



PENTALIFT EQUIPMENT CORPORATION

MECHANICAL DOCK LEVELER OWNERS MANUAL

Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.

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 SHOULD 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
P.O. Box 1060
Guelph, ON N1H 6N1
Phone: 519-763-3625
Fax: 519-763-2894
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Pentalift Equipment Corporation provides an owners manual when equipment is shipped. Additional manuals are available at \$25.00 each.

Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific 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.pentallift.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:		

Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.

Please return to:

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

or

Pentalift Equipment Corporation
P.O. Box 1060
Guelph, Ontario
N1H 6N1

Attention: Service Department

Or Fax to (519) 763-2894

SAFETY INFORMATION AND WARNINGS



READ THESE SAFETY PRACTICES BEFORE INSTALLING, OPERATING OR SERVICING THE DOCK LEVELER. 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 a hazardous situation which, if not avoided, will result in death or serious injury.



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



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

NOTICE

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. NEVER GO BENEATH THE DOCK LEVELER FOR ANY REASON UNLESS THE LIP AND DECK ARE PROPERLY SUPPORTED BY THE MAINTENANCE STAND (SEE SUPPORTING THE LEVELER FOR MAINTENANCE on page 18). IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT NO LOAD OR TRAFFIC IS PLACED ON THE DECK WHILE THE MAINTENANCE STAND IS IN USE. THE CONSTRUCTION OF THE MAINTENANCE STAND IS INTENDED TO SUPPORT THE WEIGHT OF THE UNLOADED DOCK LEVELER ONLY.

Generic manual for Pentalift Equipment Corporation
owners manual for Pentalift Equipment Corporation



ALWAYS ASSURE NO ONE IS WITHIN 6 FEET OF THE FRONT (LIP END) OF THE DOCK LEVELER PRIOR TO ACTIVATION. THE HINGED LIP WILL EXTEND RAPIDLY AND LOCK INTO ITS WORKING POSITION DURING UPWARD MOVEMENT OF THE DECK. STAY CLEAR OF DOCK LEVELER WHEN IT IS MOVING.



DOCK LEVELER CAPACITY: THE RATED CAPACITY OF THE DOCK LEVELER AS STATED ON THE SERIAL NUMBER PLATE IS A STATIC RATING. NUMEROUS DYNAMIC LOADING FACTORS RESULT IN THE GROSS LOAD CAPACITY (ROLLOVER CAPACITY) BEING SIGNIFICANTLY LESS THAN THE RATED STATIC CAPACITY OF THE DOCK LEVELER. FACTORS WHICH AFFECT THE ROLL OVER CAPACITY ARE: WEIGHT OF THE LOAD; WEIGHT OF THE FORK TRUCK; SPEED OF THE FORK TRUCK AS IT ROLLS OVER THE DOCK LEVELER; INCLINE OR DECLINE SLOPE OF THE DOCK LEVELER DECK AND LIP WHEN IN USE; FREQUENCY OF USE AND DESIRED LIFE OF THE DOCK LEVELER. PRIOR TO USING THE DOCK LEVELER, OR IF THE APPLICATION CONDITIONS FOR THE DOCK LEVELER CHANGE IN ANY RESPECT, CONTACT YOUR AUTHORIZED PENTALIFT REPRESENTATIVE TO CONFIRM THE SPECIFIC DOCK LEVELER'S SUITABILITY FOR THE APPLICATION.



NEVER WALK ON THE LIP TO LOWER THE DOCK LEVELER ONTO A TRUCK BED. (SEE Figure 22: Walk Down the Deck on page 16)



TO AVOID POSSIBLE PERSONNEL INJURY AS WELL AS, TO AVOID DAMAGE TO THE DOCK LEVELER AND/OR THE PRODUCT, DO NOT DRAG OR SLIDE ANYTHING ACROSS THE SURFACE OF THE DOCK LEVELER. ALWAYS ENSURE THE FORKLIFT FORKS ARE RAISED TO CLEAR THE DOCK LEVELER SURFACE AND THE DOCK LEVELER COMPONENTS.

1. When not in use, the dock leveler must be in the stored (cross traffic) position, with the lip inside the front angle.
(See Figure 21: Deck in Stored Position on page 15)
2. Before loading/unloading the truck, assure the trailer is in position firmly against both of the dock bumpers and **ENGAGE A VEHICLE RESTRAINT or CHOCK THE TRUCK WHEELS** to eliminate the possibility of the truck rolling or inching forward.
3. Return dock leveler to the stored position before allowing truck to depart.
4. Be certain no equipment, material or personnel are on the dock leveler before allowing truck to depart.
5. Regular inspection and maintenance must be performed to keep the equipment in proper operating condition in accordance with the detailed instructions in this manual.
6. The deck surface must be kept clean and free from oil, debris, etc. Keep debris, etc. from underneath the unit.
7. Never use anything other than the operator's weight to lower the deck from its raised position.
8. ~~Never stand between the dock and a truck.~~
Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.
9. Stay clear of operating path at all times.
10. Do not use the dock leveler while under the influence of drugs or alcohol.
11. Assure that the equipment is not used by anyone if you believe that any part of it might be in disrepair (e.g. bent structural members, broken welds, etc.). See Warranty Section.
12. 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 shall recognize the inherent danger of the interface between dock and transport vehicle. The Owner shall, therefore, train and instruct operators in the safe use of dock leveling devices.
2. When a transport vehicle is positioned as closely as practicable to a dock leveling device, there shall be at least 4" (100 mm) of overlap between the front edge of the lip 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 shall be kept.
5. Dock leveling devices that are structurally damaged or have experienced a sudden loss of support while under load, such as might occur when a transport vehicle is pulled out from under the dock leveling device, shall be removed from service, inspected by **Pentalift Equipment Corporation's** authorized representative and repaired as needed before being placed back in service. The owner shall receive written authorization from **Pentalift Equipment Corporation** through the authorized Pentalift representative that they can continue to use the dock leveler.
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 dock leveling devices 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.
Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment
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 underride 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 dock leveling devices, 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.

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SAFETY LABELING

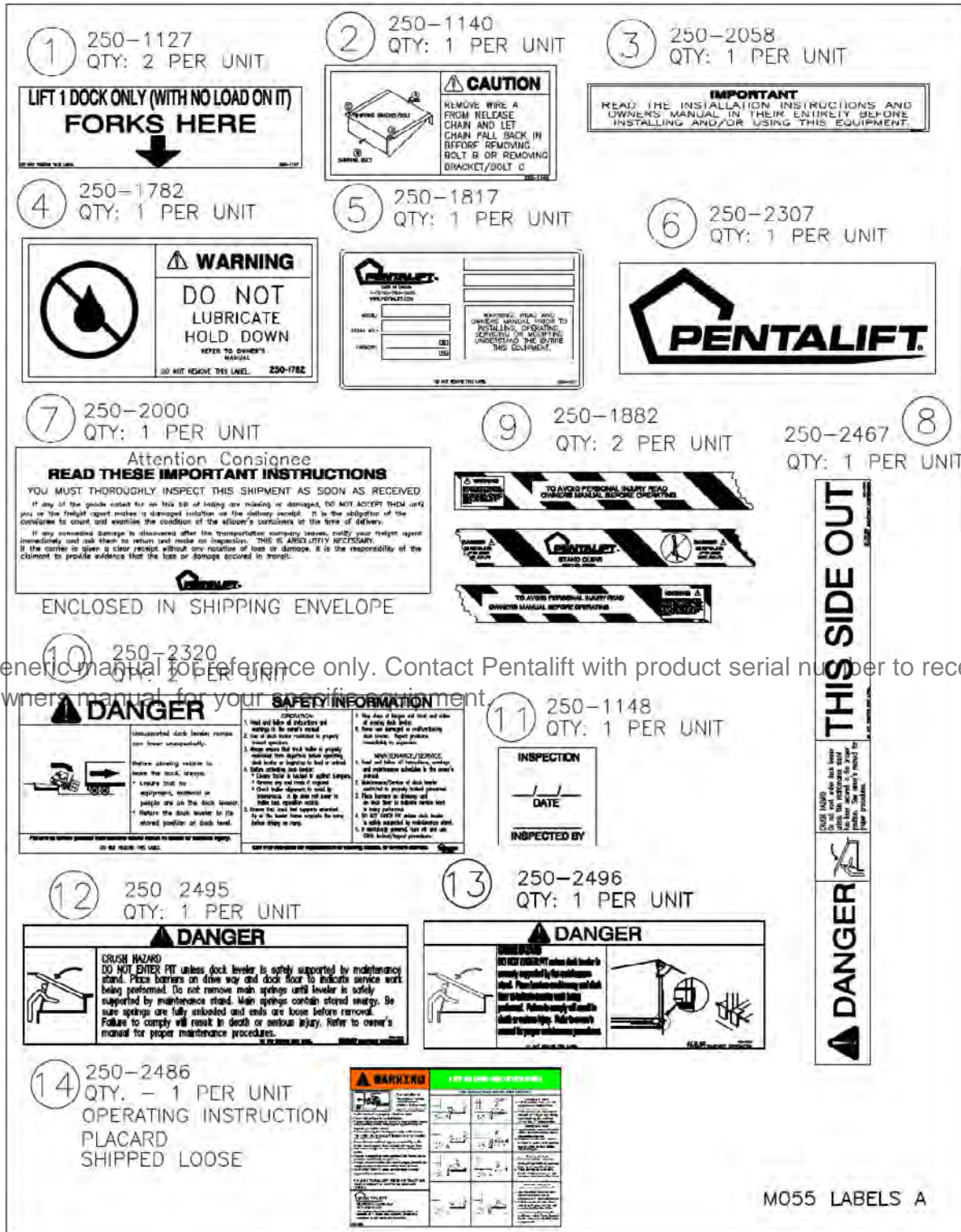


Figure 1: Safety Labels and Decals

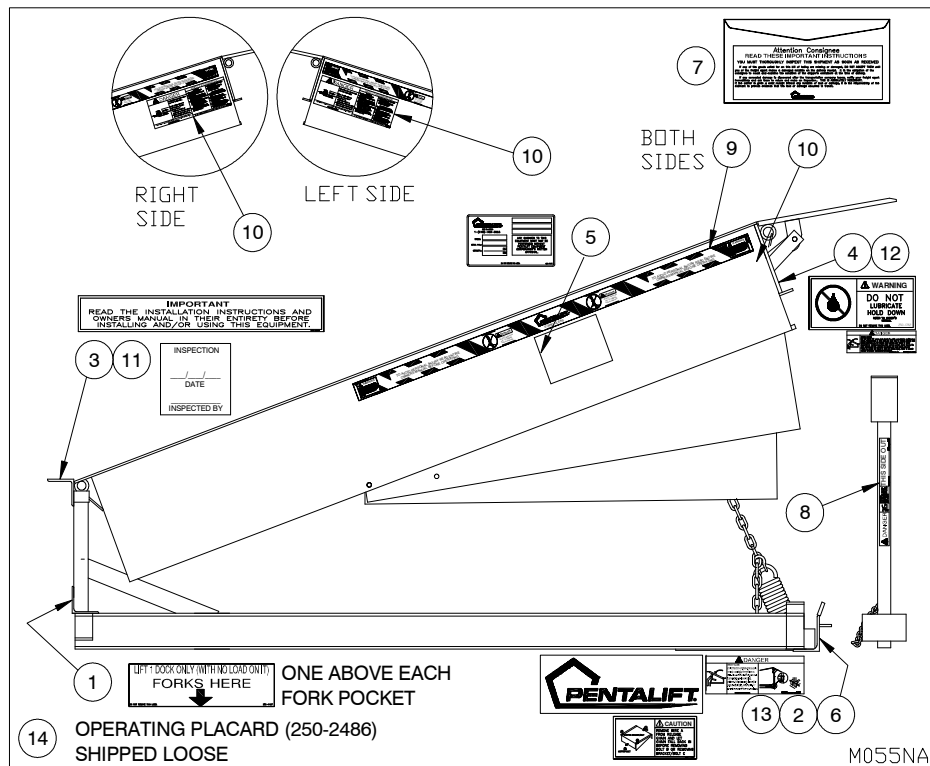


Figure 2: Safety Label and Decal Locations

Generic manual for reference only. Contact Pentalift with product serial number to receive 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 Labels and Decals Continued 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 and around the equipment. If the visibility of any 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 20).

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

	ITEM NO.	PART NO.	QTY/UNIT	DESCRIPTION
Safety Labeling	3	250-2058	1	"IMPORTANT Read the installation..."
	4	250-1782	1	"WARNING Do not Lubricate..."
	5	250-1817	1	Specification Plate
	6	250-2307	1	"Pentalift"
	7	250-2000	1	"Attention Consignee..."
	8	250-2467	1	"THIS SIDE OUT"
	9	250-1882	2	Safety Stripe
	10	250-2320	2	"DANGER Unsupported Dock..."
	11	250-1148	1	Inspection Sticker
	12	250-2495	1	"DO NOT ENTER PIT..."
	13	250-2496	1	"Do not work under dock..."
Installation				
	1	250-1127	2	Forks Here
	2	250-1140	1	CAUTION Remove Wire
	14	250-2486	1	Operating Instructions (Wall Mounted)

Generic manual for all Pentalift models. Contact Pentalift with product serial number to receive owners manual for your specific equipment.

INSTALLATION INSTRUCTIONS FOR PIT MODEL MECHANICAL DOCK LEVELERS



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.

IMPORTANT

PREPARATION PRIOR TO INSTALLATION

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



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

NEVER GO BENEATH THE DOCK LEVELER FOR ANY REASON UNLESS THE DECK AND LIP ARE PROPERLY SUPPORTED BY THE MAINTENANCE STAND (SEE SUPPORTING THE LEVELER FOR MAINTENANCE on page 18) IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT NO LOAD OR TRAFFIC IS PLACED ON THE DECK WHILE THE MAINTENANCE STAND IS IN USE. THE CONSTRUCTION OF THE MAINTENANCE STAND IS INTENDED TO SUPPORT THE WEIGHT OF THE UNLOADED DOCK LEVELER ONLY.



DANGER

Generic manual
owners manual

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.**



DANGER

INADEQUATE LIFTING EQUIPMENT OR PRACTICES CAN CAUSE A LIFTED LOAD TO FALL UNEXPECTEDLY. MAKE SURE THAT EYE BOLTS AND LIFTING CHAIN OR OTHER LIFTING DEVICES ARE IN GOOD CONDITION AND HAVE A RATED CAPACITY OF AT LEAST 3500 LBS FOR THE LIFTING ANGLE USED. CONFIRM THE SHIPPING WEIGHT OF THE DOCK LEVELER. IF IT IS GREATER THAN 3500 LBS THEN INCREASE THE RATED CAPACITY OF THE LIFTING DEVICE(S) TO ACCOMMODATE THE SHIPPING WEIGHT OF THE DOCK LEVELER WHEN IT IS BEING LIFTED OR PLACED INTO THE PIT. STAND CLEAR OF THE DOCK LEVELER WHEN IT IS BEING PLACED INTO THE PIT. FAILURE TO FOLLOW THIS WARNING CAN ALLOW THE DOCK LEVELER TO HIT SOMEONE, CAUSING SERIOUS INJURY OR DEATH.

1. Assure pit conforms to appropriate Pentalift pit drawing.
2. Confirm pit curb angle is properly installed and meets the force requirements as shown in Figure 12: Curb Angle Force Chart on page 9.
3. Clean pit of all debris.
4. For units with a nominal depth of 20" being installed into a deeper pit, proceed to the INSTALLATION INTO PIT USING SHIM KIT on page 10.

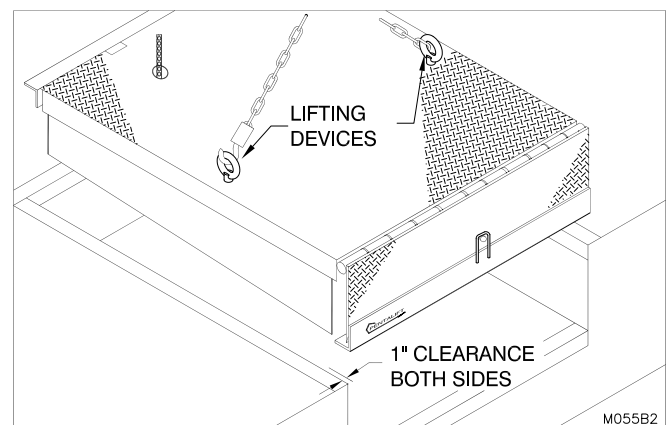


Figure 3: Hoist Using Lifting Devices

INSTALLATION INTO PIT

5. Hoist leveler into pit with chain using the lifting devices on the leveler.
(See Figure 3: Hoist Using Lifting Devices on page 5)
Position the leveler into the pit opening.
6. Assure that 1" clearance is maintained between the side of the leveler platform and the side pit wall and that the rear angle of the dock leveler is firmly against the rear curb angle.
7. Remove the shipping wire. (**CAUTION**, if the shipping wire is not removed, the dock leveler deck and lip will rise once the shipping bolt is removed). Then remove the top shipping bolts and lifting devices. Some units come equipped with a front U-Bracket while others come equipped with a front Half Moon Bracket. If your unit comes with the front U-Bracket then **remove** the front shipping bolt then **remove** the U-bracket and clean up the remaining weld to ensure there is no interference with the lip operation. If your unit comes with the Half Moon Bracket, first **remove** the front shipping bolt and finally **remove** the Half Moon Bracket and clean up the remaining weld to ensure there is no interference with the lip operation. (See Figure 4: Shipping Wire, Bolts and Lifting Devices on page 6)

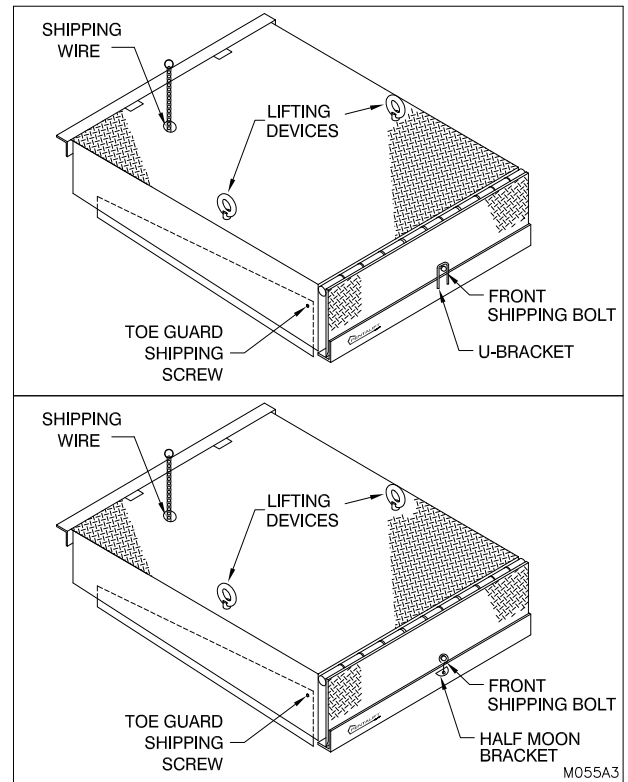


Figure 4: Shipping Wire, Bolts and Lifting Devices



ALWAYS ASSURE NO ONE IS WITHIN 6 FEET OF THE FRONT (LIP END) OF THE DOCK LEVELER PRIOR TO ACTIVATION! THE HINGED LIP WILL EXTEND RAPIDLY AND LOCK INTO ITS WORKING POSITION DURING UPWARD MOVEMENT OF THE DECK. STAY CLEAR OF DOCK LEVELER WHEN IT IS MOVING.

8. Operate the dock leveler by pulling the release chain to its full extension and **HOLDING** until the deck's upward movement stops; then let go of the chain and let it fall back into the pocket.
9. Support the dock leveler in accordance with instructions in the **SUPPORTING THE LEVELER FOR MAINTENANCE** on page 18.
10. For units with full range toe guards, support the lower half of the toe guard and remove the self tapping screw which holds it in the shipping position. (See Figure 4: Shipping Wire, Bolts and Lifting Devices on page 6) Carefully lower the toe guard and avoid pinch points.
11. Place shims of minimum length and width of 3" by 4" and a minimum thickness of 14 gauge under rear frame until top rear of dock leveler is flush with rear curb angle. (See Figure 6: Shim Rear Frame on page 6 for shim placement) Tack weld into position.

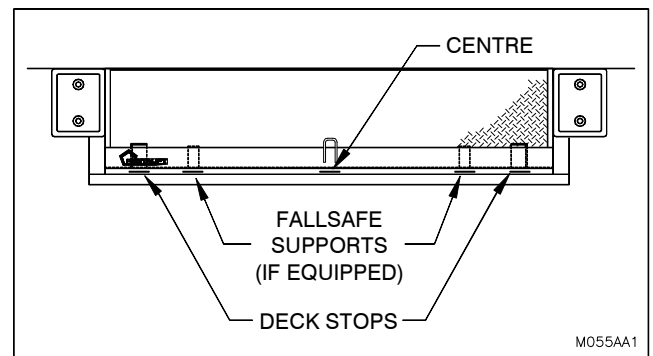


Figure 5: Shim Front Frame

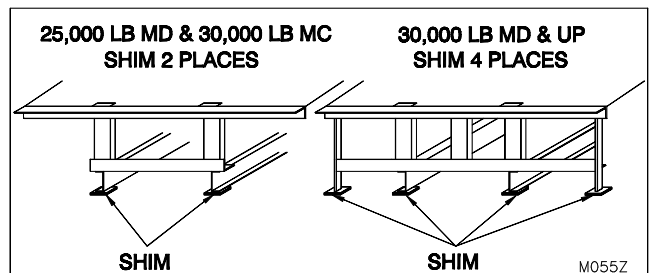


Figure 6: Shim Rear Frame

WELDING REFERENCE INFORMATION

- Observe and obey all welding safety requirements per AWS D1.1-92. (W117.2-74 in Canada.)
 - Welding electrodes are to be clean and free from moisture.
 - Material to be welded must be clean and free of oils, excessive millscale/rust etc.
 - All craters are to be filled to a minimum of 85% of the cross sectional area of the weld.
 - All under cutting is to be removed by either welding, grinding or a combination of both.
 - Maximum reinforcement on butt welds is 1/8".
 - Use highest current possible per chart below to obtain satisfactory weld.
- Lower the dock leveler to the stored position and shim the front frame under the two deck stops and in the center of the dock leveler until the deck plate is flush with the top of the front curb angle and the floor. For units equipped with Mechanical Fallsafe, also shim beneath the fallsafe supports. (See Figure 5: Shim Front Frame on page 6 for shim placement.)
 - Confirm that the back angle of dock leveler is firmly against and flush with the top of the rear curb angle and that the dock leveler has remained square in the pit before continuing.
 - Weld back angle of dock leveler to rear curb angle as shown in Figure 7: Weld to Rear Curb Angle on page 7 using the Welding Reference Information and Welding Reference Charts as a guide.
 - Raise the dock leveler and support the deck and lip from closing. (See SUPPORTING THE LEVELER FOR MAINTENANCE on page 18)
 - Weld front shim stacks securely to front curb angle (3" long weld) and to front frame of dock leveler. (See Figure 8: Weld to Front Curb Angle on page 7)
 - Weld the rear shim stacks to the frame of the dock leveler. (See Figure 6: Shim Rear Frame on page 6)
 - Place shims of minimum length and width of 3" by 4" and a minimum thickness of 14 gauge directly under lifting arm bracket. (See Figure 9: Shim Beneath Lifting Arm Bracket on page 8) Weld shim stacks to dock leveler frame.

NOTE: All shim stacks must be welded together.

WELDING REFERENCE CHARTS

Rated Capacity	"A" Dimension, Figure 12, page 7
25,000 lb 30,000 lb MC 30,000 lb MD 35,000 lb 40,000 lb	3"
45,000 lb 50,000 lb	6"

Electrode	E7018	
Diameter	1/8"	5/32"
Amperage	130-150	140-180

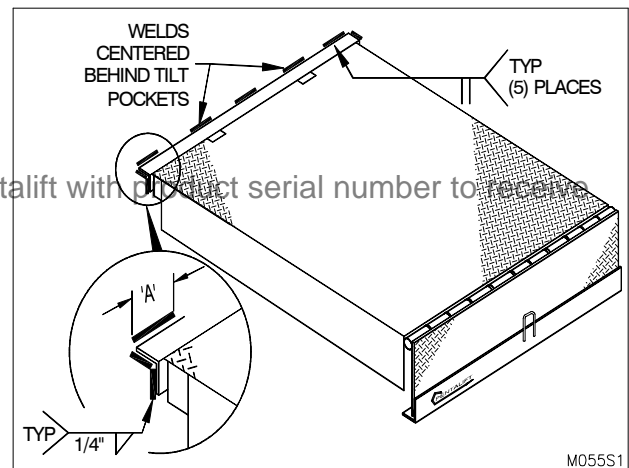


Figure 7: Weld to Rear Curb Angle

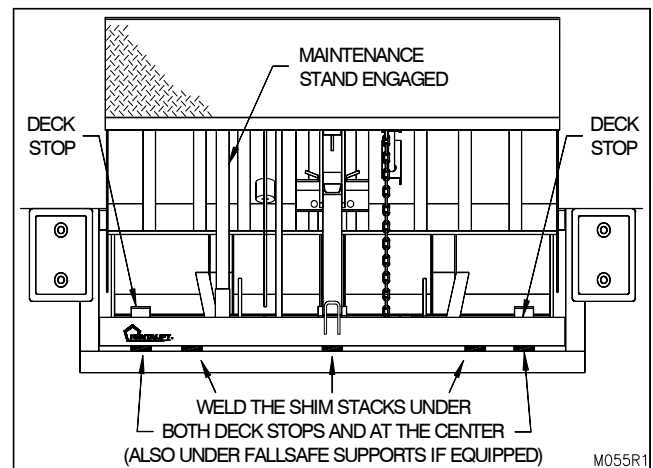


Figure 8: Weld to Front Curb Angle

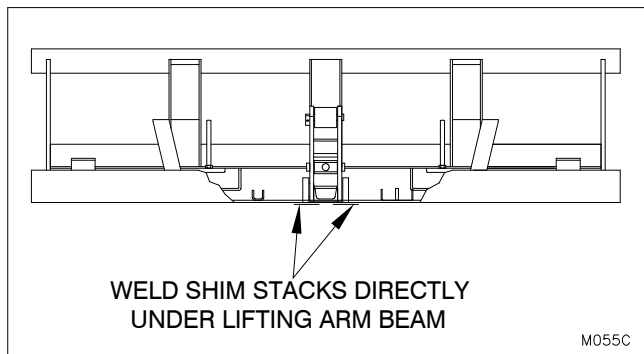


Figure 9: Shim Beneath Lifting Arm Bracket

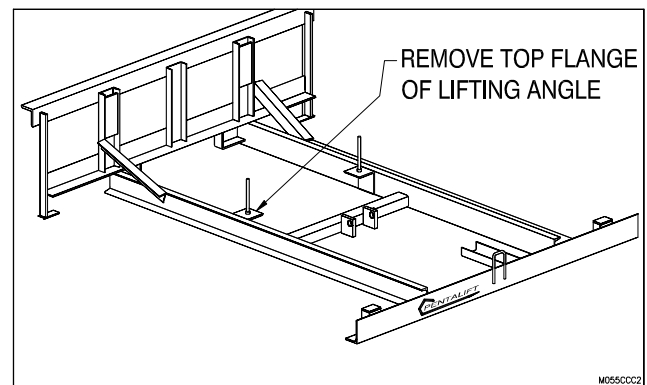


Figure 10: Top Flange Removal Diagram

19. Once the leveler has been fully installed, remove the top flange of the lifting angle to allow clearance for the Hold Down Release Bar. (See Figure 10: Top Flange Removal Diagram on page 8)

20. Tack weld the lip chain shackles closed to prevent tampering. (See Figure 11: Tack Weld the Shackle on page 8)

21. Weld or bolt bumpers in place.

22. Ensure that all bolts have been tightened and that all cotter pins and spring pins are in place.

23. Clean and paint the welds.

24. Lubricate and test in accordance with the Break-In and Performance Check on page 14.

25. Mount Dock Leveler warning and operating instructions placard close to the Dock Leveler in a location that assures an unobstructed view and Complete Legibility at all times.

26. 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 and if they have no further questions, consider your job complete.

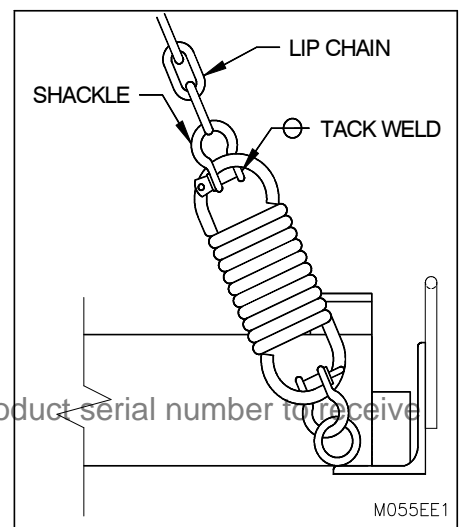


Figure 11: Tack Weld the Shackle

Your Pentalift mechanical dock leveler has been shipped from the factory adjusted for trouble free performance. It is important to understand that because this is a mechanical device, a “balance” between various mechanisms is required for proper operation. Improper adjustment can deteriorate the performance of your dock leveler and create dangerous situations. Never extend the length of the lip chain. **Any adjustments must be made by factory authorized service technicians.**

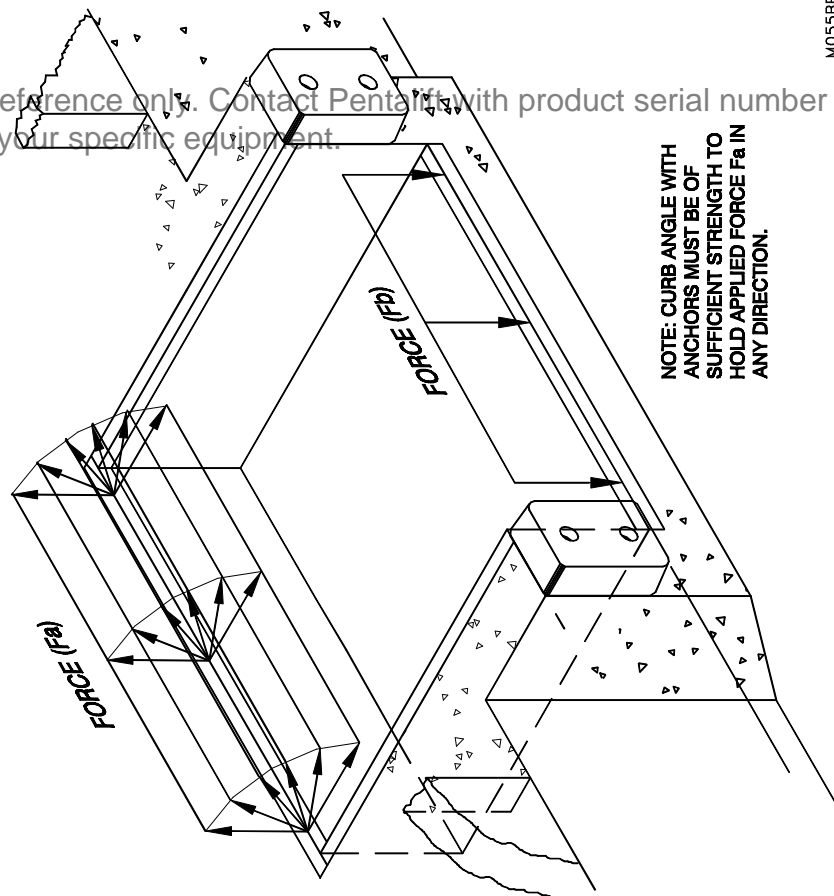


DO NOT OIL OR GREASE ANY PART OF THE HOLD DOWN ASSEMBLY SHOWN ON page 25.



FAILURE TO PROPERLY INSTALL ANY PENTALIFT DOCK LEVELER MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH AND WILL VOID ALL WARRANTIES.

Generic manual for reference only. Contact Pentlift with product serial number to receive owners manual for your specific equipment.



MO55BB

	CAPACITY (lbs)	RECOMMENDED CURB ANGLE SIZE	FORCE (F_a) (lbf)	FORCE (F_d) (lbf)
6 FT LONG	25000	2" X 2" X 3/16"	7000	12000
	30000MC		7500	13000
	30000MD		8000	14500
	35000		9500	17000
	40000		10500	19000
	45000		12000	21500
8 FT LONG	50000	2" X 2" X 3/16"	13000	23500
	25000		7000	13000
	30000MC		7500	14500
	30000MD		8000	15500
	35000		9500	18500
	40000		10500	21000
10 FT LONG	45000	3" X 3" X 3/16"	12000	23500
	50000		13000	26000
	25000		7000	14000
	30000MC		7500	15000
	30000MD		8000	16500
	35000		9500	19000
	40000		10500	21500
	45000		12000	24500
	50000		13000	27000

Figure 12: Curb Angle Force Chart

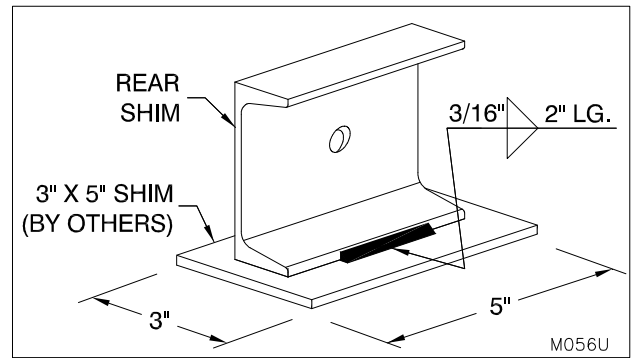
INSTALLATION INTO PIT USING SHIM KIT

For units with a nominal depth of 20" being installed into a deeper pit, it will be necessary to install a shim kit. Shim kits are available in standard heights of 1", 2", 3" and 4".

- For 3" or 4" shim kits, weld two rear shims (see Table A) to a single shim plate each (3" x 5" x minimum ASTM A-36 or CSA G40.21 supplied by others) as shown in Figure 13: Rear Shim (4" Shim Kit Shown) on page 10. This step adds stability to the shims while installing the dock. This step is not required for 1" or 2" shim kits as the blocks are sufficiently stable as supplied.

Note: On 25,000 lb and 30,000 lb MC models, there will be two rear shims; on 30,000 lb MD models and higher capacities, there will be four. Do not weld the outer rear shims (30,000 lb MD models and higher capacities) at this time.

- Place the two rear shims with welded-on shim plate at the rear of the pit, 35" center to center and 4" from the rear pit wall. (See Figure 15: Rear Shim Location (4" High Rear Shim Shown) on page 11)



**Figure 13: Rear Shim
(4" Shim Kit Shown)**

Table A - Rear Shims	
4" Shim Kit	C4 Channel x 4" Long
3" Shim Kit	C3 Channel x 4" Long
2" Shim Kit	2" x 3" x 3/16" Rect. Tube x 4" Long
1" Shim Kit	1" x 3" Flat Bar x 4" Long

Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.

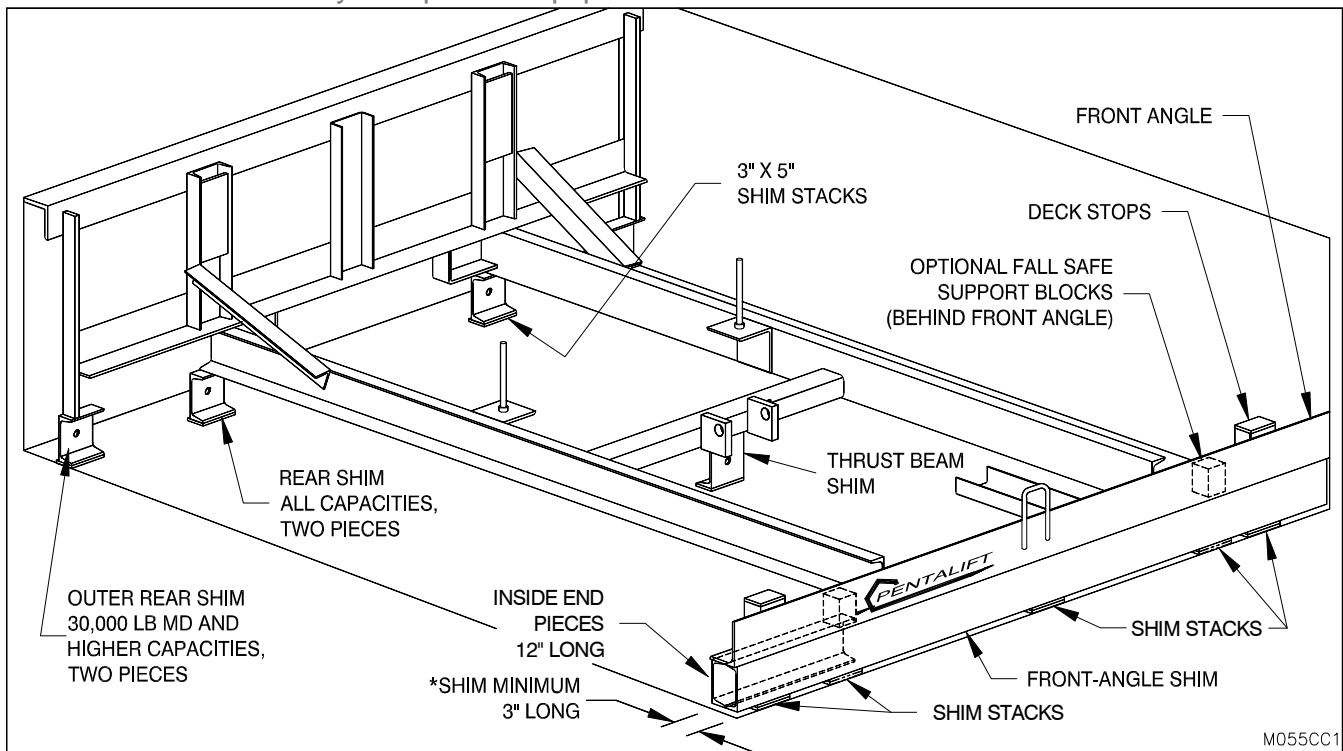
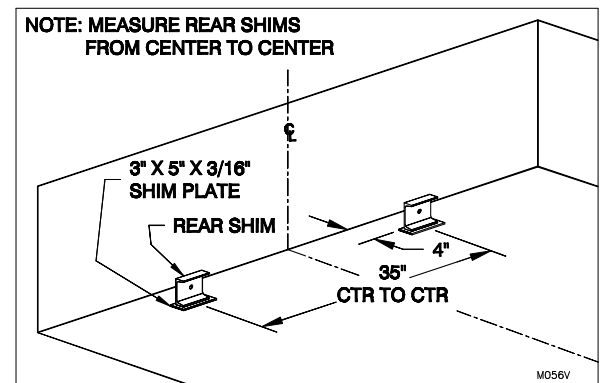


Figure 14: C-channel Shims

3. Place the front-angle shim assembly into the pit at the front edge, centered across the dock leveler and pit width. When the front-angle shim is constructed of C-channel (3" & 4" shim kits) ensure the short pieces (12" long) on each end are installed toward the inside of the pit. (See Figure 14: C-channel Shims on page 10).
4. Hoist the leveler into the pit with chain using appropriate lifting devices (See Figure 16: Hoist Leveler with Chain on page 11) and position the leveler into the pit opening.
5. Assure that 1" clearance is maintained between the side of the leveler platform and the side pit wall and that the rear angle of the dock leveler is firmly against the rear curb angle of the pit (See Figure 16: Hoist Leveler with Chain on page 11).
6. **Confirm that the back angle of the dock leveler is firmly against and flush with the top of the rear curb angle and that the dock leveler has remained square in the pit before continuing.**
7. Weld the rear angle of the dock leveler to the rear curb angle of the pit, 1" wide butt weld, at the location of each tilt bar pocket (2 places). (See Figure 16: Hoist Leveler with Chain on page 11).



**Figure 15: Rear Shim Location
(4" High Rear Shim Shown)**

8. Lower the dock leveler until the front angle of the dock leveler rests on the front-angle shim. Ensure the front-angle shim assembly is flush with the front angle of the dock leveler frame.
9. Weld the front angle of the shim assembly to the dock leveler frame.

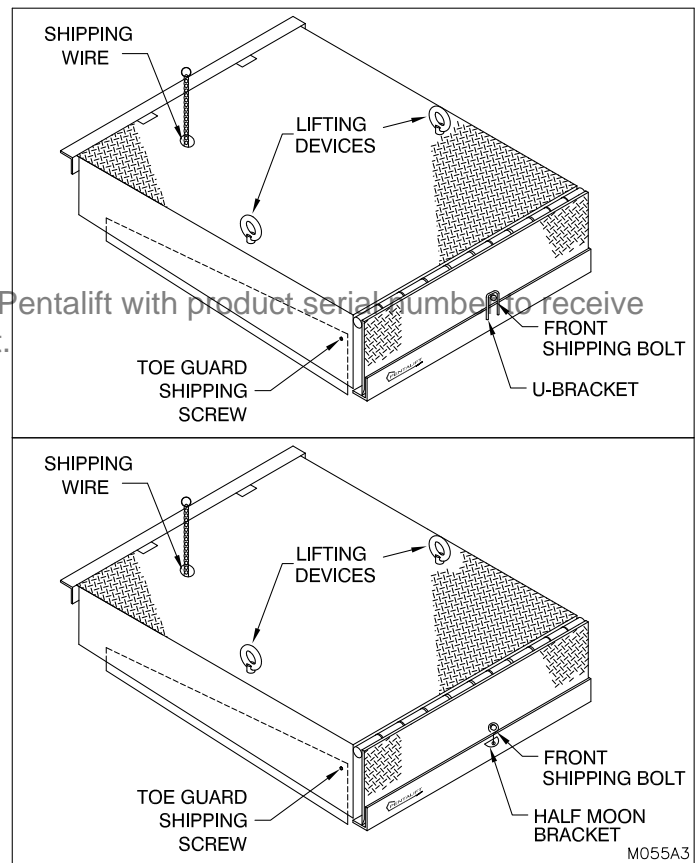


Figure 16: Hoist Leveler with Chain



ALWAYS ASSURE NO ONE IS WITHIN 6 FEET OF THE FRONT (LIP END) OF THE DOCK LEVELER PRIOR TO ACTIVATION. THE HINGED LIP WILL EXTEND RAPIDLY AND LOCK INTO ITS WORKING POSITION DURING UPWARD MOVEMENT OF THE DECK. STAY CLEAR OF DOCK LEVELER WHEN IT IS MOVING.

11. Operate the dock leveler by pulling the release chain to its full extension and HOLDING until the deck's upward movement stops; then let go of the chain and let it fall back into the pocket. Cycle the dock several times to re-align after shipping.
12. Return the dock to the stored position.
13. Add shims (3" x 5" x required thickness) to increase the front height of the dock until the deck plate is flush with the dock height (or at desired final level). Ensure shims are located beneath the front-angle shim at the location of the two deck stops as well as at the center of the front angle. (See Figure 14: C-channel Shims on page 10 for shim locations.) All shims are to be minimum ASTM A-36 or CSA G40.21 material.

Note: The shim kit is to be installed with a minimum 3" length of front angle support at the headboard stops and, if equipped, at the mechanical fallsafe support blocks.

14. Weld all shims in the stack to the front-angle shim, the front pit curb angle, and each other.
15. Complete welding the back angle of the dock leveler to the rear pit curb angle as shown in Figure 7: Weld to Rear Curb Angle on page 7.

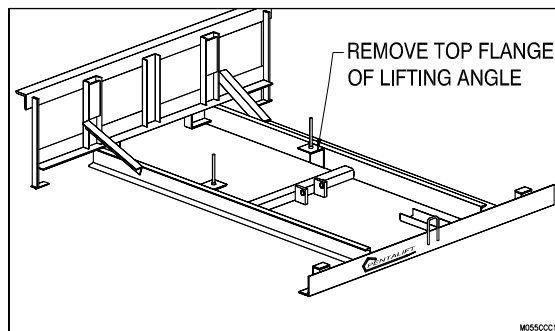


Figure 17: Top Flange Removal Diagram



NEVER GO BENEATH THE DOCK LEVELER UNLESS IT IS PROPERLY SUPPORTED ON THE FRONT SHIMS, THE REAR ANGLE IS SECURELY WELDED AND THE MAINTENANCE STAND IS ENGAGED.

16. Support the dock leveler in accordance with instructions in SUPPORTING THE LEVELER FOR MAINTENANCE on page 18.
17. Add shims (3" x 5" x required thickness) between the pit floor and the rear shim to close any gap and fully support the rear of the dock. Fully weld the two rear shims to the frame of the dock leveler and all shim plates in the stack to each other as well as to the rear shim.

18. For 30,000 MD models and higher capacities, weld the additional two rear shims to the outside support bar of the frame as shown in Figure 18: 30,000 lb + Outer Rear Shims (4" Shim Kit Channel Shim Shown) on page 12 and shim until they are fully supported. Weld all of the shims to each other as well as to the dock leveler frame.

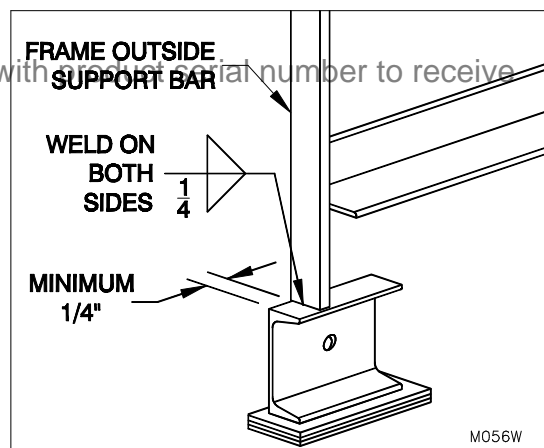


Figure 18: 30,000 lb + Outer Rear Shims (4" Shim Kit Channel Shim Shown)

19. Weld the remaining shim beneath the lifting arm bracket, centered across the width of the beam and flush to the front. (See Figure 14: C-channel Shims on page 10) Insert shims beneath until it is fully supported. Weld all shims together as well as to the thrust beam.

NOTE: All shim stacks must be welded together.

20. Once the leveler has been fully installed, remove the top flange of the lifting angle to allow clearance for the Hold Down Release Bar. (See Figure 17: Top Flange Removal Diagram on page 12)
21. For units with full range toe guards, support the lower half of the toe guard and remove the self tapping screw which holds it in the shipping position. (See Figure 3: Hoist Using Lifting Devices on page 5) Carefully lower the toe guard and avoid pinch points.

22. Tack weld the lip chain shackle closed to prevent tampering. (See Figure 11: Tack Weld the Shackle on page 8)
23. Weld or bolt bumpers in place.
24. Ensure that all bolts have been tightened and that all cotter pins and spring pins are in place.
25. Clean and paint the welds.
26. Mount Dock Leveler warning and operating instructions placard close to the Dock Leveler in a location that assures an unobstructed view and Complete Legibility at all times.
27. Lubricate and test in accordance with the Break-in and Performance Check on page 14.
28. 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 and if they have no further questions, consider your job complete.

Your Pentalift mechanical dock leveler has been shipped from the factory adjusted for trouble free performance. It is important to understand that because this is a mechanical device, a “balance” between various mechanisms is required for proper operation. Improper adjustment can deteriorate the performance of your dock leveler and create dangerous situations. Never extend the length of the lip chain. **Any adjustments must be made by factory authorized service technicians.**



DO NOT OIL OR GREASE ANY PART OF THE HOLD DOWN ASSEMBLY SHOWN ON
page 25.

Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.



FAILURE TO PROPERLY INSTALL ANY PENTALIFT DOCK LEVELER MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH AND WILL VOID ALL WARRANTIES.

BREAK-IN AND PERFORMANCE CHECK



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.

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

1. Lubricate all pivot points and grease the area that makes contact between the lip yield clevis assembly and the yield mechanism assembly. (See MAINTENANCE AND LUBRICATION on page 20)



ALWAYS ASSURE NO ONE IS WITHIN 6 FEET OF THE FRONT (LIP END) OF THE DOCK LEVELER PRIOR TO ACTIVATION. THE HINGED LIP WILL EXTEND RAPIDLY AND LOCK INTO ITS WORKING POSITION DURING UPWARD MOVEMENT OF THE DECK. STAY CLEAR OF DOCK LEVELER WHEN IT IS MOVING.

2. Operate the dock leveler several times as described below.
3. To raise the dock leveler, pull the release ring to FULL extension of chain and hold. (See Figure 21: Deck in Stored Position on page 15) The deck will raise and the lip will extend automatically. When the deck is fully raised, and the lip is locked, allow the release chain to retract into the pocket.
4. With the deck raised, begin “walking” the dock leveler down until it bottoms out on the deck stops. **NEVER WALK ON THE LIP TO LOWER THE DOCK LEVELER.** (See Figure 22: Walk Down the Deck on page 16)
5. Release the lip from its locked (extended) position. Stand facing the lip end of the dock leveler and firmly grasp the lip with both hands (wear gloves). (See Figure 19: Lift Until Arm Releases on page 14) Lift the lip upwards until you feel the lip lock mechanism release. Gently lower the lip until it hangs vertically. (See Figure 20: Lower Until Vertical on page 14)
6. To return the dock leveler to its stored position, pull the release ring until the leveler raises slightly and then release. “Jog” the leveler in this manner until the lip is above the front angle. Then “walk” the dock leveler into its stored position.
7. Repeat this sequence (items 3 through 6) at least three more times.

NOTICE

As the performance test is being conducted, watch closely for any signs that the dock leveler might not be operating properly. If you are in doubt, refer to Operating Instructions on page 15 and Trouble Shooting Guide on page 23 or contact your Pentalift representative.

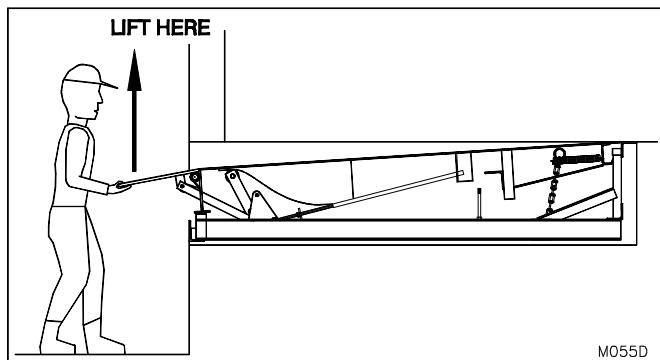


Figure 19: Lift Until Arm Releases

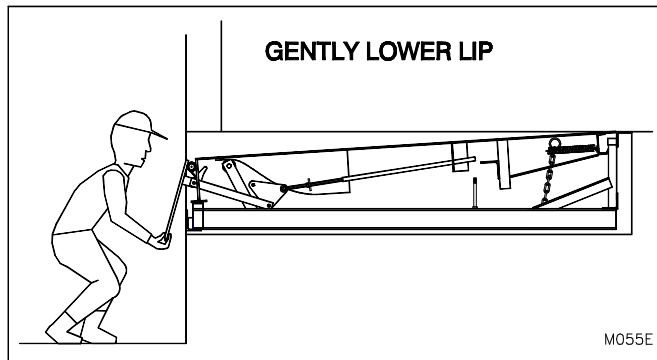


Figure 20: Lower Until Vertical

OPERATING INSTRUCTIONS



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 OSHA REGULATIONS REGARDING THE USE OF THIS EQUIPMENT. DO NOT USE THE DOCK LEVELER IF ANY PART OF IT LOOKS BROKEN OR IF IT DOES NOT SEEM TO OPERATE PROPERLY. IF REPAIRS ARE NEEDED, CONTACT YOUR PENTALIFT REPRESENTATIVE.



TO AVOID POSSIBLE PERSONNEL INJURY AS WELL AS, TO AVOID DAMAGE TO THE DOCK LEVELER AND /OR THE PRODUCT, DO NOT DRAG OR SLIDE ANYTHING ACROSS THE SURFACE OF THE DOCK LEVELER. ALWAYS ENSURE THE FORKLIFT FORKS ARE RAISED TO CLEAR THE DOCK LEVELER SURFACE AND THE DOCK LEVELER COMPONENTS.

NOTE: Always be certain that the truck/trailer is parked tight against the face of both dock bumpers and that the truck is locked in place by a vehicle restraint and/or that the truck wheels are chocked (See Figure 22: Walk Down the Deck on page 16) before loading or unloading. All 'air ride' trailers must release the air from the suspension mechanism prior to activating the dock leveler for use.

1. Load or unload END LOADS with the deck and lip in the stored position as shown in Figure 26: End Loading/ Unloading on page 17. (See END LOADING/ UNLOADING INSTRUCTIONS on page 17 and END LOADING BELOW LEVEL CONTROL OPERATION on page 17)



ALWAYS ASSURE NO ONE IS WITHIN 6 FEET OF THE FRONT (LIP END) OF THE DOCK LEVELER PRIOR TO ACTIVATION. THE HINGED LIP WILL EXTEND RAPIDLY AND LOCK INTO ITS WORKING POSITION DURING UPWARD MOVEMENT OF THE DECK. STAY CLEAR OF DOCK LEVELER WHEN IT IS MOVING.

2. After end loading, operate the dock leveler by pulling the release chain to its full extension and HOLDING until the deck's movement stops; then let go of the release chain and let it fall back into the pocket.



NEVER WALK ON THE LIP TO LOWER THE DOCK LEVELER ONTO A TRUCK BED. (SEE Figure 22: Walk Down the Deck on page 16) FAILURE TO ENSURE THE LIP CONTACTS THE TRUCK BED MAY RESULT IN DAMAGE TO THE DOCK LEVELER AND/OR THE TRUCK. NEVER USE ANYTHING OTHER THAN THE OPERATOR'S WEIGHT TO LOWER THE DECK FROM THE RAISED POSITION.

3. Walk out onto the front edge of the deck, lowering it until the lip rests firmly on the truck bed with at least 4" of penetration. (See Figure 23: 4" Penetration on page 16)

On dock levelers equipped with mechanical Fallsafe, and if the truck is below dock level, pull and hold the Below Level Control Activator (See Figure 24: Below Level Control Operation on page 16) as you move out on the deck lowering it until the lip makes firm contact with the truck bed.

Note: The lip must extend a minimum of 4" onto the truck bed. (See Figure 23: 4" Penetration on page 16)

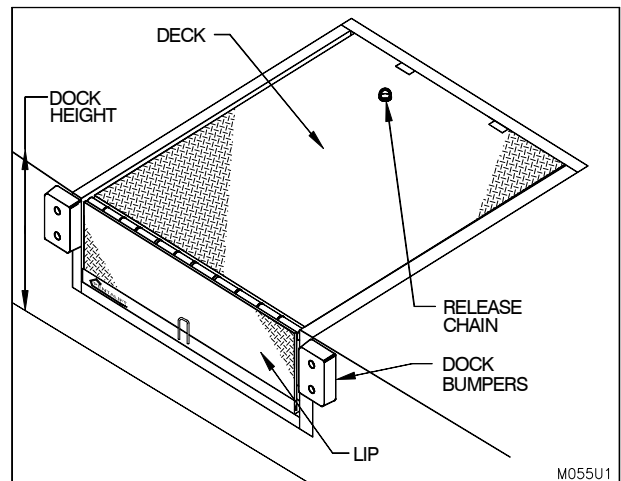


Figure 21: Deck in Stored Position

4. Complete loading or unloading.
5. **NOTE:** On dock levelers equipped with Mechanical Fallsafe, the below dock movement is limited by below level leg supports. As the truck and suspension are compressed during the loading or unloading operation, it may be necessary to readjust the support leg setting so the lip is always fully extended and in firm contact with the truck bed. To lower the deck to the next lower setting, pull and hold the Below Level Control Activator as you move toward the front of the deck. (See Figure 24: Below Level Control Operation on page 16) Never attempt to adjust the below level position while a load is on the deck.

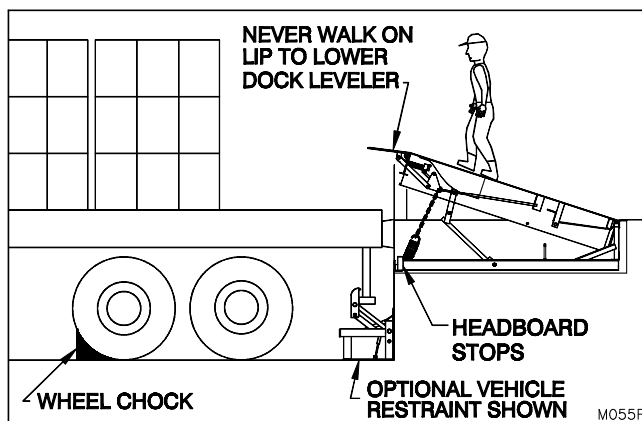


Figure 22: Walk Down the Deck

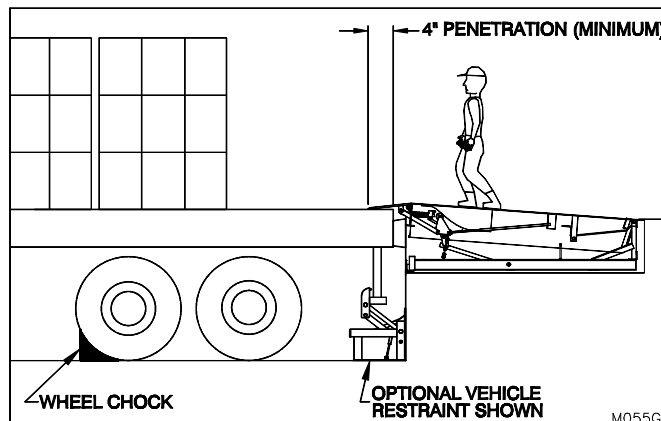


Figure 23: 4" Penetration

6. When loading or unloading is complete, or to handle end loads, operate the dock leveler by jogging the release chain until the lip clears the truck bed and falls to the pendant position. (Jogging the release chain reduces the momentum of the rising deck thus lessening the shock impact on the hold down box) Release the chain and walk the deck down to the stored position, assuring that the lip is behind the front angle. (See Figure 25: Lip Keeper on page 16)
7. Once loading and/or unloading is complete, remove wheel chocks or disengage the vehicle restraint. The truck may now leave the dock.

NOTE: If the truck being loaded or unloaded is below dock level, see End Loading Below Level Control Operation.

NOTE: In the event that the truck departs prior to the dock leveler being stored, one of the following methods are to be used to store the dock leveler:

- If the deck was 4" or more above dock level when the truck departed, the lip will fall to the pendant position. Walk the dock leveler down to its stored position assuring that the lip is behind the front angle. (See Figure 25: Lip Keeper on page 16)
- If the deck was less than 4" above dock level, the lip will fall to the pendant position in front of the front angle. To store the dock, jog the release chain and allow the dock leveler to rise a minimum of 4" above dock level to ensure the lip will clear the front angle. Walk the dock leveler down to its stored position, assuring that the lip is behind the front angle. (See Figure 25: Lip Keeper on page 16).

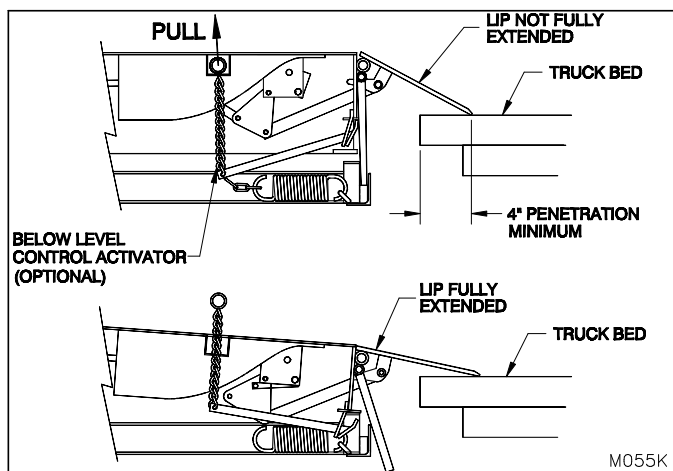


Figure 24: Below Level Control Operation

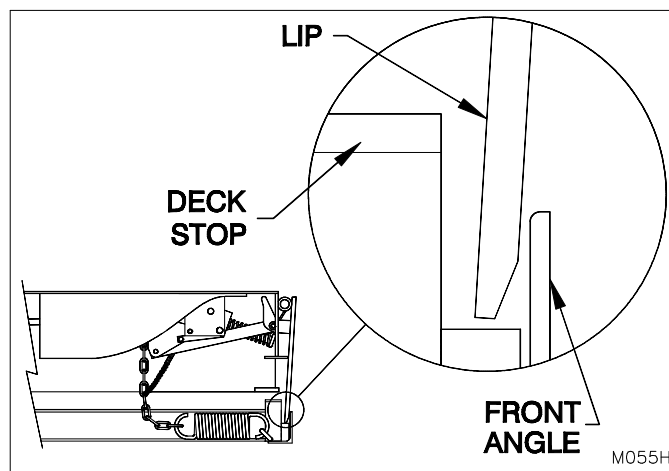


Figure 25: Lip Keeper

END LOADING/ UNLOADING INSTRUCTIONS

⚠ DANGER

WHEN THE CARGO AT THE REAR OF THE TRUCK DOES NOT ALLOW THE LIP TO FULLY EXTEND AND REST FIRMLY ON THE TRUCK BED AS OUTLINED UNDER THE OPERATING INSTRUCTIONS (SEE page 15), THEN THE END LOADING/ UNLOADING PROCEDURES MUST BE USED AS OUTLINED UNDER THE OPERATING INSTRUCTIONS.

DURING END LOADING/ UNLOADING THERE WILL BE A GAP PRESENT BETWEEN THE DOCK LEVELER AND THE TRUCK BED. ENSURE THAT THE FRONT WHEELS OF THE FORK TRUCK NEVER FALL INTO THE GAP BETWEEN THE DOCK LEVELER AND THE TRUCK.

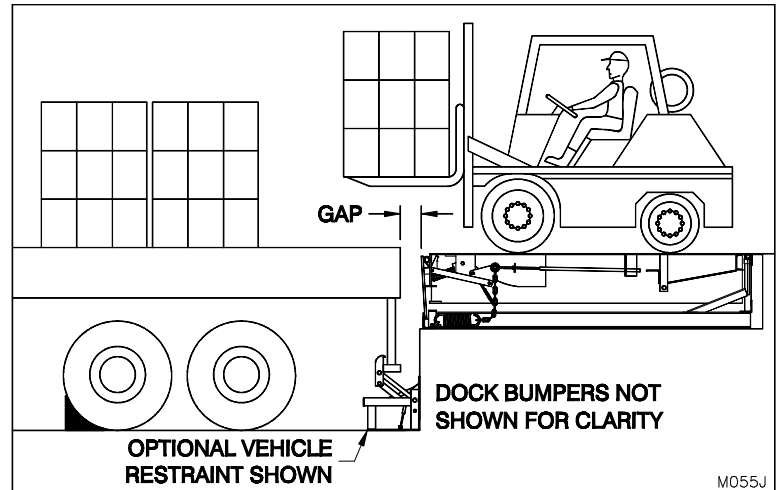


Figure 26: End Loading/ Unloading

WHEN UNLOADING, IMMEDIATELY AFTER THE END LOADS ARE REMOVED, THE DOCK LEVELER IS TO BE USED WITH THE LIP EXTENDED AS INDICATED UNDER THE OPERATING INSTRUCTIONS.

END LOADING BELOW LEVEL CONTROL OPERATION

Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.

To lower the dock leveler for end loading, without extending the lip:

1. Jog the release chain and allow the dock leveler to raise a minimum of 4" above dock level. Release the chain before the dock reaches its fully raised position.
2. Pull the optional Below Level Control activator. Walk forward on the dock leveler while continuing to pull the handle until your weight forces the dock leveler to lower to the fully below dock level position. (See Figure 27: Below Level End Loads on page 17)
3. Load or unload end loads.
4. To return the dock leveler to the stored position: Repeat #1 above and walk the dock leveler into its stored position, assuring the lip is behind the front angle. (See Figure 25: Lip Keeper on page 16)

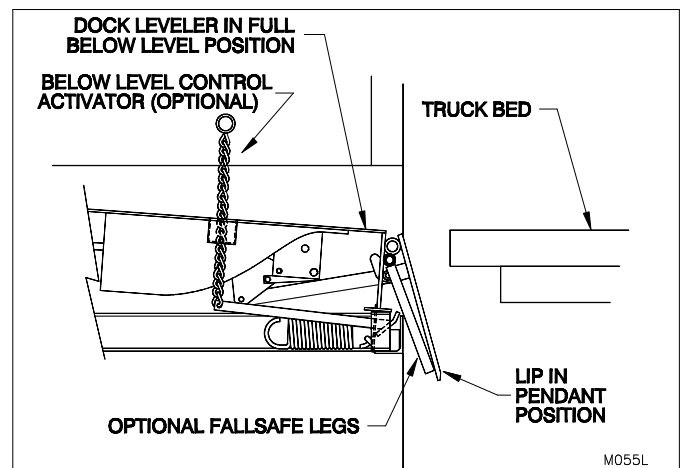


Figure 27: Below Level End Loads

SUPPORTING THE LEVELER FOR MAINTENANCE

⚠ DANGER

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

⚠ 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. NEVER GO BENEATH THE DOCK LEVELER FOR ANY REASON UNLESS THE LIP AND DECK ARE PROPERLY SUPPORTED BY THE MAINTENANCE STAND (SEE SUPPORTING THE LEVELER FOR MAINTENANCE on page 18). IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT NO LOAD OR TRAFFIC IS PLACED ON THE DECK WHILE THE MAINTENANCE STAND IS IN USE. THE CONSTRUCTION OF THE MAINTENANCE STAND IS INTENDED TO SUPPORT THE WEIGHT OF THE UNLOADED DOCK LEVELER ONLY.

⚠ DANGER

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 DECK BLOCKING PROCEDURES IS TO RISK THE SUDDEN AND UNCONTROLLED DESCENT OF THE DECK DURING MAINTENANCE OR INSPECTION. A FALLING DECK CAN CAUSE SEVERE INJURY OR DEATH.

When performing any maintenance, adjustments or troubleshooting on the dock leveler, always use the maintenance stand to support the leveler before going beneath the deck. (See SUPPORTING THE LEVELER FOR MAINTENANCE on page 18).

Raise the deck to its maximum raised height and fully extend the lip. Lift the maintenance stand out of the cradles and place on the front angle in a position so that it will not interfere with a deck beam. Carefully walk the deck down until the headboard makes contact with the maintenance stand. If the deck and lip did not properly position, raise the deck and reposition the maintenance stand.

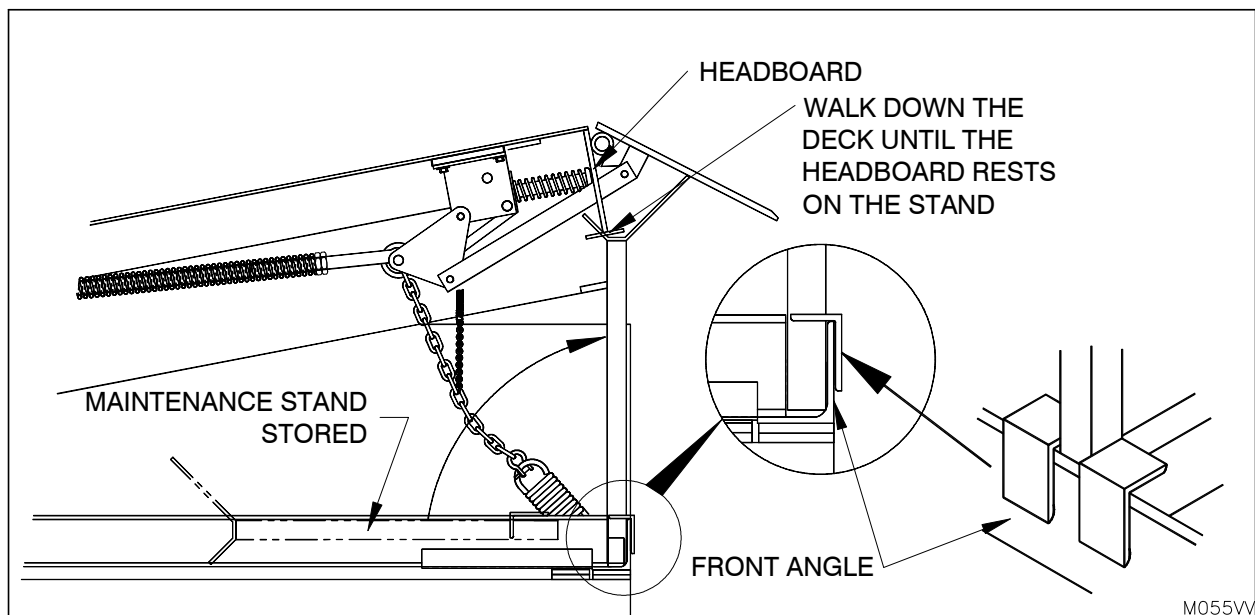


Figure 28: Supporting the Dock Leveler for Maintenance



NEVER WALK ON THE LIP TO LOWER THE DOCK LEVELER. (SEE Figure 22: Walk Down the Deck on page 16)

Also follow all safe working procedures and the SAFETY INFORMATION AND WARNINGS on page II.

If the Mechanical Dock Leveler is equipped with the Mechanical Fallsafe option, the following procedure must be used.

1. Raise the deck to its maximum raised height and fully extend the lip.
2. Lift the maintenance stand out of the cradles and place on the front angle in a position so that it will not interfere with a deck beam.
3. While holding the maintenance stand, pull down on the lip while guiding the front tang of the stand between the headboard and mechanical fallsafe crossbar (See Figure 29: Supporting the Dock Leveler with Mechanical Fallsafe on page 19).
4. Insert the pin through the hole in the maintenance stand bracket.

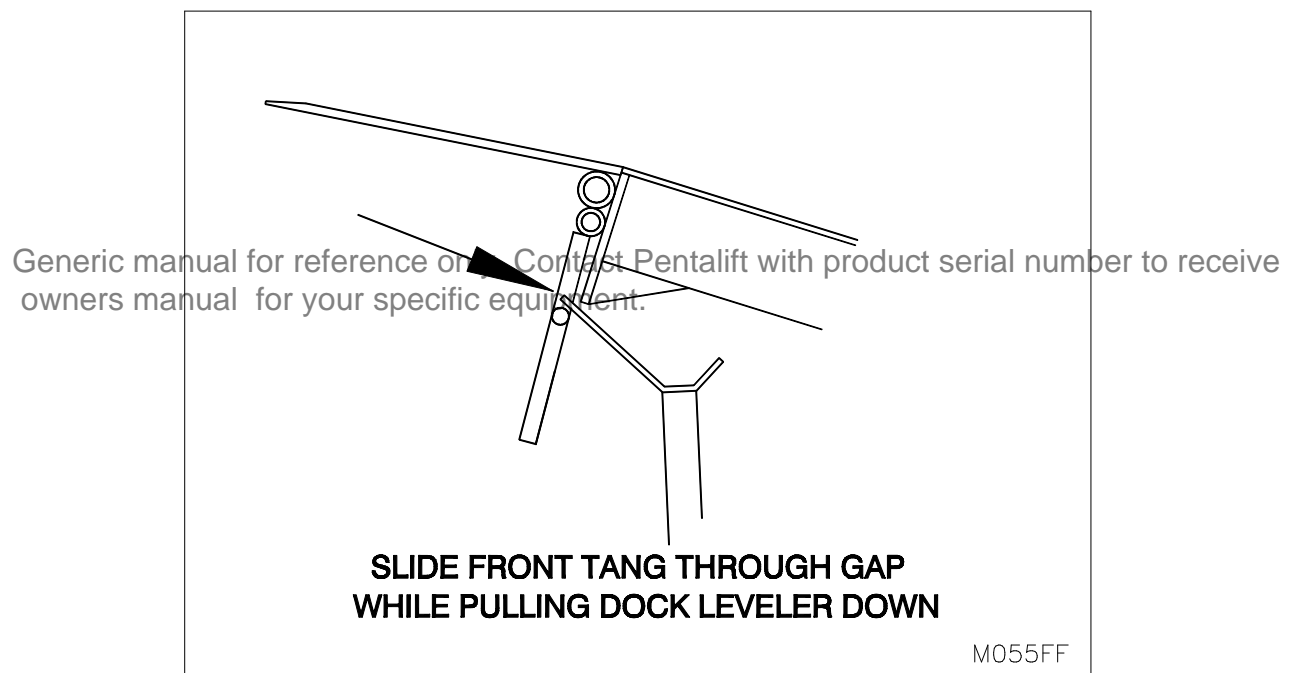


Figure 29: Supporting the Dock Leveler with Mechanical Fallsafe

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 ARE TO PERFORM INSPECTION OR MAINTENANCE AND SERVICE PROCEDURES.

⚠ 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. NEVER GO BENEATH THE DOCK LEVELER FOR ANY REASON UNLESS THE LIP AND DECK ARE PROPERLY SUPPORTED BY THE MAINTENANCE STAND (SEE SUPPORTING THE LEVELER FOR MAINTENANCE on page 18). IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT NO LOAD OR TRAFFIC IS PLACED ON THE DECK WHILE THE MAINTENANCE STAND IS IN USE. THE CONSTRUCTION OF THE MAINTENANCE STAND IS INTENDED TO SUPPORT THE WEIGHT OF THE UNLOADED DOCK LEVELER ONLY.

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

NOTE: Remove all debris from the dock leveler and pit area. Make sure that all lip hinges are free from debris.

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 Section, 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: Inspect equipment for loose bolts, missing cotter pins or spring pins. If any are found, replace missing cotter pins or spring pins and/or retighten loose bolts.

NOTE: At every maintenance interval, inspect the dock leveler for any damaged or worn parts. If any damaged or worn parts are found, discontinue use of the dock leveler and/or repair immediately. If the dock is equipped with Mechanical Fall Safe, check to ensure the spring bar is not bent or removed. (See spring bar on Figure 35: Optional Fallsafe Replacement Parts on page 28)

LUBRICATION: The recommended lubrication service interval is every 30 days or at a greater frequency as required in severe environments. **Dexron III Automatic Transmission Fluid is recommended.** Use EP2 Multi-purpose grease or equivalent to lubricate the area that makes contact between the lip yield clevis assembly and the yield mechanism assembly (See Figure 30: Lubrication Points on page 20). 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.

⚠ WARNING

DO NOT OIL OR GREASE ANY PART OF THE HOLD DOWN ASSEMBLY SHOWN ON page 25.

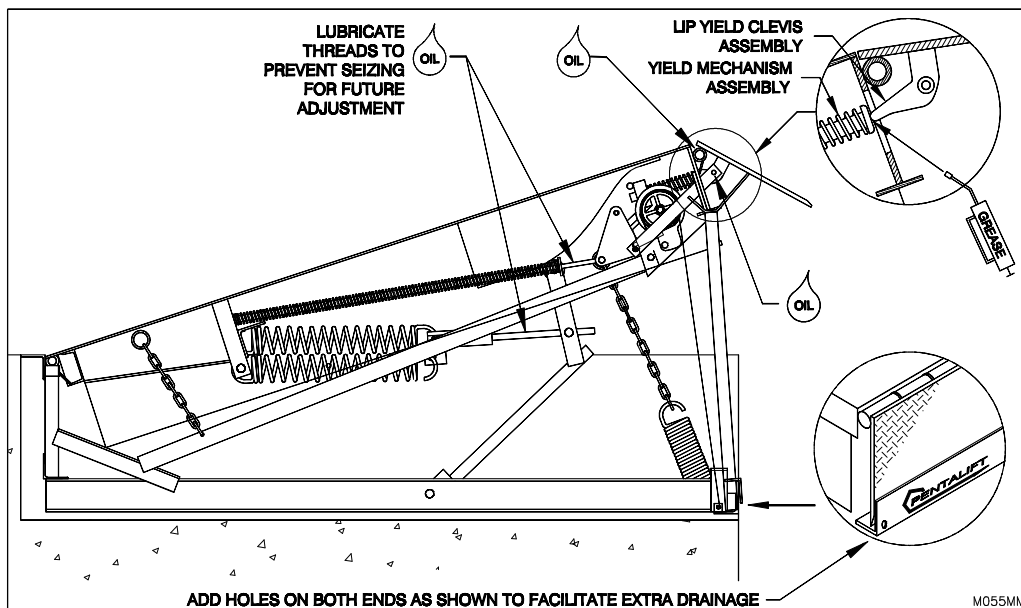


Figure 30: Lubrication Points

ADJUSTMENTS



ONLY TRAINED AND QUALIFIED PERSONNEL ARE TO 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 (AND OUTSIDE IF APPLICABLE) FOR SAFETY AND POST APPROPRIATE WARNING SIGNS. NEVER GO BENEATH THE DOCK LEVELER FOR ANY REASON UNLESS THE LIP AND DECK ARE PROPERLY SUPPORTED BY THE MAINTENANCE STAND (SEE SUPPORTING THE LEVELER FOR MAINTENANCE on page 18). IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT NO LOAD OR TRAFFIC IS PLACED ON THE DECK WHILE THE MAINTENANCE STAND IS IN USE. THE CONSTRUCTION OF THE MAINTENANCE STAND IS INTENDED TO SUPPORT THE WEIGHT OF THE UNLOADED DOCK LEVELER ONLY.

DO NOT PERFORM ANY ADJUSTMENTS UNTIL THE PIT AND LEVELER ARE CLEANED, CHECKED FOR OBSTRUCTIONS AND THAT ALL PROPER LUBRICATION IS COMPLETED. REFER TO MAINTENANCE AND LUBRICATION on page 20.

LIP ASSIST SPRING ADJUSTMENT

Proper adjustment of the lip assist spring is to allow the lip to fall smoothly and softly to its fully pendant position while having enough spring energy to fully extend and lock the lip when the dock leveler is activated. Too much compression of the lip assist spring will not allow the lip to fully retract behind the lip keepers when the dock leveler is in the stored position. Too little compression will not enable the lip to completely extend and lock on dock activation.

To adjust the lip assist spring, release the lock nut and advance the adjustment nut clockwise $\frac{1}{2}$ turn at a time (See Figure 31: Lip Spring Adjustment on page 21) to produce enough compression to extend and lock the lip while still allowing the lip to fully fall to the pendant position when released.

The length of the lip chain at the front of the dock leveler is preset at the factory. The length of this chain must not be altered. Lengthening of the chain will allow the deck to over-travel causing the lifting arm roller to roll off the back of the cam.

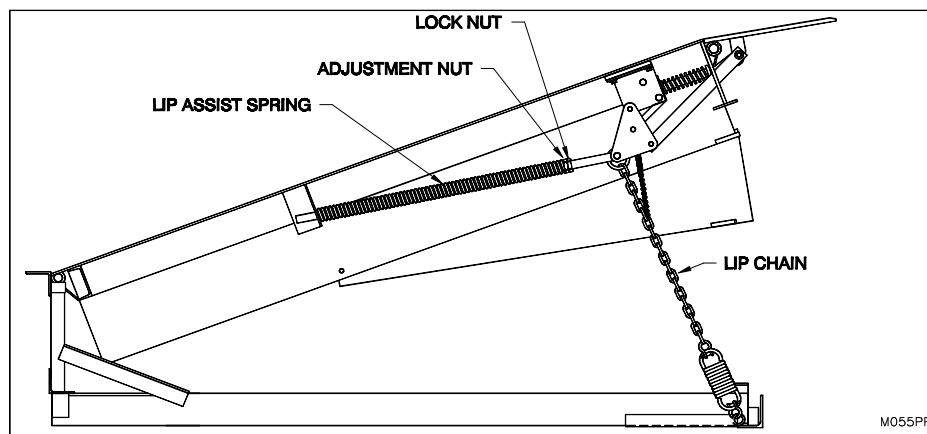


Figure 31: Lip Spring Adjustment

MAIN LIFT SPRING ADJUSTMENT

Do not attempt to adjust the Main Lift Springs until the Lip Assist Springs have been adjusted. Proper adjustment of the main lift spring is to provide enough spring tension to allow the deck to fully rise with sufficient speed to completely extend and lock the lip at the fully raised position. If the deck appears to have enough speed to fully raise the deck but the lip does not extend and lock refer to lip assist spring adjustment. Too much spring tension will make the leveler too hard to walk down into the working position, while too little spring tension will not allow the deck to fully rise or completely lock the lip. To adjust the spring tension, turn the coupling nut (See Figure 32: Main Lift Spring Adjustment on page 22) clockwise $\frac{1}{2}$ turn at a time. (Note: assure that the coupling nut maintains full thread contact with the spring plate weldment) Lower (walk) the leveler to the stored position. Activate the leveler and watch the action of the lip. If the deck appears to have enough speed to fully raise the deck but the lip does not extend and lock refer to lip assist spring adjustment.

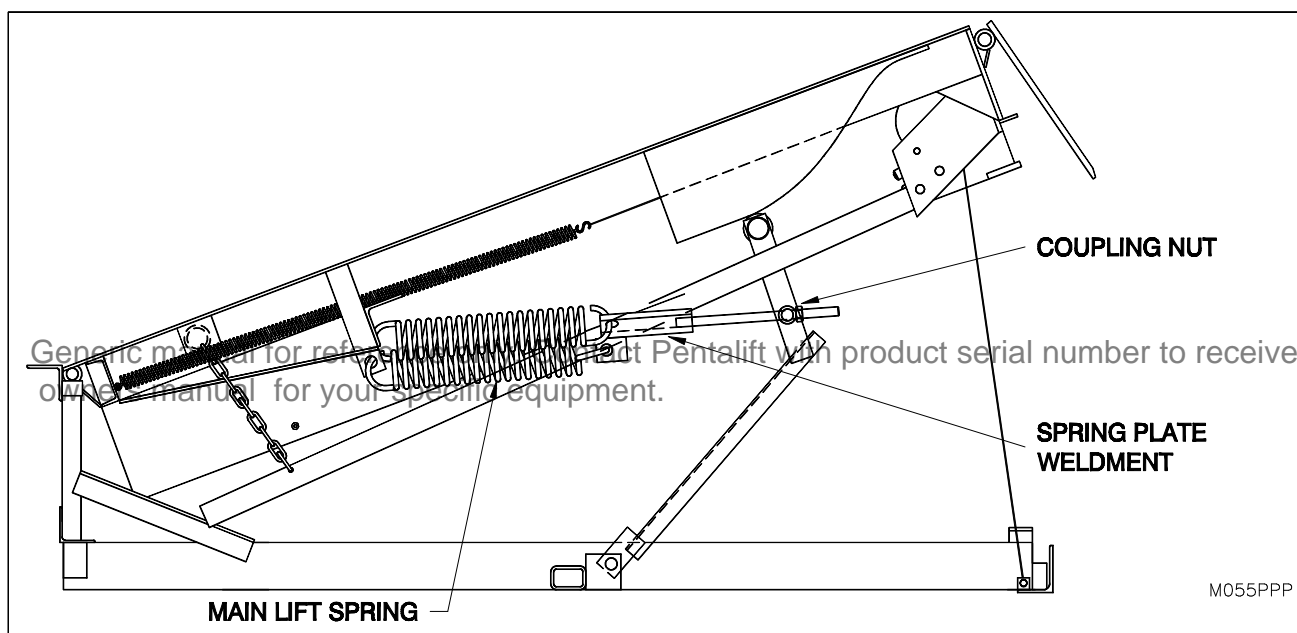


Figure 32: Main Lift Spring Adjustment

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 leveler during the warranty period. Do not risk voiding the warranty by tampering with the equipment.



ONLY TRAINED AND QUALIFIED PERSONNEL ARE TO 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 (AND OUTSIDE IF APPLICABLE) FOR SAFETY AND POST APPROPRIATE WARNING SIGNS. NEVER GO BENEATH THE DOCK LEVELER FOR ANY REASON UNLESS THE LIP AND DECK ARE PROPERLY SUPPORTED BY THE MAINTENANCE STAND (SEE SUPPORTING THE LEVELER FOR MAINTENANCE on page 18). IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT NO LOAD OR TRAFFIC IS PLACED ON THE DECK WHILE THE MAINTENANCE STAND IS IN USE. THE CONSTRUCTION OF THE MAINTENANCE STAND IS INTENDED TO SUPPORT THE WEIGHT OF THE UNLOADED DOCK LEVELER ONLY.

A mechanical dock leveler functions through the use of stored spring energy. On your Pentalift mechanical dock leveler there are two areas where spring energy is utilized; the first area is the main lift spring assembly. These springs are located in the center of the dock leveler; suspended from the underside of the deck to the back frame. The main lift springs pull on the cantilever lifting arm causing the dock leveler deck to be biased upwards. Too little tension on these springs will cause the dock leveler deck to raise with insufficient force to function properly. Too much tension on these springs will cause the dock leveler to lift with too much force and also be difficult to walk down. Refer to MAIN LIFT SPRING ADJUSTMENT on page 22.

The second area where spring energy is utilized is in the lip actuator assembly. The lip actuator assembly extends and locks the lip. Under-adjustment of the lip assist spring will cause the lip to be effectively too heavy for the extension mechanism. Over-adjustment of the lip assist spring will cause the lip to be effectively too light and may create a situation where the lip will not retract to its pendant position upon truck departure. Refer to LIP ASSIST SPRING ADJUSTMENT on page 21.

Your Pentalift mechanical dock leveler has been shipped from the factory adjusted for trouble free performance. It is important to understand that because this is a mechanical device, a “balance” between various mechanisms is required for proper operation. Improper adjustment can deteriorate the performance of your dock leveler and create dangerous situations. Never extend the length of the lip chain. **Any adjustments must be made by factory authorized service technicians.**

Deck Fails to Rise When Release Ring is Pulled.

- 1) Check release chain to ensure it is attached to release arm.
- 2) Check for debris or obstruction that may interfere with the operation of any moving parts.
- 3) If the problem cannot be solved, consult your authorized Pentalift representative.

Deck Fails to Rise Completely When Release Ring is Pulled.

- 1) When activating leveler, ensure release chain is pulled and held at full extension until the deck stops moving.
- 2) Main lift spring out of adjustment. Refer to Adjustment page.
- 3) Check for debris or obstruction that may interfere with the operation of any moving parts.
- 4) If the problem cannot be solved, consult your authorized Pentalift representative.

Deck Cannot Be Walked Down.

- 1) Check deck assembly for debris or obstruction.
- 2) Too much main lift spring tension. Refer to Adjustment page.
- 3) If the problem cannot be solved, consult your authorized Pentalift representative.

Deck Will Not Stay Down.

- 1) Call your authorized Pentalift representative.

Lip Will Not Return to Pendant Position.

- 1) Inspect lip spools for debris or obstruction.
- 2) Grease the lip. (See MAINTENANCE AND LUBRICATION on page 20)
- 3) Lip assist spring out of adjustment. Refer to the Adjustment page.
- 4) If the problem cannot be solved, consult your authorized Pentalift representative.

Lip Fails to Extend and Lock When Dock Leveler is Activated.

- 1) Inspect lip spools for debris or obstruction.
- 2) Check for debris or obstruction that may slow down deck from raising properly.
- 3) Ensure release chain is being pulled and held at full extension until the deck stops moving.
- 4) Lip assist spring out of adjustment. Refer to the Adjustment page.
- 5) If the problem cannot be solved, consult your authorized Pentalift representative.

Deck Will Not Stay Down All the Way or Creeps Up When Fork Truck Drives Over.

owners manual for your specific equipment.

- 1) Check for debris or obstruction in dock leveler pit.
- 2) 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 leveler 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.

HOLD DOWN BOX REPLACEMENT PARTS

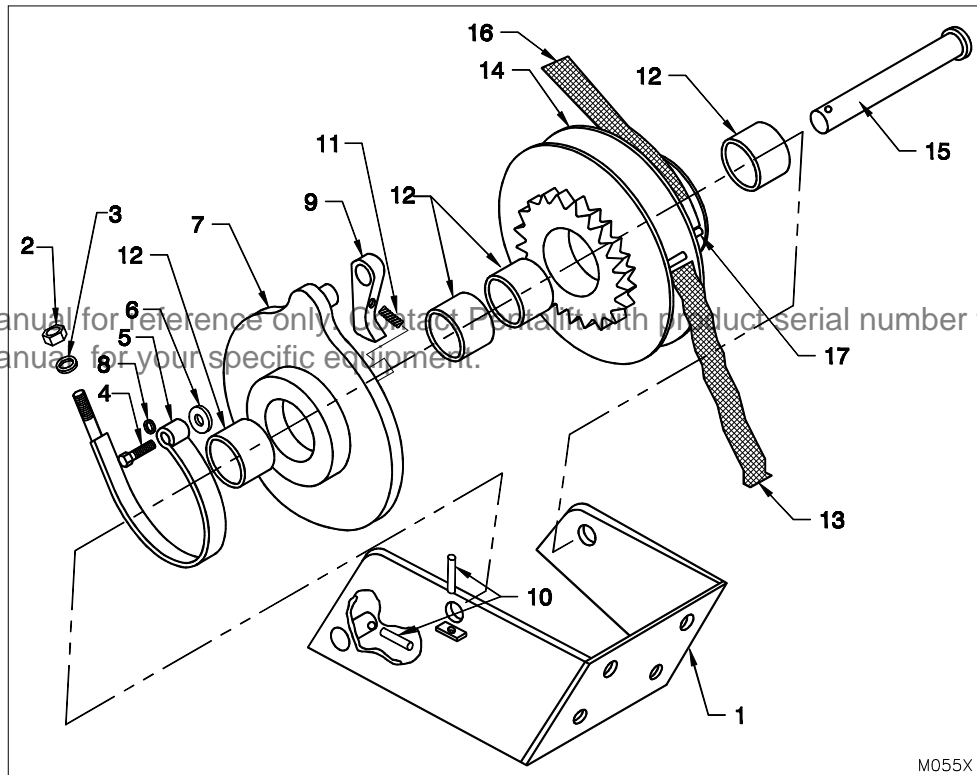


Figure 33: Hold Down Box Replacement Parts

Item #	Part No.	Description	Item #	Part No.	Description
1	802-0886	Housing	10	080-0001	Spring Pin
2	070-0059	Lock Nut	11	302-0674	Catch Spring
3	076-0025	Lock Washer	12	095-0000	Bushing
4	072-0121	Shear Pin	13	302-0420	Hold Down Strap
5	802-0963	Brake Band	14	302-0605	Drum
6	074-0018	Washer	15	302-0608	Shaft
7	302-0604	Drum Assembly	16	302-0417	Rewind Strap
8	072-0025	Lock Washer	17	087-0038	Plastic Dowel
9	302-0606	Hold Down Catch			

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

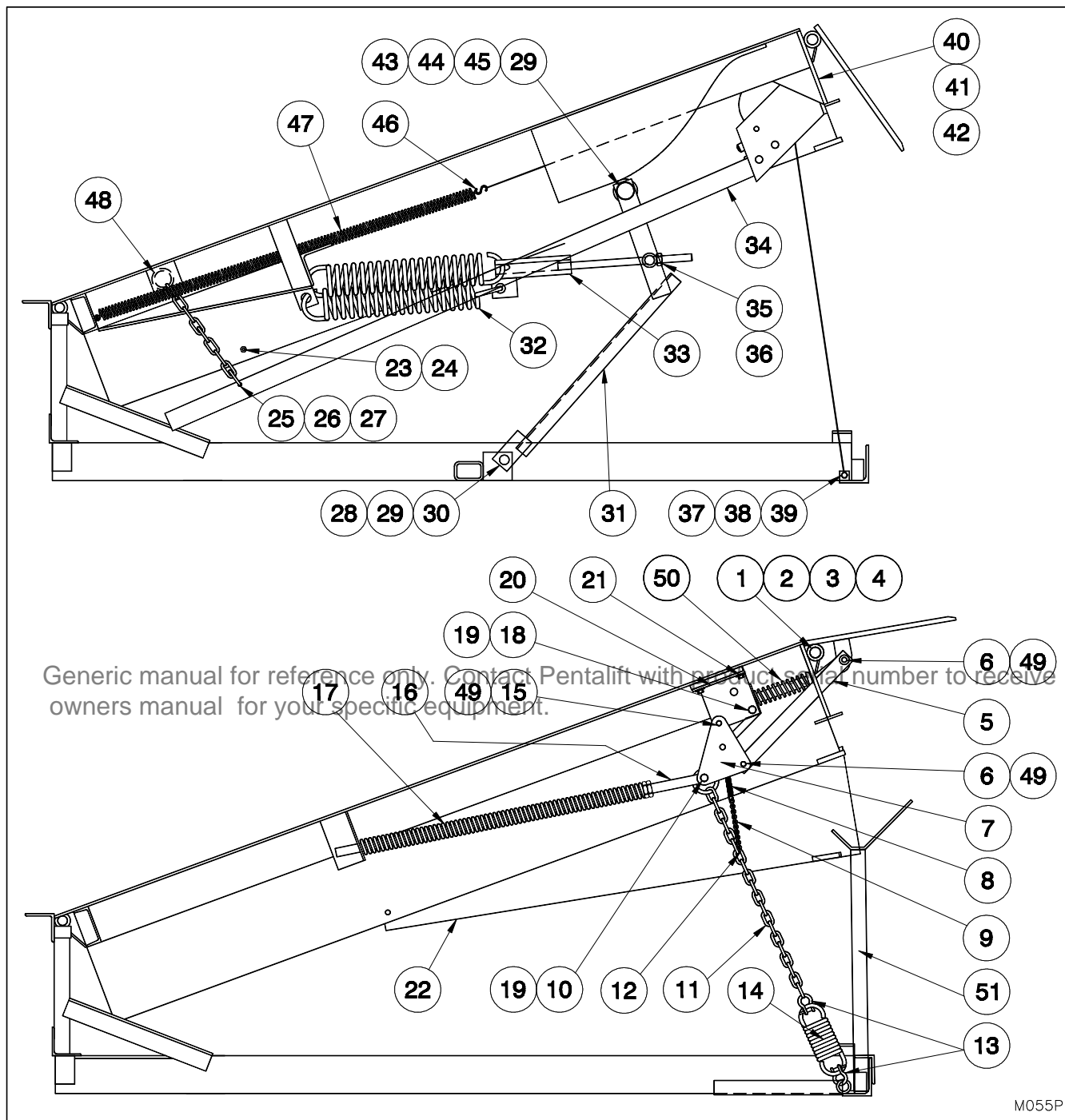


Figure 34: Dock Leveler Replacement Parts

DOCK LEVELER REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

<u>Item #</u>	<u>Part No.</u>	<u>Description</u>	<u>Item #</u>	<u>Part No.</u>	<u>Description</u>
1	302-0379	Lip Pin for 6 ft wide deck	25	072-0005	Release Chain Bolt
	302-0380	Lip Pin for 6 1/2 ft wide deck			
	302-0381	Lip Pin for 7 ft wide deck			
2	072-0018	Lip Pin Retaining Bolt	26	070-0018	Release Chain Nut
3	070-0010	Lip Pin Retaining Nut	27	074-0005	Release Chain Washer
4	074-0025	Lip Pin Retaining Washer	28	302-0415	Lifting Arm Pivot Pin
5	302-1010	Middle Linkage Arm	29	080-0001	Spring Pin
6	302-1023	Middle Linkage Pin	30	095-0037	Bushing
7	802-1830	Triangle Linkage Weldment	31	802-1463	Lifting Arm Weldment
8	302-1275	Extension Spring	32	302-0390	Lift Spring
9	302-1085	Extension Spring Chain	33	802-1446	Spring Plate Weldment (3)
10	302-1026	Lip Assist Rod Pin		802-1450	Spring Plate Weldment (4)
11	NOTE	Lip Chain for a		802-1454	Spring Plate Weldment (5)
	802-2306	6 ft long dock leveler	34	802-0604	6 ft Long Release Arm
	802-2307	8 ft long dock leveler		802-0603	8 ft Long Release Arm
	802-2308	10 ft long dock leveler		802-0602	10 ft Long Release Arm
12	087-0039	S-Hook	35	074-0025	Washer
13	087-0037	Shackle	36	070-0082	Coupling Nut
14	302-0951	Lip Chain Spring	37	072-0138	Bolt
15	302-1025	Triangle Linkage Pin	38	070-0015	Nut
16	802-1828	Lip Assist Weldment	39	074-0015	Washer
17	302-1004	Lip Assist Spring	40	072-0001	Bolt
18	302-1024	Yield Mechanism Pivot Pin	41	070-0049	Nut
19	082-0010	3/16" x 2" Cotter Pin	42	074-0018	Washer
20	802-1829	Bracket Box Weldment	43	302-0969	Roller
21	072-0232	Bracket Box Bolts	44	302-0968	Axle
22	NOTE	Full Range Toe Guards (Optional)	45	090-0006	Bearing
	302-1053	10 ft Upper	46	087-0016	S-Hook
	302-1054	10 ft Lower	47	302-0568	Spring
	302-1048	8 ft Upper	48	802-0605	Release Chain Weldment
	302-1051	6/8 ft Lower	49	082-0001	1/8" x 1" Cotter Pin
	302-1050	6 ft Upper	50	302-1167	Lip Yield Mechanism Spring
23	072-0095	Toe Guard Bolt	51	802-2716	Maintenance Stand
24	070-0022	Toe Guard Lock-Nut			

General manual for reference only. Contact Pentlift with product serial number to receive owners manual for your specific equipment.

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

OPTIONAL FALLSAFE REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

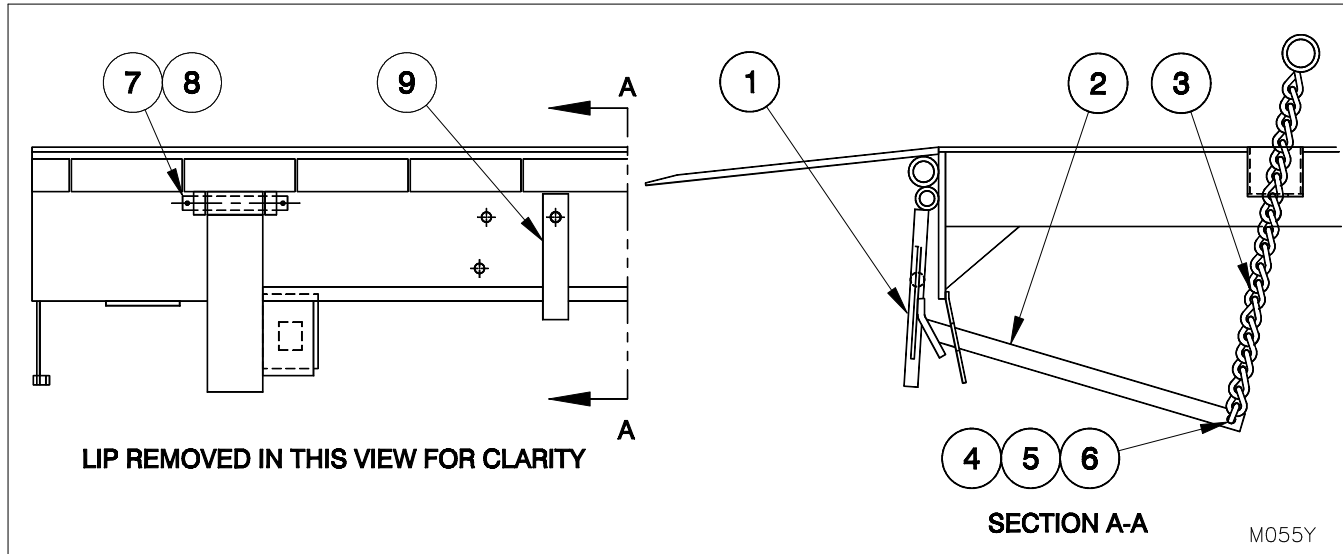


Figure 35: Optional Fallsafe Replacement Parts

<u>Item #</u>	<u>Part No.</u>	<u>Description</u>
1	802-2013	Fallsafe Leg Assembly
2	802-2015	Push Tube
3	802-1026	Chain Assembly
4	072-0201	Bolt
5	070-0056	Nut
6	074-0005	Washer
7	302-0634	Pin
8	082-0010	Cotter Pin
9	302-1154	Spring Bar

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

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Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.

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.

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NOTE: All Pentalift Equipment Corporation products are subject to design improvement through modification without notice.