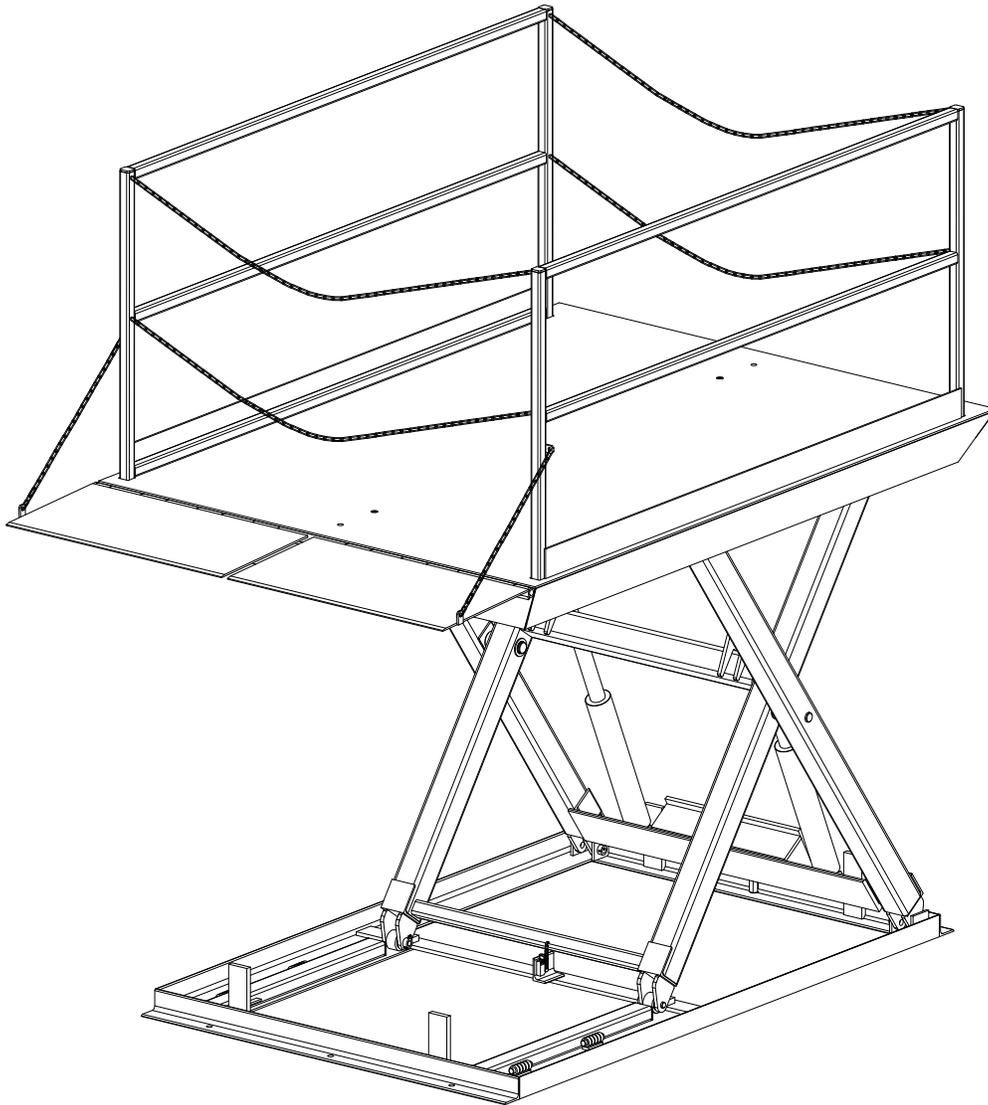


# Dock Lift Pit Mounted



This manual applies to Dock Lifts manufactured beginning February 2014 with the serial numbers 61022353 and higher.

## **▲ 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 User's Manual. Failure to do so could result in death or serious injury.*

# User's Manual

## Installation, Operations, Maintenance and Parts

Part No. 6015580A

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## INTRODUCTION

Welcome and thank you for choosing this Dock Lift for your material handling applications.

This User’s Manual contains information that you need to safely install, operate and maintain the dock lift. It also contains a complete parts list and information about ordering replacement part. Please keep and read this User’s manual before using your new dock lift.

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## SAFETY SIGNAL WORDS

You may find safety signal words such as DANGER, WARNING, CAUTION or NOTICE throughout this User’s Manual. Their use is explained below:



***This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.***

**▲ DANGER**

***Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.***

**▲ CAUTION**

***Indicates a potentially hazardous situation which, if not avoided may result in minor or moderate injury.***

**▲ WARNING**

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

**NOTICE**

***Notice is used to address practices not related to personal injury.***

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# SAFETY PRACTICES

## **⚠ WARNING**

*Read these safety practices before installing, operating or servicing the Dock Lift. Failure to follow these safety practices could result in death or serious injury.*

**READ AND FOLLOW THE OPERATING INSTRUCTIONS CONTAINED IN THIS MANUAL BEFORE OPERATING THE Dock Lift. If you do not understand the instructions, ask your supervisor to teach you how to use the Dock Lift.**

## **OPERATION**

Use is restricted to trained operators.

Remove all loads from platform and securely position the safety stop blocks in their blocking position before entering the pit or doing any work under the Dock Lift. NEVER ENTER the area below the pit without the safety stop blocks securely in place.

Read and follow the operating instructions, the hazard labels on the dock lift, and other warnings and instructions contained in this User's manual before operating the Dock Lift.

Do not use this unit to service vehicles outside its intended working range. Pit mounted dock lifts service from grade level to 60" above grade.

Stay clear of the Dock Lift when it is moving.

Do not operate this equipment without safety devices supplied with the dock lift, restraint chains, toe guards, audible alarms and strobe lights (if equipped) in place.

Ensure there are no obstructions which may interfere with the operation of the Dock Lift.

Do not exceed the lift capacity as stated on the name plate and center loads on the lift. Be aware that the lift may have reduced capacity when loads are rolled over the platform's sides and ends.

Hinged bridge (lip) must overlap truck bed by a minimum of 4" (100mm) before use. Do not use bridge if it is supported solely by the lifting chains.

Keep area around lift free of oil, objects and debris that could cause slipping or tumbling into or under the lift.

ALWAYS secure load when using dock lift.

## **OPERATION (CONT.)**

KEEP HANDS AND FEET CLEAR OF ALL HINGES AND PINCH POINTS AT ALL TIMES.

Do not use the Dock Lift if it looks broken or does not seem to work properly. Inform your supervisor at once.

Do not stand in the driveway between the Dock Lift and a backing vehicle.

Before chocking wheels or engaging vehicle restraint, dump air from air ride suspensions and set parking brakes.

Chock vehicle wheels or lock vehicle in place with a vehicle restraining device and set brakes before loading or unloading.

Ensure lip avoids contact with vehicle sides and cargo. If the lip does not lower to vehicle platform, reposition the vehicle.

Do not use a fork truck or other material handling equipment to raise or lower the Dock Lift.

While attempting to raise the unit, release the **UP** pushbutton if the unit does not lift after a few seconds. Running the system at max. pressure under this condition can cause damage to hydraulic components and/or the Dock Lift. See the Troubleshooting section for potential causes and solutions.

Dock Lifts passing below platform levels may create toe hazards while in motion. Ensure loads do not extend past the platform edges in all directions.

If the Dock Lift does not operate properly using the procedures in this manual, DO NOT USE THE DOCK LIFT. Call your local distributor for service.

## **INSTALLATION, MAINTENANCE AND SERVICE**

If the Dock Lift does not operate properly using the procedures in this manual, DO NOT USE THE DOCK LIFT. Call your local distributor for service.

Place barricades on the dock floor around the dock pit and in the driveway in front of the pit while installing, maintaining or repairing the Dock Lift.

Do not operate with anyone under platform or in front of lip.

Do not replace or remove the hydraulic components until the maintenance strut or safety stop blocks are securely in place and hydraulic pressure has been removed from the lifting cylinders and hoses.

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## **SAFETY PRACTICES**, continued

### **INSTALLATION, MAINTENANCE AND SERVICE (CONT.)**

Keep hands and loose hair clear of equipment while operating. Do not wear loose clothing or jewelry while operating or servicing the dock lift.

Under no circumstances should the lowering valve be altered or removed to obtain faster lowering speeds. Such modification could result in death or serious injury.

Be certain, before entering the Dock Lift pit or doing any maintenance or repair under the Dock Lift that:

- 1) The maintenance strut or safety stop blocks are in place on the base frame. See Service Tools section.
- 2) The power is disconnected and properly tagged or locked out.

If it is necessary to troubleshoot inside the electrical panel with the power on, **USE EXTREME CAUTION**. Do not place fingers or uninsulated tools inside the electrical panel. Touching wires or other parts inside the electrical panel may cause electrical shock, serious injury or death. All electrical troubleshooting or repair must be done by a qualified technician and must meet applicable codes.

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## **OWNER'S RESPONSIBILITIES**

It is the responsibility of the user/purchaser to advise the manufacturer where deflection may be critical to the application.

### **INSPECTION AND MAINTENANCE**

The Dock Lift shall be inspected and maintained in proper working order in accordance with the manufacturer's operating/maintenance manual and safe operating practices.

Only trained and authorized personnel shall be permitted to perform maintenance on the Dock Lift.

### **MAINTENANCE PERSONNEL SHALL HAVE:**

Read and understood the manufacturer's operating/maintenance manual, and all safety rules and labels, prior to performing any maintenance or service on the equipment.

Full time unlimited access to the manufacturer's operating/maintenance manual.

### **REMOVAL FROM SERVICE**

Any Dock Lift not in safe operating condition such as, but not limited to, excessive leakage, missing rollers, pins or fasteners, any bent or cracked structural members, cut or frayed electrical wiring or hydraulic lines, damaged or malfunctioning controls or safety devices, etc. shall be removed from service until it is repaired to the original manufacturer's standards. All repairs shall be made by qualified personnel in conformance with the manufacturer's instructions.

### **REPAIRS**

All repairs shall be made by qualified personnel in conformance with the manufacturer's instructions.

### **OPERATORS**

Only trained and authorized personnel shall be permitted to operate the Dock Lift.

### **BEFORE OPERATION**

Before using the Dock Lift:

Read and/or have explained and understood, the manufacturer's operating instructions and safety rules.

Inspect the Dock Lift for proper operation and condition. Any suspect item shall be carefully examined and a determination made by a qualified person as to whether it constitutes a hazard. All items not in conformance with the manufacturer's specification shall be corrected before further use of the Dock Lift.

### **DURING OPERATION**

The Dock Lift shall only be used in accordance with the manufacturer's operating/maintenance manual.

Do not overload the Dock Lift.

Ensure that all safety devices are operational and in place.

### **MODIFICATIONS OR ALTERATIONS**

Modifications or alterations of the Dock Lift shall be made only with written permission from the original manufacturer. These changes shall be in conformance with all applicable provisions of this standard and shall be as safe as the equipment was before modification. These changes shall also satisfy all safety recommendations of the original equipment manufacturer for the particular application of the Dock Lift.

**▲ DANGER**

*To avoid bodily injury read and follow all instructions before installing, operating or servicing the dock lift.*

*Do not install the Dock Lift in a pit unless it has beveled toe guards or proper factory supplied toe protection. Shear points can cause severe injury or death.*

*Be certain before doing any work under the platform that:*

- 1. The maintenance strut or safety stop blocks are securely in place on the base frame. See Service Tools section.*
- 2. The power is disconnected and properly tagged or locked out.*

**▲ WARNING**

*Before installation, read and follow the Safety Practices on page 3 and 4. Failure to follow these safety practices could result in death or serious injury. READ AND FOLLOW THE OPERATION INSTRUCTIONS IN THIS MANUAL BEFORE OPERATING THE DOCK LIFT. If you do not understand the instructions, ask your supervisor to teach you how to use the dock lift.*

*Power to electrical panel must be from fused disconnect supplied by others. Fuse size for a dual element motor protected time delay fuse can be no greater than 225% of motor FLA. Before doing any electrical work, make certain the power is disconnected and properly tagged or locked out. All electrical work must be done by a qualified technician and must meet all applicable codes. If it is necessary to make troubleshooting checks inside the control panel with the power on, USE EXTREME CAUTION. Do not place fingers or uninsulated tools inside the control panel. Touching wire or other parts inside the control panel could cause electrical shock, death or serious injury.*

*Before attempting to install, read through the entire installation procedure to completely understand the scope of work.*

*Place barricades around pit on dock floor and drive while installing, maintaining or repairing the Dock Lift.*

Construction of the pit is the responsibility of the site contractor or end user. Refer to the job specific approval drawing for all pit dimensions and other job specific details regarding pit construction.

Check to ensure the conduits are free of any debris. Hoses and electrical cables will need to move freely through these conduits.

# INSTALLATION, continued

## INSTALLATION

1. Install the hydraulic power unit in an area protected from the elements and close to the desired location of the electrical panel.
2. Install the electrical panel and do the field wiring between the power source (fused disconnect by others) and the panel. The panel is supplied with factory connections for hydraulic motor power and solenoid wiring. Ensure these connections are secure and present.
3. The Dock Lift is shipped with (2) lifting lugs mounted on the deck surface. These lugs are attached to threaded rods, locking the deck assembly to the base frame. Do not remove these bolts until the dock lift has been lifted and permanently placed in the pit or intended location.
4. The hydraulic hose is shipped attached to the top of the deck surface. Remove tie wraps and set the hose aside.
5. Locate the Dock Lift near its intended final location, route the hydraulic hose through the 3" diameter conduit. Leave enough slack to allow lifting and final placement of the Dock Lift. Do not connect the hydraulic hose to the hydraulic power unit at this time.
6. With the hydraulic hose partially routed, prepare to lift the unit into the pit. Properly rated lifting chains should be connected to the deck lifting lugs. See Fig. 1. Raise the unit with a minimum lifting angle of 30°. See Fig. 3.

### **▲ WARNING**

***Inadequate lifting equipment or practices can cause a load to fall unexpectedly. Make sure the lifting chain or other lifting devices are in good condition and have a rated capacity of at least 4000 lbs. for the lifting angle used. Never allow anyone to stand on or near the Dock Lift when it is lifted or placed into the pit. Failure to follow this warning can allow the Dock Lift to fall, tip, or swing into people, causing death or serious injury.***

7. With the properly rated lifting chains, raise the Dock Lift and slowly lower the unit into the pit or intended location.
8. Apply power to the electrical panel through the fused disconnect. Connect the hydraulic hose to the pressure port of the remote mounted power unit. With the hose connected and power supplied to the electrical panel, attempt to raise the Dock Lift by pressing the **UP** pushbutton on the pendant. Raise the lift approximately 2' then completely lower the unit.

Fig. 1 Lifting chains (by others)

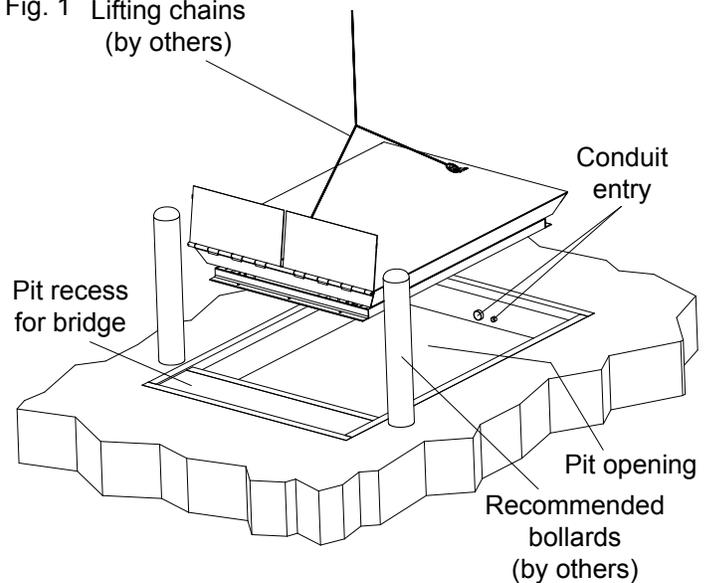


Fig. 2

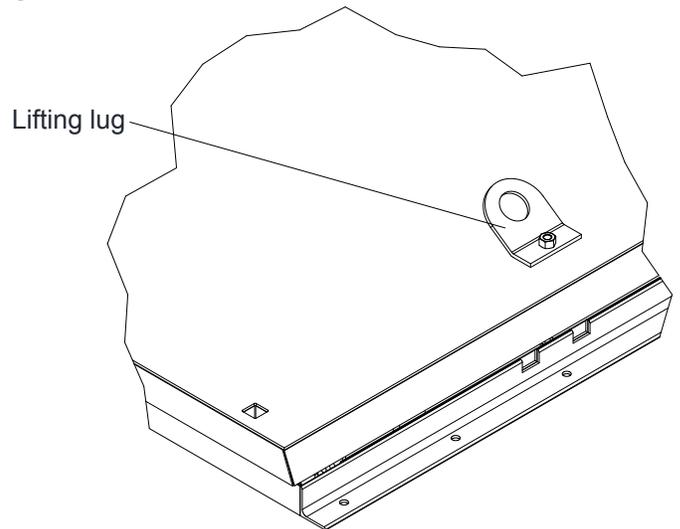
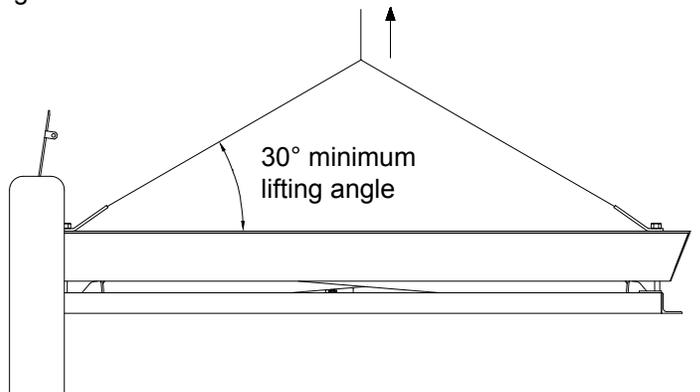


Fig. 3



9. Check for rotation of the hydraulic power unit motor if the unit does not rise after 5 seconds, check the electrical connections to ensure proper wiring. See wiring diagrams on pages 22-26 in this manual for details.
10. Make positioning adjustments to the lift, aligning the platform with 1" clearance around the pit edges.
11. Measure and record the height from the deck surface to the driveway on all four corners. Determine the depth of shims required to have these surfaces be flush. Shims will be added later.
12. Raise the lift approximately 2' by pressing the **UP** pushbutton, **DO NOT raise the lift** to the fully raised position until all the air has been bled from the hydraulic system.
13. Lower the lift by pressing the **DOWN** pushbutton on the pendant and hold the pushbutton for an additional 10 seconds.
14. Repeat this cycle of partially raising and completely lowering the unit about 5 to 10 times, or until the air is bled from the hydraulic system.
15. Completely raise the Dock Lift to the fully raised position.

**▲ WARNING**

***Remove all loads from platform and securely position the maintenance strut or safety stop blocks in the blocking position before entering the pit or doing any work under the Dock Lift. NEVER ENTER the area below the pit without the maintenance strut securely in place.***

16. Engage the maintenance strut or safety stop blocks. See Service Tools section for maintenance strut or safety stop blocks operation.
17. With the maintenance strut or safety stop blocks engaged, prepare to install shims under the base frame. Refer to the dimensions gathered earlier, when the dock lift was fully lowered. See step 11.
18. Shims must be placed under the front and rear of the base frame. Shimming is also required under the entire area of roller travel. Shims must be able to support the base frame while loaded at the full rated capacity.
19. With the shims in place, remove the maintenance strut or safety stop blocks and fully lower the dock lift.

## INSTALLATION, continued

20. Measure and record the height from the deck surface to the driveway on all four corners. These surfaces should now be flush. Determine if more adjustments are required to create a flush surface.
21. If more adjustments are required, repeat steps 15-20. If surfaces are flush, proceed to step 22.
22. Raise the Dock Lift and engage the maintenance strut or safety stop block. Weld the shims in place, attaching them to the base frame.
23. Install the wedge anchors in the anchor point locations of the base frame to the pit floor. See Fig. 4.
24. Locate the sensor cable banded to the base frame. Install the cable connector to the sensor and route the other end through the 1.5" diameter conduit. This cable will serve as the upper travel limit switch and terminates at the panel.
25. Within the panel, connect the sensor cable wires. See wiring diagrams on pages 22-26 in this manual for details. Remove the factory jumper between terminal block 3 and 4. This jumper is no longer required when the limit switch is installed.
26. With the sensor fully installed, raise the Dock Lift to full travel. The system should automatically stop when the sensor has been reached and the hydraulic power unit motor should off. When at full travel, press the UP pushbutton and ensure the motor does not power on.
27. In the event the hydraulic motor stays on while at upper travel, check to ensure proper connections are made within the panel for the limit switch. The switch should be positioned to allow 60" of travel above driveway and prevent the roller from making contact with the mechanical stop. Adjust the position of the limit switch if required. See page 9 for limit switch adjustment detail.
28. Disengage the maintenance strut or safety stop blocks.
29. Lower the Dock Lift to the fully lowered position, again watching closely for any potential interference.
30. Install the hand rails into the sockets on the deck assembly.
31. Attach the bridge lifting chains to the lip assemblies from the hand rails.
32. Attach the safety chains on the hand rails at the front and rear of the Dock Lift. See Fig. 5.

Fig. 4

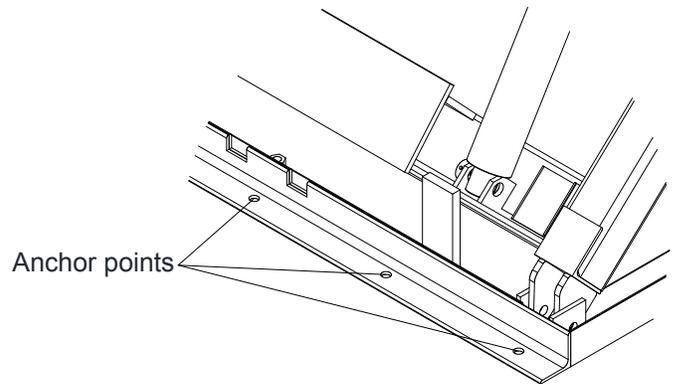
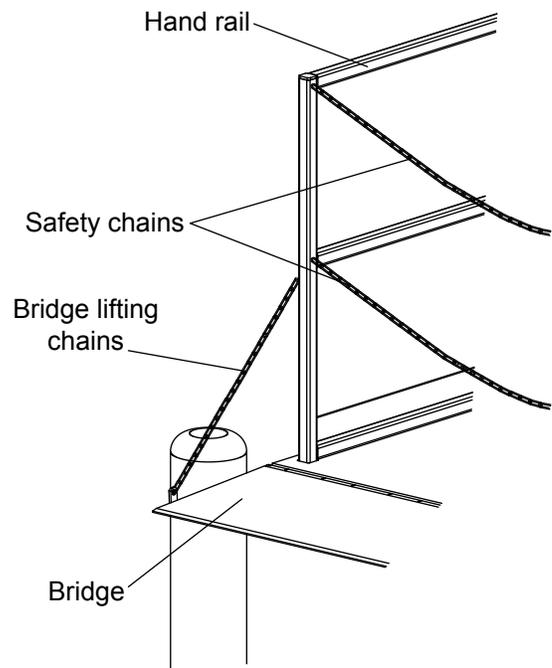


Fig. 5



## UPPER TRAVEL LIMIT SWITCH

The upper travel limit switch sets a stopping point for the Dock Lift. The switch should be set to allow 60" of travel beyond the driveway and prevent the rollers from reaching the mechanical stops.

The switch is factory installed at 60° at the time of shipment. At installation the sensor cable is connected and properly wired to the panel.

## UPPER TRAVEL LIMIT SWITCH ADJUSTMENT (IF REQUIRED)

### **▲ WARNING**

**Remove all loads from platform and securely position the maintenance strut or safety stop blocks in the blocking position before entering the pit or doing any work under the Dock Lift. NEVER ENTER the area below the pit without the maintenance strut securely in place.**

Ensure the cable is connected to the switch and the other end is terminated in the panel before attempting any modifications.

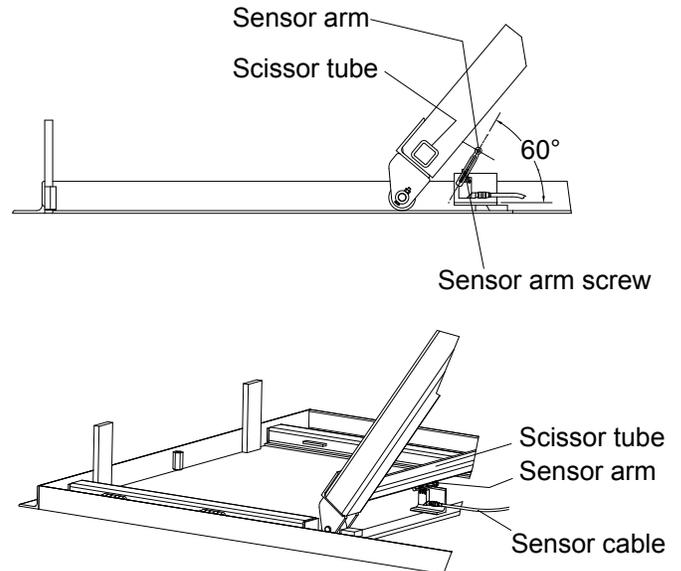
## TO REDUCE TRAVEL

1. Loosen the sensor arm screw and adjust the angle of the sensor arm towards the direction of the roller. See Fig. 6.
2. Tighten the sensor arm screw and test the travel height of the Dock Lift. The travel should be reduced.
3. Repeat steps 1 and 2 if necessary.

## TO EXTEND TRAVEL

1. Loosen the sensor arm screw and adjust the angle of the sensor arm away from the direction of the roller.
2. Tighten the sensor arm screw and test the travel height of the Dock Lift. The travel should be extended.
3. Repeat steps 1 and 2 if necessary.

Fig. 6



# COMPONENTS

If the Dock Lift does not operate properly using the procedures in this manual, DO NOT USE THE DOCK LIFT. Call your local distributor for service.

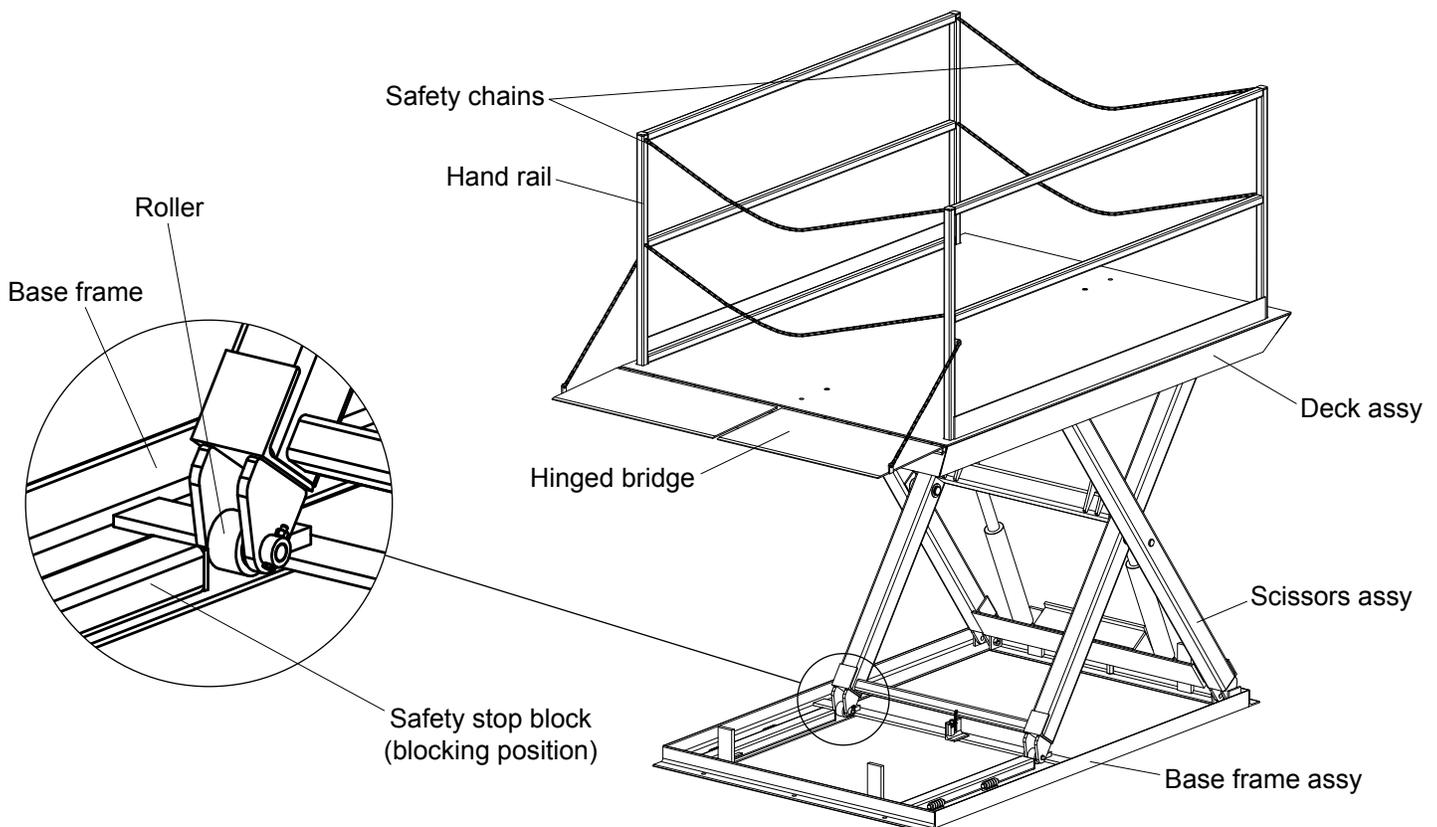
## ▲ WARNING

**Place barricades on the dock floor around the dock pit and in the driveway in front of the pit while installing, maintaining or repairing the Dock Lift.**

**Be certain, before entering the Dock Lift pit or doing any maintenance or repair under the Dock Lift that: 1) The maintenance strut or safety stop blocks are in place. See Service Tools section. 2) The power is disconnected and properly tagged or locked out.**

**If it is necessary to troubleshoot inside the electrical panel with the power on, USE EXTREME CAUTION. Do not place fingers or uninsulated tools inside the electrical panel. Touching wires or other parts inside the electrical panel may cause electrical shock, serious injury or death. All electrical troubleshooting or repair must be done by a qualified technician and must meet applicable codes.**

Fig. 7



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# OPERATING INSTRUCTIONS

## DOCK LIFT OPERATION

Fig. 8

### **▲ WARNING**

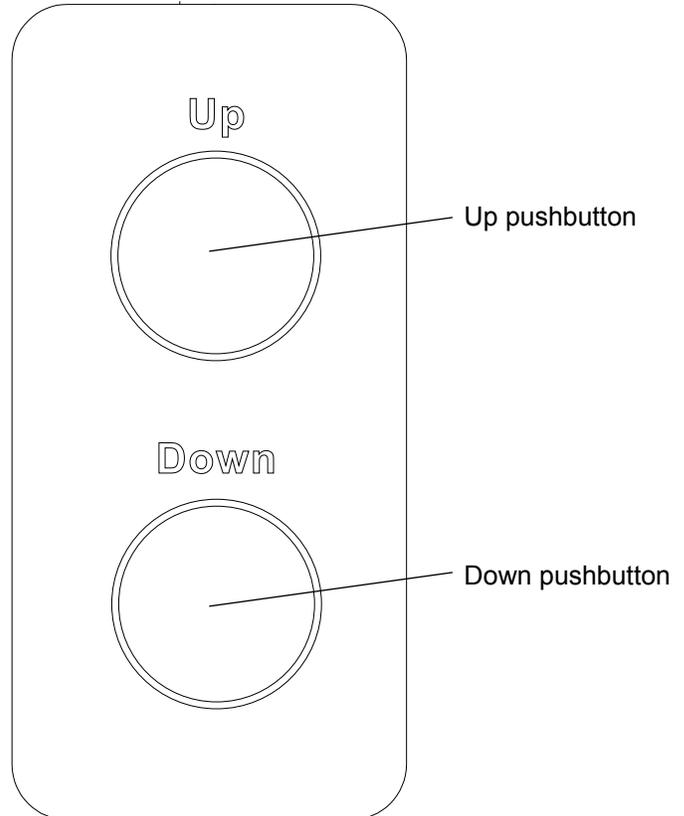
*Before operation read and follow the Safety Practices on pages 3 and 4. Failure to follow these safety practices could result in death or serious injury.*

*Always secure load when using dock lift.*

*Always be certain the vehicle wheels are chocked and the parking brakes are set before loading or unloading. Hinged bridge (lip) must overlap vehicle bed by a minimum 4" (100mm) before use. DO NOT USE BRIDGE IF IT IS SUPPORTED SOLELY BY IT'S LIFTING CHAINS.*

*Always have the handrails and the safety chains secured when moving the deck up or down. Stand clear of moving Dock Lift.*

1. To raise or lower the deck assembly, depress and hold the **UP** or **DOWN** pushbutton until the deck is at the desired height, then release the pushbutton and the dock lift will stop. See Fig. 8.
2. When the **UP** pushbutton is pressed, the motor and pump start, pushing hydraulic oil from the reservoir through the lowering valve and into the cylinder. The dock lift will automatically stop when the upper travel limit switch has been reached
3. Pushing the **DOWN** pushbutton actuates the solenoid operated lowering valve, allowing the hydraulic oil to return to the reservoir along the pressure line and bypass the pump.



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# SERVICE TOOLS

Each Dock Lift is supplied with either a maintenance strut or safety stop blocks depending on application. The following procedures describes the **ONLY** factory approved method of securing access to work under the Dock Lift. Follow this procedure **EVERY** time access is required under the Dock Lift.

## SAFETY STOP BLOCKS

**▲ DANGER**

*Before service of dock lift read and follow the Safety Practices on pages 3 and 4. Failure to follow these safety practices could result in death or serious injury.*

*Use is restricted to trained operators. Remove all loads from platform and securely position the maintenance strut or safety stop blocks before entering the pit or doing any work under the Dock Lift. NEVER ENTER the area below the pit without the safety stop blocks securely in place.*

*Do not replace or remove hydraulic components until the maintenance strut or safety stop blocks are securely in place and hydraulic pressure has been removed from the lifting cylinders and hoses.*

*Under no circumstances should the lowering valve be altered or removed to obtain faster lowering speeds. Such modification could result in death or serious injury.*

*If the factory supplied maintenance strut or safety stop blocks have been damaged or is not present, stop work immediately and contact your local distributor.*

1. Remove all loads from the Dock Lift prior to placing the safety stop blocks in place. Fig. 9

**▲DANGER**

**Failure to remove the load from the Dock Lift could allow the lift to fall unexpectedly or the load could shift suddenly causing permanent damage or death.**

2. Press the **UP** pushbutton raising the Dock Lift to its fully raised position. This must be done to fully engage the safety stop blocks in the designed blocking position.
3. The stop blocks are pinned to the base frame on the roller end of the Dock Lift. Rotate the safety stop blocks 180° from the stored position to a location impeding the travel of the roller. See Fig. 9.
4. Press and hold the **DOWN** pushbutton, lowering the Dock Lift until it makes contact with the safety stop blocks. Ensure the safety stop blocks are making full contact with the base frame and scissor roller. See Fig. 10.

**▲DANGER**

**If both the safety stop blocks are not fully engaged the lift could fall unexpectedly resulting in death or serious injury.**

**Consult the factory immediately if the lift will not lower completely onto the safety stop blocks. Failure to properly use the factory installed maintenance strut could result in death or serious injury.**

5. With the safety stop blocks in the fully engaged position, continue to press the **DOWN** pushbutton for an additional 5 seconds to ensure all hydraulic pressure has been removed from the system.

**▲DANGER**

**Failure to remove system pressure could result in the sudden or unexpected release of pressure during maintenance operations. This unexpected release of pressure could result in death or serious injury.**

6. Follow OSHA lockout/tagout procedures to communicate the required maintenance. Disconnect and tag all power sources to prevent unexpected use of the Dock Lift.

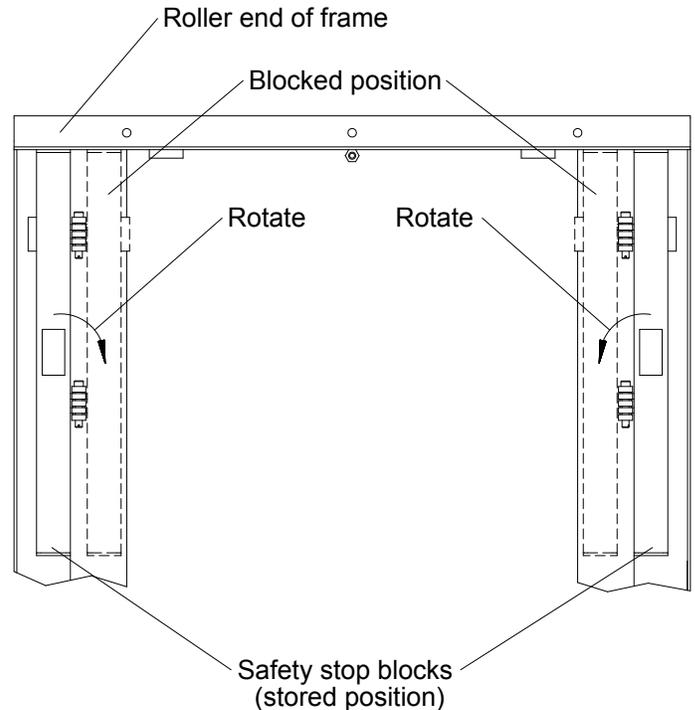
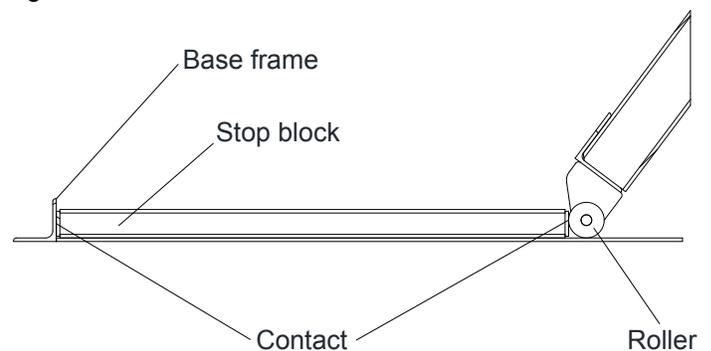


Fig. 10



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## SERVICE TOOLS, continued

### ▲ DANGER

**Failure to follow OSHA lockout/tagout procedures could allow unauthorized use of the equipment, resulting in death or serious injury.**

7. At the completion of the inspection or maintenance, supply power back to the electrical panel.
8. Raise the Dock Lift to the fully raised position.
9. Rotate the stop blocks to their stored position.
10. Lower the Dock Lift to the fully lowered position.
11. Remove the lockout/tagout devices to communicate completion of the work.

### MAINTENANCE STRUT

#### ▲ WARNING

**Use is restricted to trained operators. Remove all loads from platform and securely insert the maintenance strut in the supporting position before entering the pit or doing any work under the Dock Lift. NEVER ENTER the area below the pit without the maintenance strut securely in place.**

**The following procedure describes the ONLY factory approved method of securing access to work under the Dock Lift. Follow this procedure EVERY time access is required under the Dock Lift.**

**If the factory supplied maintenance strut or safety stop blocks have been damaged or is not present, stop work immediately and contact your local distributor.**

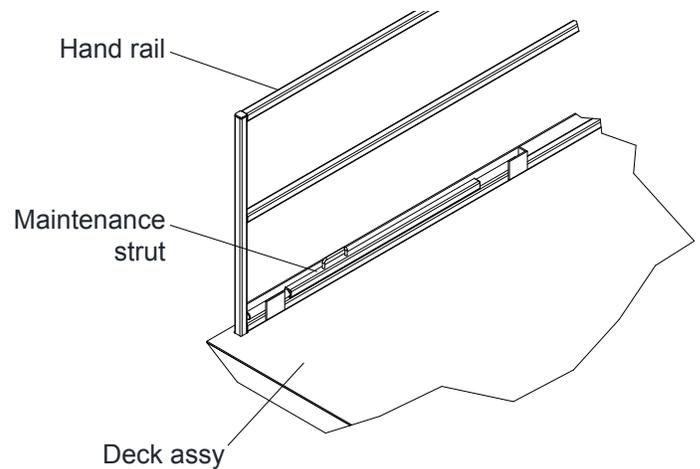
1. Remove all loads from the Dock Lift prior to placing the maintenance strut in place.

### ▲ DANGER

**Failure to remove the load from the Dock Lift could allow the lift to fall unexpectedly or the load could shift suddenly causing permanent damage or death.**

2. Remove the maintenance strut from the stored position for this device. See Fig. 11.

Fig. 11



## SERVICE TOOLS, continued

3. Press the **UP** pushbutton raising the Dock Lift to its fully raised position. This must be done to fully engage the maintenance strut into the upper and lower sockets.
4. With the dock lift fully raised, insert the maintenance strut into the lower socket. See Fig. 12.
5. Push the **DOWN** pushbutton, gradually lowering the Dock Lift while holding the maintenance strut vertically. Guide the strut into the upper socket. The deck should stop lowering when the strut is fully engaged. Before proceeding, ensure the maintenance strut is fully engaged in both upper and lower sockets. See Fig. 12 and 13.

### **▲ DANGER**

**Consult the factory immediately if the lift will not lower completely onto the maintenance strut. Failure to properly use the factory approved maintenance strut could result in severe injury or death.**

6. With the maintenance strut fully engaged, continue to press the **DOWN** pushbutton for an additional 5 seconds to ensure all hydraulic pressure has been removed from the system.

### **▲ DANGER**

**Failure to remove system pressure could result in the sudden or unexpected release of pressure during maintenance operations. This unexpected release of pressure could result in severe injury or death.**

7. Follow OSHA lockout/tagout procedures to communicate the required maintenance. Disconnect and tag all power sources to prevent unexpected use of the Dock Lift.
8. At the completion of the inspection or maintenance work, supply power back to the electrical panel.
9. Raise the Dock Lift to the fully raised position.
10. Remove the maintenance strut from the lower socket and set aside, away from the lift area.
11. Lower the dock lift to the fully lowered position.
12. Place the maintenance strut in the stored location on the hand rail. See Fig. 11.
13. Remove the lockout/tagout devices to communicate completion of the work.

Fig. 12

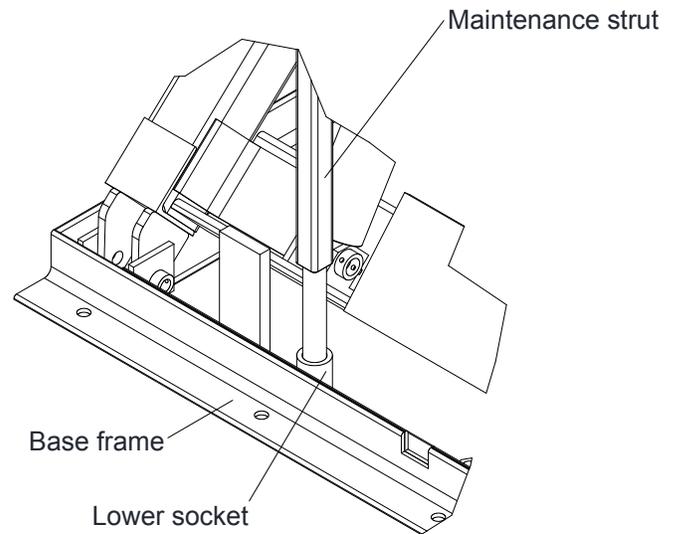
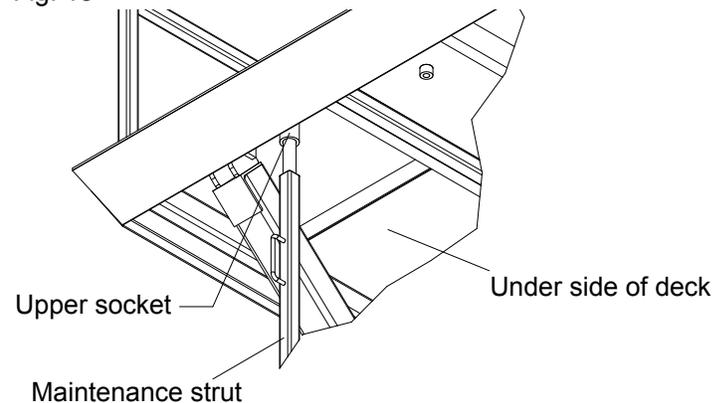


Fig. 13



# TROUBLESHOOTING

## ▲ DANGER

**Be certain, before doing any maintenance or repair under the Dock Lift that 1) The maintenance strut or safety stop blocks are in place. See Service Tools section. 2) The power is disconnected and properly tagged or locked out.**

**Stand clear of moving dock lift.**

## ▲ WARNING

**Before servicing the dock lift, read and follow the Safety Practices on page 3 and 4, and the Operation instruction section on page 11 of this User's manual. Failure to do so could result in death or serious injury.**

## NOTE:

This troubleshooting section assumes that the dock lift has been installed properly and that all electrical and hydraulic connections have been made correctly. If this is a new installation or electrical or hydraulic work has been done on the unit, refer to the appropriate schematics and/or instructions to verify that the unit is installed correctly.

PROBLEM	POSSIBLE CAUSE	SOLUTION
1. Dock Lift motor fails to operate	<ul style="list-style-type: none"> <li>a) Installation connections are not made.</li> <li>b) Motor not wired properly.</li> <li>c) Upper travel limit switch has been met.</li> </ul>	<ul style="list-style-type: none"> <li>a) Check to ensure all installation connections are made.</li> <li>b) Ensure motor wiring and polarity are correct. Motor should turn clockwise.</li> <li>c) Motor will not run if limit has been met. If further travel is needed, adjust limit switch.</li> </ul>
2. Motor and pump operate, but Dock Lift fails to raise.	<ul style="list-style-type: none"> <li>a) Obstruction preventing upward travel.</li> <li>b) Unit is overloaded.</li> <li>c) Relief valve set too low.</li> <li>d) Solenoid is in the manual override position.</li> </ul>	<ul style="list-style-type: none"> <li>a) Check area to ensure obstructions are not present. Remove debris or obstructions if present.</li> <li>b) Ensure Dock Lift is not loaded above rated capacity. Remove load, if overloaded.</li> <li>c) Check pressure gauge to read system pressure. Adjust relief setting, allowing the dock lift to raise the rated capacity.</li> <li>d) Return solenoid valve to the normal position. Push solenoid button in and twist clockwise, then release.</li> </ul>
3. Motor chatters and Dock Lift fails to raise.	<ul style="list-style-type: none"> <li>a) Contactor not fully pulling in.</li> </ul>	<ul style="list-style-type: none"> <li>a) Push contactor in manually to confirm. Replace contactor if necessary. See Contactor Troubleshooting on page 15.</li> </ul>

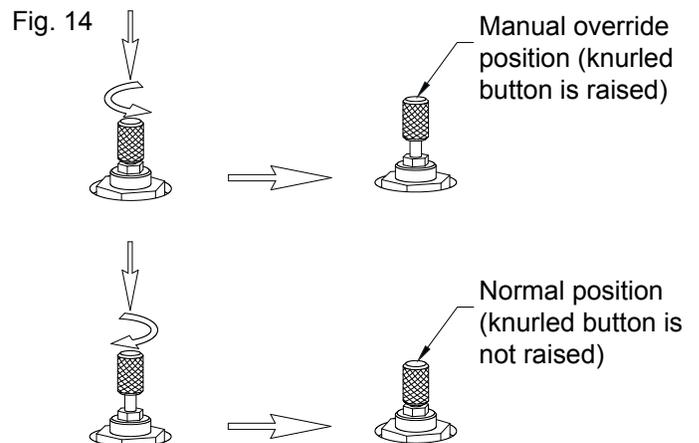
# TROUBLESHOOTING, continued

PROBLEM	POSSIBLE CAUSE	SOLUTION
4. Dock lift fails to lower.	a) Obstruction preventing downward travel.  b) Faulty solenoid.  c) Velocity fuses have been triggered.	a) Check area to ensure obstructions are not present. Remove debris or obstructions if present.  b) Check to ensure solenoid is energized when attempting to lower. Replace solenoid or coil, if required.  c) Raise Dock Lift to reset velocity fuses and attempt to lower again.
5. Dock Lift fails to maintain height	a) Hoses or fittings are leaking  b) Solenoid valve may be sticking.  c) Check valve may be sticking.	a) Check for presence of oil from fittings or hoses. Tighten or replace hoses immediately.  b) Lower the Dock Lift to the lowered position. Remove solenoid valve and blow it clean and re-install.  c) Lower the Dock Lift to the lowered position. Remove check valve and blow it clean and re-install.
6. System pressure is at full relief pressure when Dock Lift is fully raised.	a) Upper travel limit switch not set correctly.  b) Upper travel limit switch malfunctioning.	a) Adjust sensor position to trigger before Dock Lift reaches full height.  b) Check to ensure switch is connected and sending the proper signal. Manually engage the switch by rotating the sensor arm at least 25° from the relaxed position while another person checks panel for signal. Refer to panel schematics for location details.

## CONTACTOR TROUBLESHOOTING

Solenoid valve will remain open, allowing hydraulic fluid to flow back to the reservoir. To override, push button in and twist counter-clockwise, then release. See Fig. 14.

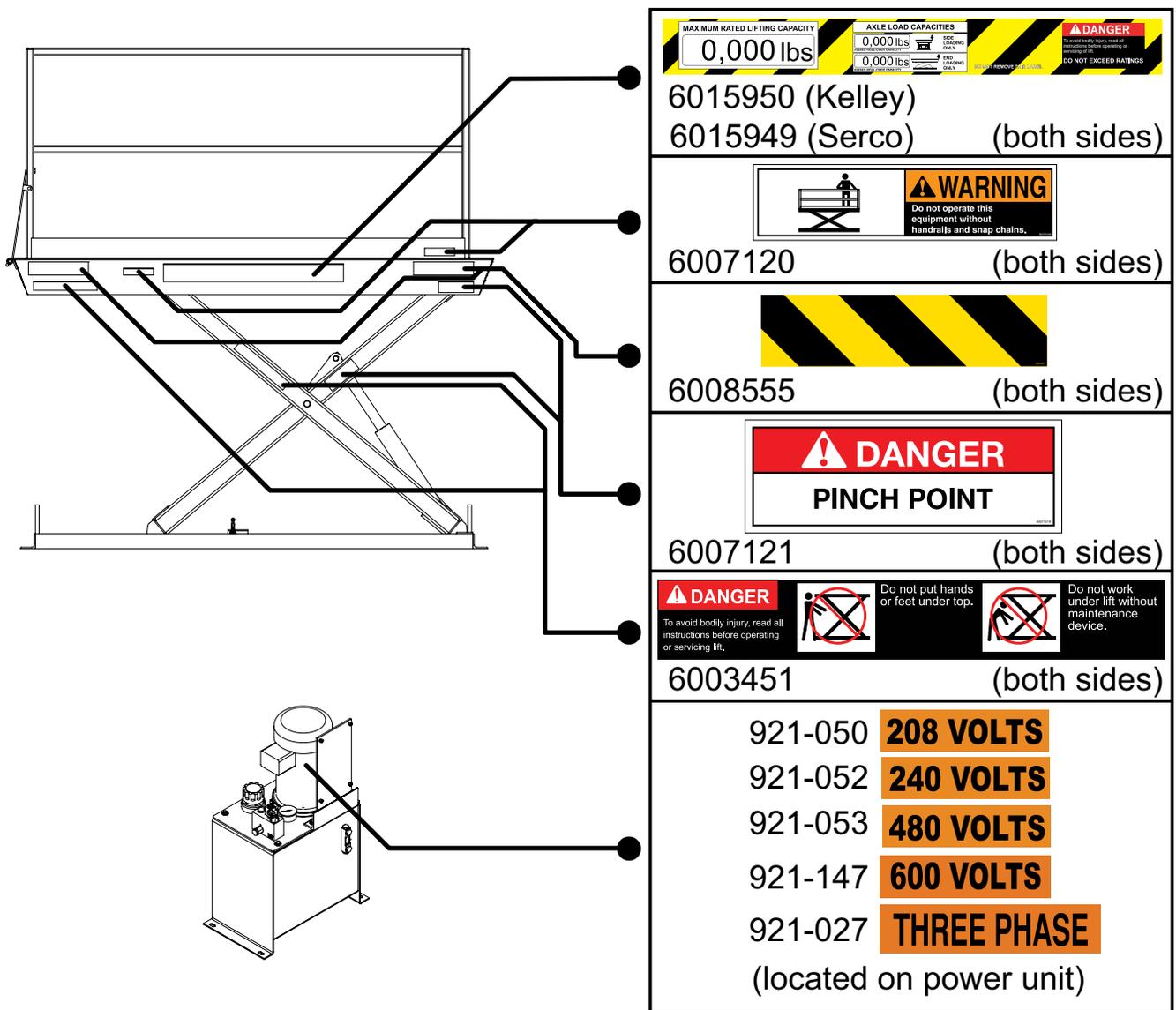
Solenoid valve will return to the normally closed position. To return to normal operation, push button in and twist clockwise, then release. See Fig. 14.



# PLANNED MAINTENANCE

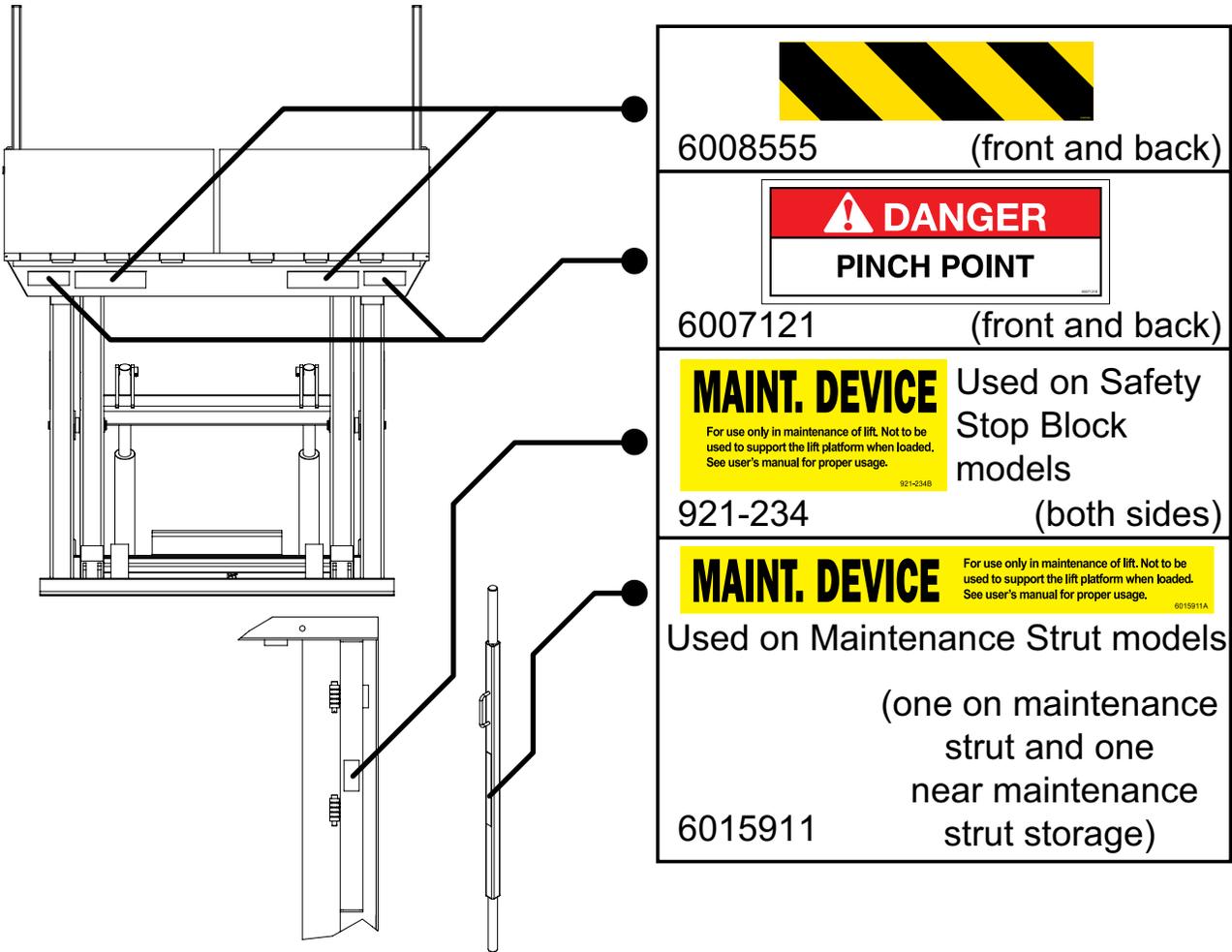
Every 90 days inspect all safety labels and tags to ensure they are on the dock lift and are easily legible. If any are missing or require replacement, please call your local distributor.

Fig. 15



# PLANNED MAINTENANCE

Fig. 16



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## PLANNED MAINTENANCE, continued

### **▲ DANGER**

*Be certain, before doing any maintenance or repair under the Dock Lift that 1) The maintenance strut or safety stop blocks are in place. See Service Tools section. 2) The power is disconnected and properly tagged or locked out.*

*Stand clear of moving dock lift.*

### **▲ WARNING**

*Before servicing the dock lift, read and follow the Safety Practices on page 3 and 4, and the Operation instruction section on page 11 of this User's manual. Failure to do so could result in death or serious injury.*

### **NOTICE**

*Use only lubricants specified in this manual. Improper lubrication or adjustments may cause operational problems.*

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#### MONTHLY

1. Check pit area for debris and remove potential hazards before lowering the Dock Lift.
2. Check pit area for a flooded condition. Clear drain area to remove standing water.

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#### QUARTERLY

1. Grease the lip hinges and safet clock hinges, use general purpose grease.
2. Check rollers for any signs of damage. If any damage is apparent, replace rollers immediately.
3. Check hoses and fittings for cracks and leaks.
4. Clean accumulated dirt and grease from hoses so that cracks and leaks can be easily identified.
5. Inspect all safety labels and tags. Replace if necessary. See page 18 and 19 for safety label locations.
6. Check fluid level of hydraulic reservoir. Use only Mobil Aero HFA (49011), Exxon Unavis Grade J13, Texaco Aircraft Oil #1537BB or U.S. Oil Co., Inc. #5606 (low temp.)

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#### ANNUALLY

1. Drain, flush and change oil. Use only Mobil Aero HFA (49011), Exxon Unavis Grade J13, Texaco Aircraft Oil #1537BB or U.S. Oil Co., Inc. #5606 (low temp.)
2. Remove and clean hydraulic oil pump strainer.
3. Clean inside of reservoir of any debris from old oil.

# PLANNED MAINTENANCE, continued

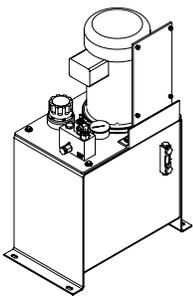
Fig. 17

**Hydraulic Fluid** – An all weather hydraulic fluid with a viscosity of 15 CSt at 40°C (100°F), such as:

- Mobil Aero HFA (49011)**
- Exxon Univis: HV13, N15, J13**
- Texaco Aircraft Oil #1554**
- U.S. Oil Co., Inc. # ZFI-5606 (low temp.)**

Legend	
Symbol	Description
	<b>Lubricate - oil</b> Light oil - SAE 30
	<b>Lubricate - grease</b> Molybdenum disulfide NLGI #2
	<b>Cleaning</b> (Location - frequency)
	<b>Visually inspect</b> (Replace damaged or worn)

  
Visually inspect  
holes and cables  
(not shown)



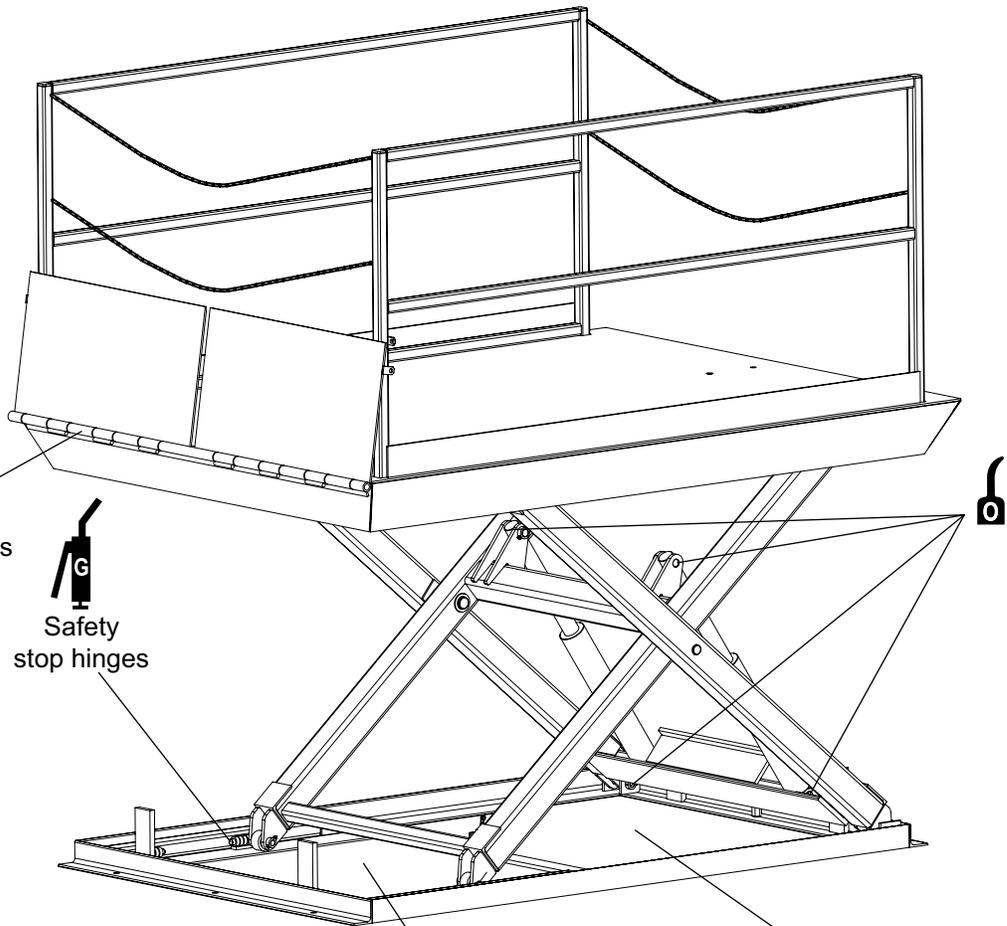
  
Hydraulic reservoir  
(replace oil annually  
and inspect level  
quarterly.)

  
Lip hinges

  
Safety  
stop hinges

  
Clean debris from  
pit area as required

  
Visually inspect  
pit area for debris daily

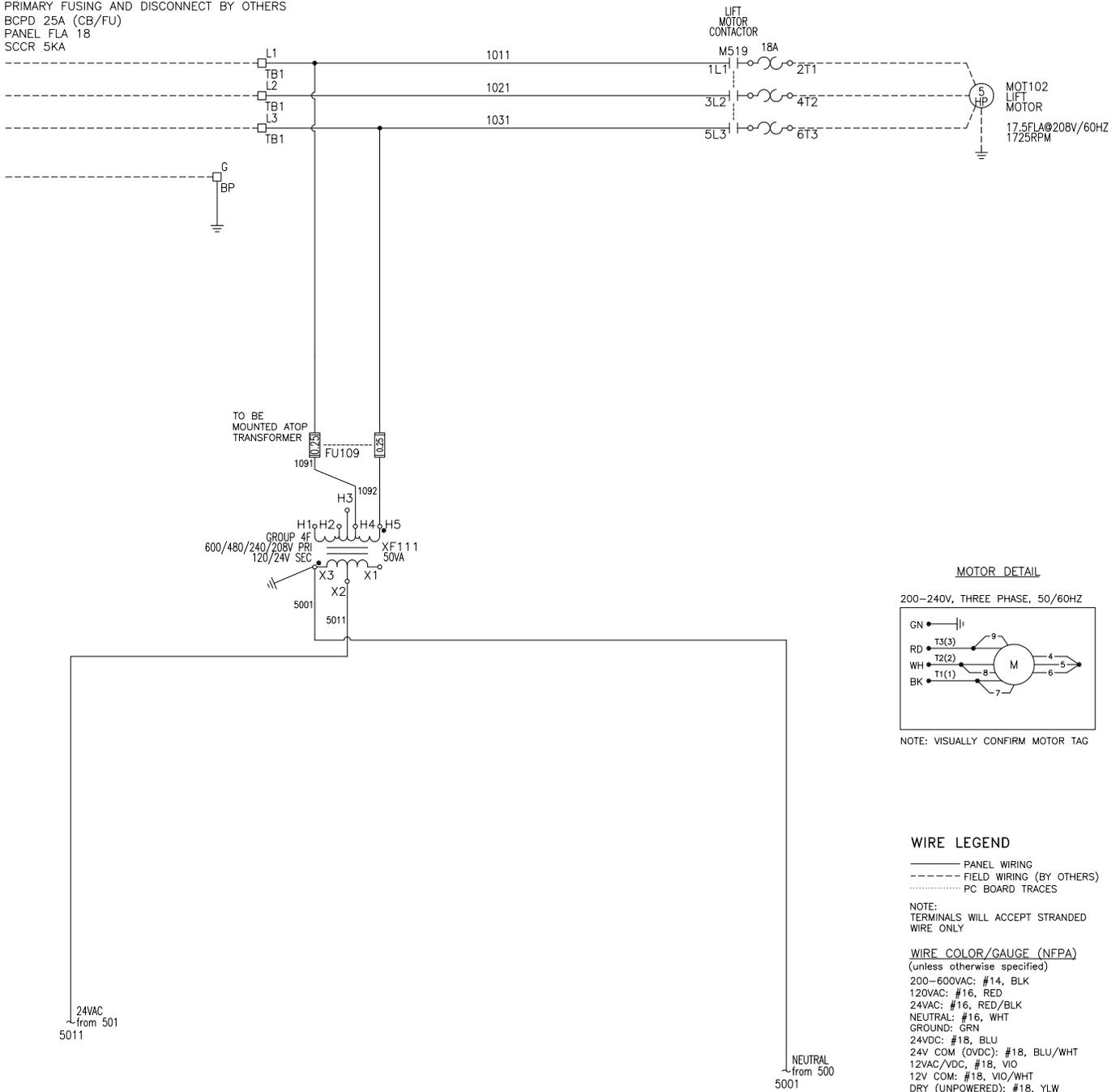


# WIRING DETAILS

Fig. 18

208V/3 $\phi$ /60HZ

PRIMARY FUSING AND DISCONNECT BY OTHERS  
BCPD 25A (CB/FU)  
PANEL FLA 18  
SCCR 5KA

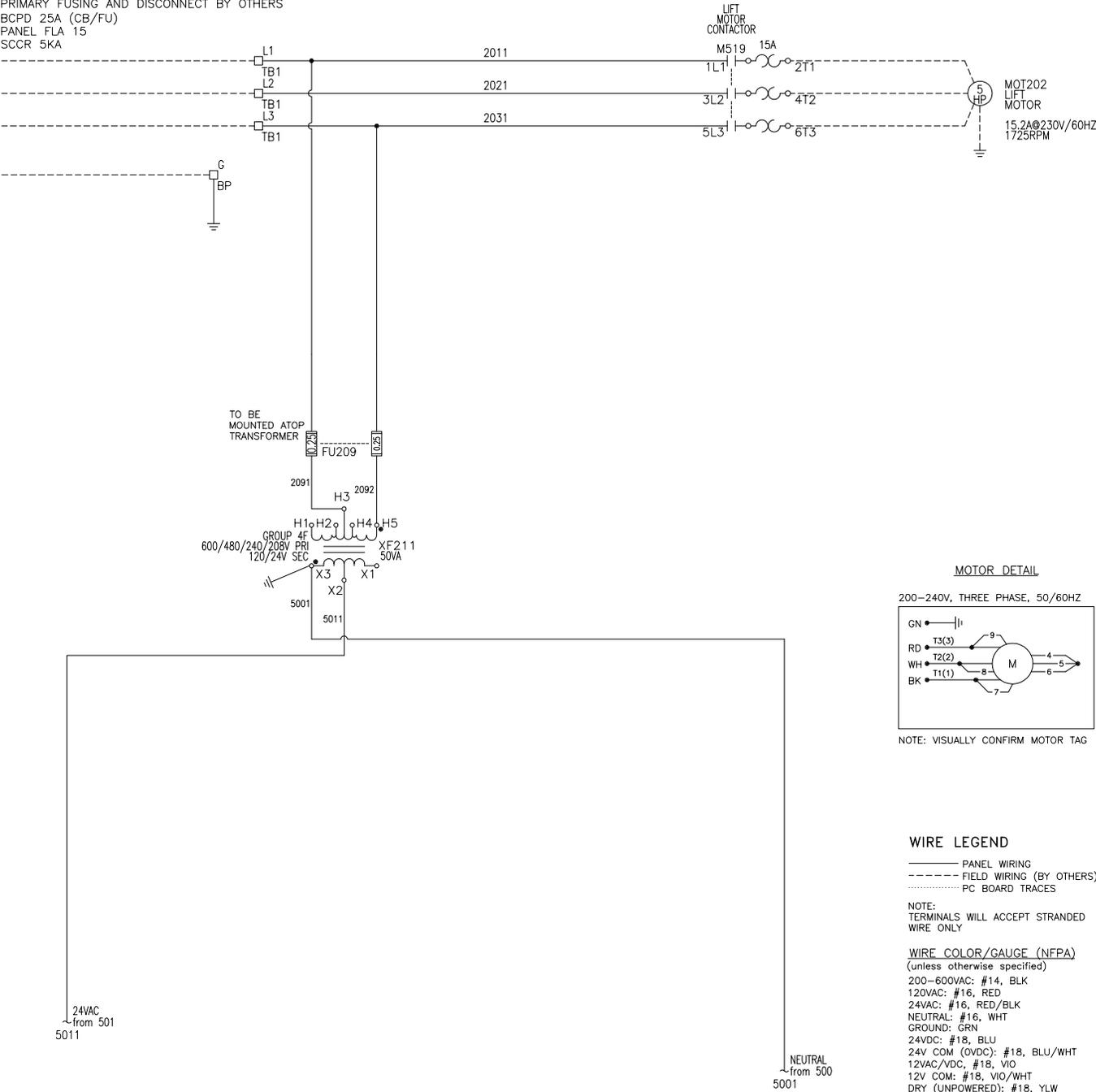


# WIRING DETAILS, continued

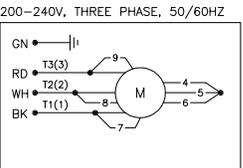
Fig. 19

230-240V/3 $\phi$ /60HZ

PRIMARY FUSING AND DISCONNECT BY OTHERS  
BCPD 25A (CB/FU)  
PANEL FLA 15  
SCCR 5KA



**MOTOR DETAIL**



NOTE: VISUALLY CONFIRM MOTOR TAG

**WIRE LEGEND**

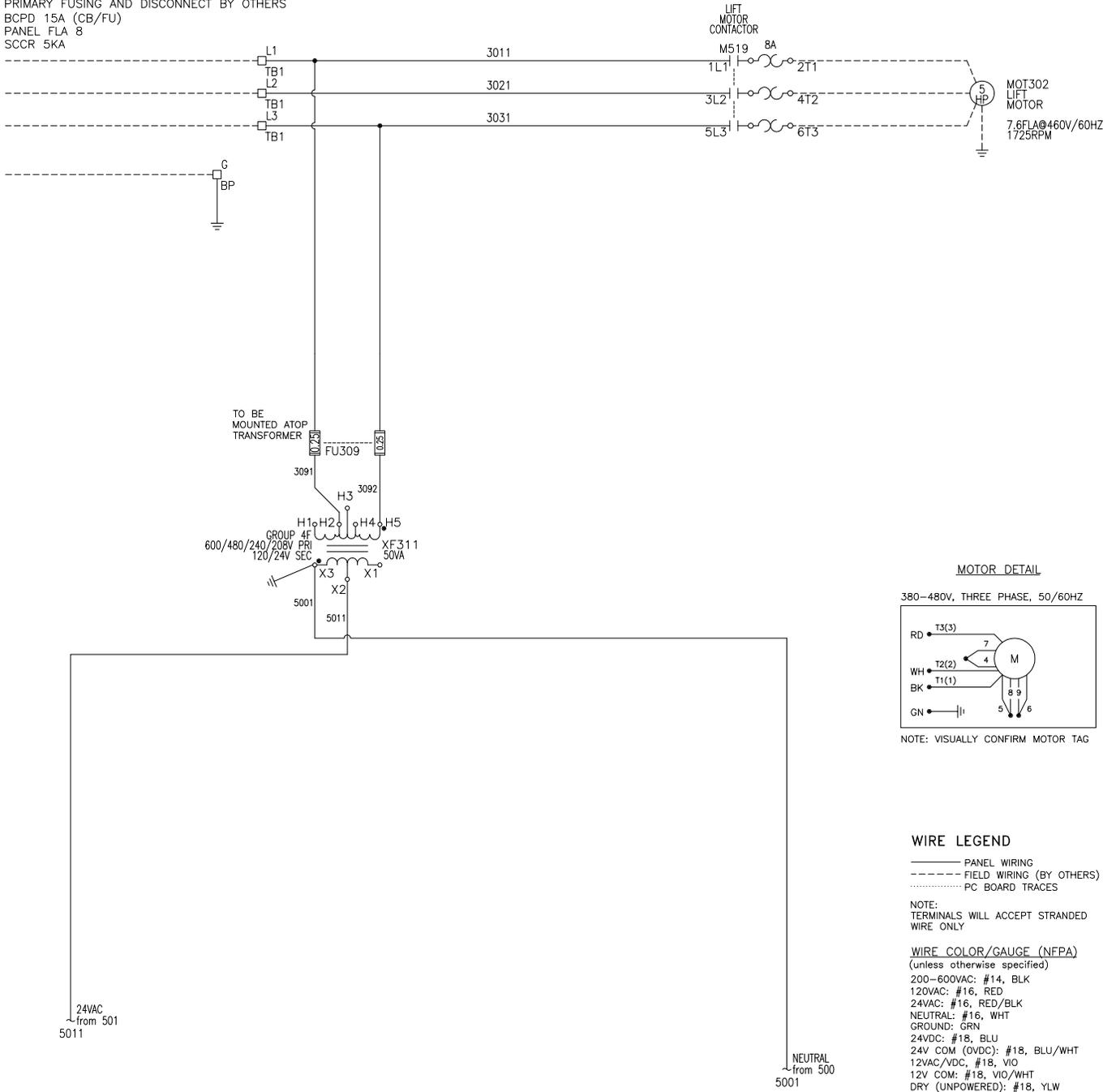
- PANEL WIRING
  - - - - - FIELD WIRING (BY OTHERS)
  - ..... PC BOARD TRACES
- NOTE:  
TERMINALS WILL ACCEPT STRANDED WIRE ONLY
- WIRE COLOR/GAUGE (NFPA)  
(unless otherwise specified)
- 200-600VAC: #14, BLK
  - 120VAC: #16, RED
  - 24VAC: #16, RED/BLK
  - NEUTRAL: #16, WHT
  - GROUND: GRN
  - 24VDC: #18, BLU
  - 24V COM (OVDC): #18, BLU/WHT
  - 12VAC/VDC: #18, VIO
  - 12V COM: #18, VIO/WHT
  - DRY (UNPOWERED): #18, YLW

# WIRING DETAILS, continued

Fig. 20

460-480V/3 $\phi$ /60HZ

PRIMARY FUSING AND DISCONNECT BY OTHERS  
BCPD 15A (CB/FU)  
PANEL FLA 8  
SCCR 5KA

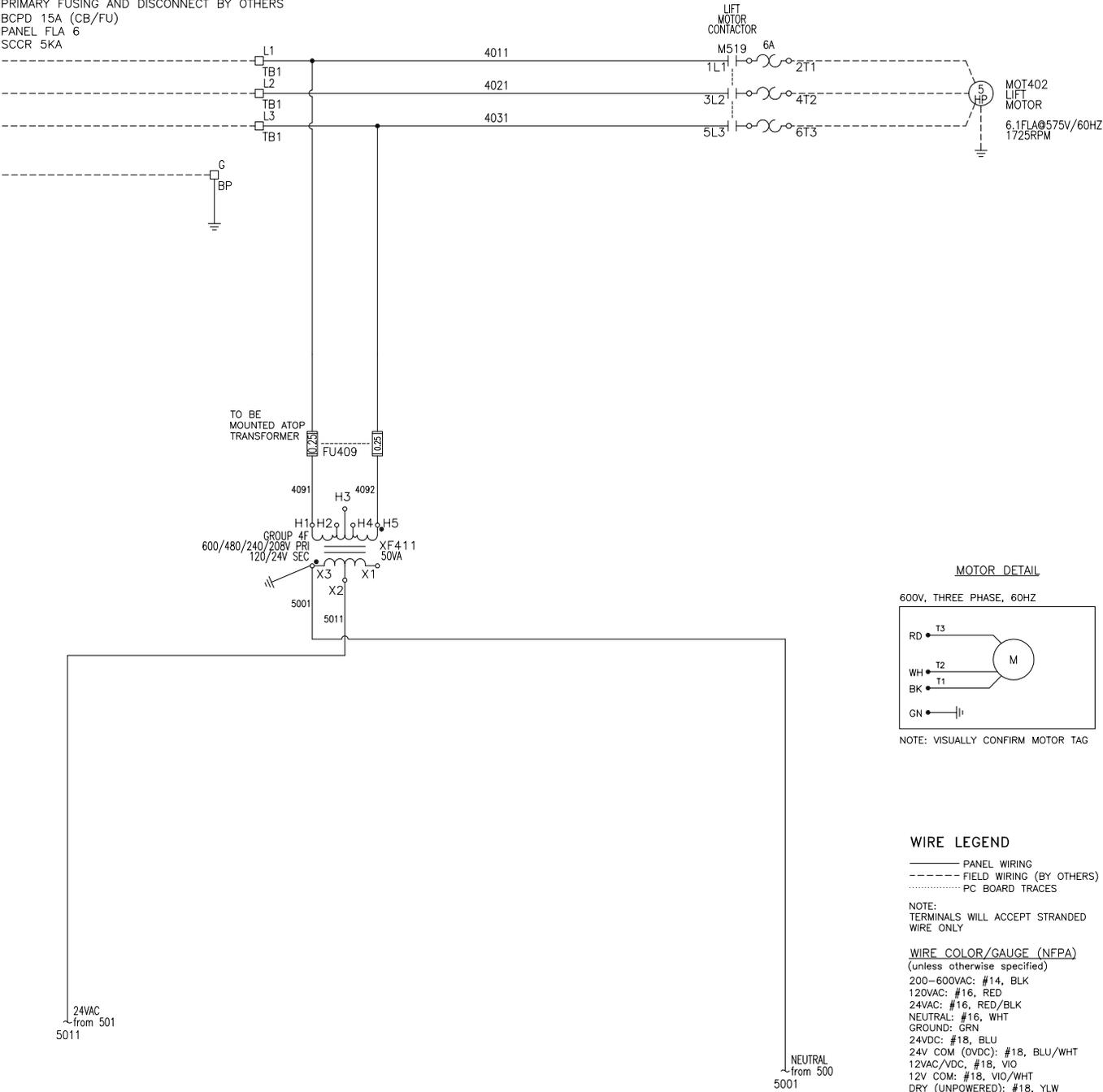


# WIRING DETAILS, continued

Fig. 21

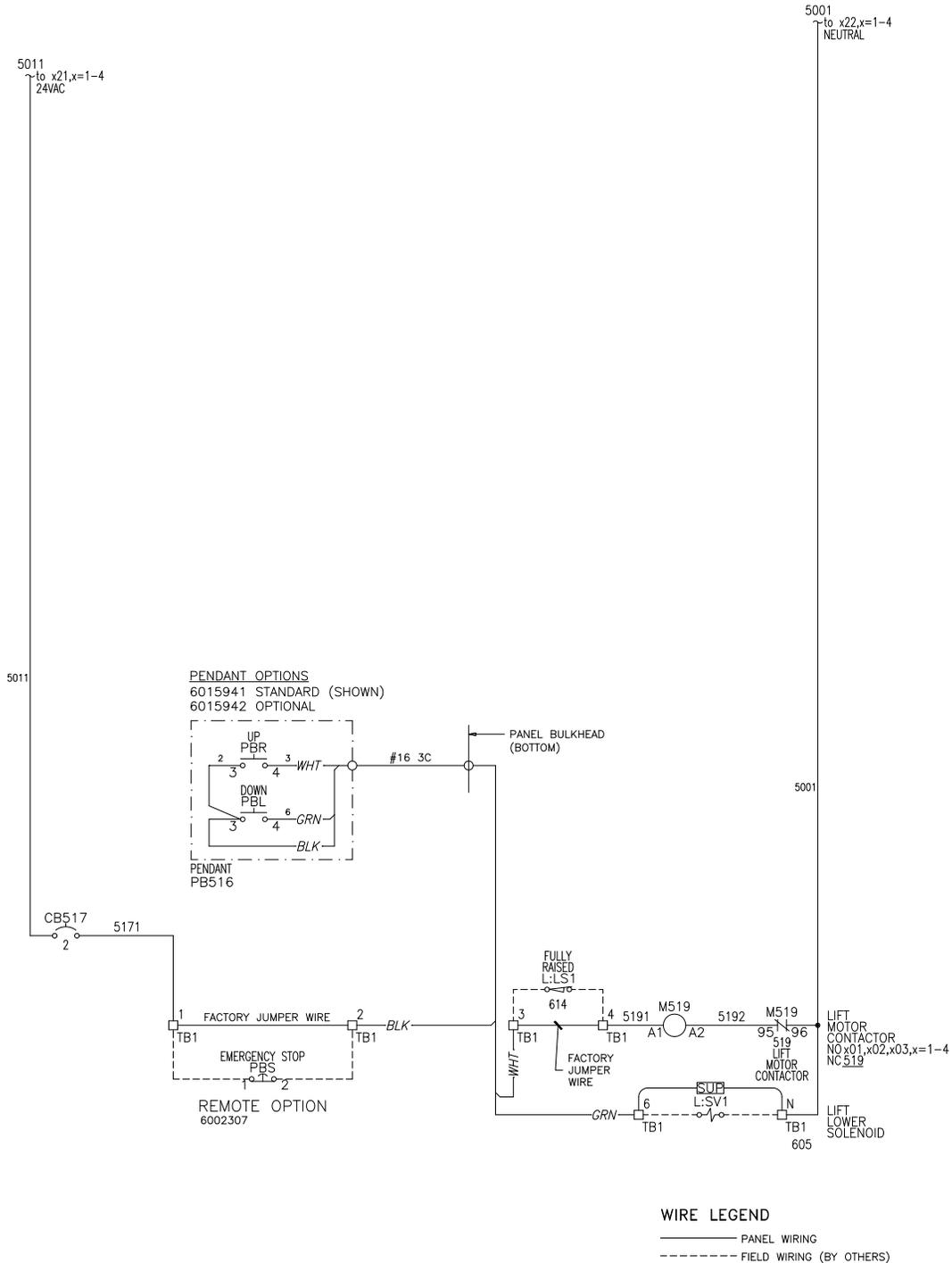
575-600V/3 $\phi$ /60HZ

PRIMARY FUSING AND DISCONNECT BY OTHERS  
BCPD 15A (CB/FU)  
PANEL FLA 6  
SCCR 5KA



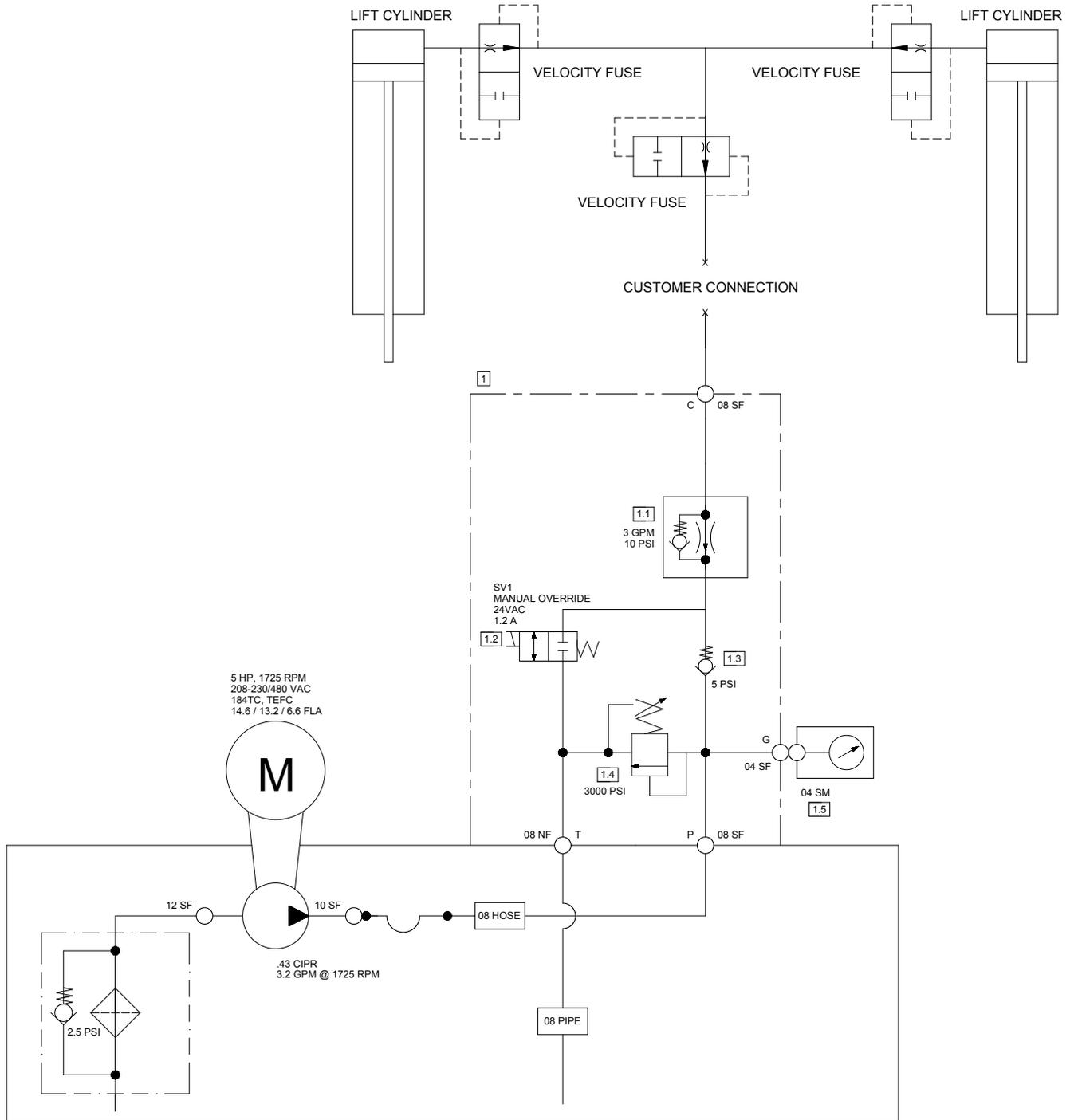
# WIRING DETAILS, continued

Fig. 22



# HYDRAULIC SCHEMATIC

Fig. 23

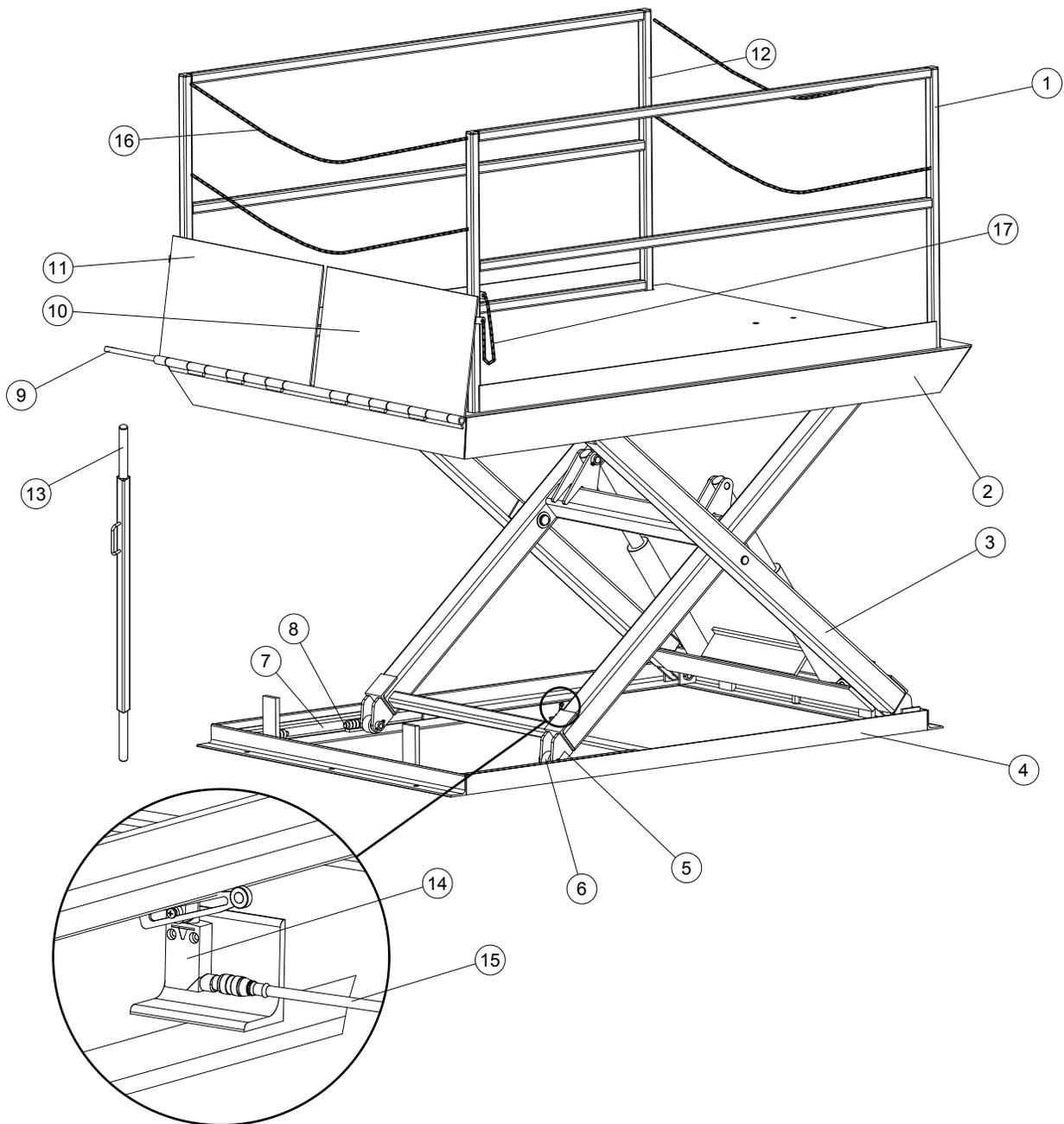


# PARTS LIST — DOCK LIFT

## ⚠ WARNING

To ensure proper function, durability and safety of the product, only replacement parts that do not interfere with the safe, normal operation of the product must be used. Incorporation of replacement parts or modifications that weaken the structural integrity of the product, or in a way alter the product from its normal working condition at the time of purchase could result in product malfunction, breakdown, premature wear, death or serious injury.

Fig. 24



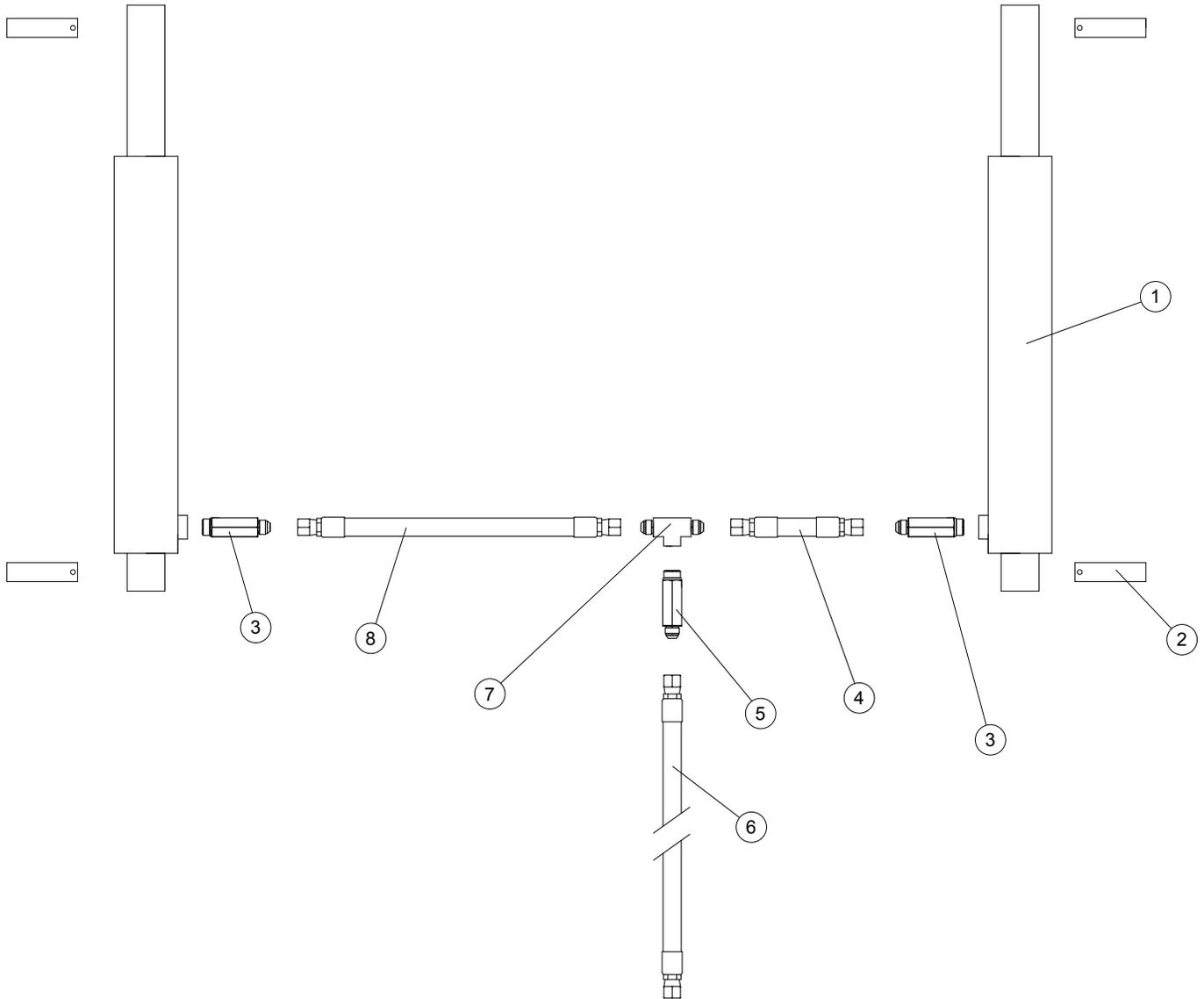
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## PARTS LIST — DOCK LIFT, continued

Item	Quantity	Part Description	Part Number
1	1	HAND RAIL ASSY, RH — SAFETY STOP BLOCKS MODELS HAND RAIL ASSY, RH — MAINTENANCE STRUT MODELS	6009660 6015971
2	1	DECK ASSY, 6x8-5K	6019643
3	1	SCISSORS ASSY, 6x8-5K	6015139
4	1	BASE FRAME ASSY, 6x8	6015147
5	4	ROLLER PIN	6012213
6	4	ROLLER	6015148
7	2	SAFETY BLOCK ASSY	6012238
8	4	SAFETY BLOCK PIN	6001348
9	1	LIP ROD, 6' WIDE	6015146
10	1	LIP ASSY, 18" x 35", RH	6015145
11	1	LIP ASSY, 18" x 35", LH	6015144
12	1	HAND RAIL ASSY, LH	6015140
13	1	MAINTENANCE STRUT	6015968
14	1	LIMIT SWITCH, UPPER TRAVEL	6018438
15	1	SENSOR CABLE, 10M	6009141
16	4	SAFETY CHAIN ASSY	6015969
17	2	BRIDGE CHAIN ASSY	6015970

# PARTS LIST — HYDRAULICS

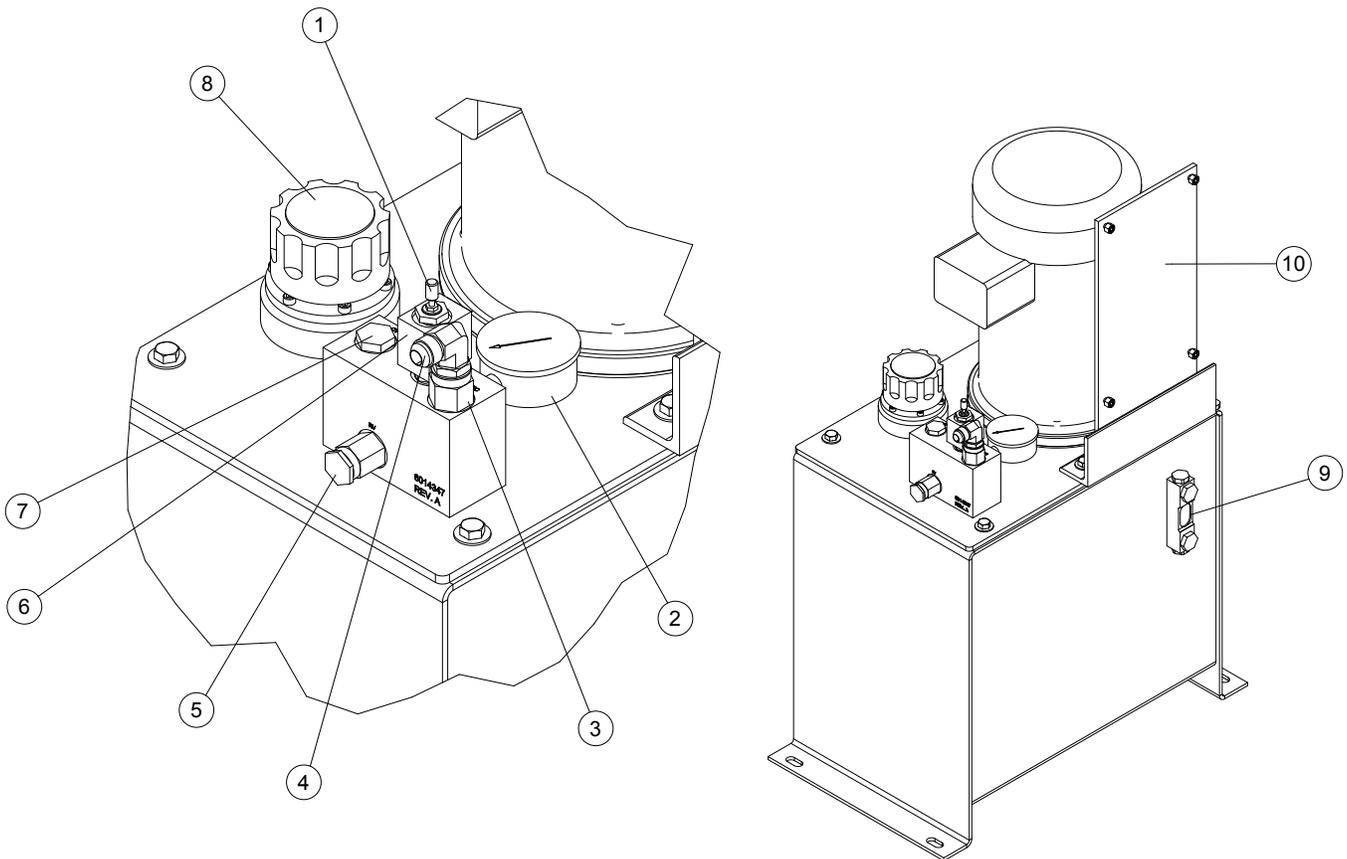
Fig. 25



Item	Quantity	Part Description	Part Number
1	1	HYDRAULIC CYLINDER, 28" STROKE	6012524
2	4	CYLINDER PIN	6008405
3	2	10 GPM VELOCITY FUSE	313239
4	1	HOSE ASSY, 17" LONG	6013712
5	1	VELOCITY FUSE, 5 GPM	6015299
6	1	HOSE ASSY, 24' LONG	6006657
7	1	HYDRAULIC TEE	6015951
8	1	HOSE ASSY, 7" LONG	6013711

# PARTS LIST — HYDRAULIC POWER UNIT

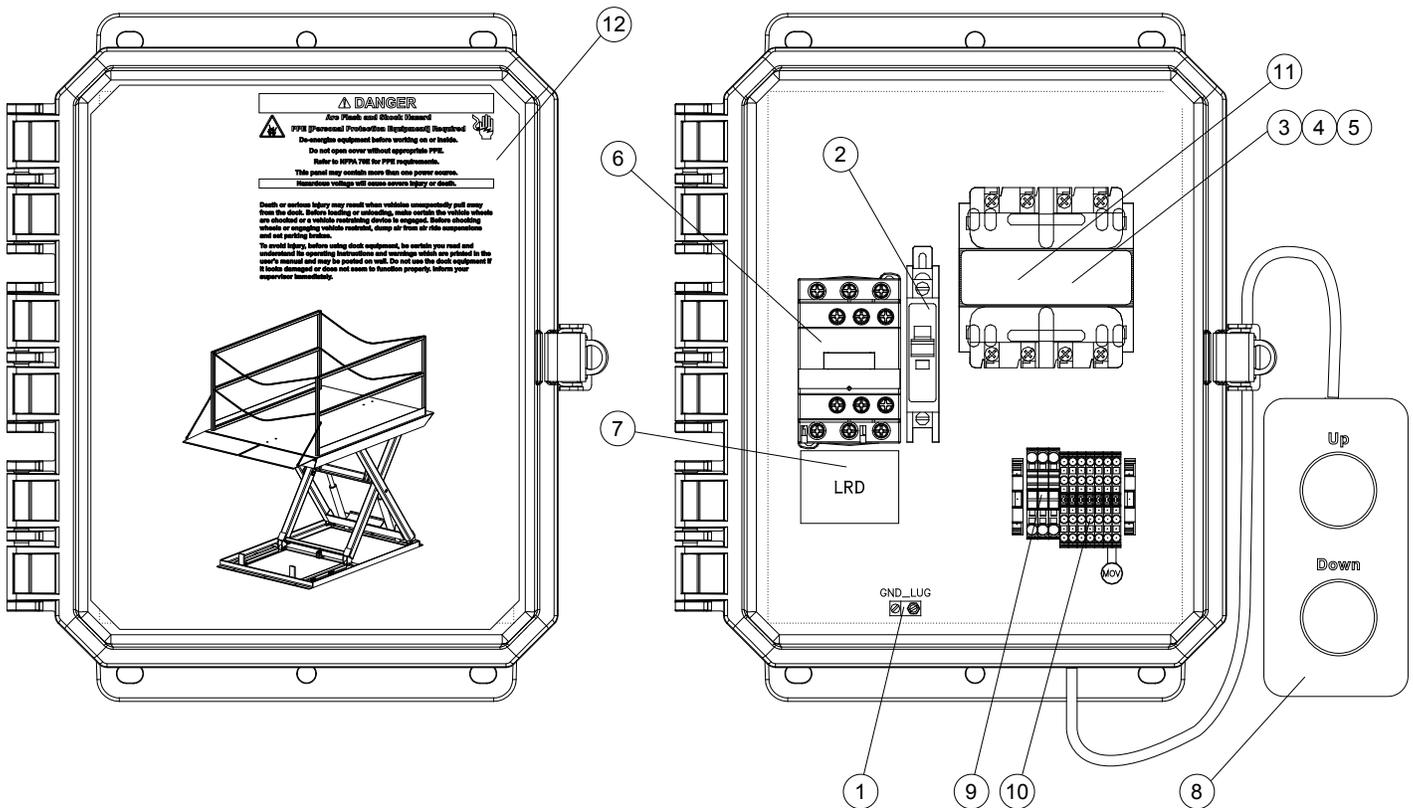
Fig. 26



Item	Quantity	Part Description	Part Number
1	1	SOLENOID VALVE, MANUAL LOWERING	6014304
2	1	PRESSURE GAUGE, 0-5000 PSI	6014324
3	1	PRESSURE COMPENSATED FLOW CONTROL	6014573
4	1	-8 JIC CONNECTOR ELBOW	6014850
5	1	RELIEF VALVE	6014574
6	1	SOLENOID COIL	6014572
7	1	CHECK VALVE	6014575
8	1	BREATHER ASSY	6014315
9	1	LIQUID LEVEL GAUGE	6014323
10	1	PANEL MOUNTING BRACKET	6015947

# PARTS LIST — ELECTRICAL PANEL

Fig. 27



Item	Quantity	Part Description	Part Number
1	1	BAR, GROUND	6000559
2	1	CIRCUIT PROTECTOR, THERMAL, 1-POLE, 2AMP	6000495
3	1	BLOCK, FUSE, 2 POLE, CLASS CC, BC SERIES	6000556
4	2	FUSE, TIME DELAY — ATQR1/4	6011974
5	1	BLOCK, FUSE, 2 POLE, CLASS CC, BC SERIES	6000556
6	1	IEC CONTACTOR, NR, 24VAC, 3-POLE, +1NO+1NC, 1-15HP/18A	6000467
7	1	OVERLOAD RELAY, 12-18 AMP (208-240V UNITS) OVERLOAD RELAY, 5.5-8 AMP (480-600V UNITS)	6000478 6000476
8	1	PENDANT ASSEMBLY, 2PB, STRAIGHT CORD	6015941
9	12	TERMINAL, 2-POLE	6007888
10	6	TERMINAL, 4-POLE	6006846
11	1	XFMR, 208/240/480/600V TO 120/24V, 50VA W/ INTEGRATED FUSING	6012567
12	1	PANEL DECAL — SERCO PANEL DECAL — KELLEY	6015975 6015974





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## LIMITED WARRANTY

THIS LIMITED WARRANTY IS 4FRONT'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE DOCK LIFT AND IS IN LIEU OF ANY OTHER GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED.

4Front warrants that this DOCK LIFT will be free from flaws in material and workmanship under normal use for a period of one (1) year from the earlier of 1) 60 days after the date of initial shipment by 4Front, or 2) the date of installation of the DOCK LIFT by the original purchaser, provided that the owner maintains and operates the DOCK LIFT in accordance with this User's Manual.

Hydraulic Limited Warranty – The hydraulic cylinders for this DOCK LIFT are warranted to cover the cost of replacement parts only for an extended period of one (1) year after the initial 1 yr. warranty period.

In the event that this DOCK LIFT proves deficient in material or workmanship within the applicable Limited Warranty period, owner shall so notify 4Front, and 4Front will, at its option:

1. Replace the DOCK LIFT, or the deficient portion(s) thereof, without charge to the owner; or
2. Alter or repair the DOCK LIFT, on site or elsewhere, without charge to the owner.

This Limited Warranty does not cover any failure caused by improper installation, abuse, improper operation, negligence, or failure to maintain and adjust the DOCK LIFT properly. Parts requiring replacement due to damage resulting from vehicle impact, abuse, or improper operation are not covered by this warranty. 4FRONT DISCLAIMS ANY RESPONSIBILITY OR LIABILITY FOR ANY LOSS OR DAMAGE OF ANY KIND (INCLUDING WITHOUT LIMITATION, DIRECT, INDIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES, OR LOST PROFITS OR LOST PRODUCTION) arising out of or related to the use, installation or maintenance of the DOCK LIFT (including premature product wear, product failure, property damage or bodily injury resulting from use of unauthorized replacement parts or modification of the DOCK LIFT). 4Front's sole obligation with regard to a DOCK LIFT that is claimed to be deficient in material or workmanship shall be as set forth in this Limited Warranty. This Limited Warranty will be null and void if the original purchaser does not notify 4Front's warranty department within ninety (90) days after the product deficiency is discovered.

**THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, INCLUDING, BUT NOT LIMITED TO, A WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH 4FRONT HEREBY DISCLAIMS.**

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Please direct questions about your Dock Lift to your local distributor or to 4Front Entrematic.

Your local 4Front Engineered Solutions, Inc. distributor is:

Corporate Head Office:

1612 Hutton Dr. Suite 140

Carrollton, TX. 75006

Tel. (972) 466-0707

Fax (972) 323-2661

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