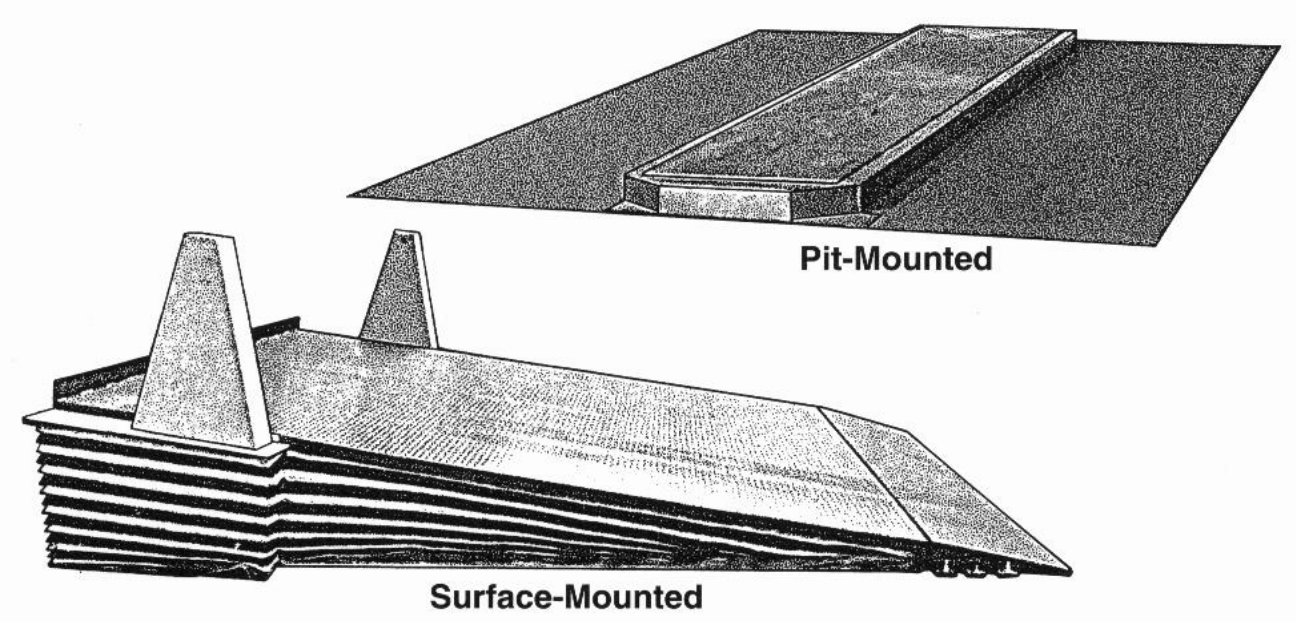
INSTALLATION, OPERATION AND SERVICE MANUAL

PIT & SURFACE MOUNTED TRUCK LEVELER



Autoquip® CORPORATION

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Item # 830TL

Version 1.0
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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 & 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 or cylinder tower. Replacement parts are available from a local *Autoquip* distributor.

INSPECTION

Immediately upon receipt of the leveler, a visual inspection should be made to determine that it has not been damaged in transit. Any damage found must be noted on the delivery receipt. In addition to this preliminary inspection, the platform 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 platform.

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 that 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

DANGER!

To avoid personal injury, NEVER go under the lift platform or perform maintenance until the load is removed and the platform is securely blocked on both raised corners. See "Blocking Instructions" section of this manual.

DANGER!

To avoid personal injury, stand clear of the lift platform while the lift is in motion.

DANGER!

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

WARNING!

Under no 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!

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

CAUTION!

Become familiar with this manual before operating this equipment.

CAUTION!

Do not continue to depress the “UP” button on the controller if the lift is not raising or if the lift has reached the fully raised position. To do so could result in permanent damage to the motor or pump.

CAUTION!

Do not operate the power unit on relief for more than a few seconds. When on relief, the valve will make an audible squealing sound.

CAUTION!

Use only approved oils in the Truck Leveler. See “Oil Requirements” in the Maintenance Section.

CAUTION!

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

DANGERS, WARNINGS & CAUTIONS

CAUTION!

Possible damage could occur to the platform and/or ICC bar if a truck enters or exits when the platform is in any raised position. The restraints should be interlocked to assure that the truck leveler platform is lowered before allowing the truck to enter or exit.

CAUTION!

Do not attempt to raise the platform hydraulically without at least two lag devices on each cylinder clevis base pad and the ramp lag devices installed (surface mounted units).

LABEL IDENTIFICATION

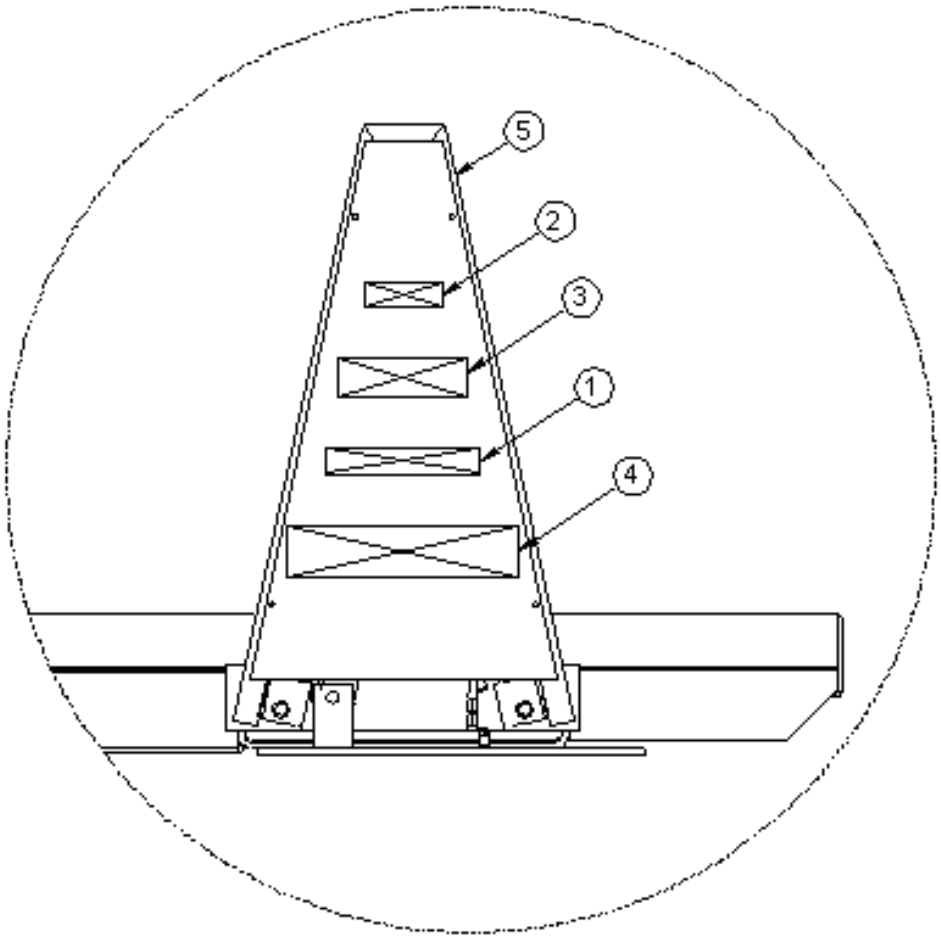


Figure 1 Label Placement

Surface Mounted Truck Leveler			
Item No.	**Qty**	**Description**	**Part No.**
1	2	Caution: Familiarize Yourself With Operators Manual	36401487
2	2	Warning – No Riders	36403707
3	1	*Autoquip* Serial Number Nameplate	36401560
4	2	Capacity	36401594
5	2	Tape, Blk/Yel, 3x108ft, Safety X 10ft long	06100010

LABEL IDENTIFICATION

Figure 2 Label Placement

Pit Mounted Truck Leveler			
Item No.	**Qty**	**Description**	**Part No.**
1	2	Caution: Familiarize Yourself With Operators Manual	36401487
2	2	Warning – No Riders	36403707
3	1	*Autoquip* Serial Number Nameplate	36401560
4	2	Capacity	36401594

LABEL IDENTIFICATION

Note: Labels shown here are not actual size.

Figure 3 Label 36401487

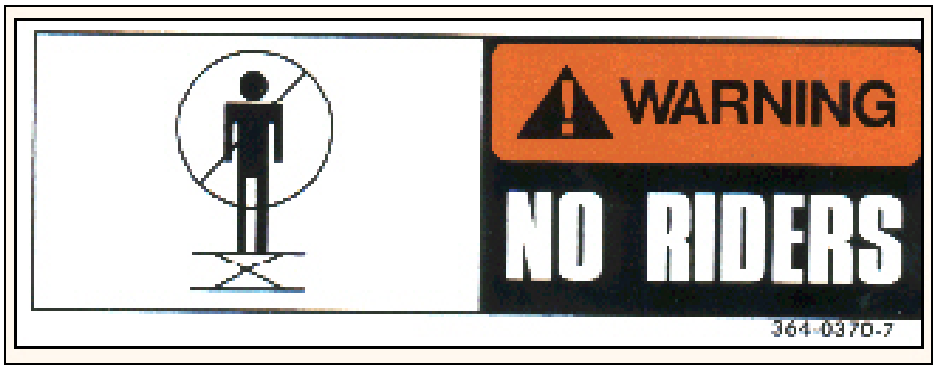


Figure 4 Label 36403707

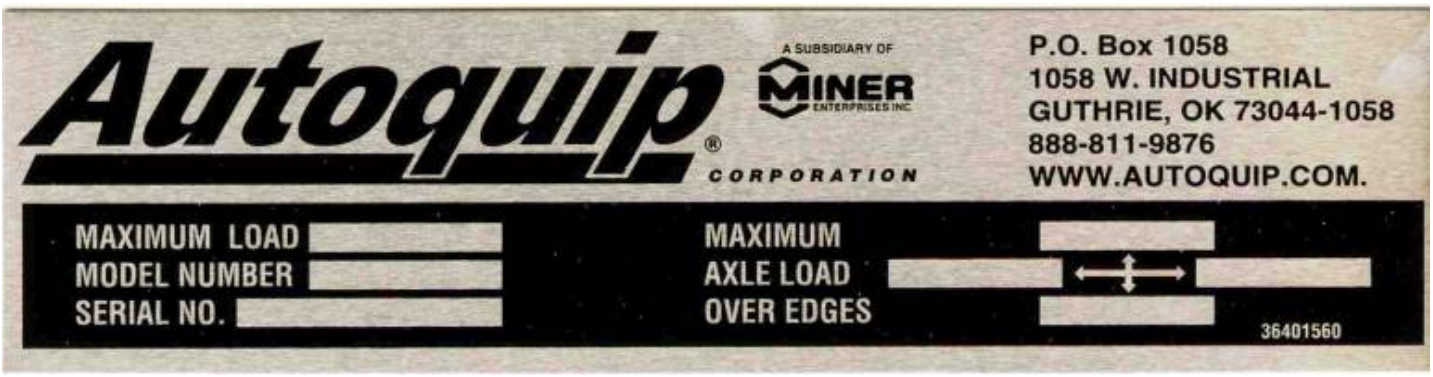


Figure 5 Label 36401560

LABEL IDENTIFICATION

Figure 6 Label 36401594

SPECIFICATIONS

SURFACE MOUNTED

Model	Capacity (lbs)	Platform		Approach Ramp		Motor HP	Rams	Speed FPM	Low Height	Ship Wt. (lbs)
		Length	Width	Length	Width					
TL1440SM	40,000	14’	10’	24”	10’	5	2	3	5”	5,300
TL1460SM	60,000	14’	10’	24”	10’	5	2	3	5”	5,600
TL2060SM	60,000	20’	10’	24”	10’	5	2	3	6 ½”	7,200

PIT MOUNTED

Model	Capacity (lbs)	Platform Length	Pit Length	Motor HP	Ship Wt.
TL1440	40,000	14’	14’ 3”	5	4,200
TL1460	60,000				4,600
TL1640	40,000	16’	16’ 3”	5	4,800
TL1660	60,000				5,200
TL1840	40,00	18’	18’ 3”	5	5,400
TL1850	50,000				5,700
TL1860	60,000				5,900
TL2040	40,00	20’	20’ 3”	5	6,400
TL2050	50,000				6,600
TL2060	60,000				6,800

TL Style	Travel	
	Up	Down
1	30”	6”
3	28”	8”
5	26”	10”
7	24”	12”
9	22”	14”
11	20”	16”
13	18”	18”
15	16”	20”
17	14”	22”
19	12”	24”
21	10”	26”
23	8”	28"

BLOCKING INSTRUCTIONS

NOTE: These blocking instructions are for pit mounted truck levelers. Surface mounted truck levelers do not require any under-platform maintenance and therefore have no blocking instructions.

DANGER!

To avoid personal injury, NEVER go under the lift platform or perform maintenance until the load is removed and the platform is securely blocked up on both raised corners.

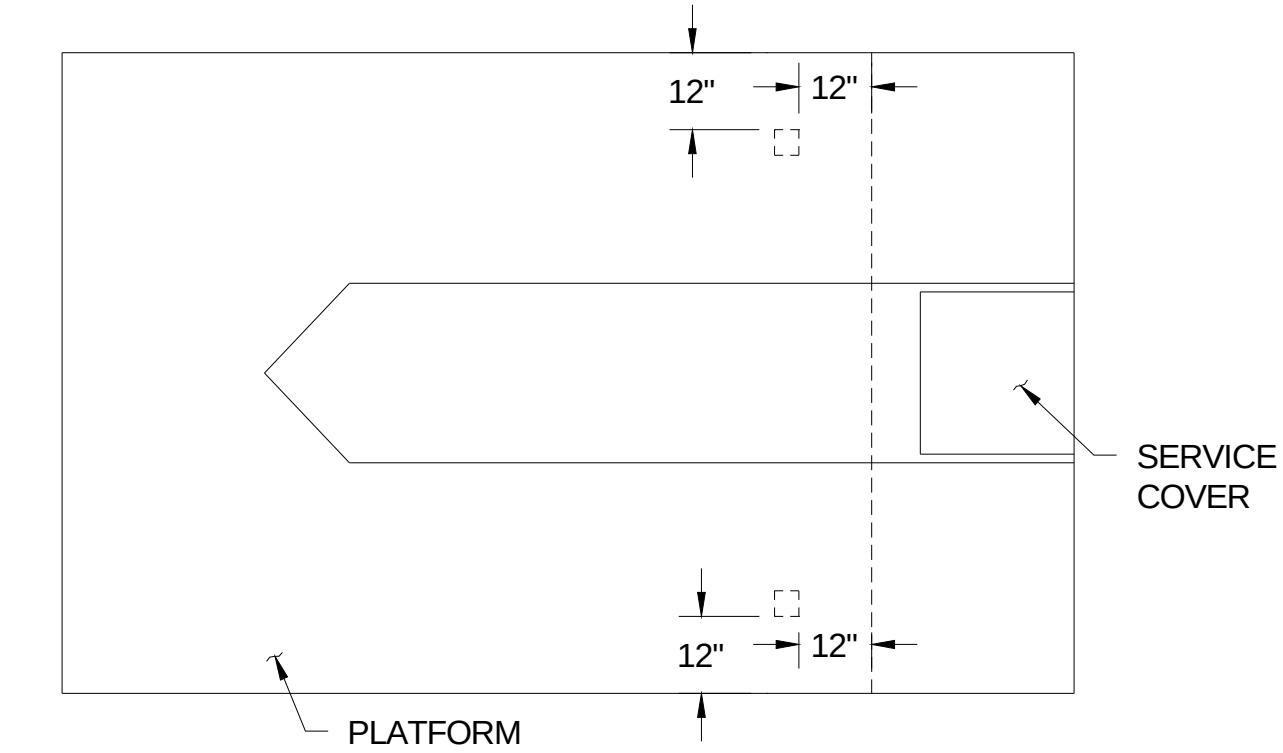
1. Remove all load from the platform and block the entrance to the ramp to prevent the entrance of a vehicle while servicing. Raise the platform to the full upper position.

2. Open the service cover, go into the pit, and place 4" x 4" supports under the platform, as shown in Figure 7. Supports must be 36" long and must be oak, ash, or other similar hardwood in good condition.

3. Lower the platform by depressing the "DOWN" button on the controller until the platform is securely resting on the supports. Continue to depress the "DOWN" button 5 to 10 seconds to relieve all hydraulic pressure in the cylinders.

4. To remove the supports, raise the platform by depressing the "UP" button on the controller to provide enough room to remove the supports.

BLOCKING INSTRUCTIONS



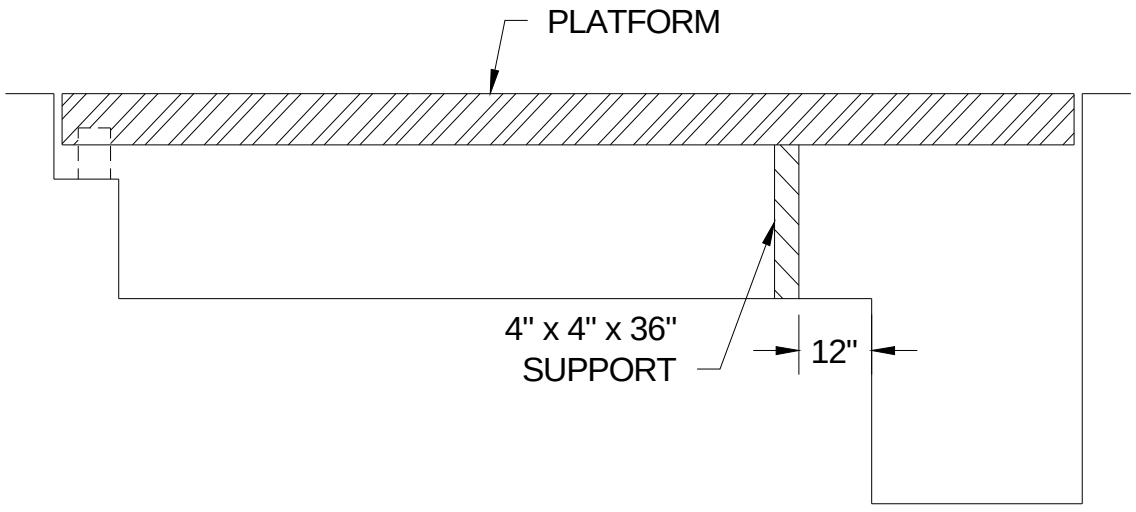


Figure 7 Blocking Diagram

INSTALLATION INSTRUCTIONS

SURFACE MOUNTED LEVELER (see Figure 8)

Platform

1. The Surface Mounted Truck Leveler must be located on a sound concrete surface with 3,000 pounds compressive strength concrete. Asphalt and/or crumbling, powdery, or cracked concrete are not acceptable surfaces

2. Place the platform in front of the dock. Center the platform as required and set the clearance at the face of the dock according to existing or anticipated projections of attachments to the dock face and axle offsets and axle spacing of the trucks to be serviced. The platform must clear all dock bumpers and attachments when it is being raised or lowered. The platform is to be positioned a minimum of 9” in front of dock face to clear most truck restraint devices. As the platform raises from level to 30” maximum travel,, the arc will increase dock-to -platform clearance to 3” when at the highest elevation point.

3. When the platform is correctly positioned, lag the ramp to the concrete pad with four 5/8” x 6” lag devices with a minimum pull out of 7,000 pounds each.

INSTALLATION INSTRUCTIONS

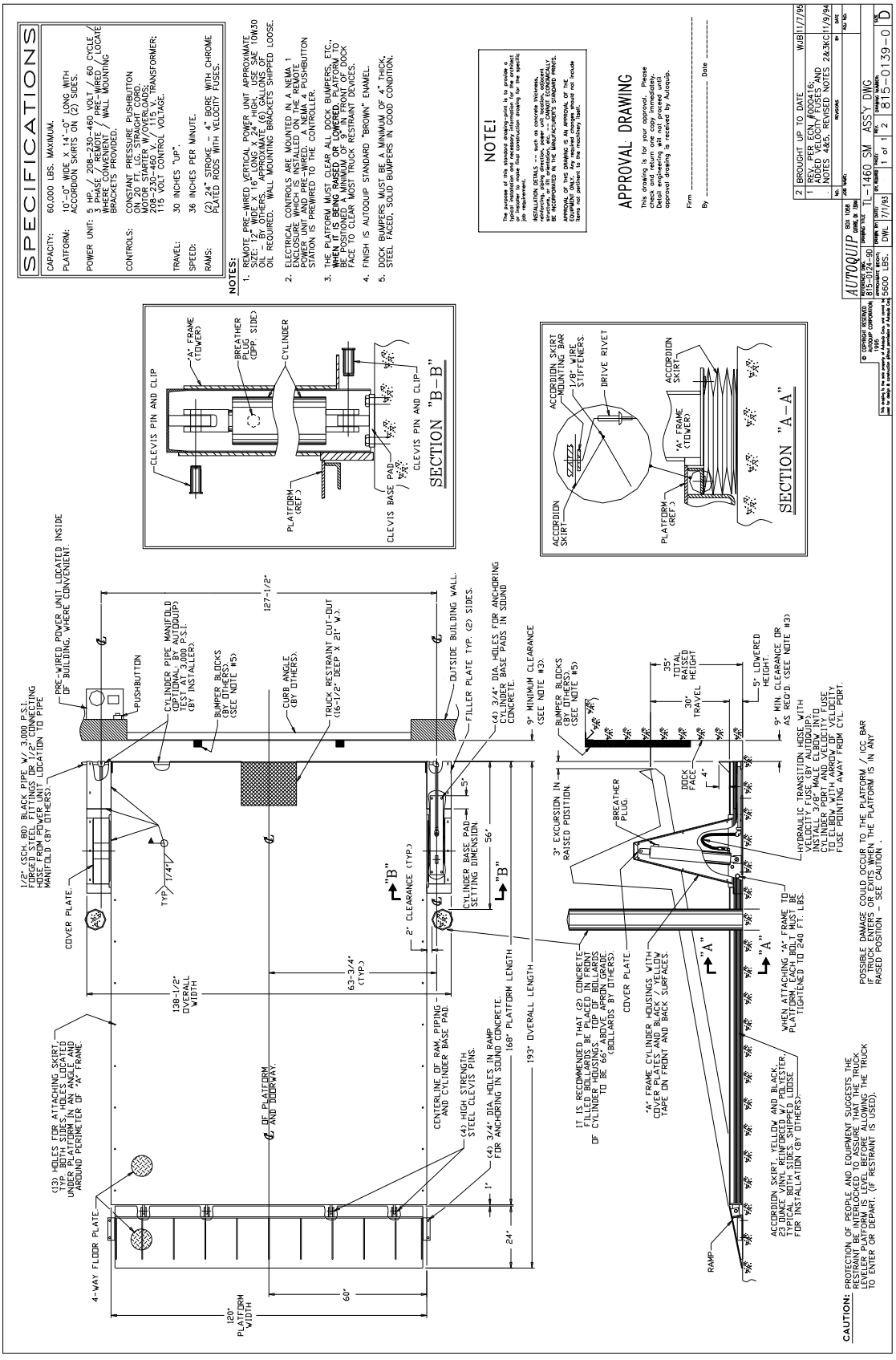


Figure 8 Surface Mounted Installation Drawing

INSTALLATION INSTRUCTIONS

Cylinder Towers

1. Remove the cover plates from the towers and attach the towers to the platform. There are two locator pins on each tower that match the platform socket holes. Clean the socket holes and pins and apply grease to ease the assembly. Assemble two 1" diameter bolts with lock washers to each tower and torque the bolts to 240 ft/lbs.

2. Locate the cylinder clevis base pads under the towers with the long end of the pad toward the dock. Center the clevis in the tower and adjust the long end of the pads to extend beyond the dock end of the tower flanges by 5". When properly set, the cylinders will tilt five degrees toward the dock with the platform in the lowered position.

3. Lag the cylinder clevis base pads down with two 5/8" lag devices with a minimum pull out of 7,000 pounds each at the two holes extending beyond the towers. The two holes in the cylinder clevis base pads under the towers will be lagged down after the lift is hydraulically raised.

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.

4. Install the breather plugs in the cylinder ports on the rod end of the cylinder, if it is not already installed. On the end opposite the rod, install a 3/8" NPT elbow with the end pointing toward the rod.

CAUTION!

Do not attempt to raise the platform hydraulically without at least two lag devices on each cylinder clevis base pad and the ramp lag devices installed.

INSTALLATION INSTRUCTIONS

5. Install the cylinders in the towers with the rod end up and the ports toward the dock. Line up the upper clevis with the lug in the top of the tower and insert the clevis pin from the platform side, through the hole in the tower side plate, into the clevis and lug assembly. Install the pin retainer in the pin. Force the cylinder barrel down and locate the lower cylinder clevis on the base pad clevis. Insert the pin through the clevis and lug assembly from the outside of the tower and install the pin retainer (see Figure 9). Repeat on the other side.

6. Place the pipe manifold assembly (optional) at the dock end of the Surface Mounted Truck Leveler with the cylinder connecting ends centered through the "V" notch in the bottom of the towers. See the "Pipe Manifold Assembly" in the Replacements Parts section of this manual. The elbow fittings on the ends should point upwards. Be sure the pipe manifold assembly has sufficient clearance on the dock end and on the sides to prevent pipe from being crushed under the platform. Weld tabs on the pipe manifold assembly to the cylinder clevis base pads.

7. Connect the power unit pressure line to the "T" fitting in one corner of the pipe manifold assembly. Power unit pressure line may be connected at either corner. Remove the plug from the other "T" fitting and apply pipe sealant and replace.

8. Install the transition hoses, rigid end, on the cylinder ends of the pipe manifold assembly. **Do not connect the hoses to the cylinders at this time.**

9. Position the filler plates, touching the towers and flush with the platform, and tack weld in place.

10. Field weld the towers to the platform and the filler plates to the towers and the platform. The weld is to be a ¼" fillet all around. Clean the welds and touch up the paint.

11. Connect the transition hose on the cylinder furthest from the power unit. Insert the end of the transition hose closest to the power unit in a container suitable for holding oil. Reconnect the power supply to the power unit. Push and hold the "UP" button on the controller until approximately one half gallon of oil is discharged from the open hose.

CAUTION!

Precautions must be taken to prevent unauthorized activation of the power unit while service work is being performed.

INSTALLATION INSTRUCTIONS

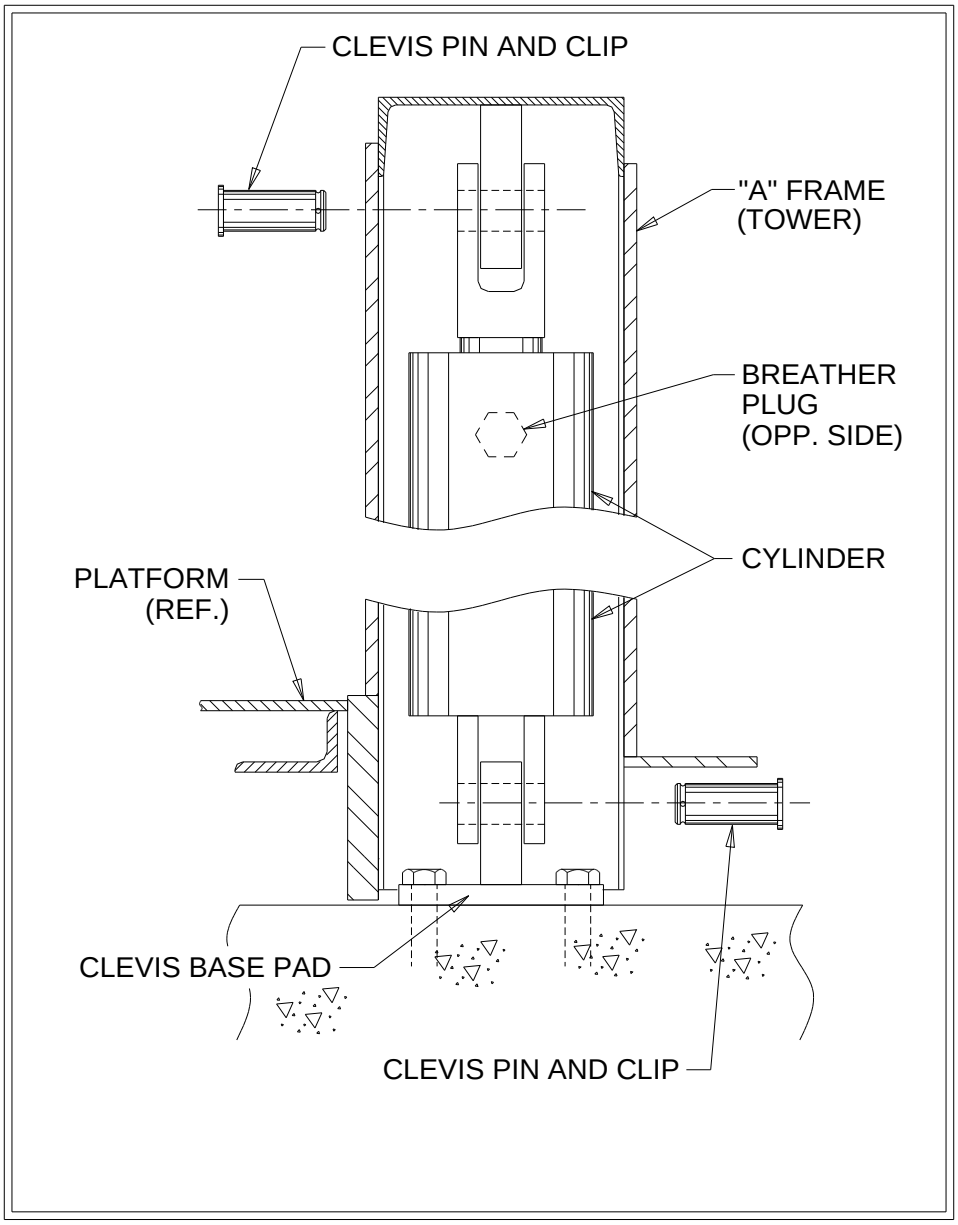


Figure 9 Cylinder & Tower Installation

12. Install a velocity fuse on the elbow in the cylinder. **Do not use a swivel fitting on the fuses.** Make certain that the arrow on the velocity fuse points away from the cylinder. Connect the hose to the velocity fuse.

13. Disconnect the transition hose from the cylinder furthest from the power unit and insert the end of the hose in a container suitable for holding oil. Push and hold the "UP" button on the controller until about one half gallon of oil is discharged from the open hose.

14. Refill the power unit reservoir with oil. See "Oil Requirements" in the Maintenance section.

15. Press the "UP" button on the controller and raise the platform. Check for pipe/hose routing to confirm that they are not in danger of being pinched or crushed.

16. Raise the platform just enough to install the remaining lag bolts in the cylinder clevis base pads under the towers.

17. Raise and the lower the platform, continuing to hold the "DOWN" button approximately 30 seconds after the platform is fully lowered. Repeat this 10 to 15 times to purge air from the cylinders and hydraulic lines.

18. Clean up any spilled oil and remove all debris from under the Surface Mounted Truck Leveler. Replace the cover plates on the towers.

Skirts

1. Remove the skirts from the shipping container and lay them out on the ground beside the lift. The skirts are interchangeable from one side to the other by turning them over.

2. Insert one precut 1/8" diameter stiffener wire into each pocket in the folds of the skirt.

3. Raise the platform and block it up (See "Blocking Instructions"). Position the skirts under the edges of the sides of the platform. The platform, towers, and filler plates are pre-drilled for attaching the skirts. Attach the skirt mounting bars with the skirt flap sandwiched between them and the platform, towers, and filler plates. Use C-clamps to hold the skirts and mounting bars in place. Punch holes in the skirt through the pre-drilled holes in the mounting bars and the platform, towers, and filler plates and insert the drive rivets (See Figure 10).

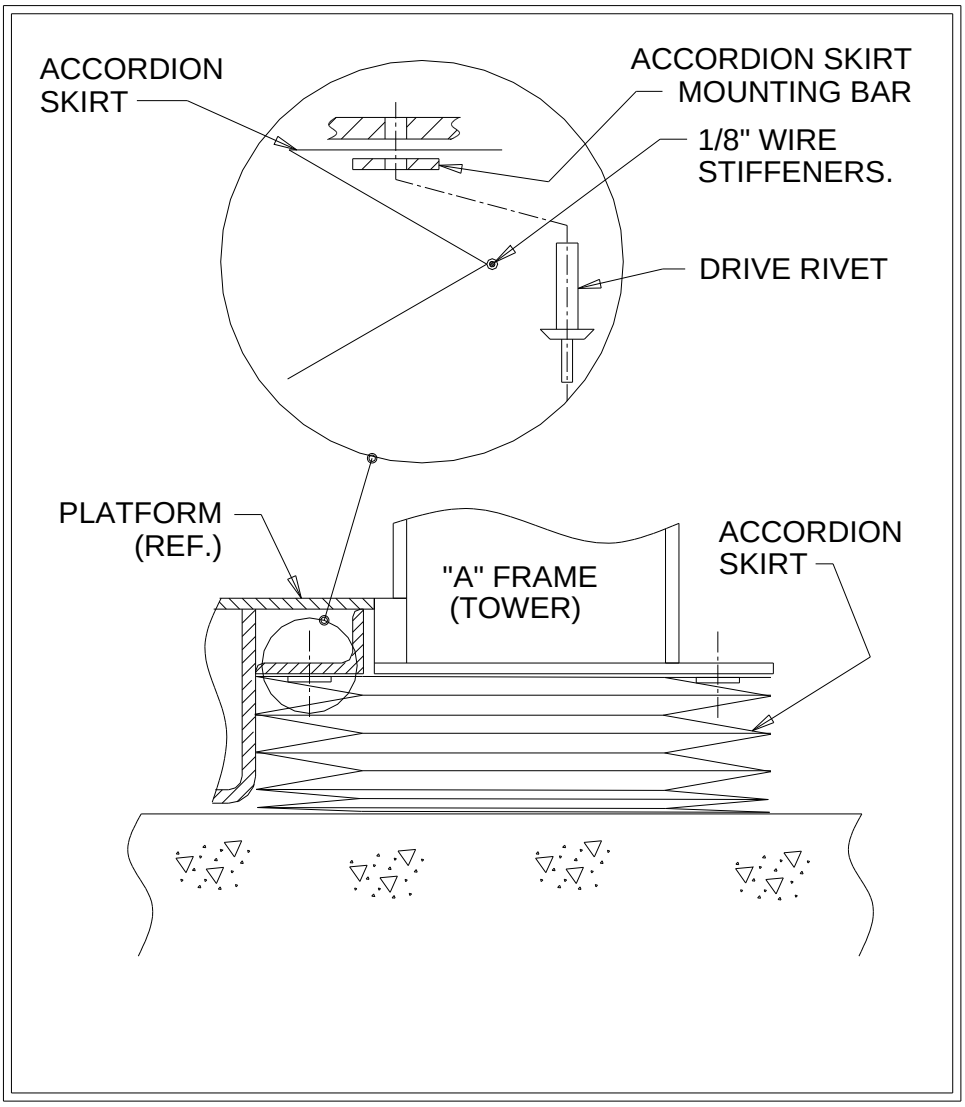


Figure 10 Accordion Skirt Installation

4. The bottom of the skirts rests on the ground; they are not attached to the concrete. Confirm that the folds are correctly stacked and are square with the sides of the Surface Mounted Truck Leveler.

5. Raise and lower the platform to confirm that the skirts are operating correctly. If he site is subject to wind, a ½" diameter steel round bar (provided) should be inserted into the bottom pockets of the skirts and lagged to the ground with conduit clamps.

Final Preparation

1. It is recommended that two concrete-filled bollards be placed 6" in front of the cylinder towers. The top of the bollards is to be 66" above the apron grade and 2" from the edge of the platform.

2. Check the oil level in the power unit reservoir. See "Oil Requirements" in the Maintenance section.

3. Remove all debris from the installation area. Touch up any scuffed and/or damaged painted surfaces with touch-up paint.

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.

INSTALLATION INSTRUCTIONS

PIT MOUNTED LEVELER (see Figure 11)

1. Before attempting installation, check all pit dimensions and squareness. A plus or minus of ½" is allowable.

2. Place cylinder clevis channel in the pit. **Do not lag down at this time.** Lay the cylinders on the floor of the sub pit.

3. Clean the hinge clevis channel (12" channel set in concrete) in the area where the clevis will sit with a disc grinder. There should be a "bright" metal surface to insure a proper weld.

4. Place two 55-gallon drums in the sub pit near the dock and lay a nine-foot long 4" x 4" board across the drums. Set the left and right platform sections in the pit. The four hinge clevises will rest on the hinge clevis channel and the "floating" end across the 4" x 4" board on the drums.

5. Set the bridge channel across the ends of the two platform sections that mount near the dock face.

6. Set the center plate (wheel locator) into position.

7. Align all three sections relative to the pit, center up and parallel. Weld all sections **except the center**, which will be welded last.

8. Attach the cylinder barrel or base clevises to the base channel mount brackets.

9. Mount the power unit to a wall inside the building and connect one hose from the power unit to the "T" in the pit. Fill the power unit with oil. See "Oil Requirements" in the Maintenance section.

10. Complete all necessary electrical hook-ups.

11. Remove the shipping plugs from each ram. Install the ¼" straight male connector into the rod end. Connect the capillary tube to this fitting. Install a ½ street elbow and a velocity fuse in the base end of the ram. Make sure the arrow on the velocity fuse is pointing away from the cylinder port. Attach the hose to the velocity fuse. Connect the hoses from the lower port on the cylinders to the "T" in the pit. Run hose from the "T" in the pit to the power unit. Adjust the hoses so that they lay comfortably in the pit and cannot be pinched or crushed.

INSTALLATION INSTRUCTIONS

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.

12. Raise the floating end up off the 4" x 4" board. Remove the drums and lower the floating end as near as practical to a position level with the pit curbs.

13. Align the platform in the pit adhering to the clearances on the drawing. NOTE: The 1½" dimension (pit to platform) is an absolute minimum due to the cantilever action of the platform over the hinge clevises.

14. After the alignment is complete, shim the four hinge clevis pads so that all four clevises are sitting solid on the embedded hinge channel. Because of applied loads, the hinge clevis pads must receive a minimum of 5/16" fillet weld for the entire perimeter.

15. Pit floors usually vary to some degree from one side to the other. If the cylinder clevis channel were butted against the pit wall and lagged down, the pistons might not stroke out together which would cause a twist in the structure. This is why it is recommended that the unit be raised until the rams stroke out. Shim the free side either behind to the wall or underneath to the floor to achieve equal and simultaneous stroke out. Then lag it to the floor.

16. Operate the unit and carefully inspect for hydraulic leaks and physical stresses.

17. Raise the lift all the way up to locate the bridge channel and weld into place following the welding instructions on the installation drawing (see Figure 11).

18. The hinged service cover lid is held down with the cover locks. Position these locks and install them into the center section.

19. Finish welding the center section per the installation drawings and weld the skirts to the sides of the platform (see Figure 11).

INSTALLATION INSTRUCTIONS

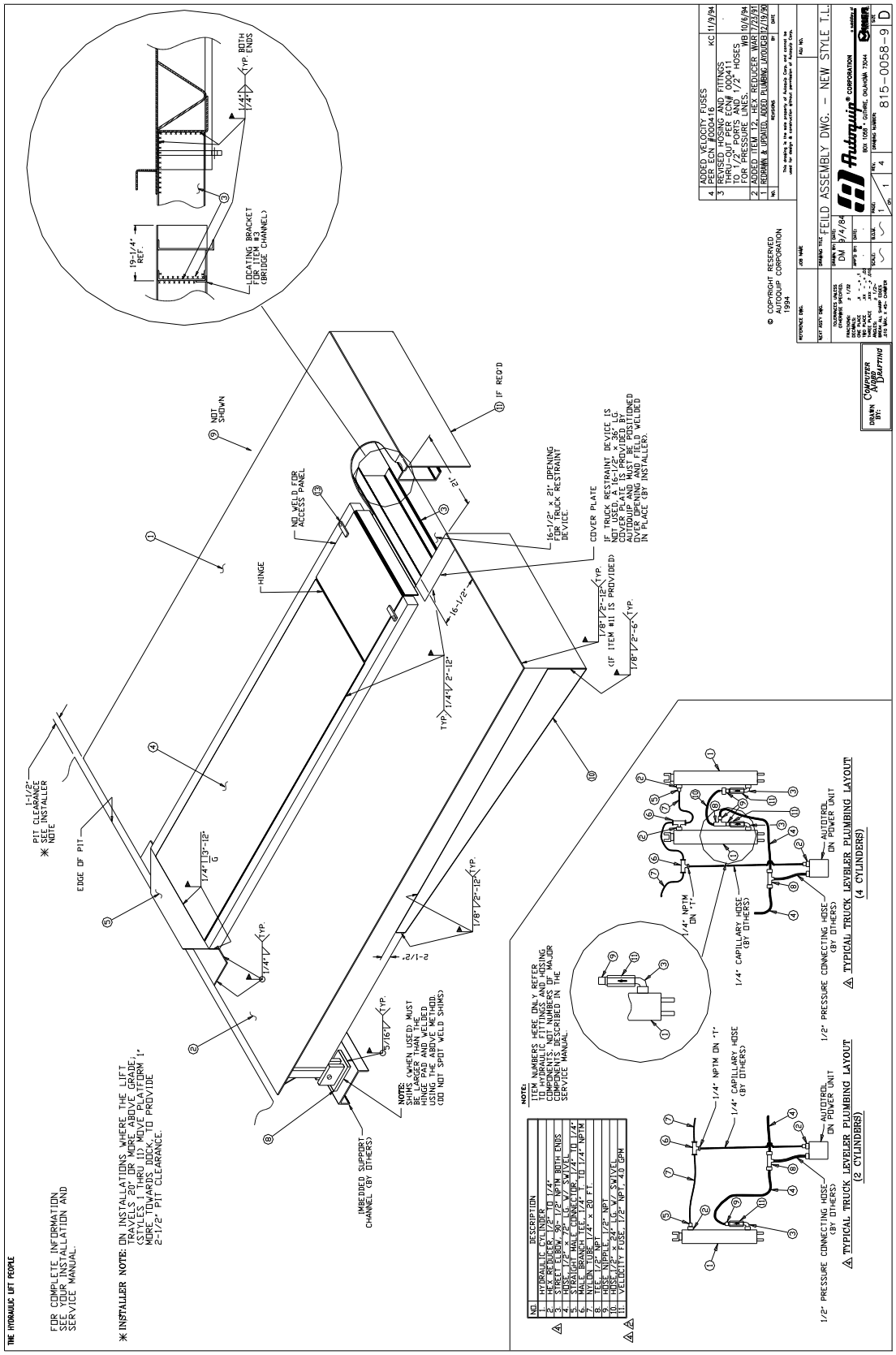


Figure 11 Pit Mount Installation Drawing

INSTALLATION INSTRUCTIONS

POWER UNIT

1. The power unit is to be located in an area protected from the elements and should be installed prior to the lift to so that it may be operated during the installation of the platform. The recommended location is inside the building.

2. The power unit can be mounted on the floor or wall with the wall mount brackets. Do not install outside unless a weatherproof cover has been furnished or otherwise protected from the elements.

Hydraulic Piping/Hose Size	
Up to 25 feet	1/2" inside diameter
26 – 50 feet	3/4" inside diameter
Over 50 feet	1” inside diameter

   NOTE: the pipe must be schedule 80 with extra heavy fittings. All hoses, fittings, and pipe are to have a minimum rated operating or working pressure of 3,000 PSI.

3. The electrical work is to be done in accordance with local codes by a qualified control electrician. See “Standard Wiring Diagrams” in the Maintenance section of this manual for proper electrical installation. All wiring must meet current NEC (National Electric Code).

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.

   Do not run the motor more than a few short bumps to check rotation if there is no oil in the reservoir. The pump may become damaged. If the reservoir contains oil, precautions should be taken to collect pumped oil to prevent spillage.

4. Check the rotation of the motor. Correct rotation is clockwise when viewing the motor shaft from under the dust cap on the end bell housing. Replace the dust cap when the check is complete.

DANGER!

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

5. Fill the reservoir with oil (see “Oil Specifications” in the Maintenance section of this manual).

OPERATING INSTRUCTIONS

Familiarize yourself with this operator's manual before operating the equipment!!!

The Truck Levelers have a lifting capacity from 40,000 to 60,000 pounds. The safety relief valve on the power unit has been factory set to open at a pressure slightly above the rated load capacity and allows the oil to bypass back into the reservoir to prevent damage to the lift and its hydraulic power unit. Lowering loads exceeding the rated capacity of the lift may also result in excessive wear and damage to the lift as well as possible personal injury.

CAUTION!

Do not continue to depress the "UP" button on the controller if the lift is not raising or if the lift has reached the fully raised position. To do so could result in permanent damage to the motor or pump.

The Truck Levelers are furnished with constant pressure push button controls. Actuating the "UP" button causes the contractor to energize, closing the line contacts and allowing line voltage to be applied to the motor. The motor will drive a fixed displacement gear pump, which in turn draws oil from the reservoir through the pump and forces it at a constant volume under pressure required by the load. The oil flows through the valves and piping into the hydraulic cylinders that lift the platform as the cylinder rods are forced out.

When the desired height of the platform is attained, releasing pressure from the push button deactivates the "UP" button. The power unit will stop pumping oil, and the check valve will close preventing reverse flow of the oil. This maintains the desired raised position.

To lower the platform, depress the "DOWN" button on the push button control, which will energize the down valve solenoid. The solenoid pushes out and activates the down valve, which allows it to open. Once opened, the down valve allows oil in the hydraulic cylinders to flow through the velocity fuses and the down valve at a controlled rate and return to the reservoir.

The downward travel of the platform may be stopped at any desire elevation by releasing pressure from the "DOWN" button. NOTE: the motor does not operate during downward travel.

CAUTION!

Do not operate the power unit on relief for more than a few seconds. When on relief, the valve will make an audible squealing sound.

ROUTINE MAINTENANCE

Normally the Truck Leveler 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 lift platform or perform maintenance until the load is removed and the platform is securely blocked on both raised corners. See "Blocking Instructions" section of this manual.

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

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 all hydraulic hoses and pipes for interference with platform or damage such as crushing cutting, or rubbing. Replace and reposition immediately.

5. 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 “vertical” tank is approximately 11 gallons. The reservoir capacity for “contractor” (polyethylene) tank is approximately five gallons.

The oil level in the reservoir should be 1” to 1 ½” below the top of the reservoir with the lift 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 lift platform or perform maintenance until the load is removed and the platform is securely blocked on both raised corners. See "Blocking Instructions" section of this manual.

VERTICAL POWER UNIT

DANGER!

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

The “vertical” 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 valve assembly. It is also available with a 5 HP/ 230 volts/60 hertz/single-phase motor as an option.

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.

GENERAL MAINTENANCE

Power Unit	115 Volts	208 Volts	230 Volts	460 Volts
Standard Three Phase	N/A	16 AMPS	15.2 AMPS	7.6 AMPS
Standard Single Phase	58 AMPS	N/A	24.5 AMPS	N/A

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

A. DISASSEMBLY – VERTICAL POWER UNIT

1. Remove the down solenoid by disconnecting the wiring and removing the two screws holding the solenoid and cover to the Deltatrol.

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.

2. Remove the four screws holding the reservoir lid in place. One screw is through the Deltatrol. Lift the reservoir lid off of the reservoir, taking note of the orientation; keep the gasket so that it may be used during reassembly.

3. Disconnect the hoses and down restrictor pipe from the Deltatrol.

4. Remove the Deltatrol and gasket by removing the one screw. Take note of the orientation of the pump and plumbing for reassembly.

5. Remove the hose and suction pipe, with filter, from the pump. Take note of the orientation of the pump and plumbing for reassembly.

6. Disconnect the control box and wiring from the motor. Note the connections for reassembly.

7. Place the motor on end and remove the four screws from the reservoir lid that hold the pump and motor on.

8. Remove the reservoir lid and gasket from the pump and separate the pump, coupling, and motor. Take note of the orientation of all parts for reassembly.

GENERAL MAINTENANCE

B. ASSEMBLY – VERTICAL POWER UNIT

1. Apply a liberal amount of grease to the motor and pump coupling joint.

2. Align the pump, coupling, and motor and place the pump on the motor.

3. Install the gasket on the reservoir lid and screw the pump and motor assembly onto the lid. Torque the screws to 14 ft-lbs. Inlet of the pump must be toward the Deltatrol hole and the foot of the motor must be toward the filler cap. Reconnect the control box and wiring to the motor.

4. Replace the hose and suction pipe, with filter, on the pump. The suction pipe filter should point toward the filler cap. Apply the recommended pipe sealant to insure a pressure-tight fit.

5. Replace the Deltatrol onto the reservoir lid with the single screw placing the gasket between the Deltatrol and lid. Note the Deltatrol port and gasket orientation for correct assembly.

WARNING!

Under no circumstances should the speed control orifice be removed from the Deltatrol to obtain faster lowering speed; a loaded lift can reach dangerous and destructive speed and/or unnecessary closing of the velocity fuses.

6. Replace the hoses and down restrictor pipe in the Deltatrol using the recommended pipe sealant to insure a pressure-tight fit. A bolt and nut may be used in the open hole of the Deltatrol to restrain to to the lid while the plumbing is being attached. Remove the nut and bolt after the plumbing is complete.

7. Replace the gasket and set the lid on the reservoir, taking note of the orientation. Replace the screws attaching the lid to the reservoir. One screw is through the Deltatrol.

8. Replace the down solenoid and cover onto the Deltatrol using two screws and reconnect the wiring to the solenoid.

9. Reconnect the electrical supply to the power unit and check for proper rotation of the motor (see “Power Unit” in the Installation section). Test for hydraulic leaks. Tighten the joints as necessary.

GENERAL MAINTENANCE

CONTRACTOR REMOTE 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 Contractor Power Unit utilizes a “Super-Torque” intermittent duty (one full lift cycle per four minute period) 5 HP/208, 230, 460 Volts/60 hertz/3 phase motor driving a high pressure positive displacement pump assembly with internal relief check and dump valves.

2. Because *Autoquip* "Super-Torque" motors actually deliver substantially more horsepower than their nameplate rating, they must always be wired for heavier current-draw than standard motors of the same nameplate rating. However, because of the "Super-Torque" motor’s starting efficiency and superior running characteristics, circuit components do not have to be as large as for standard motors of equal delivered horsepower.

The following chart should be referenced in connecting these motors to power sources, remembering that heavy wire must be used all the way to the power-source.

5 HP	208 Volts	230 Volts	460 volts
Full Load Amperages	15.8 AMPS	14.8 AMPS	7.4 AMPS

GENERAL MAINTENANCE

CYLINDER REMOVAL AND REPACKING (see Figure 12)

1. Fully lower the platform by depressing the “DOWN” button on the controller. Continue to hold the “DOWN” button for 5 to 10 seconds to relieve all hydraulic pressure from the cylinders.

DANGER!

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

2. Remove the cover plate from the tower with the defective cylinder (on surface mounted truck leveler). Loosen and remove the transition hose from the velocity fuse and remove the velocity fuse from the elbow in the lower cylinder port. A plug should be placed in the ends of the transition hose and velocity fuse to prevent oil spillage or contamination. Remove the pin retainers and pins and take the cylinder out.

3. Push the rod fully into the cylinder to eject any remaining oil.

4. Pull the rod out of the cylinder 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 cylinder open port.**

5. Using a 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.

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

7. 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 that could result in seal failure and/or leakage.**

8. 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.

9. Remove the piston locknut and slide the piston and bearing assembly off of the rod. Take care to protect the rod surface from damage.

10. 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.

11. Grease all seals and packing liberally and install the bearing assembly and the piston on the rod. Torque the locknut to 500 ft-lbs.

12. Install the rod into the cylinder tube taking care not to damage any seals or packing.

13. Align the retainer hole in the bearing assembly groove with the slot in the tube. Insert the retainer hook end in the hole/slot. Using a spanner wrench, turn the bearing assembly clockwise until the retainer is completely inserted in the groove/slot in the tube.

14. Install the assembled cylinder into the tower with the rod end up and the ports toward the dock. Line up the upper clevis with the lug in the top of the tower and insert the clevis pin from the platform side, through the hole in the tower side plate, into the clevis and lug assembly. Install the pin retainer in the pin. Force the cylinder barrel down and locate the lower cylinder clevis on the base pad clevis. Insert the pin through the clevis and lug assembly from the outside of the tower and install the pin retainer.

15. Remove the plugs in the velocity fuse and attach it to the cylinder elbow, making certain that the arrow on the velocity fuse is pointing away from the cylinder. Attach the transition hose to the velocity fuse.

16. Turn the electrical supply back on and raise and then lower the platform, continuing to hold the “DOWN” button about 30 seconds after the platform is fully lowered. Repeat this 10 to 15 times to purge air from the cylinders and hydraulic lines. It may take 15 to 30 seconds time to fill the empty cylinders before movement is noted.

17. Check the oil level in the power unity reservoir. See “Oil Requirements” in the Maintenance section of this manual.

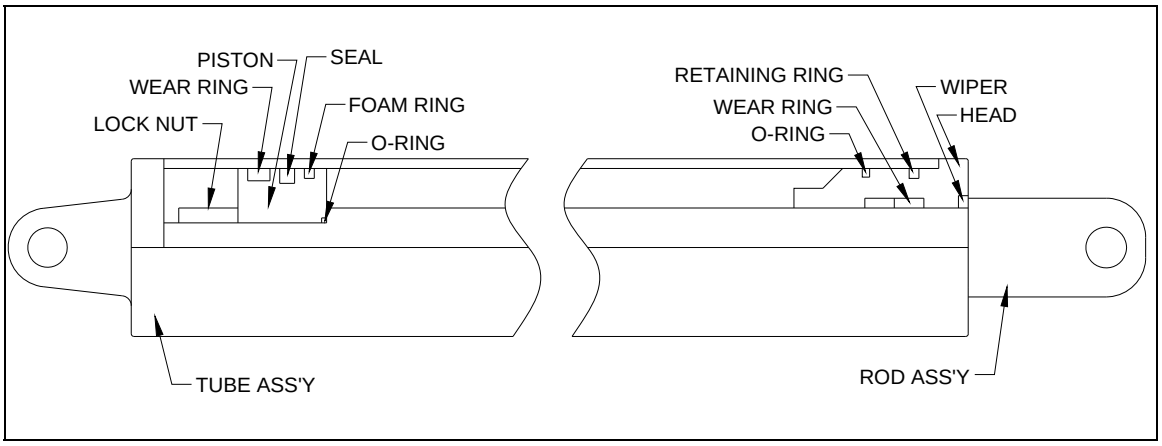


Figure 12 Double Acting Hydraulic Cylinder

GENERAL MAINTENANCE

VELOCITY FUSE REPLACEMENT

DANGER!

Do not attempt to remove the velocity fuse until the lift is securely supported with the maintenance locking 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 and possible failure of the lift, it is necessary to establish a correct hose shape and pattern of movement as follows:

1. Raise the platform to its full height and block securely. See “Lift Blocking Instructions”.

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

3. Lower the lift carefully and check to see that the hose is free and clear of the cylinder and all structural 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.

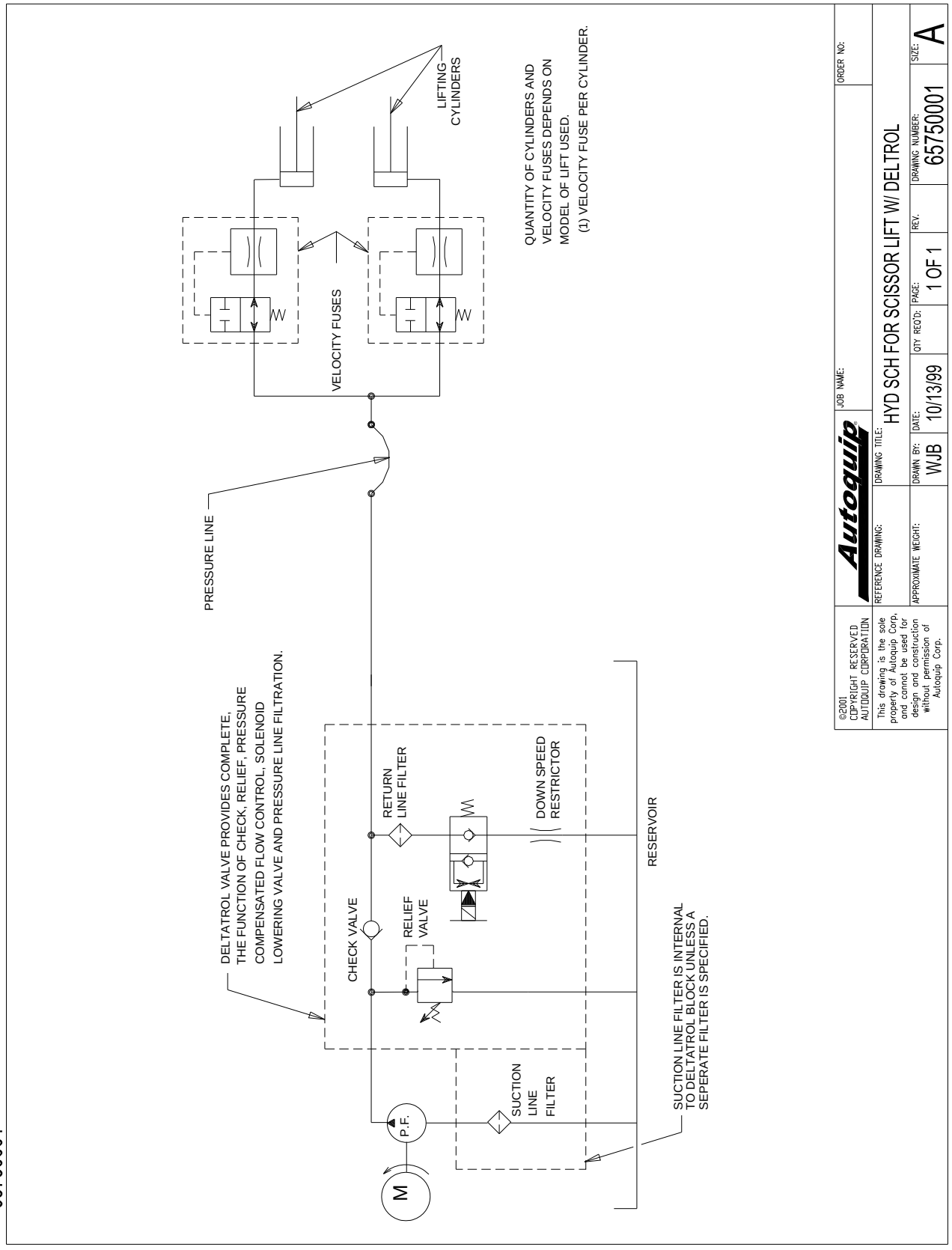


Figure 13 Hydraulic Schematic – Vertical Power Unit

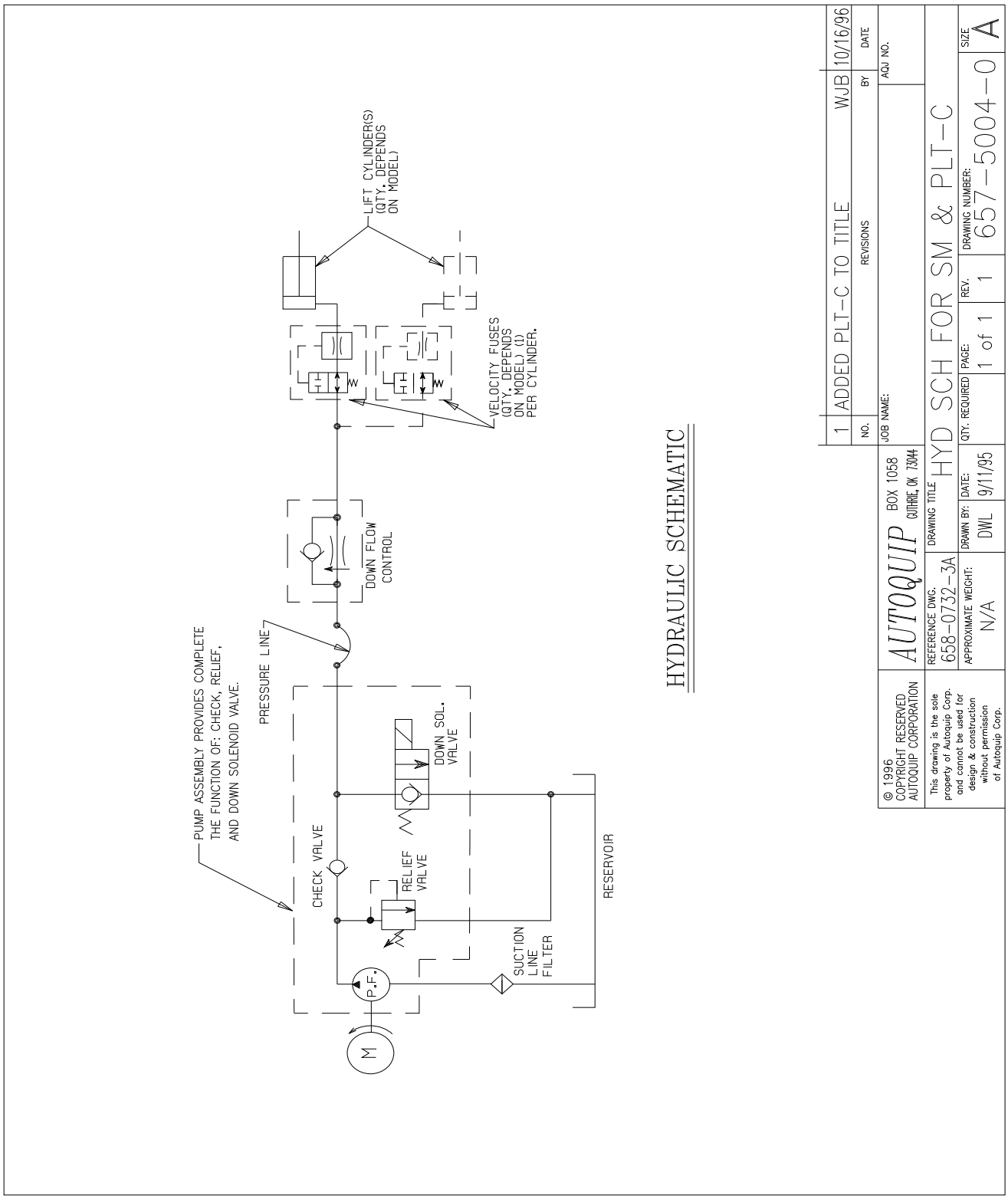


Figure 14 Hydraulic Schematic – Contractor Power Unit

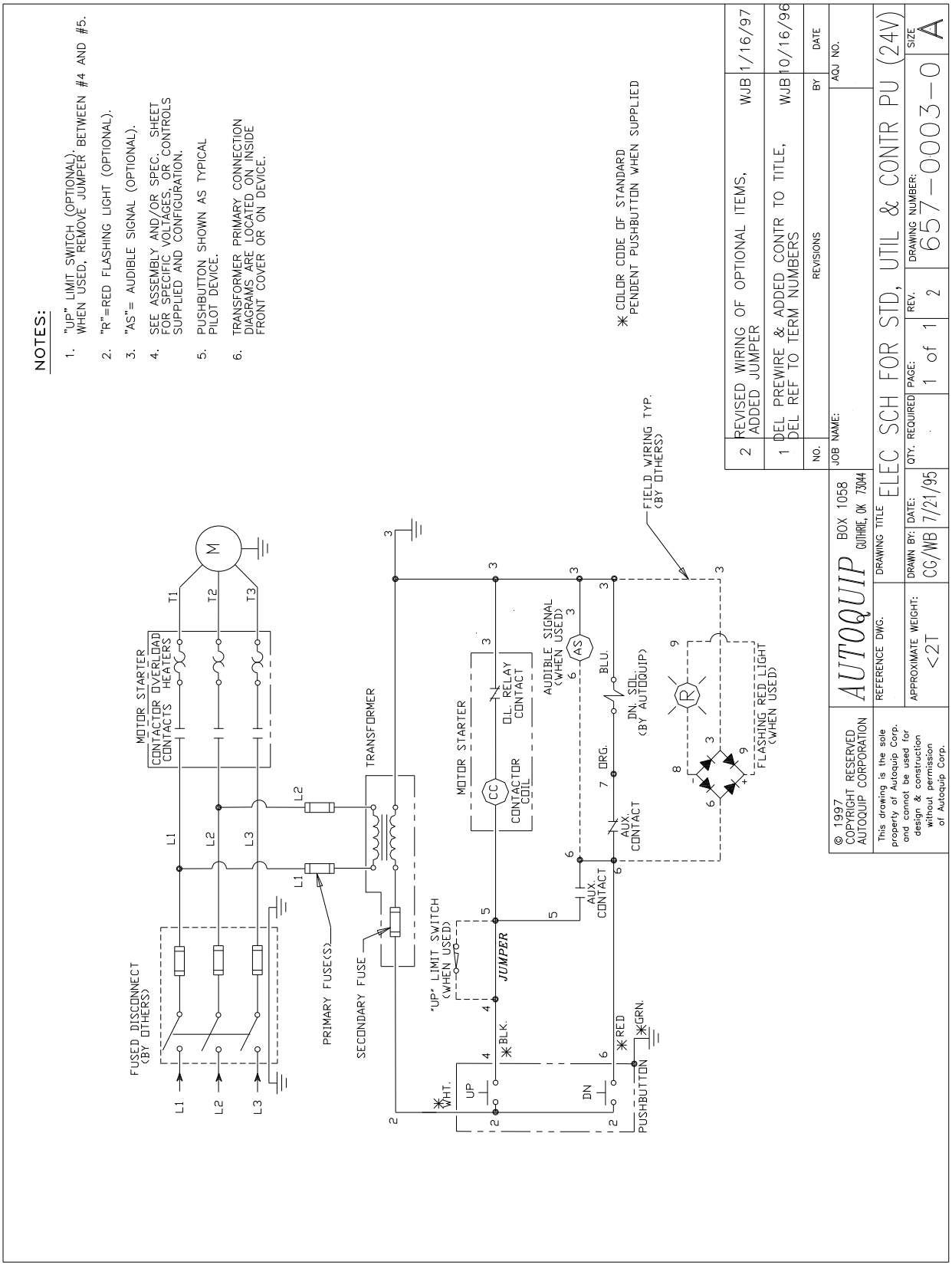


Figure 15 Electrical Schematic – 208-230-460 Volt Three Phase

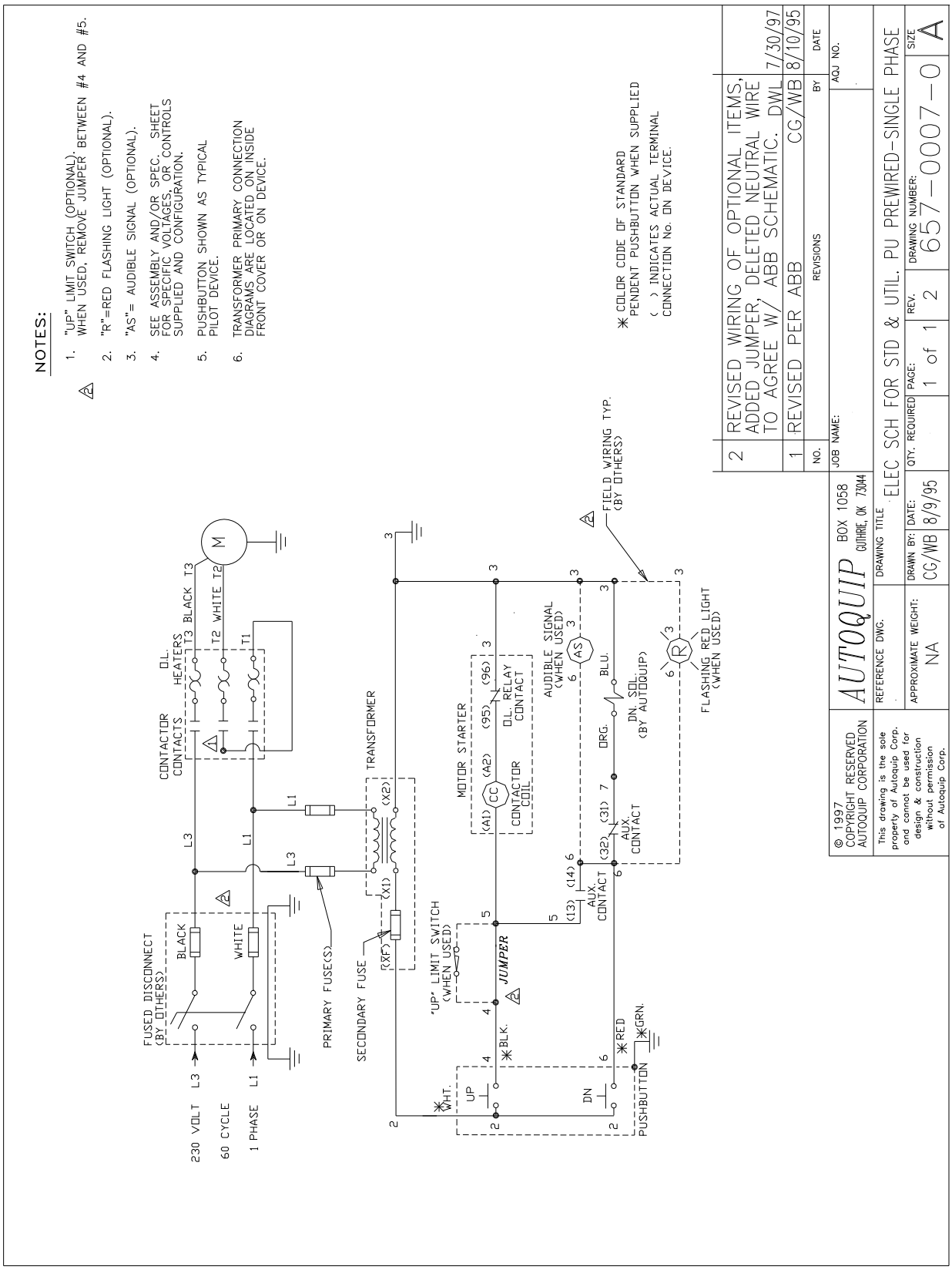


Figure 16 Electrical Schematic 230 V/1PH

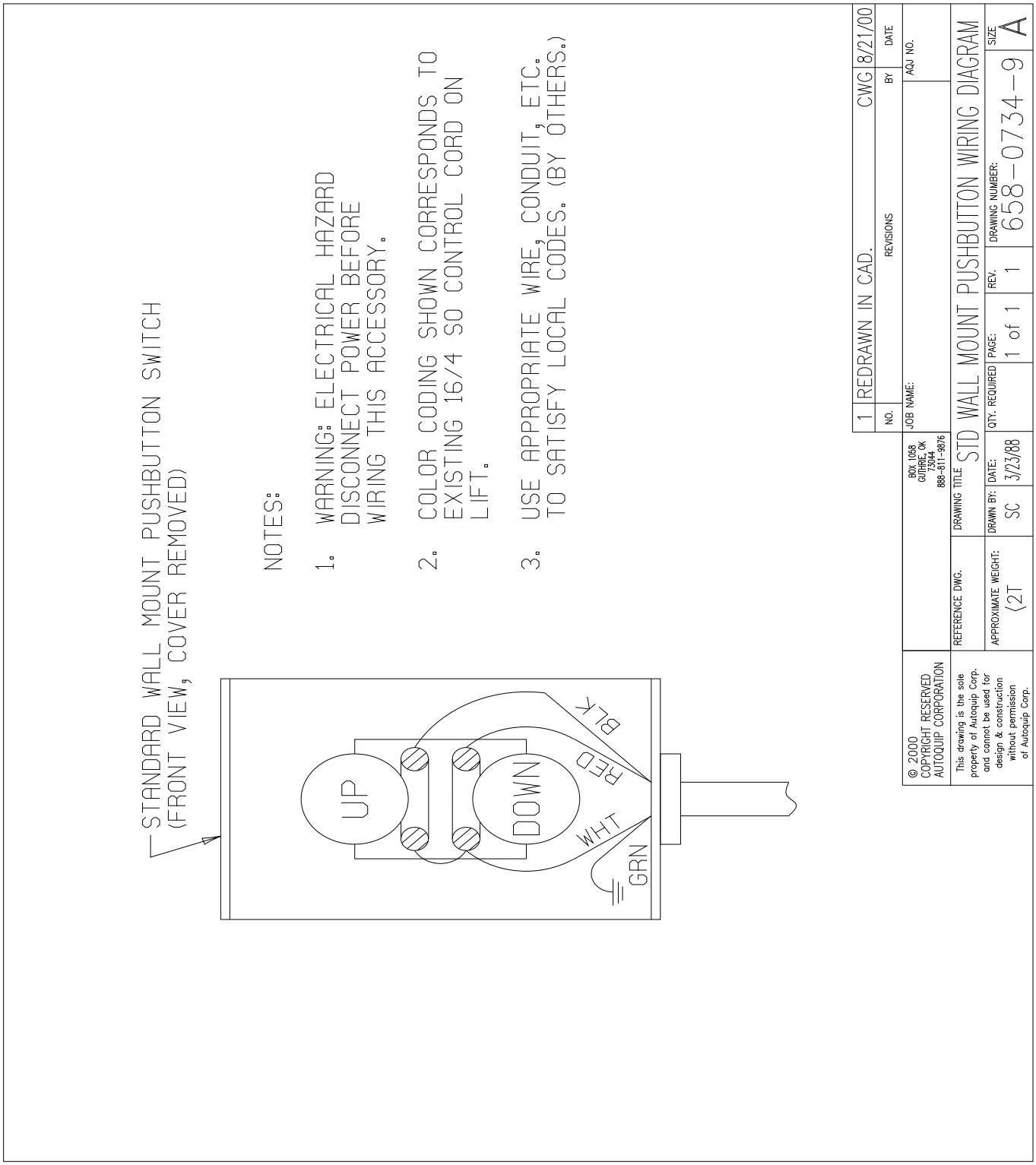


Figure 17 Pushbutton Assembly

REPLACEMENT PARTS LIST

POWER UNIT PARTS LIST

QTY	Description	Vertical Part No.	Contractor Part No.
1	Motor, 5 HP 208/230/460 Volt 3 PH straight shaft	30600449	N/A
	Motor, 5 HP 208/230/460 Volt 3 PH tang shaft	N/A	30600613
1	Motor Coupling, Lovejoy L-095, 1 1/8” bore	20000154	N/A
1	Pump Coupling, Lovejoy L-095, 7/16” bore	20000030	N/A
1	Coupling Rubber Spider	20000162	N/A
1	Pump, 2.25 GPM with straight shaft	40300162	N/A
	Pump, 2.99 GPM with tang shaft and internal relief, check	N/A	40200630
2	¼” Dyna-Seal Washer for	45901014	N/A
1	Return Pipe Assembly, 6” long	41050485	N/A
1	Sump Strainer	47700075	41050139
1	Hose, Pump to , 3/8” x 18” long w/ 1 swivel	46100020	N/A
1	Kit	41050880	N/A
1	Down Solenoid, 24 volt	32701380	32701290
	Down Solenoid, 115 Volt	32701370	32701300
1	Filler/Breather Cap Assembly	47700208	47701640
1	Oil Reservoir, 16” x 16” x 10”	64000813	N/A
	Oil Reservoir, polyethylene	N/A	64201020
1	Control Panel, 460 VAC/24 VAC controls	35150081	35150081
1	Control Panel, 208-230 VAC/24 VAC controls	35150080	35150080
1	Control Signal; Pushbutton – “UP”/”DOWN”	36201820	36201820
1	Flow Control Valve	N/A	41502840

REPLACEMENT PARTS LIST

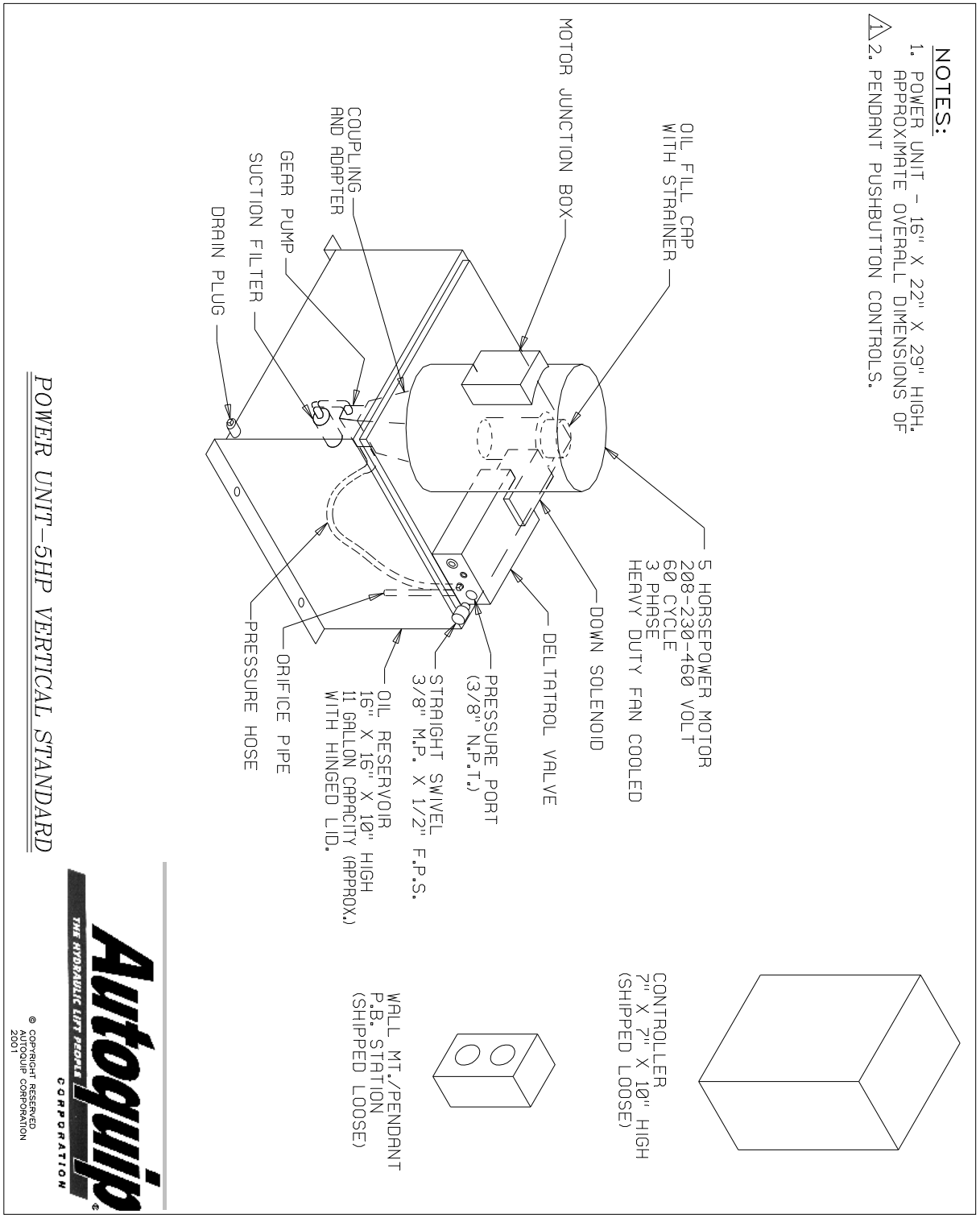


Figure 18 Vertical Power Unit Parts Detail

REPLACEMENT PARTS LIST

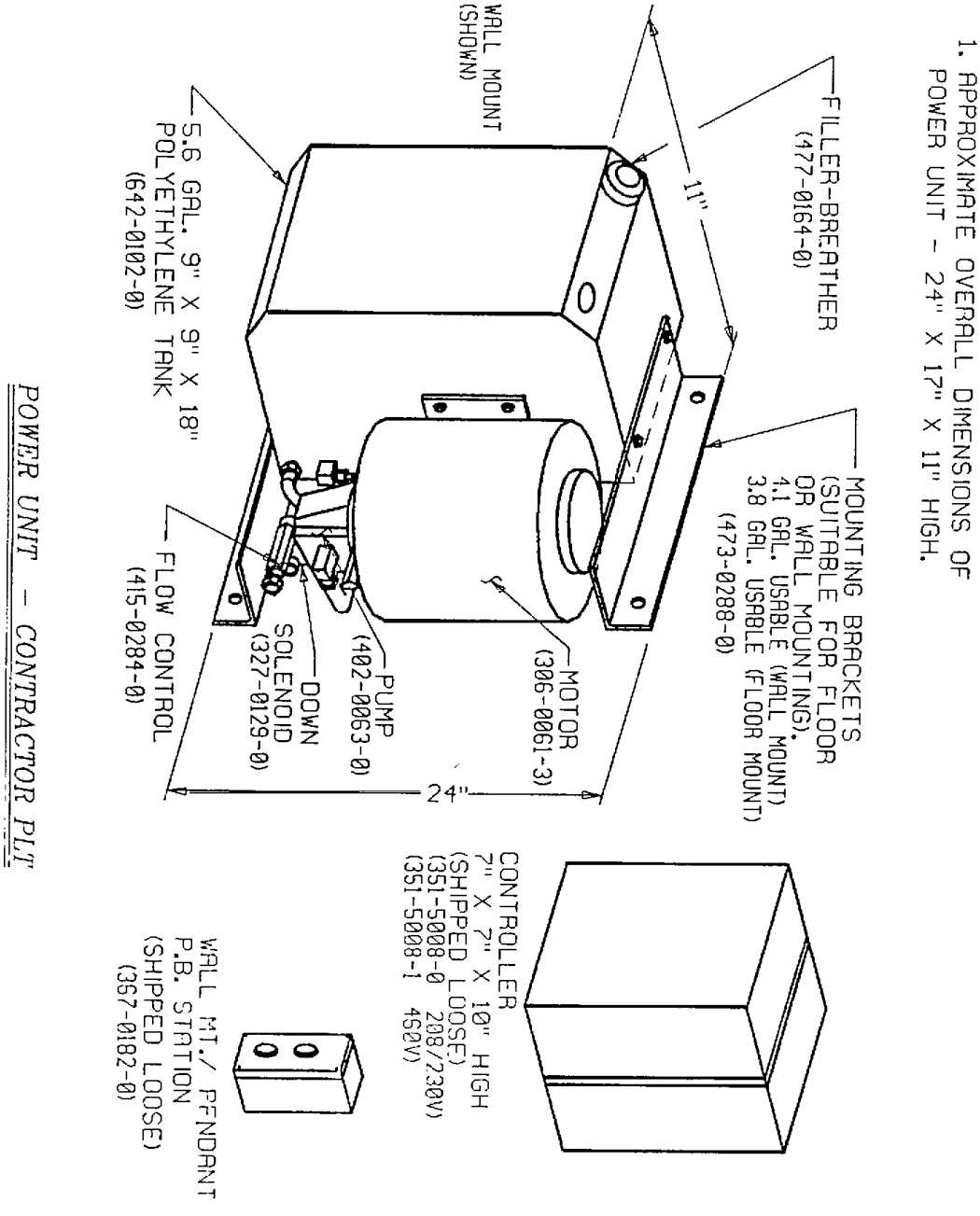


Figure 19 Contractor Power Unit Parts Detail

REPLACEMENT PARTS LIST

DESCRIPTION	ITEM NUMBER	
	SURFACE MOUNT	PIT MOUNT
Cylinder; 4” x 24”	42800392	N/A
Cylinder; 3” x 30”	N/A	42600115
Cylinder; 3 ½” x 30”	N/A	42700295
Seal Kit, 4” cylinder	45503190	N/A
Seal Kit, 3” cylinder	N/A	45503280
Seal Kit, 3 ½” cylinder	N/A	45503250
Breather Plug	47900030	N/A
Velocity Fuse	41800707	41800820
Cylinder Clevis Pin	N/A	48300073

OPTIONAL PARTS

DESCRIPTION	ITEM NUMBER
Accordion Skirt Kit (surface mounted only)	53493366
Audible Signal – 115 Volt	35100809
Key Operated Switch – Lower/Off/Raise	65901647
Key Operated Security Switch – On/Off	65901639
Power Unit Cover (vertical power unit; floor mount)	64210850
Power Unit Cover (contractor power unit; floor mount	64210855
Pipe Manifold (surface mounted only)	48050157
Wall Mounting Brackets for Vertical Power Unit	35106990
Pressure Hose – Specify size, length, and end types	Consult factory

TROUBLESHOOTING ANALYSIS

DANGER!

To avoid personal injury, NEVER go under the lift platform or perform maintenance until the load is removed and the platform is securely blocked on both raised corners. See "Blocking Instructions" section of this manual.

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift 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 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 lift may be in a bind. • The manual lowering device may be engaged.
Lift 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. • There may be obstruction in the path of the mounting platform.

TROUBLESHOOTING ANALYSIS

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift will not lower.	• The down solenoid may be malfunctioning. • The maintenance device could be installed. • 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: 1. Remove the load from the lift. Inspect all fittings, hoses, and other hydraulic components for leads 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 up releasing the "UP" button, depress the "DOWN" button. If the lift starts to lower, continue pressing the "DOWN" button until the lift is in the fully lowered position. 3. If the lift 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 lift is in the fully lowered position. 4. Once the lift 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 lift to 50% of its travel and then lowering it. • Should the above steps not correct the problem, contact *Autoquip* to obtain instruction for further action.

TROUBLESHOOTING ANALYSIS

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift raises slowly.	• The structural members of the lift 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.
Lift lowers slowly.	• The structural members of the lift are 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
Lift will not remain in raised position.	• The cylinder packing may be leaking. • The pump or regulator is not seating. • The pump or check valve is not seating. • The hydraulic tubing, hose, or fitting is leaking oil. • The return filter may be clogged.

LIMITED WARRANTY

The user is solely responsible for using this equipment in a safe manner and observing all of the safety guidelines provided in the Owner's Manual and on the warning labels provided with the lift. If you are unable to locate either the manual or the warning labels, please contact Autoquip or access www.autoquip.com for replacement downloads or information.

Autoquip Corporation expressly warrants that this product will be free from defects in material and workmanship under normal, intended use for a period of Two (2) Years for Labor and all electrical, mechanical, and hydraulic components, parts or devices, and warrants the structure of the lift against breakage or failure for a period of Five (5) years. The warranty period begins from the date of shipment. When making a claim, immediately send your dealer or Autoquip notice of your claim. All claims must be received by Autoquip within the warranty time period. The maximum liability of Autoquip, under this Limited Warranty, is limited to the replacement of the equipment.

This warranty shall not apply to any Autoquip lift or parts of Autoquip lift that have been damaged or broken in transit/shipping, or due directly or indirectly to misuse, abuse, vehicle impact, negligence, faulty installation, fire, floods, acts of God, accidents, or that have been used in a manner contrary to the manufacturer's limitations or recommendations as stated in the manual, or that have been repaired, altered or modified in any manner outside of Autoquip Corp's manufacturing facility or which have not been expressly authorized by Autoquip.

Autoquip Corporation makes no warranty or representation with respect to the compliance of any equipment with state or local safety or product standard codes, and any failure to comply with such codes shall not be considered a defect of material or workmanship under this warranty. Autoquip Corporation shall not be liable for any direct or consequential damages resulting from such noncompliance.

Autoquip Corporation's obligation under this warranty is limited to the replacement or repair of defective components at its factory or another location at Autoquip Corp's discretion at no cost to the owner. This is owner's sole remedy. Replacement parts (with exception of electrical components) will be warranted for a period of ninety (90) days. Except as stated herein, Autoquip Corporation will not be liable for any loss, injury, or damage to persons or property, nor for direct, indirect, or consequential damage of any kind, resulting from failure or defective operation of said equipment. All parts used to replace defective material must be genuine Autoquip parts in order to be covered by this Limited Warranty.

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