

4-6K Surface Mount Dock Lift

Installation
&
Owner's Manual



Copperloy[®]

by

JH INDUSTRIES, INC.

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Twinsburg, Ohio 44087
(330) 963-4105 (Phone)
1-800-321-4968 (Toll Free)
www.copperloy.com

Model # _____
Serial # _____
Date: _____

WARNING

Do not install, operate or service this product unless you have read and understand the Safety Practices, Warnings, Installation and Operating Instructions contained in this manual. Failure to do so could result in serious injury or death.



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WARRANTY

ALL WARRANTY CLAIMS MUST HAVE PRE-APPROVED RATES, TIMES AND AUTHORIZATION NUMBERS PRIOR TO ANY FIELD WORK, IN ORDER TO BE ACCEPTED BY JH INDUSTRIES, INC.

J H Industries, Inc. expressly warrants that any SURFACE MOUNT DOCK LIFT sold by it will be free from defects in material and workmanship under normal use for a period of one (1) year on all structural parts and six (6) months on all electrical and hydraulic parts from the earlier of, 1) sixty (60) days after the date of shipment, or 2) the date of installation of the SURFACE MOUNT DOCK LIFT by the original purchaser, provided the purchaser maintains and operates the SURFACE MOUNT DOCK LIFT in accordance with the Owners Manual.

In the event that the SURFACE MOUNT DOCK LIFT proves to be defective in materials or manufacturing workmanship within the applicable period, J H Industries, Inc. will, at its option:

1. Replace the SURFACE MOUNT DOCK LIFT or the defective portion thereof without charge to the purchaser, or
2. Alter or repair the SURFACE MOUNT DOCK LIFT, on site or elsewhere, without charge to the purchaser.

This warranty IS EXCLUSIVE AND IS IN LIEU OF ALL GUARANTEES AND WARRANTIES, EXPRESSED OR IMPLIED BY ANYONE OTHER THAN J H Industries, Inc. sole warranty obligation shall be as set forth above. JH Industries, Inc. reserves the right at any time and only with prior written notification to change or alter the warranties expressed and provided.

The warranty does not cover any failure caused by improper installation, abuse, misapplication, overloading, negligence, or failure to lubricate and adjust the SURFACE MOUNT DOCK LIFT properly. Parts requiring replacement due to damage resulting from vehicle impact, abuse, improper operation or lack of proper protection are not covered by this warranty. Seller assumes no responsibility or liability for (1) consequential damages of any kind which result from the use or misuse of the SURFACE MOUNT DOCK LIFT; (2) damage or failure resulting from the use of unauthorized replacement parts or modification to the SURFACE MOUNT DOCK LIFT; (3) damage resulting from the misuse of the SURFACE MOUNT DOCK LIFT. THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ABOVE. THERE IS NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

J H Industries, Inc. warranties extend only to the product itself.

J H Industries, Inc. DISCLAIMS all liability arising out of the workmanship, methods and materials used by the installer.

J H Industries, Inc. DISCLAIMS all liability for premature wear, product failure, property damage or bodily injury arising from improper installation or maintenance.

WARRANTIES, whether expressed or implied, relating to workmanship and materials used in connection with the installation of J H Industries, Inc. products are specifically DISCLAIMED.

INTRODUCTION

Welcome, and thank you for purchasing your Surface Mount Dock Lift from Copperloy by JH Industries, Inc. It is designed to give you many years of trouble-free operation.

This manual contains information that is needed to operate and maintain the Surface Mount Dock Lift safely. Each dock lift can be modified or designed to fit each customer's needs, there are many options and accessories that can be added. JH Industries, Inc. cannot anticipate all possible applications and therefore all warnings, instructions and information expressed in this manual are not all-inclusive.

This manual also contains a complete parts list and information about ordering replacement parts. JH Industries, Inc. has selected components for best fit and function for each of our products, therefore replacement parts should be identical to original equipment or have written approval for non-original equipment. **JH Industries, Inc. will not be responsible for equipment failures due to incorrect or non-approved replacement parts.**

From this point forward the term "Dock Lift" or "Lift" will define all "Surface Mount Dock Lifts".

Verify that this is the most current Installation, Operation and Service Manuals.

To obtain an updated version please contact:

JH Industries Inc.

1981 E. Aurora Rd.

Twinsburg, Ohio 44087

(330) 963-4105 (Phone) or 1-800-321-4968 (toll free)

Or visit our website under Dock Lifts to download and print an up to date version.



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SAFETY

A product safety sign or label should alert persons to a specific hazard, the degree or level of hazard seriousness, the probable consequence of involvement with the hazard, and how the hazard can be avoided. **SIGNAL WORD** is a word or words that designate a degree or level of hazard seriousness. The signal words for product safety signs are **“DANGER, WARNING, CAUTION”** and **“NOTICE”**. Below is each of these signal words along with their definitions as directly referenced from *ANSI Z535.4-1998*.



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE!

“NOTICE” is the preferred signal word to address practices not related to personal injury. The safety alert symbol shall not be used with this signal word. As an alternative to “NOTICE”, the word “CAUTION” without the safety alert symbol may be used to indicate a message not related to personal injury.



SAFETY PRACTICES

⚠ WARNING

Read and follow all safety practices, manuals, and instructions before installing, operating or servicing Dock Lifts. Failure to follow these safety practices and instructions could result in property damage, equipment damage or serious injury or death.

READ AND FOLLOW THE OPERATING INSTRUCTIONS CONTAINED IN THIS MANUAL BEFORE OPERATING THE LIFT. If you do not understand the instructions or safety practices ask your supervisor or consult the factory for assistance.

This equipment should be used and maintained only by qualified personnel.

Before doing any maintenance or repair on the Dock Lift SECURE WITH SUPPLIED MAINTENANCE BAR. See Maintenance Section .

Failure to do any of the above could result in serious injury or death.

FOR ALL MODELS

Never exceed the rated capacity of the dock lift.

Never exceed the rated end or side load capacity.

Do not operate the dock lift while under the influence of drugs or alcohol.

Do not operate the dock lift with equipment, material, or people around or under the dock lift. Always be aware of your surrounding while operating and keep the lift in your sight.

Stay clear of the lift when it is moving, keep hands and feet clear of moving parts at all times. Do not place any body part under the dock lift without the maintenance bar properly secured. Consult the factory if there is a need to maintain the safety of people or debris from entering the underside of the dock lift. Optional side skirts are available.

The dock lift is not designed to carry personnel or other material handling equipment without the supplied handrail and safety chains installed.

Maintain equipment to safe working condition at all times during service. See maintenance section for servicing schedule.

Do not use the dock lift if it is damaged or does not seem to work properly. Tell your supervisor if it needs repair right away.

Do not use this unit for anything other than it's intended design use.

Do not attempt to lift the dock lift by any means other than that described in the operating procedures contained in this manual. Never use fork trucks or other material handling equipment to raise the lift. If the dock lift does not operate correctly when following the operating procedures contained in this manual, **DO NOT USE THE DOCK LIFT.**

If you have any problems or questions using or operating the dock lift, contact your supervisor for assistance.

Do not operate the lift if operation causes undue physical strain or if physical impairments could lead to undue strain in back, muscles, limbs, or joints.

Loads should be kept uniform as possible to insure safe operation and maintain even wear on all moving parts.

Keep area around dock lift free of oil, obstructions, and debris that could cause slipping or stumbling into equipment.

Never disconnect any hydraulic or electrical lines, or remove any part of the dock lift unless the maintenance bar is engaged and the electrical power supply is turned off and locked out.

Do not modify or change the design of this equipment without written consent from JH Industries, Inc.

Never install a dock lift in a pit unless it is supplied with the toe guard option on the table top. If this is required and not installed call factory for details.

SAFETY PRACTICES, continued

INSTALLATION, MAINTENANCE AND SERVICE

Place barricades on the floor around and in the driveway in front of the dock lift's final location while installing, maintaining or repairing the dock lift.

PUT THE MAINTENANCE BARS IN PLACE before doing any maintenance or repair under the dock lift. (See *Maintenance pages 11-16*)

When working on any electrical components, after raising, disconnect the power and properly tag or lock out before doing any maintenance or repair.

All electrical troubleshooting or repair must be done by a qualified electrician and must meet applicable codes.

If it is necessary to make troubleshooting checks inside the control box with the power on, USE EXTREME CARE!

WARNING

Do not place fingers or un-insulated tools inside the control box. Touching wires or other parts inside the control box could result in electrical shock, death or serious injury.

WARNING

Read and follow this instruction manual. Failure to do so could result in serious injury or death.

READ AND FOLLOW THE INSTALLATION INSTRUCTIONS CONTAINED IN THIS MANUAL BEFORE INSTALLING THE DOCK LIFT. If you have any questions concerning this manual or it's contents please contact your dealer or JH Industries, Inc. Failure to understand this manual could result in serious injury or death.

Surface Mount Dock Lifts are designed for temporary or nonpermanent installation. Permanent installation of lift may be subject to local code, rules and regulations. Check local codes and regulations first. It is the owners or installers responsibility to obtain any necessary permits and inspections.

WARNING

During storage and shipping protect the power unit from weather and moisture. Moisture in or around the power unit could cause electrical shock. Prior to installation verify there is no water or moisture present, failure to do so could cause personal injury or death.

The electrical motor or power pack can give off sparks and does not qualify as an explosion proof unit unless ordered otherwise. Verify any area where the dock lift will be used is free of flammable gases. Explosions or fires could result causing property damage, personal injury or death.

PREPARATION

Verify before use that the area where the dock lift will be used is flat and level. Make sure the entire base of the lift is supported by concrete, steel or other solid surface. The lift could tip over or fail causing property damage, personal injury or death.

Requirements for Installation:

- Crane or fork truck with capacity to safely lift the dock lift assembly
- Masonry drill with bits to install lag bolts (optional)
- Shims, lag bolts and grout (optional)
- Disconnect located near the location of the power unit or twist lock plug suitable for amperage of motor.
- Check with local codes and regulations for any permits or other documentation that may be required
- Hydraulic oil for refilling or topping off the power unit (See *FIGURE # 13*)
- 4'-0" min. long level and contractor's square
- Spreader Bar and Slings for lifting Dock Lift

WARNING

Do not install dock lift if damage has occurred. The dock lift could malfunction or fail causing personal injury or death.

INSTALLATION

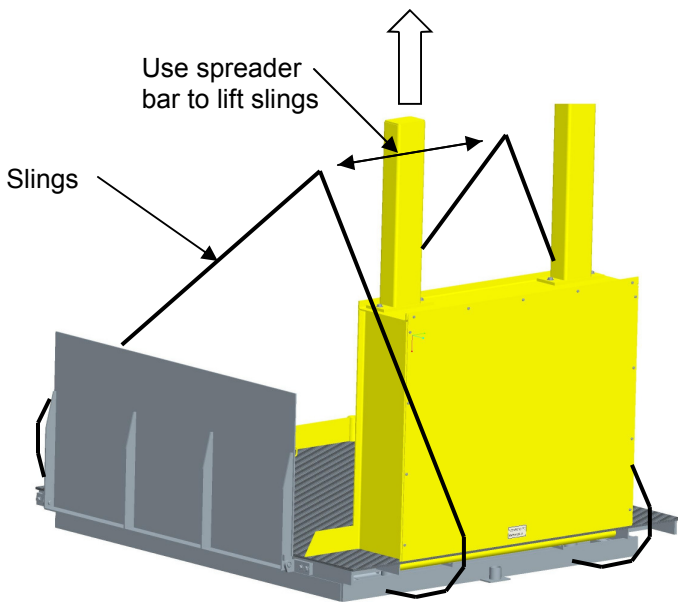
1. Read all installation and maintenance instructions and manuals. Read and understand all warnings if there are any questions please contact the manufacturer.
2. Unskid and remove all shipping material from the dock lift. Make sure that there was no damage to the lift during shipping. If damage has occurred contact the owner and/or manufacturer. Do not use or install dock lift if damage has occurred.
3. The dock lift can be moved with a lift truck or slings placed around the base frame. (See FIGURES #1 & #2)

CAUTION

Caution should be used not to deform the frame or platform. Do not attach slings or place forks under the top of the lift only. Make sure that all slings or forks are under the base of the dock lift.

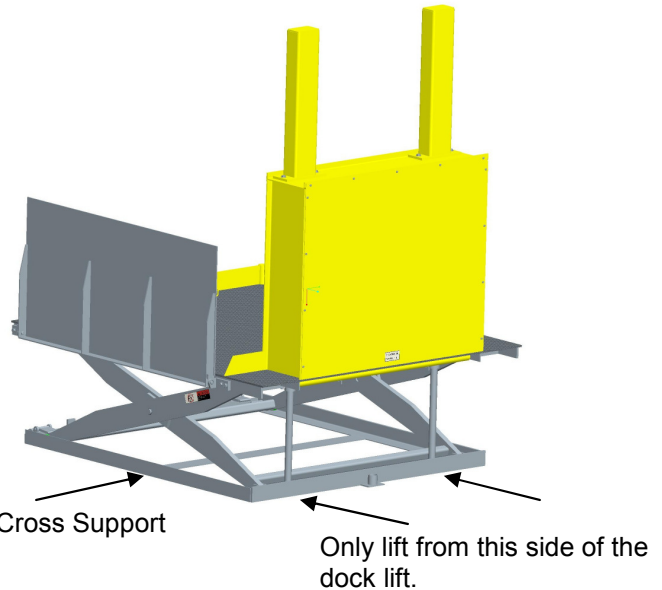
WARNING

Only move the dock lift with the lift in the lowered position. DO NOT attempt to lift or move the dock lift while the top is raised. The dock lift could be damaged, fall or tip over causing personal injury or death.



Note: Place slings as wide as possible to lift as close to the angles on the base assembly as possible. Use a spreader bar to lift vertically on both slings.

FIGURE #1—Lifting with Slings



Note: Place forks as wide as possible to lift as close to the angles on the base assembly as possible. Make sure forks extend beyond the cross support bar as shown above. Lift is shown partially raised for clarity only. Only lift dock lift when the unit is at its lowered position.

FIGURE #2—Lifting with Fork Truck

WARNING

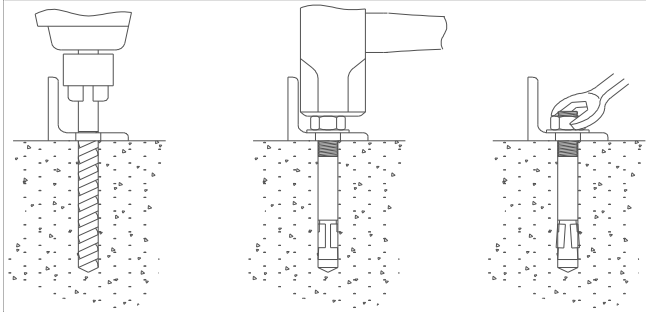
Mount the dock lift on a stable flat surface, grout and add shims as needed. If not mounted properly the dock lift could be unstable and tip over during use which could cause serious injury or death.

All anchor bolts must be installed in accordance with the manufacturer's instructions and local codes and regulations. Improper installation may result in serious injury or death.

Do not install anchor bolts in cracks or expansion joints in concrete. Anchors may come loose or pull out and the dock lift would become unstable and may result in serious injury or death.

4. Place the dock lift where it will be installed. Level and support the base of the lift. Grout and shim as needed, the entire base of the lift must be supported.
5. Drill anchor hole to diameter and depth per the manufacturers specifications. Use a min. of 3/4" diameter anchor bolts. All anchor bolt lengths must suit local codes and conditions. Type and depth of concrete will determine type and length of anchor bolts required. (See FIGURE #3 & #4)

INSTALLATION, continued



Note: Above diagram is to be used as a general guide line. Consult anchor manufacturer for specific installation instructions.

FIGURE #3—Lag and Anchor Bolts

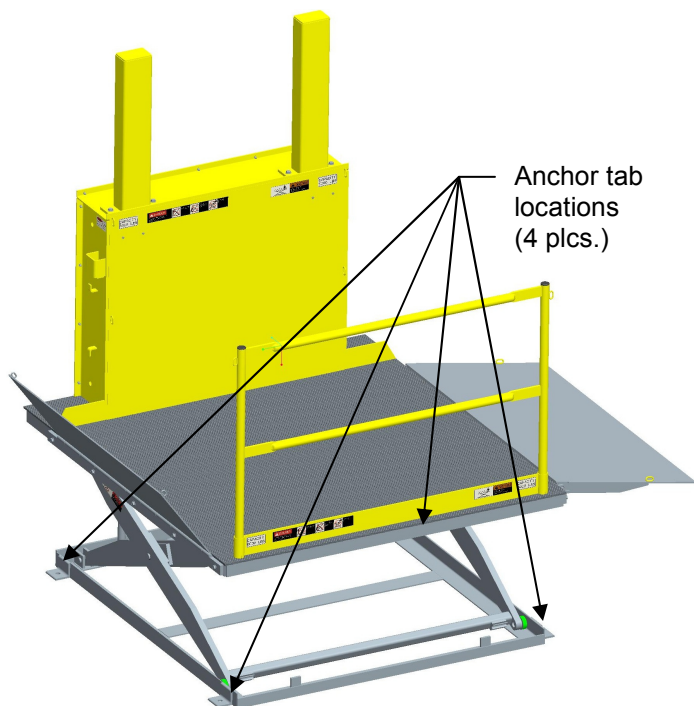


FIGURE #4—Anchor Tab Locations

6. With the nut and washer in place, insert the anchor bolt and tap into position. Tighten to manufacturers specifications.
7. Optional wheel casters can be installed on the dock lift to move to different locations. All areas where the dock lift is to be used must be flat and level. Use a 4'-0" level to make sure the area is within 1/4" of level. The entire base of the dock lift must be supported. Use shims and grout as needed to support the base of the lift. Anchor

tabs are not required for the mobile surface mount dock lift.

8. Dock lifts come standard with 3-blade 30amp max twist lock Nema 4x, 12 plug. Power can be supplied by plug or wired into an appropriate electrical panel or switch for permanent connection. See amperage ratings for specific motor and voltage. (FIGURE #5)



Nema 4x, 12 male turn-lock, three-blade plug. Nema rating is based on using correct plug and receptacle together.

FIGURE #5—3-Blade Plug for 1-phase Dock Lift

⚠ WARNING

Make sure that all hydraulic lines are free of the dock lift during operation. A pinched or cut hydraulic line could cause the lift table to lower suddenly causing serious injury or death.

⚠ DANGER

Never place any body part near the hydraulic system to test or look for damaged or leaking hydraulic lines or equipment. Exposure to high pressure hydraulic fluid will pierce through skin and enter the blood stream causing death.

Only qualified electricians are to work with any electrical parts. The dock lift power supplies can be up to 230 Volts AC, this voltage will cause death.

⚠ WARNING

Fusing requirements are shown in FIGURE #5, all fuse sizes are calculated to work safely per NEC specifications. Failure to fuse properly could result in fire or electrical shock. Serious injury or death could occur.

9. See fusing table (FIGURE #6) for correct fuse sizing. Always use the correct fuse and wire size for connections.

INSTALLATION, CONTINUED

DOCK LIFT INTERNAL POWER PACK INFORMATION

Voltage	Phase	HP	GPM	PSI	Full Load Amps	Overload Setting	Fused Disconnect	Lifting Time	Lowering Time
120/208/230	1	2	1.3	2500	22/11	22/11	30/15	43 sec.	20 sec.

NOTE: All lift times are calculated for a dock lift that requires (2) total cylinders. Lifting and lowering times will increase with the number of cylinders required. Please consult factory for actual lift times for specific applications.

FIGURE #6—Dock Lift Power Pack Information

10. Follow all wiring diagrams located in this manual to make permanent electrical connections. If using the plug insert the plug into the receptacle and twist until it locks.
11. Warn all personnel the lift table will be in use. Raise the dock lift to it's full raised height.
12. Insert the maintenance bar as directed in the maintenance section of this manual. (See *FIGURE #12*)
13. Lower the dock lift onto the maintenance bar. (For single-acting cylinders only) continue to depress the down button for 10 seconds to relieve all pressure in the hydraulic system.
14. Clean up and clear the entire area around the dock lift. Remove any material that is not necessary for the use or function of the dock lift. Make sure to remove all hydraulic oil from the area. Hydraulic oil can cause unsafe work areas and can be a fire hazard.
15. Warn all personnel the lift table will be in use. Raise the dock lift to it's full raised height.
16. Remove the maintenance bar and place in the maintenance bar storage area. (See *FIGURE #10*)
17. Lower the dock lift to the fully lowered height.
18. Remove the back panel of dock lift which covers the hydraulics. Remove all (12) bolts and nuts and lift the steel panel off the back of the lift. Set aside where it cannot fall or can be damaged.
19. Check the hydraulic oil level. Remove the filler/breather cap, oil should be within 2" of the top of the tank. Fill as needed see the maintenance section of this manual for instructions. (See *FIGURE 13*)
20. Raise and lower the lift a few times making sure to go from the fully raised height to the fully lowered height. At the lowered height depress the down button for 5-10 extra seconds to relieve the system of it's pressure. Verify that all air is purged from the system. Make sure the motor is running smoothly and quietly. The lift should raise and lower smoothly.
21. Once the lift table has been tested fill in the serial number, model number and date on the front cover of this manual. On the back cover fill in your company information, date installed and contact number. By doing this you are agreeing that the lift was installed as per the instruction manuals directions and per local codes and regulations.

⚠ WARNING

Any material or foreign objects in the area of the dock lift could interfere with the movement of the lift and cause damage. Because of pinch points and geometry foreign objects that get caught in the table could become projectiles and cause personal injury or death.

Clean all hydraulic oil that is not contained in the system. Failure to do so could result in fire or unsafe working conditions which could cause personal injury or death.



CAPACITY

The load capacity rating as specified on the serial tag of your dock lift designates the gross capacity, assuming uniformly distributed loads. This capacity must never be exceeded, as permanent damage may result. The relief valve has been preset to raise the indicated capacity plus an overload. In the case where special tops, gravity roll sections, etc. are installed on the lift after leaving our factor, deduct the weight of these from the load rating (gross capacity) to obtain the net capacity.

The maximum rollover capacity in fully lowered position is to be the maximum rated lifting capacity. Applying loads exceeding the rated capacity can result in excessive wear or damage to

the lift and injury to personnel.

For end and side loading, reduce the end and side loading capacity by 2% for every inch added to the standard minimum length or width.

i.e. : (4,000# 24"x48" = 4,000# gross capacity)

4,000# 24"x60" = 3,040# end load, 4,000# side load

4,000# 48"x72" = 2,080# end load, 2,080# side load



Never exceed dock lift capacity. Over loading could result in damage to lift, property damage, serious injury or death.

OWNER and USER RESPONSIBILITIES

Owners/users shall apply sound principles of safety, training, inspection, maintenance, and expected operating environment.

It shall be the responsibility of the owner/user to advise the dealer or manufacturer where deflection may be critical to the application.

Owners/users shall keep and maintain a copy of the operating and maintenance manual(s) and ensure its availability to the operating and maintenance personnel.

It shall be the responsibility of the users to inspect and maintain the dock lift as required to ensure proper operation. The frequency of inspection and maintenance shall be based upon the manufacturer's recommendations and be compatible with operating conditions and the severity of the operating environment. Dock lifts that are not in proper operating condition shall be immediately removed from service until repaired. Maintenance and repairs shall be made by a qualified person and the repairs shall be in conformance with the manufacturer's recommendations.

Before adjustments are started on a dock lift, the following precautions shall be taken as applicable:

- Remove the load from the platform.
- Lower platform to the full down position, if possible or secure by maintenance device and/or blocking as described by the

manufacturer to prevent unintended platform movement.

- Relieve system pressure from all circuits before loosening or removing any components.
- All controls in the "off" position and all operating features secured from inadvertent motion by brakes, blocks or other means.
- Disconnect power and follow established owner/user lockout/tagout policies.
- Follow precautions and directions as specified by the manufacturer.

When parts or components are replaced, they shall be replaced with parts or components approved by JH Industries, Inc.

The user shall ensure only qualified personnel inspect and maintain the industrial scissors lift in accordance with this section (Owner and User Responsibilities) and with the manufacturer's recommendations as described in this manual.

An owner/user who directs or authorizes an individual to operate a dock lift, shall ensure that the individual has been:

- Trained in accordance with the manufacturer's operating manual.
- Made aware of the responsibilities of operators as outlined in this manual.
- Retrained, if necessary, based on the owners/user's observation and evaluation of the operator.

OWNER and USER RESPONSIBILITIES

Modifications and additions shall not be performed without the manufacturer's prior written approval. Where such authorization is granted, capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.

OPERATION

WARNING

Before operating the dock lift, read and follow safety practices on page #3-4 of this manual and this entire section. Use by untrained people could result in serious injury or death. **DO NOT USE THE DOCK LIFT IF IT LOOKS DAMAGED OR DOES NOT SEEM TO WORK PROPERLY.** Tell your supervisor it needs repair.

Always use common sense and take responsibility for the safety of everyone near the dock lift. The operator is in direct control of the dock lift and therefore it is his or her responsibility to conform with good safety practices. The operator's safety as well as the safety of other personnel on or near the lift is dependent on the decisions he or she makes while operating the lift. Failure to operate the lift safely could cause serious injury or death.

Keep all body parts clear of any moving parts and travel path of the scissor arms while raising or lowering the dock lift. Never go under a dock lift without maintenance bars properly positioned and secured. Pinch points are created when the dock lift moves up and down. Keep away from any "pinch point" (See Figure #7) Part of your body or article of clothing could become caught serious injury or death could occur.

To avoid damage to load and dock lift do not operate unit if any obstructions or debris may interfere with the safe operation of the dock lift. Damage to the lift could occur or the load could become unstable, serious injury or death could occur.

Be sure that all personnel in the area are a safe distance away from the lift and aware that you are about to move it. Failure to follow these and

other provided warnings could result in serious injury or death.

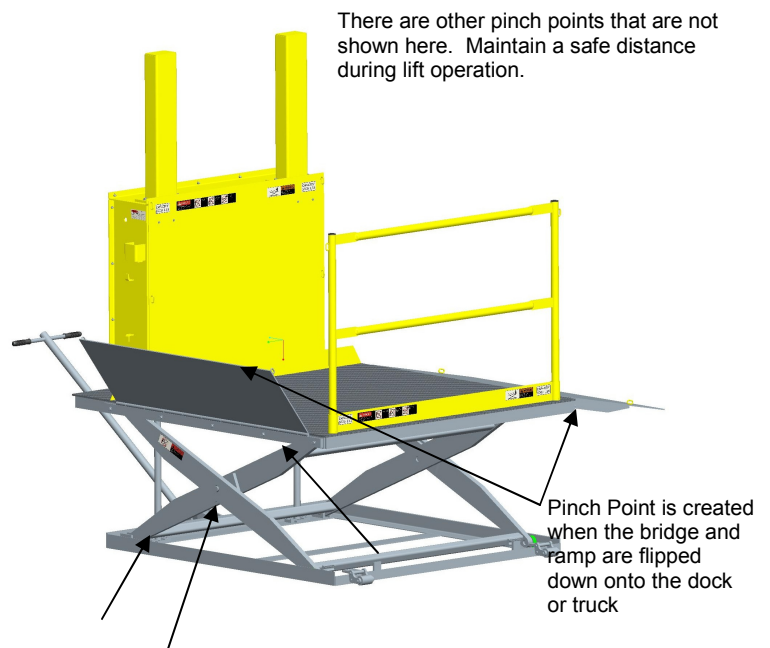


FIGURE #7—Pinch Points

CAUTION

Placards, warning labels and decals are to warn, inform or provide information to safely use the dock lift. Verify all provided placards, warning labels and decals are legible. Replace any missing or damaged labels or placards. (See pg. 22-23)

The function of a dock lift is to raise, lower or position loads and equipment within the specified capacity to a desired height or position. Lifting or positioning is provided through hydraulic cylinders. Upon application of hydraulic power, the cylinder extends or retracts uniformly, either lifting or lowering the platform.

OPERATION, CONTINUED

Hydraulic power is supplied through a combination pump motor assembly. The power unit incorporates a pressure relief valve, load holding check valve, lowering valve, and oil reservoir.

Prestart Inspection:

WARNING

Always follow the prestart inspections before use of the dock lift. Failure to follow these instructions could result in serious injury or death.

1. Before operating inspect the area around the dock lift. Make sure there is nothing that will interfere or impact the dock lift while raising or lowering. Inspect for the following:

- Bumps, floor obstructions and uneven surfaces
- Electrical hazards
- Overhead obstructions
- Presence of unauthorized persons
- Any unsafe conditions as noted in this manual

2. Visually inspect all visible hydraulic components and hydraulic hoses for leaks, damage or wear.
3. Visually inspect the electrical lines that are exposed for damage, missing insulation, or loose connections.
4. Visually inspect the dock lift for loose or missing parts. Verify all bolts look properly tightened. Look for any damage or excessive wear on all parts.
5. Be sure that the load is within the capacity of the dock lift. This includes all equipment, product and people that will be riding on the lift.
6. The dock lift was designed to be used with the handrails and safety chains in place at all times. Make sure the handrail and safety chains are installed before use. Visually inspect the handrail and chain for missing or damaged parts. (See Figure #8)
7. All loads and equipment need to be centered on the platform of the dock lift. The load needs to be secured and kept from shifting or moving during raising or lowering of the lift.

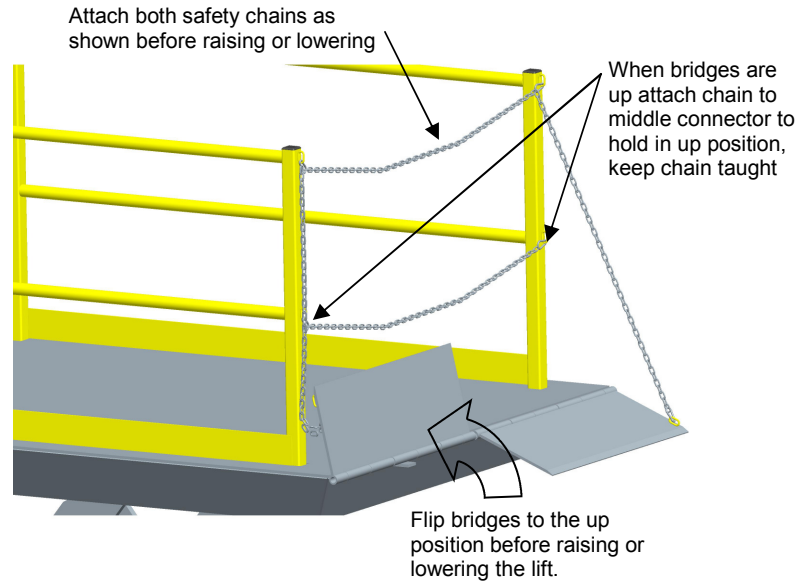


FIGURE #8—Safety Chains

Operation of the Dock Lift:

1. Once the load and personnel are situated and ready to be raised or lowered attach the safety chain and lift and fasten the bridge plate. (See FIGURE #8)
2. The hand pendant has two functions:
 - Raise the lift which is marked with “UP”. By depressing this button the dock lift will raise. Once the lift is at the top of it’s travel release the up button.
 - Lower the dock lift which is marked with “DOWN”. By depressing the “DOWN” button the dock lift will lower.

Once the buttons are depressed the lift will move immediately and will continue to move as long as the button remains depressed. Once the button is released the dock lift will stop moving and hold it’s position.

CAUTION

If the lift does not operate within 2 or 3 seconds turn it off and call a qualified technician. Continuing to run the lift could cause damage or personnel injury.

3. Once the lift is at it’s desired height the bridge can be flipped down onto the dock floor or floor of the truck. The bridge has to overlap the edge by a min. of 4”. (See Figure #9)

OPERATION, CONTINUED

4. Un-fasten the safety chain only from the side of the dock lift being loaded or unloaded. Clasp the chain onto the handrail to keep slack from interfering with the loading or unloading.
5. With a controlled steady movement unload or load the dock lift. Keep speed to a minimum and refrain from sudden stops or starts.
6. Repeat previous steps to raise or lower the dock lift as needed.

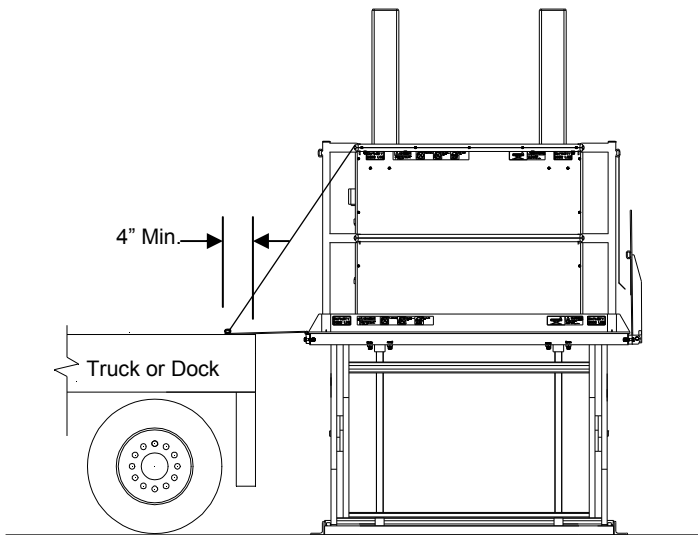


FIGURE #9- Bridge Overlap

MAINTENANCE

⚠ WARNING

Only trained and qualified personnel should maintain this equipment. Failure to do so could result in property damage, serious injury or death.

READ AND FOLLOW THE OPERATING INSTRUCTIONS CONTAINED IN THIS MANUAL BEFORE OPERATING THE LIFT TABLE. If you have any questions concerning this manual or it's contents please contact your dealer or the factory. Failure to do so could cause serious injury or death.

Do not use the maintenance bar to support any load other than the dock lift. Remove all loads prior to engaging the maintenance devices. Failure to follow these instruction will result in permanent damage to the dock lift and could result in serious injury or death.

Always use common sense and take responsibility for the safety of everyone near the lift table.

The following are the only factory-approved practices for working under the dock lift. At **ALL** times while working under the dock lift these instructions need to be followed.

If any of the safety or maintenance devices seem to be damaged or missing, **STOP** immediately and contact your dealer or the factory for assistance. Your failure to use the approved and provided procedures and maintenance devices is not the liability of the manufacturer.

⚠ DANGER

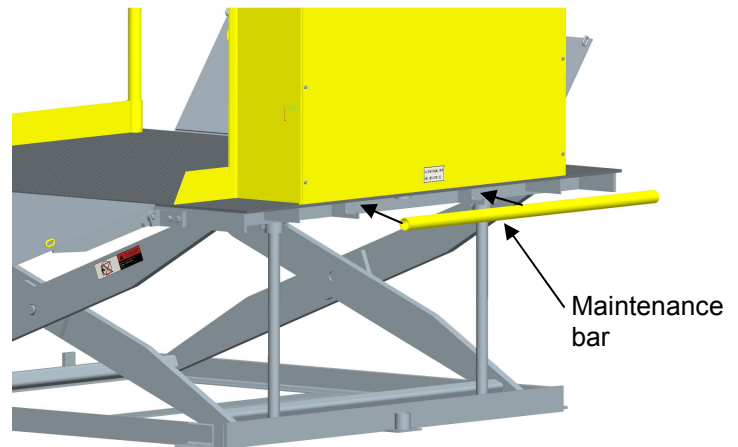
HIGH VOLTAGE! - Prior to any maintenance or installation disconnect power source and/or lock-out to prevent lift operation. Verify that all power sources are removed and no stored power source exists. Failure to do so will result in shock or arc-flash that would cause death.

1. Raise the dock lift to it's full raised position.
2. Remove the maintenance bar from storage. Place one end in the holder in the base of the lift and line up the top with the holder on the underside of the dock lift top assembly. (See Figures #10 & #12)
3. Lower the dock lift onto the maintenance bar slowly while keeping hands, arms or any body part from between the maintenance bar and the dock lift top. (For single-acting cylinders only)

MAINTENANCE, CONTINUED

Once the maintenance bar is lined up and held in the holder on the underside of the top assembly stand clear of the dock lift. Depress the down button for 10 seconds to relieve all pressure in the hydraulic system.

4. Disconnect power source and follow OSHA and Owner electrical lock-out/ tag-out to prevent lift operation.
5. Once all work is complete, reconnect the power source and remove the lock-out/ tag-out. Let your supervisor know that the lift has power before raising.
6. Raise the dock lift to it's full raised position.
7. Remove the maintenance bar from the dock lift and secure in designated storage area. (See FIGURE 10)
8. See Prestart in the OPERATION section of this manual. Do all inspections as specified.
9. Lower the lift to its stored position.



CAUTION

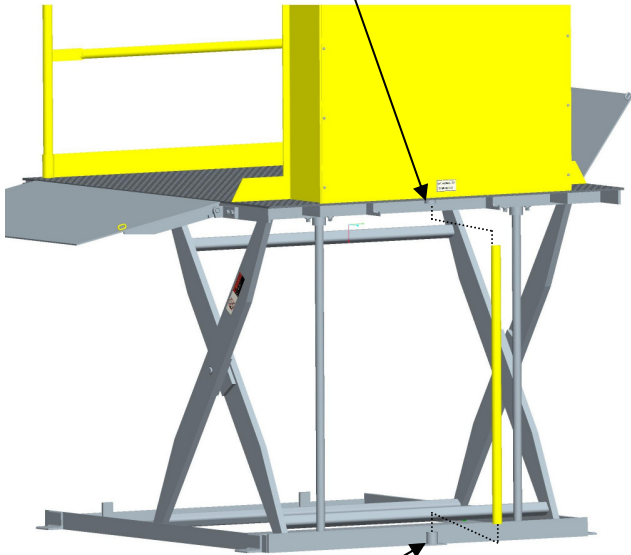
Routine periodic maintenance should be performed per FIGURE #11. Failure to do so could result in damage, premature failure or wear of the dock lift.

FIGURE #10—Maintenance Bar Storage
Place maintenance bar onto hooks under top assembly of the dock lift. Hooks are located under the tread plate floor under the hydraulic cabinet.

<p>Every (1) Month or 50 Hrs. of use (whichever comes first)</p>	<ul style="list-style-type: none"> • Verify you have the most up to date Manual, visit www.copperloy.com • Visually inspect the entire lift. • Verify that all welds are structurally sound and free from damage or cracks. • Check all pins and bearings for excessive wear or damage. • Inspect the structure of the lift for any damage or wear. • Inspect the level of the hydraulic fluid, fill as necessary using the correct oil (See Figure #13). • Inspect for hydraulic leaks or damaged hydraulic components. • Visually inspect the safety chain, verify nothing is missing and there is no damage. • Verify all safety labels are legible and installed (See pg. 22-23)
<p>Every (6) Months or 500 Hrs. of use (whichever comes first)</p>	<ul style="list-style-type: none"> • Clean hinges on bridge, wash or blow out with compressed air. Lubricate as needed by applying grease between hinge spools. • Touch up paint as necessary to prevent rust (Contact JH Industries, Inc. for paint color) • Check all hydraulic fittings and hoses, fittings can become loose from the vibrations of the power unit and use. • Check all bolts and nuts make sure they are tight and have not become loose. • Replace the hydraulic fluid, see maintenance instructions in Maintenance Section pg. 11-16. • Inspect the rollers at the end of the scissor arms for excess wear or damage.

FIGURE #11—Routine Periodic Maintenance Schedule

Upper maintenance bar holder. Located under tread plate floor of dock lift top assembly



Lower maintenance bar holder. Located in base of dock lift.

FIGURE #12—Maintenance Bar Use

Amoco Oil Co.	Rycon Oil No. 32 or 46 Amoco AW 32 or 46
Cities Service Oil Co.	Citgo AW Hyd. Oil 32 or 46 Citgo All Temp. Hyd. Oil
Chevron USA	Chevron EP Hyd. Oil 32 or 46
Fina Oil Co.	Fina AW 32 or 46
Gulf Oil Company	Gulf Harmony 32 AW or 46 AW
Mobil Oil Corporation	DTE 32 or DTE 46
Shell Oil Co.	Tellus Hyd. Oil 32 or 46 Tellus "T" Hyd. Oil 32 or 46
Texaco Inc.	Rando Oil Hd-32 or Hd-46
Union 76	Xcel AW 46 (200)

FIGURE #13—Acceptable Hydraulic Oils

Note: Most petroleum based anti-wear hydraulic fluids with a 32, 46 or 68 ISO viscosity grade will work with this system. Verify with JH Industries, Inc. before using anything other than what is listed in the table above. 46 weight is provided by factory.

MAINTENANCE, CONTINUED

⚠ CAUTION

Do not use brake fluid or any other fluids not approved by the manufacturer. Use of fluids not approved by the manufacturer may damage the hydraulic systems seals and hoses.

NOTICE!

For extreme cold applications we recommend an oil immersion heater.

For extreme warm temperature ranges of +20° to +140° Fahrenheit, you may switch to 10W30 motor oil. If ambient temperatures are expected above 140° Fahrenheit, consult factory.

Hydraulic Fluid:

⚠ WARNING

Hydraulic fluid under high pressure can cause personal injury. Before any maintenance is commenced release all pressure from the hydraulic system. High pressure fluid can pierce skin and enter the blood system which could cause serious injury or death.

The relief valve is designed to protect the operator, personnel near the lift during usage and the hydraulic system in the dock lift. The relief valve is factory set for a specific pressure, never change the settings of this valve, the system could build up extreme pressures which would cause hydraulic components to fail and serious injury or death may occur.

Changing Hydraulic Fluid:

1. The hydraulic reservoir is located attached to the hydraulic pump. (See Figure 22)
2. Lower the dock lift and depress the down button for 10 seconds after lowering to relieve the system of all pressure.
3. Transfer pump the entire contents of the hydraulic power pack tank through the Filler/Breather port. (See Figure 22). Make sure the bucket or container that is holding the old fluid can hold up to 2.5 gallons total.
4. Refer to FIGURE #13 for correct hydraulic oil.

MAINTENANCE, CONTINUED

Replace the drain plug and fill the hydraulic tank with oil.

5. Remove all lock-out, tag-out and cycle the dock lift 4-5 times to remove all air from the hydraulic system. Bring the dock lift to its lowered position and check the level of the hydraulic oil. Fill to where the oil is 2" or less from the top of the tank.

Hydraulic Seals:

Generally, the seals are Buna-N-Nitrile and poly-urethane. The hoses are braided wire type. Always consult factory regarding special fluids rather than make assumptions on your own.

Hydraulic Cylinder Maintenance:

CYLINDER REMOVAL

1. Raise the dock lift to its full raised position.
2. Follow instructions to prepare dock lift for maintenance (see pg. 11-15 this manual).
3. Remove the (12) bolts holding the cover on the hydraulic cabinet on the back of the dock lift. Set the panel to the side where it cannot be damaged or fall over. (See Figure 14)
4. At the base of the dock lift locate the two cylinder keeper plates. Remove both plates by removing (2) 1/4"-20 x 1/2" long bolts at each plate. (See Figure 14)
5. Temporarily reconnect the power to the dock lift. While holding the down button pry the bottom of the cylinder upward until the cylinder is completely compressed. Disconnect the power.
6. Disconnect the hydraulic hoses from the top of the cylinder and cap the tube end and cylinder to prevent contamination. (See Figure 14)
7. Where the cylinder connects to the floor of the top assembly of the dock lift remove the (2) 3/4" hex head bolts and gently slide the cylinder down until it rests on the ground. (See Figure 14)
8. Remove the cylinder from the lift, being careful not to damage the surface finish of the cylinder rod. The top assembly of the dock lift may need to be raised higher, use appropriate slings with a crane or lift truck.

NOTICE!

If the dock lift is equipped with multiple cylinders it is recommended to rebuild all cylinders at the same time. Seals generally wear at the same rate, if you only rebuild one cylinder, you may have to pull the lift out of service soon thereafter to do the others.

CYLINDER DISASSEMBLY

1. These cylinders are not repairable, if they are damaged or worn a new cylinder must be ordered. See parts section in this manual for part number for ordering. (See FIGURE 21)

CYLINDER REINSTALLATION

1. If installing a new cylinder, transfer the cylinder mounting plates, cylinder base plate and flat head socket screw from the old cylinder to the new cylinder.
2. Being careful not to damage the surface finish of the cylinder rod. Slide the cylinder from under the dock lift top assembly. Line up the top of the cylinder with the hole in the floor of the top assembly of the dock lift. Guide the cylinder upward until the cylinder mounting plates are flush with the underside of the floor on the top assembly of the dock lift. Reusing the 3/4"-10 x 4" long hex head bolt, washers and nuts attach the cylinder to the top assembly. Hand tighten the bolts only at this time. (See Figure 14)
3. Pull the cylinder rod down until the cylinder base plate is resting on the base assembly of the dock lift. Line up the base plate between the cylinder keeper plate mounting pads. Reinstall the cylinder keeper plates and completely tighten all bolts, including the 3/4"-10 x 4" hex bolts.
4. Connect the hydraulic tube and fittings to the top of the cylinder. (See Figure 14)
5. Remove all lock-out, tag-out and cycle the dock lift 4-5 times to remove all air from the hydraulic system. Bring the dock lift to its lowered position and check the level of the hydraulic oil. Fill to where the oil is 2" or less from the top of the tank. (See Figure 22)
6. Install the cover on the hydraulic cabinet and tighten all (12) 1/4"-20 bolts. (See Figure 14)

MAINTENANCE, CONTINUED

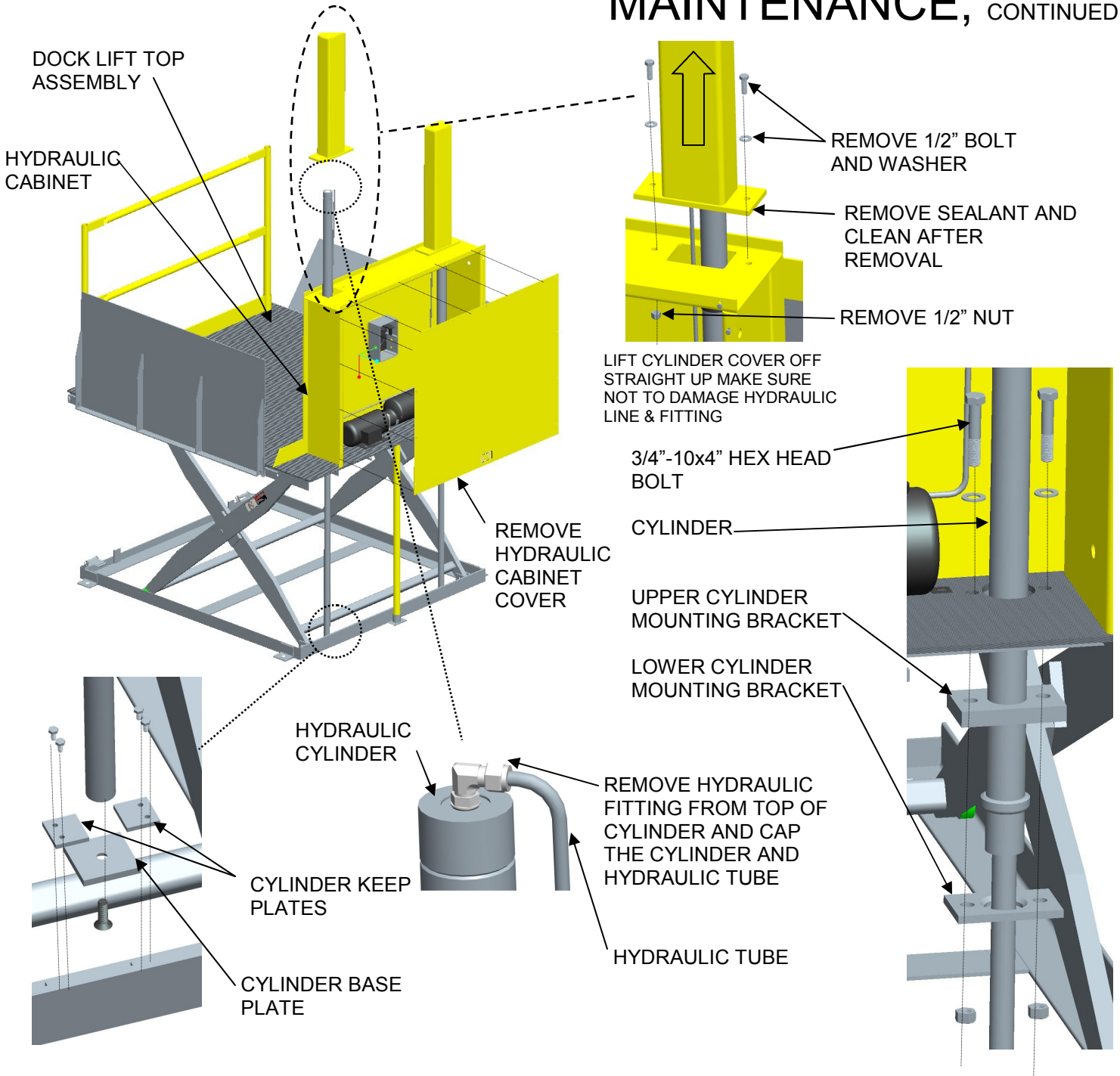


FIGURE #14 – Cylinder Removal and Hydraulic Cabinet Maintenance

MAINTENANCE , CONTINUED

⚠ WARNING

Before servicing the dock lift, read and follow this entire manual, any warnings, labels or placards.

Always be certain the lift is in the raised position, **SECURED WITH THE MAINTENANCE BAR** (See FIGURE #10) before doing any maintenance or repairs under the dock lift.

The lift could fall suddenly which could result in serious injury or death.

Be sure the hydraulic system is not under pressure before loosening or doing any maintenance to the hydraulic system. Pressurized hydraulic fluid can pierce skin and enter the blood stream causing serious injury or death.

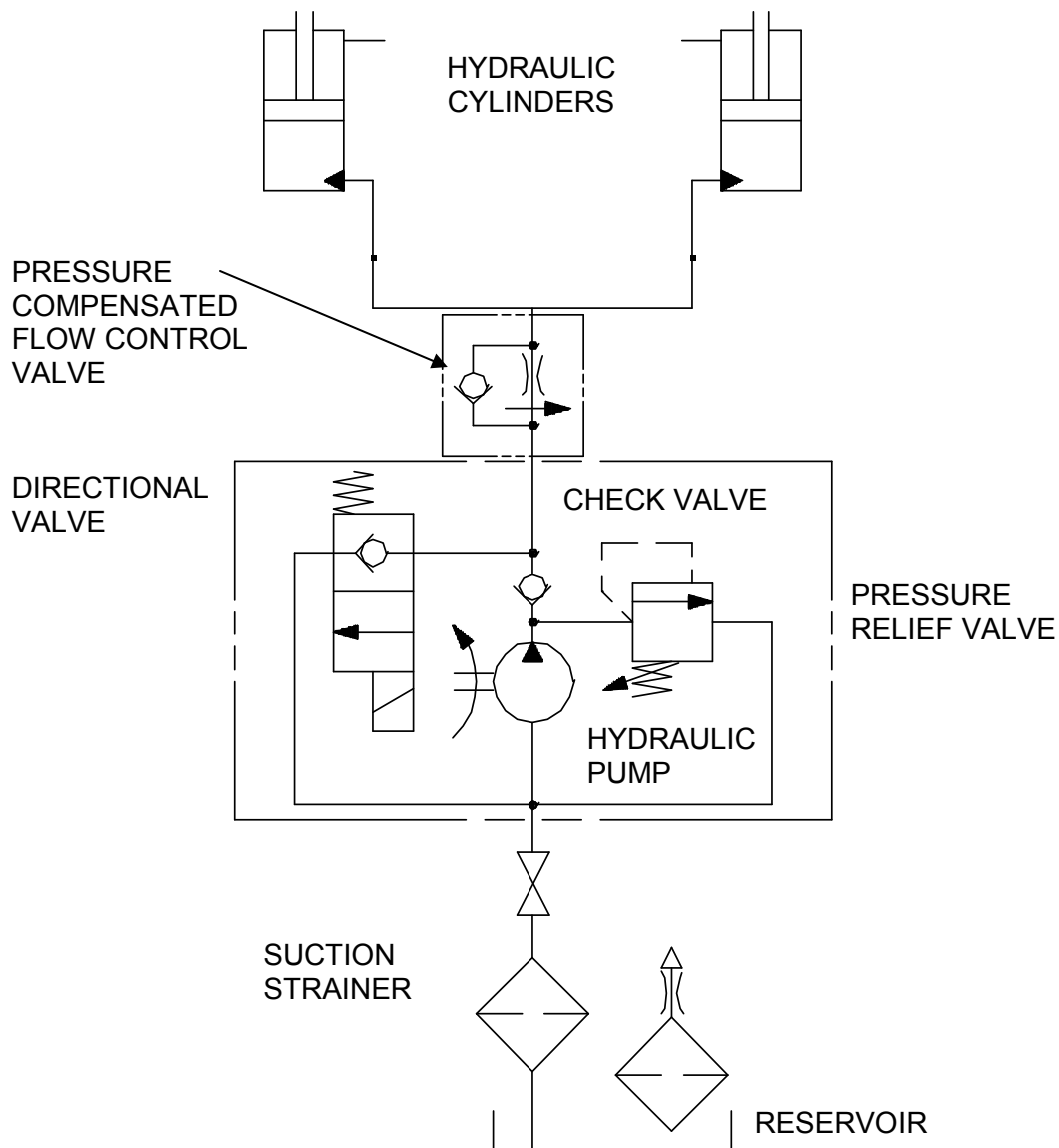


FIGURE #15 – Hydraulic Schematic



TROUBLE SHOOTING

Dock Lift does not raise	Check hydraulic reservoir oil level.	Fill with hydraulic oil if low.	See Maintenance Section for filling Instructions
	Check the breather vent and make sure it is working properly.	Install a new filler/breather cap.	See Figure 22 for filler/breather cap location and part number for ordering.
	Make sure the pump is running when power is supplied. Verify it is rotating freely.	Replace or repair damaged parts or equipment.	Refer to parts lists and figures for parts listings.
	Verify power is being supplied to the Pump Unit if the pump is not running.	Replace or repair damaged parts or equipment.	Refer to pump parts list and figure for parts listings.
	Pressure relief valve not adjusted properly. The lift will attempt to raise but just settle back down.	Readjust pressure relief valve or replace if damaged.	See Figure 22 for relief valve location. Tighten screw to increase pressure loosen to decrease pressure.
	Check cylinders for damage or bent rods.	Replace damaged cylinders.	See Maintenance instructions for cylinder removal and replacement.
Dock Lift does not lower	At the cylinder: Check for bent or damaged rods.	Replace cylinder	See Figure 21.
	Check for physical damage to the scissor arms.	Contact Factory	Contact Factory
	At the pump release valve: Check for damage or wear.	Replace or repair damaged parts or equipment.	See Figure 22 for part number and location.
	Check the breather vent and make sure it is working properly.	Install new filler/breather cap.	See Figure 22 for filler/breather cap location and part number for ordering.
	Check the flow control.	Remove and clean or replace if damaged.	See Figure 21 for part number and location.
	Check for foreign objects jammed in the scissor arms or under the dock lift top assembly.	Remove any foreign objects.	
Oil Leakage	At the cylinder: Check for scored rod, wear or damage to cylinder.	Replace cylinder	See Maintenance instructions for cylinder removal and replacement.
	At the pump filler plug: Check Oil level, too much oil in the reservoir due to improper filling will cause excess oil to be forced out	Remove Oil from reservoir.	See Maintenance instructions for oil removal or replacement.
	At any hydraulic fitting or tube.	Tighten fitting if loose.	See Figure 21 for fitting locations.
		Check for damage if damaged replace.	See Figure 21.

ELECTRICAL SCHEMATIC 120V 1-phase

⚠ WARNING

Before doing any electrical work, make certain the power is disconnected and properly tagged or locked off. All electrical work must be done by a qualified technician and meet all applicable codes. If it is necessary to make troubleshooting checks inside the control box with the

power on, USE EXTREME CAUTION. Do not place your fingers or un-insulated tools inside the control box. Touching wires or other parts inside the control box could result in electrical shock, death or serious injury could occur.

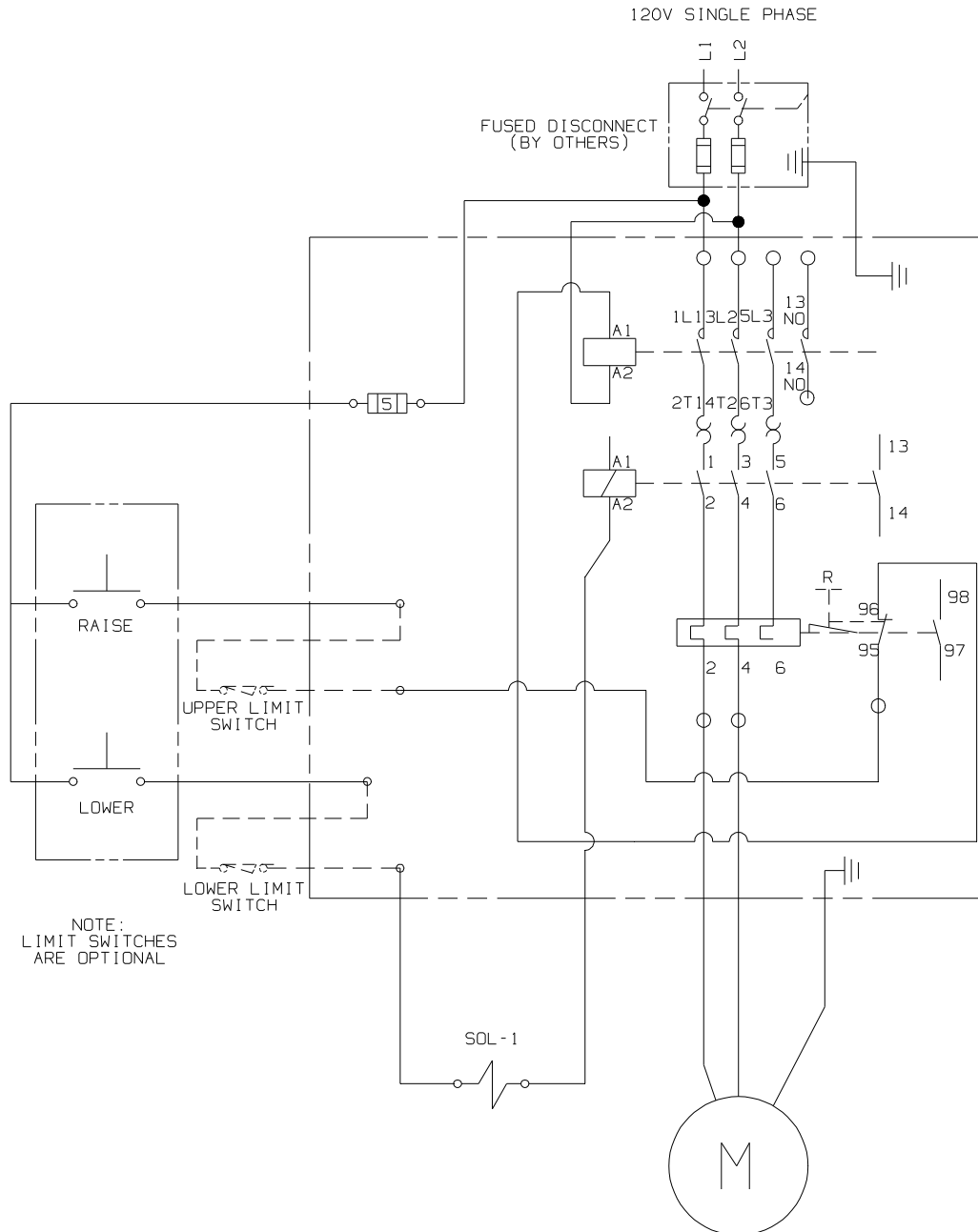


FIGURE #16 – 120V Single Phase Electrical Schematic

ELECTRICAL SCHEMATIC 120V 1-phase

Item	Qty.	Description	Part #
1	1	Contactor, 17amp, 120VAC Coil	063-024
2	1	Overload Relay, 18.0-25.0A (120VAC)	063-035
4	1	Fuse Holder Block	210-006
5	1	5amp Fuse	210-003
6	1	DIN Rail, 9.00"LG	063-061
7	1	6"x9"x6" Nema 12 Enclosure	063-027
8	1	Base Plate, Lift Table Electric Panel	L2082

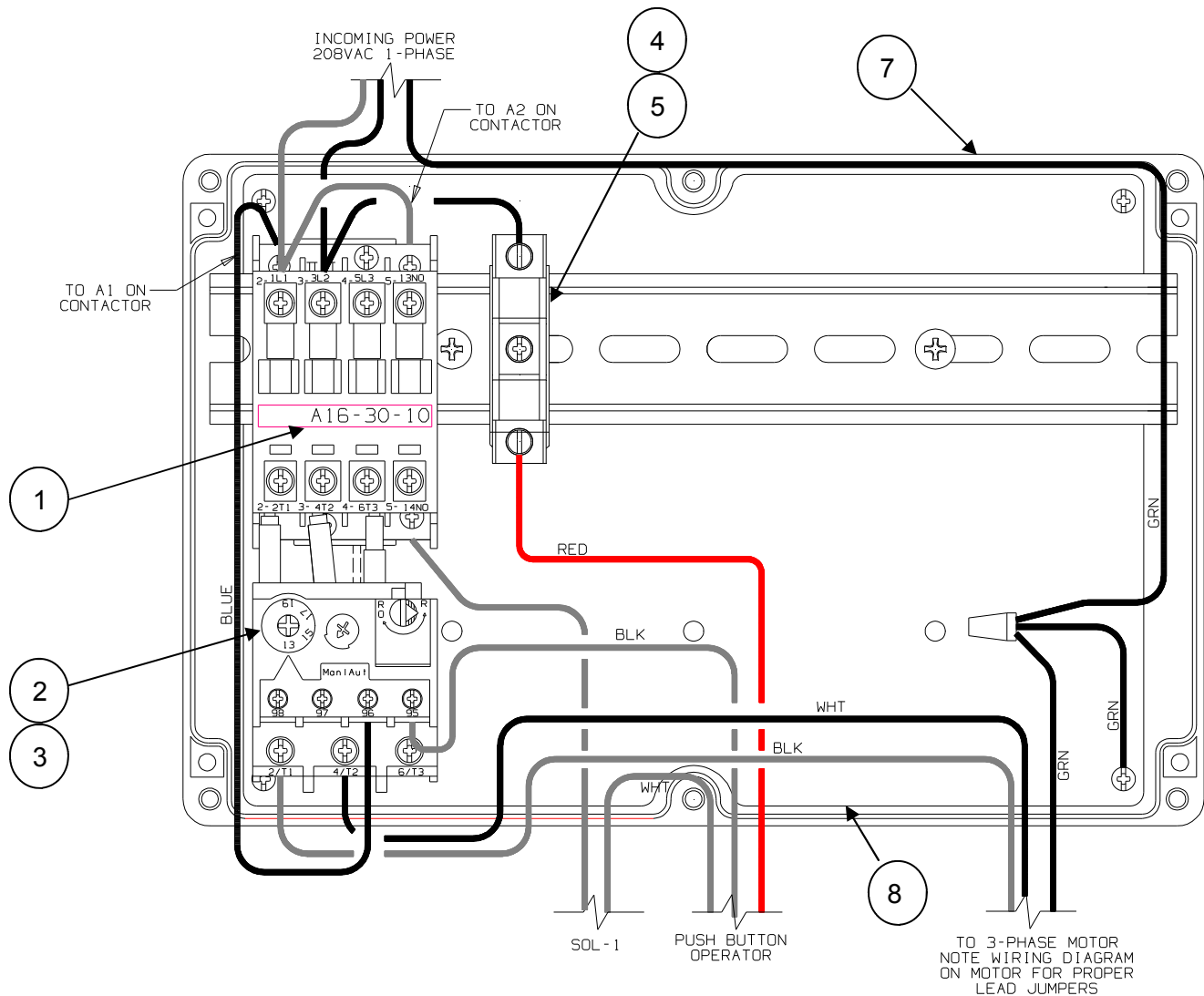


FIGURE #17 – 120V Single Phase Electrical Plan

ELECTRICAL SCHEMATIC 208V 1-phase

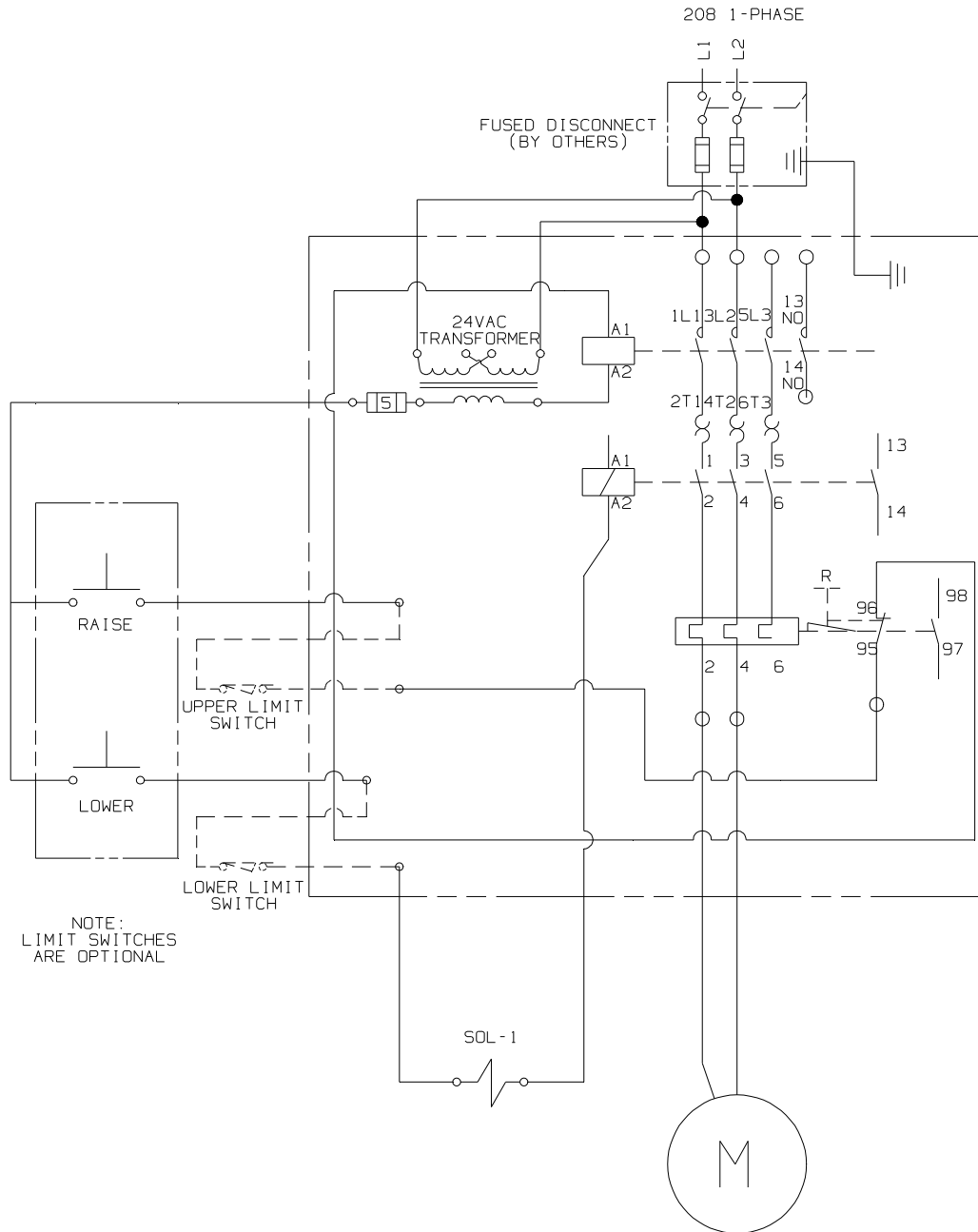


FIGURE #18 – 208V Single Phase Electrical Schematic

ELECTRICAL PANEL PARTS

Item	Qty.	Description	Part #
1	1	Contactor, 17amp, 24VAC Coil	063-028
2	1	Overload Relay, 10.0-14.0A (208VAC set at 11amps)	063-034
3	1	230/460V, 24VAC Secondary Transformer	210-008
4	1	Fuse Holder Block	210-006
5	1	5amp Fuse	210-003
6	2	DIN Rail, Mounting Adapter	210-314
7	1	DIN Rail, 9.00"LG	063-061
8	1	6"x9"x6" Nema 12 Enclosure	063-027
9	1	Base Plate, Lift Table Electrical Panel	L2082

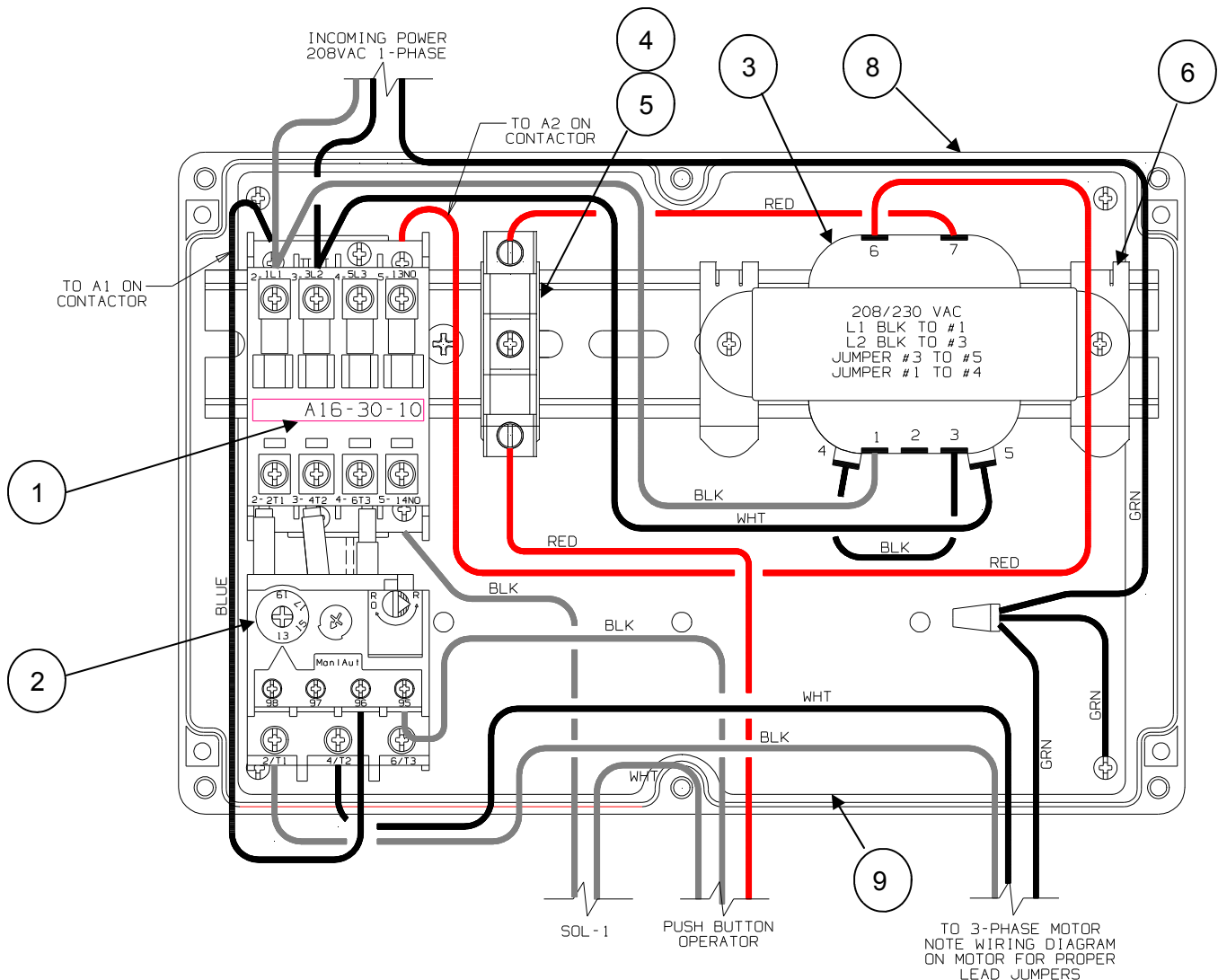


FIGURE #19 – 208V Single Phase Electrical Plan

WARNING LABELS

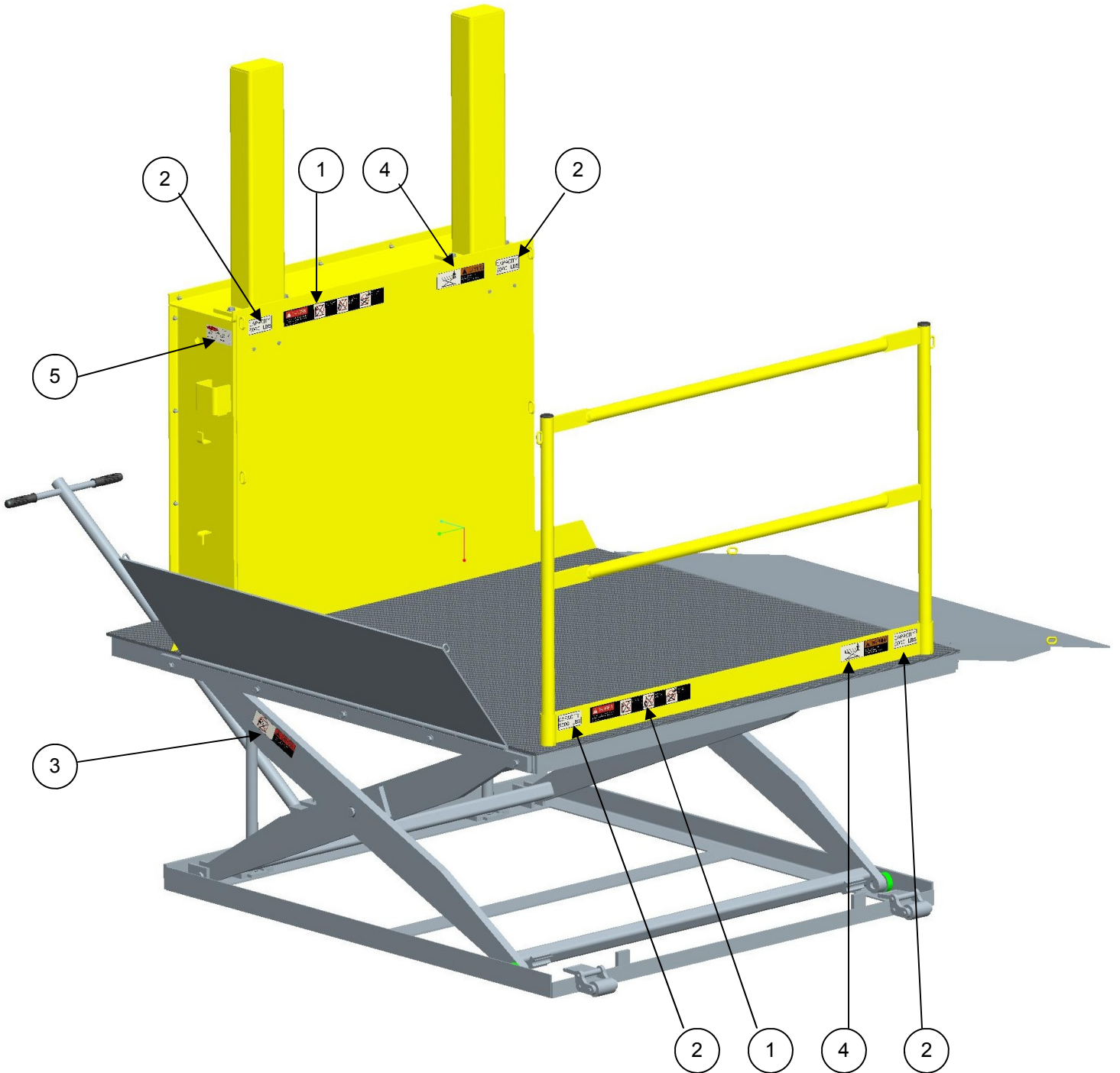


FIGURE #20 – Safety Label Layout

WARNING LABELS, CONTINUED

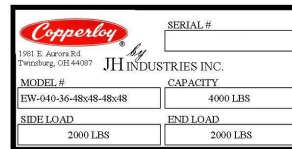
⚠ WARNING

All dock lifts must have the minimum labeling as shown in this section. Any less or labels that are illegible must be replaced immediately. Labeling defines possible injury or death related hazards. Failure to replace missing or damaged labels could result in serious injury or death.



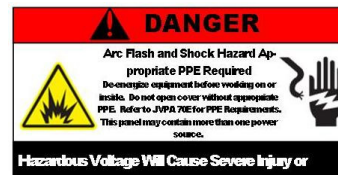
- 1 One on each side of the dock lift platform (Requires (2))

CUT AND DISCARD FOR DOCK LIFTS WITH HANDRAIL ONLY



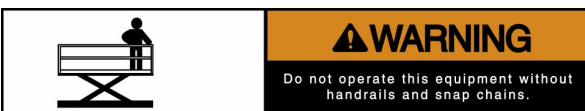
- 2 Two on the handrail base and two on the Hydraulic housing (Requires (4))

- 5 One on base and platform of the dock lift (Requires (2))



- 3 One on each side of the dock lift scissor assembly (Requires (2))

- 6 To be attached to all control panels or electrical boxes



- 4 One on base of handrail, Second on Hydraulic housing (Requires (2))

- 7 To be attached to Maintenance bar (Requires (2))

HYDRAULIC PARTS LIST

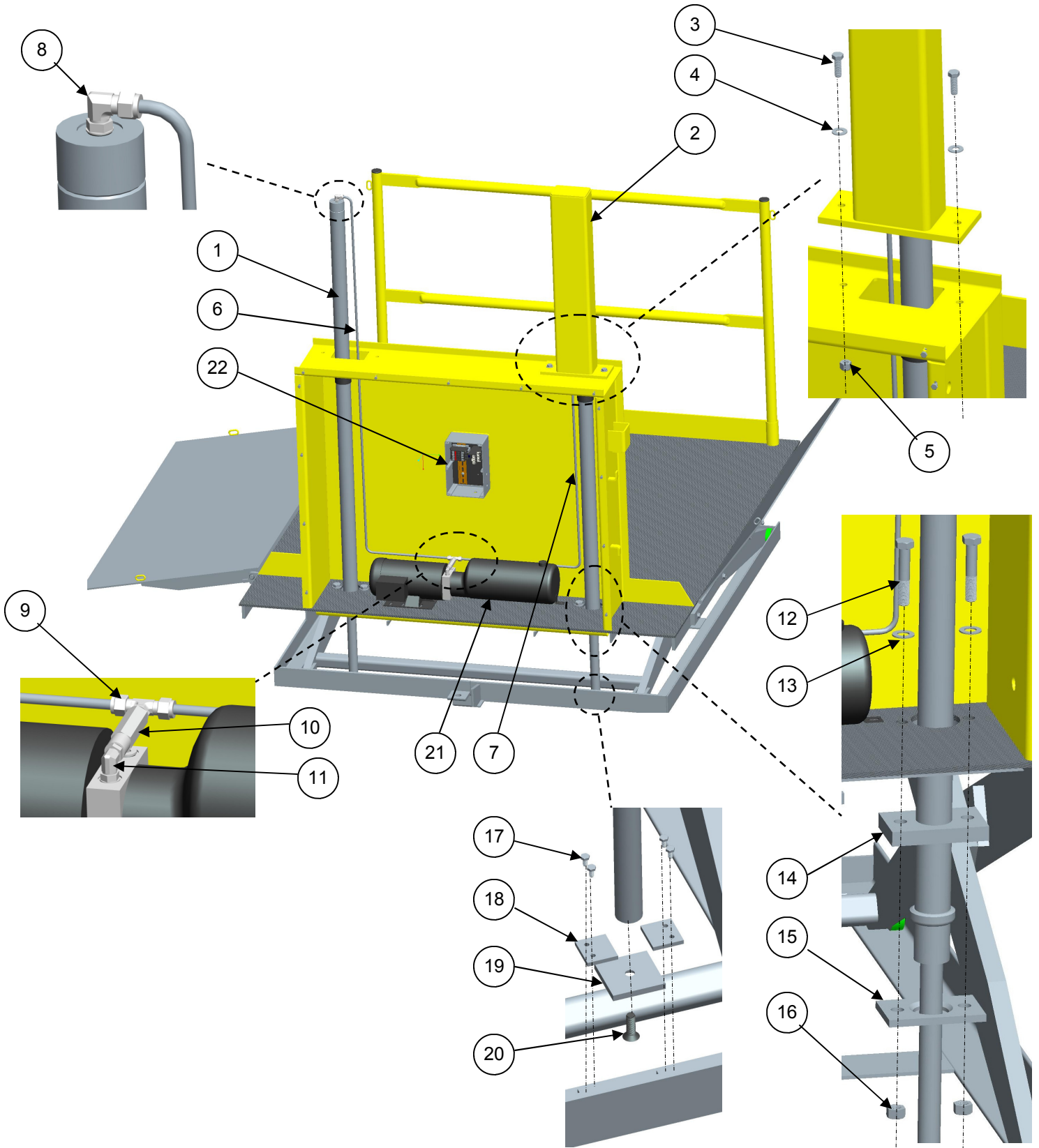


FIGURE #21 – Surface Mount Dock Lift Hydraulics



HYDRAULIC PARTS LIST CON'T

Item #	Qty.	Description	Part Number
1	2	1.5x67x1.5, SA Hydraulic Cylinder, Special Rod Length	203-513
2	2	Surface Docklift Cylinder Cover Weldment	L2080
3	4	H.H.C.S., 1/2"-13 x 1-1/2", Grade 5	002-004
4	8	1/2" Flat Washer, SAE	002-169
5	4	Lock Nut, 1/2"-13, Grade 5	215-511
6	1	Formed 3/8" Hydraulic Tube, Left Hand Cylinder	L2075
7	1	Formed 3/8" Hydraulic Tube, Right Hand Cylinder	L2076
8	2	3/8" Flareless x #6 SAE/ORB Male 90°	205-486
9	1	3/8" Flareless x 3/8" Flareless x #6 SAE/ORB Male	205-487
10	1	Steel, pressure compensated, 1.5-gpm, #6 SAE/ORB Female	203-523
11	1	#6 SAE/ORB Male x #6 SAE/ORB Male 90°	205-330
12	4	H.H.C.S., 3/4"-10x4"	
13	4	3/4" Flat Washer, SAE	002-103
14	2	Surface Docklift, Cylinder Base Top Holder	L2086
15	2	Surface Docklift, Cylinder Base Bottom Holder	L2074
16	4	Lock Nut, 3/4"-10, Grade 10	002-159
17	8	H.H.C.S., 1/4"-20 x 1/2", Grade 5	002-083
18	4	Surface Docklift, Cylinder Base Holder Plate	L1029
19	2	Surface Docklift, Cylinder Base Plate	L1962
20	2	F.H.C.S., 1/2"-13 x 1-1/2"	002-042

Item #	Qty.	Description	Part Number	
			120 VAC	230 VAC
21	1	2 H.P., 1.3GPM 1-Phase Hydraulic Power Pack	203-202	203-202
22	1	1-Phase, Surface Mount Dock Lift Electrical Panel	L2083-120	L2083-230

2HP/1.3GPM POWERPACK PART LIST

Item #	Qty.	Description	Part Number	
			120 VAC	230 VAC
1	1	2 H.P., 1.3GPM 1-Phase Hydraulic Power Pack	203-202	
2	1	Filler Breather, 2H.P., 1.3GPM Power Pack	205-178	
3	1	Hydraulic Tank, 2 H.P., 1.3GPM Power Pack	203-203	
4	1	Solenoid coil	210-070	
5	1	DIN Connector w/ 3'-0" pigtail	203-120	
6	1	2-way, normally closed cartridge valve	203-008	
7	1	Strainer for Intake, 2H.P., 1.3GPM Power Pack	205-179	

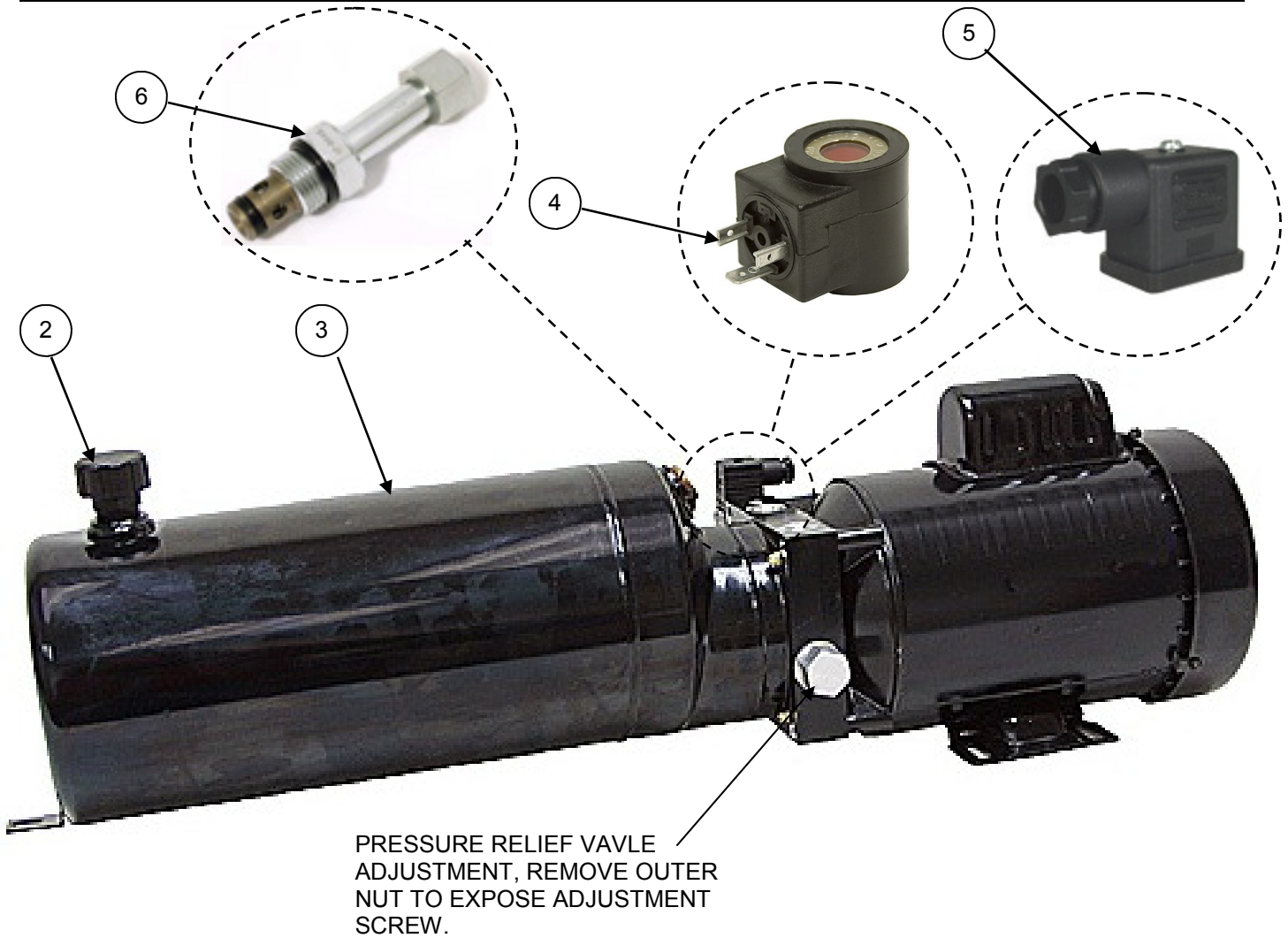


FIGURE #22 – 2HP/1.3GPM Power Pack Parts



NOTES



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