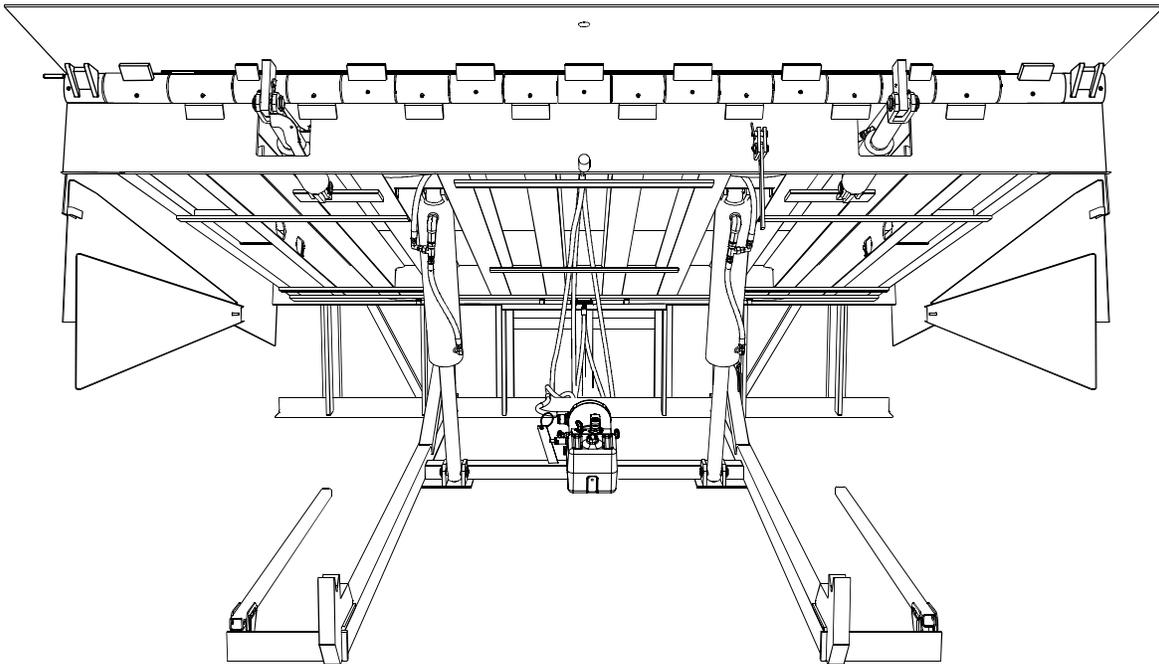


Heavy Capacity Hydraulic Dock Levelers 60,000-80,000 lbs capacity



This manual applies to hydraulic dock levelers manufactured beginning February 2013 with the serial numbers 61058683 and higher.

▲ WARNING

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

User's Manual

Installation, Operations,
Maintenance and Parts

Part No. 6001947C

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INTRODUCTION

Welcome and thank you for choosing this dock leveler. This manual covers Serco® model HD and Kelley® model HHC dock levelers. It is equipped with the patented HYDRA MAX® Lip Extension.

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

SAFETY SIGNAL WORDS

You may find safety signal words such as DANGER, WARNING, or CAUTION throughout this Owner'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.

▲ WARNING

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

▲ CAUTION

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

NOTICE

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

SAFETY PRACTICES

⚠ WARNING

Read these Safety Practices before installing, operating or servicing the dock leveler. Failure to follow the Safety Practices could result in death or serious injury.

If you do not understand the instructions, ask your supervisor to explain them to you or contact your local authorized distributor.

OPERATION

Use restricted to trained operators. Follow the procedures on the placard posted near the dock leveler. Do not operate the dock leveler with equipment, material or people on the ramp or lip.

Do not use this unit to service vehicles outside its intended working range which is 12" above and 12" below dock on 6' and 8' long levelers, 15" above and 12" below dock on 10' long levelers, and 16" above and 12" below dock on 12' long levelers.

Do not operate the dock leveler when anyone is in front of it unless they are securing the maintenance struts.

Stay clear of the dock leveler when it is moving.

KEEP HANDS CLEAR OF HINGES AT ALL TIMES. Do not use hands to position dock leveler ramp or lip, or to store dock leveler. Do not use the dock leveler if it appears damaged or does not operate properly. Inform your supervisor immediately. Do not stand in the driveway between the dock leveler and the backing vehicle.

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

Visually check that the lip is supported by the vehicle bed or the lip is supported by both lip keepers before driving on the ramp.

Store dock leveler to dock level with lip in both lip keepers after use.

Move all equipment, material or people off the dock leveler and store the dock leveler after use.

Do not use a forklift or other material handling equipment to lower the ramp.

OPERATION (continued)

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

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

INSTALLATION, MAINTENANCE AND SERVICE

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

Do not operate the dock leveler when anyone is standing in front of the dock leveler unless they are securing the maintenance struts.

Do not enter pit or do any maintenance or repair under dock leveler unless leveler is securely supported by both maintenance struts.

Disconnect the power and properly tag or lock out before climbing into the pit or doing any maintenance or repair under the leveler.

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

Disconnect the power and properly tag or lock out before doing any electrical work.

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

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

OWNER'S RESPONSIBILITIES

The owner's responsibilities include the following:

The owner should recognize the inherent danger of the interface between dock and transport vehicle. The owner should, therefore, train and instruct operators in the safe use of dock leveling devices.

When a transport vehicle is positioned as closely as practicable to a dock leveling device, there shall be at least 4" of overlap between the front edge of the lip and the edge of the floor or still of the transport vehicle.

Nameplates, cautions, instructions and posted warnings shall not be obscured from the view of operating or maintenance personnel for whom such warnings are intended. Manufacturer's recommended periodic maintenance and inspection procedures should be kept.

Dock leveling devices that are structurally damaged or have experienced a sudden loss of support while under load, such might occur when a transport vehicle is pulled out from under the dock leveling device, shall be removed from service, inspected by the manufacturer's authorized representative, and repaired as needed before being placed back in service.

The owner shall see that all nameplates caution and instruction markings or labels are in place and legible and that the appropriate operating and maintenance manuals are provided to users.

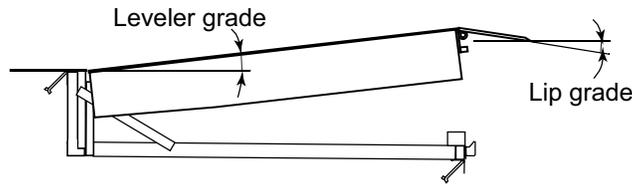
Modifications or alterations of dock leveling devices shall be made only with written permission of the original manufacturer.

When industrial vehicles are driven on and off transport vehicles during the loading and unloading operation, the brakes on the transport vehicle shall be applied and wheel chocks or positive restraints that provide the equivalent of wheel chocks engaged.

The dock leveler should never be used outside the manufacturer's labeled rated capacity. It must also be compatible with the loading equipment and other conditions relating to the dock.

RAMP AND LIP GRADES

Fig. 1



Vehicle bed position from dock, (in.)		Leveler and lip grades, % for each dock leveler length							
		6' Leveler		8' Leveler		10' Leveler		12' Leveler	
		Leveler	Lip	Leveler	Lip	Leveler	Lip	Leveler	Lip
Above dock	16.0	---	---	---	---	---	---	7.1	3.5
	15.0	---	---	---	---	8.1	4.4	6.7	3.1
	14.0	---	---	---	---	7.6	3.9	6.3	2.7
	12.0	10.9	7.3	8.3	4.7	6.6	3.0	5.5	1.9
	10.0	9.4	5.8	7.1	3.5	5.7	2.1	4.8	1.2
	8.0	7.8	4.2	5.9	2.3	4.7	1.1	4.0	0.4
	6.0	6.3	2.7	4.7	1.1	3.8	0.2	3.2	-0.4
	4.0	4.7	1.1	3.6	0.0	2.9	-0.7	2.4	-1.2
2.0	3.2	-0.4	2.4	-1.2	1.9	-1.7	1.6	-2.0	
0.0	1.6	-2.0	1.2	-2.4	1.0	-2.6	0.8	-2.8	
Below dock	-2.0	0.1	-3.5	0.1	-3.5	0.1	-3.5	0.1	-3.5
	-4.0	-1.4	-5.0	-1.1	-4.7	-0.9	-4.5	-0.7	-4.3
	-6.0	-3.0	-6.6	-2.3	-5.9	-1.8	-5.4	-1.5	-5.4
	-8.0	-4.5	-8.1	-3.4	-7.0	-2.8	-6.4	-2.3	-5.9
	-10.0	-6.1	-9.7	-4.6	-8.2	-3.7	-7.3	-3.1	-6.7
	-12.0	-7.6	-11.2	-5.8	-9.4	-4.6	-8.2	-3.9	-7.5

Leveler and lip grades minimum bend, 18" lip.

Vehicle bed position from dock, (in.)		Leveler and lip grades, % for each dock leveler length							
		6' Leveler		8' Leveler		10' Leveler		12' Leveler	
		Leveler	Lip	Leveler	Lip	Leveler	Lip	Leveler	Lip
Above dock	16.0	---	---	---	---	---	---	7.6	0.4
	15.0	---	---	---	---	8.6	1.4	7.2	0.0
	14.0	---	---	---	---	8.2	1.0	6.8	-0.4
	12.0	11.8	4.6	8.9	1.7	7.2	0.0	6.0	-1.2
	10.0	10.3	3.1	7.7	0.5	6.2	-1.0	5.2	-2.0
	8.0	8.7	1.5	6.6	-0.6	5.3	-1.9	4.4	-2.8
	6.0	7.2	0.0	5.4	-1.8	4.3	-2.9	3.6	-3.6
	4.0	5.6	-1.6	4.2	-3.0	3.4	-3.8	2.9	-4.4
2.0	4.1	-3.1	3.1	-4.1	2.5	-4.7	2.1	-5.1	
0.0	2.5	-4.7	1.9	-5.3	1.5	-5.7	1.3	-6.0	
Below dock	-2.0	-1.0	-6.2	0.7	-6.5	0.6	-6.6	0.5	-6.7
	-4.0	-0.6	-7.8	-0.4	-7.6	-0.4	-7.6	-0.3	-7.5
	-6.0	-2.1	-9.3	-1.6	-8.8	-1.3	-8.5	-1.1	-8.3
	-8.0	-3.7	-10.9	-2.8	-10.0	-2.2	-9.4	-1.9	-9.1
	-10.0	-5.2	-12.4	-3.9	-11.1	-3.2	-10.4	-2.7	-9.9
	-12.0	-6.8	-14.0	-5.1	-12.3	-4.1	-11.3	-3.4	-10.6

Leveler and lip grades maximum bend, 18" lip.

INSTALLATION

PIT CHECK

1. Check entire dock leveler pit for proper construction according to certified pit drawings. Check electrical service to assure it agrees with the phase and voltage of the hydraulic power unit and control panel supplied with the dock leveler. See tag attached to motor, and the wiring diagram located inside the control panel.

LEVELER CHECK PRIOR TO INSTALLATION

1. Visually check that all rear hinge pins, cotter pins, and kliprings are in place.
2. Visually check that the lip pin retainers are in place on both ends of the lip rod.
3. Visually check that both the maintenance bar and both maintenance struts are undamaged and pins securely attached.

INSTALLATION OF DOCK LEVELER

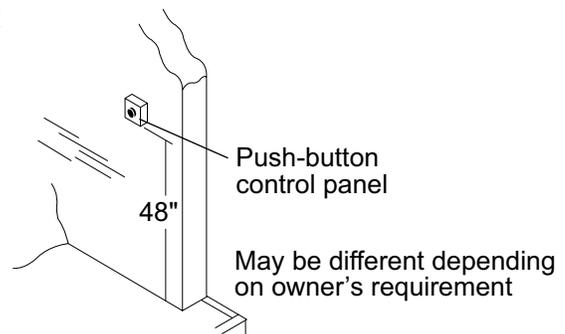
▲ WARNING

Place barricades around pit on dock floor and drive while installing, maintaining or repairing dock leveler.

Power to control box must be from fused disconnect supplied by others. Fuse size for a time delay type 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 wires or other parts inside the control panel could cause electrical shock, death or serious injury.

1. Mount and wire control panel. See wiring diagram located inside the control panel and wiring diagrams in this manual. See Fig. 2.
2. 4" × 4" shims are to be placed under each of the rear upright supports, under the hydraulic cylinder mount(s), under both of the front lip keepers and both maintenance struts and behind the rear frame to the back of the pit wall. See Fig. 4.

Fig. 2



INSTALLATION, continued

- Stack shims so the dimension from the top of the shims to the top of the dock floor is 23" at the back of the pit and 23-1/2" at the front of the pit. See Fig. 5.

⚠ WARNING

Before installing the dock leveler, read and follow the Safety Practices on page 3. Failure to follow the safety practices could result in death or serious injury.

- Remove shims from pit and weld in place on the bottom of the dock leveler frame under the corresponding upright support. Weld shims needed behind the rear frame to contact the back pit wall using 1" welds. See Fig. 4.
- Screw in two 3/4"-10 load centering eye bolts into the top of the top plate. Place a chain or other suitable lifting device through the eye bolts. The dock leveler should not be lifted in any other manner when placed into the pit. See Fig. 6.

⚠ 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 3500 lbs for the lifting angle used. Never allow anyone to stand on or near the dock leveler when it is lifted or placed into the pit. Stand clear of the dock leveler when it is placed into the pit. Failure to follow this warning can allow the dock leveler to fall, tip, or swing into people, causing death or serious injury.

- Place the dock leveler into the pit. Leave room between the rear of the dock leveler frame and the rear of the pit so that electrical wires can be connected.
- Connect the electrical wiring to the dock leveler junction box. See Fig. 3 and applicable wiring schematic.

Fig. 4

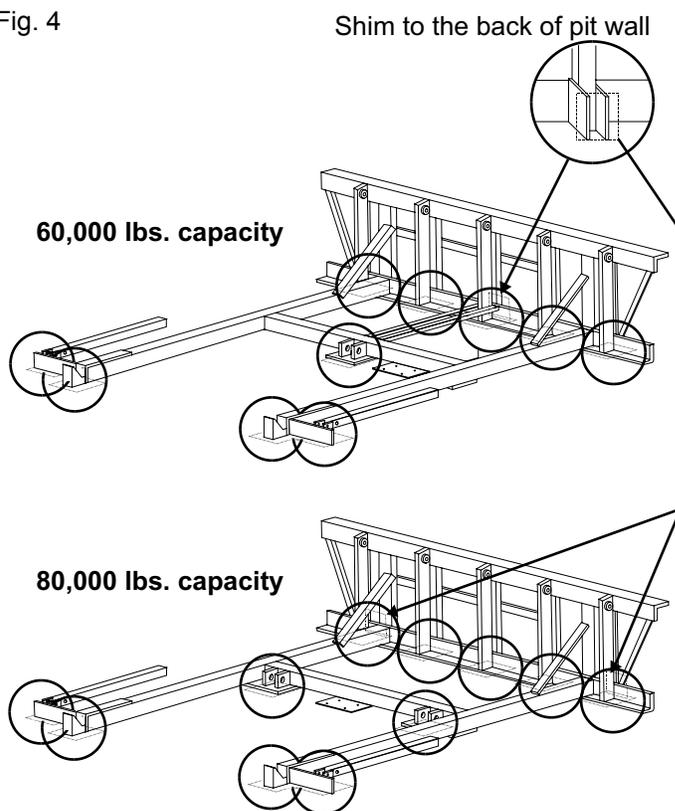


Fig. 5

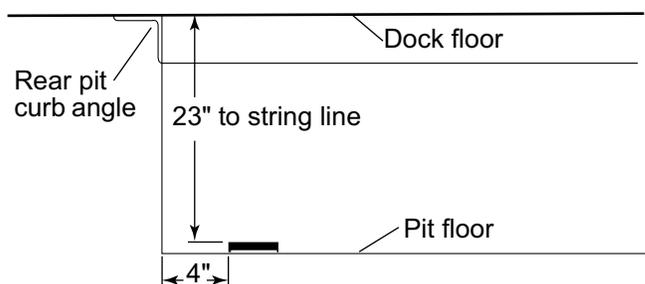
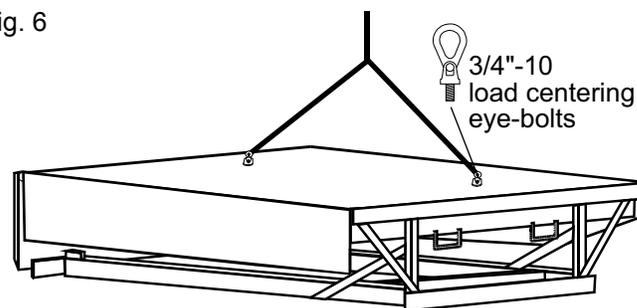


Fig. 6



INSTALLATION, continued

8. Move the dock leveler back to the rear pit angle. With the rear leveler angle touching the rear pit angle, square up the sides of the pit to the sides of the leveler. The gap should be even on both sides. See Fig. 7.

NOTE:

If the pit is out-of-square, the resulting gap between the rear frame and the rear curb angle should be shimmed as necessary at the weld locations. Use steel shim(s) equal to the weld length and weld in place.

NOTICE

Route power cord clear of edges and resting surfaces so that it is not damaged during lifting and placement.

9. Shim the front end of the leveler per Fig. 8 so it is level with dock floor.
10. Check to confirm that the shimmed height of the rear of the dock leveler frame is proper for a smooth transition from the dock to the dock leveler. Add or remove shims as required.

NOTICE

The rear edge of the dock leveler should be level or slightly ($1/16$ " maximum) below dock level.

Shim the front end of the dock leveler LEVEL with the dock floor. See Fig. 8 and 9. Add or remove shims as required.

11. Check the alignment of the dock leveler with the sides of the pit. See Fig. 7.

NOTICE

Welding with the dock leveler's power connected can damage electrical components. If the dock leveler has previously been electrically connected, turn off power to control box. Ground welder to dock leveler frame. Failure to do so can result in product damage.

Be certain that the rear frame angle is held tightly against the rear pit curb angle before welding.

If front and rear pit curb angles are not parallel do not attempt to shim dock leveler supports to match pit angles. The front supports and rear frame angle must be parallel for proper operation of the dock leveler. Add or subtract shims as required.

12. Weld rear frame angle to the rear pit curb angle. See Fig. 8.

Fig. 7

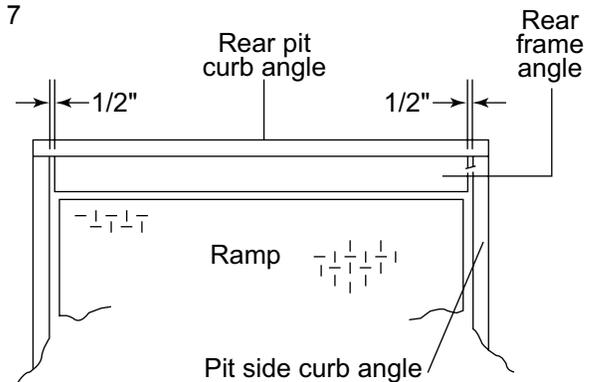
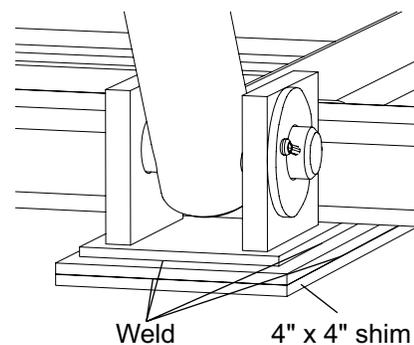


Fig. 7A



INSTALLATION, continued

NOTE:

If the pit width conforms to the certified pit drawing, there will be a 1/2" gap between the ends of the frame at the rear hinge assembly and the side curb angles. If this is not the case, the dock leveler will have to be positioned as required to accommodate dimensional discrepancies and any additional considerations (e.g. conduit runs, etc.).

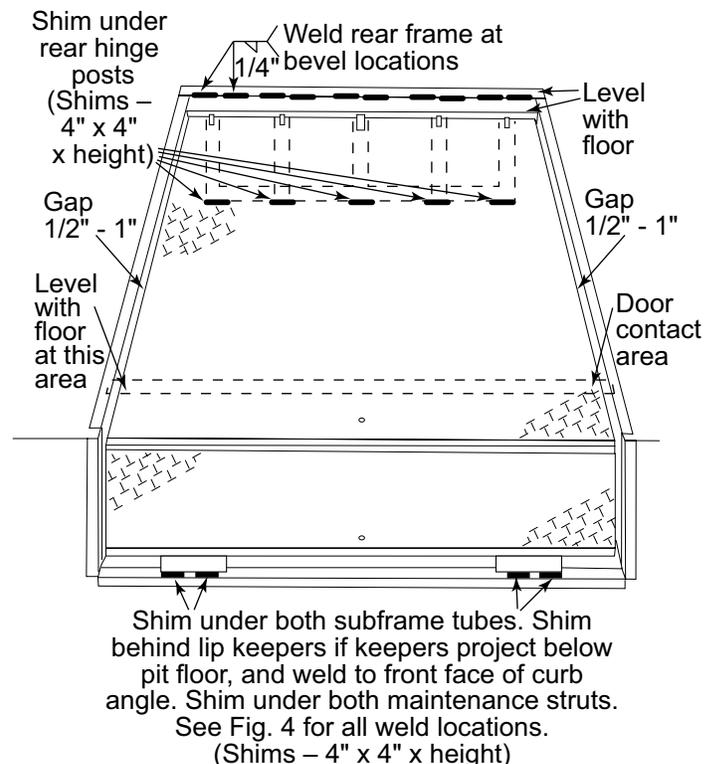
13. Weld front frame to shims, and shims to front curb angle with a minimum of 3" long 1/4" fillet welds on the front and sides.
14. Remove shipping banding holding lip assembly closed. Discard banding.
15. If electrical power is available, use the electrical controls to raise the ramp and lip to their full above dock position. See operating instructions in this manual. If electrical power is not available, use a chain and load centering eyebolt.

▲ DANGER

Hydraulic pressure must be maintained on the ramp to hold it in the raised position until the maintenance strut is in place. DO NOT WORK UNDER THE DOCK LEVELER RAMP OR LIP UNLESS BOTH MAINTENANCE STRUTS ARE SECURELY SUPPORTING THE DOCK LEVELER.

16. Two people are needed to place the dock leveler on the maintenance strut.
 - a. One person must hold dock leveler in its highest position with electrical controls or other lifting device.
 - b. The second person positions the maintenance struts into their upright position. See Fig. 13.
 - c. Electrical controls may now be released.
17. Remove shipping cotter pins from telescopic toe guards (if equipped). See Fig. 10.

Fig. 8

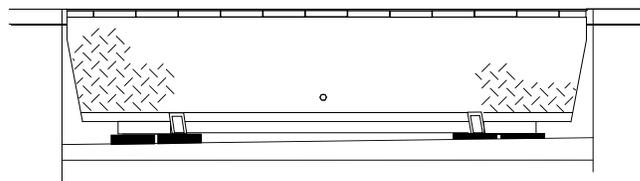


NOTE:

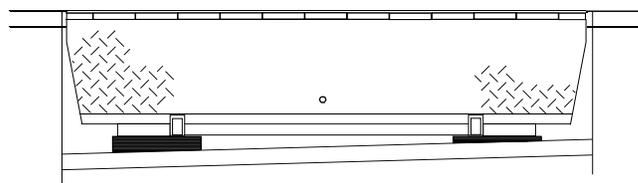
Shim under both subframe tubes. Shim behind lip keepers if keepers project below pit floor, and weld to front face of curb angle. Shim under both maintenance struts. See Fig. 4 for all weld locations.

Fig. 9

Improper installation



Proper installation



INSTALLATION, continued

NOTICE

Welding with dock leveler's power connected can damage electrical components. If the dock leveler has previously been electrically connected, turn off power to control box. Ground welder to dock leveler frame. Failure to do so could result in product damage.

18. Install shims under both ramp cylinder mounting pads to provide solid support to concrete. Weld shims together and to lower cylinder mounting pad(s) using 1" long 1/4" fillet welds on three sides. See Fig. 7A.
19. Remove lifting chain or other lifting devices.
20. Read Safety Practices on page 3 and Operating instruction on pages 15-20.
21. Connect electrical wiring and turn on power to dock leveler control panel. See Fig. 3.
22. Two people are needed to store the maintenance struts.
 - a. Press **RAISE** button on the control panel and hold.
 - b. The second person lowers both maintenance struts.
 - c. First person can now release **RAISE** button and leveler will float down.

WARNING

Keep hands, fingers and head away from the lip when the RAISE button is released. The lip and dock leveler are free to move downward when hydraulic pressure is removed from cylinders.

23. Mount dock bumpers to face of dock. Downhill welds are not acceptable. See Fig. 11.
24. Permanently mount the laminated dock leveler warning and operating placard on the wall near the dock leveler controls. See Fig. 12. Make sure the customer gets the User's Manual and is properly trained.
25. Operate the dock leveler four times through the complete cycle to check operation. Read Safety Practices on page 3 and Operating Instructions on pages 15-20.
26. Check hydraulic fluid level. Reference page 27.

Fig. 10

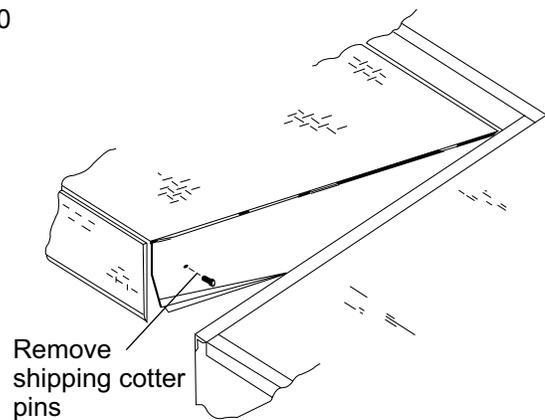


Fig. 11

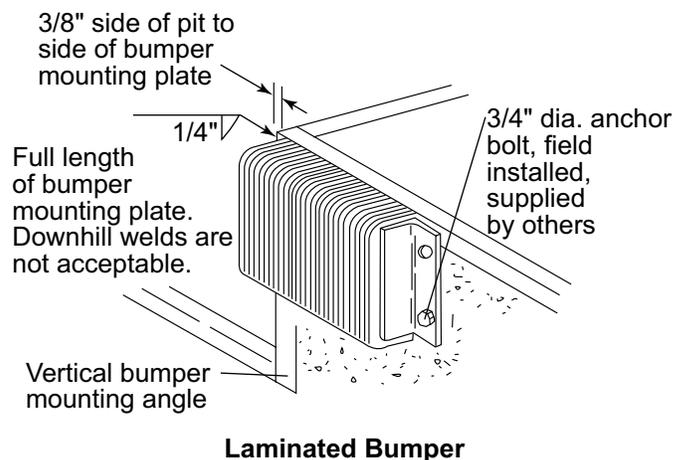
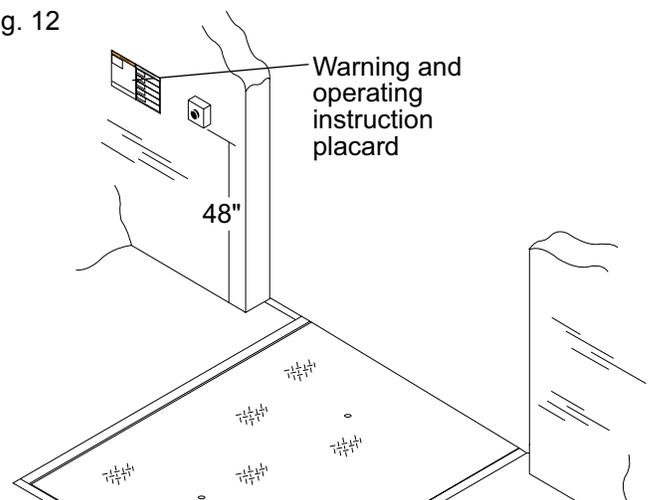


Fig. 12



SERVICE TOOLS

⚠ DANGER

DO NOT WORK UNDER THE DOCK LEVELER RAMP OR LIP UNLESS BOTH MAINTENANCE STRUTS ARE SECURELY SUPPORTING THE LEVELER, AND THE LIP MAINTENANCE BAR IS SUPPORTING THE LIP.

Before servicing the dock leveler, read and follow the Safety Practices on page 3 and the operation section of this manual.

MAINTENANCE STRUTS AND LIP MAINTENANCE BAR

1. To raise both maintenance struts and the lip maintenance bar two people are needed:
 - a. Push and hold the **RAISE** button on the control panel so leveler is fully raised and lip is extended.
 - b. The second person raises the maintenance struts into the locked vertical position. See Fig. 13.
 - c. Pull out hitch pin and clevis pin from top hole of lip maintenance bar bracket and raise lip maintenance bar. See Fig. 14.
 - d. Reinsert clevis pin through brackets and lip maintenance bar bracket. Then reinsert the hitch pin into the clevis pin.
 - e. Release the **RAISE** button and leveler will lower to securely supported position resting on both maintenance struts.
2. To lower both maintenance struts from their locked upright position two people are needed:

Fig. 13

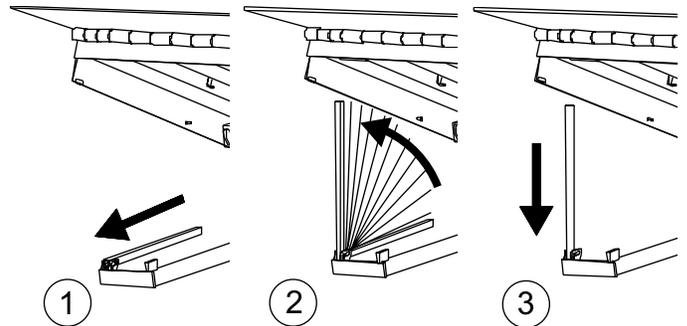
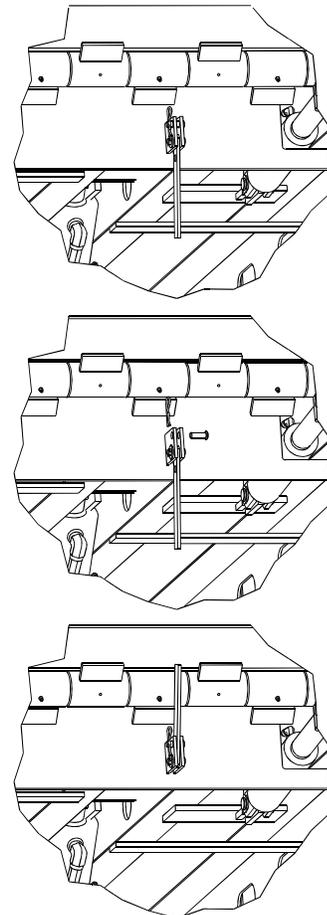


Fig. 14



NOTE:

Avoid pressing the **RAISE** button with lip maintenance bar in the raised position, as this can damage the lip maintenance bar.

- a. Push and hold the **RAISE** button on the control panel.
- b. Pull out hitch pin and clevis pin from top hole on lip maintenance bar bracket and lower lip maintenance bar.
- c. Reinsert clevis pin through brackets and then put hitch pin in clevis pin to store.
- d. Lift up and then push back to lower both maintenance struts.
- e. Release the **RAISE** button.

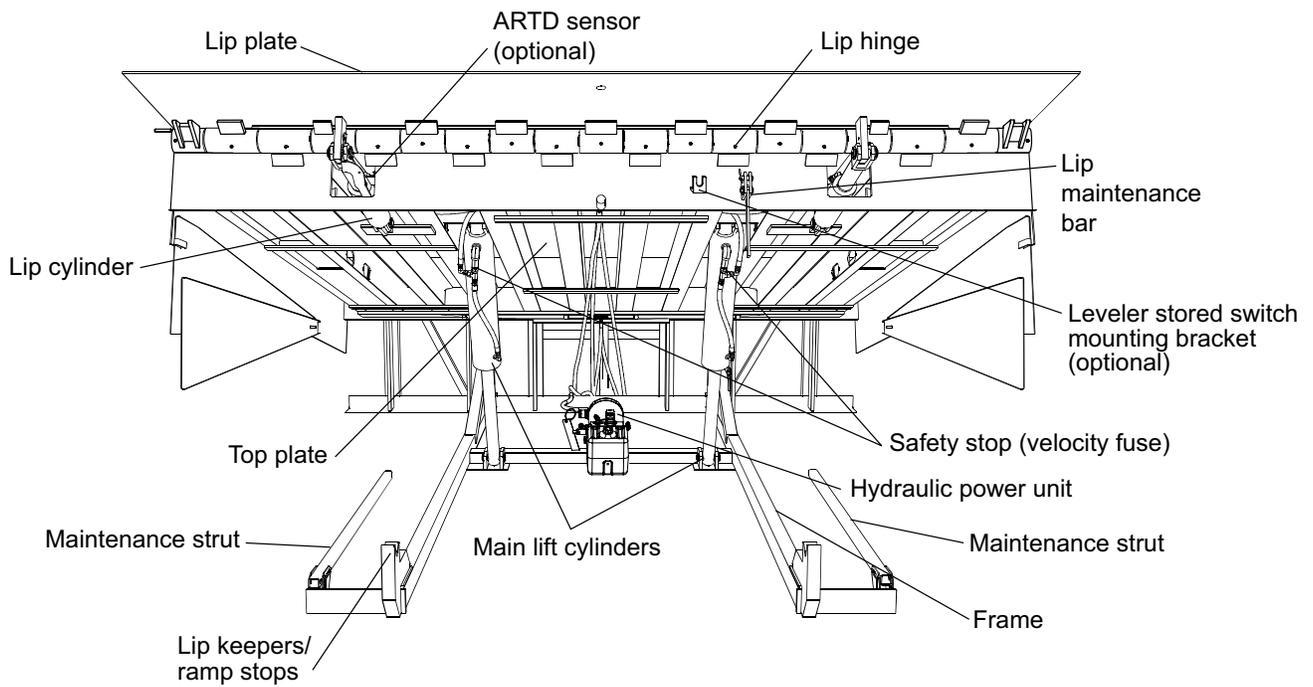
⚠ WARNING

It is important to always engage the lip maintenance bar lock pin when ever working under the leveler with the lip extended. Any upward force on the lip could release the lip maintenance bar allowing the lip to fall.

COMPONENTS AND SPECIFICATIONS

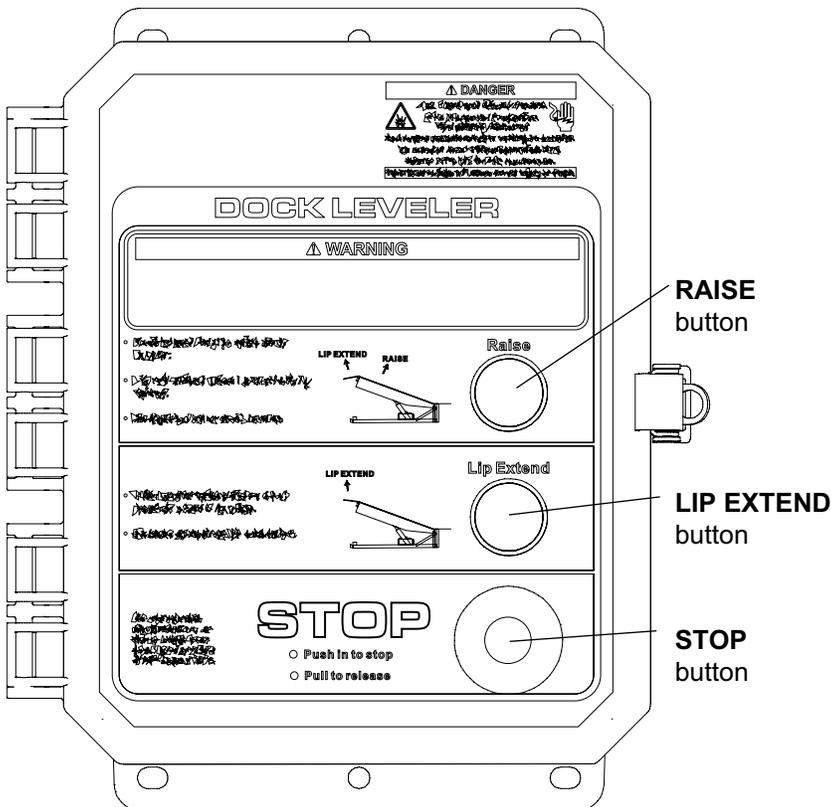
The main components of the dock leveler are shown below.
See the Parts List for specific part numbers.

Fig. 15 (80K leveler shown)



COMPONENTS AND SPECIFICATIONS, continued

Fig. 16



3-button unit

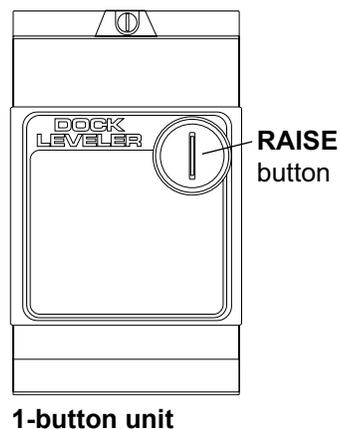
Control Panel - NEMA 4 (plastic enclosure), automatic motor starter, thermal overload, 0.5A resettable control circuit breaker. UL or cUL approved.

Auto Return to Dock Proximity Switch - NEMA 6P, normally open, with LED pilot light.

Motor - NEMA Standard T.E.N.V. / 48YZ frame, 1 h.p., single or three phase or 24V DC.

Pump - Fixed displacement gear pump, 2 gpm, primary relief valve factory set at 1400 psi.

Fig. 17

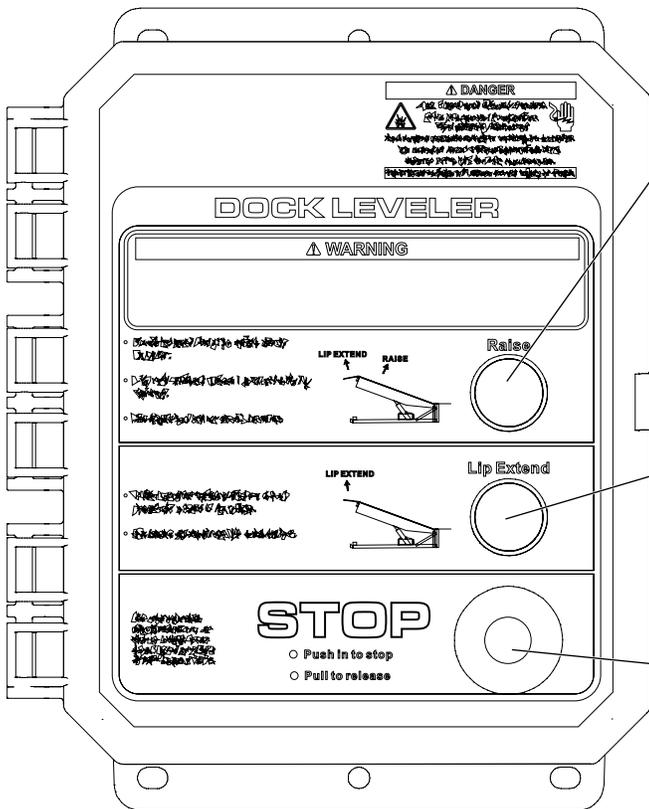


Hydraulic Fluid - An all weather hydraulic fluid with a viscosity of 15 CSt at 40°C (100°F), such as:

- Shell Tellus T 15
- Mobil Aero HFA (49011)
- Exxon Unisolv: HV13, N15, J13
- Texaco Aircraft Oil #1554
- U.S. Oil Co., Inc #ZFI-5606 (Low Temp.)

HYDRAULIC SYSTEM OPERATION

Fig. 18



3-button unit

The following describes the operation of the hydraulic system when the control is activated:

RAISE

- Pump starts
- Main lift cylinder extends and lip cylinder retracts

Fully Raised

- Pressure increases
- Sequence valve shifts
- Lip cylinder extends

Stop Raise

- Sequence valve resets
- Deck floats down forcing fluid to reservoir
- Float speed controlled by flow control needle valve

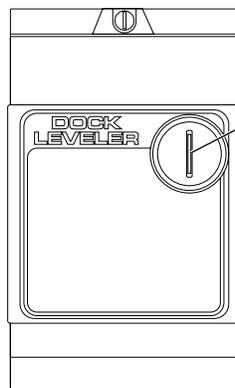
LIP EXTEND

- With leveler above dock height, pump starts as above
- Solenoid valve shifts locking main cylinder in partial raised position
- Pressure increases, sequence valve shifts and lip extends

STOP

- Solenoid valve shifts, stopping main cylinder and lip cylinder
- Power cut off from motor control circuit

Fig. 19



1-button unit

RAISE

- Pump starts and shuttle valve shifts
- Main lift cylinder extends and lip cylinder retracts
- Pilot check valve opens.

Fully Raised

- Pressure increases
- Sequence valve shifts
- Lip cylinder extends.

Stop Raise

- Sequence valve and shuttle valve return
- Top plate floats down forcing fluid to reservoir
- Float speed controlled by flow control in shuttle valve.

OPERATING INSTRUCTIONS

3-Button Controls

⚠ WARNING

Before operating the dock leveler, read and follow the Safety Practices on page 3.

Use by untrained people can result in death or serious injury. Read and follow complete operating instructions.

DO NOT USE DOCK LEVELER IF IT APPEARS DAMAGED, OR DOES NOT SEEM TO WORK PROPERLY. Inform your supervisor immediately.

Always be certain that the vehicle wheels are chocked, or that the vehicle is locked in place by a vehicle restraining device and the brakes set before loading or unloading. Visually inspect vehicle restraint to make sure it is properly engaged. Vehicles pulling away unexpectedly can cause uncontrolled drop of the dock leveler which can result in death or serious injury. The maximum uncontrolled drop of this hydraulic dock leveler from any position is 4 inches.

Visually check that the lip is supported by the vehicle bed or the ramp is supported by both front lip keepers before driving or walking on the ramp.

Always return the dock leveler to its dock level (stored) position before allowing the vehicle to leave the dock. If the vehicle pulls away before the dock leveler is stored, the lip will fall to its pendant position and may not be supported by the lip keepers. In addition, failure to properly store the dock leveler may leave the leveler in a position below the level of the dock floor. These conditions may result in unexpected drop of personnel or material handling equipment and result in death or serious injury.

Before pressing button, ensure lip avoids contact with vehicle sides and cargo. If lip does not lower to vehicle platform, reposition the vehicle.

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

Never drive on dock leveler with STOP button pressed in.

Failure to follow these instructions could result in death or serious injury to operators and/or bystanders.

INTRODUCTION

This dock leveler is designed to span and compensate for space and height differences between a loading dock and freight carrier to allow safe, efficient freight transfers.

The Hydraulic Dock Leveler with Three Button Control has a **STOP** button control to stop downward movement of the ramp and shuts off the **RAISE** and **LIP EXTEND** push-button controls. A valve will not allow the ramp to lower. The **STOP** button must be out during normal use.

Pushing and holding the **RAISE** push-button operates a hydraulic cylinder to raise the ramp. Releasing the **RAISE** push-button allows the ramp to lower.

When the dock leveler reaches its full raised position, a second hydraulic cylinder extends the dock leveler lip. The dock leveler with its lip extended settles onto the vehicle bed forming a bridge.

After loading, pushing and holding the **RAISE** push-button raises the ramp, and the extended lip lowers to its stored position. Releasing the **RAISE** push-button allows the dock leveler to lower to its level, stored position.

With the dock leveler in its stored position, lip keepers support the dock leveler ramp at a position level with the dock floor.

The Hydraulic Dock Leveler with Three Button Control also has a **LIP EXTEND** push-button control to extend the dock leveler lip before the ramp reaches its full raised position. Releasing the **LIP EXTEND** push-button allows the ramp to lower.

OPERATING INSTRUCTIONS, continued

3-Button Controls

3-BUTTON UNIT

▲ WARNING

Always secure the vehicle with a vehicle restraint or wheel chocks before operating the dock leveler.

Do not operate dock leveler with anyone standing on or in front of it.

Do not drive on dock leveler or lip until it is fully extended and supported by the vehicle's platform.

Always keep hands and feet clear of all moving parts.

Always restore the leveler to its safe dock level position after servicing the vehicle.

Do not drive on leveler with STOP button pressed in.

Never use fork lift or other material handling equipment to lower the ramp and lip sections.

If equipped with Auto Return to Dock the dock leveler will automatically raise and return to dock level when the lip starts to retract.

RAISING LEVELER

1. Press the **RAISE** button on the control panel to raise the leveler. See Fig. 19.
2. When the leveler is fully raised, the lip will automatically extend. To extend earlier, press the **LIP EXTEND** button. See Fig. 20.
3. When lip is fully extended release the **RAISE** button. The leveler will slowly float down to the vehicle's platform. Push the **STOP** button at any time to stop the leveler. Pull the **STOP** button to release. See Fig. 22.

NOTE:

If an obstruction prevents the lip from deploying properly, push the **STOP** button. Press the **RAISE** button to raise and retract the lip. Restore the leveler to the safe dock level position with the lip in both lip keepers for endloading.

▲ WARNING

Before allowing vehicle to leave always return the dock leveler to its dock level (stored) position with the lip stored in both lip keepers. See Fig. 23. Failure to do so may leave the dock leveler in a position below the level of the dock floor. This condition may result in unexpected drop of personnel or material handling equipment and could result in death or serious injury.

Fig. 20

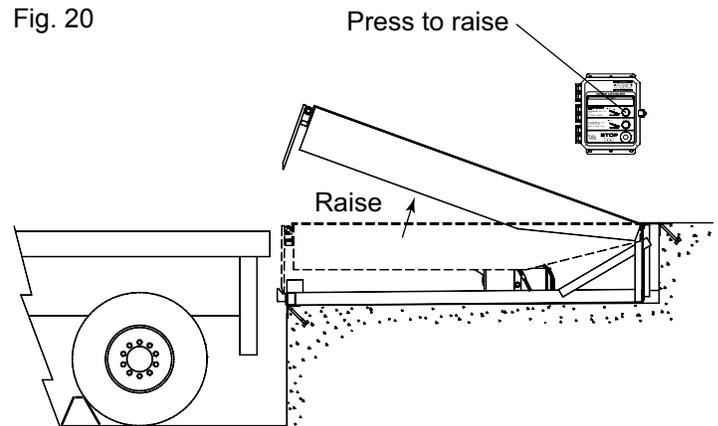
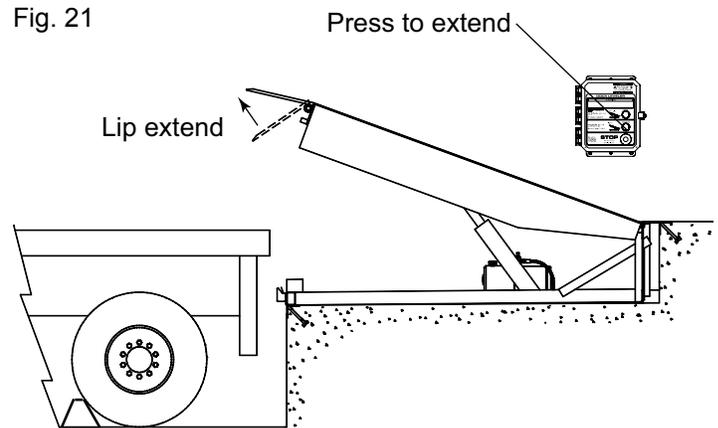


Fig. 21



OPERATING INSTRUCTIONS, continued

3-Button Controls

3-BUTTON UNIT, continued

STORING LEVELER

1. To return the leveler to the stored position, press the **RAISE** button. As the leveler raises the lip will retract. When the lip is fully retracted, release the **RAISE** button. The leveler will float down to the stored position. See Fig. 23.

BELOW-DOCK ENDLOADING

1. Press the **RAISE** button until leveler is about 6" above dock. Press the **LIP EXTEND** button until the lip has extended 2 to 3 inches to clear the front of the keepers and release the button. Leveler will float down for endloading. See Fig. 24.

AUTO-RETURN-TO-DOCK (A.R.T.D. OPTIONAL)

The A.R.T.D. automatically resets the leveler whenever a vehicle just pulls away from the loading dock with the lip resting on the vehicle.

1. If the vehicle pulls away, the leveler will float down to the lowest position and the lip will fall. The leveler will automatically raise, retract the lip, then float down to the stored position. See Fig. 25.

Fig. 22

Release to lower

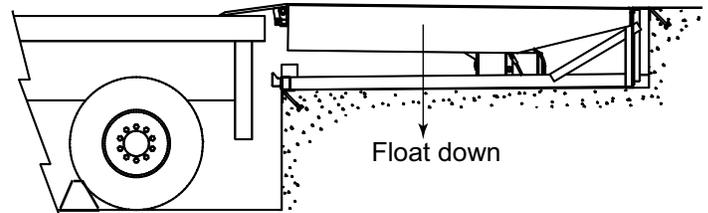


Fig. 23

Press to raise
Release to lower

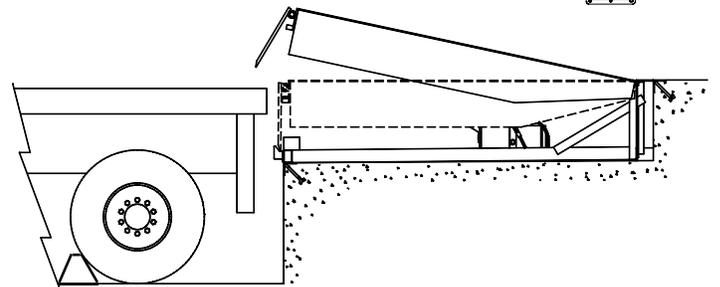


Fig. 24

Press to raise
Press to extend lip

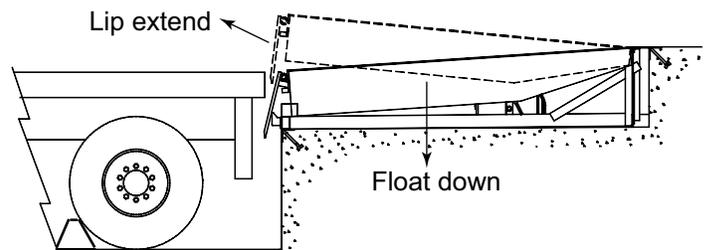
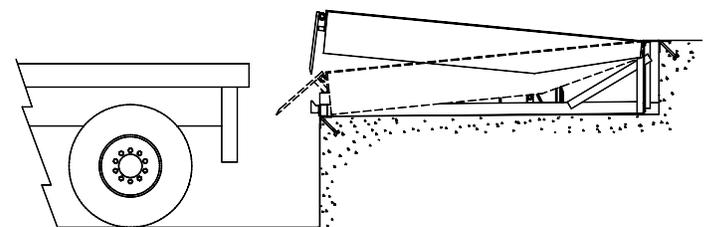


Fig. 25



OPERATING INSTRUCTIONS

1-Button Control

▲ WARNING

Before operating the dock leveler, read and follow the Safety Practices on page 3.

Use by untrained people can result in death or serious injury. Read and follow complete operating instructions.

DO NOT USE DOCK LEVELER IF IT APPEARS DAMAGED, OR DOES NOT SEEM TO WORK PROPERLY. Inform your supervisor immediately.

Always be certain that the vehicle wheels are chocked, or that the vehicle is locked in place by a vehicle restraining device and the brakes set before loading or unloading. Visually inspect vehicle restraint to make sure it is properly engaged. Vehicles pulling away unexpectedly can cause uncontrolled drop of the dock leveler which can result in death or serious injury. The maximum uncontrolled drop of this hydraulic dock leveler from any position is 4 inches.

Visually check that the lip is supported by the vehicle bed or the ramp is supported by both front lip keepers before driving or walking on the ramp.

Always return the dock leveler to its dock level (stored) position before allowing the vehicle to leave the dock. If the vehicle pulls away before the dock leveler is stored, the lip will fall to its pendant position and may not be supported by the lip keepers. In addition, failure to properly store the dock leveler may leave the leveler in a position below the level of the dock floor. These conditions may result in unexpected drop of personnel or material handling equipment and result in death or serious injury.

Before pressing button, ensure lip avoids contact with vehicle sides and cargo. If lip does not lower to vehicle platform, reposition the vehicle.

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

INTRODUCTION

This dock leveler is designed to span and compensate for space and height differences between a loading dock and freight carrier to allow safe, efficient freight transfers.

This dock leveler uses a push-button control to position the ramp. Pushing and holding the **RAISE** button operates a hydraulic cylinder(s) to raise the ramp. Releasing the **RAISE** button allows the ramp to lower.

When the dock leveler reaches its full raised position, a second hydraulic cylinder(s) extends the dock leveler lip. The dock leveler with its lip extended settles onto the vehicle bed forming a bridge.

After loading pressing and holding the **RAISE** button allows the ramp to raise. The lip will retract as the dock leveler is raised. Releasing the **RAISE** button lowers the ramp into its level, stored position.

With the dock leveler in its stored position, lip keepers support the dock leveler ramp at a position level with the dock floor.

OPERATING INSTRUCTIONS, continued

1-Button Control

1-BUTTON UNIT

▲ WARNING

Always secure the vehicle with a vehicle restraint or wheel chocks before operating the dock leveler.

Do not operate dock leveler with anyone standing on or in front of it.

Do not drive on dock leveler or lip until it is fully extended and supported by the vehicle's platform.

Always keep hands and feet clear of all moving parts.

Always restore the leveler to its safe dock level position after servicing the vehicle.

Never use fork lift or other material handling equipment to lower the ramp and lip sections.

If equipped with Auto Return to Dock the dock leveler will automatically raise and return to dock level when the lip starts to retract.

RAISING LEVELER

1. Press the **RAISE** button on the control panel to raise the leveler.
2. Continue to press the **RAISE** button. The lip will automatically extend when the leveler is fully raised.
3. When lip is fully extended release the **RAISE** button. The leveler will slowly float down to the vehicle's platform.

NOTE:

If an obstruction prevents the lip from deploying properly, press the button to raise and retract the lip. Restore the leveler to the safe dock level position with the lip in both lip keepers for endloading.

▲ WARNING

Before allowing vehicle to leave always return the dock leveler to its dock level (stored) position with the lip stored in both lip keepers. See Fig. 26. Failure to do so may leave the dock leveler in a position below the level of the dock floor. This condition may result in unexpected drop of personnel or material handling equipment and could result in death or serious injury.

Fig. 26

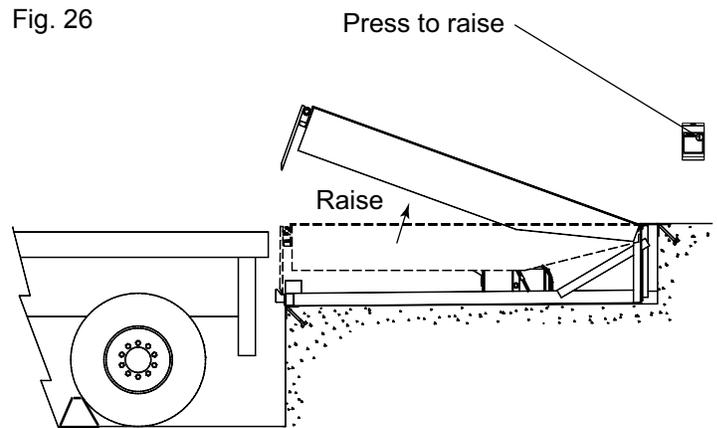
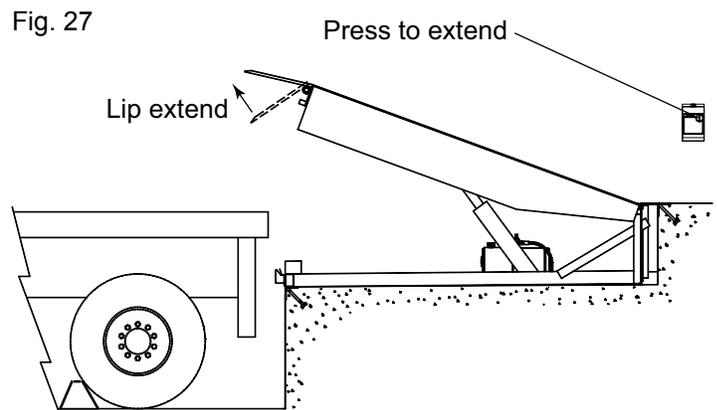


Fig. 27



OPERATING INSTRUCTIONS, continued

1-Button Control

1-BUTTON UNIT, continued

⚠ WARNING

Before allowing vehicle to leave always return the dock leveler to its dock level (stored) position with the lip stored in both lip keepers. See Fig. 29. Failure to do so may leave the dock leveler in a position below the level of the dock floor. This condition may result in unexpected drop of personnel or material handling equipment and could result in death or serious injury.

STORING LEVELER

1. To return the leveler to the stored position, press the **RAISE** button. As the leveler raises the lip will retract. When the lip is fully retracted, release the **RAISE** button. The leveler will float down to the stored position. See Fig. 28.

BELOW-DOCK ENDLOADING

1. Press the **RAISE** button until leveler is fully raised and the lip starts to extend. When the lip has extended 2 to 3 inches to clear the front of the keepers, release the **RAISE** button. Leveler will float down for endloading. See Fig. 30.

AUTO-RETURN-TO-DOCK (A.R.T.D OPTIONAL)

The A.R.T.D. automatically resets the leveler whenever a vehicle just pulls away from the loading dock with the lip resting on the vehicle. This is how it works.

1. If the vehicle pulls away, the leveler will float down to the lowest position and the lip will fall. The leveler will automatically raise, retract the lip, then float down to the stored position. See Fig. 31.

Fig. 28

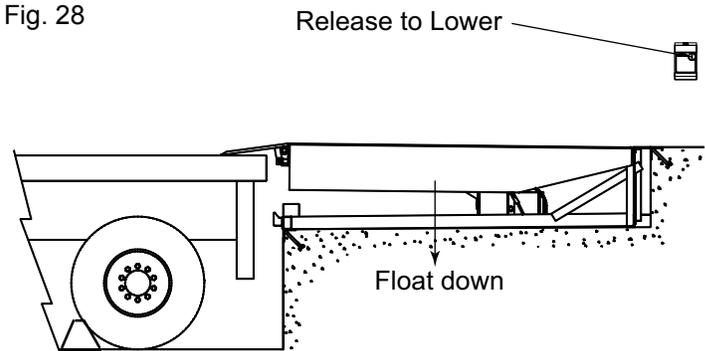


Fig. 29

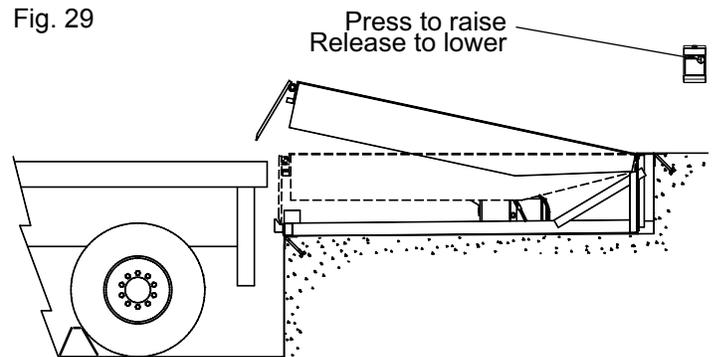


Fig. 30

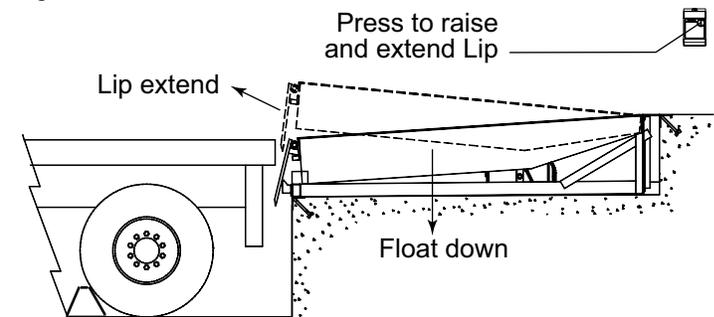
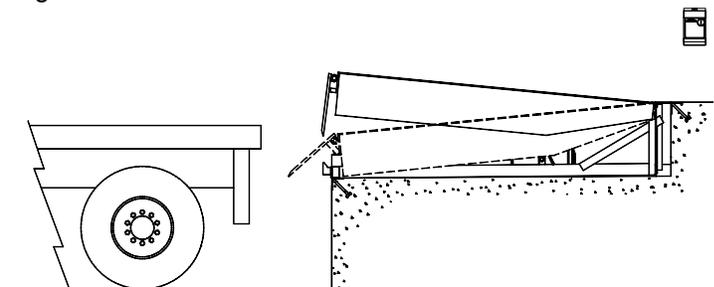


Fig. 31



PLANNED MAINTENANCE

To ensure the proper operation of your dock leveler, perform the following planned maintenance procedures.

▲ DANGER

Be certain before climbing into the dock leveler pit or doing any maintenance or repair under the dock leveler, that:

- 1) THE MAINTENANCE STRUT IS SECURELY SUPPORTING THE LEVELER (See page 13-14).***
- 2) The power is disconnected and properly tagged or locked out.***

▲ WARNING

Before servicing the dock leveler, read and follow the Safety Practices on page 3 and the operation section of this manual.

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

WEEKLY

- Clean the upper portion of the lip plate hinge with a brush and blow away all dirt and debris. This will ensure proper lip plate operation.
- Inspect for debris in rear hinge area of the leveler and between the sides and curb angles to ensure smooth operation. Clean as required.
- Check the full operation of the leveler to ensure there is no hesitation in the hydraulic system. Any loss of fluid will affect the safety valve operation.
- Inspect the operation of the telescopic toe guards to ensure they are not distorted or binding when the leveler is operating.
- Clean away any debris from the rear hinge area of the leveler and between the sides and curb angles to ensure smooth operation.

QUARTERLY

- Inspect all warning labels and placards. See page 23. Replace as necessary.
- Clean out the inside of the pit area. If washing out, take care not to spray any electrical parts.
- Inspect and lubricate all mechanical pivot points on the leveler with S.A.E. 30 oil. Cycle the leveler when lubricating.
- Inspect the hydraulic cylinders and hoses for any fluid loss and check the reservoir level. Add fluid as required. See **Hydraulic Fluid Level** on page 27.
- Inspect all welds under the leveler for fatigue or failure, particularly the lip plate hinge and top plate beams and front hinge bar. If cracks are discovered, contact your authorized Serco distributor.
- Check the full operation of the leveler. Make any adjustments required.
- Lubricate the lip hinge tubes with a molybdenum disulfide NLGI #2 grease. Do not over grease. Stop when grease begins to ooze out of the hinge tube ends. Wipe off excess grease.
- Inspect dock bumpers. Six inches (6") of bumper protection is required. Worn, torn, loose or missing bumpers must be replaced.

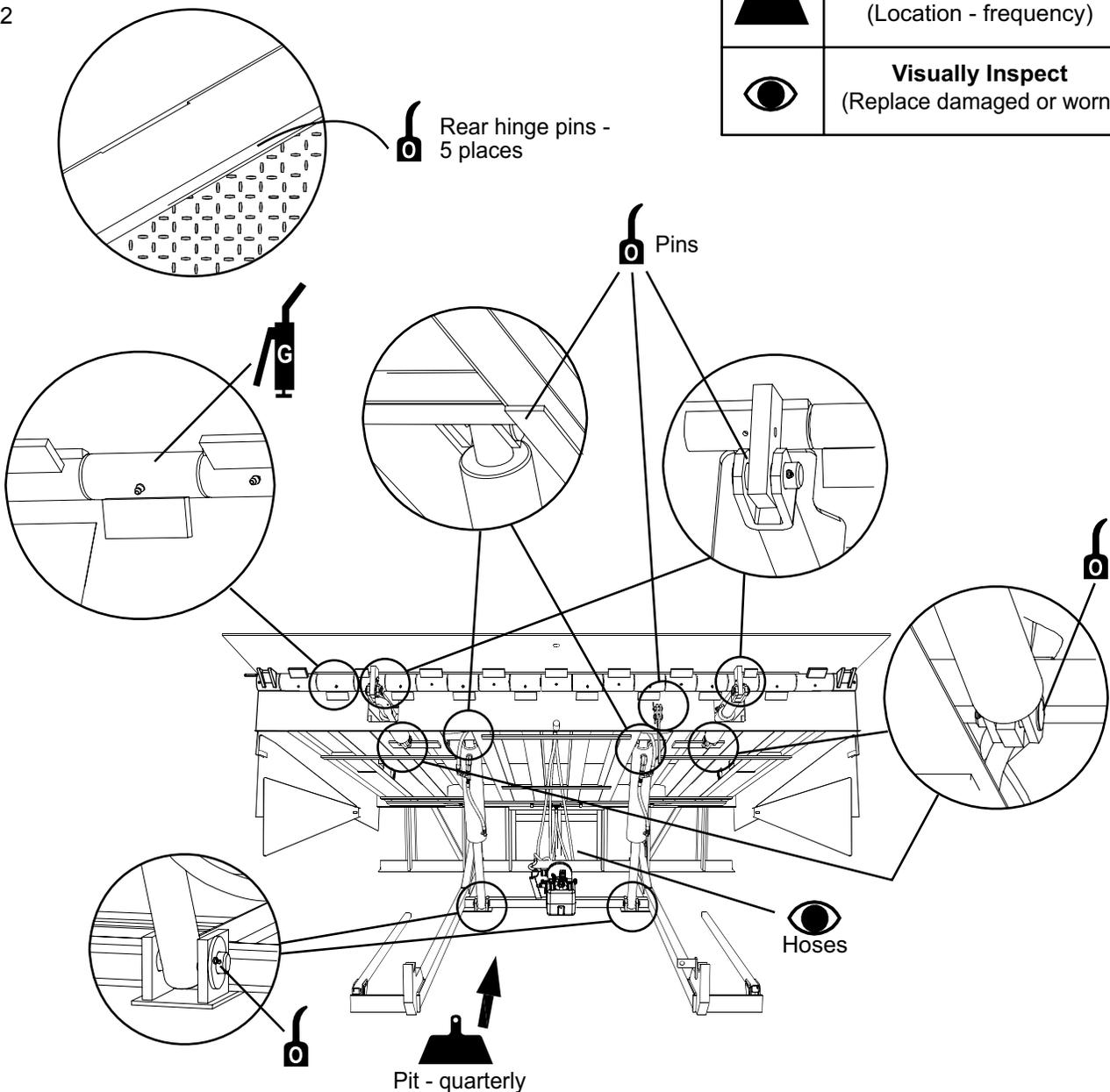
PLANNED MAINTENANCE, continued

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

- Shell Tellus T 15
- 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
	Lubricate - oil Light oil - SAE 30
	Lubricate - grease Molybdenum disulfide NLGI #2
	Cleaning (Location - frequency)
	Visually Inspect (Replace damaged or worn)

Fig. 32



TROUBLESHOOTING GUIDE

Use the Troubleshooting Guide if ever the leveler fails to perform properly. Find the condition that most closely matches your situation and make the recommended adjustments. Observe all safety warnings before attempting any maintenance procedure.

⚠ WARNING

Before servicing the dock leveler, read and follow the Safety Practices on Page 3 and the Operation section in this manual.

PROBLEM	POSSIBLE CAUSE	SOLUTION
1. Leveler does not raise. Motor is silent.	<ul style="list-style-type: none"> a) No electrical power to control panel. b) Electrical connections incorrect or broken. 	<ul style="list-style-type: none"> a) Check that voltage is present at terminal connections to the control panel. b) Check that wiring matches the wiring diagram.
2. Leveler does not raise; motor starts then stops, motor starter relay chatters.	<ul style="list-style-type: none"> a) Overload relay, main circuit breaker or leveler control circuit breaker tripping. b) Voltage drop due to undersized wiring run a long distance from the power source. 	<ul style="list-style-type: none"> a) Verify overload relay is set to approx. 15% above FLA indicated on motor nameplate. b) Check voltage when motor is started. Voltage drop is more often a problem on single phase motors. Verify the power supply wiring to the control panel is sized correctly.
3. Leveler does not raise. Motor hums.	<ul style="list-style-type: none"> a) Voltage drop. b) Loss of 1 phase. (Three phase only.) 	<ul style="list-style-type: none"> a) Measure voltage when motor is started. Voltage drop is more often a problem on single phase motors. Verify the power supply wiring to the control panel is sized correctly. b) Measure for voltage at all three motor connections (T1, T2, T3) in control panel.
4. Leveler does not raise. Motor runs.	<ul style="list-style-type: none"> a) Low fluid level in reservoir. b) Pump not running or pressure insufficient. c) Pump running in reverse. d) Primary relief valve setting too low. 	<ul style="list-style-type: none"> a) The hydraulic fluid level should be checked when the leveler is resting on the maintenance strut with the lip pendant. Add fluid if required and check for leaks. See page 27, Fig. 35. b) Remove the hose from main lift cylinder and point free end into reservoir opening. If no oil is pumped, replace pump. c) Check motor rotation and change electrical connections if necessary. See motor name plate. d) Set primary relief valve setting to 1400 PSI. See page 26-27. Note: Requires use of pressure gauge or pump will be severely damaged.

TROUBLESHOOTING GUIDE, continued

⚠ WARNING

Before servicing the dock leveler, read and follow the Safety Practices on Page 3 and the Operation section in this manual.

PROBLEM	POSSIBLE CAUSE	SOLUTION
5. Overload relay tripping.	<ul style="list-style-type: none"> a) Overload relay set too low. b) Loss of one phase. (Three phase only.) 	<ul style="list-style-type: none"> a) Check motor full load amperage and overload relay setting. b) Check for voltage at all three motor connections (T1,T2,T3) in control panel.
6. Leveler will not lower.	<ul style="list-style-type: none"> a) Automatic safety stop (velocity fuse) is locked. 	<ul style="list-style-type: none"> a) If a load was on the leveler, remove the load and jog the RAISE button to unlock the leveler. If no load was on the leveler, adjust the needle valve to reduce drop speed. See page 26-27.
7. Leveler floats down too slowly.	<ul style="list-style-type: none"> a) Flow control requires adjustment. 	<ul style="list-style-type: none"> a) Adjust flow needle valve for faster flow. Turn counterclockwise to increase speed. See page 26-27.
8. Lip plate will not extend, or extends too slowly.	<ul style="list-style-type: none"> a) Low fluid level in reservoir. b) Sequence valve set too high. c) Lip hinge binding. d) Primary relief valve set too low. 	<ul style="list-style-type: none"> a) Check fluid level. Add fluid if required and check for leaks. See page 27, Fig. 35. b) Decrease sequence valve setting. See page 26-27. c) Inspect hinge area for damage or trapped debris. Lubricate hinge. d) Set primary relief valve to 1400 PSI. See page 26-27. Note: Requires use of pressure gauge or pump will be severely damaged.
9. Lip plate extends too soon.	<ul style="list-style-type: none"> a) Sequence valve set too low. 	<ul style="list-style-type: none"> a) Turn clockwise to increase pressure so that the lip plate does not extend until the deck is fully raised. See pages 26-27.

TROUBLESHOOTING GUIDE, continued

⚠ WARNING

Before servicing the dock leveler, read and follow the Safety Practices on Page 3 and the Operation section in this manual.

PROBLEM	POSSIBLE CAUSE	SOLUTION
10. Lip plate will not stay out / falls as leveler is lowering.	a) Pilot operated check valve / valve not closing. b) Lip cylinder damaged.	a) Remove and inspect for foreign matter. Clean as required. b) Replace lip cylinder piston seal, or replace cylinder.
11. Optional Auto Return To Dock not operating properly.	a) Proximity switch faulty or faulty electrical connection. b) Proximity switch or lip target arm not properly adjusted.	a) Check for 110V at terminal 2 in control panel. b) Check adjustment of proximity switch and lip target arm. Refer to adjustment procedure on page 19.

HYDRAULIC POWER UNIT ADJUSTMENT

⚠ DANGER

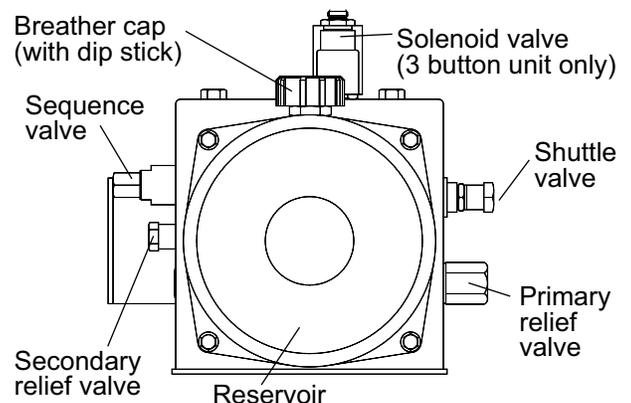
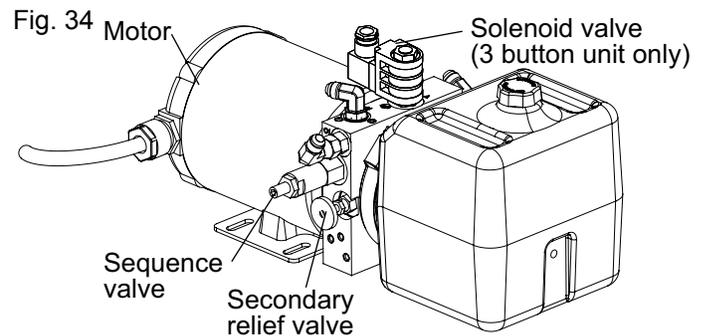
Be certain before climbing into the dock leveler pit or doing any maintenance or repair under the dock leveler, that:

- 1) BOTH MAINTENANCE STRUTS ARE SECURELY SUPPORTING THE DOCK LEVELER RAMP.
- 2) The power is disconnected and properly tagged or locked out.

⚠ WARNING

Before servicing the dock leveler, read and follow the Safety Practices on page 3 and the Operation section in this manual.

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



HYDRAULIC POWER UNIT ADJUSTMENT, continued

Description	Purpose	Adjustment
Primary Relief Valve (RV1)	Controls maximum pressure in the hydraulic system and protects the other components from excessive force.	Loosen threaded nut. Using 3/16" allen wrench, turn screw clockwise to increase relief pressure. Relief pressure will be factory set at 1400 PSI and should not require adjustment. Note: a suitable hydraulic pressure gauge MUST BE USED when adjusting. Ensure threaded nut is securely fastened to prevent screw from turning when complete. Reference TSB2009-0722G for primary relief adjustment procedure.
Flow Control Needle Valve	Controls the lowering speed of the ramp plate and directs fluid to the cylinders when the pump is running.	Loosen locknut. Turn the knob clockwise to decrease lowering speed. Adjust the lowering speed to approximately equal the ramp raise speed.
Sequence Valve	Controls lip plate retraction and extension.	Loosen threaded nut. Using 3/16" allen wrench, turn screw to adjust lip speed. If the lip extends before the ramp is fully raised, the valve should be turned clockwise. Tightening the valve too far will cause very slow lip extension, or no extension at all. Ensure threaded nut is securely fastened to prevent screw from turning when complete.
Solenoid Valve	Stops the fall of the top plate when either the LIP EXTEND or LEVELER STOP button is pushed.	No adjustment required.
Secondary Relief Valve (RV2)	Controls the force and speed of lip retraction when the power unit is running. (Does not affect speed of lip closing when power unit is not running.)	Loosen threaded nut. Using 1/4" allen wrench, turn screw to adjust lip retraction speed. If the lip is not closing fully when the lip is above the keepers, turn the adjusting screw counterclockwise. Ensure threaded nut is securely fastened to prevent screw from turning when complete. If the lip is closing too forcefully, turn the adjusting screw clockwise.

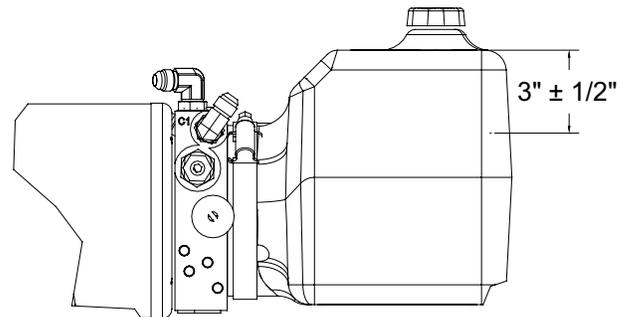
HYDRAULIC FLUID LEVEL

The hydraulic fluid level should be checked when the leveler is resting on the maintenance strut with the lip pendant.

If the leveler is equipped with A.R.T.D., allow the deck to descend to the maintenance struts and the lip to fall pendant, then push the **E-STOP** before the A.R.T.D. initiates.

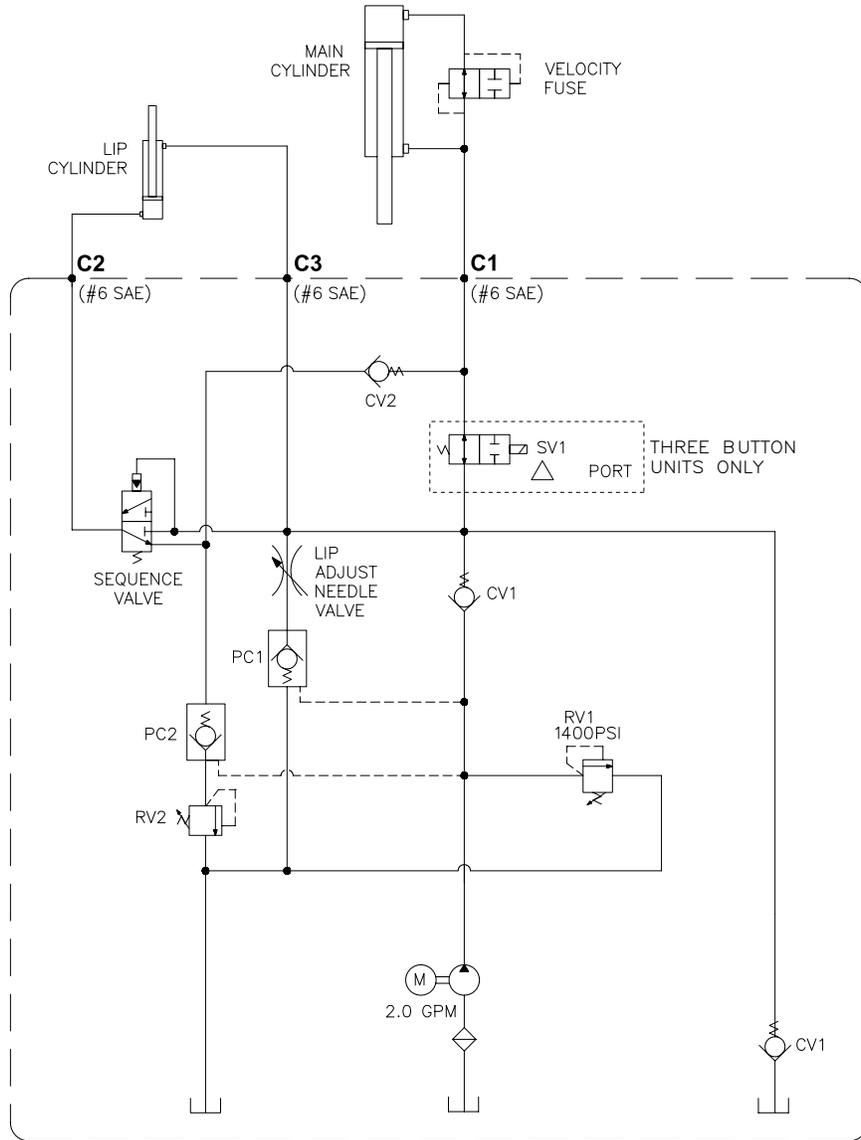
The fluid level in reservoir should register below the **MAX** oil limit within the hatched markings near centerline of the tank. See Fig. 41. If the level is low or not visible on the dipstick, add fluid to the desired level using an approved oil from the list on page 16.

Fig. 35



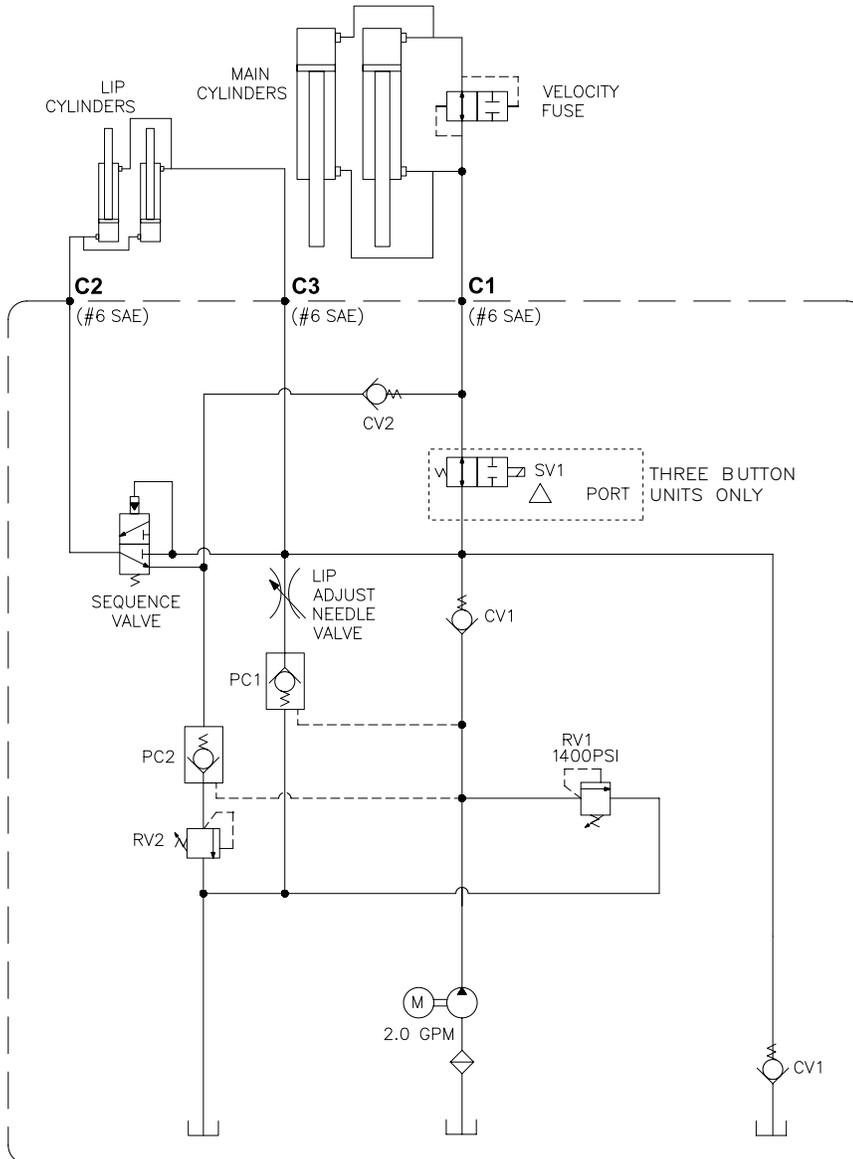
HYDRAULIC SCHEMATIC

Fig. 36 — 60,000 lbs. capacity configuration shown (single main cylinder)



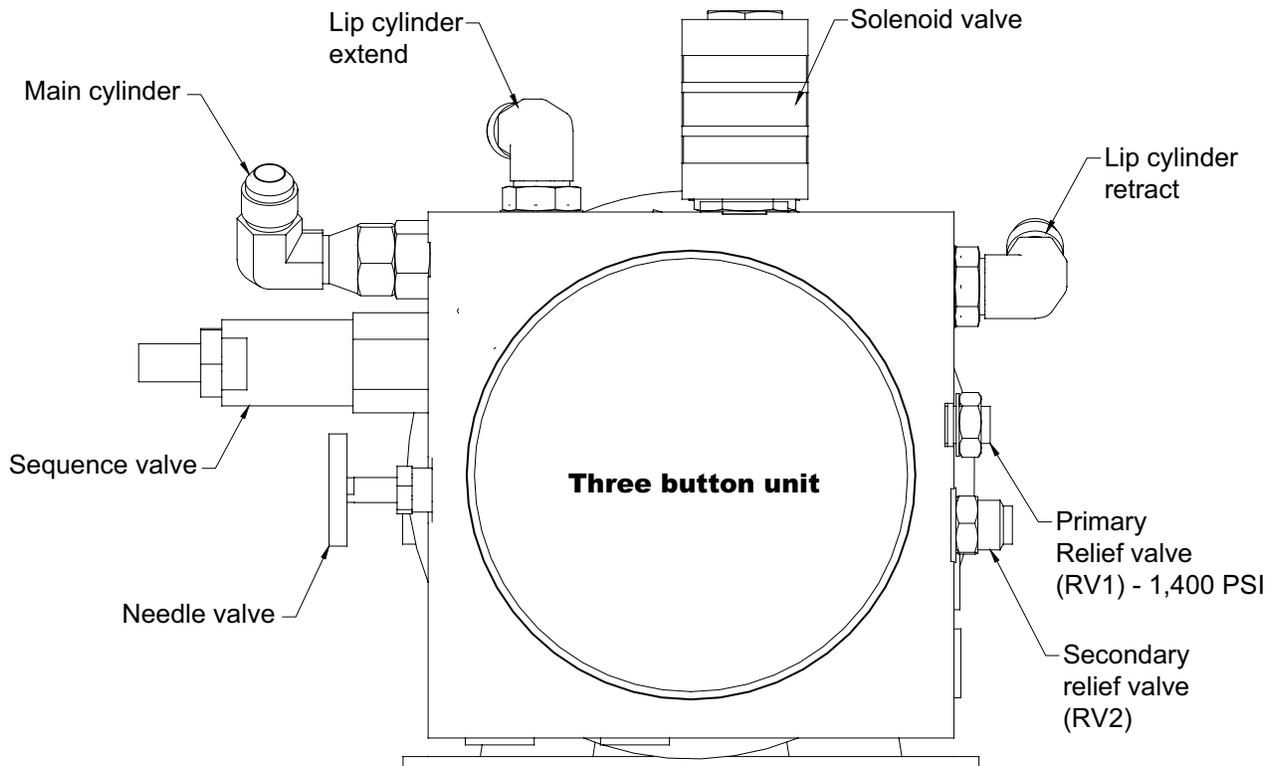
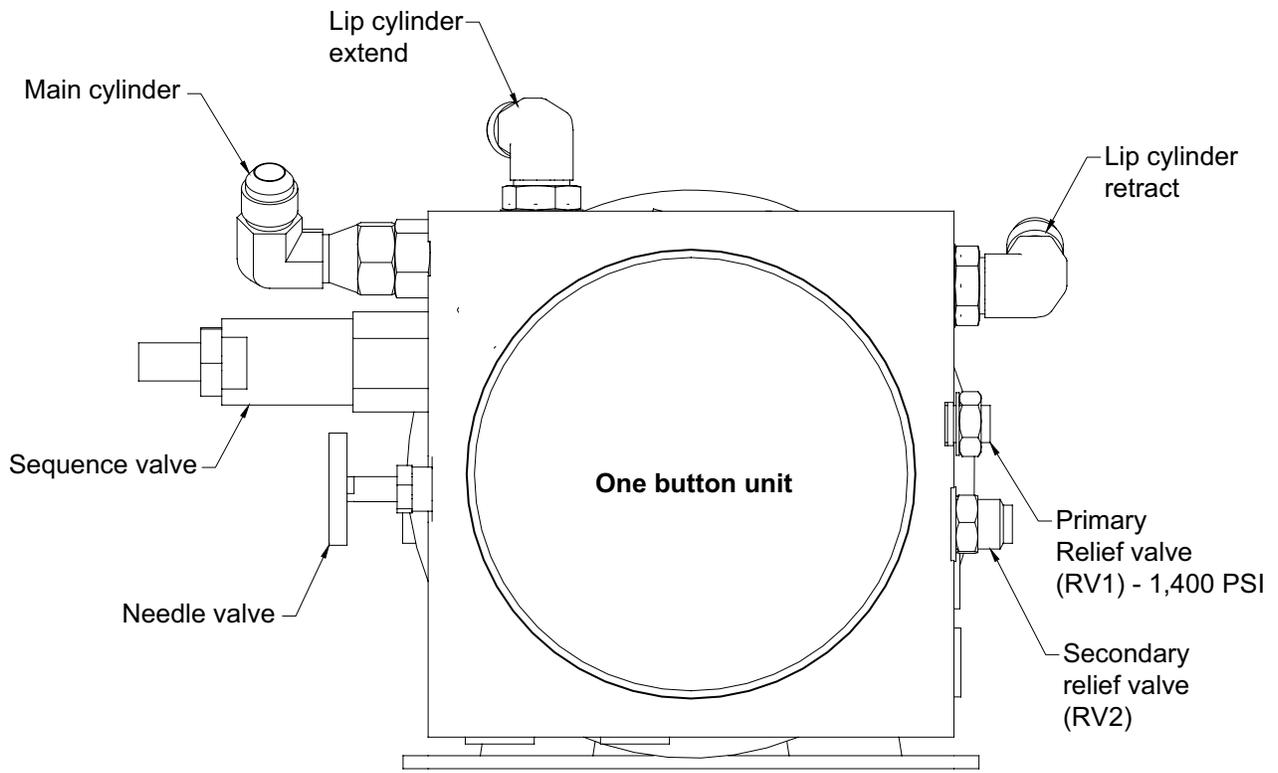
HYDRAULIC SCHEMATIC

Fig. 37 — 60,000 dual and 80,000 lbs. capacity configuration shown (dual lip and main cylinders)



HYDRAULIC VALVE — CROSS SECTION

Fig. 38



ELECTRICAL SCHEMATIC

One Button Units

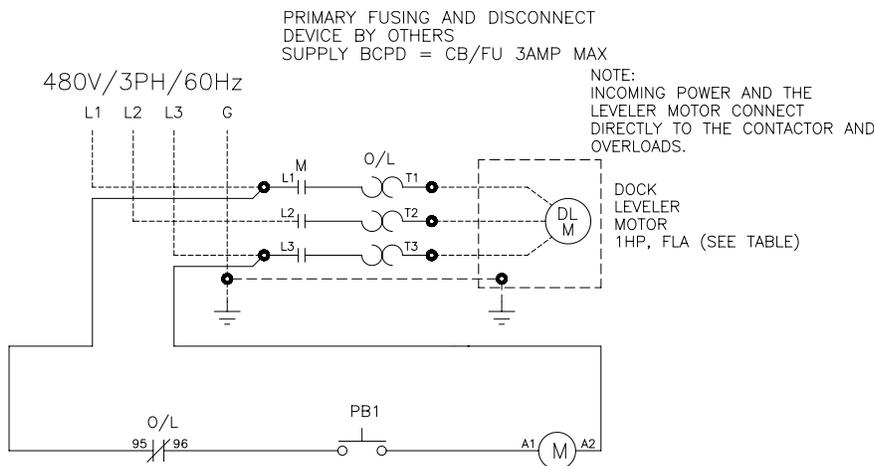
⚠ DANGER

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 uninsulated tools inside the control box. Touching wires or other parts inside the control box could result in electrical shock, death or serious injury.

NOTE:

For 24V incoming power consult factory.

Fig. 39



NOTE:

480V/3PH shown. For other voltages, reference schematic located inside control panel or consult factory

LEGEND

- M DOCK LEVELER CONTACTOR
- PB1 LEVELER RAISE
- DIRECT DEVICE CONNECTION

LEGEND:
EXTERNAL CONNECTIONS -----
INTERNAL WIRING _____

CONTROL PANEL		VOLTAGE	PHASE	HZ	MOTOR F.L.A	PANEL F.L.A	O/L SETTING	CB/FU MAX
SERCO	KELLEY							
6006420	6006461	120	1	60	11.2A	11.3A	11.2 AMPS	20A
6006421	6006462	208	1	60	7.0A	7.1A	7.0 AMPS	10A
6006421	6006462	240	1	60	6.6A	6.7A	6.6 AMPS	10A
6006423	6006450	208	3	60	4.0A	4.1A	4.0 AMPS	6A
6006423	6006450	240	3	60	3.6A	3.7A	3.6 AMPS	6A
6006425	6006451	480	3	60	1.8A	1.9A	1.8 AMPS	3A
6006426	6006452	575	3	60	1.6A	1.7A	1.6 AMPS	3A

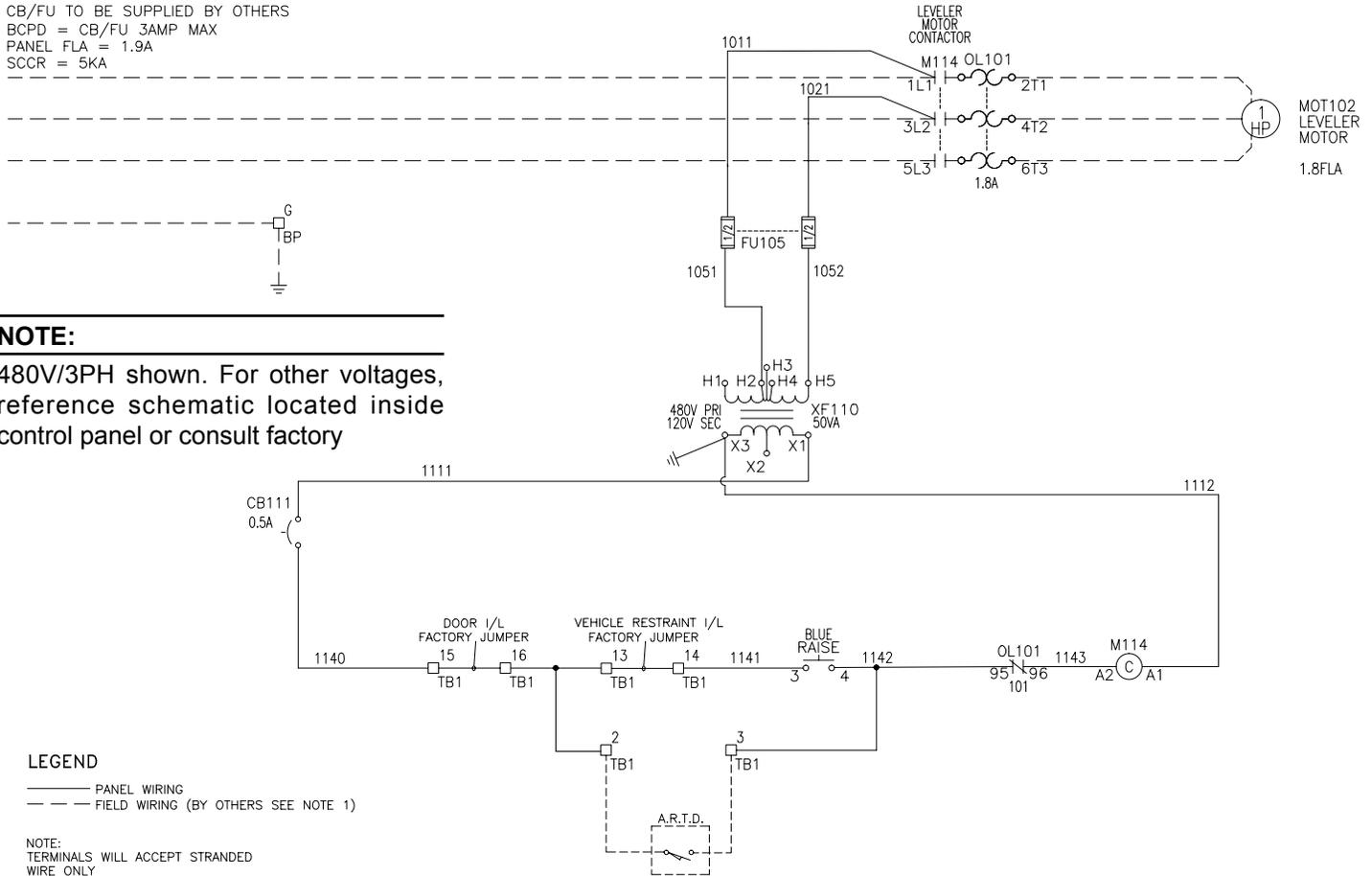
Use class CC time delay fuses

ELECTRICAL SCHEMATIC

One Button Units with Optional Interlock and A.R.T.D.

Fig. 40

CB/FU TO BE SUPPLIED BY OTHERS
 BCPD = CB/FU 3AMP MAX
 PANEL FLA = 1.9A
 SCCR = 5KA



NOTE:

480V/3PH shown. For other voltages, reference schematic located inside control panel or consult factory

LEGEND

- PANEL WIRING
- - - FIELD WIRING (BY OTHERS SEE NOTE 1)

NOTE:
 TERMINALS WILL ACCEPT STRANDED WIRE ONLY

WIRE COLOR/GAUGE (NFPA)

(unless otherwise specified)
 208-600VAC: #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

NOTES:

1. FIELD TERMINAL WIRING: 90 DEGREE WIRE, MIN 16AWG FOR SIGNAL WIRING, MIN 14AWG FOR INCOMING POWER, SEE CHART IN PANEL FOR TORQUE REQUIREMENTS
2. DOOR INTERLOCK: LEVELER WILL NOT OPERATE UNLESS DOOR IS FULLY RAISED. DOOR SWITCH SUPPLIED BY OTHERS.
3. VEHICLE RESTRAINT INTERLOCK: LEVELER WILL NOT OPERATE UNLESS RESTRAINT IS RAISED OR SWITCHED TO OVERRIDE.
4. A.R.T.D SWITCH (625-040) SUPPLIED ON HLR LEVELERS LOCATED ON LIP EXTENSION BAR ON LIP CYLINDER

CONTROL PANEL		VOLTAGE	PHASE	HZ	MOTOR F.L.A	PANEL F.L.A	O/L SETTING	CB/FU MAX
SERCO	KELLEY							
6012848	6012869	120	1	60	11.2A	11.3A	11.2 AMPS	20A
6012853	6012870	208	1	60	7.0A	7.1A	7.0 AMPS	10A
6012854	6012871	240	1	60	6.6A	6.7A	6.6 AMPS	10A
6012855	6012872	208	3	60	4.0A	4.1A	4.0 AMPS	6A
6012856	6012873	240	3	60	3.6A	3.7A	3.6 AMPS	6A
6012857	6012874	480	3	60	1.8A	1.9A	1.8 AMPS	3A
6012848	6012875	575	3	60	1.6A	1.7A	1.6 AMPS	3A

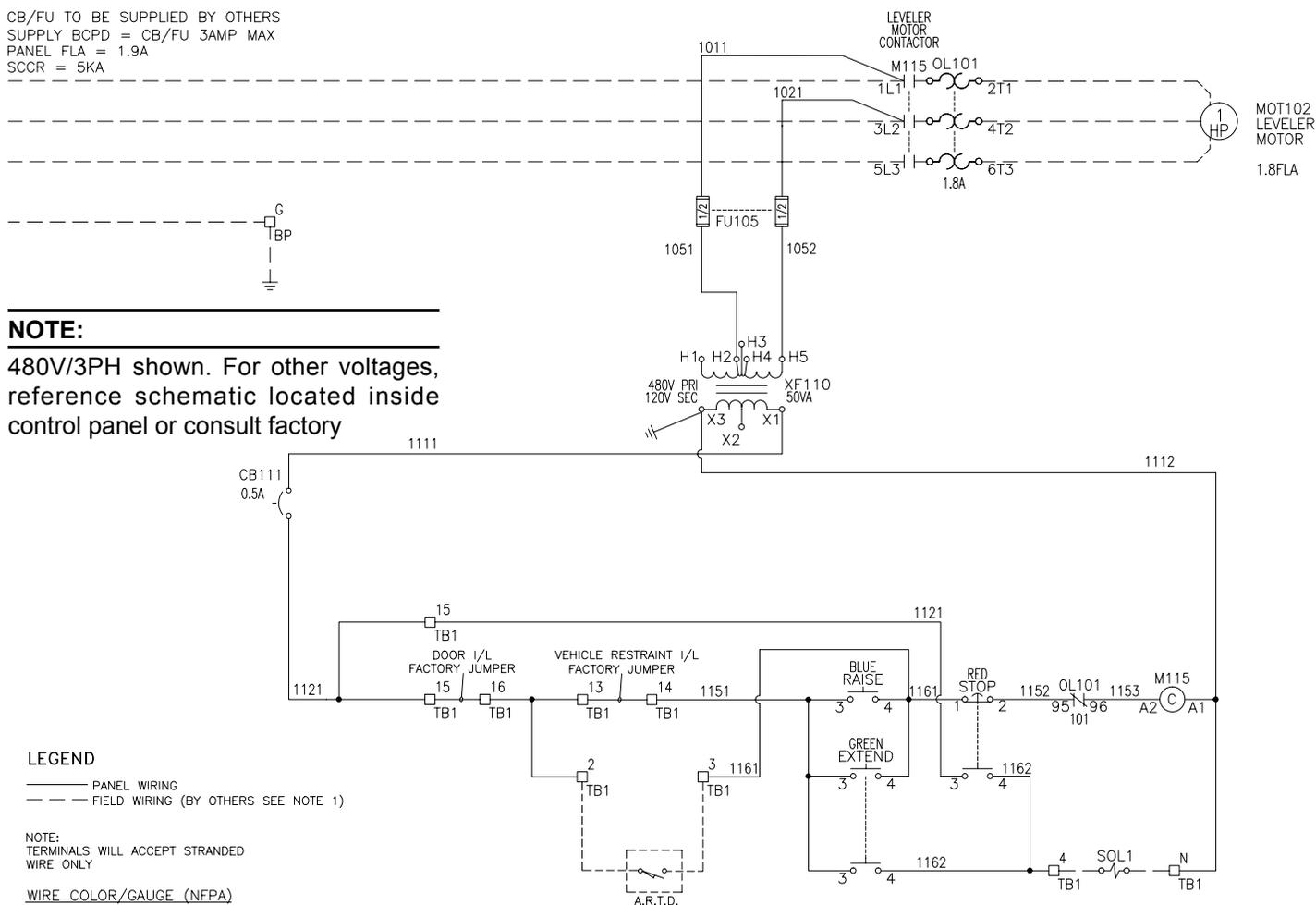
Use class CC time delay fuses

ELECTRICAL SCHEMATIC

Three Button Units with Optional A.R.T.D.

Fig. 41

CB/FU TO BE SUPPLIED BY OTHERS
 SUPPLY BCPD = CB/FU 3AMP MAX
 PANEL FLA = 1.9A
 SCCR = 5KA



NOTE:

480V/3PH shown. For other voltages, reference schematic located inside control panel or consult factory

LEGEND

- PANEL WIRING
- - - FIELD WIRING (BY OTHERS SEE NOTE 1)

NOTE:
 TERMINALS WILL ACCEPT STRANDED WIRE ONLY

WIRE COLOR/GAUGE (NFPA)
 (unless otherwise specified)

- 208-600VAC: #14, BLK
- 120VAC: #16, RED
- 24VAC: #16, RED/BLK
- NEUTRAL: #16, WHT
- GROUND: GRN
- 24VDC: #18, BLU
- 24V COM (0VDC): #18, BLU/WHT
- 12VAC/VDC: #18, VIO
- 12V COM: #18, VIO/WHT
- DRY (UNPOWERED): #18, YLW

NOTES:

1. FIELD TERMINAL WIRING: 90 DEGREE WIRE, MIN 16AWG FOR SIGNAL WIRING, MIN 14AWG FOR INCOMING POWER. SEE CHART IN PANEL FOR TORQUE REQUIREMENTS
2. DOOR INTERLOCK: LEVELER WILL NOT OPERATE UNLESS DOOR IS FULLY RAISED. DOOR SWITCH SUPPLIED BY OTHERS.
3. VEHICLE RESTRAINT INTERLOCK: LEVELER WILL NOT OPERATE UNLESS RESTRAINT IS RAISED OR SWITCHED TO OVERRIDE.
4. A.R.T.D SWITCH (625-040) SUPPLIED ON HLR LEVELERS LOCATED ON LIP EXTENSION BAR ON LIP CYLINDER
5. SOLENOID VALVE (313-546) IS LOCATED ON TOP OF PUMP HOUSING AND IS WIRED INTO FRAME MOUNTED JUNCTION BOX.

CONTROL PANEL		VOLTAGE	PHASE	HZ	MOTOR F.L.A	PANEL F.L.A	O/L SETTING	CB/FU MAX
SERCO	KELLEY							
6012859	6012876	120	1	60	11.2A	11.3A	11.2 AMPS	20A
6012860	6012877	208	1	60	7.0A	7.1A	7.0 AMPS	10A
6012861	6012878	240	1	60	6.6A	6.7A	6.6 AMPS	10A
6012865	6012879	208	3	60	4.0A	4.1A	4.0 AMPS	6A
6012866	6012880	240	3	60	3.6A	3.7A	3.6 AMPS	6A
6012867	6012881	480	3	60	1.8A	1.9A	1.8 AMPS	3A
6012868	6012882	575	3	60	1.6A	1.7A	1.6 AMPS	3A

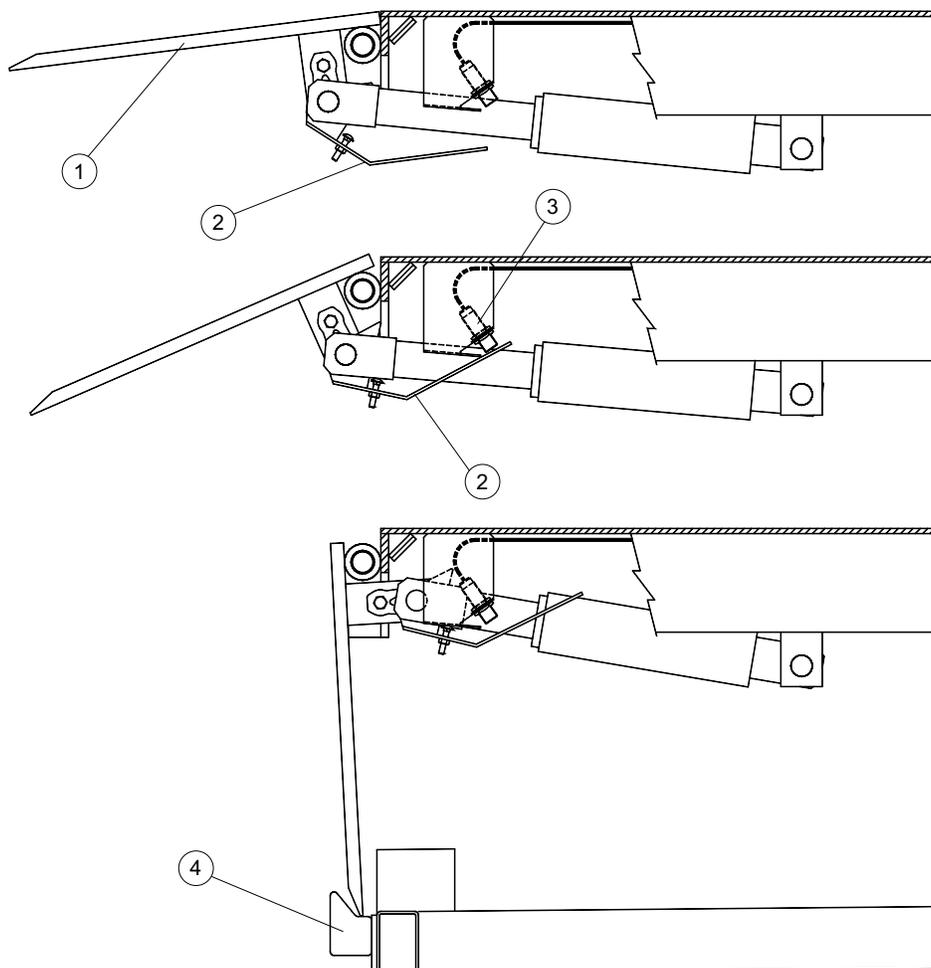
Use class CC time delay fuses

OPTIONAL AUTO-RETURN-TO-DOCK (A.R.T.D.) — OPERATIONS

Use information in the section for those levelers equipped with the optional auto-return-to-dock (A.R.T.D.) feature.

1. When the lip (1) is extended the target bracket (2) rotates to the position shown.
2. When the leveler floats down to the frame, the lip will fall and cause the target bracket (2) on the lip arm to activate the proximity switch (3) on the deck. The motor will start and the leveler will raise.
3. When raised above the lip keepers (4), the lip will fully retract and the target bracket will be forced away from the proximity switch. The motor will stop and the leveler will float down until the lip rests in the keepers.

Fig. 42



OPTIONAL A.R.T.D. PROXIMITY SWITCH ADJUSTMENT

▲ DANGER

Be certain before climbing into the dock leveler pit or doing any maintenance or repair under the dock leveler, that:

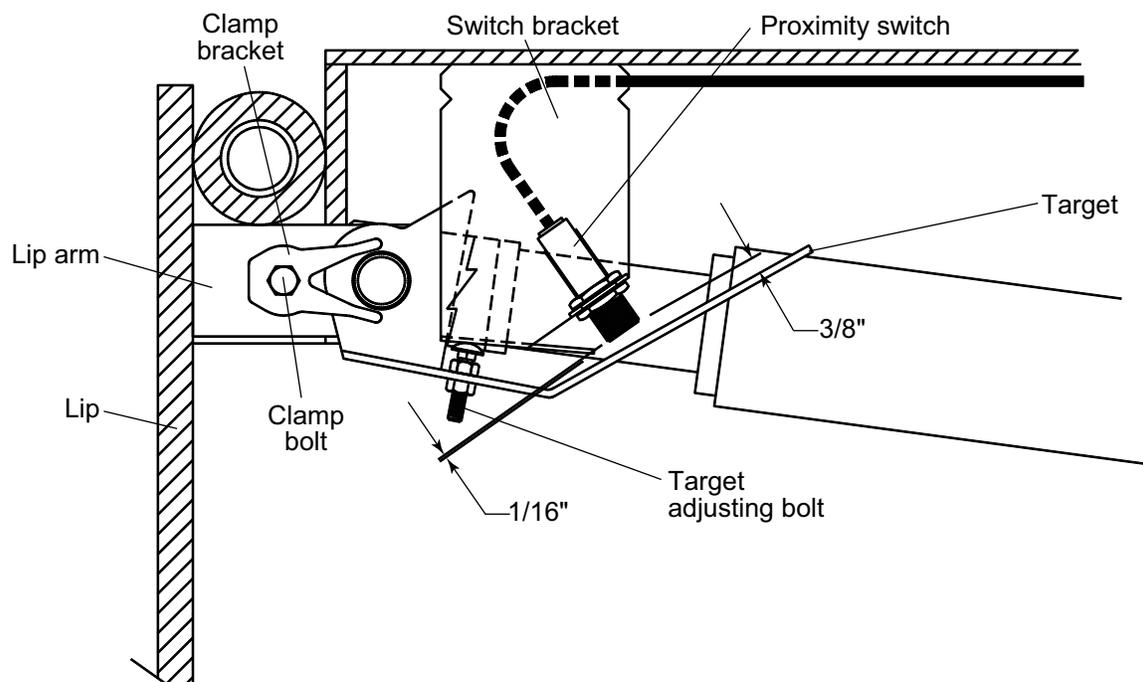
- 1) BOTH MAINTENANCE STRUTS ARE SECURELY SUPPORTING THE DOCK LEVELER.
- 2) The power is disconnected and properly tagged or locked out.

▲ WARNING

Before servicing the dock leveler, read and follow the Safety Practices on page 3 and the Operation section in this manual.

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

Fig. 43



1. The end of the proximity switch should be 1/16" (1.5 mm) above the end of the guard bracket as shown. To adjust the proximity switch, turn the nuts and secure when the desired position is achieved.
2. The target bracket should rotate easily by hand yet must be held firmly to the lip arm by the clamp bracket. Adjust the clamp bolt as required. Proper clamping should be achieved by turning the nut 1/2 turn more than required to prevent the bolt from being loose.
3. With the leveler raised and the lip fully retracted, the clearance between the proximity switch and the target bracket should be approximately 3/8" (10mm). To adjust the target clearance, loosen the two locking nuts and turn the adjusting bolt. Secure the nuts when the desired position is achieved.
4. Restore the electrical power and operate the dock leveler. If the lip does not close fully and store properly in the lip keepers, adjust the bolt to decrease the target clearance. If the motor does not stop when the lip is fully closed, adjust the bolt to increase the target clearance.

PARTS LIST — DOCK LEVELER

60,000 Single/Dual and 80,000 lb. Capacity

⚠ WARNING

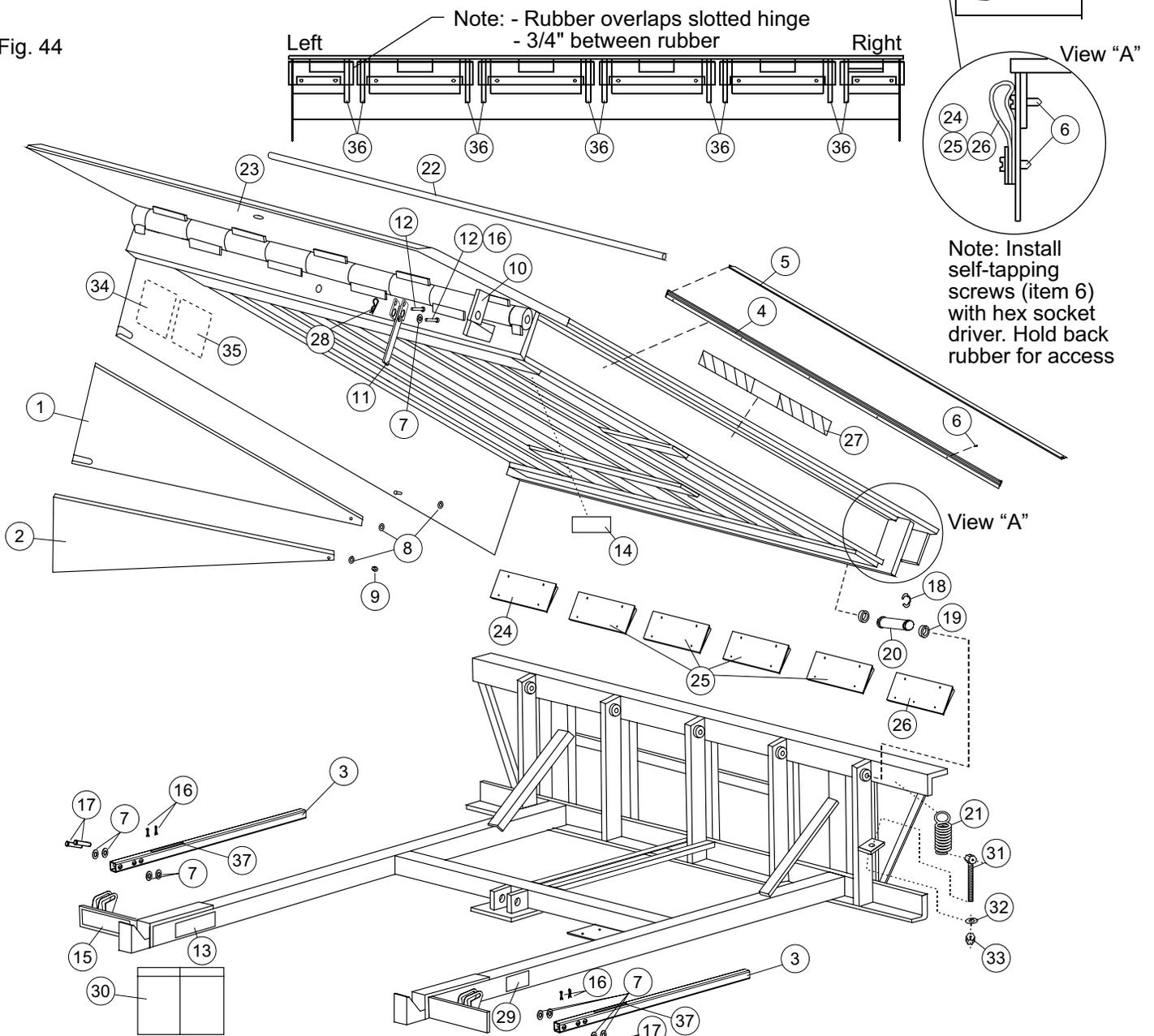
To ensure proper function, durability and safety of the product, only replacement parts that do not interfere with the safe, normal operation of the product must be used. Incorporation of replacement parts or modifications that weaken the structural integrity of the product, or in a way alter the product from its normal working condition at the time of purchase from 4Front Engineered Solutions, Inc. could result in product malfunction, breakdown, premature wear, death or serious injury.

NOTE:

Left hand side toe guard removed for clarity.

Note: For installation of rear weatherseal, lift rear with 3/4" eyebolt to clear backframe

Fig. 44



PARTS LIST — DOCK LEVELER, continued

60,000 Single/Dual and 80,000 lb. Capacity

Part Number

Item	Qty.	Part Description	600	800	1000	1200
1	1	TOE GUARD, MIDDLE, LEFT	586-1657	586-0438	586-1043	586-2737
	1	TOE GUARD, MIDDLE, RIGHT	586-1658	586-0439	586-1042	586-2738
2	1	TOE GUARD, LOWER, LEFT	586-1659	586-0440	586-1045	586-2739
	1	TOE GUARD, LOWER, RIGHT	586-1660	586-0441	586-1044	586-2740
3	2	MAINTENANCE STRUT, DOCK LEVELER	586-2966	586-2966	586-2966	586-2966
4	2	WEATHER SEAL MOUNTING STRIP	328-897	328-898	328-899	328-896
5	2	WEATHER SEAL - NARROW PROJECTION - RUBBER	152-324(5FT)	152-324(7FT)	152-324(9FT)	152-324(11FT)
	2	WEATHER SEAL - WIDE PROJECTION - RUBBER	152-325(5FT)	152-325(7FT)	152-325(9FT)	152-325(11FT)
	2	WEATHER SEAL - NARROW PROJECTION - BRUSH	328-886	328-887	328-888	328-865
	2	WEATHER SEAL - WIDE PROJECTION - BRUSH	328-907	328-908	328-909	328-900
6	—	SELF TAPPING SCREW - STS #12-14 X 3/4 TEKS	215-702(6)	215-702(8)	215-702(8)	215-702(14)
7	10	PW 1/2" BOLT SIZE, 9/16" HOLE	234-121	234-121	234-121	234-121
8	6	PLAIN WASHER - 7/16" I.D.	234-101	234-101	234-101	234-101
9	2	HEX NUT - 3/8" NYLOCK	214-538	214-538	214-538	214-538
10	1	LIP CYLINDER MOUNT 60K	586-1456	586-1456	586-1456	586-1456
	2	LIP CYLINDER MOUNT 80K	586-3119	586-3119	586-3119	586-3119
11	1	LIP PLATE MAINTENANCE BAR - DOCK LEVELER	6003106	6003106	6003106	6003106
12	2	CLEVIS PIN - 1/2" X 1-1/4"	035-049	035-049	035-049	035-049
13	2	SAFETY LABEL (ENTERING PIT)	921-070	921-070	921-070	921-070
14	1	SAFETY LABEL (OPTIONAL A.R.T.D.)	921-075	921-075	921-075	921-075
15	1	SERCO® LABEL	824-002	824-002	824-002	824-002
	1	KELLEY® LABEL	921-140	921-140	921-140	921-140
16	5	COTP 1/8" X 3/4"	231-341	231-341	231-341	231-341
17	4	CLEVIS PIN - 1/2" DIA X 2-1/4" LONG	231-506	231-506	231-506	231-506
18	5	RETAINING RING	236-114	236-114	236-114	236-114
19	10	REAR HINGE SPACER	586-1382	586-1382	586-1382	586-1382
20	5	PIN, DECK PIVOT HD	6003855	6003855	6003855	6003855
21	2	SPRING D84 - EXTENSION	333-029	333-029	333-029	333-029

PARTS LIST — DOCK LEVELER, continued

60,000 Single/Dual and 80,000 lb. Capacity

Capacity and Part Number				
Item	Qty.	Part Description	60,000	80,000
22	1	LIP HINGE PIN - 6'	586-0287	586-2333
	1	LIP HINGE PIN - 6.5'	586-1495	586-2334
	1	LIP HINGE PIN - 7'	586-0392	586-2335
23	1	LIP PLATE ASSY - 6' X 18"	3-0896	3-1602
	1	LIP PLATE ASSY - 6' X 20"	3-0897	3-1603
	1	LIP PLATE ASSY - 6'6" X 18"	3-3485	3-1621
	1	LIP PLATE ASSY - 6'6" X 20"	3-3486	3-1622
	1	LIP PLATE ASSY - 7' X 18"	3-0898	3-1604
	1	LIP PLATE ASSY - 7' X 20"	3-0899	3-1605

DOCK GUARD LIP (A replacement dock guard lip cannot be ordered for a leveler not originally equipped with this item.)

23	1	DGL LIP PLATE ASSY - 6' X 18"	3-1630	3-1636
	1	DGL LIP PLATE ASSY - 6' X 20"	3-1633	3-1639
	1	DGL LIP PLATE ASSY - 6'6" X 18"	3-1631	3-1637
	1	DGL LIP PLATE ASSY - 6'6" X 20"	3-1634	3-1640
	1	DGL LIP PLATE ASSY - 7' X 18"	3-1632	3-1638
	1	DGL LIP PLATE ASSY - 7' X 20"	3-1635	3-1641

Model and Part Number					
Item	Qty.	Part Description	6' wide	6.5' wide	7' wide
24	1	REAR WEATHERSEAL ASSY. - RIGHT	8-8645	8-9374	8-8646
25	4	REAR WEATHERSEAL ASSY. - MIDDLE	8-9172	8-9172	8-9172
26	1	REAR WEATHERSEAL ASSY. - LEFT	8-8640	8-9375	8-8641

PARTS LIST — DOCK LEVELER, continued

60,000 Single/Dual and 80,000 lb. Capacity

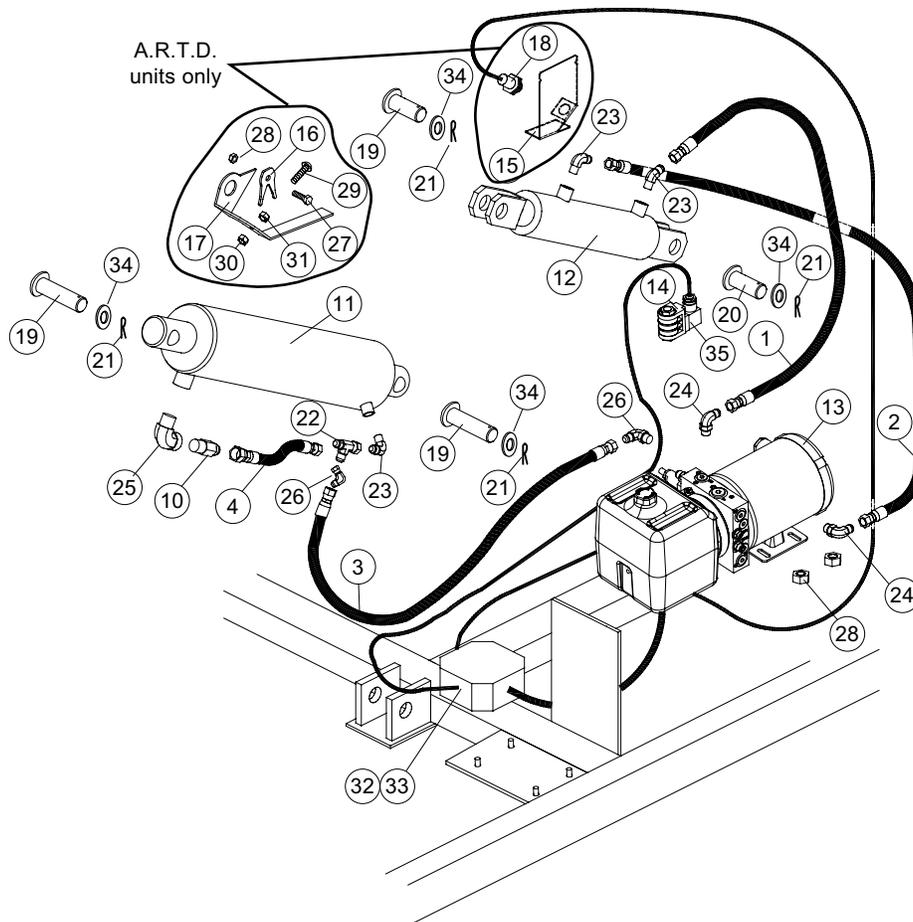
Item	Qty.	Part Description	Part Number			
			600	800	1000	1200
27	2	DO NOT LIFT/TRIP WARNING LABEL	138-837	138-837	138-837	138-837
28	1	HITCH PIN CLIP - 1/8" DIA	231-503	231-503	231-503	231-503
29	1	SERIAL TAG	6009761	6009761	6009761	6009761
30	1	PLACARD (1-BUTTON CONTROL)	6004905	6004905	6004905	6004905
	1	PLACARD (3-BUTTON CONTROL)	6004906	6004906	6004906	6004906
31	2	TENSION BOLT ASSY.	8-8010	8-8010	8-8010	8-8010
32	2	PLAIN WASHER 5/8" BOLT SIZE - 11/16" HOLE	234-131	234-131	234-131	234-131
33	2	LOCK NUT 5/8" - 11 UNC NYLOCK	215-288	215-288	215-288	215-288
34	2	USER WARNING LABEL	6008485	6008485	6008485	6008485
35	2	BRAND IDENTIFIER LABEL - SERCO®	921-185	921-185	921-185	921-185
	2	BRAND IDENTIFIER LABEL - KELLEY®	921-186	921-186	921-186	921-186
36	10	SLOTTED PLATE - 3/8" DECK	328-878	328-878	328-878	328-878
37	2	SAFETY LABEL - MAINTENANCE STRUT	921-074	921-074	921-074	921-074

PARTS LIST — HYDRAULIC AND ELECTRICAL

▲ DANGER

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 uninsulated tools inside the control box. Touching wires or other parts inside the control box could result in electrical shock, death or serious injury.

Fig. 45 - Single Cylinder - Single and 3 Button Control - Pit Mount



PARTS LIST — HYDRAULIC AND ELECTRICAL, continued

Fig. 46 - Single Cylinder - Single Button Control - Remote Mount

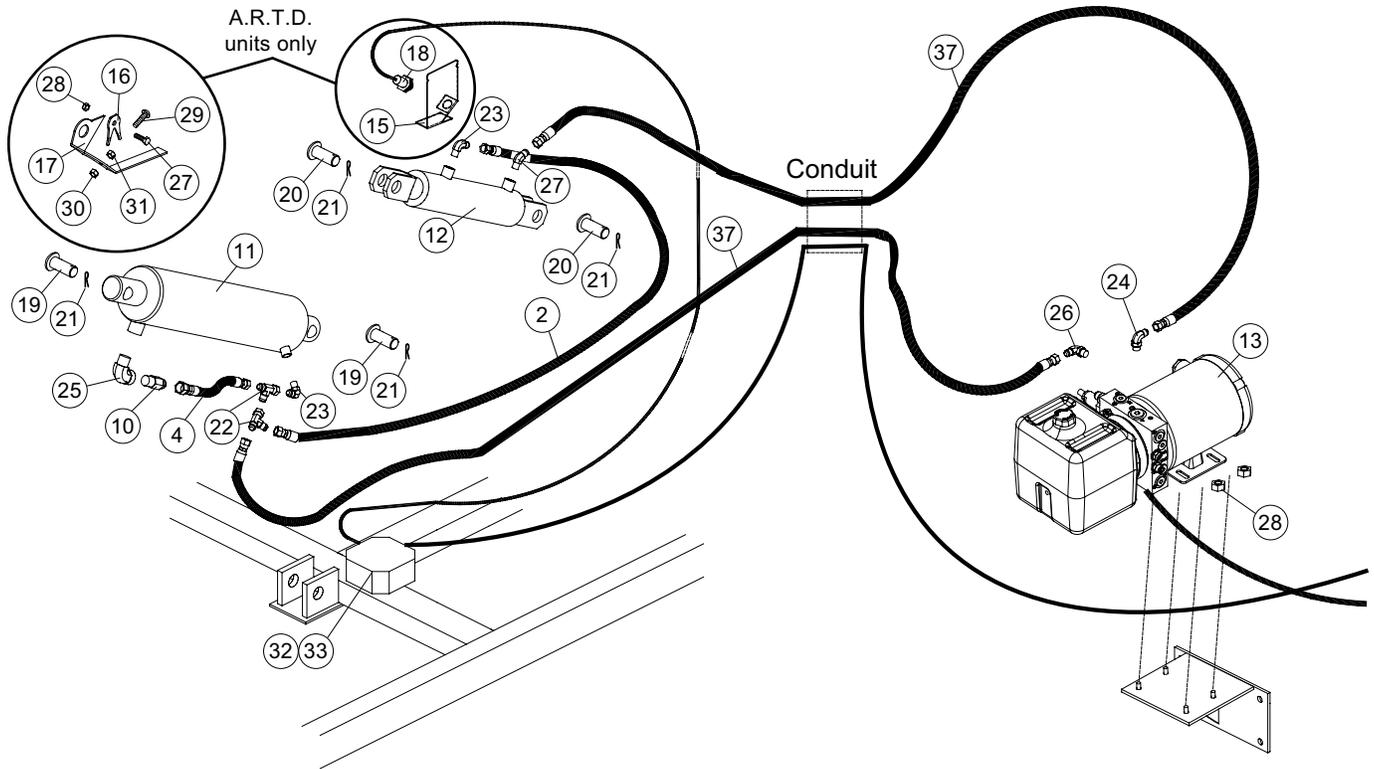
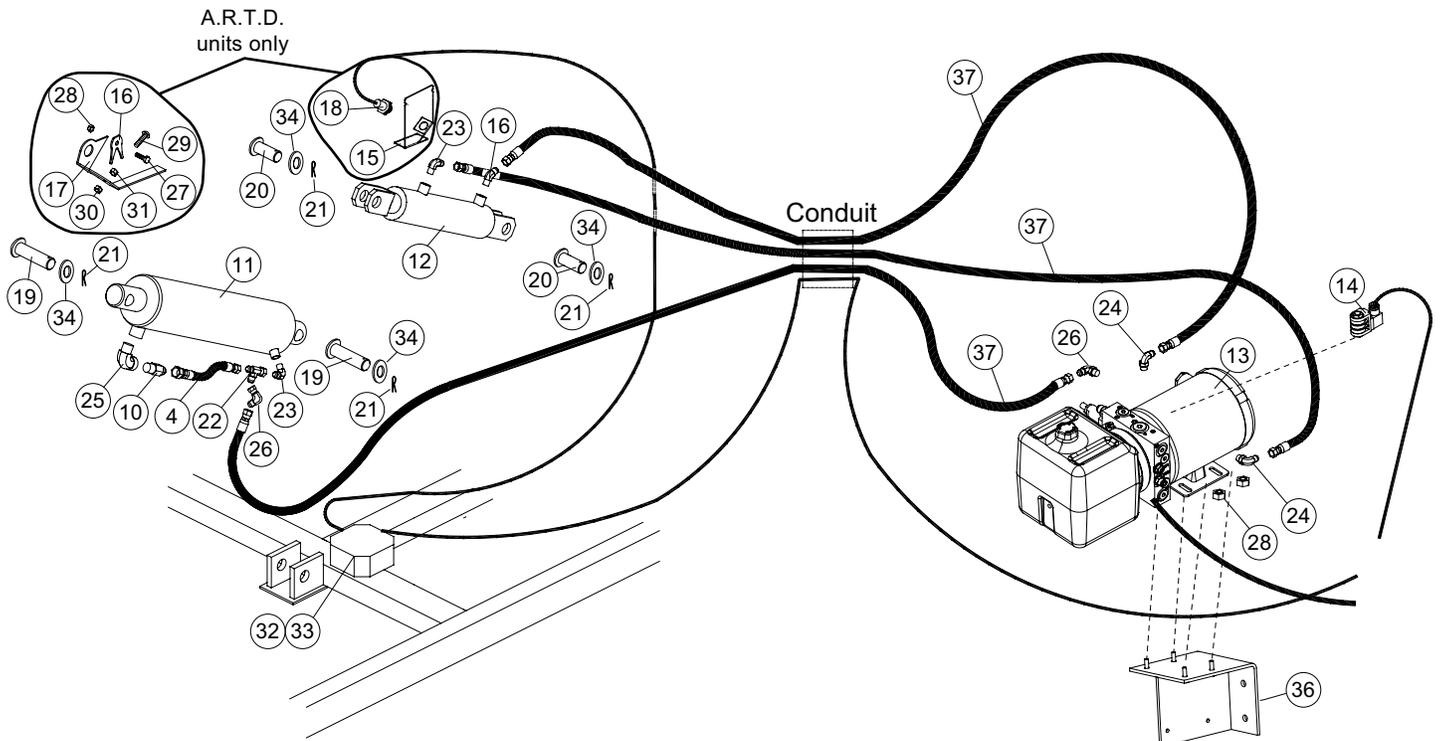
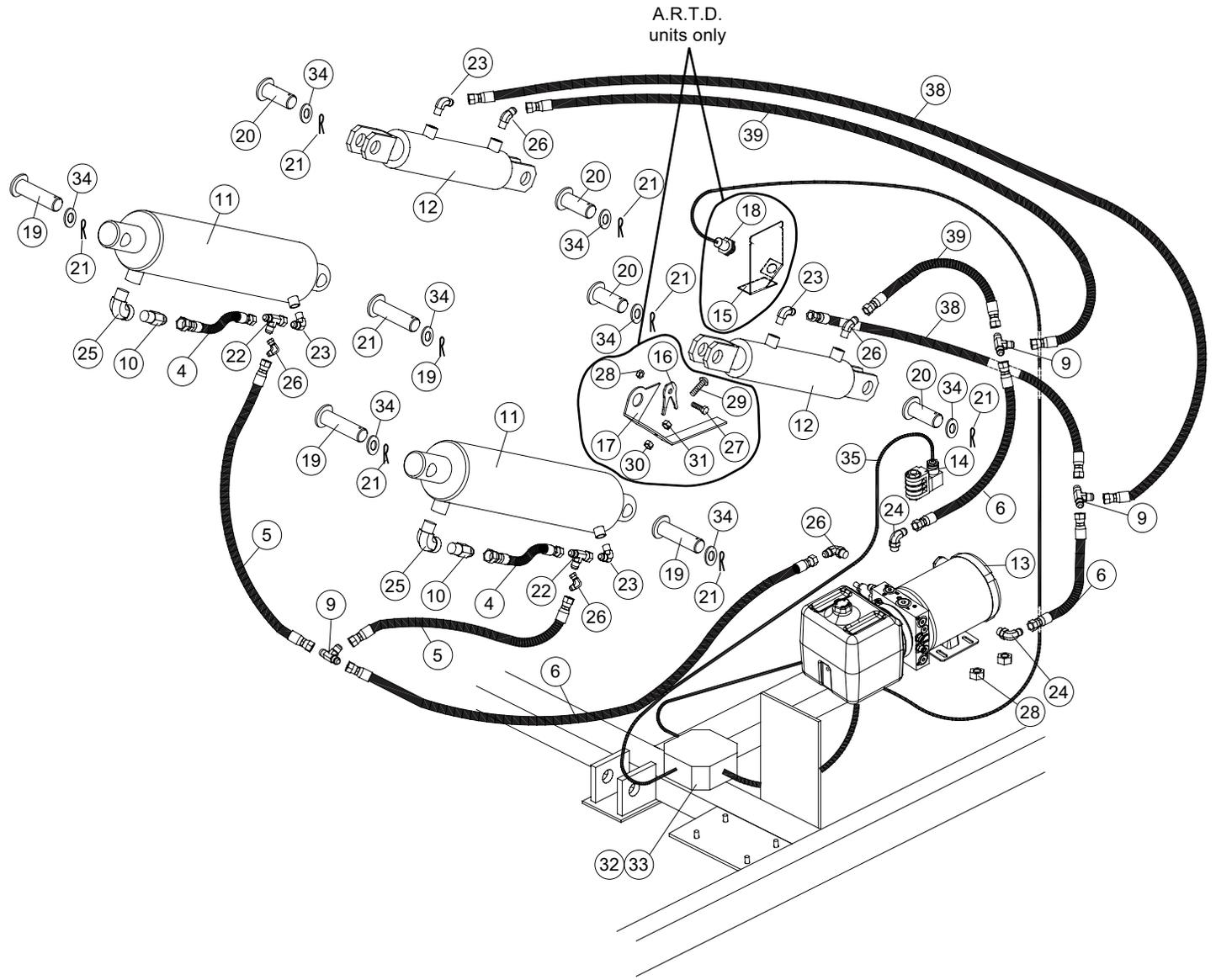


Fig. 47 - Single Cylinder - 3 Button Control - Remote Mount



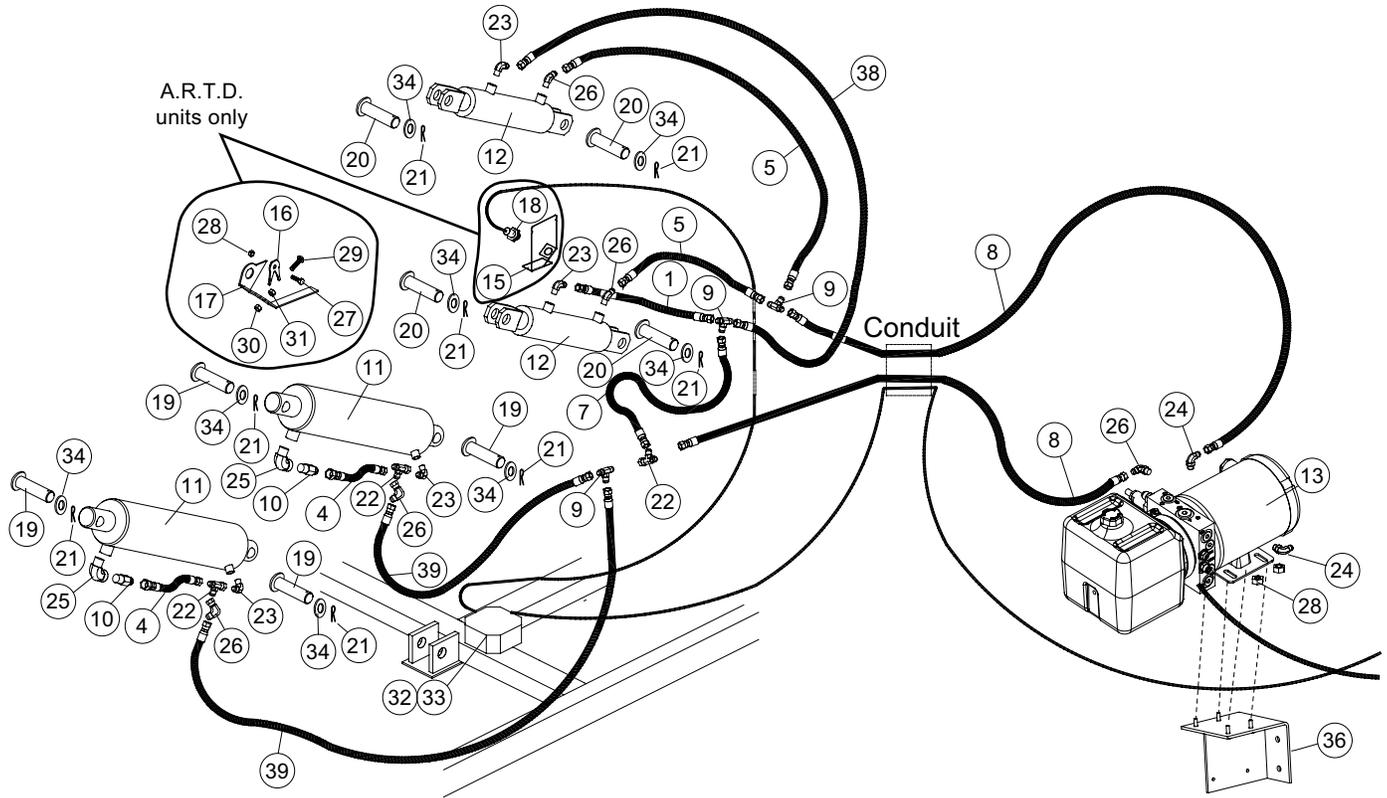
PARTS LIST — HYDRAULIC AND ELECTRICAL, continued

Fig. 48 - Dual Cylinder - Single and 3 Button Control - Pit Mount



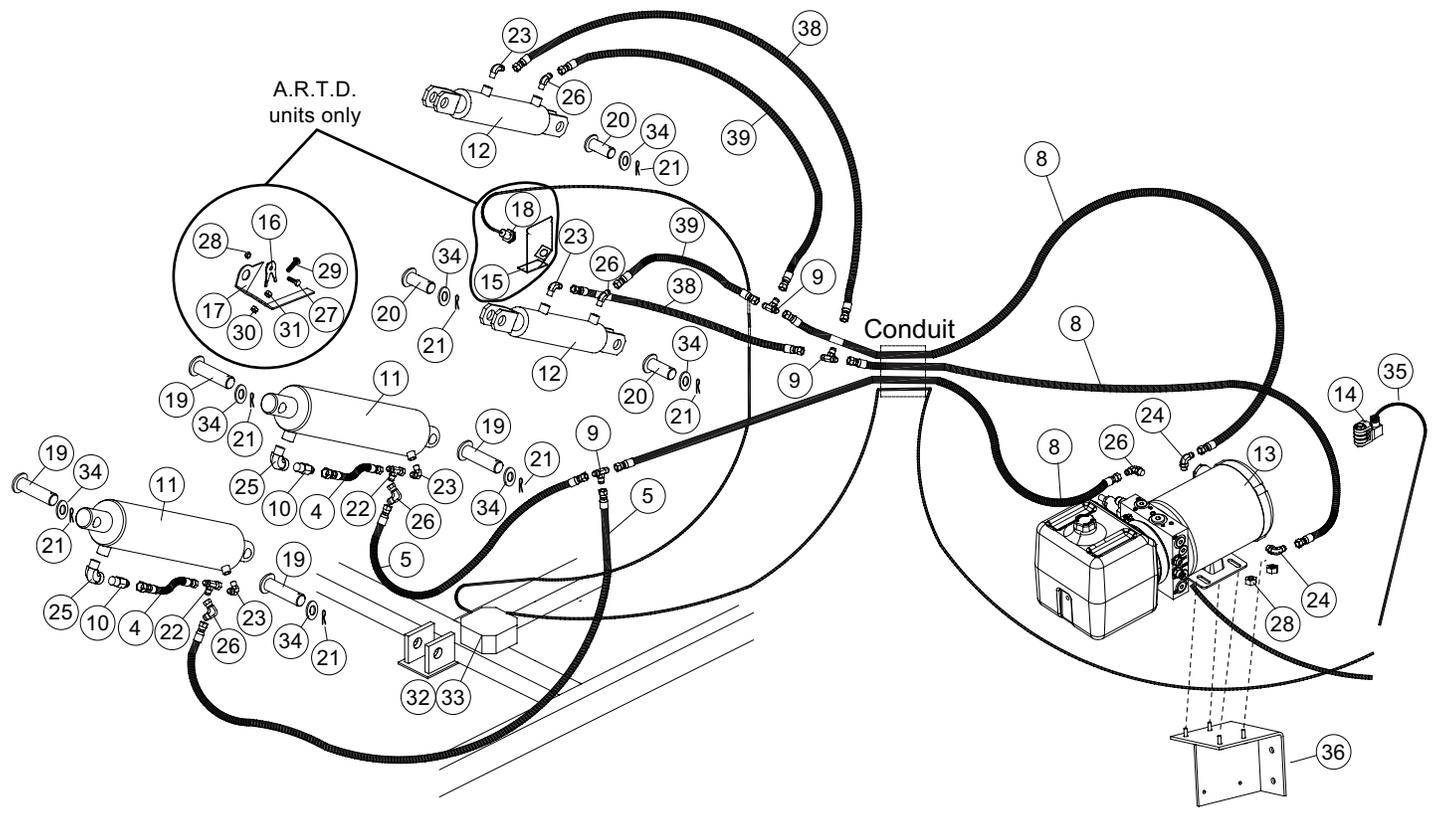
PARTS LIST — HYDRAULIC AND ELECTRICAL, continued

Fig. 49 - Dual Cylinder - Single Button Control - Remote Mount



PARTS LIST — HYDRAULIC AND ELECTRICAL, continued

Fig. 50 - Dual Cylinder - 3 Button Control - Remote Mount



PARTS LIST — HYDRAULIC AND ELECTRICAL, continued

Item	Part Description	Model and Part Number			
		600	800	1000	1200
1	HOSE ASSY. 1/4 X 50"	31958	—	—	—
	HOSE ASSY. 1/4 X 72"	—	31247	—	—
	HOSE ASSY. 1/4 X 84"	—	—	33641	—
	HOSE ASSY. 1/4 X 116"	—	—	—	34521
2	HOSE ASSY. 1/4 X 55-1/2"	31245	—	—	—
	HOSE ASSY. 1/4 X 78"	—	33637	—	—
	HOSE ASSY. 1/4 X 90"	—	—	33638	—
	HOSE ASSY. 1/4 X 110"	—	—	—	34522
3	HOSE ASSY. 1/4 X 34"	31937	31937	31937	31937
4	MAIN CYL. HOSE 3-1/2 X 20	313545	313545	313545	313545
5	HOSE ASSY. 3/8 X 44"	—	—	30062	30062
	HOSE ASSY. 3/8 X 36"	30061	30061	—	—
6	HOSE ASSY. 3/8 X 36"	30061	—	—	—
	HOSE ASSY. 3/8 X 57"	—	30063	—	—
	HOSE ASSY. 3/8 X 81"	—	—	30064	—
	HOSE ASSY. 3/8 X 105"	—	—	—	34622
7	HOSE ASSY. 3/8 X 16"	30065	30065	30065	30065
8	HOSE ASSY. 3/8 X 24FT	31401	—	—	—
	HOSE ASSY. 3/8 X 26FT	—	31402	—	—
	HOSE ASSY. 3/8 X 28FT	—	—	31403	—
	HOSE ASSY. 3/8 X 30FT	—	—	—	34623
9	UNION TEE	313-215	313-215	313-215	313-215
10	VELOCITY FUSE - 10 GPM	313-239	313-239	313-239	313-239
11	60K SINGLE - MAIN LIFT CYL	313-563	313-563	313-563	313-563
	60K DUAL, 80K - MAIN LIFT CYL	313-042	313-042	313-042	313-563
12	LIP PLATE CYLINDER, 2.5" X 6" STROKE	313-043	313-043	313-043	313-043
13	HYDRAULIC POWER UNIT 120, 208, 240/1/60	6011027	6011027	6011027	CONSULT FACTORY
	HYDRAULIC POWER UNIT 240, 480/3/60	6011028	6011028	6011028	CONSULT FACTORY
	HYDRAULIC POWER UNIT 575/3/60	6011029	6011029	6011029	CONSULT FACTORY

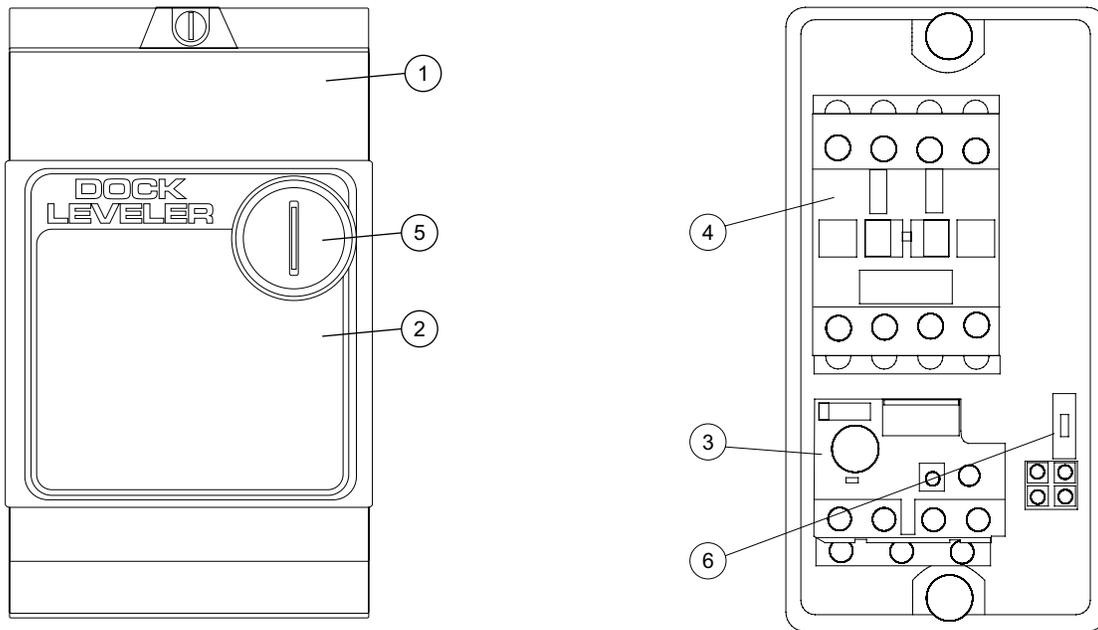
PARTS LIST — HYDRAULIC AND ELECTRICAL, continued

Item	Part Description	Part Number			
		600	800	1000	1200
14	SOLENOID VALVE ASSY. (3 BUTTON UNITS ONLY)	313-546	313-546	313-546	313-546
15	A.R.T.D. BRACKET	328-554	328-554	328-554	328-554
	A.R.T.D. BRACKET - DGL	586-1953	586-1953	586-1953	586-1953
16	A.R.T.D. CLAMP BRACKET	328-551	328-551	328-551	328-551
17	A.R.T.D. TARGET BRACKET	586-1838	586-1838	586-1838	586-1838
18	PROXIMITY SWITCH	586-040	586-040	586-040	586-040
19	MAIN CYLINDER PIVOT PIN	586-1066	586-1066	586-1066	586-1066
20	LIP CYLINDER PIVOT PIN	586-1063	586-1063	586-1063	586-1063
21	COTTER PIN	6001832	6001832	6001832	6001832
22	SWIVEL NUT TEE	313-105	313-105	313-105	313-105
23	FITTING - ELBOW	313-106	313-106	313-106	313-106
24	FITTING - O-RING ELBOW	313-214	313-214	313-214	313-214
25	FITTING - STREET ELBOW	313-102	313-102	313-102	313-102
26	SWIVEL NUT ELBOW	313-595	313-595	313-595	313-595
27	HEX BOLT	212-065	212-065	212-065	212-065
28	NYLOCK 5/16" - 18	214-522	214-522	212-065	212-065
29	CB 1/4" X 1-1/4"	213-019	213-019	213-019	213-019
30	NYLOCK 1/4"	214-502	213-502	213-502	213-502
31	HEX NUT 1/4"-20	214-161	214-161	214-161	214-161
32	JUNCTION BOX 4" X 4" X 2-1/8"	521-327	521-327	521-327	521-327
33	JUNCTION BOX COVER	521-328	521-328	521-328	521-328
34	FLAT WASHER, 1" ID	234-161	234-161	234-161	234-161
35	HIRSCHMANN CORD SET	6001351	6001351	6001351	6001351
36	BRACKET, WALL MOUNT	6000703	6000703	6000703	6000703
37	HOSE ASSY. 1/4 X 20FT	31938	—	—	—
	HOSE ASSY. 1/4 X 22FT	—	31649	—	—
	HOSE ASSY. 1/4 X 24FT	—	—	31650	—
	HOSE ASSY. 1/4 X 26FT	—	—	—	34624
38	HOSE ASSY. 3/8 X 42"	30060	30060	30060	30060
39	HOSE ASSY. 3/8 X 36"	30061	30061	30061	30061

PARTS LIST — CONTROL PANEL

Standard Control Panel

Fig. 51



Where Used / Qty

Complete Control Panel Assy. No.			Where Used / Qty							
			Serco®	120/1/60	208/1/60	240/1/60	208/3/60	240/3/60	480/3/60	575/3/60
Item	Part Description	Part #	6006420	6006421	6006421	6006423	6006423	6006425	6006426	
			Kelley®	6006461	6006462	6006462	6006450	6006450	6006451	6006452
1	PLASTIC CONTROL PANEL - ENCLOSURE	6006437		1	1	1	1	1	1	1
2	SERCO® CONTROL PANEL LABEL	6006436		1	1	1	1	1	1	1
	KELLY® CONTROL PANEL LABEL	6006453		1	1	1	1	1	1	1
3	12-18A OVERLOAD RELAY	6006435		1						
	5.5-8A OVERLOAD RELAY	6006434			1	1				
	2.5-4A OVERLOAD RELAY	6006433					1	1		
	1.6-2.5A OVERLOAD RELAY	6006432							1	1
4	120VAC MOTOR CONTACTOR, H.D.	6006427		1						
	208-240VAC MOTOR CONTACTOR, H.D.	6006428			1	1	1	1		
	480VAC MOTOR CONTACTOR, H.D.	6006430							1	
	600VAC MOTOR CONTACTOR, H.D.	6006431								1
5	PUSH-BUTTON	6006439		1	1	1	1	1	1	1
6	CONTACT ASSY. PLASTIC PANEL	6006438		1	1	1	1	1	1	1

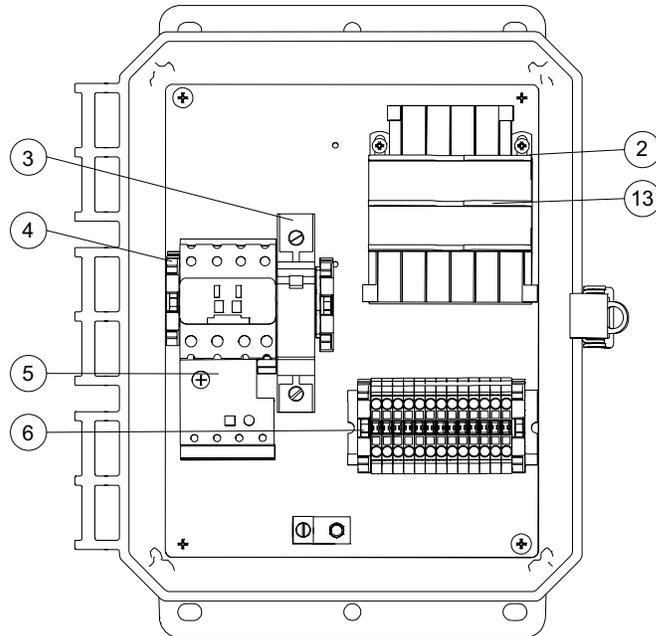
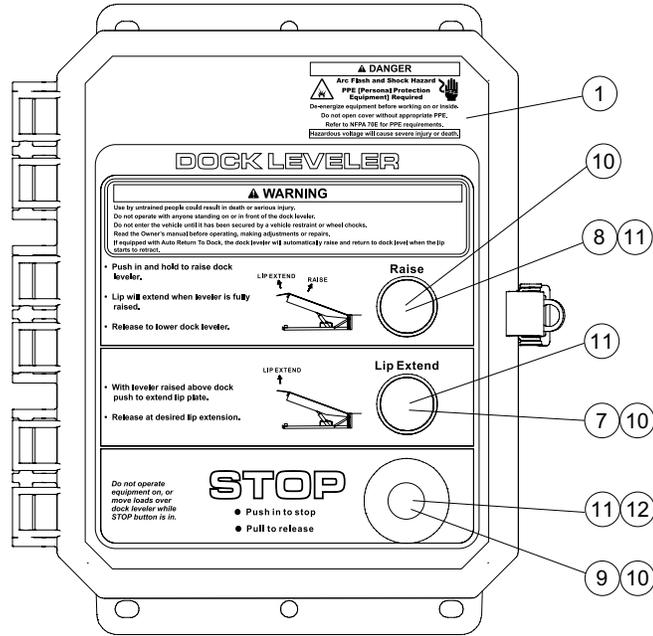
NOTE:

For 24V incoming power consult factory.

PARTS LIST — CONTROL PANEL, continued

Optional 3-Button Control Panel

Fig. 52



PARTS LIST — CONTROL PANEL, continued

Optional 3-Button Control Panel

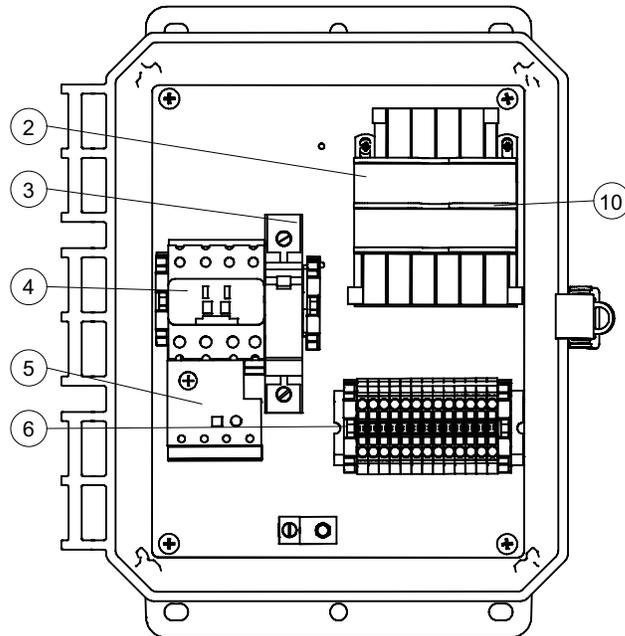
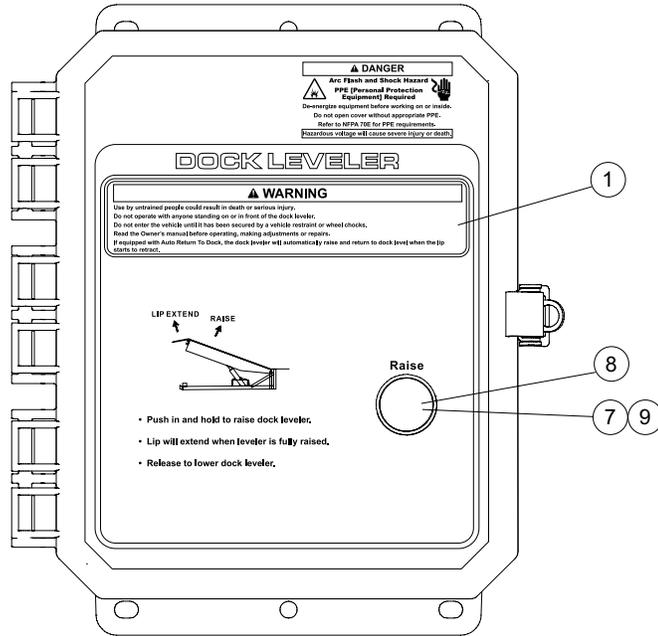
Where Used / Qty

Complete Control Panel Assy. No.			120/1/60	208/1/60	240/1/60	208/3/60	240/3/60	480/3/60	575/3/60	
			Serco®	6012859	6012860	6012861	2012865	2012866	6012867	6012868
			Kelley®	6012876	6012877	6012878	6012879	6012880	6012881	6012882
Item	Part Description	Part #								
1	SERCO® CONTROL PANEL LABEL	6012851	1	1	1	1	1	1	1	
	KELLEY® CONTROL PANEL LABEL	6012852	1	1	1	1	1	1	1	
2	TRANSFORMER 200/600 - 23/110, 50VA	6012567		1	1	1	1	1	1	
3	CIRCUIT BREAKER 0.5A	6012021	1	1	1	1	1	1	1	
4	CONTACTOR 18A 120V COIL	6012549	1							
	CONTACTOR 9A 1 N/O + 1 N/C 120V	6012922		1	1	1	1	1	1	
5	OVERLOAD RELAY 9-13A	6012560	1							
	OVERLOAD RELAY 5.5-8A	6012559		1	1					
	OVERLOAD RELAY 2.5-4A	6012558				1	1			
	OVERLOAD RELAY 1.6-2.5A	6012557						1	1	
6	TERMINAL 2 POLE	6000542	11	11	11	9	9	9	9	
7	PUSH BUTTON GREEN	6013065	1	1	1	1	1	1	1	
8	PUSH BUTTON BLUE	6013066	1	1	1	1	1	1	1	
9	PUSH BUTTON MUSHROOM RED	6012566	1	1	1	1	1	1	1	
10	MOUNTING COLLAR	6012562	3	3	3	3	3	3	3	
11	CONTACT BLOCK N/O	6012563	4	4	4	4	4	4	4	
12	CONTACT BLOCK N/C	6012564	1	1	1	1	1	1	1	
13	FUSE, ATQR 1/2A 600V CC	6011358		2	2	2	2	2		
	FUSE, ATQR 1/4A 600V CC	6011974							2	

PARTS LIST — CONTROL PANEL, continued

Optional Interlockable and A.R.T.D. 1-Button Control Panel

Fig. 53



PARTS LIST — CONTROL PANEL, continued

Optional Interlockable and A.R.T.D. 1-Button Control Panel

Where Used / Qty

Complete Control Panel Assy. No.			120/1/60	208/1/60	240/1/60	208/3/60	240/3/60	480/3/60	575/3/60	
			Serco®	6012848	6012853	6012854	3012855	3012856	3015857	6012858
			Kelley®	6012869	6012870	6012871	6012872	6012873	6012874	6012875
Item	Part Description	Part #								
1	SERCO® CONTROL PANEL LABEL	6012850	1	1	1	1	1	1	1	
	KELLEY® CONTROL PANEL LABEL	6012849	1	1	1	1	1	1	1	
2	TRANSFORMER 200/600 - 23/110, 50VA	6012567		1	1	1	1	1	1	
3	CIRCUIT BREAKER 0.5A	6012021	1	1	1	1	1	1	1	
4	CONTACTOR 18A 120V COIL	6012549	1							
	CONTACTOR 9A 1 N/O + 1 N/C 120V	6012922		1	1	1	1	1	1	
5	OVERLOAD RELAY 9-13A	6012560	1							
	OVERLOAD RELAY 5.5-8A	6012559		1	1					
	OVERLOAD RELAY 2.5-4A	6012558				1	1			
	OVERLOAD RELAY 1.6-2.5A	6012557						1	1	
6	TERMINAL 2 POLE	6000542	8	8	8	6	6	6	6	
7	PUSH BUTTON BLUE	6013066	1	1	1	1	1	1	1	
8	CONTACT BLOCK N/O	6012563	1	1	1	1	1	1	1	
9	MOUNTING COLLAR	6012562	1	1	1	1	1	1	1	
10	FUSE, ATQR 1/2A 600V CC	6011358		2	2	2	2	2		
	FUSE, ATQR 1/4A 600V CC	6011974							2	

LIMITED WARRANTY INFORMATION

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

4FRONT warrants that this DOCK LEVELER 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 LEVELER by the original purchaser, provided that the owner maintains and operates the DOCK LEVELER in accordance with this User's Manual.

Hydraulic Limited Warranty: The hydraulic power unit and cylinders for this dock leveler are warranted to cover the cost of replacement costs only for an extended period of four (4) years beyond the base warranty period.

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

1. Replace the DOCK LEVELER, or the deficient portion(s) thereof, without charge to the owner; or
2. Alter or repair the DOCK LEVELER, 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 LEVELER 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 LEVELER (including premature product wear, product failure, property damage or bodily injury resulting from use of unauthorized replacement parts or modification of the DOCK LEVELER). 4FRONT's sole obligation with regard to a DOCK LEVELER 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.

Please direct questions about your leveler to your local distributor or to 4Front Engineered Solutions, Inc.

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