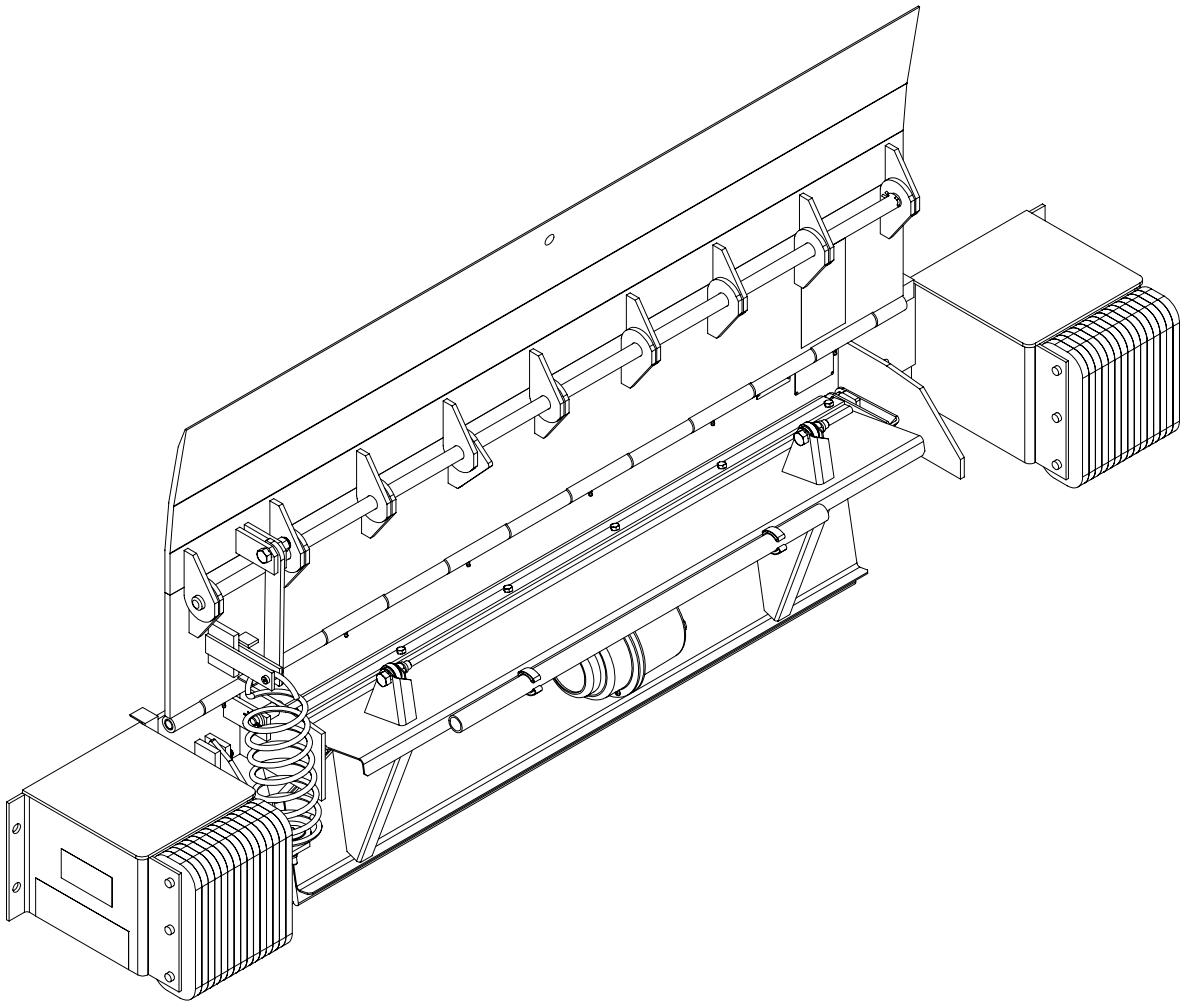
Edge-of-Dock
Powered Dock Levelers



This manual applies to Edge-of-Dock levelers manufactured beginning September 2017 with the serial numbers 61273476 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. 6007632H

TABLE OF CONTENTS

INTRODUCTION

Welcome and thank you for choosing this dock leveler.

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 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.

⚠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 distributor.

Before doing any maintenance or repair on the dock leveler SECURE WITH THE MAINTENANCE STRUT. See Fig. 25 and instructions on pages 24-25.

OPERATION

Do not use this unit to service vehicles outside its intended working range, which is 3" above and 3" below dock. Verify with the manufacturers of all equipment to be used on your specific edge-of-dock leveler, to ensure that operating equipment at all specified grades are within safe operation. Do not operate any equipment that will not safely operate at any of the grades shown on page 5 at either the ramp or lip.

Use of the dock leveler is restricted to trained operators. Follow procedures on the placard posted near dock leveler. Call 972-466-0707 or 800-525-2010 for replacement placards, warning labels or User's Manual.

Never exceed the rated capacity of the dock leveler.

Do not operate the dock leveler with equipment, material or people on the ramp or lip.

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

Stay clear of the dock leveler when it is moving.

Never exceed 5 mph when driving on the leveler.

Never travel on the leveler unless the lip is securely on the vehicle floor. Never travel on the leveler while in rest position.

Never travel on the bumper blocks or over the edges of the leveler.

Do not use the dock leveler if it looks broken or does not seem to work right. Tell your supervisor it needs repair right away.

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

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

Do not stand in the driveway between the dock leveler and a backing vehicle.

Move all equipment, material or people off the dock leveler, and store the dock leveler at dock level before allowing the vehicle to move away from the dock.

Do not use a fork truck or other material handling equipment to lift or lower the ramp.

Do not attempt to lift the dock leveler ramp or lip by any means other than that described in the operating procedures contained in this manual. If the dock leveler does not operate correctly when using the operating procedures contained in this manual, DO NOT USE THE DOCK LEVELER. Contact your local distributor for maintenance and service repair.

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

Keep feet clear of the underside of the ramp and lip when raising and lowering the dock leveler.

INSTALLATION, MAINTENANCE AND SERVICE

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

Do not raise the ramp plate and lip plate or install the maintenance strut with the over center return spring system attached to the deck and back plate. Always disable the system by removing the over center spring bracket pivot pin (item 14 shown on page 29) prior to raising the dock leveler.

Do not operate the dock leveler when anyone is in front of it unless they are positioning the MAINTENANCE STRUT.

PUT THE MAINTENANCE STRUT IN PLACE before doing any maintenance or repair under the dock leveler. See Fig. 25 and instructions on pages 24-25.

When working on a powered EOD, after raising and engaging the maintenance strut, disconnect the power and properly tag or lock out before doing any maintenance or repair under the dock leveler.

SAFETY PRACTICES, continued

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, and take appropriate steps to prevent their use by untrained individuals. Further information regarding selecting and training operators can be found in ANSI MH30.1 available at www.mhi.org/lodem. The owner shall verify the manual(s) containing the manufacturer's installation, operation, and maintenance, is made available for instruction and training personnel entrusted with such responsibilities.

When a transport vehicle is positioned at the dock, there shall be at least 4" of overlap between the front edge of the lip of the dock leveler and the edge of the floor or sill of the transport vehicle.

Manufacturer's recommended periodic maintenance and inspection procedures in effect at time of shipment shall be followed and written records of the performance of these procedures should be kept. Only trained and authorized personnel shall be permitted to maintain, repair, inspect and adjust the dock leveler. Use only original equipment manufacturer parts, manuals, maintenance instructions and labels; or their equivalent.

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

The owner shall see that all nameplates, cautions, instructions, and posted warnings are in place and legible and shall not be obscured from the view of operating or maintenance personnel for whom such warnings are intended.

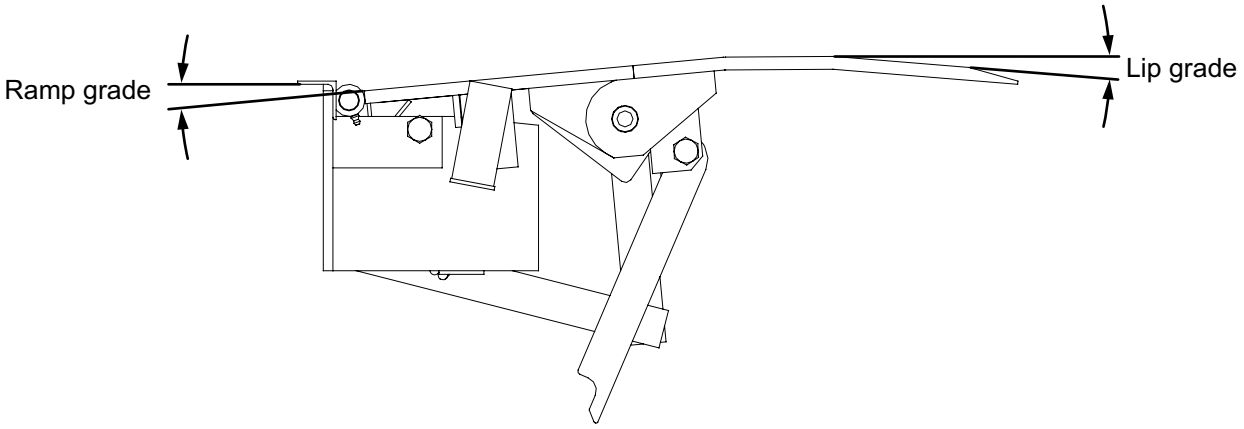
Modifications or alterations of dock leveling devices shall be made only with written permission of the original manufacturer.

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 whenever possible, air-ride suspension systems should have the air exhausted and wheel chocks or positive restraints that meet the requirements of ANSI MH30.3 shall be engaged. For more detailed information regarding vehicle restraints see "ANSI MH30.3 Vehicle restraining devices: Performance and Testing" available at www.mhi.org/lodem.

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

RAMP LIP GRADES

Fig. 1



VEHICLE BED POSITION (in)		EOD GRADE (%)	
		RAMP	LIP
A	5.0	27.9	-1.5
B	4.5	25.2	-1.6
O	4.0	22.5	-1.6
V			
E	3.5	19.8	-1.7
	3.0	17.2	-1.7
D	2.5	14.5	-1.7
O			
C	2.0	11.8	-1.7
K	1.5	9.2	-1.7
	1.0	7.6	-2.4
	0.5	6.5	-3.5
	0.0	5.4	-4.6
B	0.5	4.3	-5.7
E	1.0	3.2	-6.8
L	1.5	2.1	-7.9
O	2.0	0.9	-9.1
W			
	2.5	-0.2	-10.2
D	3.0	-1.3	-11.3
O	3.5	-2.4	-12.4
C			
K	4.0	-3.5	-13.5
	4.5	-4.6	-14.6
	5.0	-5.7	-15.7

⚠WARNING

Verify with the manufacturers of all equipment to be used on your specific edge-of-dock leveler, to ensure that operating equipment at all specified grades are within safe operation. Do not operate any equipment that will not safely operate at any of the above stated grades at either ramp or lip. Failure to follow this warning could result in death or serious injury.

INSTALLATION

DOCK MOUNTING STEEL REQUIREMENTS

⚠WARNING

Before installing the dock leveler, read and follow Safety Practices on page 3. Place barricades around pit on dock floor and drive while installing, maintaining or repairing dock leveler.

All anchor bolts used must be installed in accordance with the manufacturer's instructions. Do not install anchor bolts in cracks or expansion joints in concrete. Installation in cracks or expansion joints may cause the anchors to come loose and pull out. All anchor bolt lengths must suit local codes and conditions. Type and depth of concrete will determine type and length of anchor bolts required. Use of improperly installed anchor bolts could result in death or serious injury.

1. The face of the dock must be equipped with a minimum of 8" channel with 1/4" x 1" x 10" anchor straps on 10" centers. **MOUNTING ON CURB ANGLE ALONE IS NOT RECOMMENDED.**

2. There are four main mounting methods: installation with curb channel, transition plate, face plate and **with** transition plate, and formed angle. Follow the section that addresses your installation and then continue to the GENERAL INSTALLATION section on page 10 of this manual.

INSTALLATION WITH CURB CHANNEL

1. Place and position curb channel if it is not already present. Pour concrete. See Fig. 2.

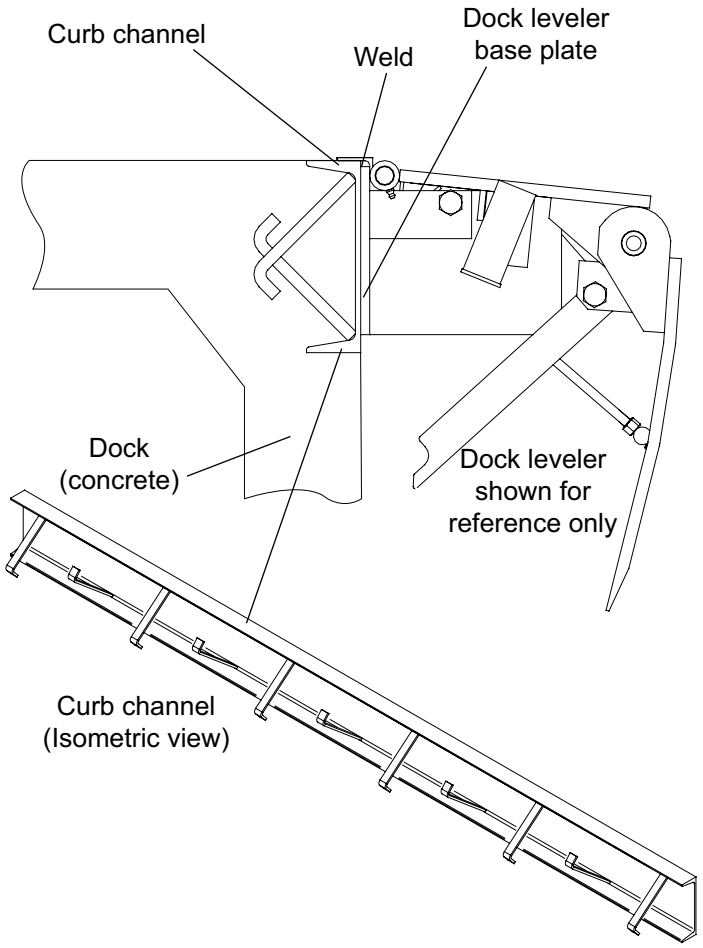
NOTE:

Concrete preparation should provide adequate depth and width to accommodate the channel with sound concrete foundation. Tie in rebar with anchor straps. Check local building codes for further information.

2. Ensure all concrete is thoroughly cured before installation and use of dock leveler.

3. Proceed to GENERAL INSTALLATION section on page 10 of this manual.

Fig. 2



INSTALLATION WITH TRANSITION PLATE

NOTE:

A transition plate is required whenever the curb channel is less than the 8" recommended by 4Front Engineered Solutions, Inc., or whenever the edge of dock is to be mounted above dock level.

1. Lay the transition plate on top of dock.

2. If using a **beveled transition** plate, position transition plate flush with the front of dock edge and skip to step 6. See Fig. 3.

3. If using a **kinked transition plate**, position transition plate flush with the front of dock edge and mark the location of the back of the transition plate on floor of dock. See Fig. 4.

4. Slide transition plate forward 2” and mark location of the back of the transition plate on floor of dock.

5. Remove transition plate and cut a groove in the concrete 1/2" deep between lines marked in steps 3 and 4. Position plate flush with the front of the dock edge.

6. Tack weld transition plate to curb angle nosing in at least four places.

7. Install 5/8" dia x 5" long (supplied by others) wedge anchor bolts in the transition plate. When bolts are tight in the concrete. Torque to manufacturer’s specification. Tack in place. Remove nuts, cut bolts flush with top of transition plate and plug weld bolts to plate.

⚠WARNING

All anchor bolts must be installed in accordance with the manufacturer’s instructions. Improper installation could result in death or serious injury.

Do not install anchor bolts in cracks or expansion joints in concrete. Installation in cracks or expansion joints may cause the anchors to come loose and pull out. Use of improperly installed anchor bolts could result in death or serious injury.

NOTE:

All anchor bolt lengths must meet local codes and conditions. Type and depth of concrete will determine type and length of anchor bolts required.

8. Proceed to GENERAL INSTALLATION section on page 10 of this manual.

Fig. 3

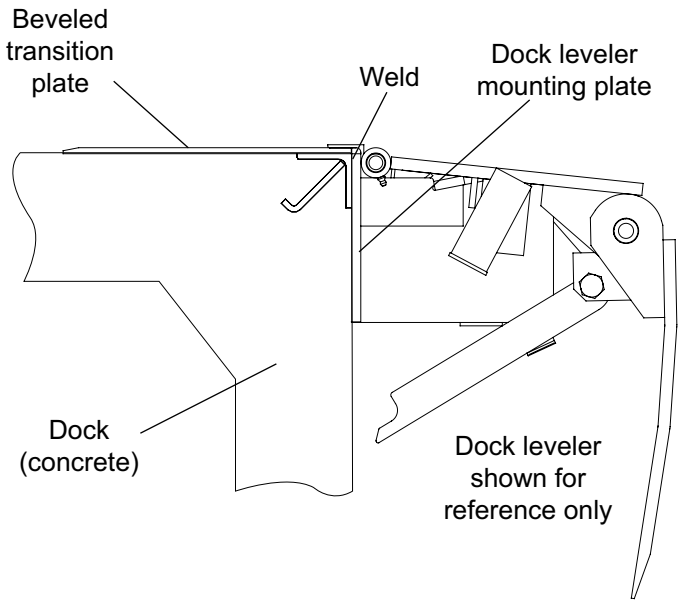
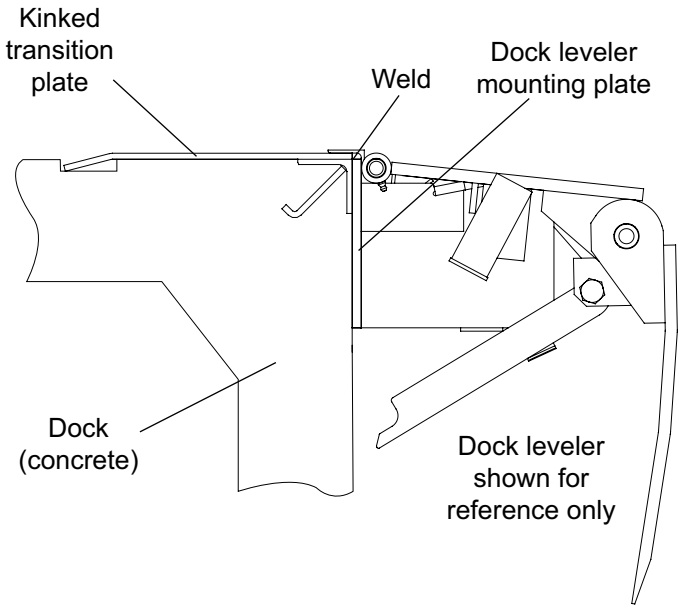


Fig. 4



INSTALLATION WITH FACE PLATE WITH TRANSITION PLATE

NOTICE

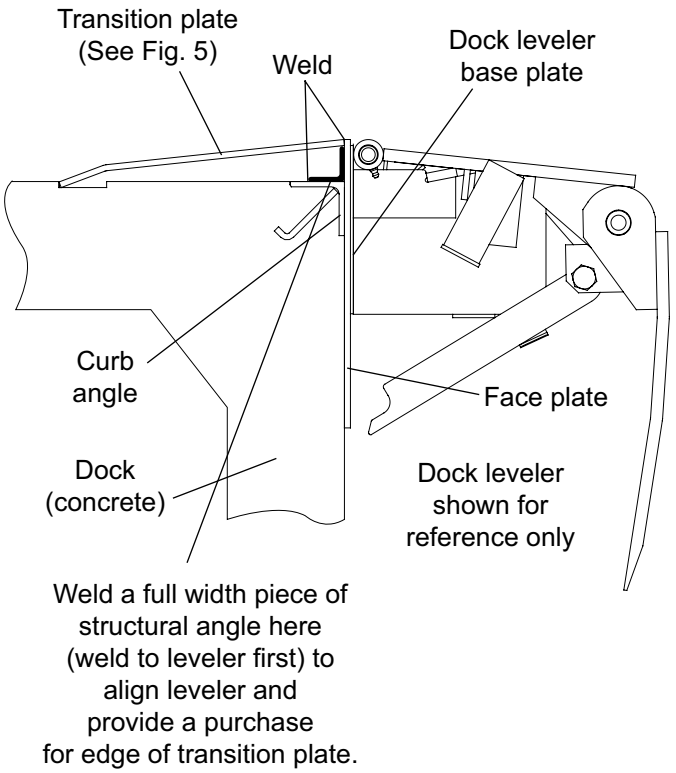
For installations above dock floor height (up to 3" max) the transition plates listed in Fig. 5 must be used.

1. Position the face plate at desired height above dock level (0" minimum to 3" maximum). See Fig. 6.
2. Continuously weld the face plate to the mounting surface with a 1/4" fillet in accordance with AWS Standards. See Fig. 6.
3. Position transition plate flush with the top edge of the face plate. Mark along back edge of transition plate on top of dock.
4. Move the transition plate 2" forward. Mark another line along the back edge of transition plate on top of dock.
5. Remove the transition plate and cut a groove in the concrete 2" wide x 1/2" deep between the lines marked in steps 3 and 4.
6. While supporting the transition plate against the top back edge of the face plate. Measure and place full length structural angle (supplied by others) as shown. Weld to back of face plate.
7. Locate and weld full length schedule 40 pipe (supplied by others) to bottom of transition plate as required.
8. Install 5/8" x 5" wedge anchor bolts (supplied by others) with the transition plate. See part numbers and transition plate sizes listed in Fig. 5 above. Torque to manufacturer's specification. Remove nuts, cut bolts flush with top of transition plate and plug weld bolts to plate.
9. Continuously weld the transition plate to the face plate with a 1/4" fillet in accordance with AWS Standards. See Fig. 6.
10. Proceed to GENERAL INSTALLATION section on page 10 of this manual.

Fig. 5

Plate Length	Application	Part Number
12"	(1-1/2" or less above dock)	6007621
18"	(1-1/2" to 2-1/4" above dock)	6007623
24"	(1-1/2" to 3" above dock)	6007625

Fig. 6



INSTALLATION WITH FORMED ANGLE

1. Lay formed angle on top of dock.
2. If there is no curb angle, some concrete on edge-of-dock may need to be removed to allow angle to lie flush against wall. See Fig. 7.
3. If there is curb angle present, the lower portion of formed angle will need to be spaced out to allow angle to lie flush against wall. See Fig. 8.
4. Position formed angle in desired position on dock edge and mark location of back of angle on floor of dock.
5. Slide formed angle forward 2" and mark location of back of angle on floor of dock.
6. Remove angle and cut a 2" wide x 1/2" deep groove in the concrete between two lines marked in steps 4 and 5.
7. Place formed angle on dock, making sure back edge of leg on top of dock is recessed in groove and both legs are tight against top and face of dock. Increase depth or width of groove as required.
8. Install 5/8" x 5" wedge anchor bolts (supplied by others) on top and front faces on 10" centers. All anchor positions must be used. Torque to manufacturer's specification. Remove nuts from bolts on top of dock. Cut bolts flush with top of angle and plug weld bolts to formed angle. Weld nuts to bolts and angle on face of dock.

NOTE:

For air powered units 5" x 1/2" dia. mushroom head spike anchors to be used on front face in locations directly behind air pan assembly.

9. Position the dock leveler base plate 1/4" below top of formed angle.
10. Proceed to GENERAL INSTALLATION section on page 10 of this manual.

Fig. 7

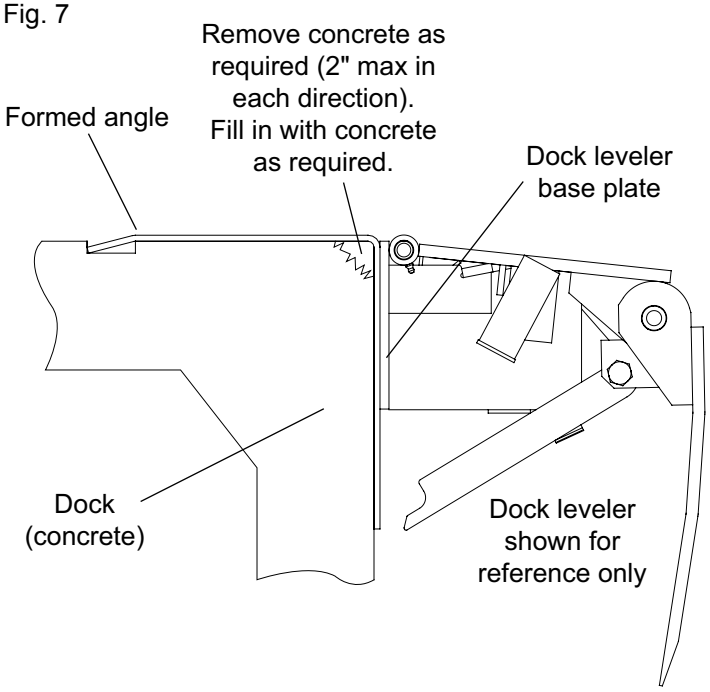
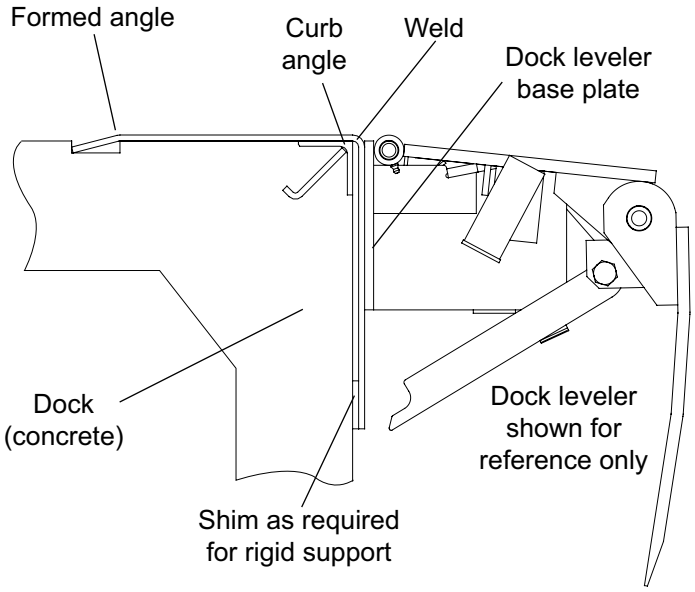


Fig. 8



GENERAL INSTALLATION

⚠WARNING

Read and follow Safety Practices on page 3. Failure to follow these safety practices could result in death or serious injury.

Installation should not be attempted by persons not familiar with equipment and techniques required for proper installation. Improper installation could result in death or serious injury.

1. Using a 1,000 lbs. minimum capacity load centering eye bolt, secure the lip plate using the lifting hole. at the center of the width. See Fig. 9.

⚠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 1000 lbs. for the lifting angle used. Never allow anyone to stand on or near the dock leveler when it is lifted or placed onto the dock. Stand clear of the dock leveler when it is being placed onto the dock. Failure to follow this warning can allow the dock leveler to fall, tip, or swing into people, resulting in death or serious injury.

⚠DANGER

The leveler is shipped with the over center spring disconnected. Follow installation instructions regarding assembly only at the correct step.

The maintenance strut must always be installed into the maintenance strut cup mounted to the back plate whenever the return spring is unattached, the lip plate is in the up position, and lip plate is not supported by the lifting chain. Failure to follow this warning can allow the dock leveler to fall resulting in death or serious injury.

2. Position dock leveler mounting plate centered on face of dock and 1/4" below top of curb channel, transition plate or formed angle plate. See Fig. 6.

NOTICE

The dock leveler must be plumb to dock face to operate properly. Use shims or remove concrete as necessary to make the mounting plate plumb.

3. Weld two 1/4" x 2" welds at the upper outside edges of the mounting plate and plug weld the two outer holes in the mounting plate if curb channel is not used. Install one 5/8" x 5" wedge anchor in each of the outer holes. Torque to manufacturer's specification.

4. Using the load centering eye bolt, lower the ramp plate and lip plate to the stored position. While lowering the dock leveler to the rest position, it is necessary to have another person use a pipe or similar device to hold the lip extender link disengaged. This person needs to stand clear of the leveler while it is being lowered. Disengaging the lip link will prevent the lip from extending out away from the dock.

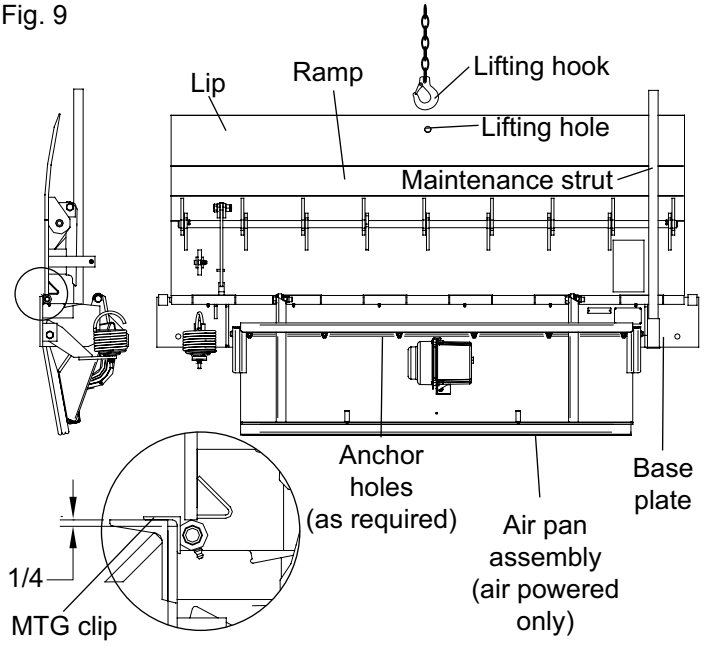
5. As the ramp plate and lip plate descend, watch for smooth operation of the ramp plate and lip plate hinges.

⚠WARNING

Do not allow lip and ramp to fall free. Allowing the dock leveler to fall free could result in the dock leveler coming free from the dock or damaging linkage, resulting in death or serious injury.

Do not allow lip to extend out away from the dock before all welding and anchor installation is complete. Operating the dock leveler before all installation is complete could result in death or serious injury.

Fig. 9



NOTICE

Use care when welding. Do not allow weld or weld splatter on the hinge tubes. Weld on the hinge tubes may interfere with normal operation of the dock leveler.

6. Ensure the base plate is plumb and flush with the dock wall. Tack weld behind each base plate tube. Finish weld using minimum 1/4" welds. Weld typical on face plate tubes. See Fig. 15.

7. Using the load centering eye bolt and a lifting device, raise the ramp plate and lip plate to the full upright position, checking for binding of the ramp and mounting plate hinge.

⚠WARNING

Do not allow lip and ramp to fall free. Allowing the dock leveler to fall free could result in the dock leveler coming free from the dock or damaging linkage, resulting in death or serious injury.

Do not allow lip to extend out away from the dock before all welding and anchor installation is complete. Operating the dock leveler before all installation is complete could result in death or serious injury.

8. Install the maintenance strut into the maintenance strut cup. On installations with curb channel, plug weld all remaining anchor holes in mounting plate to curb channel. On air EOD without curb channel make sure to drill holes for 1/2" Dia. X 5" long mushroom head spike anchors in remaining holes. Install spike anchors. On hydraulic EOD without curb channel drill holes for 5/8" x 5" long wedge anchors in remaining holes. Install and torque anchors to manufacturer's specification.

9. Position the bumper blocks aligned with the top edge of the dock (or top edge of transition plate if used) with the flange facing away from the leveler. Butt the flat side along the edge of the base plate. Tack in place.

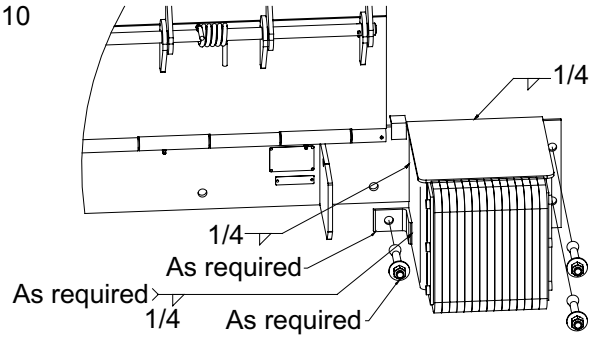
10. Check for square alignment. Correct any misalignment.

11. Weld bumper with a continuous 1/4" minimum bead across the top and adjacent to the leveler in accordance with AWS standards.

12. Anchor bumpers with 5/8" x 5" long wedge anchors in holes provided. Torque to manufacturer's specification. See page 13 for wedge anchor installation instructions.

13. Add 3" x 3" x 1/4" angle clips and anchors as required to stabilize bumper. See Fig. 10.

Fig. 10



⚠WARNING

All anchor bolts must be installed in accordance with the manufacturer's instructions. Improper installation could result in death or serious injury.

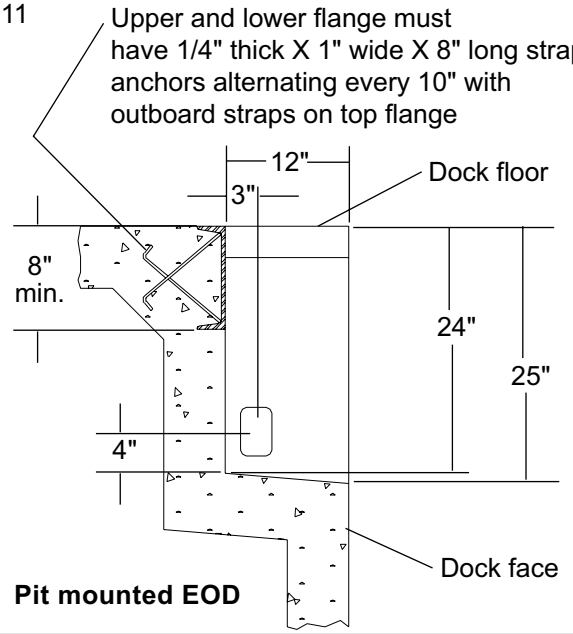
Do not install anchor bolts in cracks or expansion joints in concrete. Installation in cracks or expansion joints may cause the anchors to come loose and pull out. Use of improperly installed anchor bolts could result in death or serious injury.

NOTICE

All anchor bolt lengths must suit local codes and conditions. Type and depth of concrete will determine type and length of anchor bolts required.

14. Clean away all debris and paint all welded joints.

Fig. 11



Pit mounted EOD

INSTALLATION, continued

15. Mount and wire incoming power from the fused disconnect to the pushbutton control box and wire from the control box to the junction box. See Fig. 11-13. Follow all applicable codes and standards. Size of conduit and wire gauge may vary with local electrical codes. See the correct wiring diagram for your voltage and phase located on pages 14-18. Always make sure the incoming power agrees with the voltage and phase on the motor.

NOTE:

For hydraulic EODs skip to step 16.

16. Lift the air bag pan assembly on to the hooks of the back plate. The air bag will be positioned against the dock face and the air bag clamp bar will be visible from the top. See Fig. 9.

17. Wire from the hydraulic or air motor to the junction box. See Fig. 12 and 13.

    On single phase air leveler installations if the power cord is to be hard wired into the junction box, cut the cord immediately behind the plug. This will allow for the maximum length of cord between the power cord bushing and the junction box. The power cord may be looped together and stabilized with plastic cable ties (provided by others). Keep the cable a minimum of 2" from all moving parts and secure safely underneath the air bag pan fan assembly. See Fig. 12.

18. Temporarily remove the over center spring bracket pivot pin. See Fig. 14. With the spring attached to the over center spring bracket hang the spring form the spring roller located on the deck. Orient spring with the opening in the spring loop facing driveway. See Fig. 14.

19. Remove the maintenance strut and use the load centering eye bolt and lifting device to carefully lower the dock leveler to the rest position, with the lip pendant.

20. Re-install the 5/8" pivot pin through the over center spring bracket pivot pin and base plate and secure with washer and cotter pin. See Fig. 14.

21. Permanently mount the laminated dock leveler WARNING and OPERATION PLACARD on the wall within 4 inches of the dock leveler control.

22. Operate the dock leveler four times through the complete cycle to check operation. Refer to the OPERATION section for the proper operation procedure.

Fig. 12

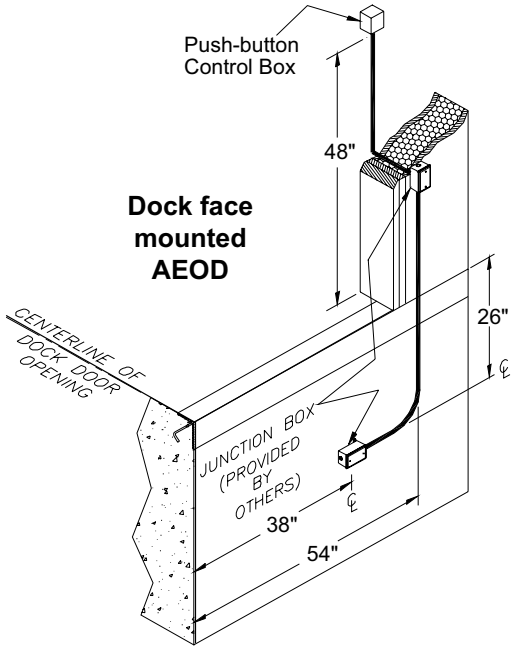


Fig. 13

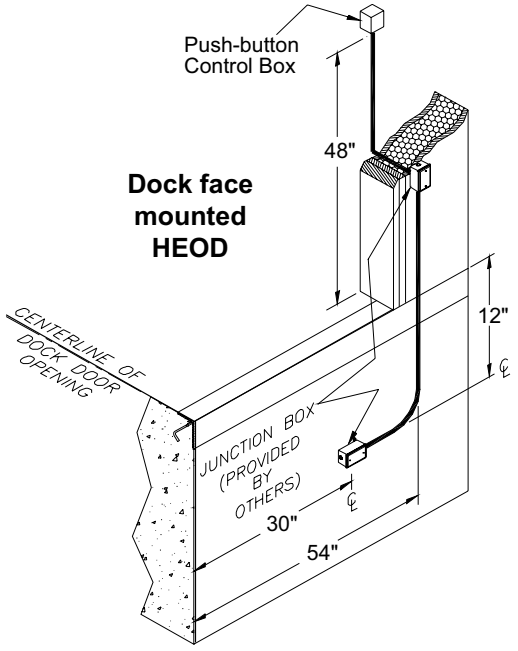


Fig. 14

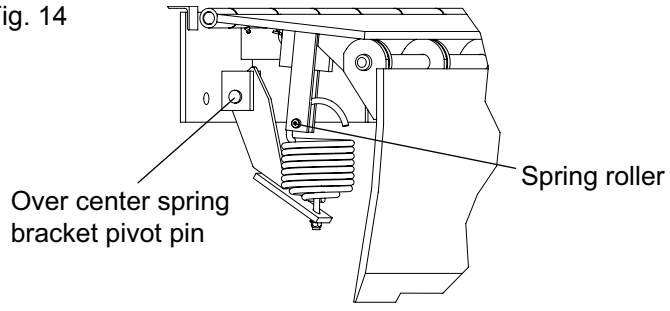
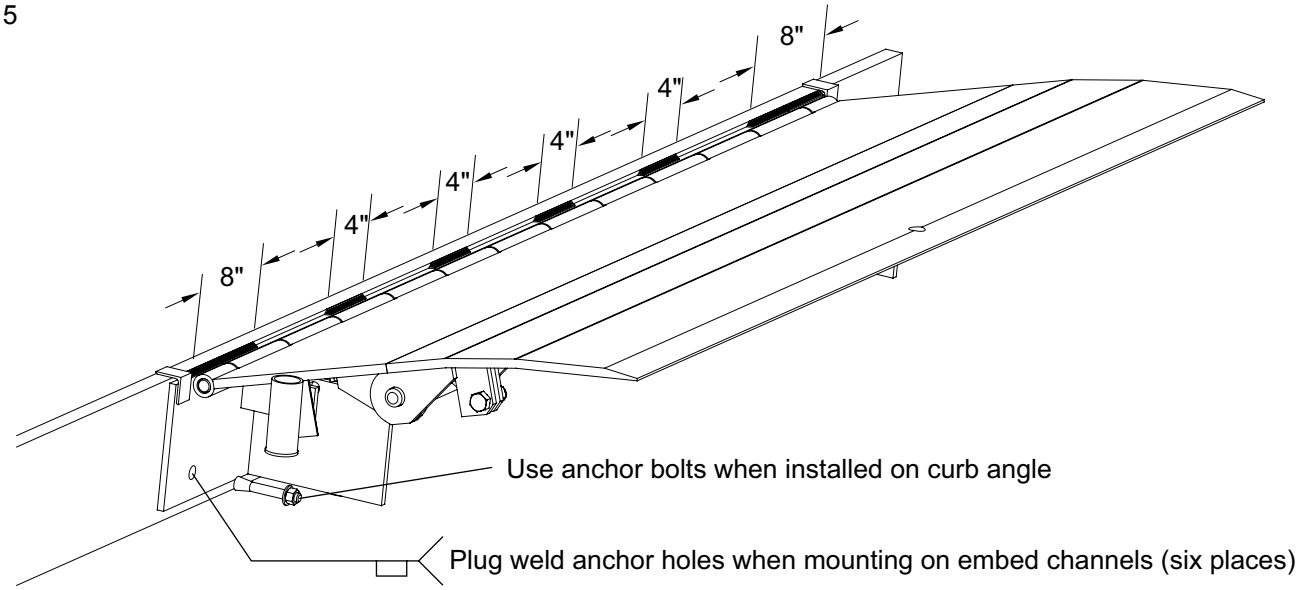


Fig. 15



WEDGE ANCHOR INSTALLATION (USE WITH CURB ANGLE AND TRANSITION PLATE ONLY) — HYDRAULIC MODELS ONLY

⚠WARNING

When anchors are used with curb angle for mounting, a transition plate must also be used. See page 7.

Do not install the vehicle restraint anchor bolts into aged or unsound concrete.

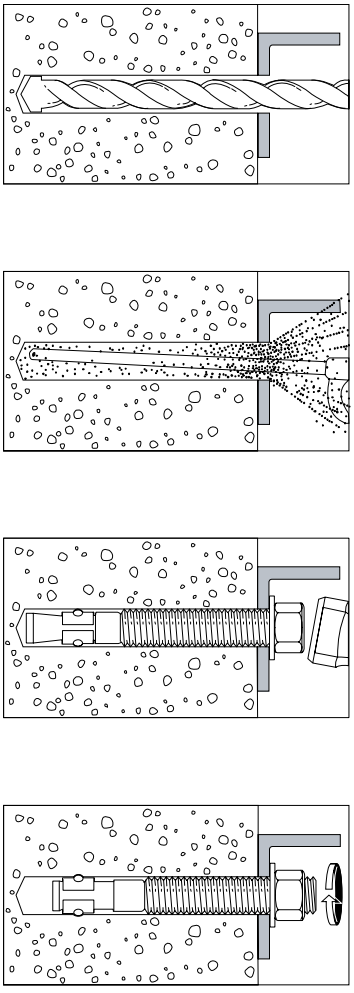
Use 5/8" x 5" long wedge anchors on smooth 4,000 PSI concrete walls only. For aggregate, cinder block or tilt walls - consult factory.

Oversized holes in the base material will make it difficult to set the anchor and will reduce the anchor's load capacity.

Do not use an impact wrench to set or tighten the wedge anchors.

Drill a hole in the concrete using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment depth and blow it clean using compressed air. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling. Assemble the anchor with nut and washer so the top of the nut is flush with the top of the anchor. Place the anchor in the fixture and drive into the hole until washer and nut are tight against fixture. Torque to manufacturer's specification. See Fig. 16.

Fig. 16



WIRING DIAGRAMS

⚠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.

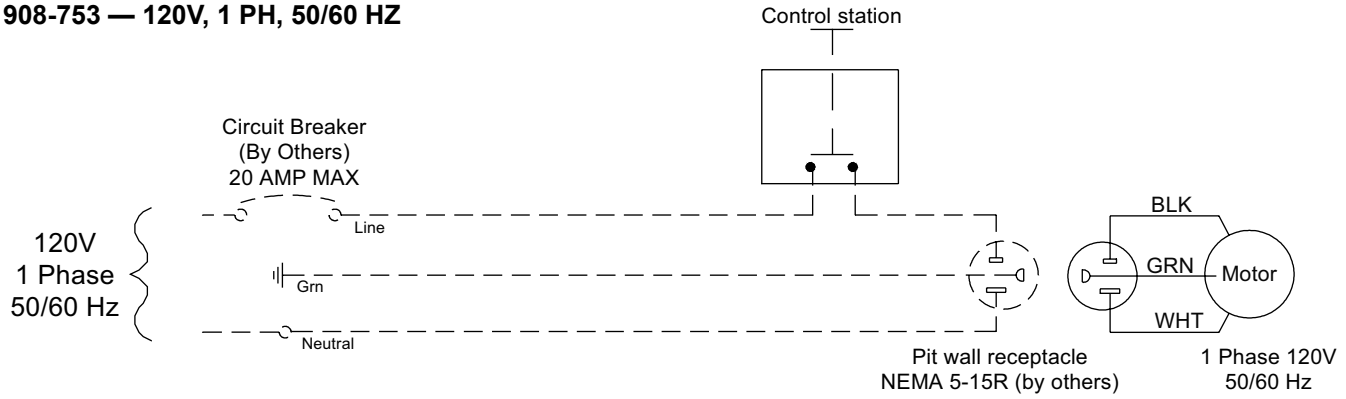
Air powered EOD models only:

⚠DANGER

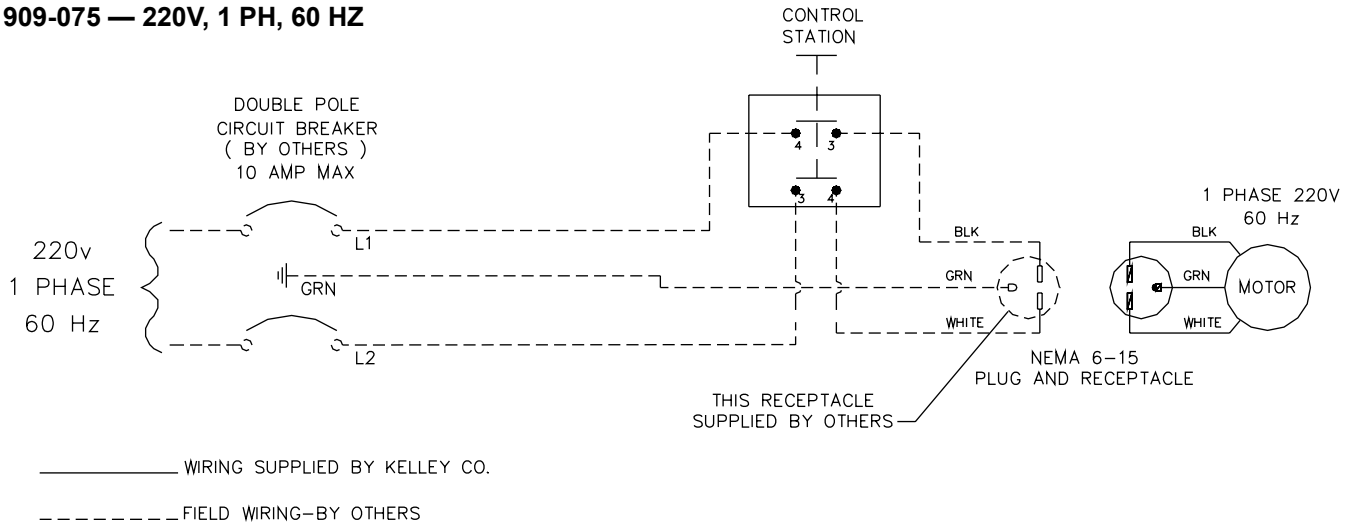
Never allow more than 130 volts to be connected to the 115 volt motor circuit. Damage to motor, pushbutton, air bag, and death or serious injury may result.

WIRING DIAGRAMS — STANDARD AIR

908-753 — 120V, 1 PH, 50/60 HZ



909-075 — 220V, 1 PH, 60 HZ

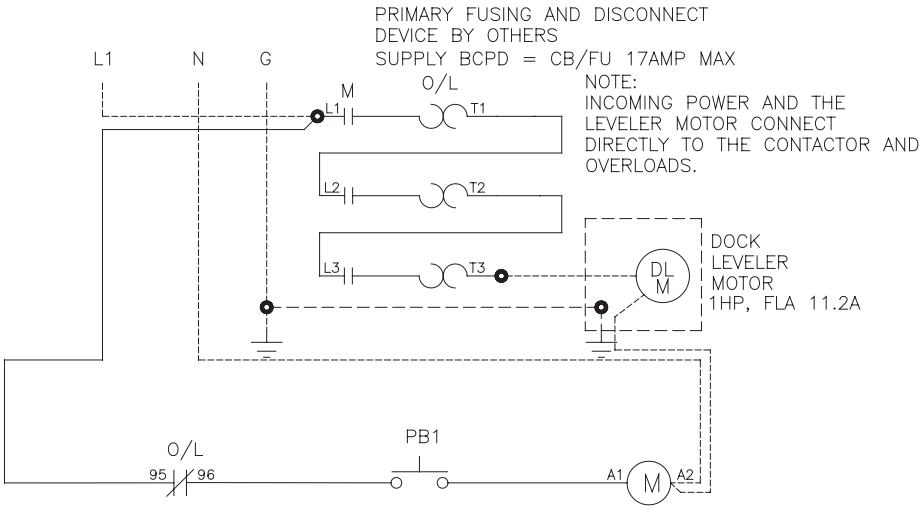


WIRING DIAGRAMS — HYDRAULIC, STANDARD

NOTE:

For 24V incoming power consult factory.

6006461, 6006420 — 120V, 1 PH, 50/60 HZ

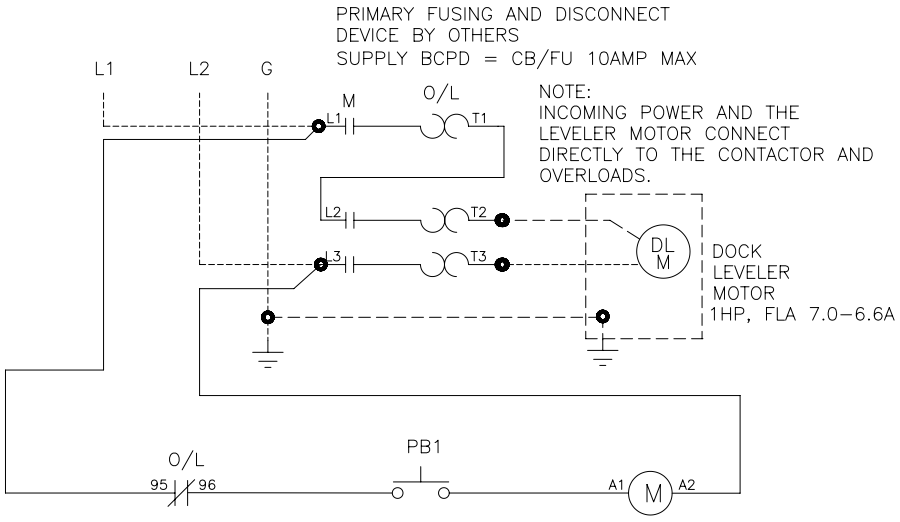


LEGEND

M	DOCK LEVELER CONTACTOR
PB1	LEVELER RAISE
⊙	DIRECT DEVICE CONNECTION

LEGEND:
EXTERNAL CONNECTIONS ---------
INTERNAL WIRING ———————

6006462, 6006421 — 208-240V, 1 PH, 60 HZ



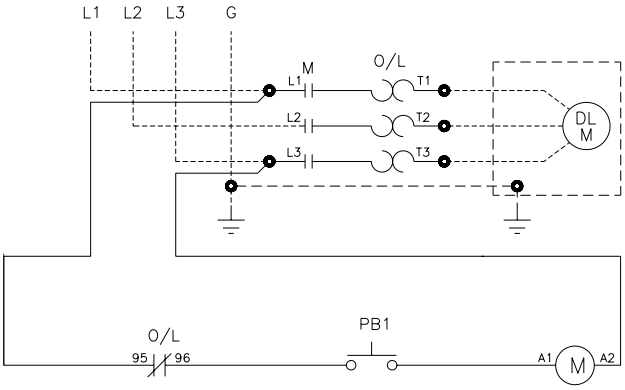
LEGEND

M	DOCK LEVELER CONTACTOR
PB1	LEVELER RAISE
⊙	DIRECT DEVICE CONNECTION

LEGEND:
EXTERNAL CONNECTIONS ---------
INTERNAL WIRING ———————

WIRING DIAGRAMS — HYDRAULIC, STANDARD, continued

6006450, 6006423 — 208-230V, 3PH, 50/60 HZ



DOCK
LEVELER
MOTOR
1HP, FLA 4–3.6A

PRIMARY FUSING AND DISCONNECT
DEVICE BY OTHERS
SUPPLY BCPD = CB/FU 6AMP MAX

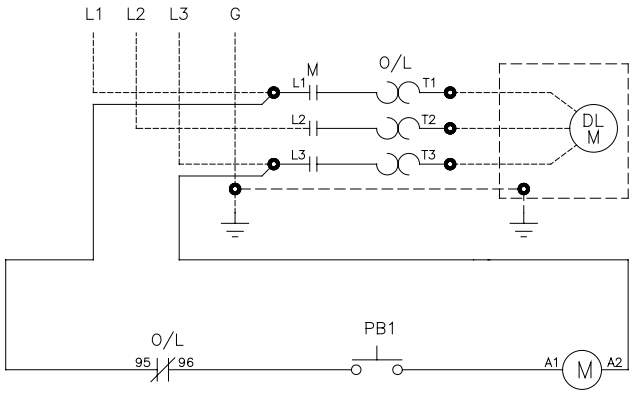
NOTE:
INCOMING POWER AND THE
LEVELER MOTOR CONNECT
DIRECTLY TO THE CONTACTOR AND
OVERLOADS.

LEGEND

M	DOCK LEVELER CONTACTOR
PB1	LEVELER RAISE
⊙	DIRECT DEVICE CONNECTION

LEGEND:
EXTERNAL CONNECTIONS ----------
INTERNAL WIRING ——————————

6006451, 6006425 — 460-480V, 3PH, 60 HZ



DOCK
LEVELER
MOTOR
1HP, FLA 1.8A

PRIMARY FUSING AND DISCONNECT
DEVICE BY OTHERS
SUPPLY BCPD = CB/FU 3AMP MAX

NOTE:
INCOMING POWER AND THE
LEVELER MOTOR CONNECT
DIRECTLY TO THE CONTACTOR AND
OVERLOADS.

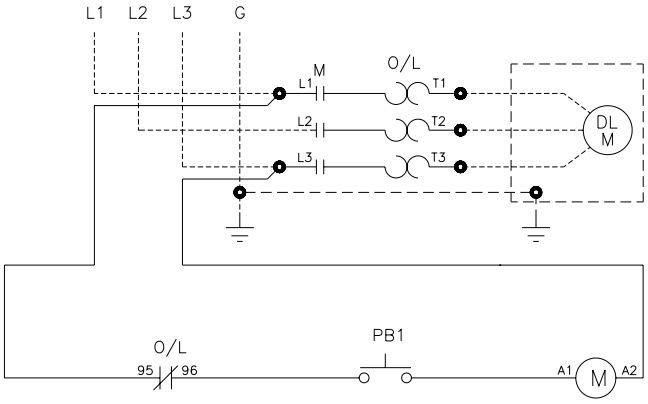
LEGEND

M	DOCK LEVELER CONTACTOR
PB1	LEVELER RAISE
⊙	DIRECT DEVICE CONNECTION

LEGEND:
EXTERNAL CONNECTIONS - - - - - -
INTERNAL WIRING ——————————

WIRING DIAGRAMS — HYDRAULIC, STANDARD, continued

6006452, 6006426 — 575V, 3PH, 60 HZ



DOCK
LEVELER
MOTOR
1HP, FLA 1.6A

PRIMARY FUSING AND DISCONNECT
DEVICE BY OTHERS
SUPPLY BCPD = CB/FU 3AMP MAX
NOTE:
INCOMING POWER AND THE
LEVELER MOTOR CONNECT
DIRECTLY TO THE CONTACTOR AND
OVERLOADS.

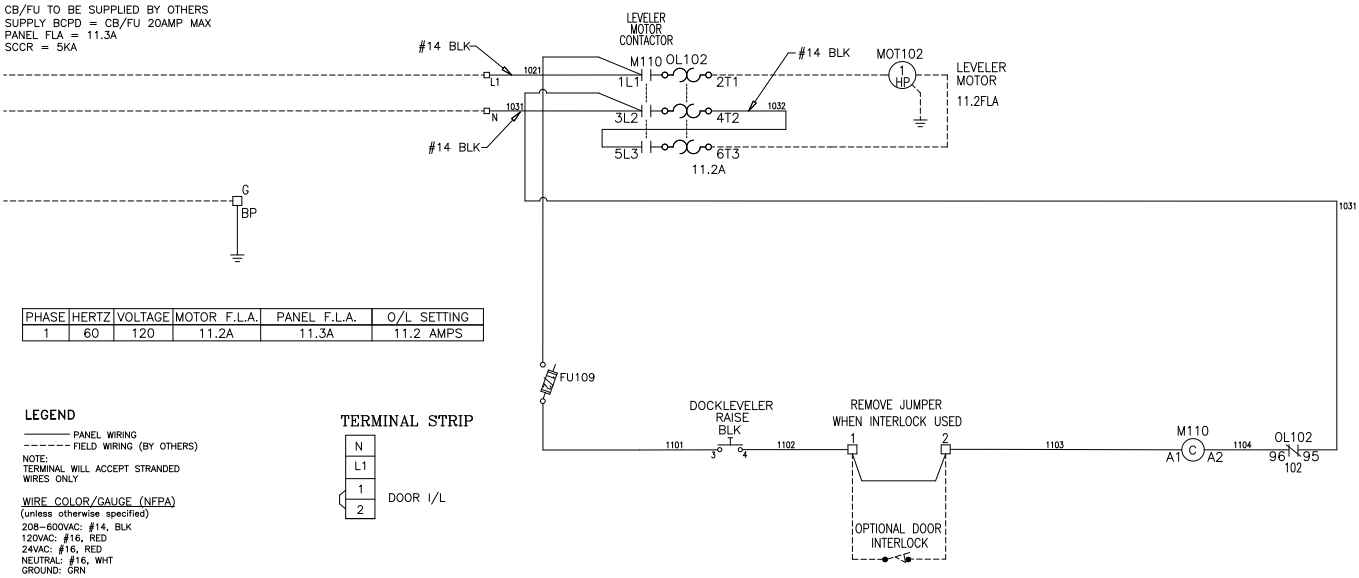
LEGEND

M	DOCK LEVELER CONTACTOR
PB1	LEVELER RAISE
⊙	DIRECT DEVICE CONNECTION

LEGEND:
EXTERNAL CONNECTIONS ----------
INTERNAL WIRING ——————

WIRING DIAGRAMS — WITH INTERLOCK

6011372, 6011971 — 120V, 1PH, 60 HZ



PHASE	HERTZ	VOLTAGE	MOTOR F.L.A.	PANEL F.L.A.	O/L SETTING
1	60	120	11.2A	11.3A	11.2 AMPS

LEGEND
——— PANEL WIRING
------ FIELD WIRING (BY OTHERS)
NOTE:
TERMINAL WILL ACCEPT STRANDED
WIRES ONLY

WIRE COLOR/GAUGE (NFPA)
(unless otherwise specified)
208–600VAC: #14, BLK
120VAC: #16, RED
24VAC: #16, RED
NEUTRAL: #16, WHT
GROUND: GRN

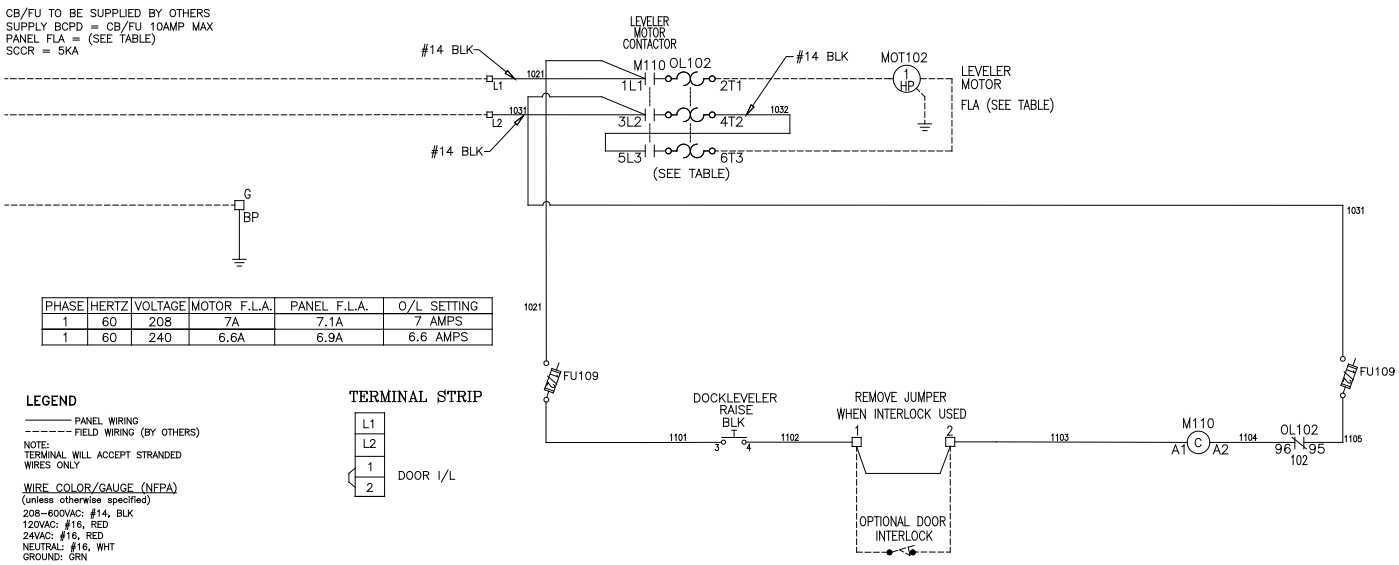
TERMINAL STRIP

N
L1
1
2

DOOR I/L

WIRING DIAGRAMS — WITH INTERLOCK, continued

6011524, 6011972 — 208/230V, 1PH, 60 HZ



PHASE	HERTZ	VOLTAGE	MOTOR F.L.A.	PANEL F.L.A.	O/L SETTING
1	60	208	7A	7.1A	7 AMPS
1	60	240	6.6A	6.9A	6.6 AMPS

6011325, 6011968 — 208V, 3PH, 60 HZ

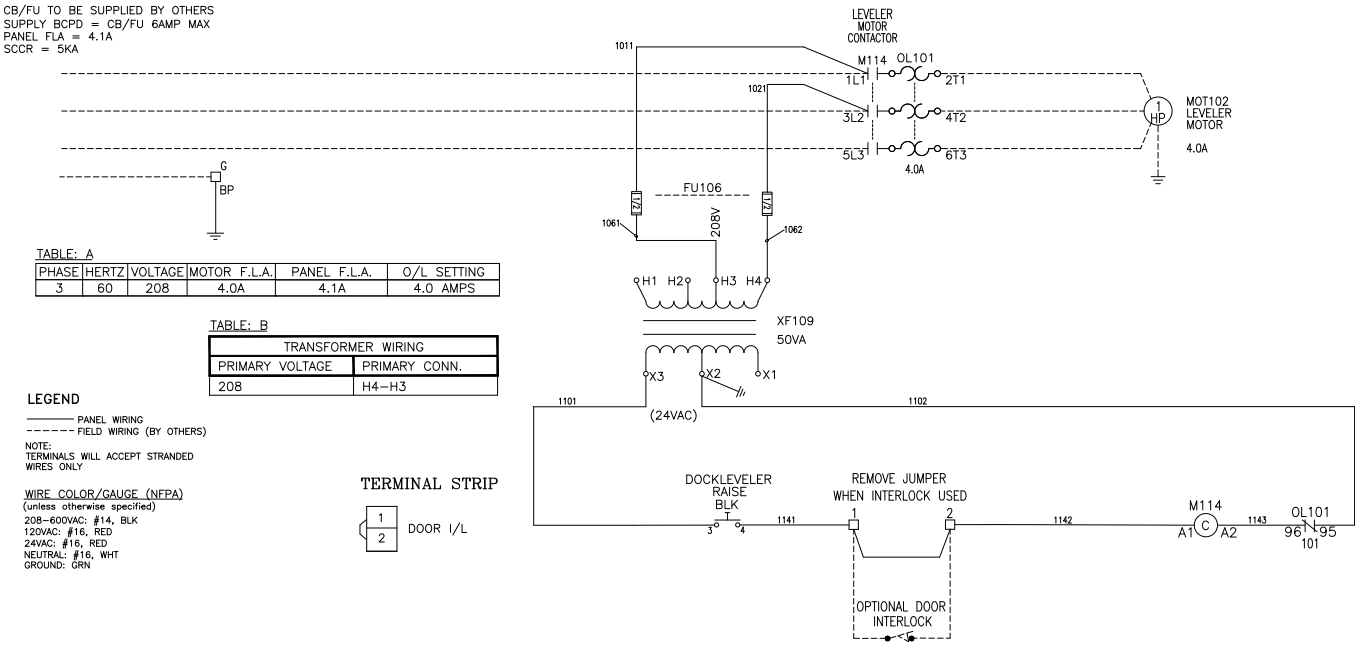


TABLE: A

PHASE	HERTZ	VOLTAGE	MOTOR F.L.A.	PANEL F.L.A.	O/L SETTING
3	60	208	4.0A	4.1A	4.0 AMPS

TABLE: B

TRANSFORMER WIRING	
PRIMARY VOLTAGE	PRIMARY CONN.
208	H4–H3

6011761, 6011969 — 240V, 3PH, 60 HZ

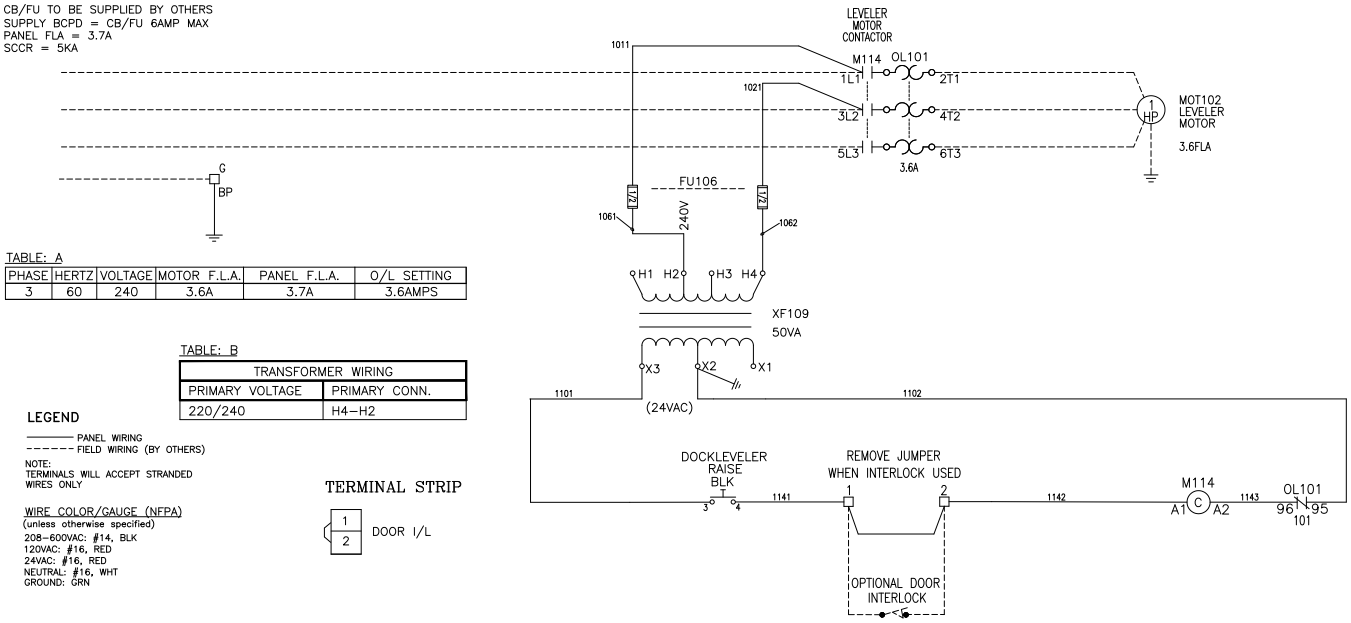


TABLE: A

PHASE	HERTZ	VOLTAGE	MOTOR F.L.A.	PANEL F.L.A.	O/L SETTING
3	60	240	3.6A	3.7A	3.6AMPS

TABLE: B

TRANSFORMER WIRING	
PRIMARY VOLTAGE	PRIMARY CONN.
220/240	H4–H2

WIRING DIAGRAMS — WITH INTERLOCK, continued

6011326, 6011970 — 460-480V, 3PH, 60 HZ

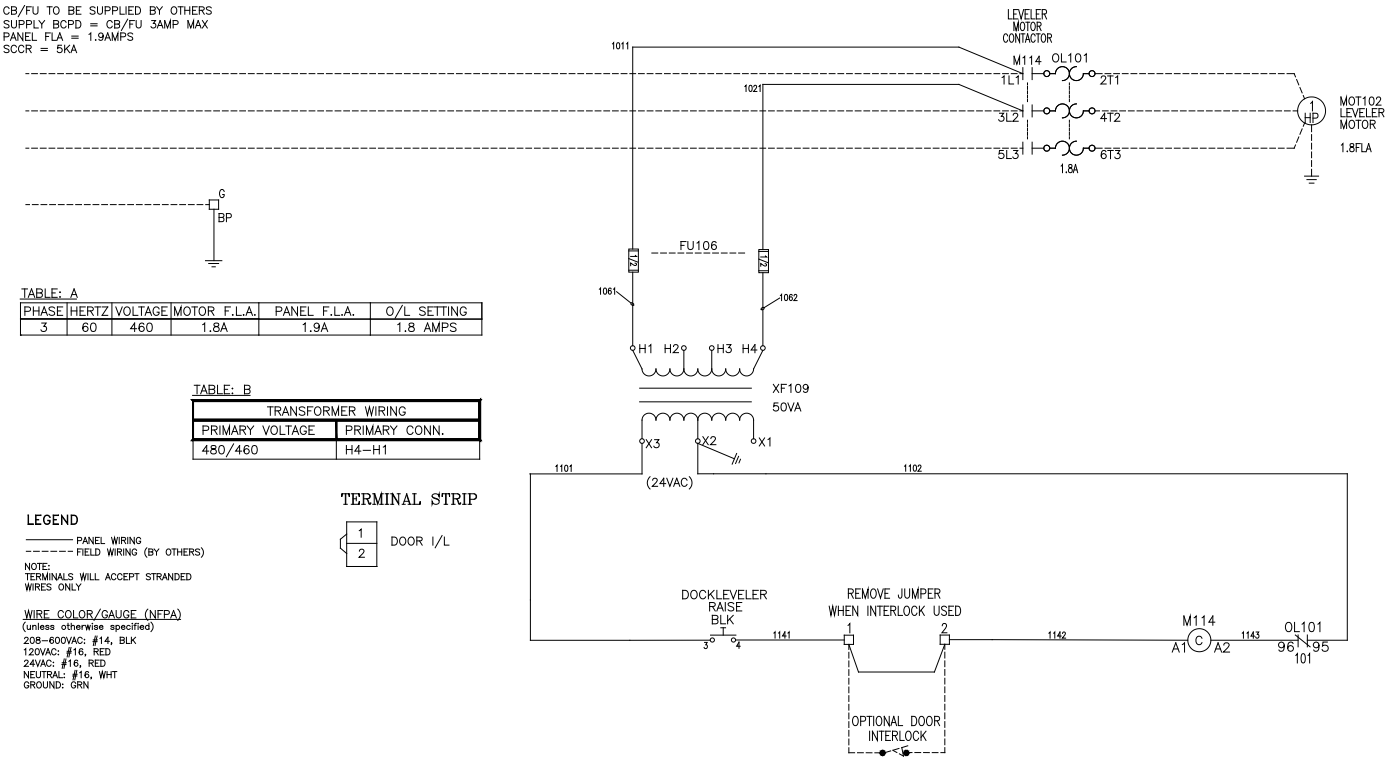


TABLE: A

PHASE	HERTZ	VOLTAGE	MOTOR F.L.A.	PANEL F.L.A.	O/L SETTING
3	60	460	1.8A	1.9A	1.8 AMPS

TABLE: B

TRANSFORMER WIRING	
PRIMARY VOLTAGE	PRIMARY CONN.
480/460	H4–H1

6011651, 6011973 — 575V, 3PH, 60 HZ

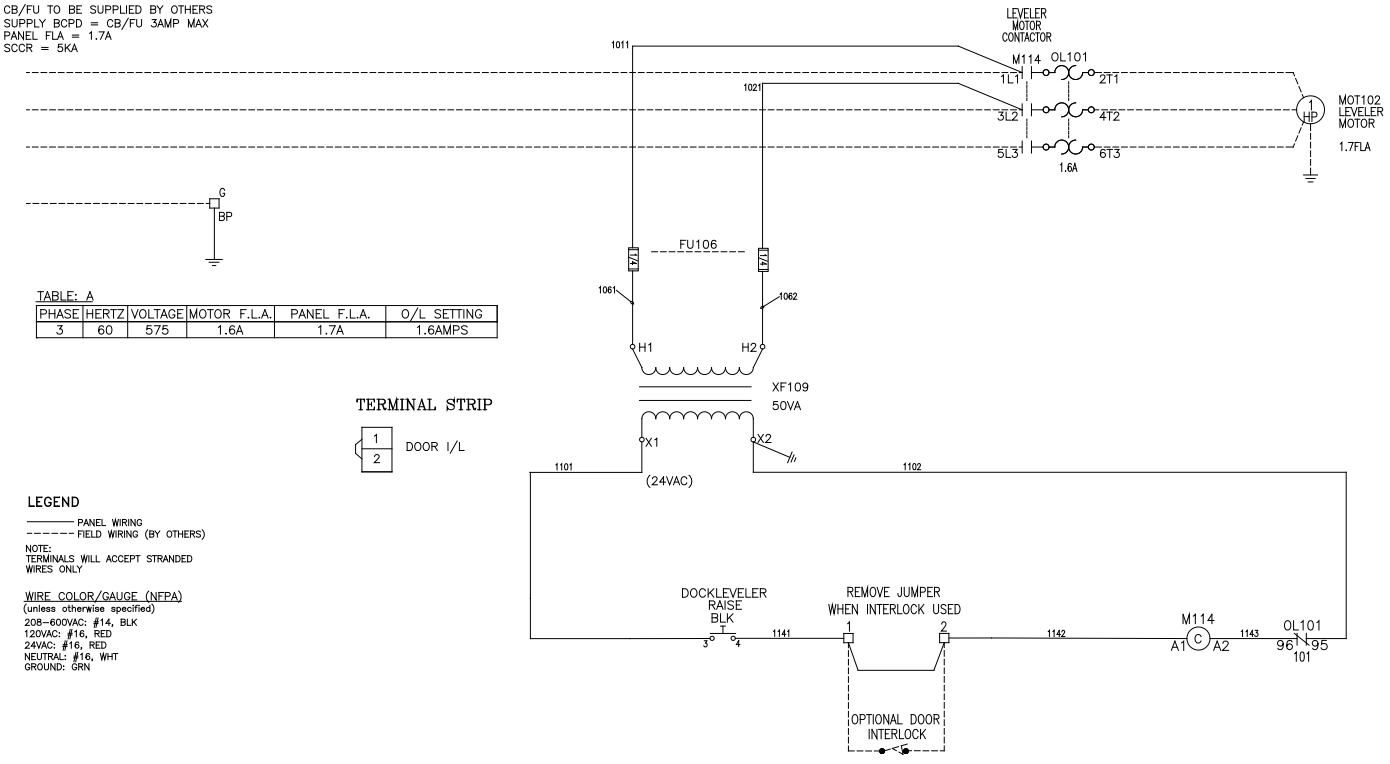


TABLE: A

PHASE	HERTZ	VOLTAGE	MOTOR F.L.A.	PANEL F.L.A.	O/L SETTING
3	60	575	1.6A	1.7A	1.6AMPS

OPERATION INSTRUCTIONS

⚠WARNING

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

Use by untrained people could result in death or serious injury. Read and follow complete Operation Instructions. DO NOT USE THE DOCK LEVELER IF IT LOOKS BROKEN OR DOES NOT SEEM TO WORK RIGHT. Tell your supervisor it needs repair.

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 are set before loading or unloading. Vehicles pulling away from the dock unexpectedly can cause uncontrolled drop of the dock leveler which can r esult in death or serious injury.

Visually check that the lip is supported by the vehicle bed 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 vehicle leaves with lip resting on vehicle bed, lip will drop suddenly. Before vehicle leaves, store lip using control button and ensure no equipment, material or people are on the dock leveler. Failure to do so could result in death or serious injury from people, equipment or cargo falling from unsupported dock leveler.

Never travel on bumper blocks or over the edges of the leveler.

NOTICE

To avoid damage to load and dock leveler do not activate unit if loads will be in the way of extended lip. If lip touches loads before resting on carrier floor, move vehicle to allow unit to return to stored position. Remove end load without placing lip on carrier floor. Do not use power equipment to force lip into vehicle or lip or linkage will be damaged.

INTRODUCTION

The powered Edge-of-Dock 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 powered Edge-of-Dock dock leveler uses a pushbutton control to position the dock leveler. Pushing and holding the pushbutton operates a fan/hydraulic pump which inflates an air bag or extends a hydraulic cylinder to raise the ramp. Releasing the pushbutton allows the ramp to lower.

A mechanical linkage extends the dock leveler lip as the ramp lowers from its full raised position, and the leveler with its lip extended settles onto the vehicle bed, forming a bridge.

After loading, pushing and holding the pushbutton raises the ramp, and the extended lip lowers to its stored position. Releasing the pushbutton (before the dock leveler reaches its highest position) allows the dock leveler to lower to its stored position without extending the lip.

OPERATION INSTRUCTIONS, continued

1. Wait until a vehicle is in position against the dock bumpers.

2. Tell vehicle driver “Your vehicle must stay at the dock.”

3. Chock or hitch vehicle.

4. If necessary, remove end loads with the ramp in the dock level (stored) position. See Fig. 17. Do not drive on ramp without lip supported by vehicle bed.

5. To extend the dock leveler lip into the vehicle:

   5.1 Push and hold the control button. The ramp will rise until it stops at its highest position. See Fig. 18.

   5.2 Release the control button when the ramp reaches its highest position. See Fig. 18.

   5.3 Ramp will lower and lip will extend until the lip rests on the vehicle bed. See Fig. 19.

⚠WARNING

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

Do not operate the dock leveler when anyone is on or in front of it.

Stay clear of the dock leveler when it is moving.

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

Never travel on bumper blocks or over the edges of the leveler.

   5.4 Visually inspect to make sure the dock leveler lip is securely placed on the vehicle. See Fig. 20.

   5.5 Proceed with loading or unloading.

Fig. 17

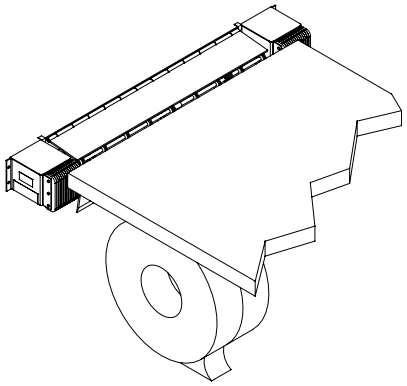


Fig. 18

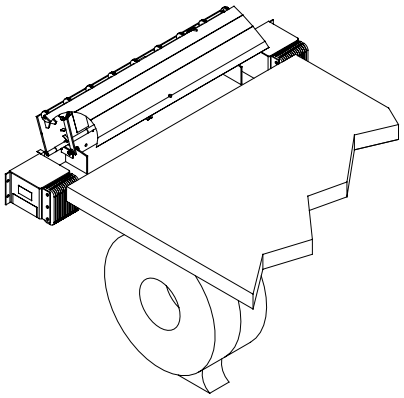


Fig. 19

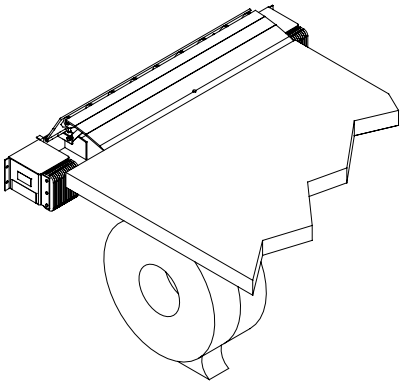
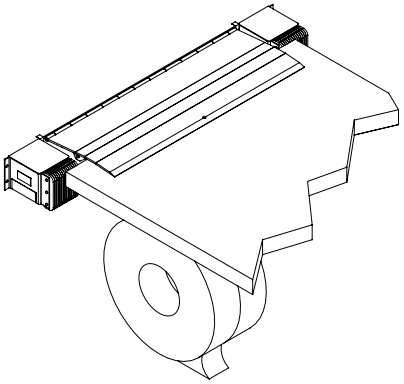


Fig. 20



6. To return the dock leveler to the stored position when loading or unloading is complete, or to load end loads:

   6.1 Push and hold the control button. The ramp will rise and the lip will lower. See Fig. 22.

   6.2 Release the control button when the lip clears the vehicle bed (before reaching its highest position). The ramp will lower to the dock level (stored) position. See Fig. 23.

   6.3 Visually check that lip is not extended and deck is resting on the deck supports.

⚠WARNING

If vehicle leaves with lip resting on vehicle bed, lip will drop suddenly. Before vehicle leaves, store lip using control button and ensure no equipment, material or people are on the dock leveler. Failure to do so could result in death or serious injury from people, equipment or cargo falling from unsupported dock leveler.

7. Unchock or release vehicle.

8. Tell vehicle driver “Your vehicle may now leave the dock.”

Fig. 21

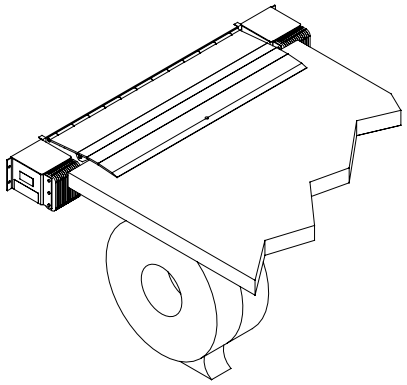


Fig. 22

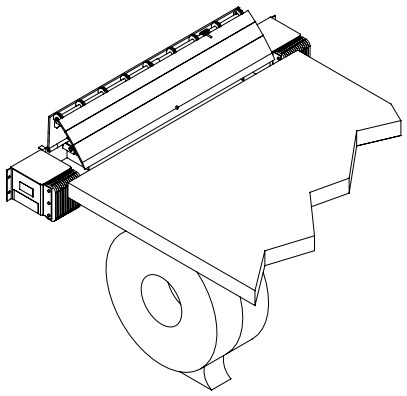
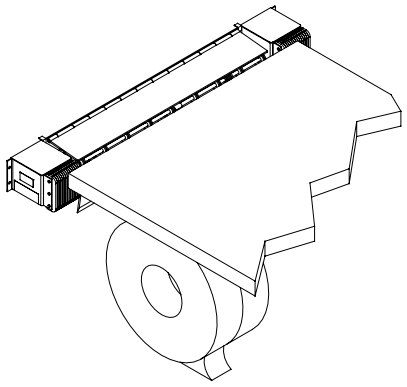


Fig. 23



PLANNED MAINTENANCE

⚠DANGER

STAND CLEAR! The dock leveler moves toward you. Always be certain the ramp is in the raised position, SECURED WITH THE MAINTENANCE STRUT before doing any lubrication or repair under the dock leveler. Failure to do so could result in death or serious injury.

Always return the dock leveler to stored position after service. Failure to do so could result in death or serious injury.

⚠WARNING

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

Never install the maintenance strut with the return spring system attached to the deck and back plate. Always disable the system by removing the over center spring bracket pivot pin prior to raising the dock leveler. See Fig. 14.

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

⚠DANGER

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

1. ***The over center spring bracket pivot pin has been disconnected from spring bracket. See Fig. 14.***
2. ***The maintenance strut is inserted into the maintenance strut cup located on the back plate. See Fig. 25.***
3. ***The power is disconnected and properly tagged or locked off.***

Always use the procedures shown on this page to install and remove the maintenance strut.

Failure to follow the above precautions could result in death or serious injury.

TO INSTALL THE MAINTENANCE STRUT (2 PEOPLE REQUIRED)

1. Position the dock leveler in the stored position with the lip hanging pendant.
2. Maintenance strut located on pan or underneath deck.
3. Make sure no one activates the pushbutton while you remove the over center spring bracket pivot pin from the spring bracket. See Fig 14.

⚠WARNING

It is necessary to keep the fan motor/hydraulic power unit operating during steps 4 through 6 to prevent the dock leveler from accidently falling onto the maintenance person storing the maintenance strut. It takes two people to perform these steps.

4. You will need an assistant to operate the pushbutton continuously during steps 4-6. Have the assistant activate the pushbutton to raise the deck to its fully rotated position.
5. While the motor is running and the ramp is raised, rotate the lip to its full back position.
6. While the motor is running, position the maintenance strut in the maintenance strut cup located on the back plate. See Fig. 25.
7. Have the assistant deactivate the pushbutton.
8. Remove the lip lifter.

TO REMOVE THE MAINTENANCE STRUT (2 PEOPLE REQUIRED)

⚠WARNING

It is necessary to keep the fan motor/hydraulic power unit operating during steps 1 through 4 to prevent the dock leveler from accidently falling onto the maintenance person storing the maintenance strut. It takes two people to perform these steps.

1. You will need an assistant to operate the pushbutton continuously for steps 1 through 4. Have the assistant activate the pushbutton to raise the deck to its fully rotated position.

2. While the motor is running, remove maintenance strut from the maintenance strut cup.

3. While the motor is running, place the maintenance strut into its stored position.

4. While the motor is running, rotate the lip forward until it is resting on the lip stop. This will allow the lip to hang pendant.

5. Have the assistant deactivate the pushbutton. As the ramp falls, push down on the tapered edge of the lip. This will cause the dock leveler to rotate down to its stored position.

6. With the power disconnected and properly tagged or locked off, re-install the lip lifter and re-install the over center spring bracket pivot pin through the spring bracket and base plate. See Fig. 14.

7. Re-install the washer and cotter pin on the pivot pin.

⚠WARNING

Do not use hands or feet to hold lip extender link disengaged. Use of hands or feet could cause a pinch point resulting in death or serious injury.

MAINTENANCE - EVERY 90 DAYS

1. With the leveler in the maintenance position and the maintenance strut positioned in the maintenance strut cup, inspect all moving parts for wear or damage. Repair or replace, as necessary.

2. Clean area at hinge joints and sweep away all debris. Lubricate all grease fittings located on the hinge tubes. Oil pivot points shown on page 27.

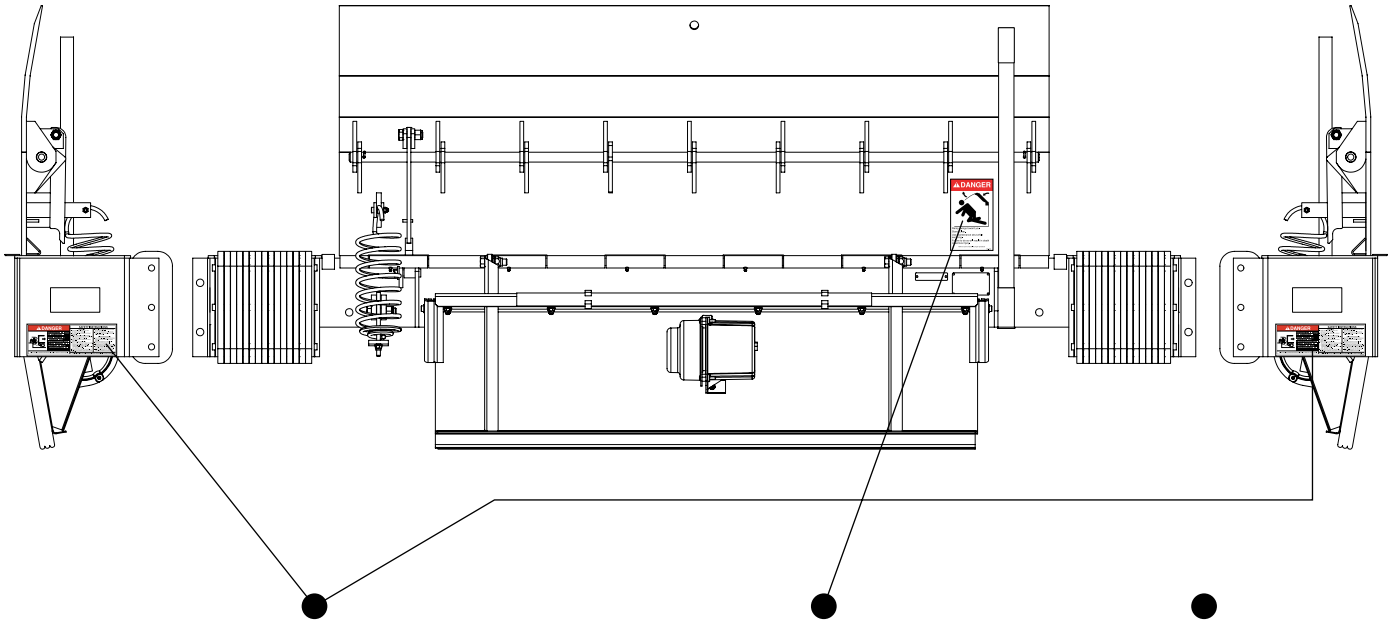
3. Check all labels and placards. Replace missing or damaged as required. See page 26.

4. Ensure that all welds, bolts and sheet metal are intact and show no signs of stress or fatigue.

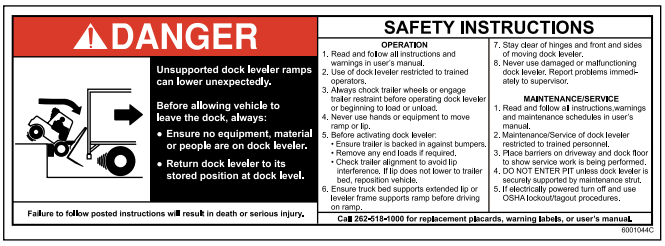
5. Inspect dock bumpers. Four inches (4") of protection is required. Worn, torn, or missing bumpers must be replaced.

PLANNED MAINTENANCE, continued

Fig. 24



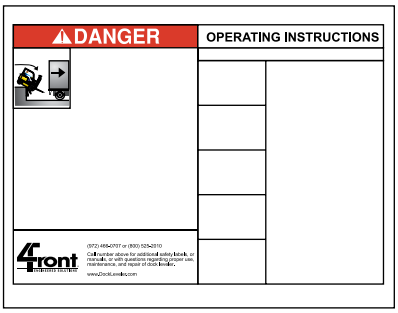
6008485 (x2)



(both sides)

138-816

6007602

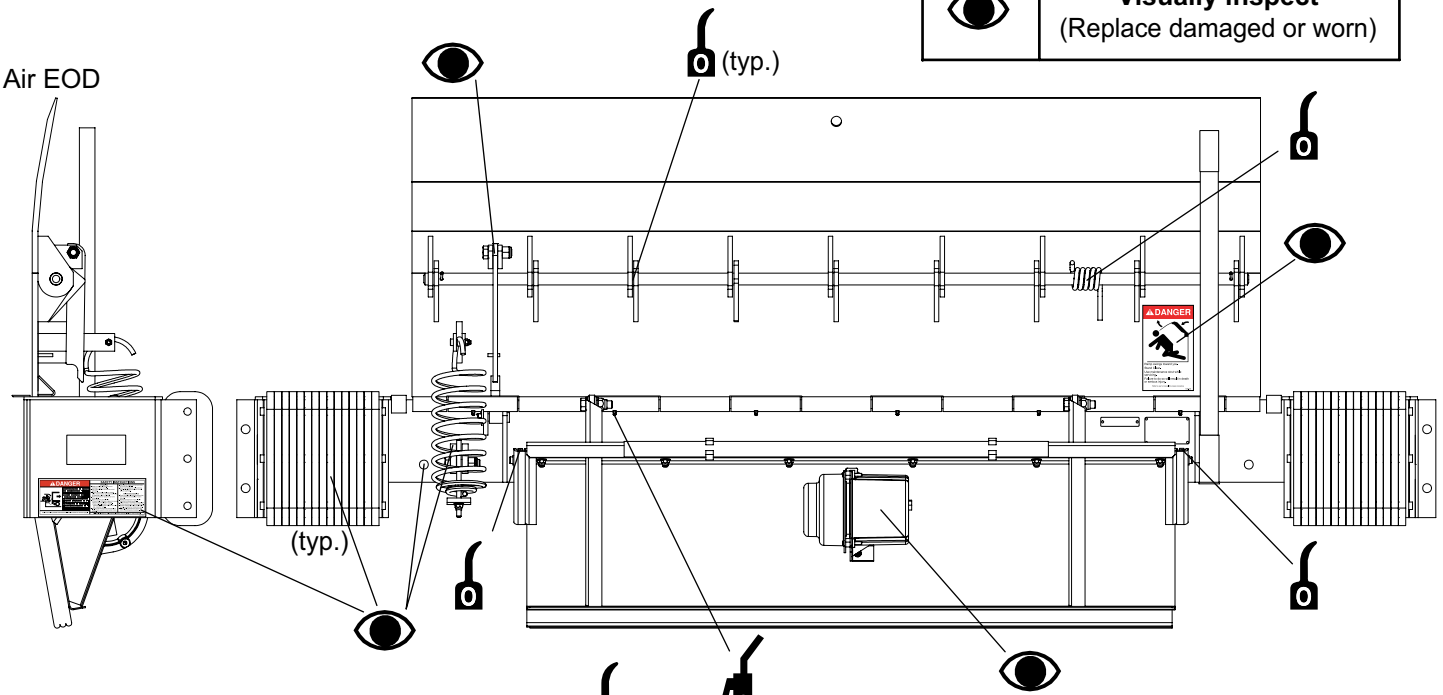


Warning and operation placard (mounted on dock wall near control box)

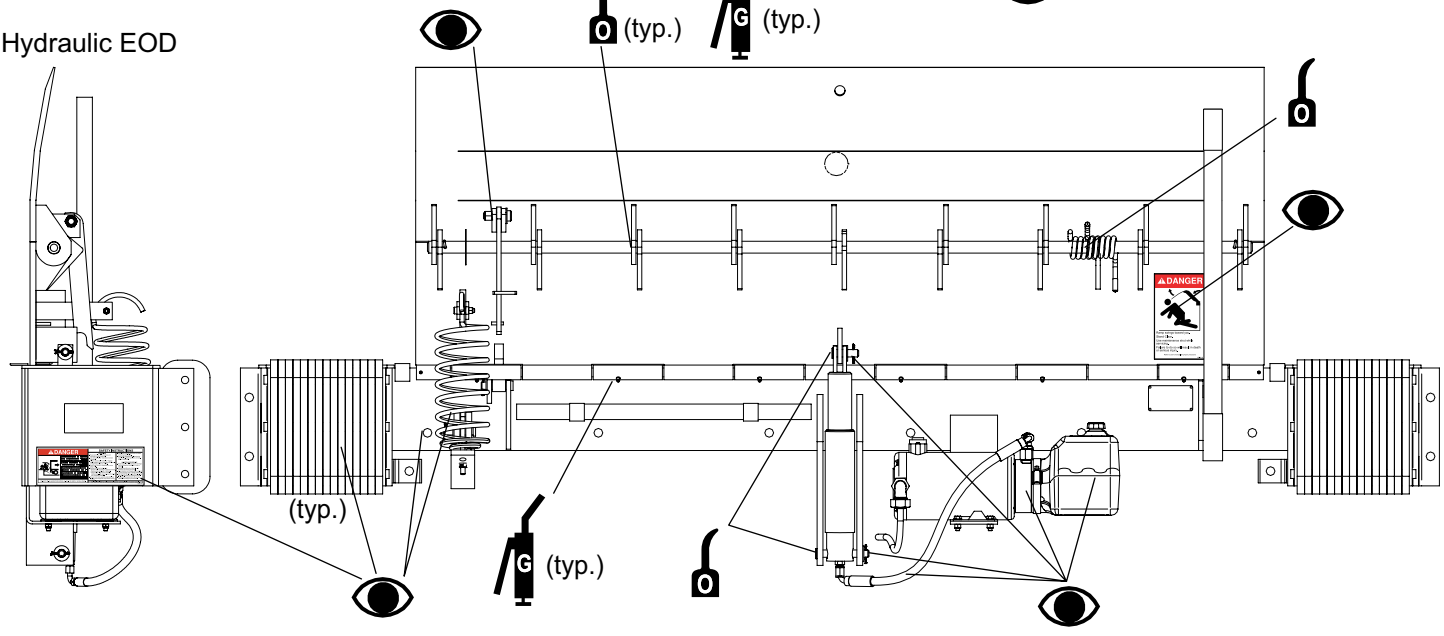
Fig. 25

Legend	
Symbol	**Description**
O	**Lubricate - oil** Light oil - SAE 30
G	**Lubricate - grease** Molybdenum disulfide NLGI #2
	Visually inspect (Replace damaged or worn)

Air EOD



Hydraulic EOD



HYDRAULIC TROUBLESHOOTING

⚠DANGER

STAND CLEAR! The dock leveler moves toward you. Always be certain the ramp is in the raised position, SECURED WITH THE MAINTENANCE STRUT before doing any lubrication or repair under the dock leveler. Failure to do so could result in death or serious injury.

Always return the dock leveler to stored position after service. Failure to do so could result in death or serious injury.

⚠WARNING

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

Never install the maintenance strut with the return spring system attached to the deck and back plate. Always disable the system by removing the over center spring bracket pivot pin prior to raising the dock leveler. See Fig. 14.

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

⚠DANGER

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

1. ***The over center spring bracket pivot pin has been disconnected from spring bracket. See Fig. 14.***
2. ***The maintenance strut is inserted into the maintenance strut cup located on the back plate. See Fig. 25.***
3. ***The power is disconnected and properly tagged or locked off.***

Always use the procedures shown on pages 24-25 to install and remove the maintenance strut.

Failure to follow the above precautions could result in death or serious injury.

RAMP FAILS TO RAISE:

1. If motor fails to run:
   - 1.1 Check that the motor cord is tightly plugged into the pit receptacle.
   - 1.2 Check for electrical power to the pit receptacle and control box.

⚠WARNING

Before doing any electrical work, make certain the power is disconnected and properly tagged or locked off.

   - 1.3 Check for loose wires in control box.
   - 1.4 Check fuses. Replace if required.
   - 1.5 If problem can not be found, contact a qualified electrician.
2. If motor runs:
   - 2.1 Check hydraulic oil level in reservoir. Use proper oil type and fill to proper oil level. See Fig. 27.
   - 2.2 Check for loose hydraulic hose fittings or broken hoses. Repair or replace as required.
   - 2.3 Check for binding in ramp cylinder pivots.
   - 2.4 Check hydraulic relief pressure with pressure gauge and adjust as required. Turn in to increase or turn out to decrease. Replace cap and tighten when finished. See Fig. 28.

RAMP RAISES AND LOWERS, LIP FAILS TO EXTEND:

1. Place leveler in maintenance position.
2. Check to make sure that the lip extension mechanism is not bent or binding.
3. Check to make sure that the lip extension mechanism is lubricated properly. Lubricate as required.
4. Make sure all pins and pin retainers are in place and in good condition.

RAMP RAISES, WON'T LOWER

1. Place leveler in maintenance position (Follow procedure on pages 24-25 for installation and removal of maintenance strut).

2. "Check for debris in pit (on units that are pit mounted) which may be restricting downward travel.

3. Lubricate deck pivot pin with grease.

4. Check return spring mechanism for broken spring, bent parts, pins, retainers.

5. Check for binding in hydraulic cylinder or mounting pins.

6. Downward speed of the ramp is controlled by a needle valve located in the pump/motor. Loosen locking nut and turn valve clockwise to reduce descent speed or counterclockwise to increase descent speed. Tighten locking nut. See Fig. 26.

NOTE:

Do not adjust needle valve more than 1/4 turn. Test operation. Readjust turning valve a maximum of 1/4 turn between testing. DURING TESTING DO NOT TURN MORE THAN FOUR (4) 1/4 TURNS.

Fig. 26

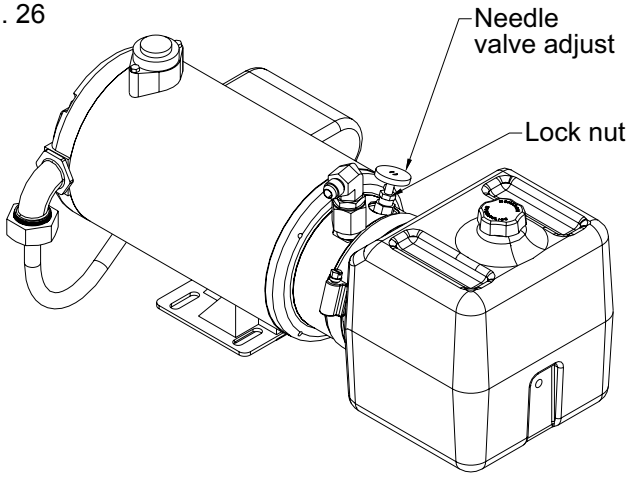
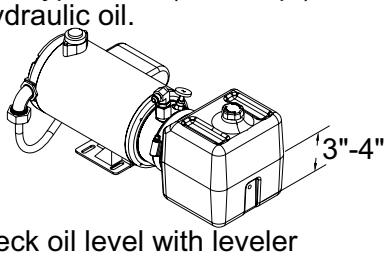


Fig. 27

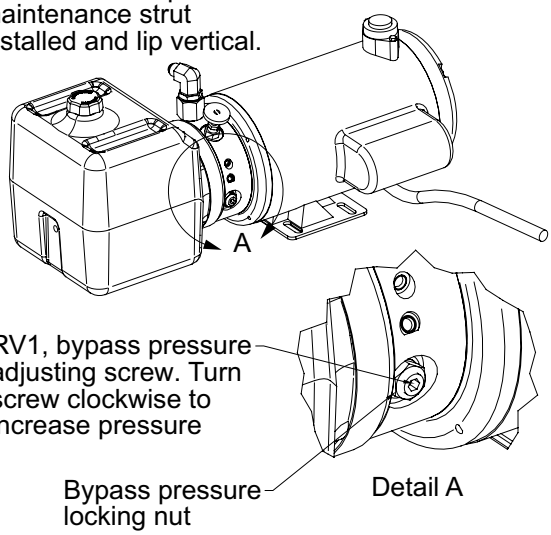
Use type 5606 (low temp.) hydraulic oil.



Check oil level with leveler in maintenance position with maintenance strut installed

Fig. 28

Set bypass pressure at 2250 PSI with leveler in maintenance position with maintenance strut installed and lip vertical.

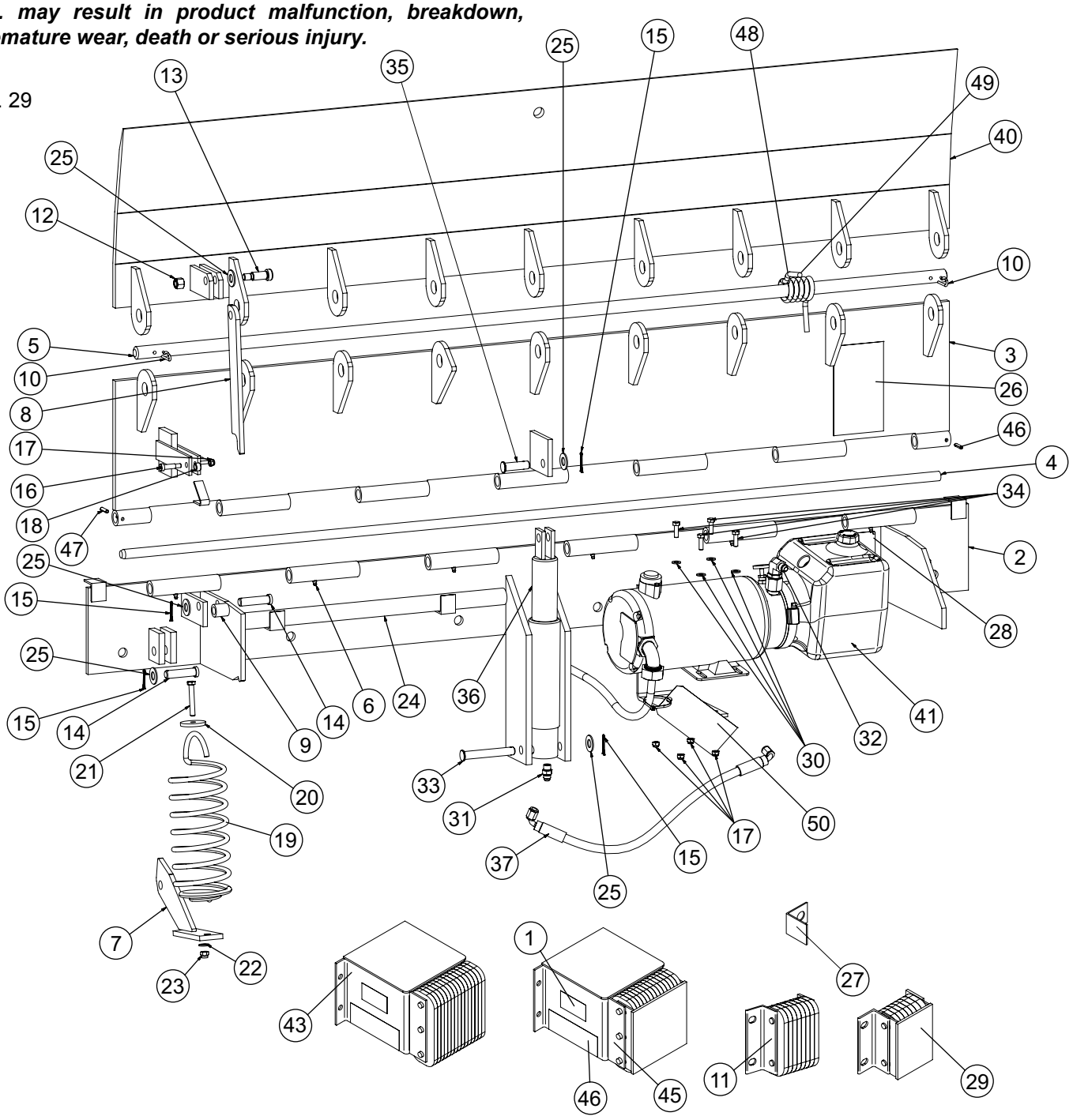


PARTS LIST — HYDRAULIC EOD

⚠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 any way alter the product from its normal working condition at the time of purchase from 4Front Engineered Solutions, Inc. may result in product malfunction, breakdown, premature wear, death or serious injury.

Fig. 29



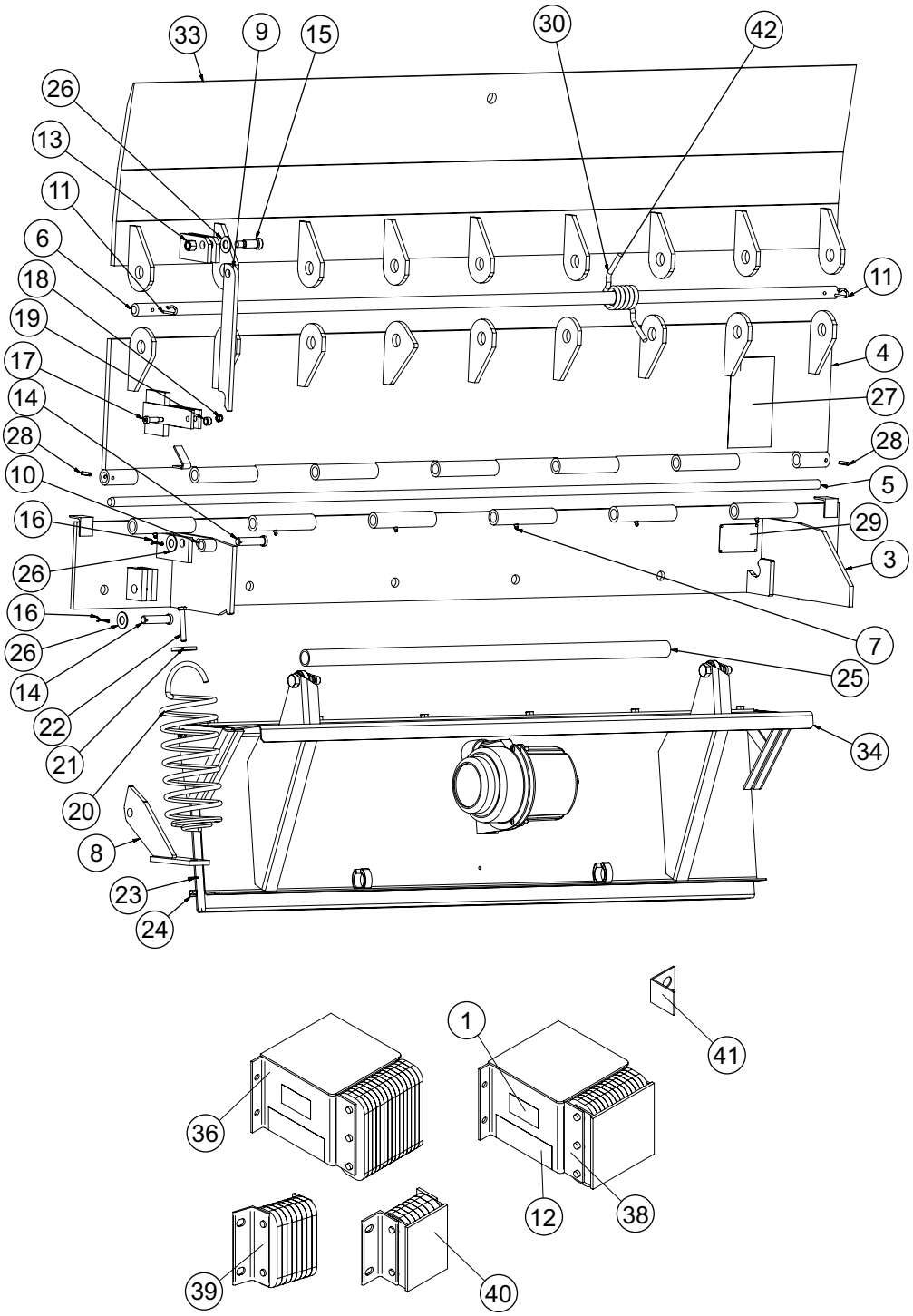
Item	Quantity	Description	Part Number
1	2	SERCO LABEL KELLEY LABEL	824-002 921-140
2	1	WDMT, BASE, HEOD66 WDMT, BASE, HEOD72 WDMT, BASE, HEOD78 WDMT, BASE, HEOD84	6008535 6008536 6008537 6008538
3	1	WDMT, DECK, HEOD66, 20K WDMT, DECK, HEOD66, 30K WDMT, DECK, HEOD72, 20K WDMT, DECK, HEOD72, 30K WDMT, DECK, HEOD78, 30K WDMT, DECK, HEOD84, 30K WDMT, DECK, HEOD66, 20K CART GUARD	6008473 6008474 6008475 6008476 6008477 6008478 6007902
4	1	REAR HINGE ROD, EOD66 REAR HINGE ROD, EOD72 REAR HINGE ROD, EOD78 REAR HINGE ROD, EOD84	6007519 6007520 6007521 6007522
5	1	LIP HINGE ROD, EOD66 LIP HINGE ROD, EOD72 LIP HINGE ROD, EOD78 LIP HINGE ROD, EOD84	6007523 6007524 6007525 6007526
6	6*	GREASE FITTING, DRIVE FIT	417113
7	1	LEVER ASSY, OVER CENTER	6007342
8	1	LIP LIFTER	6010553
9	1	LIP LIFTER ROLLER	6007533
10	2	RETAINER, SHAFT - HINGE PIN	035451
11	2	BUMPER ONLY, 4" PROJECTION BUMPER ONLY, 5-5/8" PROJECTION	34551 34556
12	1	NLN - 1/2-13 UNC	214505
13	1	HSH SS 5/8 X 1-1/4 X 1/2-13	6007843
14	2	CLEVIS PIN	035055
15	4	COTTER PIN, 1/8 X 1-1/4	035036
16	1	HEX SHOULDER SCREW, 3/8 X 1	6007669
17	5	HEX NUT, NYLOCK, 5/16-18	241552
18	1	AEOD ROLLER, OC SPRING	155743
19	1	SPRING, SMALL DIA, EOD	6007345
20	1	WASHER, FENDER, 2” OD	6007804
21	1	HHMB 3/8-16 X 2-1/2, ZP	212109
22	1	FLAT WASHER, 3/8, TYPE A	000051
23	1	LOCK NUT, NYLOCK, HEX, 3/8-16 ZP	000030
24	1	MAINTENANCE STRUT	6007670
25	5	WASHER, 5/8, TYPE A	000063
26	1	DANGER LABEL	138816
27	2	BUMPER MOUNT (OPTIONAL)	6008187

*Quantity is 8 on 84" model.

PARTS LIST — HYDRAULIC EOD, continued

Item	Quantity	Description	Part Number
28	1	SERIAL TAG	6009761
29	2	BUMPER ONLY, STEEL FACE, 4-3/4" PROJECTION BUMPER ONLY, STEEL FACE, 6" PROJECTION	34553 34558
30	4	PLAIN WASHER, 5/16, TYPE A, ZP	234091
31	1	FTG, STRAIGHT, 1/2-20 ORING TO JIC -6	6000711
32	1	FTG, MALE, 90 DEG, JIC -6 TO ORING -8	6007713
33	1	PIN, 5/8 X 4-1/8	6007689
34	4	HHMB 5/16-18 X 1	212054
35	1	PIN, 5/8 X 1-3/8	700049
36	1	CYLINDER, HYDRAULIC, LIP	708887
37	1	HOSE ASSY	6011506
38	1	MANUAL, AEOD & HEOD (NOT SHOWN)	6007632
39	1	PLACARD (NOT SHOWN)	6007602
40	1	WDMT, LIP, EOD66, 20K, 15" LOW WDMT, LIP, EOD66, 30K, 15" LOW WDMT, LIP, EOD72, 20K, 15" LOW WDMT, LIP, EOD72, 30K, 15" LOW WDMT, LIP, EOD78, 30K, 15" LOW WDMT, LIP, EOD84, 30K, 15" LOW WDMT, LIP, EOD66, 20K, 17" LOW WDMT, LIP, EOD66, 30K, 17" LOW WDMT, LIP, EOD72, 20K, 17" LOW WDMT, LIP, EOD72, 30K, 17" LOW WDMT, LIP, EOD78, 30K, 17" LOW WDMT, LIP, EOD84, 30K, 17" LOW WDMT, LIP, EOD66, 20K, CART GUARD, 15” LOW	6007461 6007462 6007463 6007464 6007465 6007466 6007473 6007474 6007475 6007476 6007477 6007478 6007901
41	1	100-120V, 1PH, 50/60 HZ 200-230V, 1PH, 50/60 HZ 190-240V, 3PH, 50/60 HZ HYDRAULIC POWER UNIT 380-480V, 3PH, 50/60 HZ 575V, 3PH, 60 HZ	6011501 6011502 6011503 6011504 6011505
42	1	BUMPER AND BOX, LH, 16" PROJECTION, NOT SHOWN BUMPER AND BOX, LH, 17" PROJECTION, NOT SHOWN	6007653 6008705
43	1	BUMPER AND BOX, RH, 16" PROJECTION BUMPER AND BOX, RH, 17" PROJECTION	6007654 6008706
44	1	BUMPER AND BOX, LH, STEEL FACE, 16-3/8" PROJECTION, NOT SHOWN BUMPER AND BOX, LH, STEEL FACE, 17-3/8" PROJECTION, NOT SHOWN	6007678 6008721
45	1	BUMPER AND BOX, RH, STEEL FACE, 16-3/8" PROJECTION BUMPER AND BOX, RH, STEEL FACE, 17-3/8" PROJECTION	6007679 6008722
46	2	DANGER LABEL — LEVELER INFORMATION	6008485
47	2	ROLL PIN 1/4" X 1-1/8"	6007817
48	1	LIP SPRING	6007664
49	2	PUSHON CAP 3/8 X 1	6010486
50	1	CAP TAG	6011382

Fig. 30



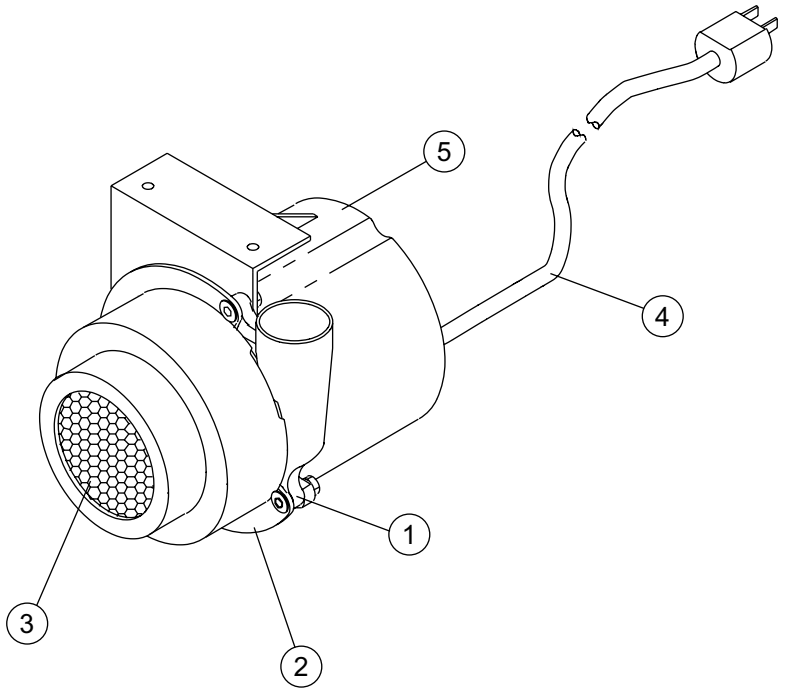
PARTS LIST — AIR EOD, continued

Item	Quantity	Description	Part Number
1	2	SERCO LABEL KELLEY LABEL	824-002 921-140
3	1	WDMT, BASE, AEOD66 WDMT, BASE, AEOD66 WDMT, BASE, AEOD78 WDMT, BASE, AEOD84	6008531 6008532 6008533 6008534
4	1	WDMT, DECK, AEOD66, 20K WDMT, DECK, AEOD66, 30K WDMT, DECK, AEOD72, 20K WDMT, DECK, AEOD72, 30K WDMT, DECK, AEOD78, 30K WDMT, DECK, AEOD84, 30K WDMT, DECK, AEOD66, 20K, CART GUARD	6008467 6008468 6008469 6008470 6008471 6008472 6007885
5	1	REAR HINGE ROD, EOD66 REAR HINGE ROD, EOD72 REAR HINGE ROD, EOD78 REAR HINGE ROD, EOD84	6007519 6007520 6007521 6007522
6	1	LIP HINGE ROD, EOD66 LIP HINGE ROD, EOD72 LIP HINGE ROD, EOD78 LIP HINGE ROD, EOD84	6007523 6007524 6007525 6007526
7	6*	GREASE FITTING, DRIVE FIT	417113
8	1	LEVER ASSY, OVER CENTER, AEOD	6007342
9	1	LIP LIFTER	6008526
10	1	LIP LIFTER ROLLER	6007533
11	2	RETAINER, SHAFT - HINGE PIN	035451
12	2	DANGER LABEL — LEVELER INFO	6008485
13	1	NLN - 1/2-13 UNC	214505
14	2	CLEVIS PIN	035055
15	1	HSH SS 5/8 X 1-1/4 X 1/2-13	6007843
16	2	COTTER PIN, 1/8 X 1-1/4	035036
17	1	HEX SHOULDER SCREW, 3/8 X 1	6007669
18	1	HEX JAM NUT, NYLOCK, 5/16-18	131487
19	1	AEOD ROLLER, OC SPRING	155743
20	1	SPRING, SMALL DIA, EOD	6007345
21	1	WASHER, FENDER, 2” OD	6007804
22	1	HHMB 3/8-16 X 2-1/2, ZP	212109
23	1	FLAT WASHER, 3/8, TYPE A	000051
24	1	LOCK NUT, NYLOCK, HEX, 3/8-16 ZP	000030
25	1	MAINTENANCE STRUT	6007670
26	3	WASHER, 5/8, TYPE A	000063
27	1	DANGER LABEL	138816
28	2	ROLL PIN 1/4" X 1-1/8"	6007817
29	1	SERIAL TAG	6009761

Item	Quantity	Description	Part Number
30	1	LIP SPRING	6007664
31	1	MANUAL, AEOD & HEOD (NOT SHOWN)	6007632
32	1	PLACARD, AEOD (NOT SHOWN)	6007602
33	1	WDMT, LIP, EOD66, 20K, 15" LOW WDMT, LIP, EOD66, 30K, 15" LOW WDMT, LIP, EOD72, 20K, 15" LOW WDMT, LIP, EOD72, 30K, 15" LOW WDMT, LIP, EOD78, 30K, 15" LOW WDMT, LIP, EOD84, 30K, 15" LOW WDMT, LIP, EOD66, 20K, 17" LOW WDMT, LIP, EOD66, 30K, 17" LOW WDMT, LIP, EOD72, 20K, 17" LOW WDMT, LIP, EOD72, 30K, 17" LOW WDMT, LIP, EOD78, 30K, 17" LOW WDMT, LIP, EOD84, 30K, 17" LOW WDMT, LIP, EOD66, 20K, CART GUARD, 15” LOW	6007461 6007462 6007463 6007464 6007465 6007466 6007473 6007474 6007475 6007476 6007477 6007478 6007901
34	1	AIR PAN ASSY, AEOD, 120V	713032
35	1	BUMPER AND BOX, LH, 16" PROJECTION, NOT SHOWN BUMPER AND BOX, LH, 17" PROJECTION, NOT SHOWN	6007653 6008705
36	1	BUMPER AND BOX, RH, 16" PROJECTION BUMPER AND BOX, RH, 17" PROJECTION	6007654 6008706
37	1	BUMPER AND BOX, LH, STEEL FACE, 16-3/8" PROJECTION, NOT SHOWN BUMPER AND BOX, LH, STEEL FACE, 17-3/8" PROJECTION, NOT SHOWN	6007678 6008721
38	1	BUMPER AND BOX, RH, STEEL FACE, 16-3/8" PROJECTION BUMPER AND BOX, RH, STEEL FACE, 17-3/8" PROJECTION	6007679 6008722
39	2	BUMPER ONLY, 4" PROJECTION BUMPER ONLY, 5-5/8" PROJECTION	34551 34556
40	2	BUMPER ONLY, STEEL FACE, 4-3/4" PROJECTION BUMPER ONLY, STEEL FACE, 6" PROJECTION	34553 34558
41	2	BUMPER MOUNT (OPTIONAL)	6008187
42	2	PUSHON CAP 3/8 X 2	6010486

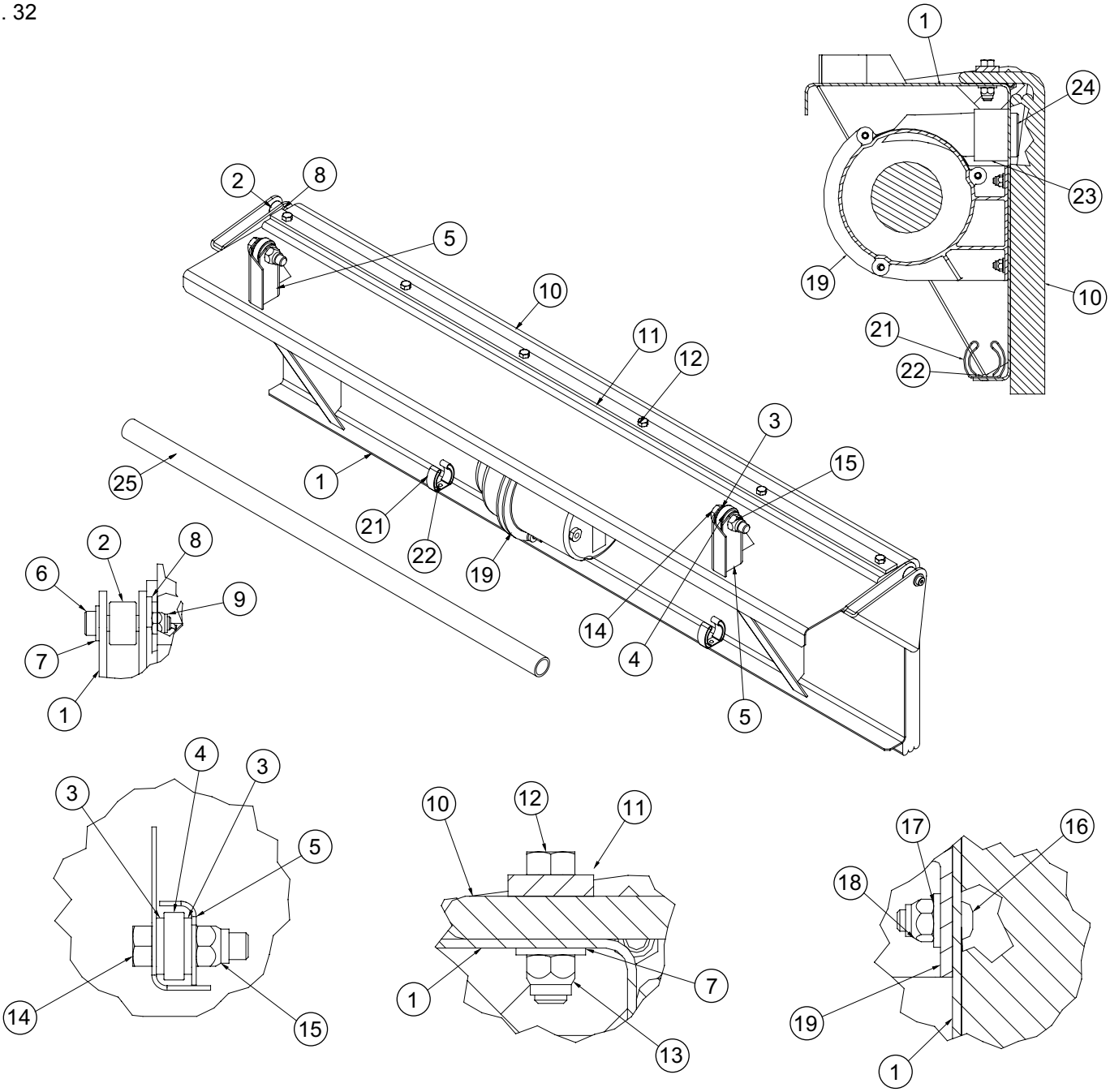
PARTS LIST — FAN ASSEMBLY

Fig. 31



Item	Quantity	Description	Part Number
1	1	FAN MOTOR 115V, 50/60 HZ	711969
2	1	FILTER HOUSING	712748
3	1	FILTER, FAN	712196
4	1	CORD W/PLUG	712027
5	1	HOUSING, FAN	712813
6	—	FAN ASSY (INCLUDES ITEMS 1-5)	713543

Fig. 32



PARTS LIST, continued

Item	Quantity	Description	Part Number
1	1	WDMT, AIR PAN, AEOD	713028
2	2	BEARING PIVOT (BRONZE), 3/8 ID X 1 OD X 5/8T	713031
3	4	FLAT WASHER, 5/8, TYPE A	000063
4	2	BALL BEARING, #6203, 40MM OD X 17MM ID	091104
5	2	BRACE, AIR PAN BEARING	155726
6	2	SCREW, SHOULDER, 3/8 DIA. X 1-1/4L	131486
7	8	FLAT WASHER, 3/8, TYPE A	000051
8	2	BRACKET, PIVOT SCREW	155727
9	2	HEX JAM NYLON INSERT LOCKNUT, 5/18-18 UNC, ZP	131487
10	1	AIR BAG, AEOD	713035
11	1	PLATE, AIR BAG CLAMP	155731
12	6	SCREW HHCS 3/8-16 X 1-1/2 GRADE 5 ZP	000021
13	6	LOCK NUT, NYLOCK HEX, 3/8-16 ZP	000030
14	2	SCREW HHC 5/8-11 X 2-1/4 GRADE 5 ZP	131488
15	2	LOCK NUT - NYLOCK HEX, 5/8-11 ZP	000028
16	2	SCREW, LFGD BH, 1/4-20 X 3/4 FLANGE BUTTON HEAD	131483
17	2	FLAT WASHER, 1/4 TYPE A	131485
18	2	LOCK NUT - NYLOCK HEX 1/4-20 ZP	000315
19	1	FAN MOTOR ASSEMBLY, 120V	713543
21	2	TOOL HOLDER, RND, 1” - 1-1/2” CAPACITY	6007389
22	2	RIVET, 1/8” DIA., .125 TO .187 GRIP, AL	6007394
23	1	COUPLING, PVC PIPE, 1.5”, SCH 40	031470
24	1	LA-EOD, PIPE-FAN OUTLET	155732
25	1	MAINTENANCE STRUT	6007670

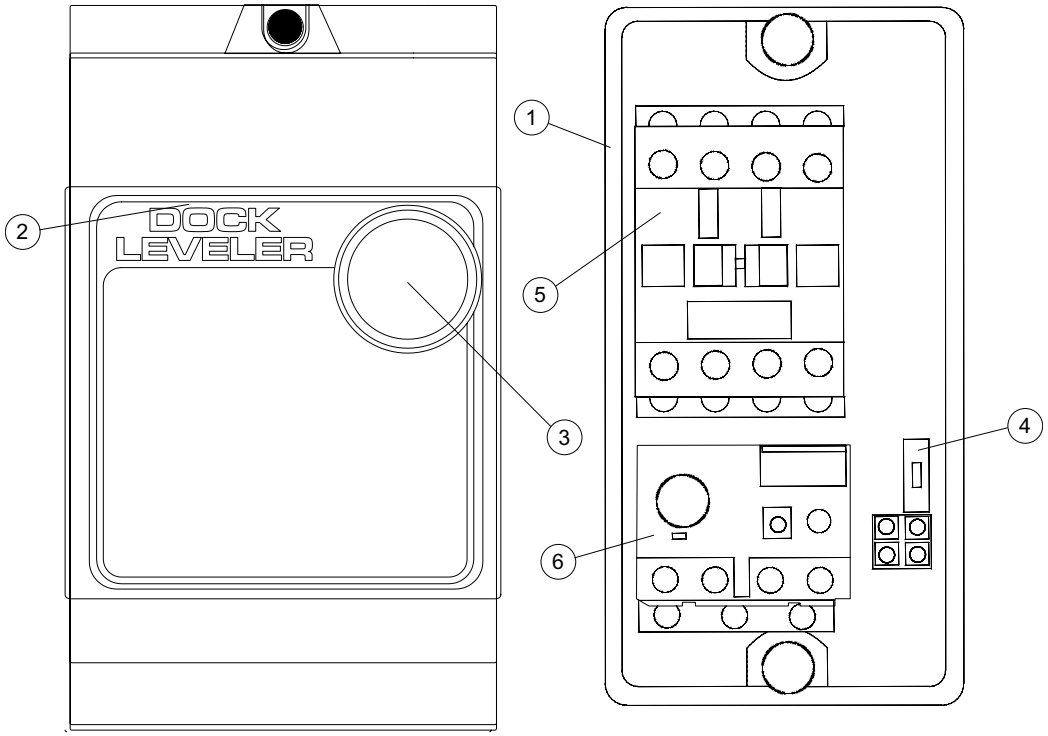
Fig. 33

Item	Quantity	Description	Part Number
1	1	CONTROL BOX ASSEMBLY 120V, 1 PH, 50/60 HZ	 908753
1	1	208-230V, 1PH, 50/60 HZ	909075

PARTS LIST, continued

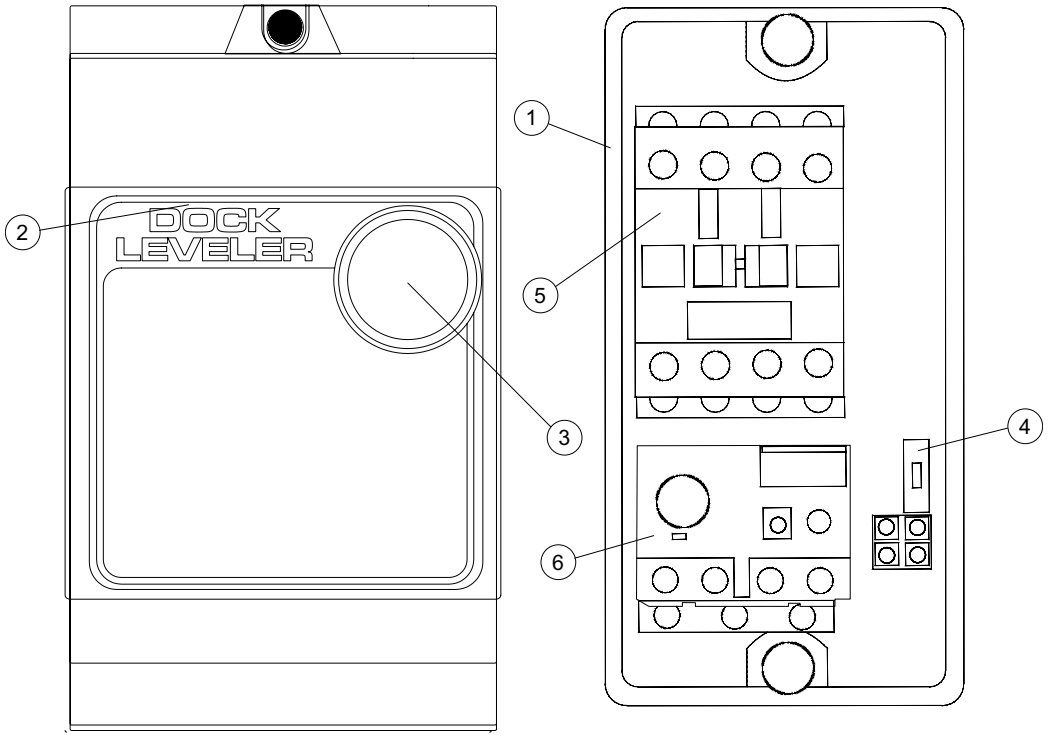
CONTROL BOX ASSEMBLY — HYDRAULIC, STANDARD
6006461, 6006420 — 120V, 1 PH, 50/60 HZ
6006462, 6006421 — 208-240V, 1 PH, 60 HZ

Fig. 55



Item	Quantity	Description	Part Number
—	1	CONTROL BOX ASSEMBLY (INCLUDES ITEMS 1-6) 120V, 1 PH, 50/60 HZ — KELLEY 120V, 1 PH, 50/60 HZ — SERCO 208-230V, 1 PH, 60 HZ — KELLEY 208-230V, 1 PH, 60 HZ — SERCO	 6006461 6006420 6006462 6006421
1	1	PLASTIC CONTROL PANEL ENCLOSURE	6006437
2	1	CONTROL PANEL LABEL — KELLEY CONTROL PANEL LABEL — SERCO	6006453 6006436
3	1	PUSHBUTTON — GREEN WITH LINE	6006439
4	1	CONTACT ASSEMBLY, PLASTIC PANEL	6006438
5	1	CONTACTOR — 120V CONTACTOR — 208-230V	6006427 6006428
6	1	OVERLOAD RELAY 12-18A — 120V OVERLOAD RELAY 5.5-8A — 208-230V	6006435 6006434
7	1	PRINT, WIRING SCHEMATIC — 120V — KELLEY PRINT, WIRING SCHEMATIC — 120V — SERCO PRINT, WIRING SCHEMATIC — 208-230V — KELLEY PRINT, WIRING SCHEMATIC — 208-230V — SERCO	6006461S 6006420S 6006462S 6006421S

Fig. 56

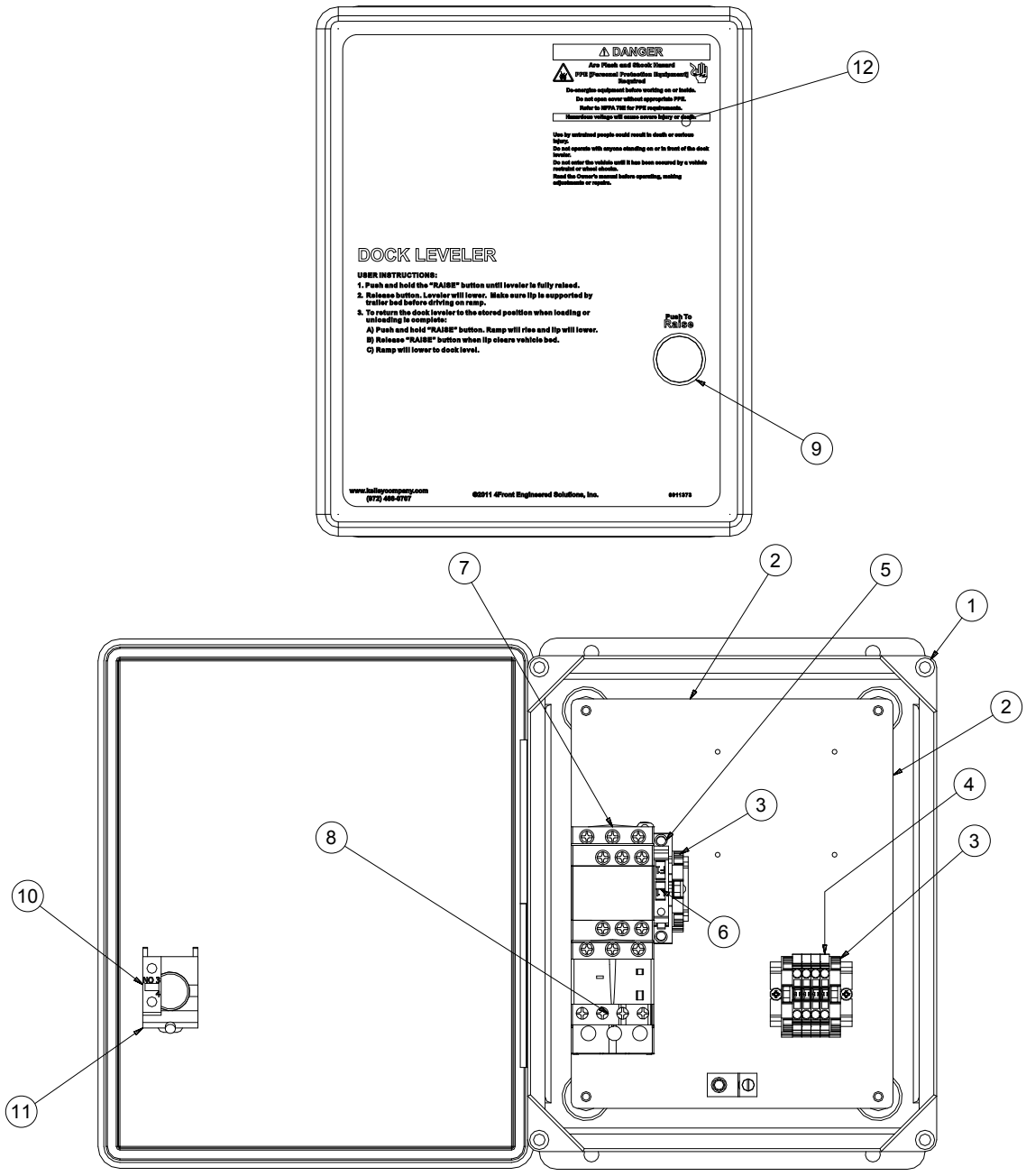


Item	Quantity	Description	Part Number
—	1	CONTROL BOX ASSEMBLY (INCLUDES ITEMS 1-6) 208-230V, 3 PH, 50/60 HZ — KELLEY 208-230V, 3 PH, 50/60 HZ — SERCO 460-480V, 3 PH, 50/60 HZ — KELLEY 460-480V, 3 PH, 50/60 HZ — SERCO 575V, 3 PH, 60 HZ — KELLEY 575V, 3 PH, 60 HZ — SERCO	 6006450 6006423 6006451 6006425 6006452 6006426
1	1	PLASTIC CONTROL PANEL ENCLOSURE	6006437
2	1	CONTROL PANEL LABEL — KELLEY CONTROL PANEL LABEL — KELLEY	6006453 6006436
3	1	PUSHBUTTON — GREEN WITH LINE	6006439
4	1	CONTACT ASSEMBLY, PLASTIC PANEL	6006438
5	1	CONTACTOR — 208-230V CONTACTOR — 480V CONTACTOR — 600V	6006428 6006430 6006431
6	1	OVERLOAD RELAY 2.5-4A — 208-230V OVERLOAD RELAY 1.6-2.5A — 460-480V, 575V	6006433 6006432
7	1	PRINT, WIRING SCHEMATIC — 208-230V — KELLEY PRINT, WIRING SCHEMATIC — 208-230V — SERCO PRINT, WIRING SCHEMATIC — 460-480V — KELLEY PRINT, WIRING SCHEMATIC — 460-480V — SERCO PRINT, WIRING SCHEMATIC — 575V — KELLEY PRINT, WIRING SCHEMATIC — 575V — SERCO	6006450S 6006423S 6006451S 6006425S 6006452S 6006426S

PARTS LIST, continued

CONTROL BOX ASSEMBLY WITH OPTIONAL INTERLOCK
6011372, 6011971 — 120V, 1PH, 60 HZ

Fig. 57

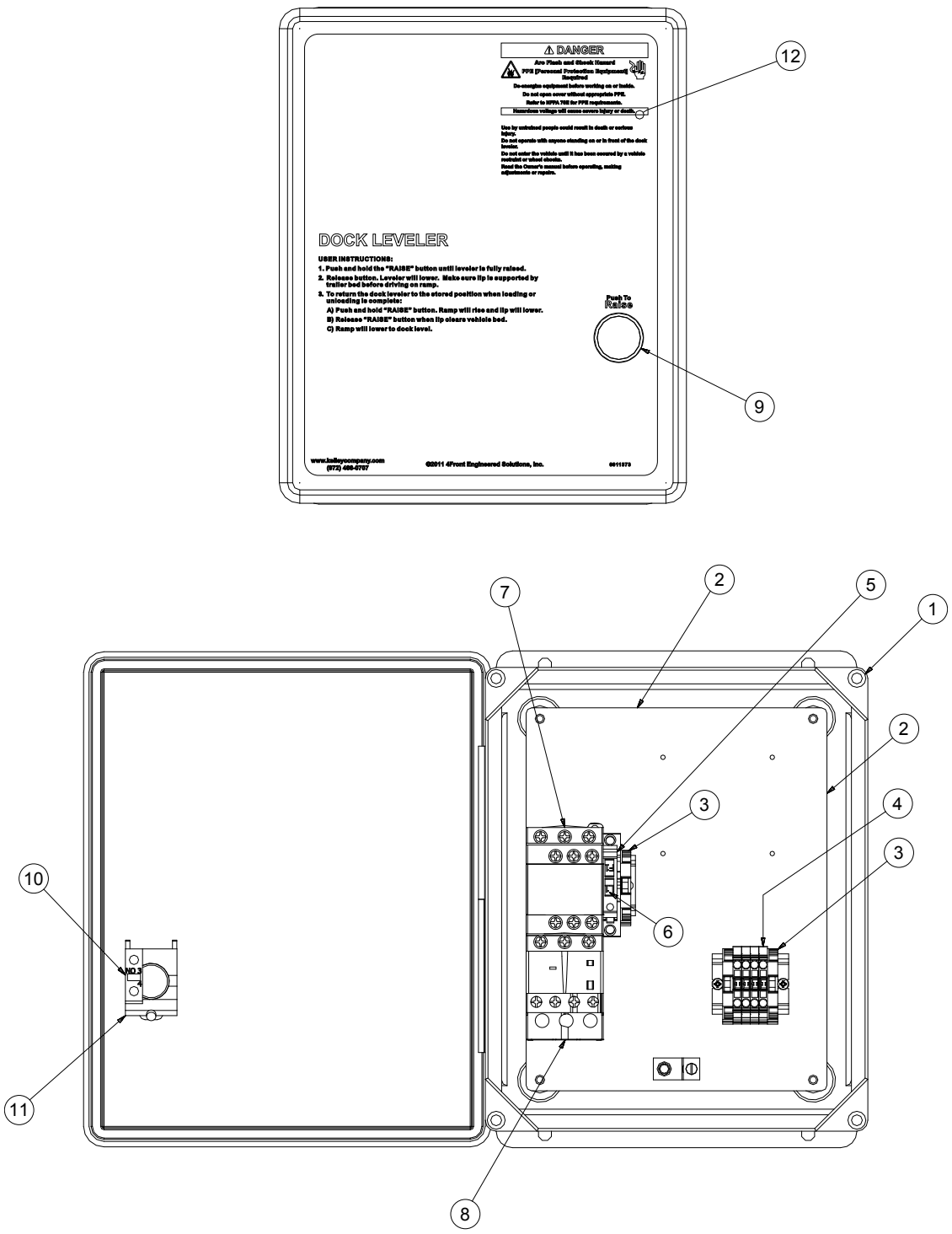


Item	Quantity	Description	Part Number
—	1	CONTROL BOX ASSY — KELLEY CONTROL BOX ASSY — SERCO	6011372 6011971
1	1	ENCLOSURE, 10X8X5 NEMA4	6011018
2	1	MOUNTING PLATE	6011019
3	3	TERMINAL, END STOP, SCREWLESS	6000549
4	4	TERMINAL, 2 CONDUCTOR	6000542
5	1	FUSED DISCONNECT TERMINAL BLOCK, 1/4" X 1 1/4"	6000538
6	1	FUSE, 0.5A TIME DELAY, BUSSMAN, MDL 1/2A	6008836
7	1	CONTACTOR 18A 1NO+NC 120V	6000469
8	1	OVERLOAD 9-13 AMPS	6000477
9	1	PUSH BUTTON	6000506
10	1	CONTACT BLOCK - N/O CONTACT	632228
11	1	BODY, MOUNTING COLLAR	6000515
12	1	DECAL, KELLEY DECAL, SERCO	6011373 6011975
13	1	SCHEMATIC, 1PB, 1PH, 120V — KELLEY SCHEMATIC, 1PB, 1PH, 120V — SERCO	6011372S 6011971S

PARTS LIST, continued

CONTROL BOX ASSEMBLY WITH OPTIONAL INTERLOCK
6011524, 6011972 — 208/240V, 1PH, 60 HZ

Fig. 58

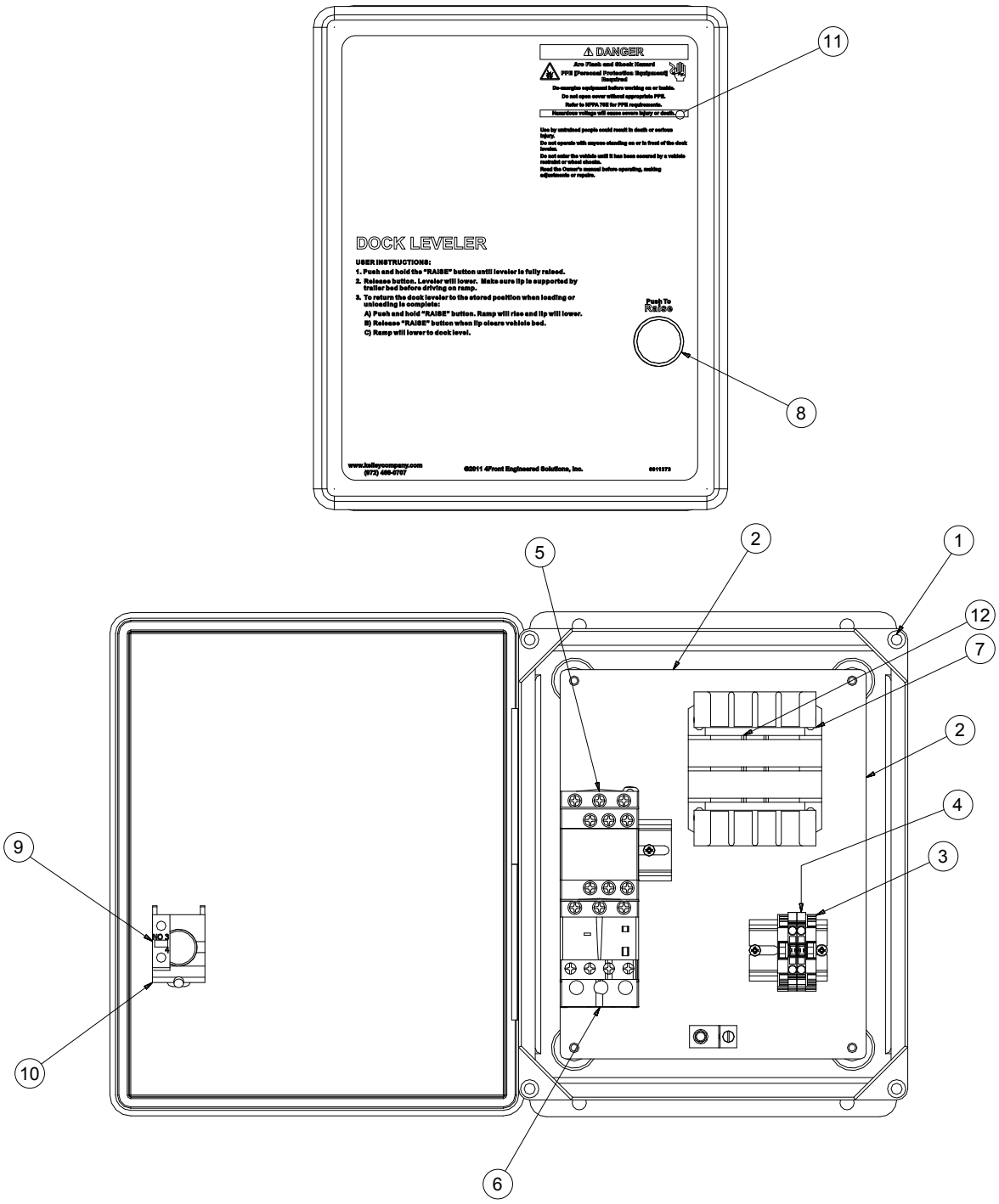


Item	Quantity	Description	Part Number
–	1	CONTROL BOX ASSY — KELLEY CONTROL BOX ASSY — SERCO	6011524 6011972
1	1	ENCLOSURE, 10X8X5 NEMA4	6011018
2	1	MOUNTING PLATE	6011019
3	3	TERMINAL, END STOP, SCREWLESS	6000549
4	4	TERMINAL, 2 CONDUCTOR	6000542
5	2	FUSED DISCONNECT TERMINAL BLOCK, 1/4" X 1 1/4"	6000538
6	2	FUSE, 0.5A TIME DELAY, BUSSMAN, MDL 1/2A	6008836
7	1	CONTACTOR 9A 1NO + 1NC 240V	6006834
8	1	OVERLOAD 5.5 - 8 AMPS	6000476
9	1	PUSH BUTTON	6000506
10	1	CONTACT BLOCK - N/O CONTACT	632228
11	1	BODY, MOUNTING COLLAR	6000515
12	1	DECAL, KELLEY DECAL, SERCO	6011373 6011975
13	1	SCHEMATIC, 1PB, 1PH, 208/240V — KELLEY SCHEMATIC, 1PB, 1PH, 208/240V — SERCO	6011524S 6011972S

PARTS LIST, continued

CONTROL BOX ASSEMBLY WITH OPTIONAL INTERLOCK
6011325, 6011968 — 208V, 3PH, 60 HZ
6011761, 6011969 — 240V, 3PH, 60 HZ
6011326, 6011970 — 460-480V, 3PH, 60 HZ

Fig. 60



PARTS LIST, continued

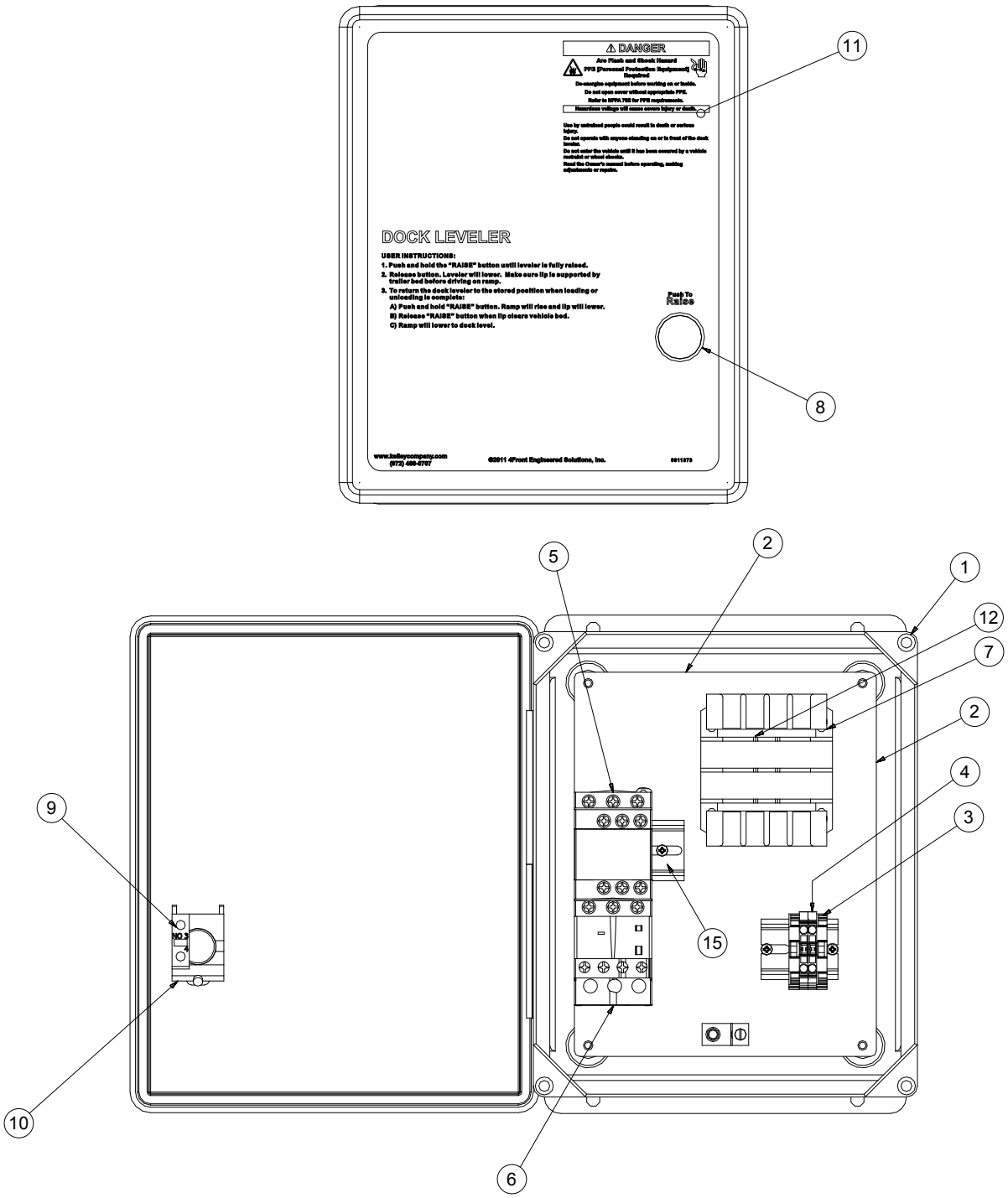
CONTROL BOX ASSEMBLY WITH OPTIONAL INTERLOCK
6011325, 6011968 — 208V, 3PH, 60 HZ
6011761, 6011969 — 240V, 3PH, 60 HZ
6011326, 6011970 — 460-480V, 3PH, 60 HZ

Item	Quantity	Description	Part Number
—	1	CONTROL BOX ASSY, 208V, 3PH, 60 HZ — KELLEY CONTROL BOX ASSY, 208V, 3PH, 60 HZ — SERCO CONTROL BOX ASSY, 240V, 3PH, 60 HZ — KELLEY CONTROL BOX ASSY, 240V, 3PH, 60 HZ — SERCO CONTROL BOX ASSY, 460-480V, 3PH, 60 HZ — KELLEY CONTROL BOX ASSY, 460-480V, 3PH, 60 HZ — SERCO	6011325 6011968 6011761 6011969 6011326 6011970
1	1	ENCLOSURE, 10X8X5 NEMA4	6011018
2	1	MOUNTING PLATE	6011019
3	2	TERMINAL, END STOP, SCREWLESS	6000549
4	2	TERMINAL, 2 CONDUCTOR	6000542
5	1	CONTACTOR 18A 1NO + 1NC 24V	6000467
6	1	OVERLOAD 2.5 - 4 AMPS — 208-240V OVERLOAD 1.6 - 2.5 AMPS — 460-480V	6000474 6000473
7	1	XFMR,200/480-23/110,50VA	6011359
8	1	PUSH BUTTON	6000506
9	1	CONTACT BLOCK - N/O CONTACT	632228
10	1	BODY, MOUNTING COLLAR	6000515
11	1	DECAL, KELLEY DECAL, SERCO	6011373 6011975
12	2	FUSE, ATQR 1/2A, 600V, CC, FERRAZ SHAWMUT	6011358
13	1	SCHEMATIC, 1PB, 1PH, 208V — KELLEY SCHEMATIC, 1PB, 1PH, 208V — SERCO SCHEMATIC, 1PB, 1PH, 240V — KELLEY SCHEMATIC, 1PB, 1PH, 240V — SERCO SCHEMATIC, 1PB, 1PH, 480V — KELLEY SCHEMATIC, 1PB, 1PH, 480V — SERCO	6011325S 6011968S 6011761S 6011969S 6011326S 6011970S

PARTS LIST, continued

CONTROL BOX ASSEMBLY WITH OPTIONAL INTERLOCK
6011651, 6011973 — 575V, 3PH, 60 HZ

Fig. 61



Item	Quantity	Description	Part Number
—	1	CONTROL BOX ASSY — KELLEY CONTROL BOX ASSY — SERCO	6011651 6011973
1	1	ENCLOSURE, 10X8X5 NEMA4	6011018
2	1	MOUNTING PLATE	6011019
3	2	TERMINAL, END STOP, SCREWLESS	6000549
4	2	TERMINAL, 2 CONDUCTOR	6000542
5	1	CONTACTOR 18A 1NO + 1NC 24V	6000467
6	1	OVERLOAD 1.6 - 2.5 AMPS — 575V	6000473
7	1	XFMR,550/600-24, 50VA	6011649
8	1	PUSH BUTTON	6000506
9	1	CONTACT BLOCK - N/O CONTACT	632228
10	1	BODY, MOUNTING COLLAR	6000515
11	1	DECAL, KELLEY DECAL, SERCO	6011373 6011975
12	2	FUSE, ATQR 1/4, 600V, CC, FERRAZ SHAWMUT	6011974
13	1	PRINT, WIRING SCHEMATIC, 575V — KELLEY PRINT, WIRING SCHEMATIC, 575V — SERCO	6011651S 6011973S

LIMITED WARRANTY

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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.

4FRONT expressly warrants that the BAG, MOTOR, GASKETS, FITTINGS and SEALS will be free from flaws in material and workmanship under normal use for a period of five (5) years from the earlier of 1) 60 days after date of shipment, or 2) the date of installation of the DOCK LEVELER by the original purchaser, provided the purchaser maintains and operates the DOCK LEVELER in accordance with the User's Manual.

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.

LIMITED WARRANTY

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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.

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:

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Please direct questions about your vehicle restraint to your local distributor.

Your local distributor is:

Corporate Head Office:

1612 Hutton Dr. Suite 140
Carrollton, TX. 75006
Tel. (972) 466-0707
Fax (972) 323-2661

Part No. 6007632H