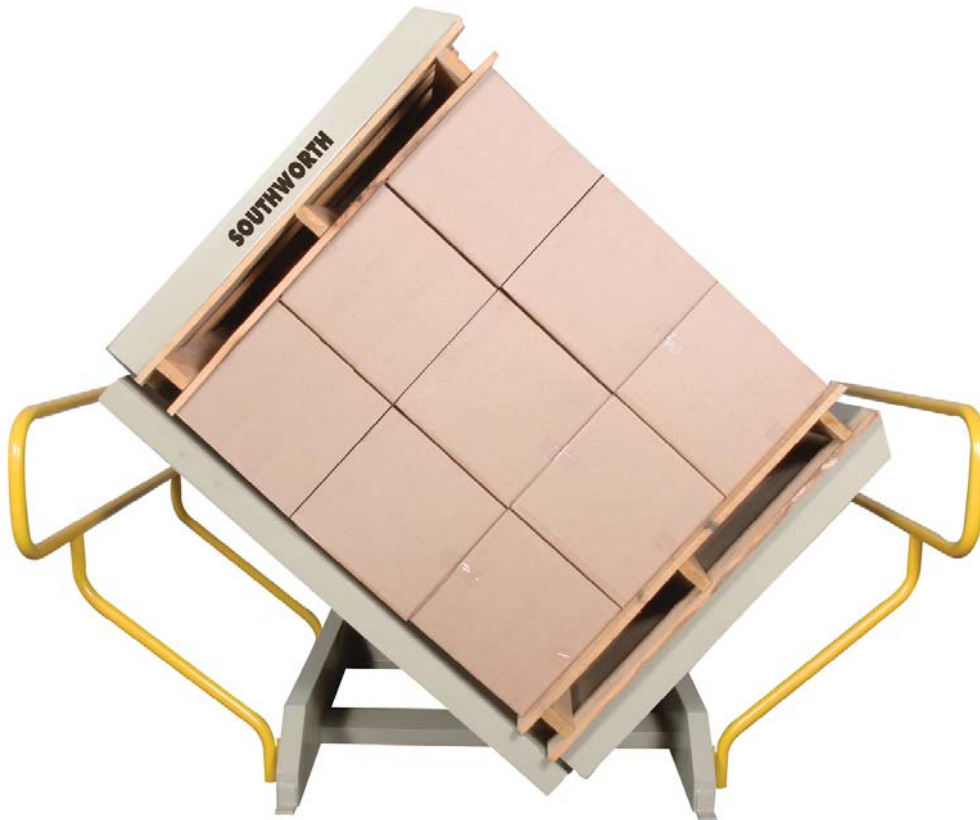


# **SOUTHWORTH**

## PalletPal Pallet Inverter / Rotator Owner's Manual



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## INTRODUCTION

This manual contains information to acquaint you with the safe and proper installation, use and maintenance of the machine. You should ensure that this manual is available to personnel working with the machine and require its use by these personnel.

In the interest of safety, please read this entire manual carefully and be familiar with its contents before you install, use or service the machine. If you have any questions about any instructions in this manual, please contact your dealer or Southworth Products Corp.

Southworth's product warranty is provided in the back of this manual. This instruction manual is not intended to be or to create any other warranty, expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose, all of which are hereby expressly excluded.

As set forth more specifically in the product warranty, Southworth's obligation under that warranty is limited to the repair or replacement of defective components, which shall be the buyer's sole remedy. Southworth shall not be liable for any loss, injury or damage to persons or property, nor for any direct, indirect or consequential damage of any kind resulting from the lift table.

## SAFETY

The safety of all persons operating, maintaining, repairing or in the vicinity of the machine is of paramount concern to Southworth. This is a powerful machine with moving parts and is capable of causing personal injury if proper precautions are not taken. Therefore, throughout this manual, Southworth has identified certain hazards that may occur in the use of this machine and provided appropriate instruction or precautions that should be taken to avoid these hazards. In some cases, Southworth has also pointed out the consequences that may occur if Southworth's instructions or precautions are not followed. Southworth uses the following system of identifying the severity of the hazards associated with its products:

### SIGNAL WORD

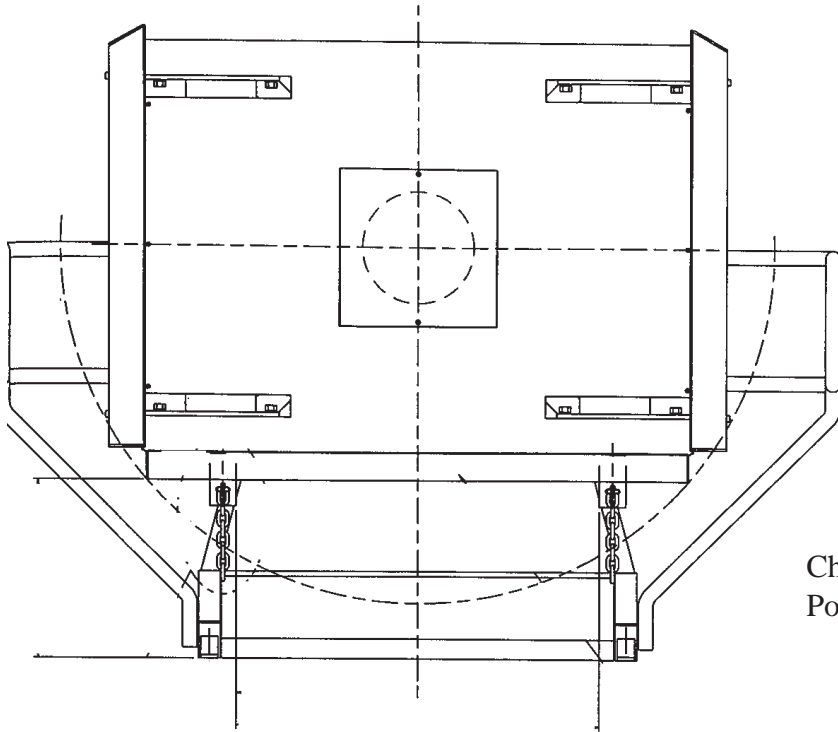
The word or words that designates a degree or level of hazard seriousness. The signal words for product safety signs are "**DANGER, WARNING and CAUTION.**"

**"DANGER"** Immediate hazard which will result in severe personal injury or death.

**"WARNING"** Hazardous or unsafe practice which could result in severe personal injury or death.

**"CAUTION"** Hazardous or unsafe practice that could result in minor personal injury or property damage.

Please read and follow the instructions in this manual, including all safety instructions and precautions carefully and completely.



Note: To safely perform maintenance, rotate the lift to 90 degrees and install both maintenance chains.

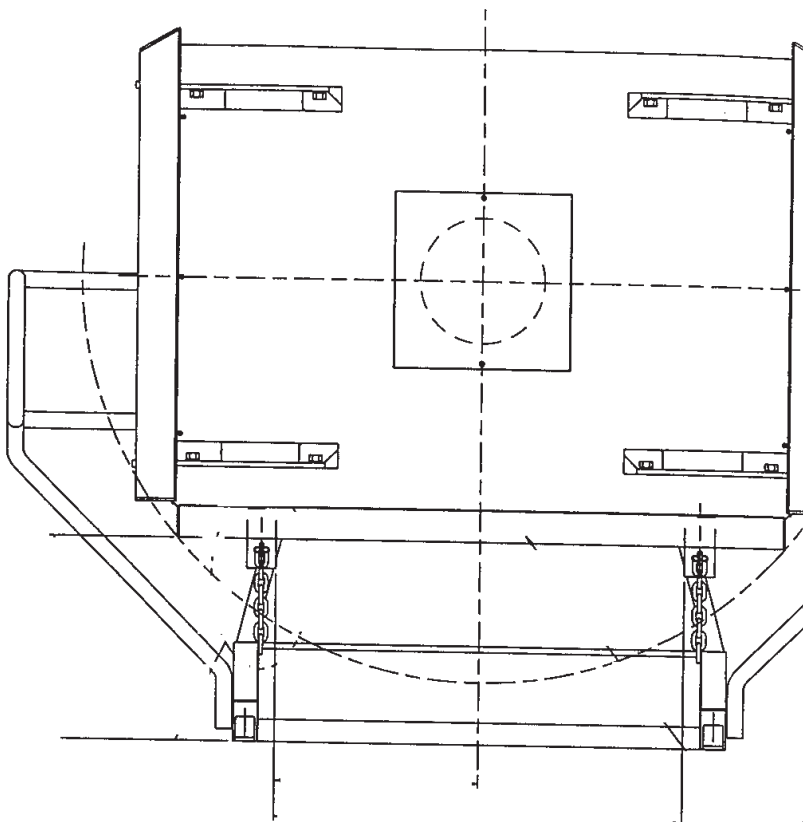
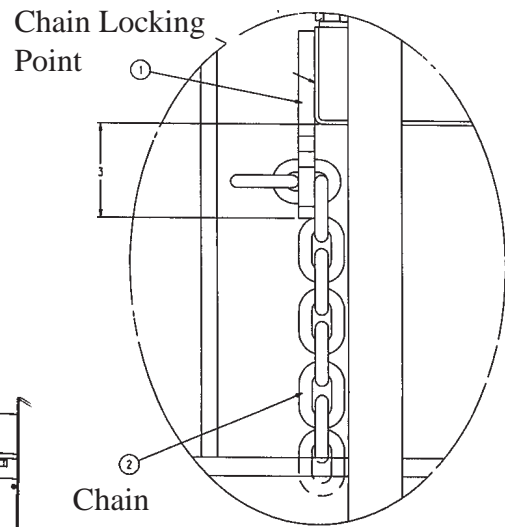


Figure 1: Safe Servicing of the Lift

# OPERATING AND MAINTENANCE MANUAL

Figure 2a: Label Placement

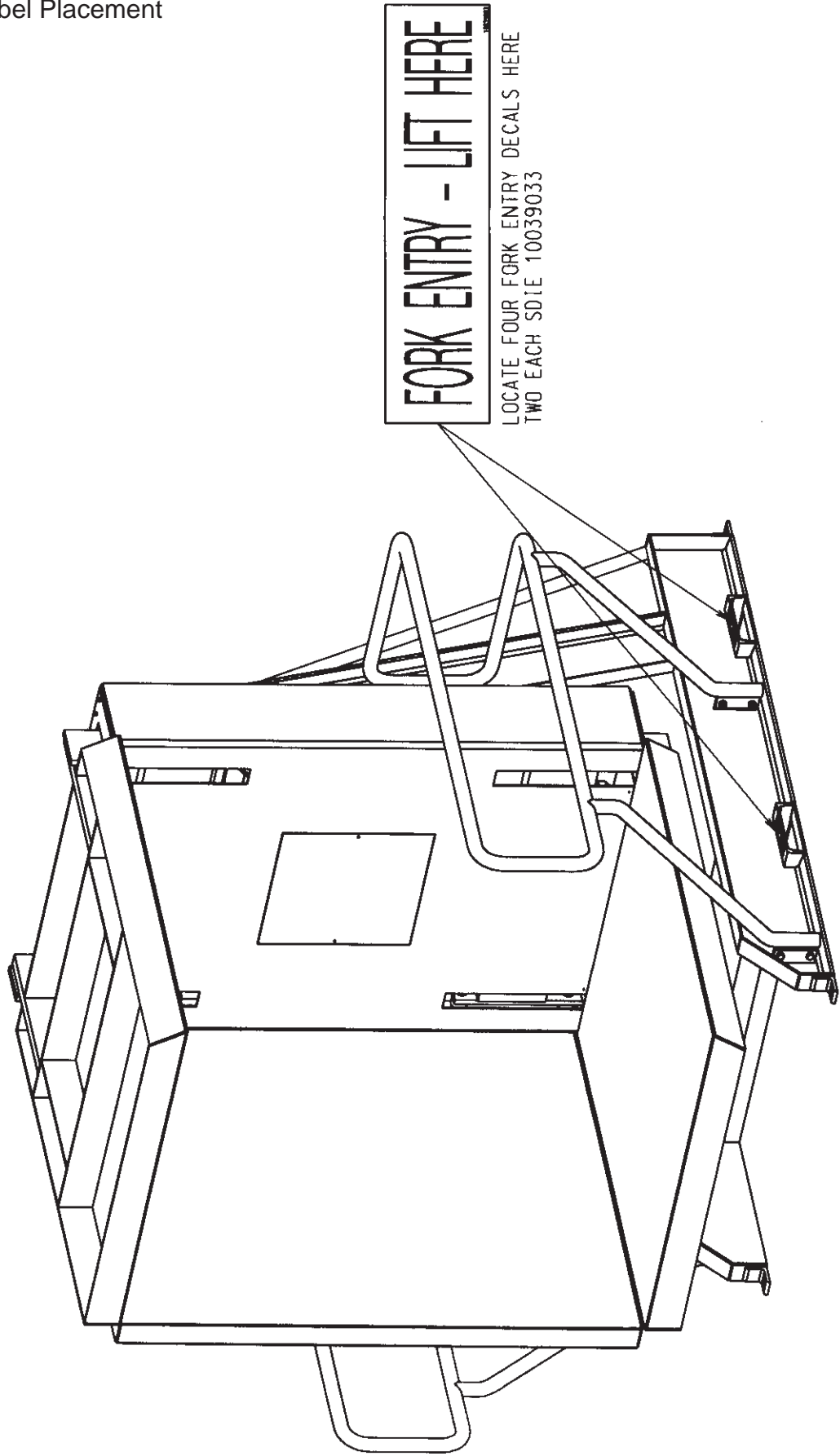
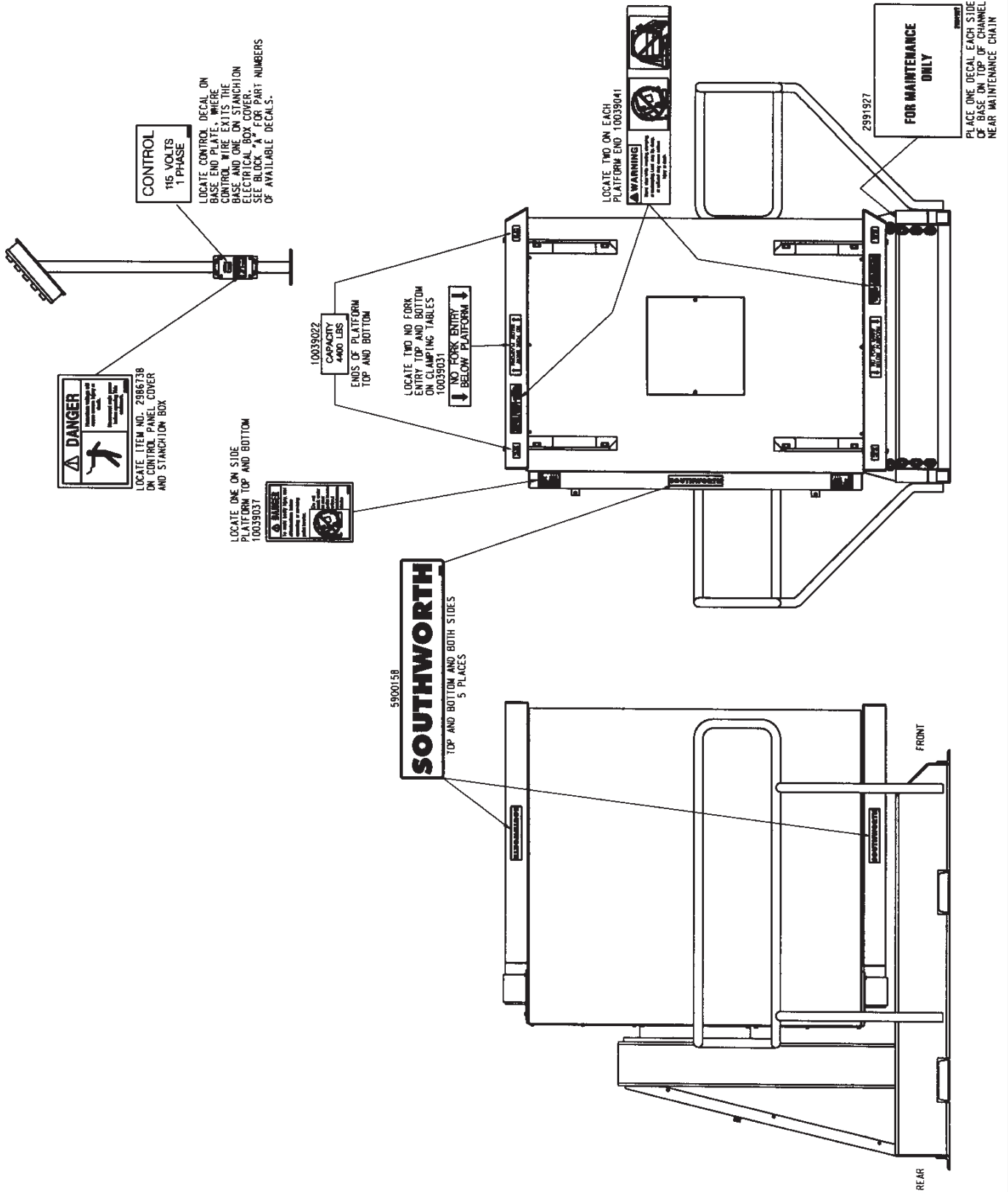


Figure 2b: Label Placement



# OPERATING AND MAINTENANCE MANUAL

Figure 2c: Label Placement

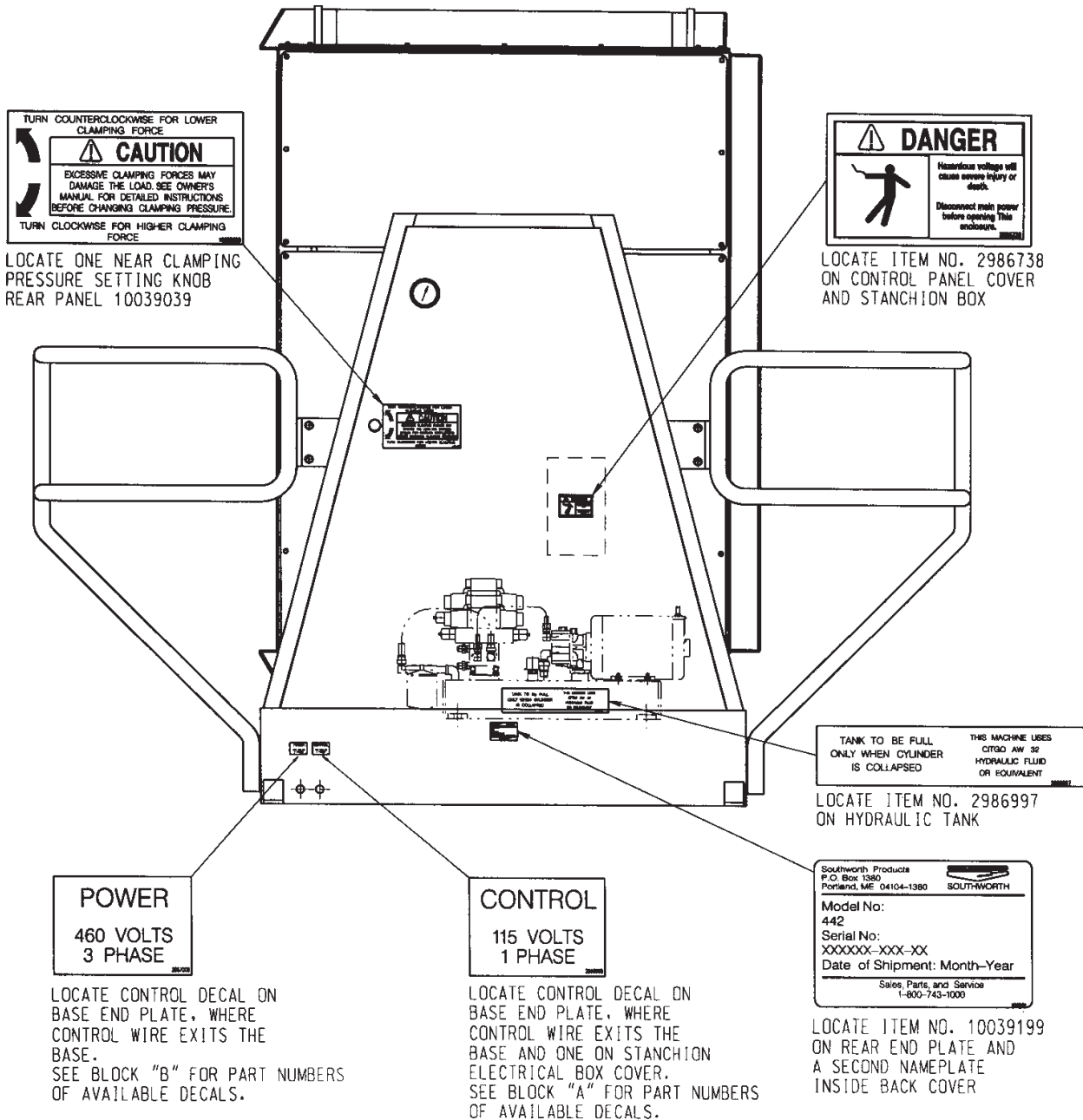
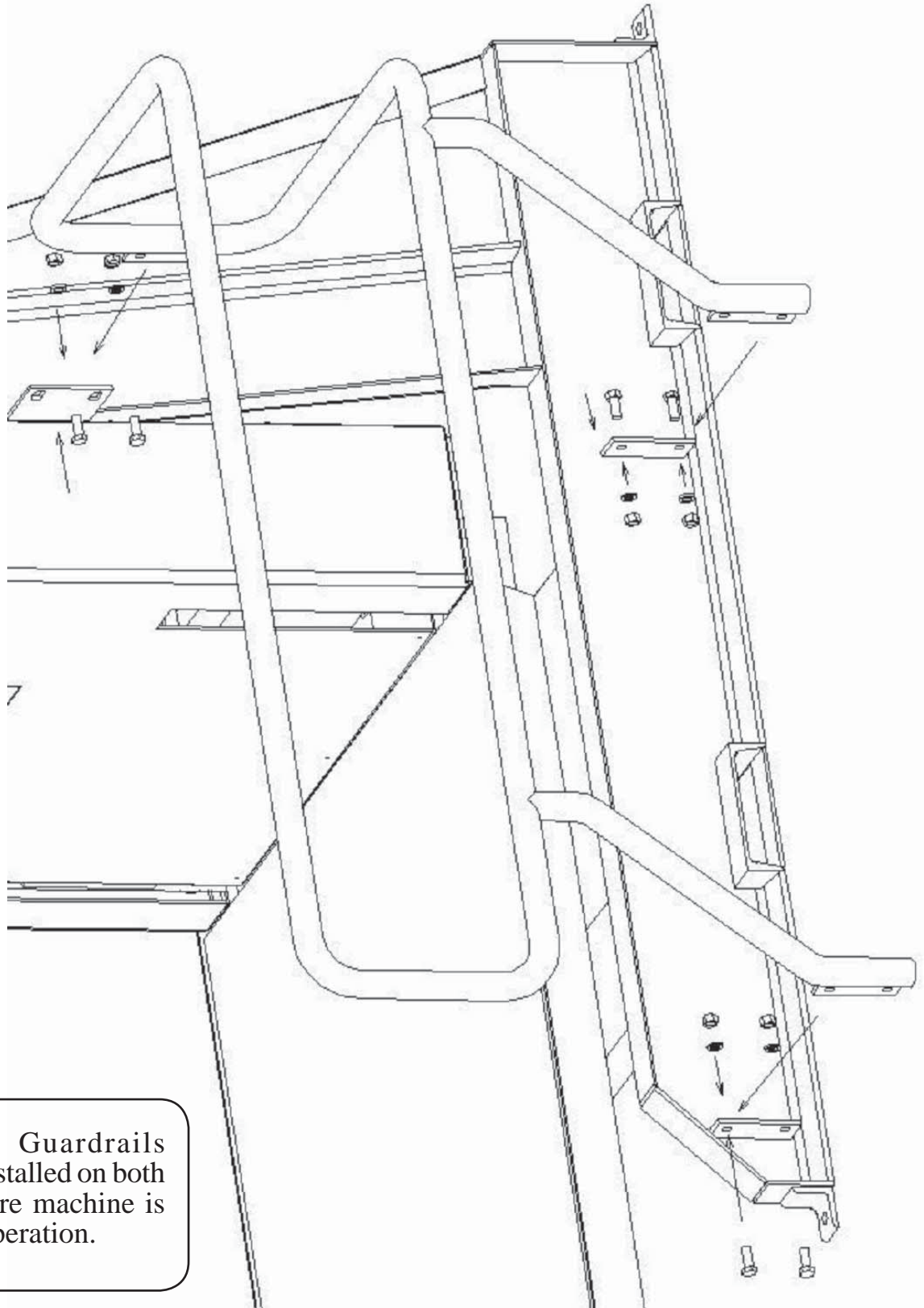


Figure 3: Guardrail Configuration



Note: Guardrails must be installed on both sides before machine is put into operation.

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## Safety Considerations

Southworth Pallet Rotators are designed and manufactured to meet applicable portions of the safety requirements of the *ANSI Standard MH29.2, Industrial Tilters*.

### **WARNING!**

**This power unit contains a hydraulic pump that is capable of developing excessive pressure. A pressure relief valve is used to set the pressure at a desired level. Tampering with, adjusting, modifying, or removing the relief valve is extremely dangerous and not recommended. Only a trained hydraulics technician, using a calibrated hydraulic pressure gauge to assure the proper pressure setting is achieved, should make adjustments to the relief valve.**

All Southworth Pallet Rotators are fitted with industrial, high quality over-center valves to provide for smooth movement even when loads are abruptly introduced to the platform.

All Southworth models are designed with a generous factor of three to one for all critical loading supporting elements.

## INSTALLATION & OPERATING INSTRUCTIONS

1. Before you start to install the machine, check for local codes and ordinances, which may apply in your area. It is your responsibility to obtain any necessary permits.

2. Read all of these installation instructions carefully. Be sure to read and understand all of the warnings!

### **WARNING!**

**Protect the hydraulic power unit from rain or moisture. If the electrical parts in the power unit get wet, workers may be hurt by electrical shock or the electrical parts may fail.**

### **WARNING!**

**The electric motor in the Pallet Rotator can create sparks. Do not install the hydraulic power unit in an area where flammable gases may be present.**

## Positioning the lift

1. Remove the shipping material and unskid the machine.

2. Move the machine into position, supporting the base frame. Mount the machine on a firm level surface, if necessary, insert shims to level.

3. Adjust the clamping pressure to the desired load pressure using the adjustable pressure knob on the side of the unit.

### **WARNING!**

**If the Pallet Rotator is mounted on an unstable surface, it may tip over when in use. You may be hurt, and the machine or the load may be damaged.**

### **CAUTION!**

**It is very important to keep the hydraulic oil free from dirt, dust, metal chips, water and other contamination. Most of the problems with hydraulic systems are caused by contamination of the oil.**

## Electrical Connections

### **DANGER!**

**The Pallet Rotator may use a power supply of up to 460 Volt AC. This voltage can kill you. Do not work with the electrical parts unless you are a qualified electrician.**

1. A machine with a 115 Volt power unit needs to have a designated outlet and breaker of at least 30 AMP service. Consult Customer Service for performance concerns.

2. A machine designed for three phase AC, you must be sure the pump and motor is turning in the right direction. The machine should start to move quickly when you press the up or down button. If the machine does not move in 2 or 3 seconds, do not try to operate the machine! Exchange any two of the three phase leads. If this does not correct the problem, please contact Southworth's Customer Service Department.

## Testing

1. Check the level of the hydraulic oil. With the machine in the lowered position the tank should be full, add oil if necessary.

2. Clear the area around the machine. Remove any loose wires, lumber or other material that might get in the way of the machine as it is in use.

3. Operate the machine through its full range of travel. The machine should rise smoothly with a quiet humming sound and lower smoothly and quietly. Raise and lower the lift a few times to check the clearances around the lift table.

**WARNING!**

**As the machine moves, “pinch points” are created. If you are standing too close to the machine when it is moving, your arm or leg may be caught in the moving parts and you may be hurt. Stay away from the pinch points when the lift is moving.**

**Completing Installation**

1. Test the machine with the rated load. If the machine does not move and you hear a loud squealing noise, this means the pressure relief valve is operating. Contact Southworth for instructions.

**CAUTION!**

**Do not continue to use the machine if this happens. The pump will overheat very quickly and may be permanently damaged.**

**CAUTION!**

**Excessive clamping forces may damage the load. Release the clamp from the load before making any adjustments.**

When adjusting the clamping pressure on the SR-44 ensure the load is in a safe position so none of the product will transition to the operator. Adjust the pressure knob counter clockwise for lower clamping forces and clockwise for higher clamping forces. Test the load to ensure proper settings.

**MAINTENANCE**

All service should be done by qualified personnel. Qualified personnel should be able to read and understand wiring and hydraulic diagrams. They should be able to troubleshoot live electrical circuits safely and in accordance with accepted practice. **FOR SAFETY’S SAKE**, if in doubt, please contact your dealer of Southworth Products Corporation Customer Service Department at (207) 878-0700 or (800) 743-1000.

Before servicing the lift, read and understand this entire section and the section entitled “Operating Instructions.”

**Hazards**

There are several hazards you should be aware of as you service the lift. Before working on the machine be sure to insert any and all maintenance devices. See figure 1.

**DANGER!**

**The machine may use a power supply of up to 575 Volts. This voltage can kill you. Do not work with the electrical parts unless you are a qualified electrician.**

**WARNING!**

**Do not change the setting on the relief valve in the pump. If you do, this may damage the machine and you may be hurt. The relief valve has been included for the protection of all of the workers who use the machine.**

**WARNING!**

**Before working on the machine, be sure to release pressure on the hydraulic system.**

**CAUTION!**

**The warning labels on the machine are there for the safety of the operator. If the labels are worn or missing, replace them.**

**Routine periodic maintenance**

Every month:

1. Visually inspect the center pivot bearing, cylinder clevis pins and bushings. Apply oil or WD-40 to all parts listed above.

2. inspect hoses and fittings for leaks.

Note: Although the bearings are “lifetime lubricated” their performance may be extended by additional periodic lubrication (WD-40).

3. Check the level and appearance of the hydraulic fluid. Use a dipstick to check the oil level and add oil if necessary. Change the oil if it has darkened from its original color, turned milky white or if it feels gritty or sticky.

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4. Inspect the overall condition of the lift; looking for loose or worn out components.

### CAUTION!

**It is important to use hydraulic fluid with the correct grade and properties. The hydraulic fluid the machine is provided with is Citgo AW-32.**

Every six months:

1. Visually inspect the center pivot bearing, cylinder clevis pins and bushings. Apply light oil or WD-40 to all parts listed above.

### WARNING!

**If a hydraulic fitting becomes loose or if a hydraulic hose breaks, the hydraulic fluid will escape from the system under pressure. Someone may be hurt or the product or the machine may be damaged.**

2. Drain all of the hydraulic fluid from the tank and cylinders and discard it.

3. Remove the spin on filter from the tank. Discard and install new filter.

4. Refill the tank with new hydraulic fluid. The hydraulic fluid should be approximately 3/4" from the top of the tank.

5. Inspect the overall condition of the rotator; looking for loose or worn out components.

6. Add grease to all grease fittings.

## TROUBLESHOOTING

All service should be done by qualified personnel. Qualified personnel should be able to read and understand wiring and hydraulic diagrams. They should be able to troubleshoot live electrical circuits safely and in accordance with accepted practice. FOR SAFETY'S SAKE, if in doubt, please contact your dealer or Southworth Products Corporation Customer Service Department at (207)878-0700 or (800)743-1000.

Before servicing the Pallet Rotator, read and understand this entire section and the section entitled "Operating Instructions." Before working on the machine, be sure to insert any and all maintenance devises. Failure to do so may result in damage to the machine and severe personal injury!

**If the machine will not clamp or rotate:**

### CAUTION!

**Do not continue to hold the "CLAMP" or "ROTATE" button for more than 2 or 3 seconds. You may damage the pump.**

1. The machine may be overloaded. Check the actual weight of the load. The rated capacity of the machine is shown on the table sides.

### WARNING!

**Do not change the setting on the relief valve in the pump. If you do, this may damage the machine and you may be hurt. The relief valve has been included for the protection of all of the workers who use the machine.**

2. If the motor is not running, check the main disconnect switch, the fuse(s) and the wiring to the motor.

Using an external lifting mechanism, such as a crane or a forklift. Raise the machine and insert any and all maintenance devises.

3. Check the level of the hydraulic fluid. Use a dipstick to check the oil level, add oil if necessary.

4. If the machine rotates but does not rotate completely, the machine may have an up limit switch. This switch may just need to be re-adjusted.

### WARNING!

**Do not disconnect the up limit switch. Instead, loosen the adjusting screw and change the position of the arm. If you do disconnect the switch, when the lift platform moves up, it may not stop at the correct spot, the machine may be damaged and people may be hurt.**

5. On a machine equipped with a three-phase motor, the motor may be running backwards. If the motor has been wired correctly, the machine should start to move in 2 or 3 seconds after you hit the "CLAMP" or "ROTATE" button. If the machine does not move, try reversing any two power leads.

6. On a machine equipped with a three-phase motor, the motor may be "single phasing." When this happens, the motor hums but does not turn. If this is the case, one lead of the three-phase line has been interrupted. Check the motor wiring and line fuses.

7. The power supply to the motor could be too low. Check the voltage at the motor when it is under a full load. The supply voltage should be within 10% +/- of the rating.

8. The suction filter in the tank may be clogged. Clean the filter as described in the maintenance section.

9. A vacuum leak may be allowing air into the suction line. This will cause the pump to cavitate (loss of suction). Check all fittings in the suction line and replace or repair if necessary.

**CAUTION!**

**If cavitation is allowed to continue, the pump will be damaged and will need to be replaced.**

10. If the pump or the motor has been changed for any reason, the coupling may not have been installed.

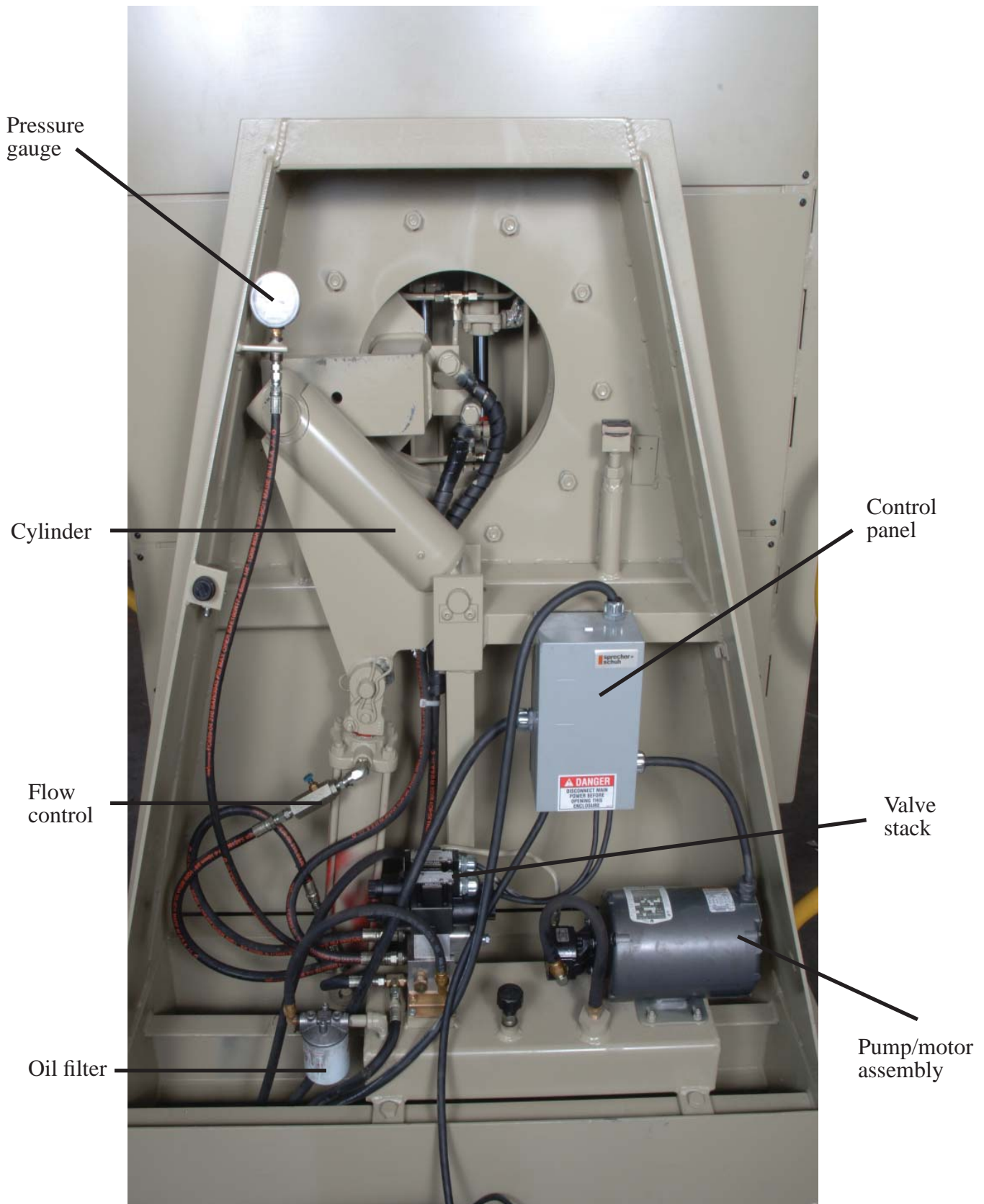
**The machine clamps and rotates but fails to hold the load:**

1. Adjust the clamping force to hold the load (See page 12).

If the steps listed above do not solve the problem, please call the Customer Service Department at Southworth Products Corp. (207) 878-0700 or (800)743-1000.

# OPERATING AND MAINTENANCE MANUAL

Figure 4: Component Location



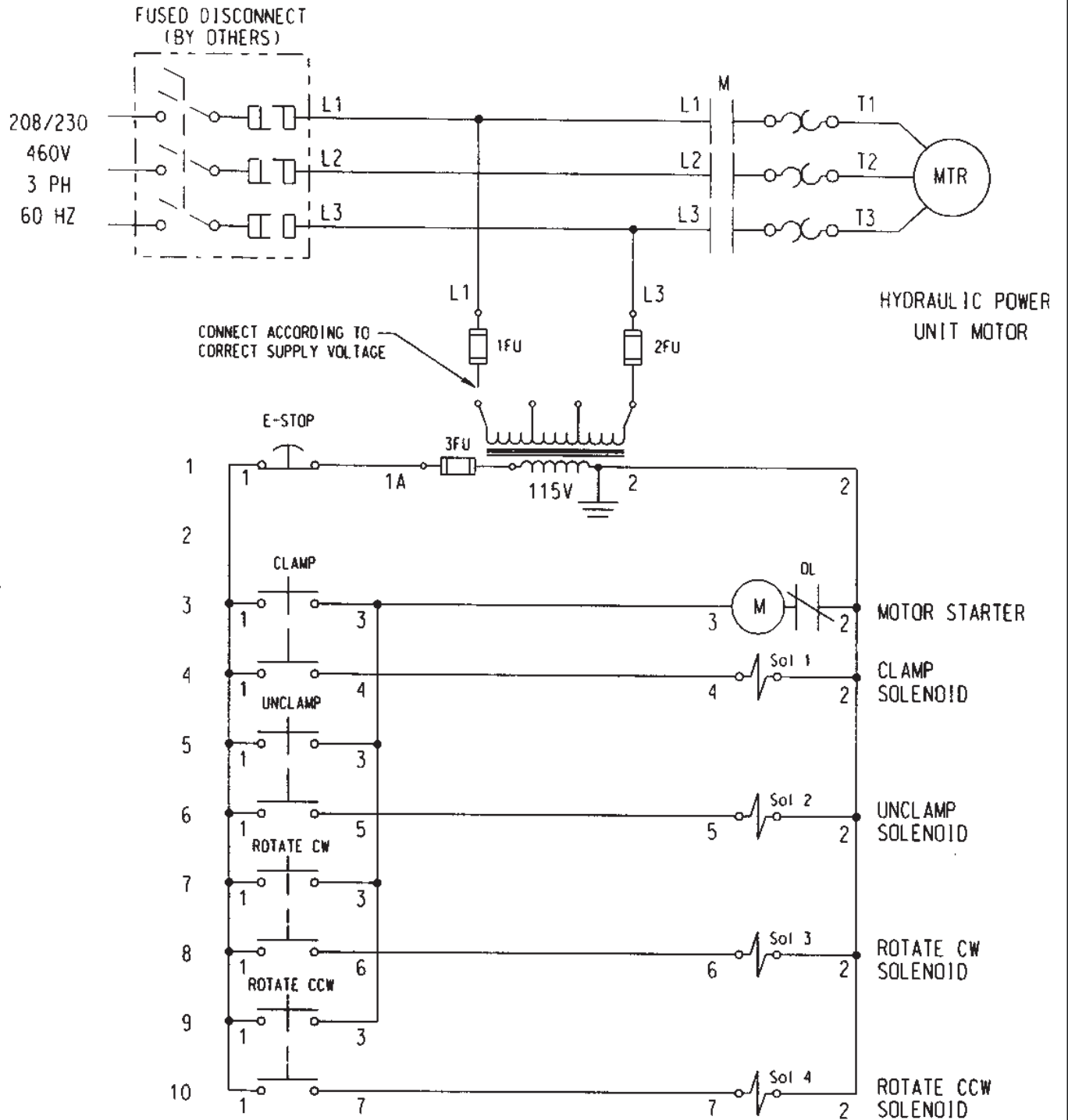


Figure 5: Electrical Connections for Three Phase AC

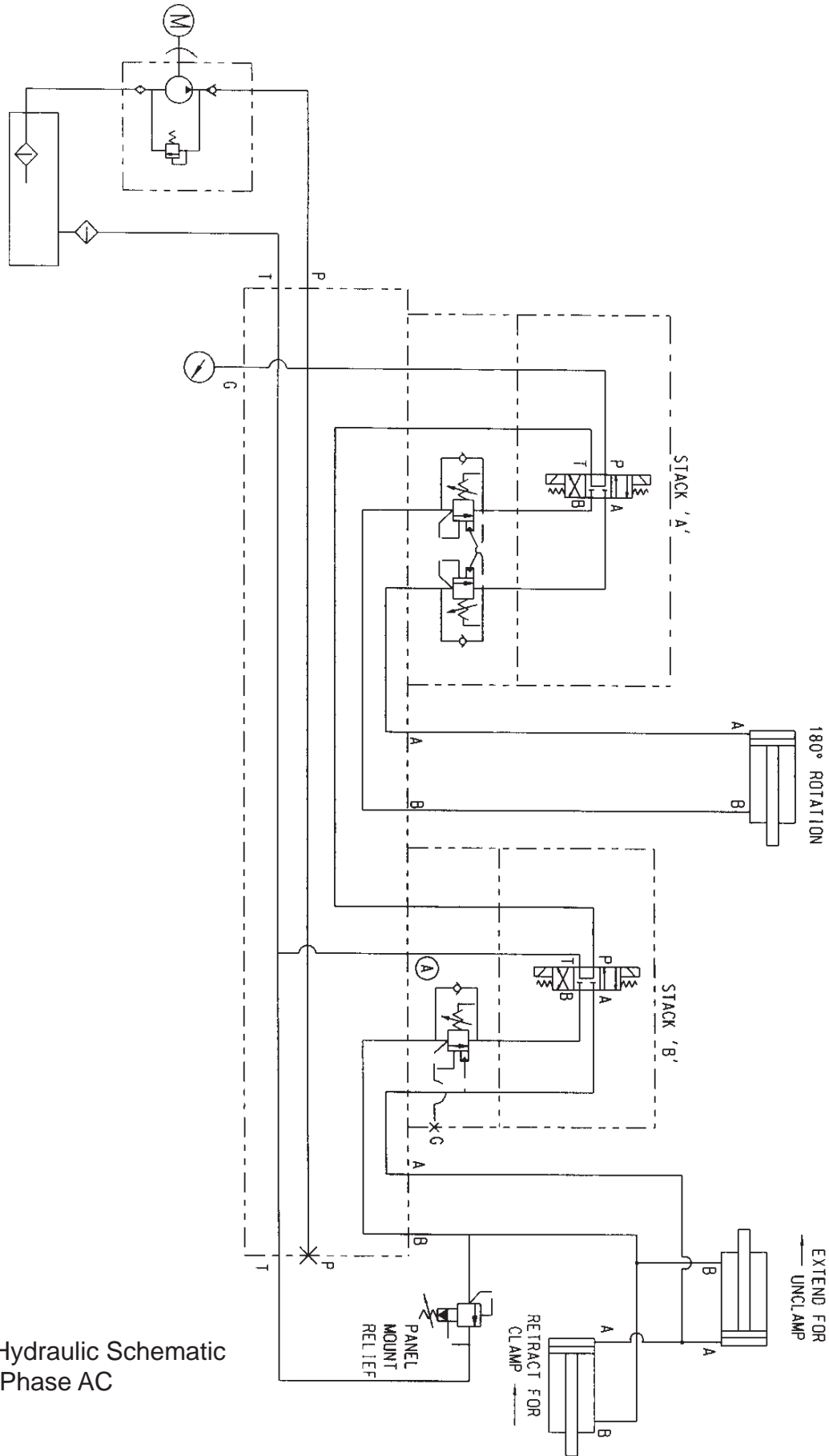


Figure 6: Hydraulic Schematic for Single Phase AC

## ORDERING REPLACEMENT PARTS

Southworth has carefully chosen the components in your lift to be the best available for the purpose. Replacement parts should be identical to the original equipment. Southworth will not be responsible for equipment failures resulting from the use of incorrect replacement parts or from unauthorized modifications of the machine.

Southworth will gladly supply you with replacement parts for your Southworth lift. With your order, please include the model number and the serial number of the lift. You may find these numbers on the nameplate, which is located on the crossbar at the base of the cylinder(s). When you are ordering parts for a cylinder, also include the cylinder number. This is stamped on the base of the cylinder housing.

To order replacement parts, please call the Parts Department at (207)878-0700 or (800)743-1000. Parts are shipped subject to the following terms:

- FOB factory
- Returns only with the approval of our Parts Department
- Payment net 30 days (except parts covered by warranty)
- Freight collect (except parts covered by warranty)

Parts replaced under warranty are on a "charge-credit" basis. We will invoice you when we ship the replacement part, then credit you when you return the worn or damaged part.

SOUTHWORTH PRODUCTS CORP

Parts Department

Telephone: (207) 878-0700

(800) 743-1000

Fax: (207) 797-4734

[repairparts@southworthproducts.com](mailto:repairparts@southworthproducts.com)

## 2 YEAR WARRANTY

Southworth Products Corp warrants this product to be free from defects in material or workmanship for a period of **2 years** of single shift usage from date of shipment, providing claim is made in writing within that time period. This warranty shall not cover modified designs for special applications, failure or defective operation caused by misuse, misapplication, negligence or accident, exceeding recommended capacities, failure to perform required maintenance or altering or repairing, unless alteration is authorized by Southworth Products Corp. Except as set forth herein, there are no other warranties, express or implied, including the warranties of merchantability and fitness for a particular purpose, all of which are hereby excluded.

Southworth Products Corp makes no warranty or representation with respect to the compliance of any product 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. Southworth Products Corp shall not be liable for any direct or consequential damages arising out of such noncompliance.

Southworth Products Corp's obligation under this warranty is limited to the replacement or repair of defective components at its factory or another location at Southworth Products Corp's discretion. This is buyer's sole remedy. Except as stated herein, Southworth Products Corp 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 product.

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Southworth is *the* world class supplier of products designed to improve productivity and enhance safety. Our staff has over 400 years of engineering experience. If one of our standard products does not meet your needs, we can design custom equipment specifically suited to your material handling application.



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