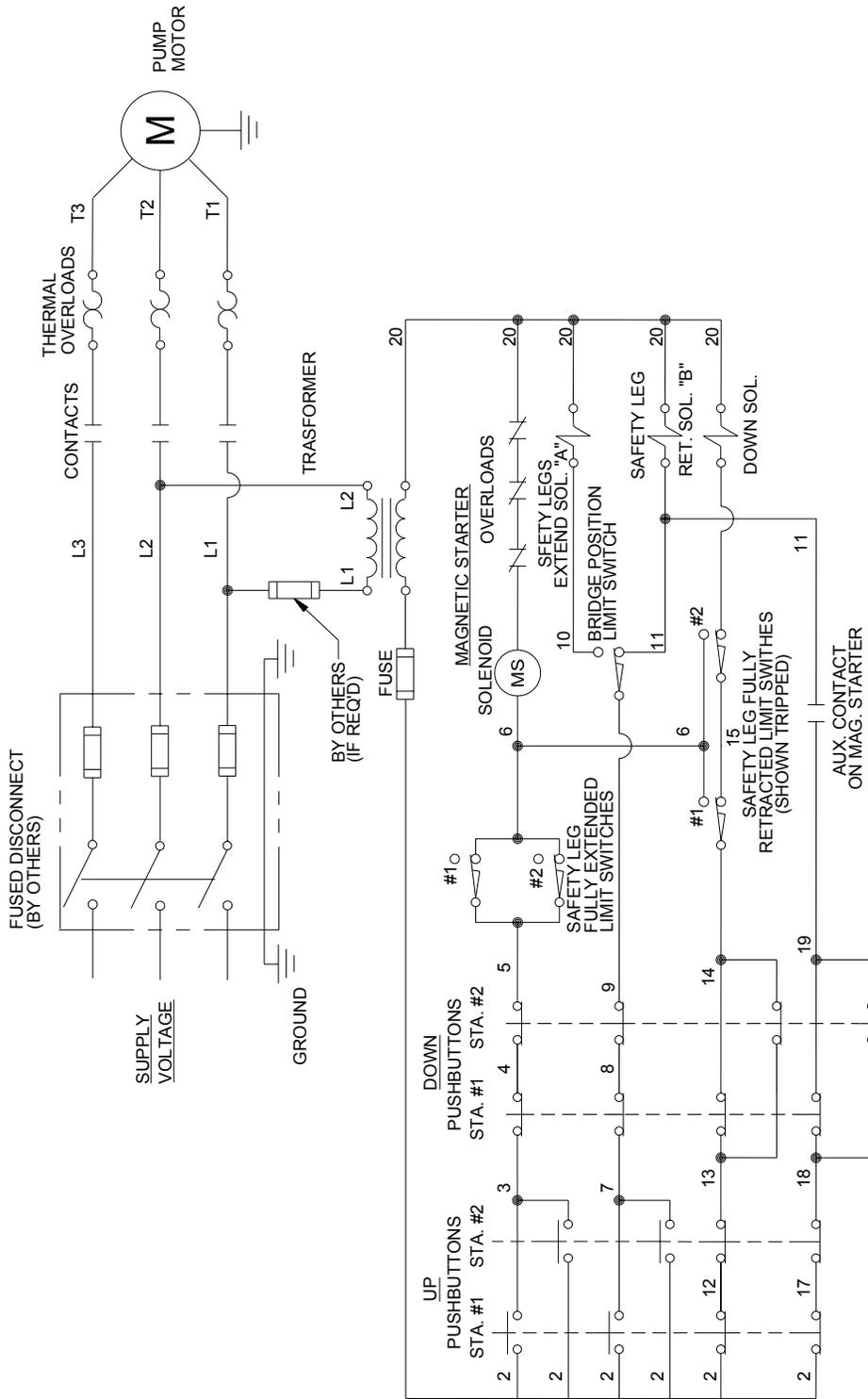
COMPLETE OIL INFORMATION WILL BE IN BASCULE BRIDGE INSTALLATION MANUAL PROVIDED AT TIME OF BRIDGE DELIVERY. OIL BY INSTALLER.

HYDRAULIC DIAGRAM

		JOB NAME:		ORDER NO:	
REFERENCE DRAWING:	DRAWING TITLE:		EHS, STD BASCULE BRIDGE W/SAFETY LEGS		
APPROXIMATE WEIGHT:	DRAWN BY:	DATE:	QTY. REQ'D:	PAGE:	REV.
	RS	6-04-02	1	OF 3	65827220
					SIZE:
					A

Figure 20 Generic Hydraulic Schematic

65827220



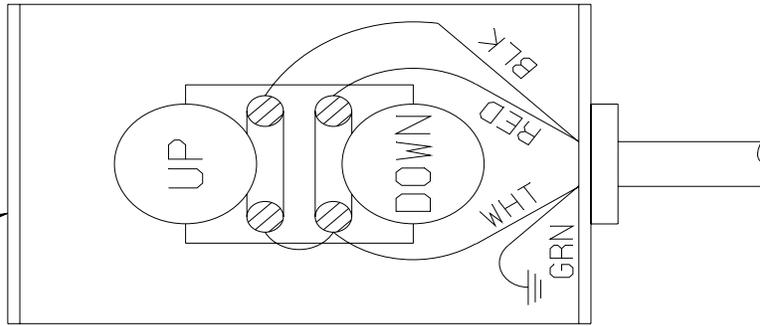
ELECTRICAL DIAGRAM

©2002 COPYRIGHT RESERVED AUTOQUIP CORPORATION	REFERENCE DRAWING: Autoquip	JOB NAME: EHS, STD BASCULE BRIDGE W/ SAFETY LEGS	ORDER NO.:
This drawing is the sole property of Autoquip Corp. and cannot be used for design and construction without permission of Autoquip Corp.	DRAWING TITLE: EHS, STD BASCULE BRIDGE W/ SAFETY LEGS	DATE: 6-04-02	DRAWING NUMBER: 65827220
APPROXIMATE WEIGHT: RS	DRAWN BY: RS	QTY. REQ'D: 2 OF 3	REV.:
		PAGE: 2 OF 3	SIZE: A

Figure 21 Generic Electrical Schematic

GENERAL MAINTENANCE

STANDARD WALL MOUNT PUSHBUTTON SWITCH
(FRONT VIEW, COVER REMOVED)



NOTES:

1. WARNING: ELECTRICAL HAZARD
DISCONNECT POWER BEFORE
WIRING THIS ACCESSORY.
2. COLOR CODING SHOWN CORRESPONDS TO
EXISTING 16/4 SO CONTROL CORD ON
LIFT.
3. USE APPROPRIATE WIRE, CONDUIT, ETC.
TO SATISFY LOCAL CODES. (BY OTHERS.)

1 REDRAWN IN CAD.		CWG 8/21/00	
NO.	REVISIONS	BY	DATE
JOB NAME:		AQJ NO.	
BOX 1058 CUTHRE, OK 73044 888-611-9876		DRAWING TITLE	
REFERENCE DWG.	STD WALL MOUNT PUSHBUTTON WIRING DIAGRAM		
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Figure 22 Pushbutton Assembly

REPLACEMENT PARTS LIST

POWER UNIT PARTS LIST

QTY	Description	Vertical Part No.
1	Motor, 5 HP 208/230/460 Volt 3 PH straight shaft	30600449
1	Motor Coupling, Lovejoy L-095, 1 1/8" bore	20000154
1	Pump Coupling, Lovejoy L-095, 7/16" bore	20000030
1	Coupling Rubber Spider	20000162
1	Pump, straight shaft	40300162
2	1/4" Dyna-Seal Washer for Deltatrol	45901014
1	Sump Strainer	47700075
1	Deltatrol Kit	41050880
1	Down Solenoid, 24 VAC	32701380
	Down Solenoid, 115 VAC	32701370
1	Filler/Breather Cap Assembly	47700208



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.

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Bridge does not raise.	<ul style="list-style-type: none">• 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.	<ul style="list-style-type: none">• 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.



PROBLEM	POSSIBLE CAUSE AND SOLUTION
Bridge will not lower.	<ul style="list-style-type: none">• The down solenoid may be malfunctioning.• The structural members may be in a bind.• The tubing or hose is obstructed or broken. Check for obstruction in the line.• The return filter may be clogged.• The velocity fuse may be locked. Do not attempt to remove the velocity fuse. The following steps should be followed:<ol style="list-style-type: none">1. Inspect all fittings, hoses, and other hydraulic components for leaks or damage.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. Immediately upon releasing the “UP” button, depress the “DOWN” button. If the bridge starts to lower, continue pressing the “DOWN” button until the bridge is in the fully lowered position.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. Momentarily press the “UP” button, then, depress the “DOWN” button until the bridge is in the fully lowered position.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 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 then lowering it.• Should the above steps not correct the problem, contact <i>Autoquip</i> to obtain instruction for further action.

TROUBLESHOOTING ANALYSIS

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Bridge raises slowly.	<ul style="list-style-type: none"> • The structural members of the bridge may be binding. • The tubing or hose is obstructed or broken. Where pipe is used, check for obstruction in the line. • The hydraulic line or hose may be leaking. • The oil viscosity is not suited for the environmental conditions. Refer to “Routine Maintenance” section for oil recommendations. • Check the oil level in the reservoir. • The motor voltage/wiring may be incorrect. • 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 power unit pump may be defective.
Bridge lowers slowly.	<ul style="list-style-type: none"> • The structural members of the bridge is binding. • The tubing or hose is obstructed or broken. Where pipe is used, check for obstruction in the line. • The oil viscosity is not suited for the environmental conditions. Refer to “Routine Maintenance” section for oil recommendations. • The return filter may be clogged due to dirt or damage.

TROUBLESHOOTING ANALYSIS

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Bridge will not remain in raised position.	<ul style="list-style-type: none">• 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.