



PENTALIFT EQUIPMENT CORPORATION

LOW PROFILE DOCK LIFT OWNERS MANUAL

MODEL NUMBER : _____ **SERIAL NUMBER :** _____

CAPACITY : _____

Individual Model Number(s) and Serial Number(s) must be filled out by the user for future reference.



THIS MANUAL IS AN IMPORTANT DOCUMENT

IT SHALL BE KEPT WITH THE MACHINE OR LOCATED WHERE READILY AVAILABLE TO OPERATORS AND MAINTENANCE PERSONNEL FOR REFERENCE PURPOSES. DO NOT INSTALL, OPERATE OR SERVICE THIS PRODUCT UNLESS YOU HAVE READ AND FULLY UNDERSTAND THE ENTIRE CONTENTS OF THIS MANUAL. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH. KEEP THIS MANUAL IN A SAFE PLACE FOR FUTURE REFERENCE.

**Pentalift Equipment Corporation
21 Nicholas Beaver Rd
Puslinch, ON N0B 2J0
Phone: 519-763-3625
Fax: 519-763-2894
Parts Phone: 519-763-3625 Extension 625
Ask for Parts Department**

Pentalift Equipment Corporation provides an owners manual when equipment is shipped. Additional manuals are available at \$25.00 each.

IMPORTANT: The owners manuals that are provided on Pentalift Equipment Corporations website are generic in nature. They are provided for general information only. For all purposes, only the owners manual that is specific to the equipment should be referenced and relied on. In order to receive the specific owners manual for specific Pentalift equipment, please contact your Pentalift representative and supply the specific serial number(s) for the equipment the manual is required for. Do not rely on the information in the generic owners manuals provided through the website as it may not be appropriate for your specific Pentalift equipment.

PRODUCT REGISTRATION



PRODUCT REGISTRATION CARD

To validate warranty and to advise of product updates please complete the following information and return to
Pentalift Equipment Corporation

To validate warranty on-line go to: **www.pentalift.com**

END USER INFORMATION

*Company Name:		
Contact *First Name:	*Last Name:	Title:
*Mailing Address:		
*City:	*State/Prov.	*Zip/Postal Code:
*Phone: () -	Fax: () -	Email:
Check Products Purchased:	<input type="checkbox"/> Levelers, <input type="checkbox"/> Vehicle Restraints, <input type="checkbox"/> Seals/Shelters, <input type="checkbox"/> Elevating Docks, <input type="checkbox"/> Lift Tables	
*Serial Number(s):	Invoice # (if available):	
Dealer Name:	Sales Rep.:	
Manual Verification *Manual Number:		

Please return to:

Pentalift Equipment Corporation
P.O. Box 1510,
Buffalo, NY 14240-1510

or

Pentalift Equipment Corporation
21 Nicholas Beaver Rd
Puslinch, Ontario
N0B 2J0

Attention: Service Department

Or Fax to (519) 763-2894

SAFETY INFORMATION AND WARNINGS



READ THESE SAFETY PRACTICES BEFORE INSTALLING, OPERATING OR SERVICING THE DOCK LIFT. FAILURE TO FOLLOW THESE SAFETY PRACTICES MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH.

THE OPERATION OF THIS EQUIPMENT IS SUBJECT TO CERTAIN HAZARDS THAT CAN BE PROTECTED AGAINST ONLY BY THE EXERCISE OF CARE AND COMMON SENSE AND NOT BY MECHANICAL MEANS. IT IS, THEREFORE, ESSENTIAL TO HAVE COMPETENT, QUALIFIED OPERATORS TRAINED IN THE SAFE OPERATION AND CARE OF THIS TYPE OF EQUIPMENT. ALL PERSONNEL MUST COMPLETELY UNDERSTAND THIS SAFETY INFORMATION BEFORE WORKING ON OR NEAR THIS EQUIPMENT.



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, used with the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.



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



BEFORE DOING ANY INSTALLATION, MAINTENANCE, INSPECTION OR TROUBLE SHOOTING, BARRICADE ALL AREAS FROM TRAFFIC AROUND THE WORK AREA INSIDE (AND OUTSIDE IF APPLICABLE) FOR SAFETY AND POST APPROPRIATE WARNING SIGNS.



ARC FLASH AND SHOCK HAZARD PPE (PERSONAL PROTECTION EQUIPMENT) REQUIRED. DE-ENERGIZE EQUIPMENT BEFORE WORKING ON OR INSIDE. DO NOT OPEN COVER WITHOUT APPROPRIATE PPE. REFER TO NFPA 70E FOR PPE REQUIREMENTS. THIS PANEL MAY CONTAIN MORE THAN ONE POWER SOURCE. HAZARDOUS VOLTAGE WILL CAUSE SEVERE INJURY OR DEATH.



BEFORE DOING ANY ELECTRICAL WORK, BE CERTAIN THAT THE POWER IS DISCONNECTED WITH A FUSED DISCONNECT, PROPERLY TAGGED AND LOCKED OUT. FUSED DISCONNECT AND LOCKOUT DEVICE (SUPPLIED AND INSTALLED BY OTHERS) MUST MEET WITH ALL APPLICABLE CODES AND REGULATIONS. ALL ELECTRICAL WORK MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS.



NEVER GO BENEATH THE DOCK LIFT FOR ANY REASON UNLESS THE PLATFORM AND HINGED BRIDGE(S) ARE PROPERLY SUPPORTED (SEE “Figure 11: Supporting the Dock Lift for Maintenance” on page 13) AND THE POWER IS DISCONNECTED, PROPERLY TAGGED AND LOCKED OUT. IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT NO LOAD OR TRAFFIC IS PLACED ON THE PLATFORM WHILE THE MAINTENANCE STAND IS ENGAGED. THE CONSTRUCTION OF THE MAINTENANCE STAND IS INTENDED TO SUPPORT THE WEIGHT OF THE UNLOADED DOCK LIFT ONLY.

1. Before loading/unloading the truck, ensure the trailer is in position firmly against both of the dock bumpers or bollards and **CHOCK THE TRUCK WHEELS** to eliminate the possibility of the truck rolling or inching forward.
2. **NEVER EXCEED THE MAXIMUM RATED CAPACITY OF THE DOCK LIFT.** (i.e. The maximum load for a 4,000 lb. rated unit is 4,000 lb. with the load center at the center of the Platform.) The retaining cradles and wear plates **MUST** be installed (See “Figure 4: Position of Retaining Cradles and Wear Plates” on page 7.) for single axle load capacity across the ends of 75% of the rated capacity and single axle load across the sides of 50% of the rated capacity. Refer to the specification plate (See “Figure 2: Safety Label and Decal Locations” on page 3) for each Dock Lift’s particular rating.
3. Ensure the ground surface sufficiently supports the weight of the Dock Lift. Insufficient support may cause the unit to “sink” and become unstable. Do not operate on asphalt.

4. Never stand between the Dock Lift and a truck.
5. Return the Dock Lift to the stored position before allowing truck to depart.
6. When not in use, the unit MUST be in the fully lowered position.
7. Do not apply shock loads to the unit. (i.e. Do not drop loads onto the platform, lower loads onto the platform at a high rate of speed, stop unit abruptly or jog in lower range of travel.)
8. The platform surface must be kept clean and free from oil, debris, etc. Keep debris, etc. from underneath the unit.
9. Keep any obstructions and personnel clear of the Dock Lift and load and their operating path to eliminate injury and/or damage. Avoid or eliminate any and all potential pinch points.
10. Prior to each use, ensure Dock Lift and load does not create pinch points during operation when located adjacent to or near other equipment or structures.
11. Anyone using or in the vicinity of this equipment must wear protective footwear with steel toes.
12. Never use the unit for lifting personnel unless it has been suitably designed and manufactured for that purpose by Pentalift Equipment Corporation. Guard rails and access chains must be used.
13. It is the owner's responsibility to ensure protection is provided for the operator (i.e. access chains) to prevent falling off of the Dock Lift when the unit is above ground/floor level.
14. All electrical, hydraulic and/or pneumatic lines must be carefully routed to prevent them from being pinched or severed.
15. Regular inspection and maintenance must be performed to keep the equipment in proper operating condition. Pay particularly close attention to all hoses and/or wires in order to detect possible cracks or wear. Always follow the instructions as per the HOW TO SUPPORT THE DOCK LIFT DURING ROUTINE MAINTENANCE AND INSPECTION section in this manual (See page 12) prior to performing any activity within the operating path of the Dock Lift.
16. HYDRAULIC FALLSAFE: The basic purpose of the fallsafe feature (velocity fuse) is to arrest the equipment's downward movement in the event of ruptured or severed hose. If a fallsafe situation should occur, the Dock Lift must be inspected by an authorized Pentalift Representative before continuing to use the equipment. The owner must receive written authorization from Pentalift Equipment Corporation through the authorized Pentalift representative before continuing to use the equipment.
17. Ensure that the Owner's Manual is at all times accessible to anyone who may require it.
18. Ensure that the equipment is not used by anyone if you believe that any part of it might be in disrepair (e.g. loose wires, leaking hoses, bent structural members, broken welds, etc.). See Warranty Section.
19. Do not operate, use, maintain or install this equipment if you are impaired in any manner.
20. If you have any questions, contact your immediate supervisor or your authorized Pentalift representative for assistance.

OWNER RESPONSIBILITY

The Owner's Responsibilities include the following:

1. *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 levelling devices.*
2. *When a transport vehicle is positioned as closely as practicable to a dock levelling device, there shall be at least 4" (100 mm) of overlap between the front edge of the Hinged Bridge and the edge of the floor or sill of the transport vehicle.*
3. *Nameplates, cautions, instructions and posted warnings shall not be obscured from the view of operating or maintenance personnel for whom such warnings are intended.*
4. *Manufacturer's recommended periodic maintenance and inspection procedures in effect at date of shipment shall be followed, and written records of performance of these procedures should be kept.*
5. **Removal from Service:** *Any lift not in safe operating condition such as, but not limited to excessive leakage, missing rollers, pins or fasteners, any bent or cracked structural members, cut or frayed electric, hydraulic or air lines, damaged or malfunctioning controls or safety devices, etc. shall be removed from service until it is repaired to Pentalift Equipment Corporation's standards.*
6. **Pentalift Equipment Corporation** *shall supply replacement nameplates, caution or instruction labels and operating and maintenance manuals upon request of the owner. The owner shall see that all nameplates and caution and instruction markings or labels are in place and legible and that the appropriate operating and maintenance manuals are provided to users.*
7. *Modifications or alterations of equipment shall be made only with written permission of **Pentalift Equipment Corporation**. Alteration permission must be signed by both the Pentalift Post Sale Customer Service Manager and the President to be valid.*
8. *When industrial trucks 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 protection of wheel chocks engaged.*

NOTE: *It is recognized that these devices are intended to secure a transport vehicle to a loading dock by mechanical means. However, no standards currently exist for the strength, construction or attachment of the under ride guard on a transport vehicle. It is therefore recommended that users of such positive restraint devices review:*

- *The means of attachment to the transport vehicle*
 - *The strength of the overall connection*
 - *The proper coordination of the actuation of devices with any signalling system used*
 - *The need to use wheel chocks*
9. *In selecting equipment, it is important to consider not only present requirements, but also future plans or adverse environments.*



Unless specifically agreed to in writing by Pentalift Equipment Corporation at the time the equipment is ordered and prior to the equipment's manufacture, this equipment is sold as a complete package. It is not to be altered, changed or added to in any way or form, in its configuration and function, without the written permission of Pentalift Equipment Corporation.

If requested by a customer, Pentalift Equipment Corporation is not supplying all or some of the power unit and / or control components for the equipment's application. The power unit and controls constitute important safety and functional aspects of the equipment. It is the customer's responsibility to address the operational and safety issues associated with providing the required controls and power units to satisfy the operational and safety requirements of the equipment.

The customer's decision to supply all or some of these components indicates that the customer is taking full responsibility for any and all possible operational, safety and liability issues associated to the product and its configuration. The customer also agrees to absolve Pentalift Equipment Corporation from any and all possible operation, safety and liability issues.

EXPLANATION OF CALIFORNIA'S PROPOSITION 65

The product(s) reference by this manual comply with California's Proposition 65 (Prop 65).

Prop 65 is a voter initiative passed in 1986. This law regulates substances officially listed by California as having a 1 in 100,000 chance of causing cancer over a 70-year period or birth defects or other reproductive harm in two ways. The first statutory requirement of Prop 65 prohibits businesses from knowingly discharging listed substances into drinking water sources, or onto land where the substances can pass into drinking water sources. The second prohibits businesses from knowingly exposing individuals to listed substances without providing a clear and reasonable warning. There are several states that regulate or list similar substances. The chemicals do not need to be in liquid form; the consumer only needs to be exposed to them at certain levels.

On August 30, 2016 California adopted amendments to the regulations that govern clear and reasonable warnings under Prop 65. The new regulation took effect August 30, 2018.

A warning label is required which permits our products to be used in California after August 30, 2018. The label need only be in English language. The label meets the guidelines of ANSI Z535.4 which we follow. There is one size (1" h x 2 1/2" w) for all products. It is placed in the proximity of other precautionary labels. A minimum of one label per machine. Proving every listed chemical present would result in levels (micro-grams/day) below the Prop 65 requirement is impractical. To avoid the complication for having labels which are specific to the most prevalent chemical in each unique model the truncated label is acceptable under the California law. In order to use the truncated label, the label must be on the product.



This is the warning label which meets the Prop 65 requirements..

This abbreviated label can also be used for the pre-sale notification. For this responsibility to the law advice is added to our terms and conditions of sale. The owner's manual also supports the notification using this notice:

Additional detail about Prop 65 is available at <https://www.p65warnings.ca.gov/>

TABLE OF CONTENTS

PRODUCT REGISTRATION	I
SAFETY INFORMATION AND WARNINGS.....	II
OWNER RESPONSIBILITY.....	IV
EXPLANATION OF CALIFORNIA'S PROPOSITION 65	V
TABLE OF CONTENTS	1
SAFETY LABELING.....	2
INSTALLATION INSTRUCTIONS	4
PREPARATION PRIOR TO INSTALLATION	4
ELECTRICAL REFERENCE - 1 HP	5
ELECTRICAL REFERENCE - 3 HP	6
ELECTRICAL REFERENCE - 5 HP	6
BREAK-IN AND PERFORMANCE CHECK	9
OPERATING INSTRUCTIONS.....	10
HOW TO SUPPORT THE DOCK LIFT DURING ROUTINE MAINTENANCE AND INSPECTION	12
MAINTENANCE AND LUBRICATION	14
TROUBLE SHOOTING GUIDE	18
REPLACEMENT PARTS	20
DOCK LIFT REPLACEMENT PARTS LIST	21
CAM CYLINDER REPLACEMENT PARTS	22
LIFT CYLINDER REPLACEMENT PARTS.....	23
LIST OF ILLUSTRATIONS.....	24
PENTALIFT EQUIPMENT CORPORATION WARRANTY.....	25

SAFETY LABELING

M035CA1

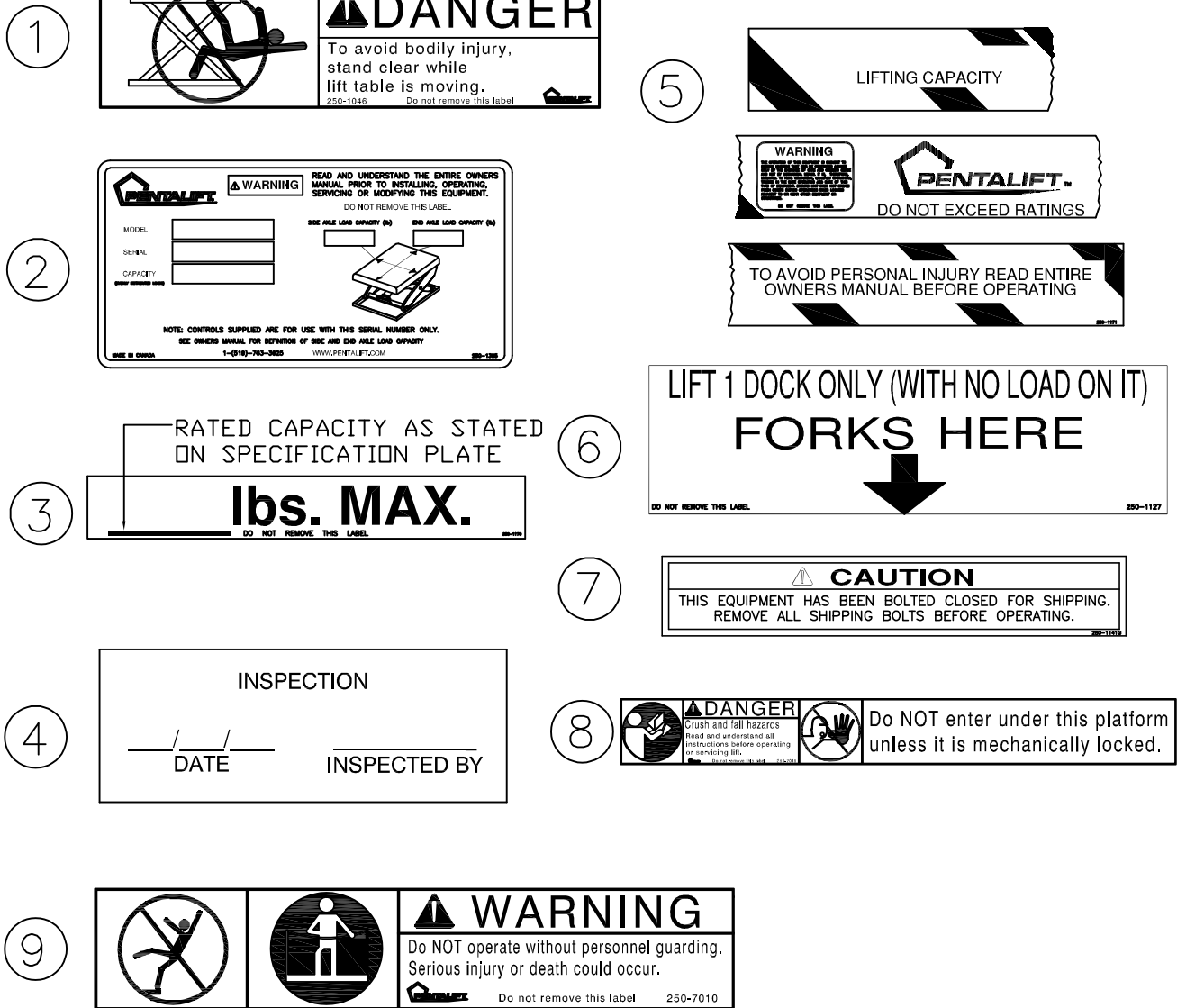


Figure 1: Safety Labels and Decals

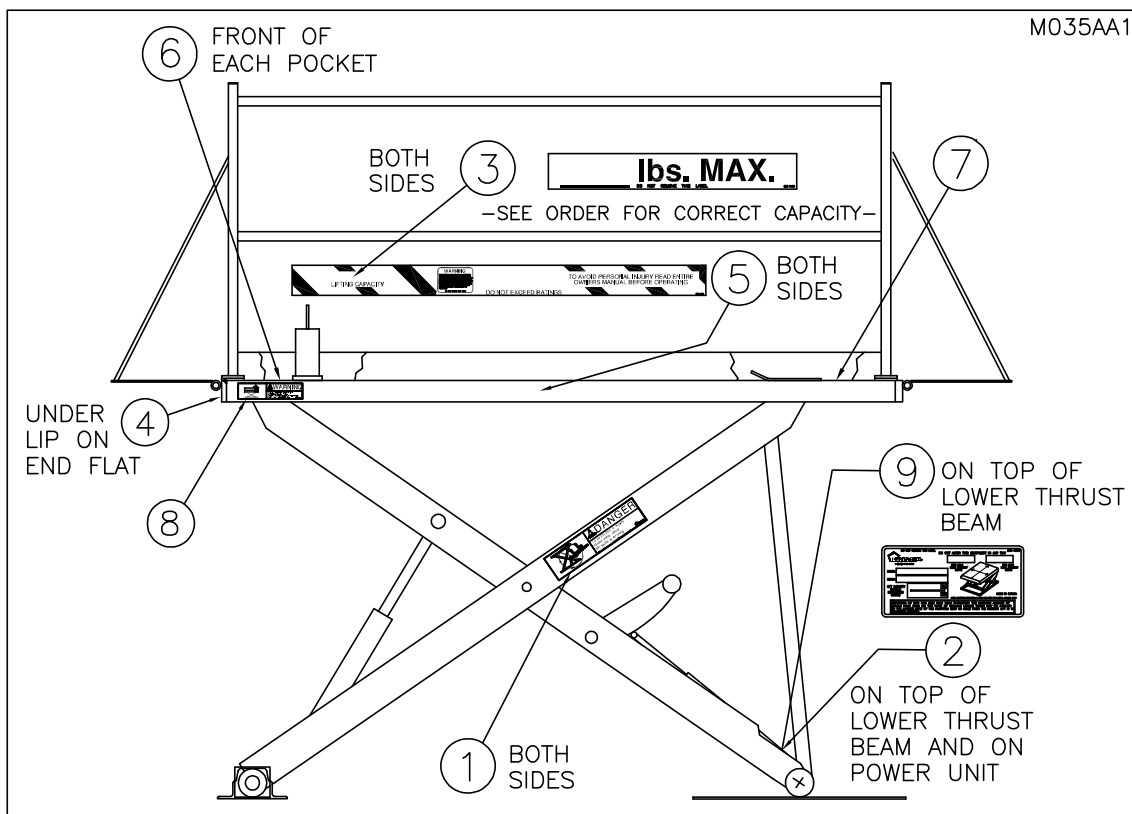


Figure 2: Safety Label and Decal Locations

Be sure that all labeling is in place and intact when the unit is received. If any of the safety labels or decals are missing or illegible, contact your Pentalift representative for immediate replacement.

NOTE: In some instances, product configuration and / or product options may dictate that the product labels will not be placed as indicated on the drawing ("Figure 2: Safety Label and Decal Locations" on page 3). Different label locations will be selected at the factory, when required, to avoid an impaired view of the labels. Note the label locations as supplied on the product, when it is received to accommodate future label replacement requirements.

NOTE: It is the owner's responsibility to assure that all safety labeling remains legible and in its original position throughout the life of the product. It is also the owner's responsibility to assure that all labels are and will continue to be readily visible to the operators and people working with or around the equipment. If visibility of any of label is compromised for any reason then; either 1) Rectify the situation to allow the label to be readily visible 2) Order replacement label(s) from Pentalift for installation in a location that does facilitate complete visibility. If any of the safety labels or decals are missing or illegible, contact your Pentalift representative for immediate replacement. Inspection shall be done during regular maintenance and lubrication (See "MAINTENANCE AND LUBRICATION" on page 14).

To re-order labels and decals, use the following part numbers:

<u>Item</u>	<u>Part No.</u>	<u>Qty/Unit</u>	<u>Description</u>
1	250-1046	2	"DANGER... STAND CLEAR..."
2	250-1385	2	SPECIFICATION PLATE
3	NOTE	2	CAPACITY LABEL
4	250-1148	1	FINAL INSPECTION
5	250-1171	2	SAFETY STRIPE
6	250-1127	2	LIFT 1 DOCK ONLY...
7	250-1141	1	CAUTION
8	250-7010	1	"WARNING... GUARD RAILS... CHAINS"
9	250-7015	1	"DANGER... DO NOT WORK..."

NOTE: State Model # and Serial # when ordering replacement parts.

INSTALLATION INSTRUCTIONS



DO NOT INSTALL, OPERATE OR SERVICE THIS PRODUCT UNLESS YOU HAVE READ AND FULLY UNDERSTAND THE ENTIRE CONTENTS OF THIS MANUAL. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH.

IMPORTANT PREPARATION PRIOR TO INSTALLATION

Perform installation instructions in the same sequence as they are listed below.



BEFORE DOING ANY INSTALLATION, MAINTENANCE, INSPECTION OR TROUBLE SHOOTING, BARRICADE ALL AREAS FROM TRAFFIC AROUND THE WORK AREA INSIDE (& OUTSIDE IF APPLICABLE) FOR SAFETY, POST APPROPRIATE WARNING SIGNS AND BE CERTAIN THAT THE POWER IS DISCONNECTED, PROPERLY TAGGED AND LOCKED OUT. ALL ELECTRICAL WORK MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH ALL APPLICABLE CODES.



ARC FLASH AND SHOCK HAZARD PPE (PERSONAL PROTECTION EQUIPMENT) REQUIRED. DE-ENERGIZE EQUIPMENT BEFORE WORKING ON OR INSIDE. DO NOT OPEN COVER WITHOUT APPROPRIATE PPE. REFER TO NFPA 70E FOR PPE REQUIREMENTS. THIS PANEL MAY CONTAIN MORE THAN ONE POWER SOURCE. HAZARDOUS VOLTAGE WILL CAUSE SEVERE INJURY OR DEATH.



MAKE SURE LIFTING AND SLINGING DEVICES ARE OF SUFFICIENT CAPACITY, USED IN THE CORRECT MANNER AND ARE IN GOOD WORKING ORDER. ALL LIFTING, POSITIONING AND INSTALLATION, AS WELL AS THE BREAK-IN AND PERFORMANCE CHECK MUST BE DONE BY QUALIFIED PERSONNEL TRAINED AND EXPERIENCED IN NECESSARY SAFETY PROCEDURES.



BE SURE ALL HYDRAULIC FITTINGS ARE RATED FOR HYDRAULIC SYSTEMS THAT MAY PEAK OUT AT 4000PSI. HARDWARE STORE ITEMS CAN BURST AT 150PSI. ONLY BUY REPLACEMENT PARTS FROM PENTALIFT.

1. Make sure the installation surface is clean, level and flat before installing the unit. A slight slope from clevis end to roller end is not a problem, but a side to side slope will cause premature wear on all moving parts of the lift.
2. The installation surface must be capable of supporting any loads that will be applied to it.
3. Move the Dock Lift to the installation location. (See "Figure 3: Hoisting the Dock Lift" on page 4)

If the unit is to be installed into a pit, ensure that it is equipped with optional toe sensors (See "Figure 3: Hoisting the Dock Lift" on page 4). If there are not toe sensors the unit cannot be installed in a pit. There is a toe pinch hazard due to the straight toe guards. Ensure drain, if required, is in place prior to installing the Dock Lift. While lowering into the pit, at the same time, feed the hydraulic hose through the conduit from inside the pit towards the power unit.

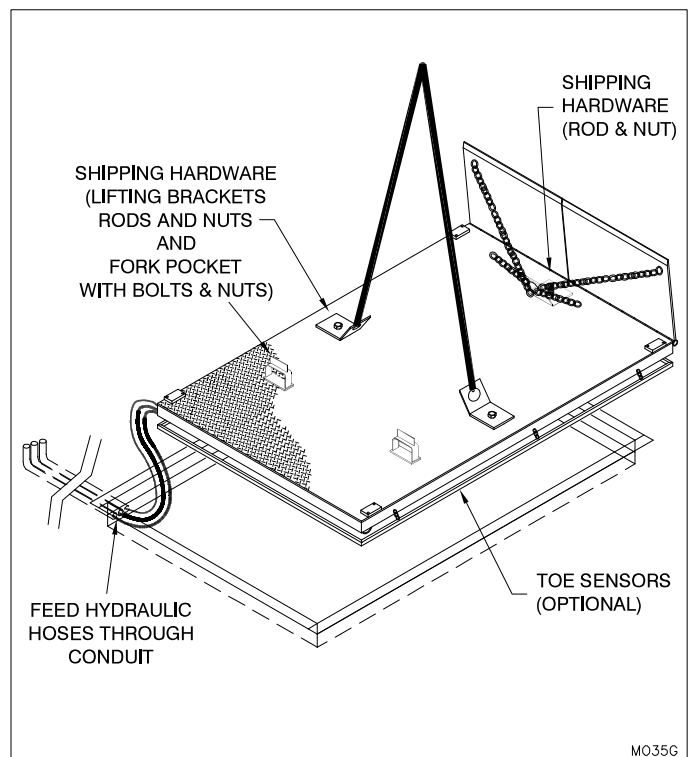


Figure 3: Hoisting the Dock Lift

4. Mount the power unit in the desired location and connect the two hydraulic hoses. Ideally, the reservoir should be mounted on a wall approximately 6 1/2 feet above the ground. This prevents personnel from standing upon or placing objects on the power unit.

Run the hydraulic lines from the power unit to the lift and flush with clean fluid before connecting the lines. If the lines must be pushed through chases or enclosures, be sure to cap the lines to prevent contaminants from entering the hose.

5. Remove all shipping bolts and hardware.
6. Connect the appropriate supply voltage to the motor control panel. (Refer to the wiring diagram located inside the motor control panel and the electrical specification label located on the side of the motor control panel.)

NOTE: All wiring must be performed by a qualified electrician in accordance with all applicable codes.

NOTE:

- a. On 3 phase units assure phase polarity is correct. Incorrect polarity will cause the Dock Lift not to lift. The motor will run backwards resulting in cavitation and possible damage to the pump.
- b. To prevent tripping the motor overload relay, the motor requires the specified voltage at the motor while the motor is working under full load. If there is a problem, confirm that the supply conductors are sufficient in relation to the run length. See Electrical Reference Chart. (Consult all applicable electrical codes as well.)

Ensure that the thermal overload relay is set to match the full load current as shown on the motor name plate. Consult all applicable electrical codes.

ELECTRICAL REFERENCE - 1 HP							
Length of branch circuit which will have a 2% voltage drop at full load current (copper wire) ft/m. The values given are intended to be a rough wiring guide only. Be sure to check all local electrical codes before wiring.	AWG	115/1/60	230/1/60	230/3/60	380/3/50	460/3/60	575/3/60
	14	36 ft	143 ft	249 ft	865 ft	997 ft	1870 ft
	12	57 ft	227 ft	396 ft	1376 ft	1586 ft	2973 ft
	10	90 ft	362 ft	630 ft	2187 ft	2521 ft	4726 ft
	8	143 ft	575 ft	1002 ft	3478 ft	4009 ft	7518 ft
	6	228 ft	914 ft	1594 ft	5529 ft	6375 ft	11953 ft
Approximate Motor Current (full load)		12 A	6 A	4.2 A	2 A	2.1 A	1.4 A

ELECTRICAL REFERENCE - 3 HP							
Length of branch circuit which will have a 2% voltage drop at full load current (copper wire) ft/m. The values given are intended to be a rough wiring guide only. Be sure to check all local electrical codes before wiring.	AWG	115/1/60	230/1/60	230/3/60	380/3/50	460/3/60	575/3/60
	14		59 ft	87 ft	368 ft	106 ft	545 ft
	12		94 ft	139 ft	585 ft	169 ft	867 ft
	10	39 ft	150 ft	221 ft	930 ft	269 ft	1379 ft
	8	62 ft	238 ft	351 ft	1480 ft	428 ft	2193 ft
	6	98 ft	379 ft	558 ft	2353 ft	680 ft	3486 ft
Approximate Motor Current (full load)		28 A	14.5 A	12 A	4.7 A	6 A	4.8 A

ELECTRICAL REFERENCE - 5 HP							
Length of branch circuit which will have a 2% voltage drop at full load current (copper wire) ft/m. The values given are intended to be a rough wiring guide only. Be sure to check all local electrical codes before wiring.	AWG	115/1/60	230/1/60	230/3/60	380/3/50	460/3/60	575/3/60
	14			87 ft	228 ft	106 ft	545 ft
	12			139 ft	362 ft	169 ft	867 ft
	10		103 ft	221 ft	575 ft	269 ft	1379 ft
	8		164 ft	351 ft	915 ft	428 ft	2193 ft
	6		261 ft	558 ft	1455 ft	680 ft	3486 ft
Approximate Motor Current (full load)			21 A	12 A	7.6 A	6 A	4.8 A

7. If pit mounted, square the dock lift platform in the pit leaving approximately one inch (1") space all around the pit edge.
8. Raise the unit to its maximum height and then fully lower. This allows the dock lift to realign itself.
9. If pit mounted, recheck the unit to ensure it is square in the pit.
10. Place the maintenance stand into position. (See "HOW TO SUPPORT THE DOCK LIFT DURING ROUTINE MAINTENANCE AND INSPECTION" on page 12)

11. Place the cradle weldment under the torque tube and place the wear plates under the leg rollers. (See "Figure 4: Position of Retaining Cradles and Wear Plates" on page 7.
12. If required, level the unit by shimming under the complete cradle plate and under the complete wear plate.
13. Weld all shims together and then to the wear plates and cradle plates.
NOTE: ENSURE THE DOCK LIFT HAS NOT SHIFTED.
14. Lag the cradle and wear plates with fasteners 1/2" dia x 4" long wedge anchors with a minimum shear value of 8,030 lb. (35.7 kN) and minimum tension value of 5,190 lb. (23.1 kN). Torque to manufacturer's specification.
15. If the Hinged Bridge or approach ramp plates were shipped loose, install them as shown in diagram "Figure 5: Installation of Hinged Bridge / Approach Ramp" on page 8. All required bolts and nuts are included with the unit. Ensure they are securely fastened in place.
16. Install the guard rails as shown in "Figure 6: Guard Rail Installation" on page 8. In some applications such as full depth pits, platform mounted guard rails may create a potentially hazardous condition by creating a pinch point between the guard rail horizontal bars and the edge of the pit floor. It may be necessary to provide protection around the perimeter of the pit. Consult local building codes.

It is the owner's responsibility to ensure protection is provided for the operator (i.e. access chains) from falling off of the dock lift when the unit is above ground/floor level.

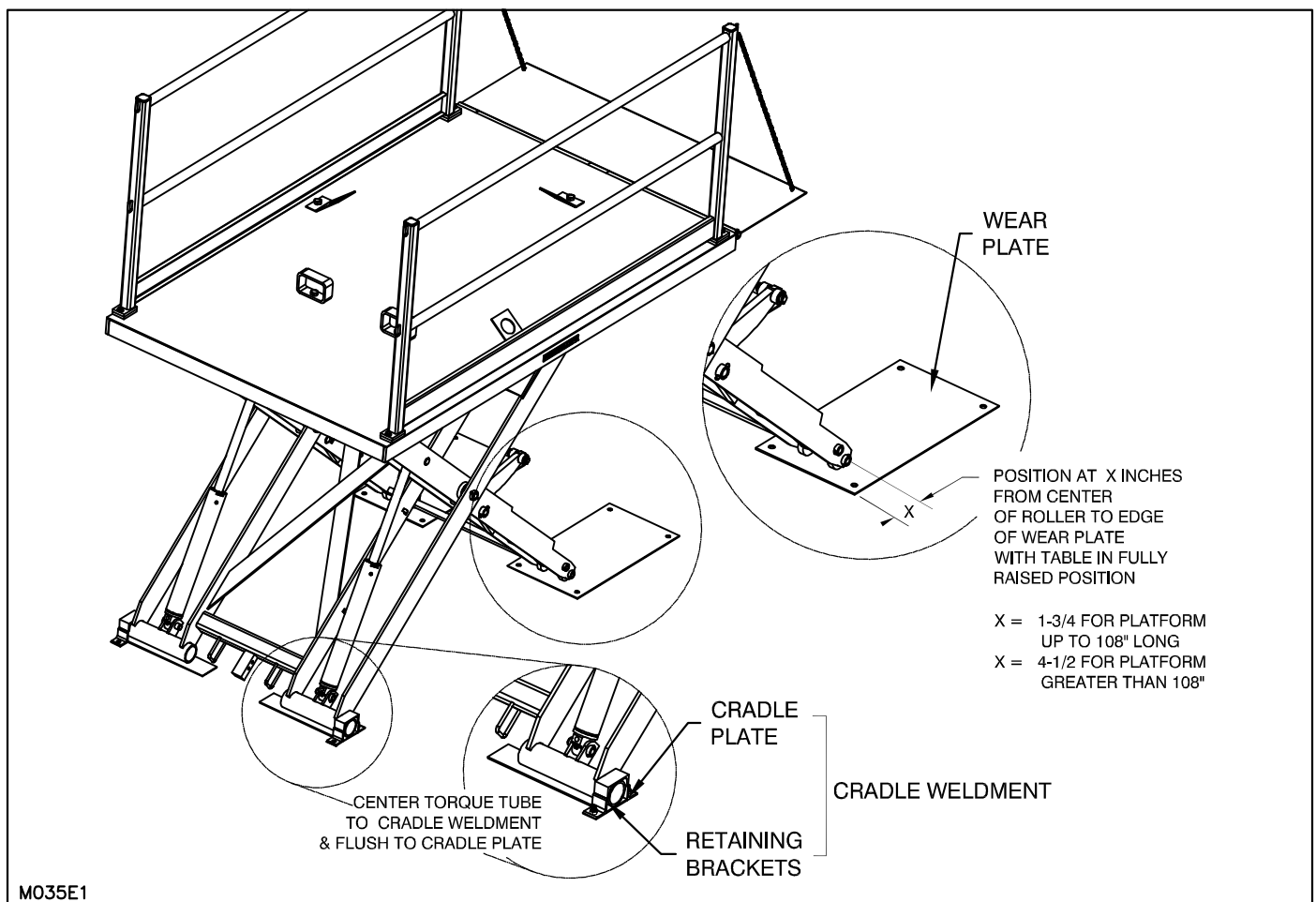


Figure 4: Position of Retaining Cradles and Wear Plates

17. Check the oil in the power unit reservoir and add if necessary. (See "MAINTENANCE AND LUBRICATION" on page 14.)
18. Clean up any debris and/or spilled oil from the area. Fluid spills may later be misinterpreted as new fluid leaks. Check all hydraulic fittings for leaks.
19. **INITIAL SET-UP:** It is important to purge air from the hydraulic system. To do this, raise the unit to its maximum raised height and allow the power unit to run for a minimum of 30 seconds additional time. Fully lower the unit. Discontinue use of the unit for 20 minutes to allow air to dissipate from the oil in the reservoir.

NOTE: Units equipped with an up travel limit switch will not reach their maximum raised height unless the limit switch is removed. The up travel limit switch must be removed to purge the air. **DO NOT remove the up travel limit switch until first assuring there are no obstructions in the operating path of the equipment.** After the air has been purged, lower the Dock Lift to its desired raised height and reinstall the limit switch.

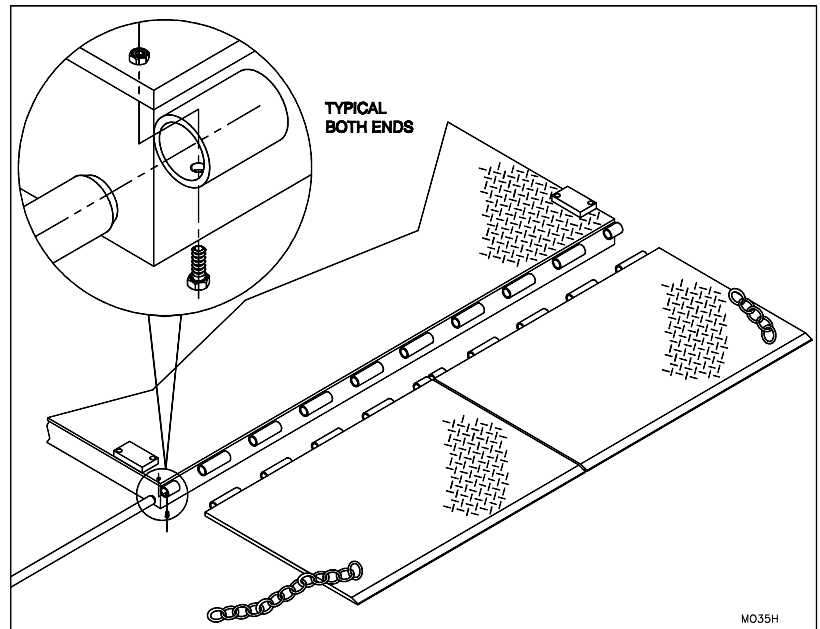


Figure 5: Installation of Hinged Bridge / Approach Ramp

20. Meet with the facility manager or maintenance foreman and turn over this maintenance manual with the reminder that no one is allowed to operate the unit unless they fully understand the operating instructions. Show them the maintenance stand and other safety devices. Point out the metal nametag on the unit with the serial number and capacity ratings. Make it clear that some specific person in their organization must be charged with responsibility for the maintenance of the unit.

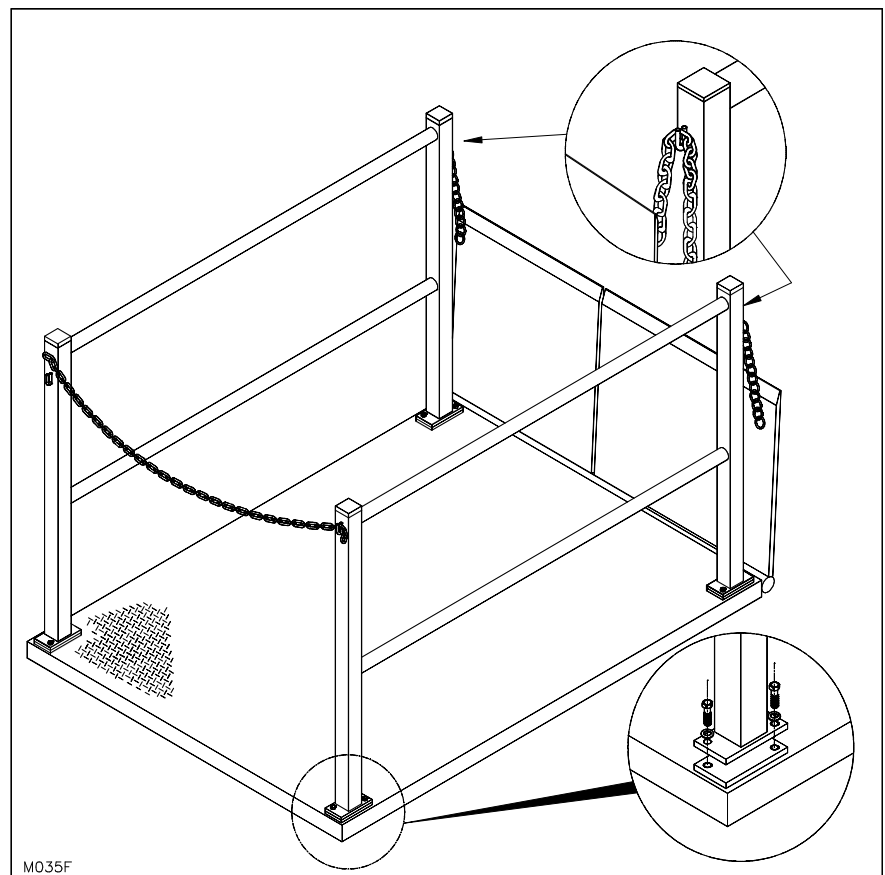


Figure 6: Guard Rail Installation

BREAK-IN AND PERFORMANCE CHECK

DANGER

BEFORE DOING ANY INSTALLATION, MAINTENANCE, INSPECTION OR TROUBLE SHOOTING, BARRICADE ALL AREAS FROM TRAFFIC AROUND THE WORK AREA INSIDE (& OUTSIDE IF APPLICABLE) FOR SAFETY, POST APPROPRIATE WARNING SIGNS AND BE CERTAIN THAT THE POWER IS DISCONNECTED, PROPERLY TAGGED AND LOCKED OUT. ALL ELECTRICAL WORK MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH ALL APPLICABLE CODES.

DANGER

ARC FLASH AND SHOCK HAZARD PPE (PERSONAL PROTECTION EQUIPMENT) REQUIRED. DE-ENERGIZE EQUIPMENT BEFORE WORKING ON OR INSIDE. DO NOT OPEN COVER WITHOUT APPROPRIATE PPE. REFER TO NFPA 70E FOR PPE REQUIREMENTS. THIS PANEL MAY CONTAIN MORE THAN ONE POWER SOURCE. HAZARDOUS VOLTAGE WILL CAUSE SEVERE INJURY OR DEATH.

DANGER

BEFORE DOING ANY ELECTRICAL WORK, BE CERTAIN THAT THE POWER IS DISCONNECTED WITH A FUSED DISCONNECT, PROPERLY TAGGED AND LOCKED OUT. FUSED DISCONNECT AND LOCKOUT DEVICE (SUPPLIED AND INSTALLED BY OTHERS) MUST MEET WITH ALL APPLICABLE CODES AND REGULATIONS. ALL ELECTRICAL WORK MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS.

DANGER

NEVER GO BENEATH THE DOCK LIFT FOR ANY REASON UNLESS THE PLATFORM AND HINGED BRIDGE(S) ARE PROPERLY SUPPORTED (SEE “Figure 11: Supporting the Dock Lift for Maintenance” on page 13) AND THE POWER IS DISCONNECTED, PROPERLY TAGGED AND LOCKED OUT. IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT NO LOAD OR TRAFFIC IS PLACED ON THE PLATFORM WHILE THE MAINTENANCE STAND IS ENGAGED. THE CONSTRUCTION OF THE MAINTENANCE STAND IS INTENDED TO SUPPORT THE WEIGHT OF THE UNLOADED DOCK LIFT ONLY.

NOTE: IN SOME CASES THERE IS A CONSIDERABLE AMOUNT OF TIME BETWEEN THE SHIPMENT DATE AND USE OF YOUR DOCK LIFT. THIS INITIAL BREAK-IN AND PERFORMANCE CHECK SHOULD BE PERFORMED BEFORE YOU BEGIN REGULAR USE OF YOUR DOCK LIFT TO ENSURE THAT IT IS OPERATING PROPERLY.

NOTE: Read the SAFETY INFORMATION AND WARNINGS before operating the dock leveler. (See page ii)

1. Ensure that any specified interlocks (e.g. overhead doors, restraints) are fully functional.
2. It is important to purge air from the hydraulic system. To do this, raise the unit to its maximum raised height and allow the power unit to run for a minimum of 30 seconds additional time. Fully lower the unit. Discontinue use of the unit for 20 minutes to allow air to dissipate from the oil in the reservoir.

NOTE: Units equipped with an up travel limit switch will not reach their “maximum raised height” unless the limit switch is removed. The up travel limit switch must be removed to purge the air. **DO NOT remove the up travel limit switch until first assuring there are no obstructions in the operating path of the equipment.** After the air has been purged, lower the Dock Lift to its desired raised height and reinstall the limit switch.

3. Raise the Dock Lift and install the maintenance stand as outlined on page 12.
4. Inspect hydraulic system for leaks, especially at fittings and hose connections.
5. Dock Lifts do not require lubrication of the pivot points. For ease of maintenance, lifetime lubricated bushings have been used on all rollers, leg pivot points as well as the upper cylinder pivot. However, units installed outdoors or in wet and dirty environments should be lubricated. See the Maintenance and Lubrication Section, page 14.
6. Ensure the toe sensor (if equipped) is functional.

NOTE: The toe sensor option is an electrical safety device with an actuator suspended beneath the platform which halts downward travel of the Dock Lift if it contacts with an obstruction. (This feature is not functional in the event of hydraulic failure.)

7. Completely raise and lower the Dock Lift three times.

NOTICE

As the performance test is being conducted, watch closely for any signs that the Dock Lift might not be operating properly. If you are in doubt, refer to Operating Instructions on page 10 and Trouble Shooting Guide on page 18 or contact your Pentalift representative.

OPERATING INSTRUCTIONS

⚠ DANGER

USE BY UNTRAINED PEOPLE CAN RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH. READ, KNOW, AND OBEY ALL OPERATING INSTRUCTIONS AND SAFETY INFORMATION. FOLLOW ALL APPLICABLE REGIONAL REGULATIONS REGARDING THE USE OF THIS EQUIPMENT. DO NOT USE THE EQUIPMENT IF ANY PART OF IT LOOKS BROKEN OR IF IT DOES NOT SEEM TO OPERATE PROPERLY. IF REPAIRS ARE NEEDED, CONTACT YOUR PENTALIFT REPRESENTATIVE.

⚠ DANGER

DO NOT INSTALL, OPERATE OR SERVICE THIS PRODUCT UNLESS YOU HAVE READ AND FULLY UNDERSTAND THE ENTIRE CONTENTS OF THIS MANUAL. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH.

NOTE: Read the **SAFETY INFORMATION AND WARNINGS** before operating the dock leveler. (See page III)

1. NEVER EXCEED THE MAXIMUM RATED CAPACITY OF THE Dock Lift. (i.e. The maximum load for a 4,000 lb. rated unit is 4,000 lb. with the load center at the center of the Platform.) With retaining cradles and wear plates, the single axle load capacity across the ends is 75% of the rated capacity and the single axle load across the sides is 50% of the rated capacity.

NOTE: The load is defined as the entire weight applied to the platform of the dock lift including all loading/unloading equipment, etc. If you are unsure in any way as to the suitability of this product to your application; consult a Pentalift representative prior to using the dock lift.

THE DEFINITION OF RATING, END/SIDE AXLE LOAD CAPACITIES: The maximum amount of single axle load (in the case of rolling loads) which can be applied to the loading edge of the platform (end or side) when the scissor lift is in any raised position. This rating considers: 1) that some amount of deflection will occur during load transfer, 2) the moving and impact forces imposed by the load, 3) that this is a temporary condition during load transfer only, and 4) that the scissors lift platform is static and non-moving.

THE DEFINITION OF RATING, END/SIDE EDGE LOAD CAPACITIES: The maximum amount of static load that can be applied to the edge of the platform (end or side) when the lift is in any raised position. This rating considers: 1) that some amount of deflection will occur during load transfer, 2) that this is a temporary condition during load transfer only, and 3) that the scissors lift platform is static and non-moving.

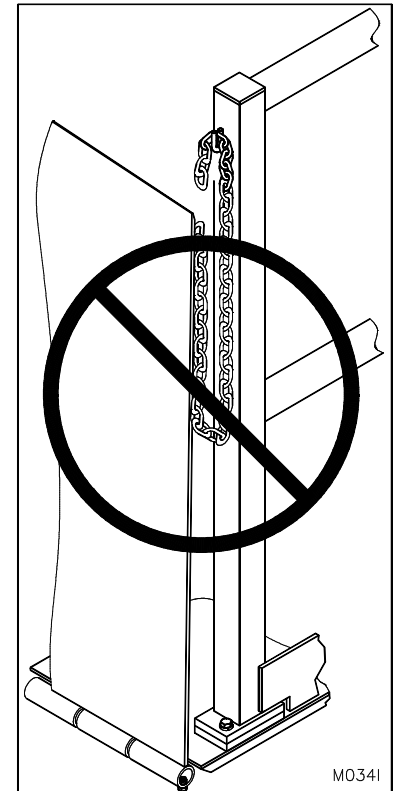


Figure 7: Hinged Bridge Not Properly Secured (See Figure 8)

2. Do not apply shock loads to the unit. (i.e. Do not drop loads onto the platform, lower loads onto the platform at a high rate of speed, stop unit abruptly or jog in lower range of travel.) Do not load or unload the dock lift while it is in motion. Properly secure all loads.
3. Keep any obstructions and personnel clear of the dock lift and load and their operating path to eliminate injury and/or damage. Avoid or eliminate any and all potential pinch points.
4. Prior to each use, ensure dock lift and load does not create pinch points during operation when located adjacent to or near other equipment or structures.

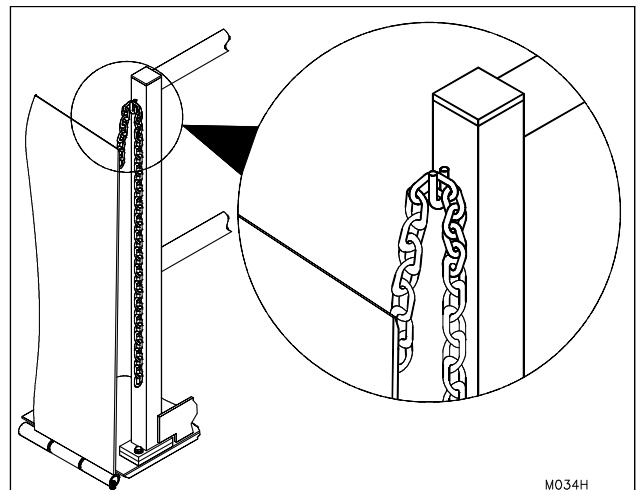


Figure 8: Hinged Bridge in Vertically Stored Position

5. Never use the unit for lifting personnel unless it has been suitably designed and manufactured for that purpose by Pentalift Equipment Corporation. Guard rails and access chains must be used.
6. The platform surface must be kept clean and free from oil, debris, etc. Keep debris, etc. from underneath the unit.
7. When not in use, the platform should be in the lowered position with the Hinged Bridge(s) and approach ramp(s) in an upright vertically stored position with the Hinged Bridge chain(s) engaged. (See "Figure 8: Hinged Bridge in Vertically Stored Position" on page 10 and "Figure 7: Hinged Bridge Not Properly Secured (See Figure 8)" on page 10)
8. To raise the dock lift, ensure the Hinged Bridge(s) and approach ramp(s) are in the vertically stored position. Push and hold the "UP" button. Allow the dock lift to rise to the desired height and then release the button.
9. Carefully lower the Hinged Bridge(s) onto the truck bed

WARNING Prior to placing any load on the Hinged Bridge(s), the Hinged Bridge(s) must be properly supported by a surface suitable of supporting the minimum of the equivalent of the rated capacity of the lift for the entire width of the Hinged Bridge (for example: TRUCK BED, FACILITY FLOOR OR FACILITY DRIVEWAY). A minimum of 4 inches Hinged Bridge penetration is required to be at all times. (See Figure 9, Page 11) The hinge stop and Hinged Bridge chains **are not** intended to support any weight in addition to the unload Hinged Bridge(s). No loads are to be placed on the Hinged Bridges when they are positioned by the Hinged Bridge chains and/or the Hinged Bridge hinge stops and not properly supported.

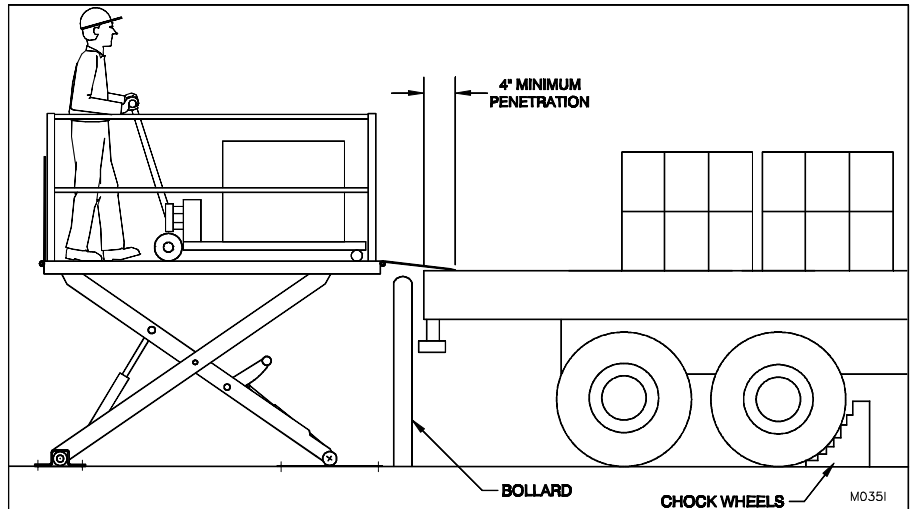


Figure 9: Minimum Hinged Bridge Penetration of 4"

10. To lower the dock lift, return the Hinged Bridge(s) to the vertically stored position. Push and hold the "DOWN" button and the unit will descend to its lowered position.

NOTE: Push-button requires constant pressure in either raising or lowering mode. The Dock Lift movement may be halted at any time by releasing the push-button.

11. Semi Portable Operation Procedure: (See "Figure 10: Steps to Move the Dock Lift using the Portability Dolly" on page 11).

WARNING

To achieve specified side and end edge loads the lift must utilize the wear plates and cradles with proper lagging and installation (see page 7). Without the wear plates and cradles the lift is not designed to accommodate any side or end edge loads.

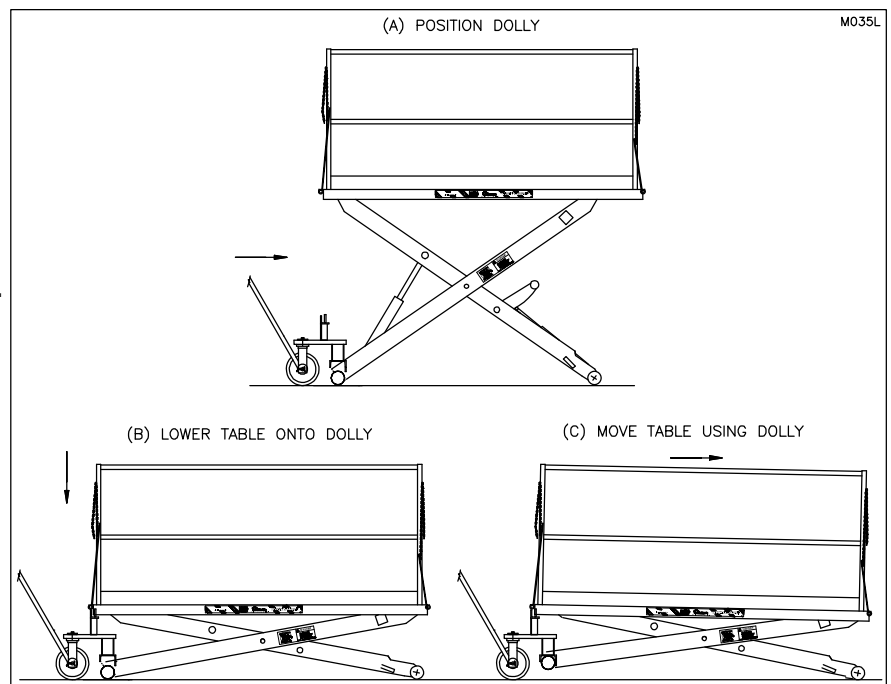


Figure 10: Steps to Move the Dock Lift using the Portability Dolly

- a) Position portability dolly under the low profile dock lift making sure the fixed end flat is in line with the slot on top of the dolly.

- b) Lower the table onto the dolly. As the table is lowered the fixed end flat will insert into the slot on top of the dolly and will allow the fixed end of the table to lift off the ground.
- c) The table may now be moved using the dolly.
- d) Once the table has moved, the table can be raised again till it is free of the dolly and is self supported.



Do not lower the table while there is a load on it. When the table is lowered onto the dolly, the Platform stops and may cause any object resting on it to slide off and cause serious injury or damage.

HOW TO SUPPORT THE DOCK LIFT DURING ROUTINE MAINTENANCE AND INSPECTION



THE BLOCKING PROCEDURES DESCRIBED BELOW ARE SUITABLE ONLY FOR THE INSPECTION, TROUBLE SHOOTING AND MAINTENANCE PROCEDURES DESCRIBED IN THIS MANUAL. THEY MAY NOT BE SAFE FOR OTHER INSPECTION, MAINTENANCE AND REPAIR PROCEDURES THAT MAY BE REQUIRED. CONTACT YOUR AUTHORIZED PENTALIFT REPRESENTATIVE FOR DIRECTION PRIOR TO UNDERTAKING ANY ACTIONS OTHER THAN THOSE DESCRIBED IN THIS MANUAL. FAILURE TO PROPERLY ADHERE TO LIFT BLOCKING PROCEDURES IS TO RISK THE SUDDEN AND UNCONTROLLED DESCENT OF THE LIFT DURING MAINTENANCE OR INSPECTION. A FALLING LIFT CAN CAUSE SEVERE INJURY OR DEATH.



ONLY TRAINED AND QUALIFIED PERSONNEL SHOULD PERFORM INSPECTION OR MAINTENANCE AND SERVICE PROCEDURES.



BEFORE DOING ANY INSTALLATION, MAINTENANCE, INSPECTION OR TROUBLE SHOOTING, BARRICADE ALL AREAS FROM TRAFFIC AROUND THE WORK AREA INSIDE (& OUTSIDE IF APPLICABLE) FOR SAFETY, POST APPROPRIATE WARNING SIGNS AND BE CERTAIN THAT THE POWER IS DISCONNECTED, PROPERLY TAGGED AND LOCKED OUT. ALL ELECTRICAL WORK MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS.



ARC FLASH AND SHOCK HAZARD PPE (PERSONAL PROTECTION EQUIPMENT) REQUIRED. DE-ENERGIZE EQUIPMENT BEFORE WORKING ON OR INSIDE. DO NOT OPEN COVER WITHOUT APPROPRIATE PPE. REFER TO NFPA 70E FOR PPE REQUIREMENTS. THIS PANEL MAY CONTAIN MORE THAN ONE POWER SOURCE. HAZARDOUS VOLTAGE WILL CAUSE SEVERE INJURY OR DEATH.



PRIOR TO PERFORMING ANY ACTIVITY WITHIN THE OPERATING PATH OF THE DOCK LIFT, ALWAYS ENSURE THAT THERE IS NO LOAD ON THE DOCK LIFT AND THAT THE INSTRUCTIONS LISTED BELOW ARE FOLLOWED.



NEVER GO BENEATH THE DOCK LIFT FOR ANY REASON UNLESS THE PLATFORM AND HINGED BRIDGE(S) ARE PROPERLY SUPPORTED (SEE “Figure 11: Supporting the Dock Lift for Maintenance” on page 13) AND THE POWER IS DISCONNECTED, PROPERLY TAGGED AND LOCKED OUT. IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT NO LOAD OR TRAFFIC IS PLACED ON THE PLATFORM WHILE THE MAINTENANCE STAND IS ENGAGED. THE CONSTRUCTION OF THE MAINTENANCE STAND IS INTENDED TO SUPPORT THE WEIGHT OF THE UNLOADED DOCK LIFT ONLY.

NOTE: ANY LOADS INCLUDING LOADING/UNLOADING EQUIPMENT, ETC., ARE TO BE REMOVED.

The blocking procedure is as follows:

1. Raise the unloaded Dock Lift to its maximum height.
2. Place one end of the Maintenance Stand on the lower tie bar which runs between the inside legs at the rolling end.
3. Position the Maintenance Stand vertically so that the top-end lines up under the upper tie bar. Also ensure that the maintenance stand is positioned straight up and down from left to right at 90 degrees to the tie bars.

4. WLY lower the Platform (making sure the top end of the maintenance Stand stays aligned under the upper tie bar) until the weight of the Platform is fully supported by the Maintenance Stand.
5. Visually confirm the scissor legs are now securely blocked from downward movement.
6. Disconnect, properly tag and lock out power to the Dock Lift prior to commencing inspection, trouble shooting or maintenance.

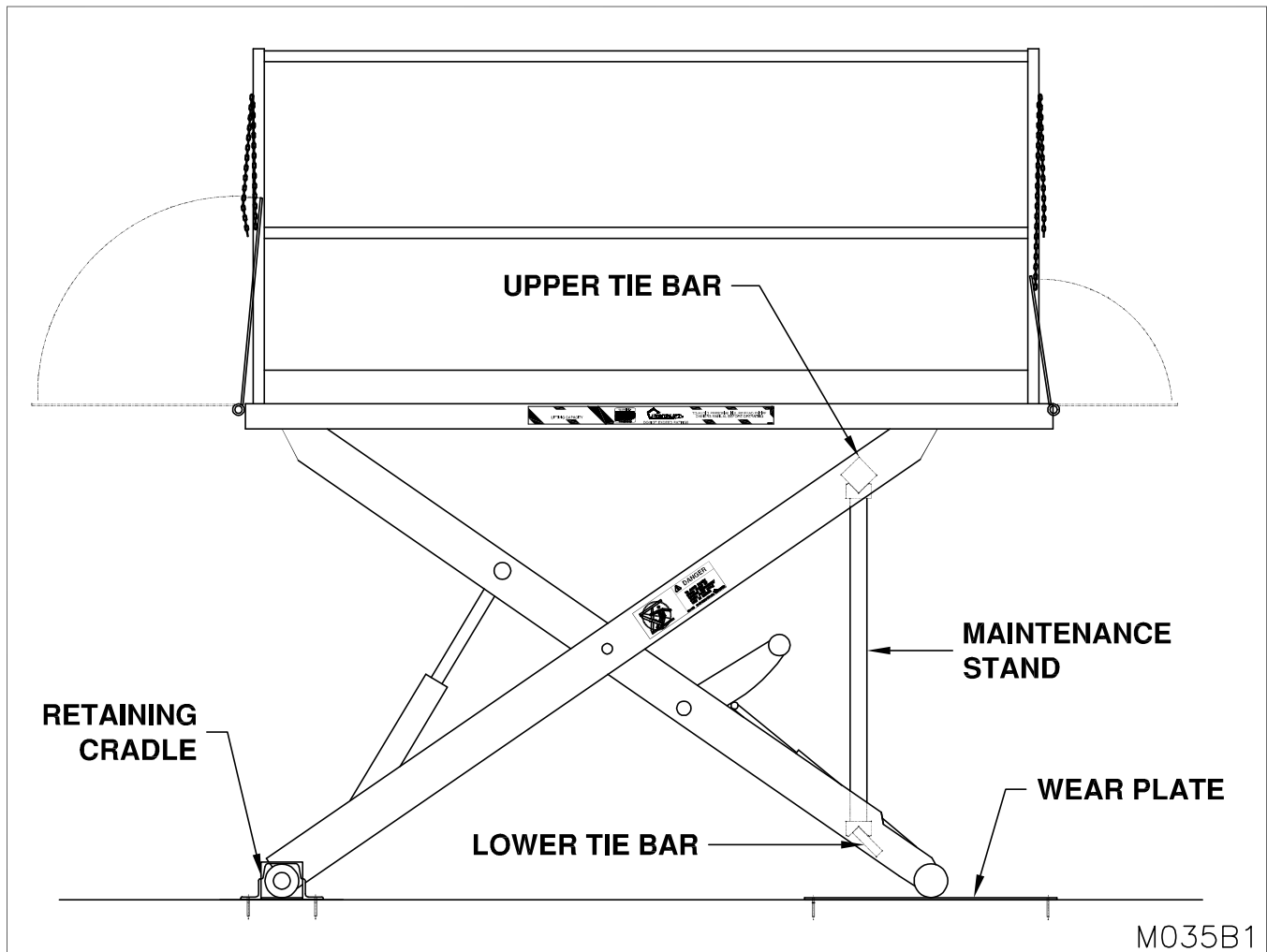


Figure 11: Supporting the Dock Lift for Maintenance

MAINTENANCE AND LUBRICATION

UNLESS OTHERWISE NOTED, THE FOLLOWING MAINTENANCE AND INSPECTION PROCEDURES SHOULD BE CONDUCTED AT A MINIMUM OF EVERY 30 DAYS. INCREASE FREQUENCY FOR MORE SEVERE ENVIRONMENTS.

DANGER

ONLY TRAINED AND QUALIFIED PERSONNEL SHOULD PERFORM INSPECTION OR MAINTENANCE AND SERVICE PROCEDURES. FOLLOW ALL WARNINGS IN THE SAFETY INFORMATION AND WARNINGS SECTION OF THIS MANUAL.

DANGER

ARC FLASH AND SHOCK HAZARD PPE (PERSONAL PROTECTION EQUIPMENT) REQUIRED. DE-ENERGIZE EQUIPMENT BEFORE WORKING ON OR INSIDE. DO NOT OPEN COVER WITHOUT APPROPRIATE PPE. REFER TO NFPA 70E FOR PPE REQUIREMENTS. THIS PANEL MAY CONTAIN MORE THAN ONE POWER SOURCE. HAZARDOUS VOLTAGE WILL CAUSE SEVERE INJURY OR DEATH.

DANGER

NEVER GO BENEATH THE DOCK LIFT FOR ANY REASON UNLESS THE PLATFORM AND HINGED BRIDGE(S) ARE PROPERLY SUPPORTED (SEE “Figure 11: Supporting the Dock Lift for Maintenance” on page 13) AND THE POWER IS DISCONNECTED, PROPERLY TAGGED AND LOCKED OUT. IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT NO LOAD OR TRAFFIC IS PLACED ON THE PLATFORM WHILE THE MAINTENANCE STAND IS ENGAGED. THE CONSTRUCTION OF THE MAINTENANCE STAND IS INTENDED TO SUPPORT THE WEIGHT OF THE UNLOADED DOCK LIFT ONLY.

DANGER

THE RELIEF VALVE ON THE POWER UNIT IS PRESET AT THE FACTORY. IT IS AN IMPORTANT SAFETY DEVICE. DO NOT ADJUST OR REMOVE THE RELIEF VALVE.

NOTE: Read the SAFETY INFORMATION AND WARNINGS before servicing the dock lift. (See page II)

NOTE: It is the owner’s responsibility to assure that all labeling remains legible and in its original position throughout the life of the product. (See “SAFETY LABELING” on page 2)

NOTE: Inspect equipment for protective coatings (i.e. paint) that have deteriorated or been removed. Prepare affected area and reapply protective coating as required.

NOTE: At every maintenance interval, inspect the Dock Lift for any damage or worn parts. If any damaged or worn parts are found, discontinue use of the Dock Lift and/or repair immediately.

CAUTION

Be sure the maintenance stand is properly engaged before performing maintenance checks 2 through 6 or reaching beneath a raised lift. (See “HOW TO SUPPORT THE DOCK LIFT DURING ROUTINE MAINTENANCE AND INSPECTION” on page 12).

1. Clean all debris from the pit or the vicinity of floor mounted units in order to avoid interference with the lift mechanism or rollers.
2. Check for presence and proper seating of all spring pins on all axles, cylinders and rollers. Confirm that all welds on the spring pin collars are intact. (See “Figure 12: Spring Pins” on page 15)
3. Check rollers, pins and bushings for any signs of wear such as flat spots, missing fasteners, or dislodged bearing material.
4. Check the hydraulic fittings for cracks or leaks and clean up any seepage on or beneath the cylinders.
5. Check hoses and electrical lines for abrasions or other abuse and check for snug connections.
6. Operate the unit and check for any abnormal noise or vibrations.
7. Check all safety devices on the unit such as handrails, access chains, etc. including any options such as Toe Sensors and hydraulic Hinged Bridges, for proper operation.
8. Check the Hinged Bridge to insure that its stops are not damaged, allowing it to droop more than 45 degrees below horizontal, check the hinge spools for cracks and or broken welds.

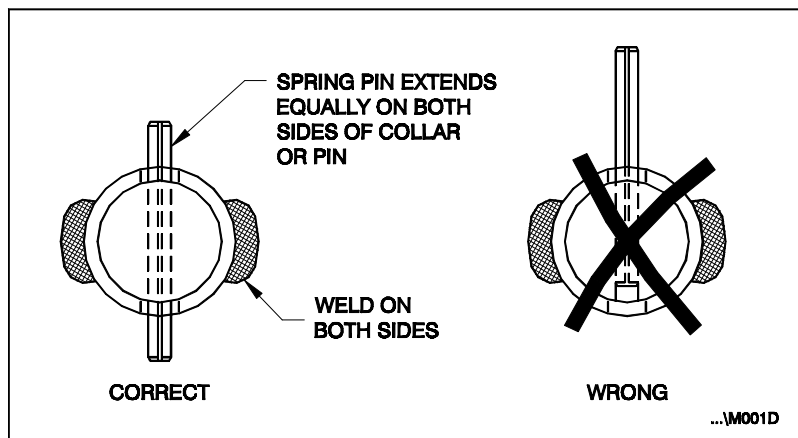


Figure 12: Spring Pins

Ensure the toe sensor (if equipped) is functional. **NOTE:** The toe sensor option is an electrical safety device with an actuator suspended beneath the platform which halts downward travel of the Dock Lift if it contacts with an obstruction. (This feature is not functional in the event of hydraulic failure.)

Hydraulic Oil:

Weekly: Once a week, or after repetitive operation, the lift should be raised to its full height. This will get rid of cylinder oil seepage build-up and lubricate the upper cylinder barrel.

Monthly: Dock Lifts do not require lubrication of the pivot points. For ease of maintenance, lifetime lubricated bushings have been used on all rollers, leg pivot points as well as the upper cylinder pivot. However, units installed outdoors or in wet and dirty environments should be lubricated regularly at the points indicated in “Figure 13: Lubrication Points” on page 17. The recommended lubrication **service interval is every 30 days** or at a greater frequency as required in severe environments. **HVI-22** is the recommended replacement hydraulic fluid and EP2 Multipurpose Grease or equivalent is recommended for grease points.

The oil level should be checked once a month. When the dock lift is fully lowered, the oil level in the reservoir of a 1 or 3 hp power unit should be approximately 2 – 3 inches from the top. A 5 hp or higher power unit should have the oil in the reservoir filled to the full mark on the sight gauge. The oil should be changed once a year under normal operating conditions. If the hydraulic oil is non-standard, check the hydraulic reservoir for fluid label which will specify the particular fluid requirements. It is strongly urged that a maintenance log be maintained with the dates of monthly inspections, the name of the inspector and results of the inspection.

Seasonal or semiannual maintenance: Change hydraulic fluid for ambient temperature changes if appropriate. Check the fluid reservoir to see if there is any evidence of accumulated condensation creating water contamination. The fluid will appear “milky” and light pink in color. Water accumulation will damage the hydraulic pump.

NOTICE: HYDRAULIC FLUID

The standard hydraulic oil supplied with the equipment is HVI-22 Hydraulic fluid. This fluid is suitable for use from approximately -30° C (-22F) minimum to +35°C (+95°F) unless otherwise specified on the specific equipment order. The equipment can be operated in temperatures slightly higher and lower than the temperatures stated on an intermittent basis. Operating the equipment for extended periods of times at temperatures higher or lower than the stated temperatures above may result in functional issues for the equipment. It may also result in damage and issues to hydraulic components. As the actual temperature the equipment is used in moves further away from the recommended temperature range the concern points increase. Abuse and overuse in this regard will void all warranty.

The standard replacement Hydraulic Fluid is HVI-22 hydraulic fluid which accommodates the temperature range stated above. There are special hydraulic fluids available to accommodate temperatures that are consistently and or significantly lower or higher than those stated above. In many cases the use of these types of specialty fluids will result in the requirement for hydraulic fluid changes during seasonal yearly temperature changes.

Recommended for colder temperatures is Hydraulic Fluid 5606A
Recommended for warmer temperatures is Hydraulic Fluid HVI-32

If the hydraulic oil provided from the factory is non-standard, refer to the hydraulic reservoir fluid label which will specify the particular oil requirements.

Note: When approaching or operating in temperature beyond the high and low temperature ranges of the ratings for the hydraulic fluids, there may be some adverse effects to the functionality of the equipment. This could include (but not be limited to) harmonics and vibration of cylinders, inhibited or reduced equipment performance and function, slower cycle times, hydraulic leaks unwanted activation of velocity fuses. To address concerns of this nature a change in hydraulic fluid or a special oil additive maybe required. Contact your Pentalift representative for more information.

Note: The remote installation location of the hydraulic power unit can also help address concerns with hydraulic fluid temperature ranges. For example if the equipment is purchased with a remote power unit, the power unit can be installed in a warmer (indoor) location. In this arrangement, even though the main equipment and it's hydraulic components maybe exposed to more extreme temperatures, the hydraulic power unit and the hydraulic fluid stored in it will be exposed to and therefore absorb the more moderate and desirable internal temperature. During operation the oil in the power unit will quickly mix with the oil in the equipment and will typically mix to a more desirable temperature level.

Note: That if the hydraulic power unit is installed in a pit, as is usually the case for dock levelers, the pit will have moderating effect on the temperature the hydraulic power unit is exposed to. This should be part of the consideration of hydraulic fluid selection.

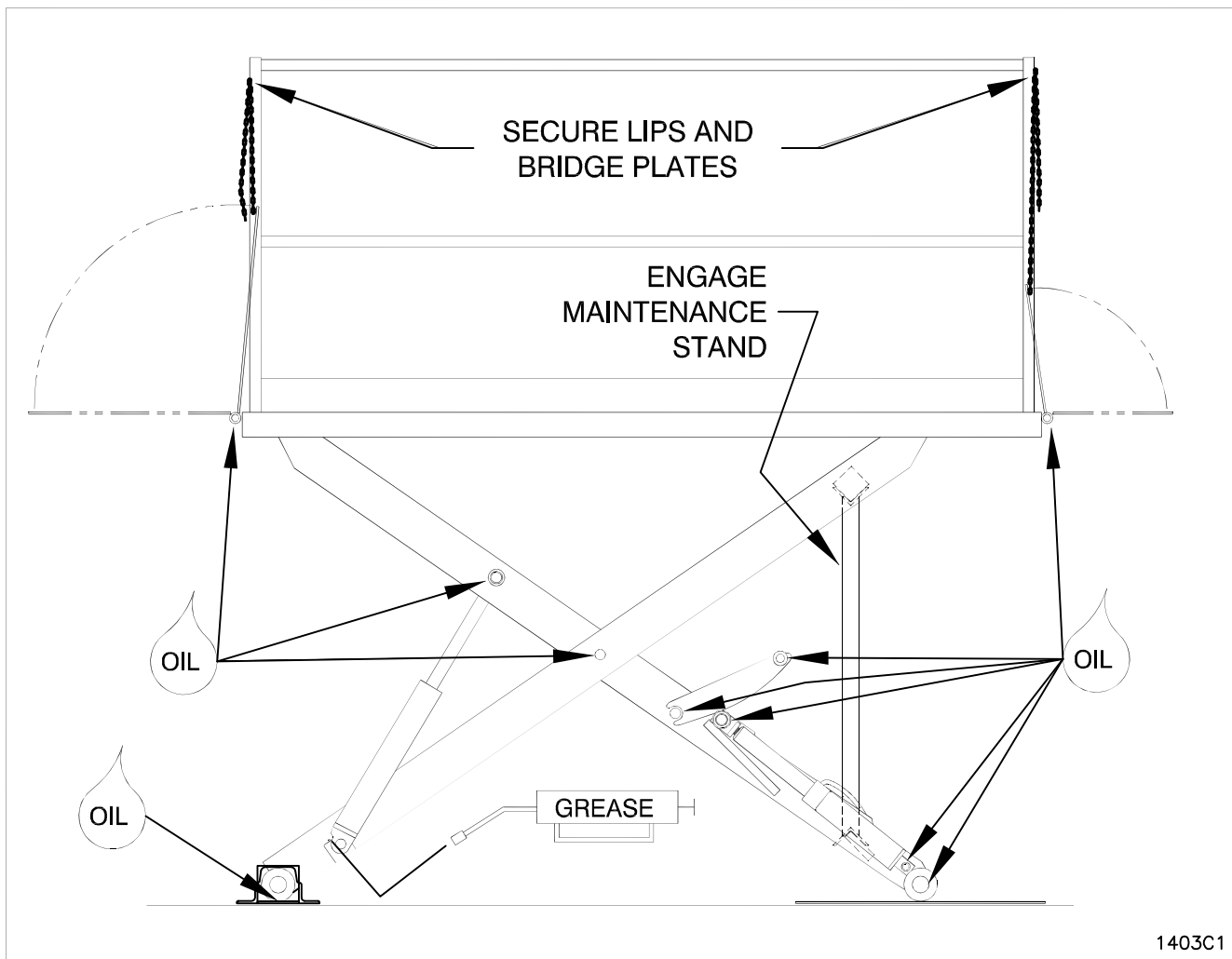


Figure 13: Lubrication Points

Grease the lower lift cylinder every 30 days or at a greater frequency as required in severe environments.

TROUBLE SHOOTING GUIDE

NOTE: This equipment has been fully tested and confirmed to be operational at the factory. Historically, the majority of operating problems are caused by unnecessary tampering by unqualified personnel. To conform to the terms of the Warranty, contact your authorized Pentalift representative if you are having any difficulty with the equipment during the warranty period. Do not risk voiding the warranty by tampering with the equipment.

DANGER

ONLY TRAINED AND QUALIFIED PERSONNEL SHOULD PERFORM INSPECTION OR MAINTENANCE AND SERVICE PROCEDURES. FOLLOW ALL WARNINGS IN THE SAFETY INFORMATION AND WARNINGS SECTION OF THIS MANUAL.

DANGER

BEFORE DOING ANY INSTALLATION, MAINTENANCE, INSPECTION OR TROUBLE SHOOTING, BARRICADE ALL AREAS FROM TRAFFIC AROUND THE WORK AREA INSIDE (AND OUTSIDE IF APPLICABLE) FOR SAFETY AND POST APPROPRIATE WARNING SIGNS.

DANGER

ARC FLASH AND SHOCK HAZARD PPE (PERSONAL PROTECTION EQUIPMENT) REQUIRED. DE-ENERGIZE EQUIPMENT BEFORE WORKING ON OR INSIDE. DO NOT OPEN COVER WITHOUT APPROPRIATE PPE. REFER TO NFPA 70E FOR PPE REQUIREMENTS. THIS PANEL MAY CONTAIN MORE THAN ONE POWER SOURCE. HAZARDOUS VOLTAGE WILL CAUSE SEVERE INJURY OR DEATH.

DANGER

BEFORE DOING ANY ELECTRICAL WORK, BE CERTAIN THAT THE POWER IS DISCONNECTED WITH A FUSED DISCONNECT, PROPERLY TAGGED AND LOCKED OUT. FUSED DISCONNECT AND LOCKOUT DEVICE (SUPPLIED AND INSTALLED BY OTHERS) MUST MEET WITH ALL APPLICABLE CODES AND REGULATIONS. ALL ELECTRICAL WORK MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS.

DANGER

NEVER GO BENEATH THE PLATFORM UNLESS THE LOAD IS REMOVED AND THE SCISSOR MECHANISM IS PROPERLY BLOCKED (SEE page 12.)

DANGER

THE RELIEF VALVE ON THE POWER UNIT IS PRESET AT THE FACTORY. IT IS AN IMPORTANT SAFETY DEVICE. DO NOT ADJUST OR REMOVE THE RELIEF VALVE.

NOTICE

See page 14 for recommended hydraulic oil.

1) Dock Lift will not rise when the push button is depressed.

- Re-check all wiring and hydraulic connections. Refer to the wiring diagram found inside the motor control panel.
- Ensure proper hydraulic fluid level. (See page 14)
- Examine all moving parts for obstructions.
- Confirm that power is reaching the power unit.
- On 3 phase units, ensure phase polarity is correct. Incorrect polarity will cause the Dock Lift not to lift. The motor will run backwards resulting in cavitation and possible damage to the pump.
- If the problem cannot be solved, consult your authorized Pentalift representative.

2) Motor runs, however, the Dock Lift does not rise.

- Ensure proper hydraulic fluid level.
- On 3 phase units, ensure phase polarity is correct. Incorrect polarity will cause the Dock Lift not to lift. The motor will run backwards resulting in cavitation and possible damage to the pump.
- Check for any obstructions.
- Check to ensure the load does not exceed the rated capacity of the Dock Lift.
- If the problem cannot be solved, consult your authorized Pentalift representative.

3) Breaker is disengaging or supply line fuses are burning out.

- Ensure proper voltage is reaching the motor. (See Electrical Reference Chart.)
- Check for any obstructions.
- Check all wiring connections.
- If the problem cannot be solved, consult your authorized Pentalift representative.

4) Dock Lift rises or lowers with a jerking movement.

- a) Ensure proper hydraulic fluid level. (See page 14)
- b) Air may be present in the hydraulic system. (See initial set-up; Item 17, Page 8.)
- c) Check for any obstructions.
- d) Check to ensure load does not exceed rated capacity of Dock Lift.
- e) Ensure Dock Lift is shimmed properly. (See INSTALLATION INSTRUCTIONS, Item 11, page 4)
- f) If the problem cannot be solved, consult your authorized Pentalift representative.

5) Dock Lift will not lower.

- a) Re check all wiring.
- b) Check for any obstructions.
- c) Ensure lowering valve is energized when down button is depressed.
- d) If equipped with optional Toe Sensors, ensure toe sensors are not engaged. (i.e. obstruction under toe sensors, etc. See item 6, page 9 for definition of Toe Sensors.)
- e) If the problem cannot be solved, consult your authorized Pentalift representative.



If damaged or worn parts are detected upon inspection, replacement must be undertaken **immediately. The Dock Lift must not be used until replacement is completed.** Parts are readily available from your Pentalift representative.

REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS



TO ENSURE PROPER FUNCTIONING, DURABILITY AND SAFETY OF THE PRODUCT, ONLY GENUINE PENTALIFT REPLACEMENT PARTS MUST BE USED. ALTERING THE PRODUCT FROM ITS ORIGINAL MANUFACTURED CONFIGURATION MUST NOT BE DONE. PENTALIFT EQUIPMENT CORPORATION DISCLAIMS ALL LIABILITY FOR FAILURE TO COMPLY WITH THIS WARNING. WARRANTIES ARE SPECIFICALLY DISCLAIMED IN THE EVENT THE PURCHASER FAILS TO COMPLY WITH THIS WARNING.

To expedite order processing when ordering parts, provide the following information to your Pentalift representative:

1. Model and Serial Number of equipment.
2. Part Number, Description and Quantity.
3. Shipping Instructions.

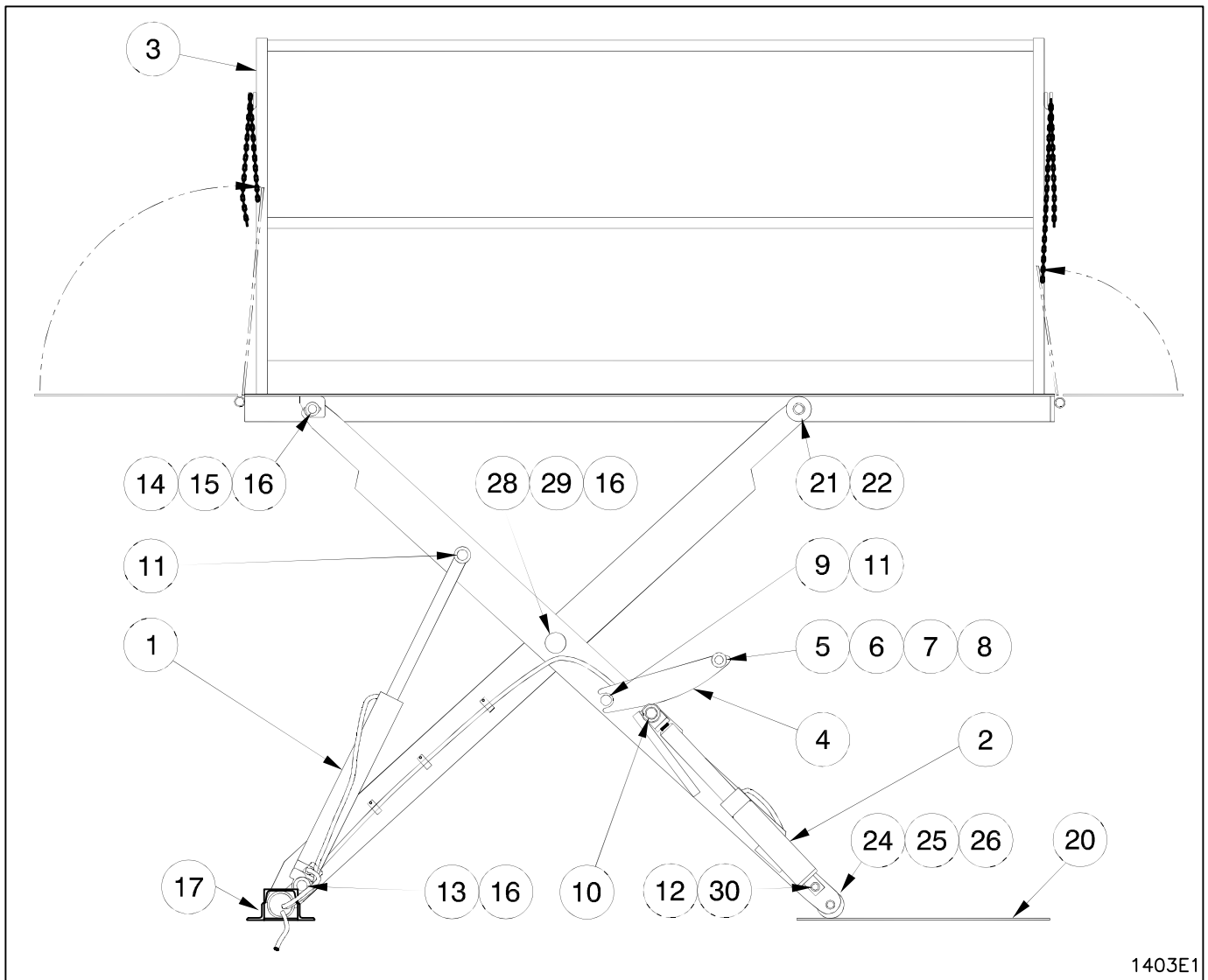


Figure 14: Dock Lift Replacement Parts

DOCK LIFT REPLACEMENT PARTS LIST

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

<u>Item #</u>	<u>Part No.</u>	<u>Description</u>
1	See Page 21	Lift Cylinder - 5000 lb to 8000 lb
	NOTE	Lift Cylinder - 4000 lb
2	See Page 20	Cam Cylinder
3	NOTE	Guard Rail
4	800-5095	Cam Arm
5	300-5027	Cam Arm Roller
6	300-5020	Cam Arm Roller Pin
7	095-0019	Cam Arm Roller Bushing
8	080-0001	Spring Pin
9	095-0015	Cam Pivot Bushing
10	See page 20	Yoke Roller Assembly Pivot Pin
11	300-5190	Cam Pivot Pin and Lift Cylinder Rod End Pin for 1/2" Thick Legs
	300-5193	Cam Pivot Pin and Lift Cylinder Rod End Pin for 3/4" Thick Legs
	300-5194	Cam Pivot Pin and Lift Cylinder Rod End Pin for 1" Thick Legs
	300-5195	Cam Pivot Pin and Lift Cylinder Rod End Pin for 1 1/4" Thick Legs
12	300-5237	Cam Cylinder Housing End Pin for 1/2" Thick Legs
	300-5019	Cam Cylinder Housing End Pin for 3/4" Thick Legs
	300-5098	Cam Cylinder Housing End Pin for 1" Thick Legs
	300-5099	Cam Cylinder Housing End Pin for 1 1/4" Thick Legs
13	301-0836	Lower Lift Cylinder Pin (Leg Thickness irrelevant)
14	300-5180	Fixed End Clevis Pin for 1/2" Thick Legs
	300-5181	Fixed End Clevis Pin for 3/4" Thick Legs
	300-5182	Fixed End Clevis Pin for 1" Thick Legs
	300-5183	Fixed End Clevis Pin for 1 1/4" Thick Legs
15	NOTE	Fixed End Clevis Pin Bushing
16	080-0025	Spring Pin
17	800-5014	Cradle & Cradle Lag Plate Assembly for Surface Models
20	300-5072	Wear Plate for Surface or Pit Models
21	300-6160	Upper Roller
22	095-0019	Upper Roller Bushing
24	300-6160	Lower Roller
25	095-0019	Lower Roller Bushing
26	300-9187	Lower Roller Pin for 1/2" Thick Legs
	300-9188	Lower Roller Pin for 3/4" Thick Legs
	300-9233	Lower Roller Pin for 1" Thick Legs
	300-9213	Lower Roller Pin for 1 1/4" Thick Legs
27	800-5200	Maintenance Stand (See page 12)
28	300-5197	Leg Center Pin for 1/2" Thick Legs
	300-5198	Leg Center Pin for 3/4" Thick Legs
	300-5199	Leg Center Pin for 1" Thick Legs
	300-5200	Leg Center Pin for 1 1/4" Thick Legs
29	NOTE	Leg Center Pin Bushing
30	080-0001	Spring Pin
31	800-5002	Portable Dolly Assembly c/w 8" Wheel (Not Shown)
	800-5096	Portable Dolly Assembly c/w 8" Wheel for Units with Trip Bars (Not Shown)
32	NOTE	Portable Dolly 8" Wheel Only (Not Shown)

NOTE: State Model # and Serial # when ordering replacement parts.

CAM CYLINDER REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

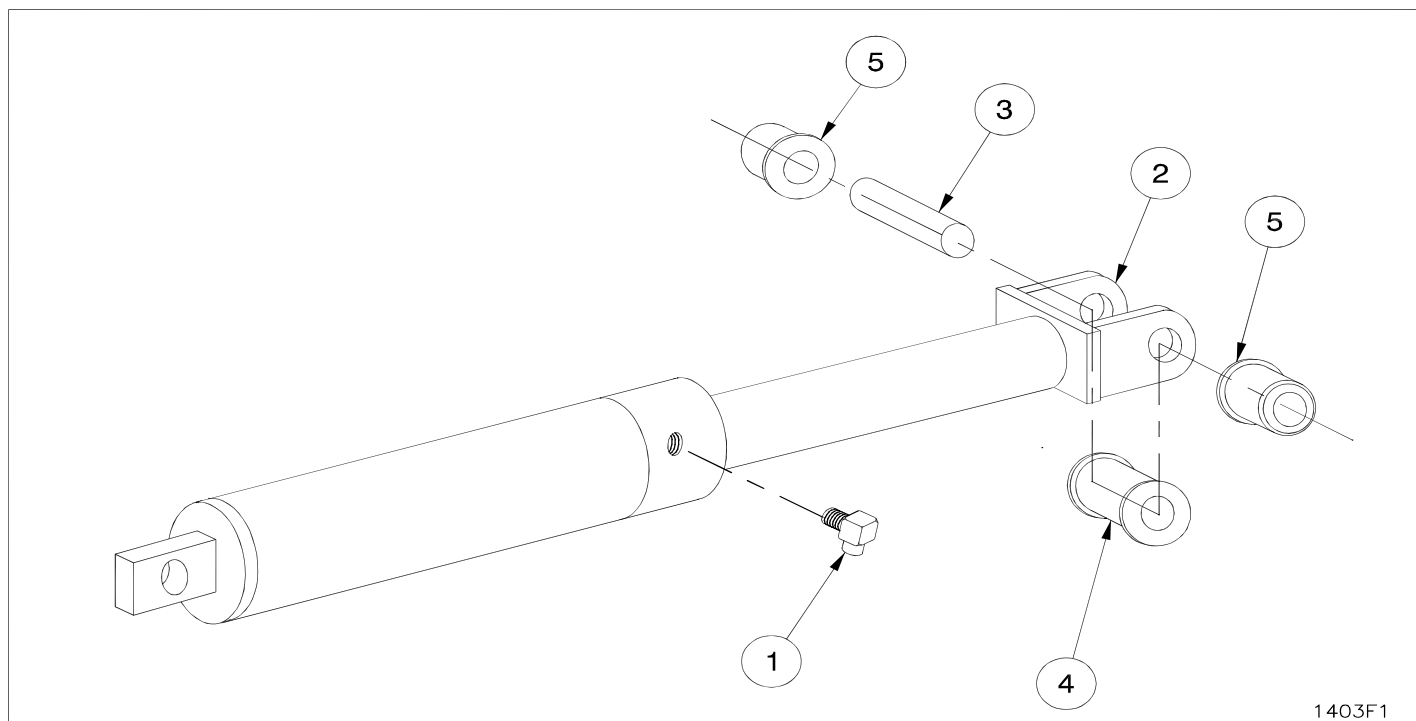


Figure 15: Cam Cylinder Replacement Parts

<u>Item #</u>	<u>Part No.</u>	<u>Description</u>
1	052-0109	Fitting
2	802-3662	Cam Cylinder Assembly
3	300-5021	Yoke Roller Pin
4	800-5212	Middle Cam Roller Assembly (includes bushing)
5	800-5211	Outer Cam Roller Assembly (includes bushing) -2 per Yoke Assembly

NOTE: State Model # and Serial # when ordering replacement parts.

LIFT CYLINDER REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

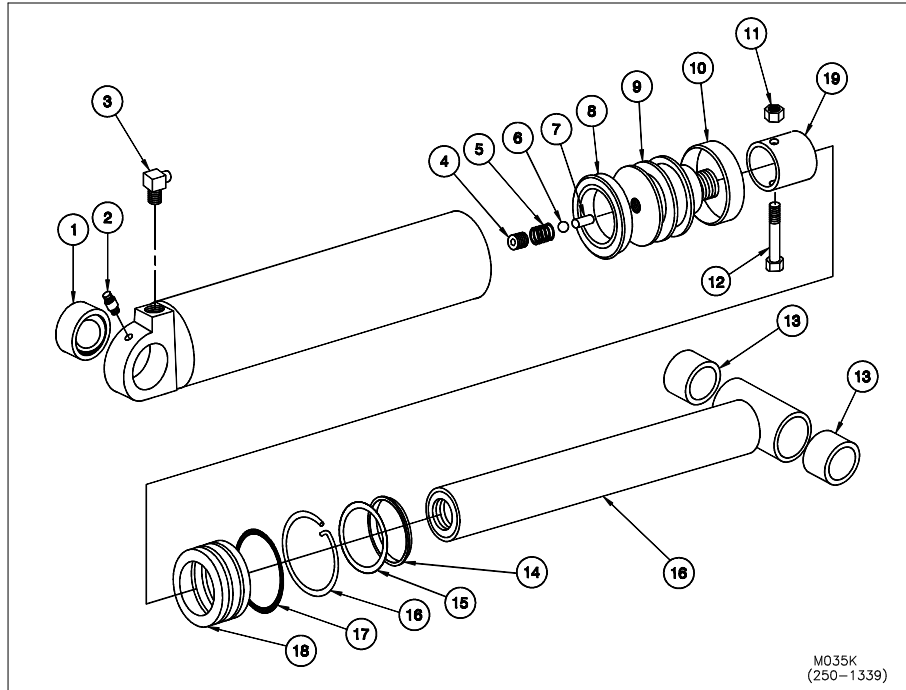


Figure 16: Lift Cylinder Replacement Parts

Item #	Description	Part # for 4" OD (3 1/2" ID)	Part # for 2 1/2" OD (2" ID)
1	Swivel Bearing	090-0000	090-0011
2	Grease Fitting	052-0055	052-0055
3	90 Degree Fitting	052-0065	052-0065
4	*Set Screw	250-1879	250-1879
5	*Spring	097-0020	097-0020
6	*Ball	090-0001	090-0001
7	*By-Pass Pin	300-4001	300-4001
8	*"U" Cup	054-0501	054-0523
9	Cartridge	300-0883	300-1023
10	*Wear Ring	054-0521	054-0524
11	Nut	070-0060	070-0060
12	Bolt	072-0044	072-0040
13	Bushing	095-0015	095-0015
14	*Wiper	054-0504	054-0510
15	*Inner "O" Ring	054-0329	054-0325
16	*Retaining Ring	300-0088	300-0087
17	*Outer "O" Ring	054-0338	054-0330
18	Head Nut	300-0000	300-1024
19	Dump Tube	NOTE	NOTE
20	Seal Kit (includes all items marked with *)	800-0284	800-0547
21	Complete Cylinder Assembly	NOTE	NOTE

NOTE: State Model # and Serial # when ordering replacement parts.

LIST OF ILLUSTRATIONS

Figure 1: Safety Labels and Decals	2
Figure 2: Safety Label and Decal Locations	3
Figure 3: Hoisting the Dock Lift	4
Figure 4: Position of Retaining Cradles and Wear Plates	7
Figure 5: Installation of Hinged Bridge / Approach Ramp	8
Figure 6: Guard Rail Installation	8
Figure 7: Hinged Bridge Not Properly Secured (See Figure 8)	10
Figure 8: Hinged Bridge in Vertically Stored Position	10
Figure 9: Minimum Hinged Bridge Penetration of 4"	11
Figure 10: Steps to Move the Dock Lift using the Portability Dolly	11
Figure 11: Supporting the Dock Lift for Maintenance	13
Figure 12: Spring Pins	15
Figure 13: Lubrication Points	17
Figure 14: Dock Lift Replacement Parts	20
Figure 15: Cam Cylinder Replacement Parts	22
Figure 16: Lift Cylinder Replacement Parts	23

PENTALIFT EQUIPMENT CORPORATION WARRANTY

WARRANTY

Pentalift Equipment Corporation expressly warrants that any product manufactured by **Pentalift Equipment Corporation** will be free from defects in material and workmanship under normal use for a period of one (1) year from the date of shipment of the equipment, provided the original purchaser maintains and operates the product in accordance with proper procedures. In the event the product proves defective in material or workmanship, **Pentalift Equipment Corporation** will at its option:

1. Replace the product or the defective portion thereof without charge to the purchaser; or
2. Alter or repair the product; on site or elsewhere, as **Pentalift Equipment Corporation** may deem advisable, without charge to the purchaser.

The warranty stated in the previous paragraph is that expressed by **PENTALIFT EQUIPMENT CORPORATION** AND IS IN LIEU OF ALL GUARANTEES AND WARRANTIES, EXPRESSED OR IMPLIED BY ANYONE OTHER THAN **PENTALIFT EQUIPMENT CORPORATION**. This warranty does not cover any failure caused by improper installation, misapplication, overloading, abuse, negligence, or failure to lubricate and adjust or maintain the equipment properly and regularly. Parts requiring replacement due to damage resulting from abuse, improper operations, improper or insufficient lubrication, lack of proper protection or vehicle impact are not covered by this warranty. **Pentalift Equipment Corporation** assumes no responsibility or liability for:

1. Consequential damages of any kind which result from use or misuse of the equipment
2. Damage or failure resulting from the use of unauthorized replacement parts
3. Damage or failure resulting from modification of the equipment
4. Damage resulting from the misuse of the equipment

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, AND THERE IS NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

Pentalift Equipment Corporation warranties extend only to the original product itself. In no event shall **Pentalift Equipment Corporation** be responsible for or liable to anyone, including third parties, for special, indirect, collateral, punitive, incidental or consequential damages, even if Pentalift Equipment Corporation has been advised of the possibility of such damages. Such excluded damages include, but are not limited to, loss of good will, loss of profits, loss of use, interruption of business or other similar indirect financial loss.

Pentalift Equipment Corporation DISCLAIMS all liability arising out of the workmanship, methods and materials used by the installer.

Pentalift Equipment Corporation DISCLAIMS all liability for premature product wear, product failure, property damage or bodily injury arising from improper installation and application.

Pentalift Equipment Corporation will not accept any warranty for which the original purchaser does not notify **Pentalift Equipment Corporation's** Warranty Department of the defect within ninety (90) days after the product defect is discovered. A fully completed Product Registration Card is required prior to the review or processing of any warranty requests or claims.

WARRANTIES, whether expressed or implied, relating to workmanship and materials used in connection with the installation of **Pentalift Equipment Corporation** products are specifically DISCLAIMED.

WR001R03

PENTALIFT EQUIPMENT CORPORATION

P.O. Box 1510, Buffalo, NY 14240-1510, U.S.A. 21 Nicholas Beaver Rd. Puslinch, ON N0B 2J0, Canada
(519) 763-3625 Fax (519) 763-2894
www.pentalift.com