PENTALIFT EQUIPMENT CORPORATION

MECHANICAL DOCK LEVELER
OWNERS MANUAL

Generic manual for reference only. Contact Pentalift with product serial number to receive owner's 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.

DANGER

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.

NOTE: A very high level of field issues with this type of equipment can be directly attributed to improper or incomplete installation. The installation instructions and information provided for this equipment is thorough. A step by step sequence for installation is provided. All steps must be followed and completed to provide a complete installation. Incomplete or improper installations can lead to equipment malfunction and / or damage, create safety issues and void warranties. Please follow all installation and set ups steps as indicated in the installation instructions and owner's manual. If you are unclear or uncertain regarding any of the steps contact your Pentalift representative for clarification. A copy of the completed steps listing with the sign off and photos of the installation as indicated at the conclusion of the installation instructions will be required prior to any Pentalift factory trouble shooting assistance.

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

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

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.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:	☐ Levelers, ☐ Vehicle Restraints, ☐ Seals/Shelters, ☐ Elevating Docks, ☐ 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
P.O. Box 1060
Guelph, Ontario
N1H 6N1

Attention: Service Department

Or Fax to (519) 763-2894

Generic manual for reference only. Contact Pe... number to receive owners manual for your spec... rial

SAFETY INFORMATION AND WARNINGS

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

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

CAUTION **CAUTION**, used with the safety alert symbol, indicates a potentially 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.

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 37). 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 **ALWAYS ENSURE 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.**

DANGER **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.**

DANGER **NEVER WALK ON THE LIP TO LOWER THE DOCK LEVELER ONTO A TRUCK BED. (SEE Figure 41: Walk Down the Deck on page 32)**

DANGER **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.**

WARNING **THE RATCHET HOLD DOWN CONTAINS A COMPRESSED SPRING WHICH WILL EJECT FROM THE TUBE IF OPENED AND COULD CAUSE SERIOUS INJURY OR DEATH. DO NOT TRY TO OPEN, TAKE APART OR TAMPER WITH THE TUBE. IF THIS PART IS DAMAGED, REMOVE AND REPLACE.**

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

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 40: Deck in Stored Position on page 31)

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. Anyone using or in the vicinity of this equipment must wear protective footwear with steel toes.

7. The deck surface must be kept clean and free from oil, debris, etc. Keep debris, etc. from underneath the unit.

8. Never use anything other than the operator's weight to lower the deck from its raised position.

9. Never stand between the dock and a truck.

10. Stay clear of operating path at all times.

11. Do not use the dock leveler while under the influence of drugs or alcohol.

12. 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.

13. If you have any questions, contact your immediate supervisor or your authorized Pentalift representative for assistance.

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

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.*

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.*

DANGER

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.

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

TABLE OF CONTENTS

PRODUCT REGISTRATION I
SAFETY INFORMATION AND WARNINGS II
OWNER RESPONSIBILITY IV
TABLE OF CONTENTS 1
PRECAUTIONARY LABELING 2
INSTALLATION INSTRUCTIONS FOR PIT MODEL MECHANICAL DOCK LEVELERS 5
- PREPARATION PRIOR TO INSTALLATION 5
- INSTALLATION INTO PIT 6
  - WELDING REFERENCE INFORMATION 8
  - WELDING REFERENCE CHARTS 8
- INSTALLATION INTO PIT USING SHIM KIT 12
- INSTALLATION USING FILLER PLATE 15
  - INSTALLATION INSTRUCTIONS FOR 3-INCH FILLER PLATE 15
  - INSTALLATION INSTRUCTIONS FOR 4-INCH FILLER PLATE 16
  - FILLER PLATE INSTALLATION INSTRUCTIONS (WITH TWO TUBES & TWO SUPPORT BARS) 17
  - FILLER PLATE INSTALLATION INSTRUCTIONS (WITH TWO TUBES & FOUR SUPPORT BARS) 18
- INSTALLATION PICTURES 20

INSTALLATION INSTRUCTIONS 22
POUR-IN DOCK LEVELERS 22
- PREPARATION PRIOR TO INSTALLATION 22
- INSTALLATION PICTURES 27

BREAK-IN AND PERFORMANCE CHECK 28
OPERATING INSTRUCTIONS 30
HYDRAULIC CONVERSION KIT - FOR CURRENT MECHANICAL DOCK LEVELER OWNER 33
- END LOADING/ UNLOADING INSTRUCTIONS 36
- END LOADING BELOW LEVEL CONTROL OPERATION 36

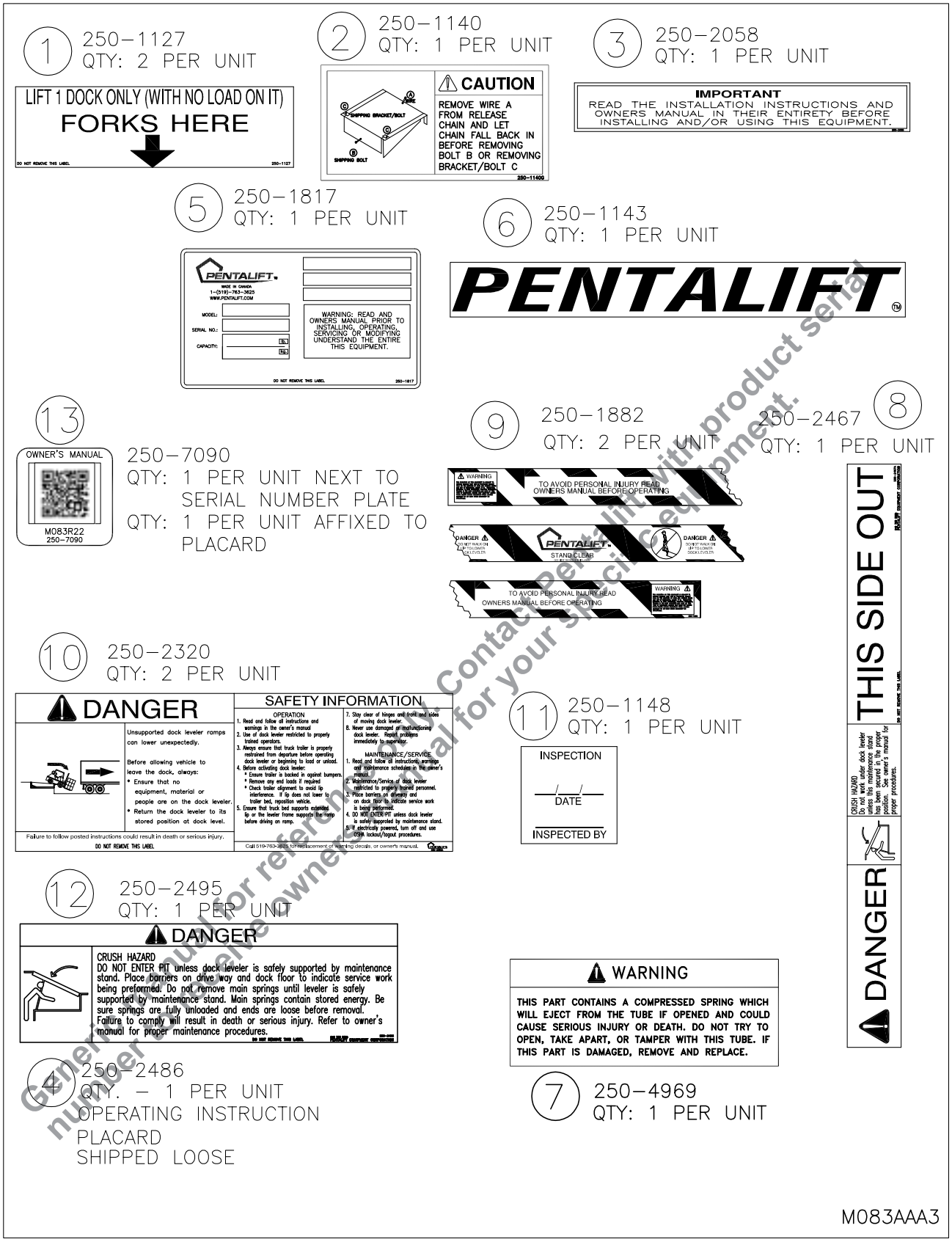
SUPPORTING THE LEVELER FOR MAINTENANCE 37
MAINTENANCE AND LUBRICATION 39
  - NORMAL SEQUENCES OF STEPS TO ADJUST MECHANICAL DOCK LEVELER THAT IS NOT PROPERLY FUNCTIONING 45
- ADJUSTMENTS 45
  - LIP ASSIST SPRING ADJUSTMENT 46
  - adjustmentS TO LIP AND LIFT SPRINGS RELATIVE TO RATCHET HOLD DOWN 49
  - MAIN LIFT SPRING ADJUSTMENT 49
  - LIP YIELD MECHANISM 50

TROUBLE SHOOTING GUIDE 52
REPLACEMENT PARTS 54
- DOCK LEVELER REPLACEMENT PARTS 55
- OPTIONAL FALLSAFE REPLACEMENT PARTS 56

LIST OF ILLUSTRATIONS 57
PENTALIFT EQUIPMENT CORPORATION WARRANTY 59

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

PRECAUTIONARY LABELING



Generic manual for reference only. Contact Pentalift with product serial number and/or owner's manual for your specific equipment.

Figure 1: Precautionary Labels

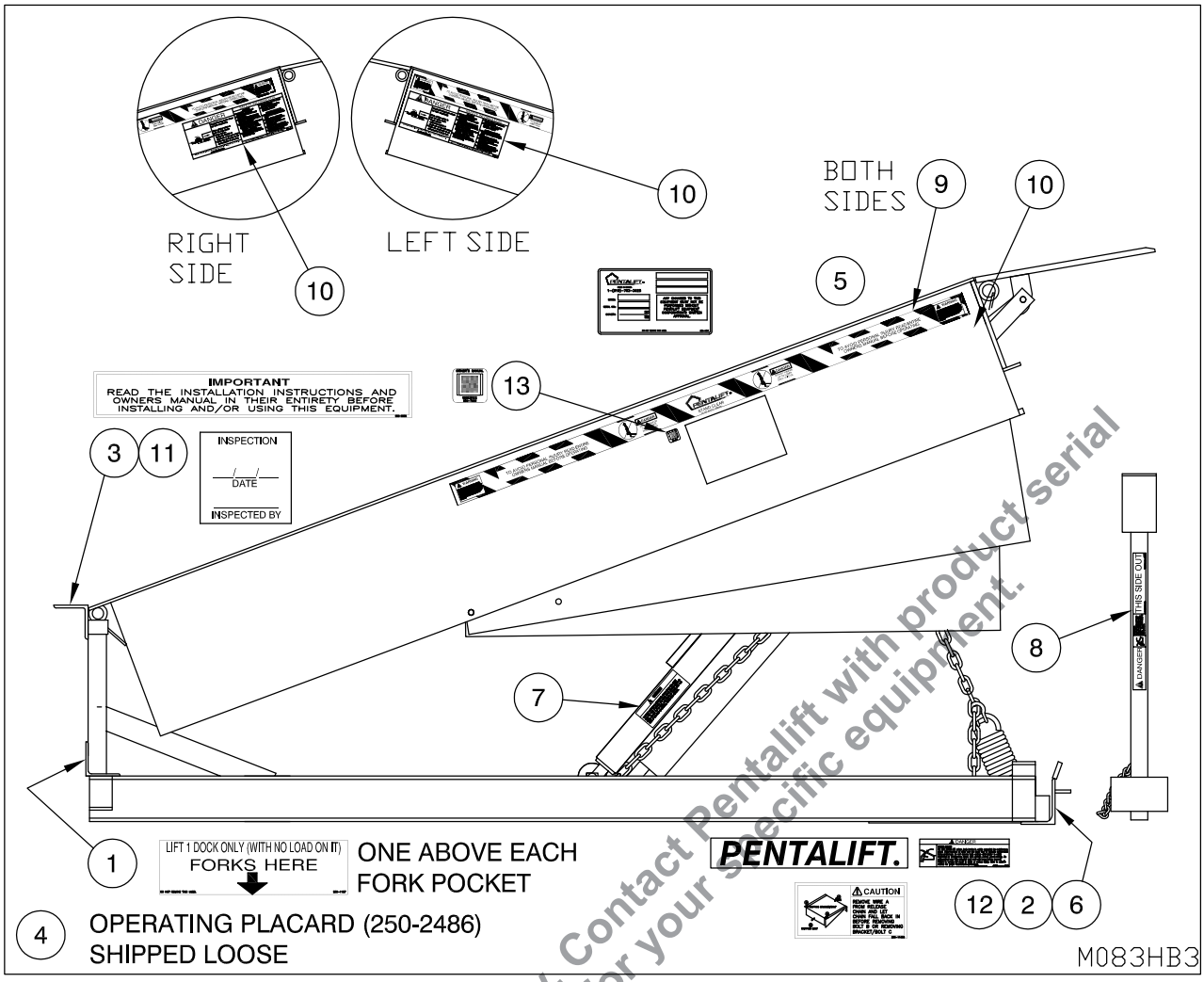


Figure 2: Precautionary Label Locations

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

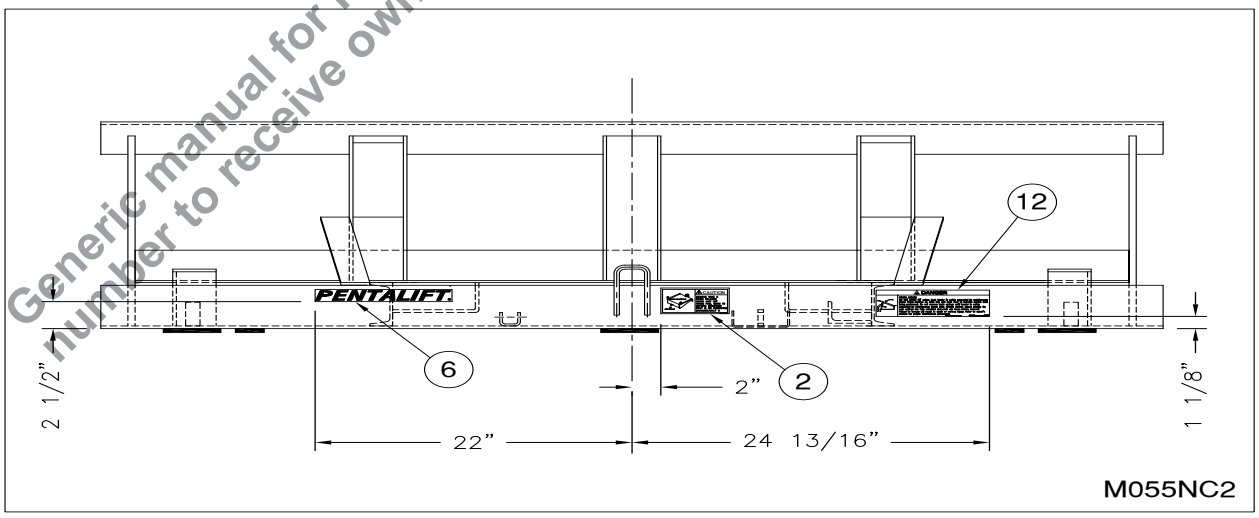


Figure 2a: Precautionary Label Locations - Front Angle

Be sure that all labeling is in place and intact when the unit is received. If any of the precautionary labels 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: Precautionary Label 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 precautionary labeling remains legible and in its original position throughout the life of the product. It is also the owner's responsibility to ensure 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 precautionary labels 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 39).

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

	ITEM NO.	PART NO.	QTY/UNIT	DESCRIPTION
Precautionary Labels	3	250-2058	1	"IMPORTANT Read the installation..."
	5	250-1817	1	Specification Plate
	6	250-1143	1	"PENTALIFT"
	7	250-4969	1	"CONTAINS A COMPRESSED SPRING
	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	250-7090	1	"DECAL;BARCODE;MD"
Installation	1	250-1127	2	Forks Here
	2	250-1140	1	"CAUTION Remove wire..."
	4	250-2486	1	Operating Instructions (Wall Mounted)
	13	250-7090	1	"DECAL;BARCODE;MD" (add to placard)

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

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

INSTALLATION INSTRUCTIONS FOR PIT MODEL MECHANICAL DOCK LEVELERS

DANGER

- **WIRING MUST BE DONE BY A QUALIFIED ELECTRICIAN.**
- **ALWAYS USE APPROPRIATE LOCK-OUT PROCEDURES DURING ANY ELECTRICAL INSTALLATIONS.**
- **ENSURE SUPPLY VOLTAGE IS CORRECT.**
- **ON 3 PHASE UNITS ASSURE PHASE POLARITY IS CORRECT.**
- **ALWAYS OBSERVE ALL APPLICABLE ELECTRICAL CODES.**

NOTE: A very high level of field issues with this type of equipment can be directly attributed to improper or incomplete installation. The installation instructions and information provided for this equipment is thorough. A step by step sequence for installation is provided. All steps must be followed and completed to provide a complete installation. Incomplete or improper installations can lead to equipment malfunction and / or damage, create safety issues and void warranties. Please follow all installation and set ups steps as indicated in the installation instructions and owner's manual. If you are unclear or uncertain regarding any of the steps contact your Pentalift representative for clarification. A copy of the completed steps listing with the sign off and photos of the installation as indicated at the conclusion of the installation instructions will be required prior to any Pentalift factory trouble shooting assistance.

IMPORTANT

PREPARATION PRIOR TO INSTALLATION

NOTE: Perform installation instructions in the same sequence as they are listed below. To accommodate a complete installation there is a blank space provided beside each numbered step in the installation instructions. Please check off the steps sequentially as they are completed. This will assist in confirming a complete installation.

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 37) 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

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 UNEXPECTLY. 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.

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

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 13: Curb Angle Force Chart on page 11.

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 12.

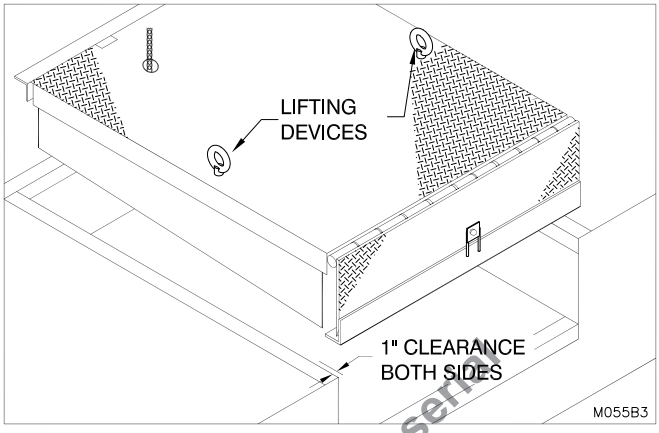


Figure 3: Hoist Using Lifting Devices

INSTALLATION INTO PIT

5. __ Hoist leveler into pit. (See Figure 3: Hoist Using Lifting Devices on page 6) Position the leveler into the pit opening.

6. __ **DANGER** **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.**

7. __ **DANGER** **INADEQUATE LIFTING EQUIPMENT OR PRACTICES CAN CAUSE A LIFTED LOAD TO FALL UNEXPECTLY. 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.**

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

8. __ 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.

9. __ 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 7)

10. __ 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.

DANGER **ALWAYS ENSURE 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. __ Support the dock leveler in accordance with instructions in the SUPPORTING THE LEVELER FOR MAINTENANCE on page 37.

12. __ 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 7) Carefully lower the toe guard and avoid pinch points.

13. __ 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 7 for shim placement) Tack weld into position.

NOTE: Shims must be positioned to support the entire base of deck stops, fallsafe supports, and rear frame members.

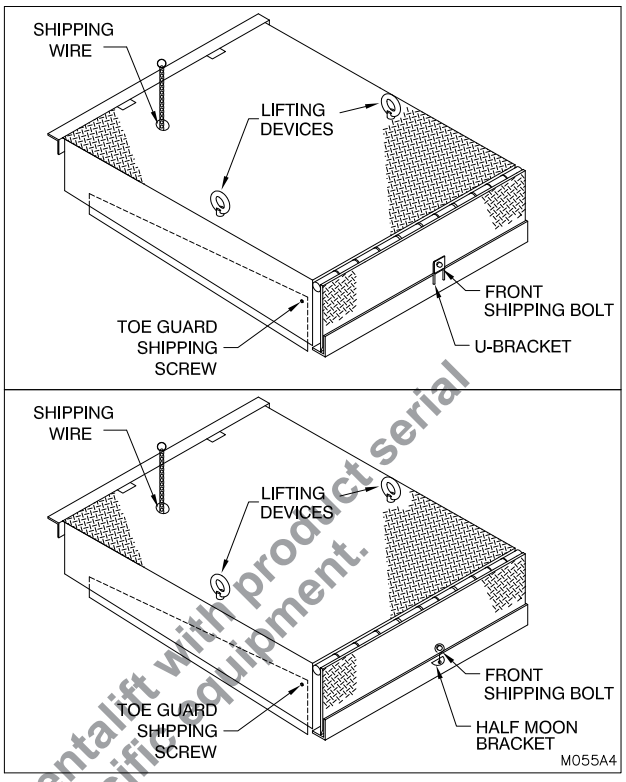


Figure 4: Shipping Wire, Bolts and Lifting Devices

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

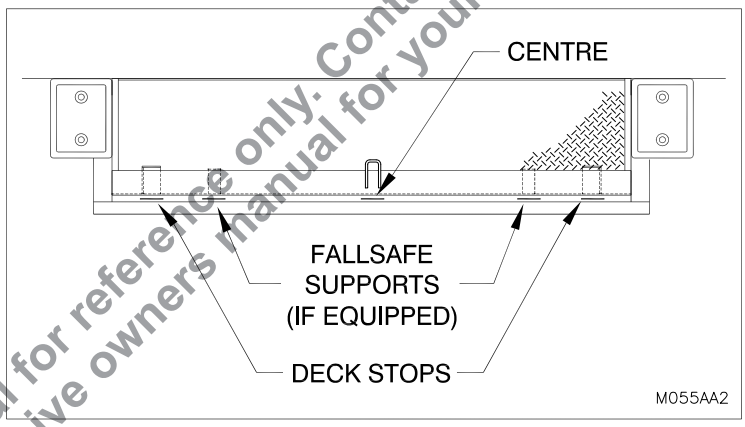


Figure 5: Shim Front Frame

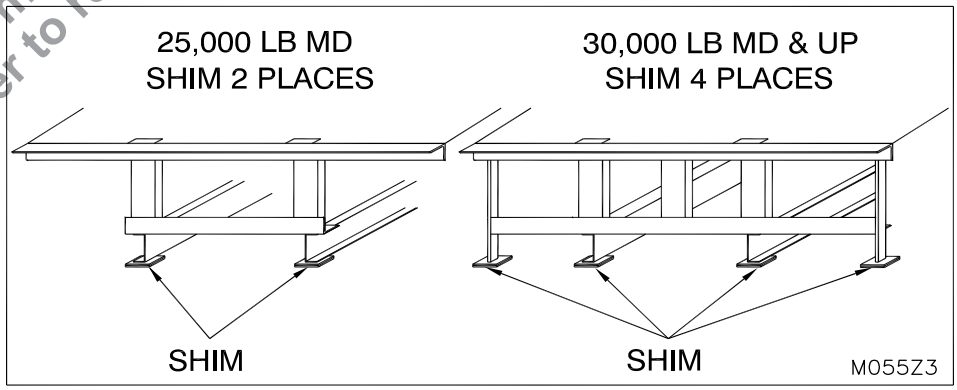


Figure 6: Shim Rear Frame

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.

WELDING REFERENCE CHARTS

Rated Capacity	*"A" Dimension,* **Figure 12***, page 7*
25,000 lb 30,000 lb 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

14. __ 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 7 for shim placement.)

Note: Mechanical dock levelers do cant side to side. This is normal. Do not unevenly shim the front frame angle to accomodate.

15. __ 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.

16. __ Make sure the rear pit curb angle is straight and level prior to installation. Make sure the dock leveler rear frame angle (or flat bar) is straight to match the rear pit curb angle. If the rear frame angle (or flat bar) is not straight then force the angle back to match the straight rear pit curb angle using a wedging device between the frame angle and the back of the deck as shown in Figure 7: Wedging the Rear Frame Angle to the Rear Pit Curb Angle on page 8. Tack weld the straightened angle to the rear pit curb angle. Repeat the wedging process as required over the length for the rear frame angle.

17. __ Weld back angle of dock leveler to rear curb angle as shown in Figure 8: Weld to Rear Curb Angle on page 8 using the Welding Reference Information and Welding Reference Charts as a guide.

18. __ Raise the dock leveler and support the deck and lip from closing. (See SUPPORTING THE LEVELER FOR MAINTENANCE on page 37)

19. __ Weld front shim stacks securely to front curb angle (3" long weld) and to front frame of dock leveler. (See Figure 9: Weld to Front Curb Angle on page 9) Tack rear side of shims as well.

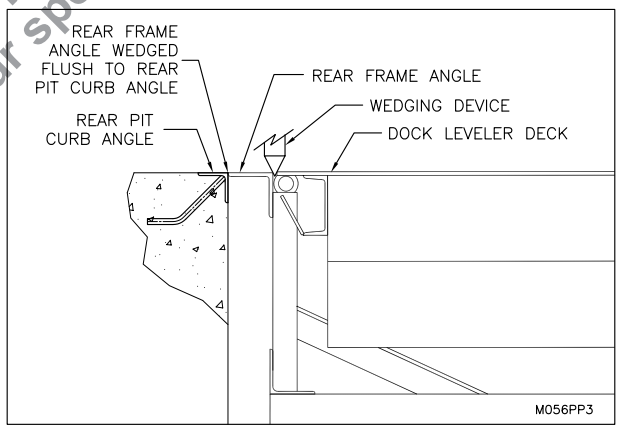


Figure 7: Wedging the Rear Frame Angle to the Rear Pit Curb Angle

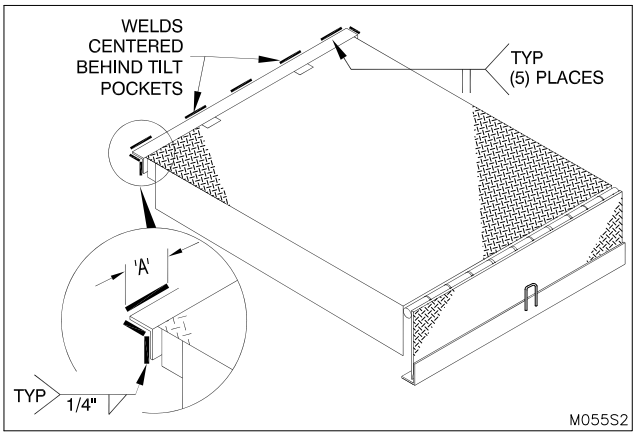


Figure 8: Weld to Rear Curb Angle

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

20. __ Weld the rear shim stacks to the frame of the dock leveler. (See Figure 6: Shim Rear Frame on page 7)

21. __ 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 10: Shim Beneath Lifting Arm Bracket on page 9) Weld shim stacks to dock leveler frame.

NOTE: All shim stacks must be welded together.

22. __ Once the leveler has been fully installed, remove the top flange of the lifting angle. (See Figure 11: Top Flange Removal Diagram on page 9)

23. __ Tighten the lip chain shackles. (See Figure 12: Tighten the Shackle on page 10)

24. __ Weld or bolt bumpers in place.

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

26. __ Clean and paint the welds using Tremclad High Performance Rust Enamel (Gloss Dark Machine Grey).

27. __ Lubricate and test in accordance with the Break-in and Performance Check on page 28.

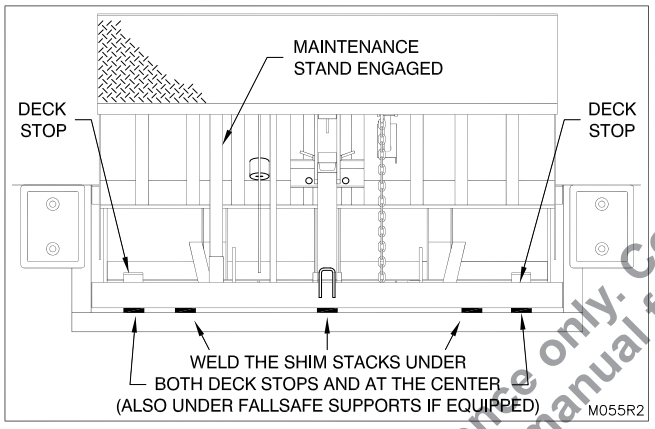


Figure 9: Weld to Front Curb Angle

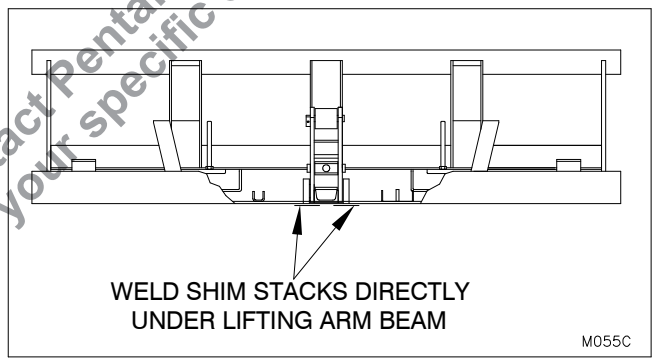


Figure 10: Shim Beneath Lifting Arm Bracket

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

28. __ 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.

29. __ Meet with the facility manager or maintenance foreman and turn over this maintenance manual with the reminder that instructions in the manual must be followed.

30. __ Confirm that all steps of the installation instructions have been completed. Fill out the following information.

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.**

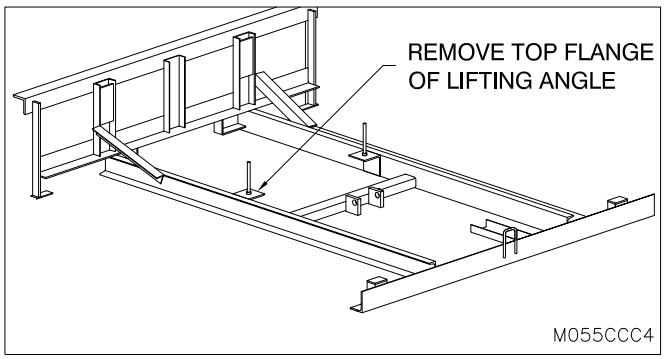


Figure 11: Top Flange Removal Diagram

Note On Capacity: The dock leveler capacity indicated on the serial plate must be divided with a factor to accommodate dynamic loading factors. For more information see Pentalift document - Dock Leveler Capacity – Understanding Loading Dock Capacity at http://www.pentalift.com/dock-leveler-capacity.php

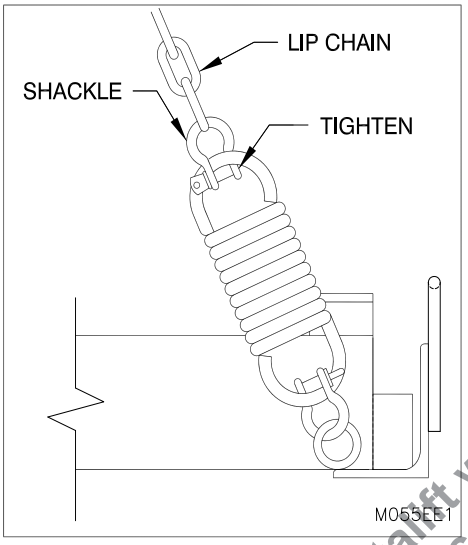


Figure 12: Tighten the Shackle

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

Installer Name (Print) _____

Installer Signature _____

Date Installation Completed _____

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

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

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

Figure 13: 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”.

1. __ For 3” or 4” shim kits, weld two rear shims (see Table A) to a single shim plate each (3” x 4” x minimum ASTM A-36 or CSA G40.21 supplied by others) as shown in Figure 14: Rear Shim (4” Shim Kit Shown) on page 12. 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 the 25,000 lb model, 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.

2. __ 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 16: Rear Shim Location (4” High Rear Shim Shown) on page 13)

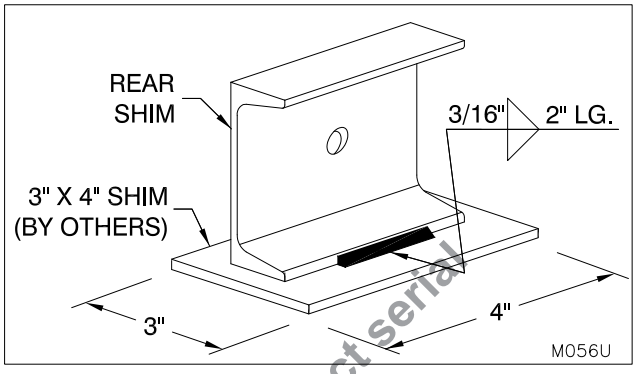


Figure 14: Rear Shim (4” Shim Kit Shown)

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.

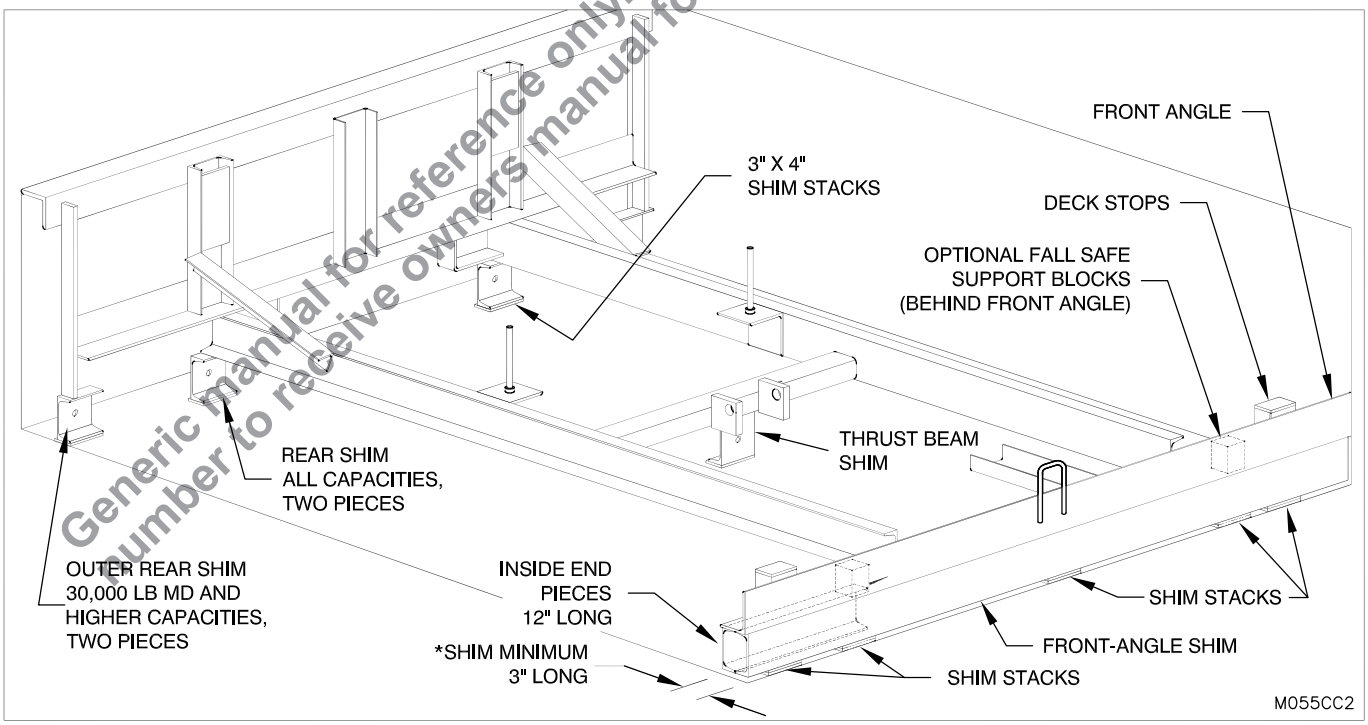


Figure 15: C-channel Shims

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 15: C-channel Shims on page 12).

4. __ Hoist the leveler into the pit with chain using appropriate lifting devices (See Figure 17: Hoist Leveler with Chain on page 13) 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 17: Hoist Leveler with Chain on page 13).

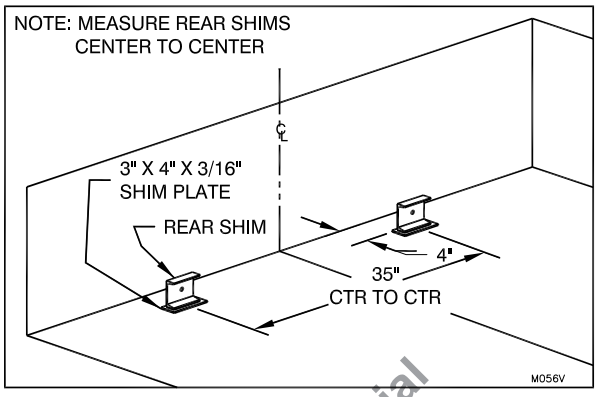


Figure 16: Rear Shim Location (4” High Rear Shim Shown)

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 17: Hoist Leveler with Chain on page 13).

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 shim assembly to the dock leveler frame.

10. __ 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 17: Hoist Leveler with Chain on page 13).

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.

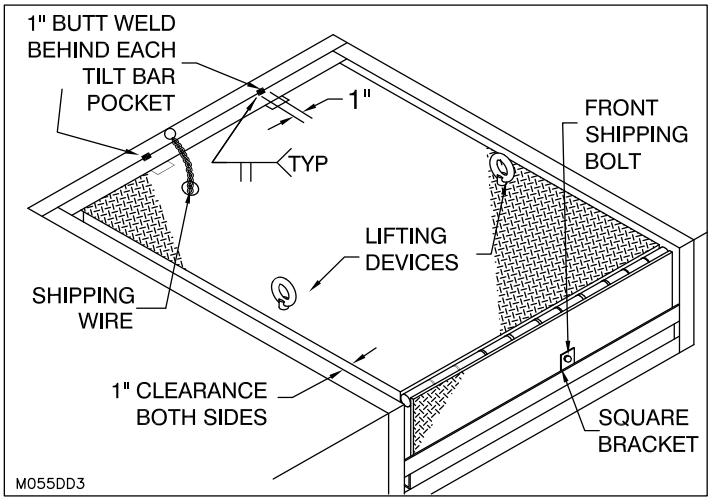


Figure 17: Hoist Leveler with Chain

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

DANGER **ALWAYS ENSURE 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.**

13. __ Add shims (3” x 4” 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 15: C-channel Shims on page 12 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 8: Weld to Rear Curb Angle on page 8.

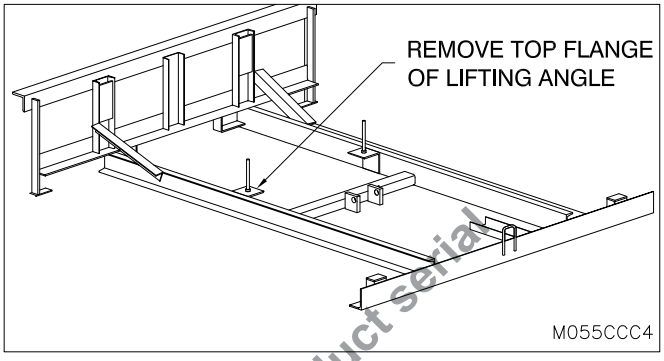


Figure 18: Top Flange Removal Diagram

DANGER **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 37.

17. __ Add shims (3” x 4” 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 19: 30,000 lb + Outer Rear Shims (4” Shim Kit Channel Shim Shown) on page 14 and shim until they are fully supported. Weld all of the shims to each other as well as to the dock leveler frame.

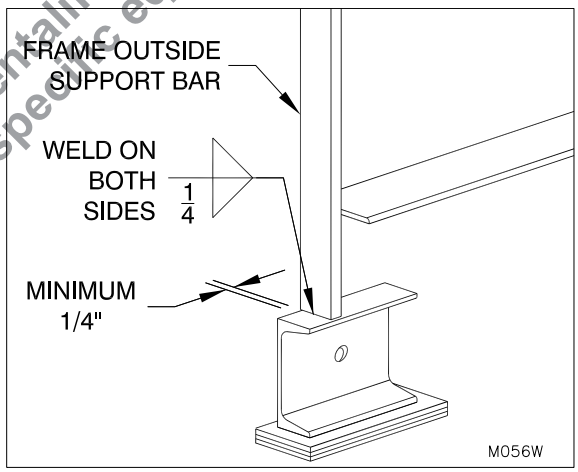


Figure 19: 30,000 lb + Outer Rear Shims (4” Shim Kit Channel Shim Shown)

19. __ Weld the remaining shim beneath the lifting arm bracket, centered across the width of the beam and flush to the front. (See Figure 15: C-channel Shims on page 12) 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 18: Top Flange Removal Diagram on page 14)

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 6) Carefully lower the toe guard and avoid pinch points.

22. __ Tighten the lip chain shackle. (See Figure 12: Tighten the Shackle on page 10)

Generic manual for reference only; contact Pentalift with product serial number to receive owner's manual for your specific equipment.

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 using Tremclad High Performance Rust Enamel (Gloss Dark Machine Grey).

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 28.

28. __ Meet with the facility manager or maintenance foreman and turn over this maintenance manual with the reminder that instructions in the manual must be followed.

29. __ Confirm that all steps of the installation instructions have been completed. Fill out the following information.

Installer Name (Print) _____

Installer Signature _____

Date Installation Completed _____

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.**

Note On Capacity: The dock leveler capacity indicated on the serial plate must be divided with a factor to accommodate dynamic loading factors. For more information see Pentalift document - Dock Leveler Capacity – Understanding Loading Dock Capacity at http://www.pentalift.com/dock-leveler-capacity.php

DANGER **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 Pentalift with product serial number to receive owners manual for your specific equipment.

INSTALLATION USING FILLER PLATE

INSTALLATION INSTRUCTIONS FOR 3-INCH FILLER PLATE

1. __ Before installing the filler plate and dock leveler, read the INSTALLATION INSTRUCTIONS FOR PIT MODEL MECHANICAL DOCK LEVELERS section of the owner's manual on page 5.

2. __ Position the 3 inch square tube against the rear curb angle and flush to the top surface of the curb angle.

3. __ Weld the ends of the square tubing to the side curb angle (see Figure 20: Welding the 3 X 3 Square Tubing to the Curb Angles on page 16). Add vertical welds at the ends of the tube between tube surface and side curb angle surface.

4. __ Note the centerline positions of the tilt bar pockets on the dock leveler.

5. __ Transfer the centerline positions to the square tube.

6. __ Weld 1 inch butt weld at the mark off locations on the square tube

7. __ Based on the dock leveler's rated capacity, see WELDING REFERENCE CHARTS on page 8 to determine the length of the weld for dimension "A".

8. __ Refer to the rest of the installation section of the owner's manual to install the dock leveler.

9. __ Confirm that all steps of the installation instructions have been completed. Fill out the following information.

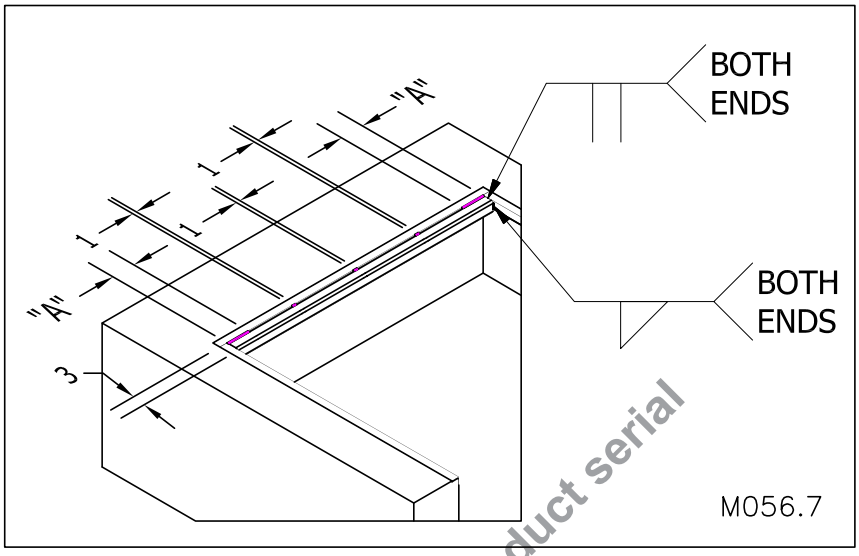


Figure 20: Welding the 3 X 3 Square Tubing to the Curb Angles

Installer Name (Print) _____

Installer Signature _____

Date Installation Completed _____

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

INSTALLATION INSTRUCTIONS FOR 4-INCH FILLER PLATE

1. __ Before installing the filler plate and dock leveler, read the INSTALLATION INSTRUCTIONS FOR PIT MODEL MECHANICAL DOCK LEVELERS section of the owner's manual on page 5.

2. __ Position the 4 X 3 inch rectangular tube against the rear curb angle and flush to the top surface of the curb angle.

3. __ Weld the ends of the rectangular tubing to the side curb angle (see Figure 21: Welding the 4 X 3 Rectangular Tubing to the Curb Angles on page 16). Add vertical welds at the ends of the tube between tube surface and side curb angle surface.

4. __ Note the centerline positions of the tilt bar pockets on the dock leveler.

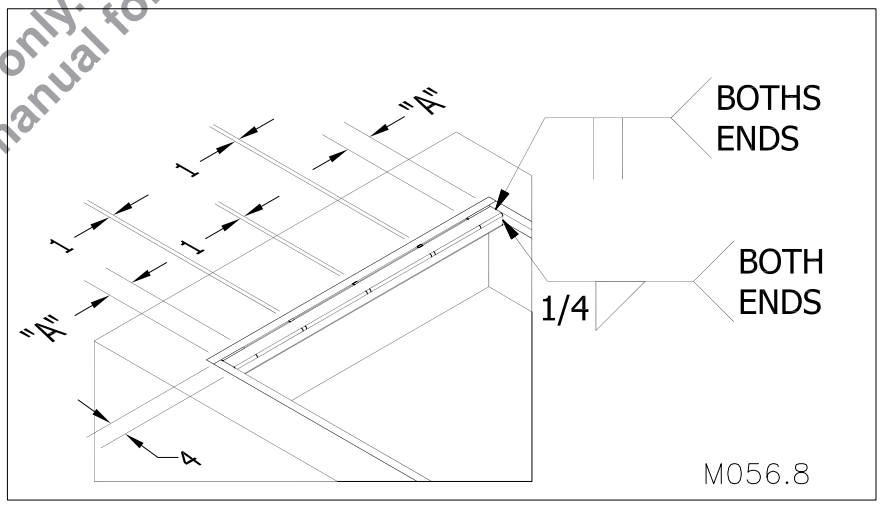


Figure 21: Welding the 4 X 3 Rectangular Tubing to the Curb Angles

5. __ Transfer the centerline positions to the rectangular tube.

6. __ Weld 1 inch butt weld at the mark off locations on the rectangular tube

7. __ Based on the dock leveler's rated capacity, see WELDING REFERENCE CHARTS on page 8 to determine the length of the weld for dimension "A".

8. __ Refer to the rest of the installation section of the owner's manual to install the dock leveler.

9. __ Confirm that all steps of the installation instructions have been completed. Fill out the following information.

Installer Name (Print) _____

Installer Signature _____

Date Installation Completed _____

FILLER PLATE INSTALLATION INSTRUCTIONS (WITH TWO TUBES & TWO SUPPORT BARS)

1. __ Before installing the filler plate and dock leveler, read the INSTALLATION INSTRUCTIONS FOR PIT MODEL MECHANICAL DOCK LEVELERS section of the owner's manual on page 5.

2. __ Locate the two support bars on one of the rectangular tubes. The support bar should be positioned halfway between the center span of the tube to the end of the tube.

3. __ Weld the support bars in place using full fillet welds.

4. __ Slip the levelling tubes over the support bars and lightly tack in place so that it does not fall off while inverting the rectangular tube as indicated in Figure 22: Welding the 4 X 3 Rectangular Tubing to the Curb Angles on page 17.

5. __ Position the 4 X 3 inch rectangular tubes as indicated in Figure 22: Welding the 4 X 3 Rectangular Tubing to the Curb Angles on page 17. Make sure the top surface of the rectangular tube is ¼" below the top surface of the curb angle. This will allow the filler plate to be welded flush to the top surface of the curb angle.

6. __ Weld the ends of the rectangular tubing to the side curb angle as indicated in Figure 22: Welding the 4 X 3 Rectangular Tubing to the Curb Angles on page 17. Add vertical welds at the ends of the tube between tube surface and side curb angle surface.

7. __ Remove the tack weld from step 4 and allow the levelling tubes to settle to the pit floor.

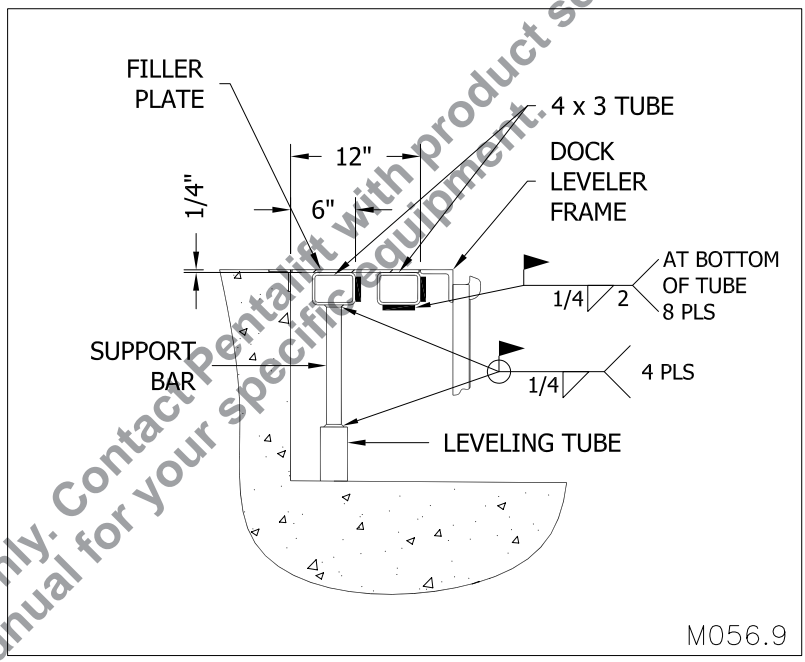


Figure 22: Welding the 4 X 3 Rectangular Tubing to the Curb Angles

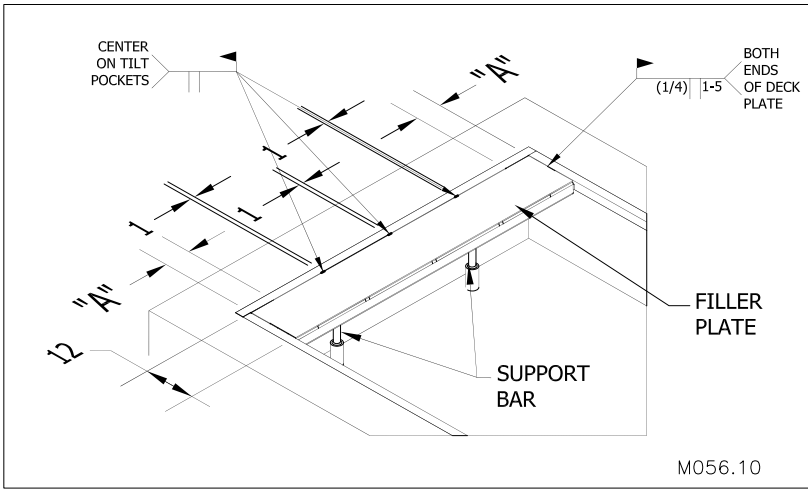


Figure 23: Installing the filler plate

8. __ Weld the levelling tubes to the support bars using full fillet welds as indicated in Figure 22: Welding the 4 X 3 Rectangular Tubing to the Curb Angles on page 17.

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

9. __ Note the centerline positions of the tilt bar pockets on the dock leveler.

10. __ Transfer the centerline positions to the back side of the filler plate that will adjoin the rear curb angle.

11. __ Place the filler plate on top of the rectangular tubes as indicated in Figure 23: Installing the filler plate on page 17 making sure the filler plate sits flat and square to the rear and side curb angles.

12. __ Weld 1 inch butt weld at the mark off locations on the deck plate as indicated in Figure 23: Installing the filler plate on page 17.

13. __ Based on the dock leveler's rated capacity, see WELDING REFERENCE CHARTS on page 8 to determine the length of the weld for dimension "A".

14. __ Refer to the rest of the installation section of the owner's manual to install the dock leveler.

15. __ Confirm that all steps of the installation instructions have been completed. Fill out the following information.

Installer Name (Print) _____

Installer Signature _____

Date Installation Completed _____

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

FILLER PLATE INSTALLATION INSTRUCTIONS (WITH TWO TUBES & FOUR SUPPORT BARS)

1. __ Before installing the filler plate and dock leveler, read the INSTALLATION INSTRUCTIONS FOR PIT MODEL MECHANICAL DOCK LEVELERS section of the owner's manual on page 5.

2. __ Locate the two support bars on the rectangular tubes (two support bars per rectangular tube). The support bar should be positioned halfway between the center span of the tube to the end of the tube.

3. __ Weld the support bars in place using full fillet welds.

4. __ Slip the levelling tubes over the support bars and lightly tack in place so that it does not fall off while inverting the rectangular tube as indicated in Figure 24: Welding the 4 X 3 Rectangular Tubing to the Curb Angles on page 18.

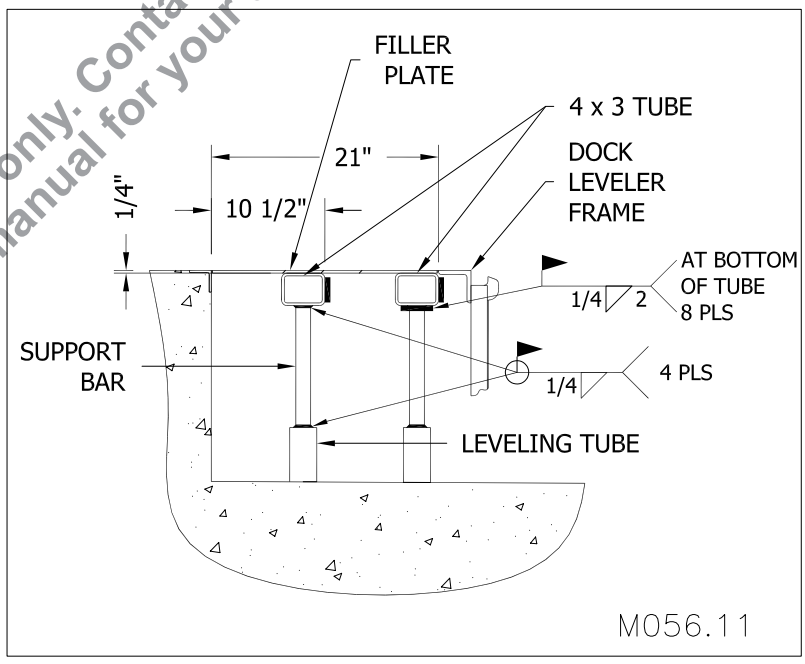


Figure 24: Welding the 4 X 3 Rectangular Tubing to the Curb Angles

5. __ Position the 4 X 3 inch rectangular tubes as indicated in Figure 24: Welding the 4 X 3 Rectangular Tubing to the Curb Angles on page 18. Make sure the top surface of the rectangular tube is ¼" below the top surface of the curb angle. This will allow the filler plate to be welded flush to the top surface of the curb angle.

6. __ Weld the ends of the rectangular tubing to the side curb angle as indicated in Figure 24: Welding the 4 X 3 Rectangular Tubing to the Curb Angles on page 18. Add vertical welds at the ends of the tube between tube surface and side curb angle surface.

7. __ Remove the tack weld from step 4 and allow the levelling tubes to settle to the pit floor.

8. __ Weld the levelling tubes to the support bars using full fillet welds as indicated in Figure 24: Welding the 4 X 3 Rectangular Tubing to the Curb Angles on page 18.

9. __ Note the centerline positions of the tilt bar pockets on the dock leveler.

10. __ Transfer the centerline positions to the back side of the filler plate that will adjoin the rear curb angle.

11. __ Place the filler plate on top of the rectangular tubes as indicated in Figure 25: Installing the filler plate on page 19 making sure the filler plate sits flat and square to the rear and side curb angles.

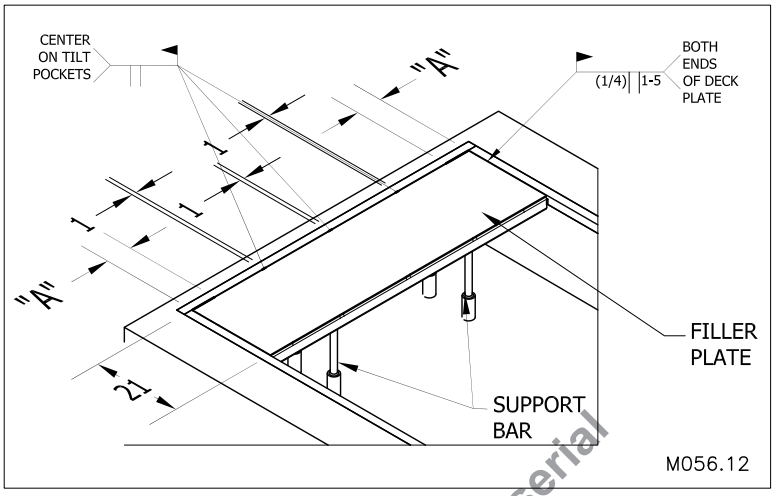


Figure 25: Installing the filler plate

12. __ Weld 1 inch butt weld at the mark off locations on the deck plate as indicated in Figure 25: Installing the filler plate on page 19.

13. __ Based on the dock leveler's rated capacity, see WELDING REFERENCE CHARTS on page 8 to determine the length of the weld for dimension "A".

14. __ Refer to the rest of the installation section of the owner's manual to install the dock leveler.

15. __ Confirm that all steps of the installation instructions have been completed. Fill out the following information.

Installer Name (Print) _____

Installer Signature _____

Date Installation Completed _____

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

INSTALLATION PICTURES

Upon completion of installation, photograph the following views as depicted below. Keep photos with owners manual.

1. __ Front angle shims. (See Figure 26: Front Angle and Optional Fallsafe Support Block Shims on page 20)
2. __ Fall safe support block shims. (See Figure 26: Front Angle and Optional Fallsafe Support Block Shims on page 20)
3. __ Rear shims (Left and Right side). (See Figure 28: Rear Shims on page 21)
4. __ Thrust beam shims. (See Figure 27: Thrust Beam Shims on page 20)
5. __ Rear angle of dock leveler in parked position showing flush and level to the floor/curb angle. (See Figure 29: Rear Angle Flush with Curb Angle on page 21)

Installer Name (Print) _____

Installer Signature _____

Date Installation Completed _____

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

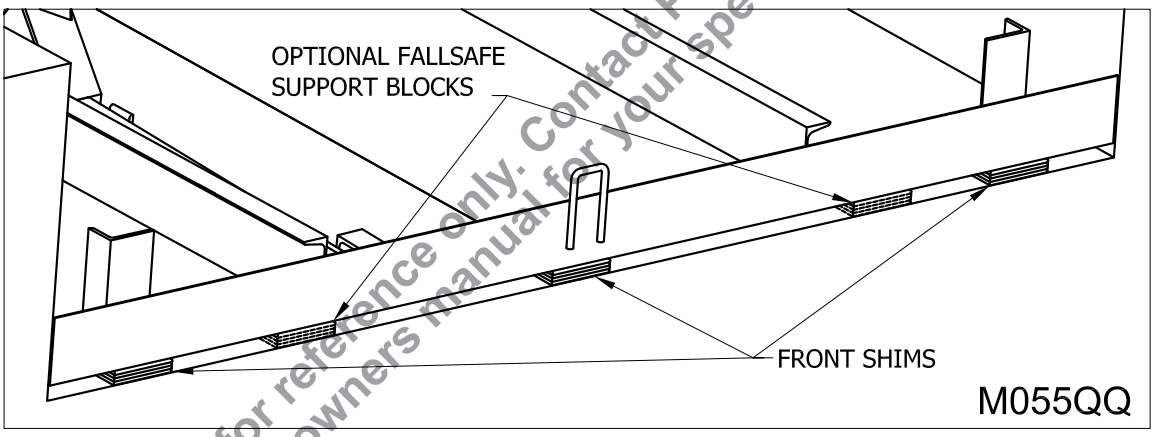


Figure 26: Front Angle and Optional Fallsafe Support Block Shims

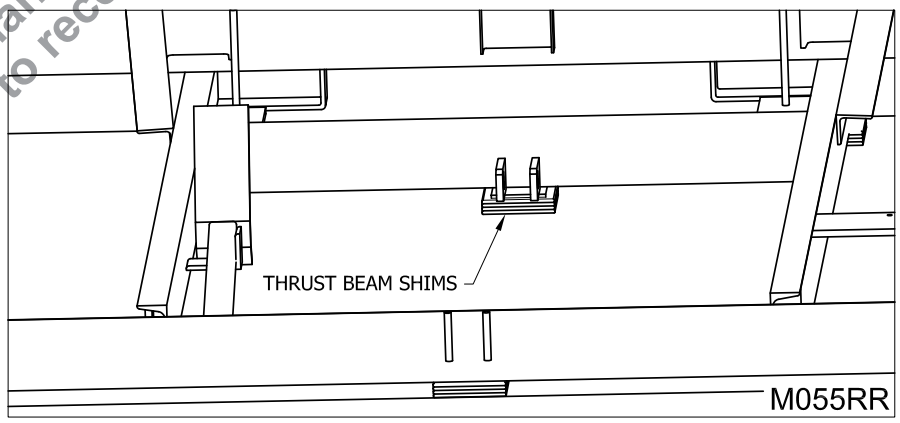


Figure 27: Thrust Beam Shims

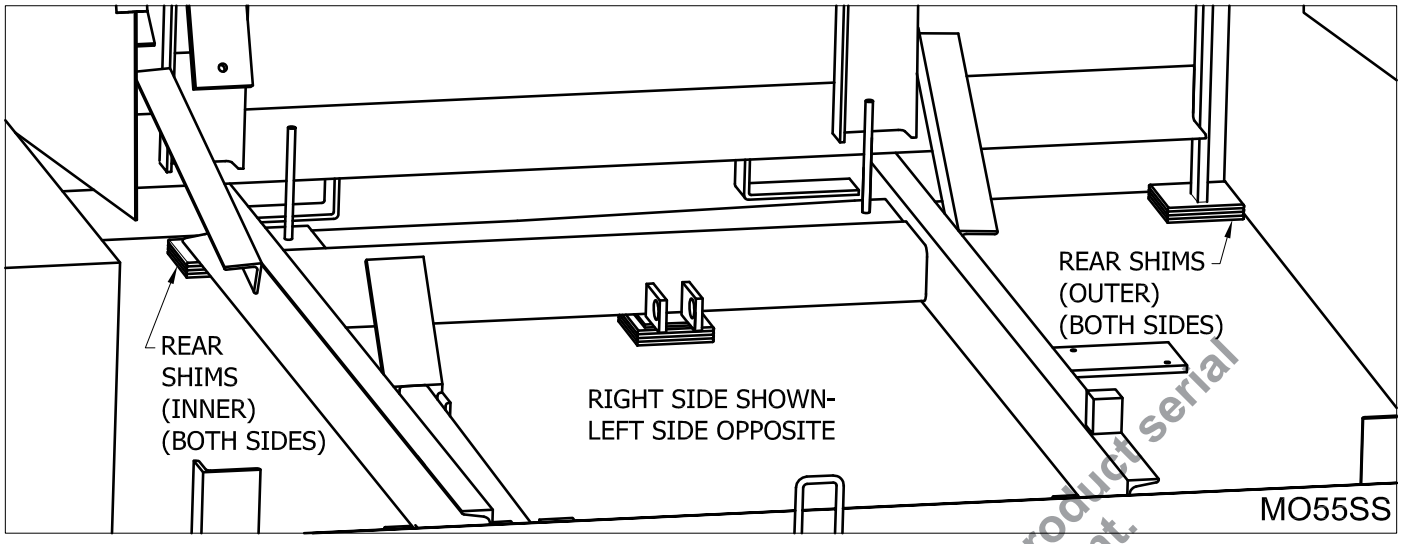


Figure 28: Rear Shims

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

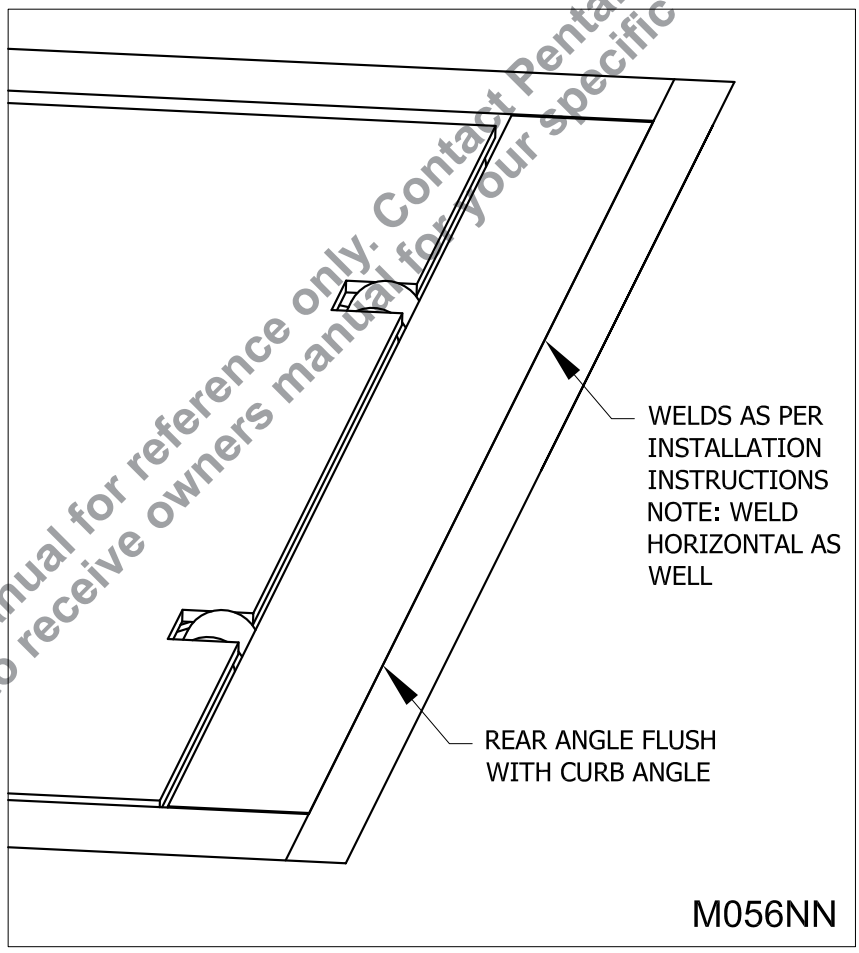


Figure 29: Rear Angle Flush with Curb Angle

INSTALLATION INSTRUCTIONS
POUR-IN DOCK LEVELERS

DANGER

- **WIRING MUST BE DONE BY A QUALIFIED ELECTRICIAN.**
- **ALWAYS USE APPROPRIATE LOCK-OUT PROCEDURES DURING ANY ELECTRICAL INSTALLATIONS.**
- **ENSURE SUPPLY VOLTAGE IS CORRECT.**
- **ON 3 PHASE UNITS ASSURE PHASE POLARITY IS CORRECT.**
- **ALWAYS OBSERVE ALL APPLICABLE ELECTRICAL CODES.**

NOTE: A very high level of field issues with this type of equipment can be directly attributed to improper or incomplete installation. The installation instructions and information provided for this equipment is thorough. A step by step sequence for installation is provided. All steps must be followed and completed to provide a complete installation. Incomplete or improper installations can lead to equipment malfunction and / or damage, create safety issues and void warranties. Please follow all installation and set ups steps as indicated in the installation instructions and owner's manual. If you are unclear or uncertain regarding any of the steps contact your Pentalift representative for clarification. A copy of the completed steps listing with the sign off and photos of the installation as indicated at the conclusion of the installation instructions will be required prior to any Pentalift factory trouble shooting assistance.

IMPORTANT

PREPARATION PRIOR TO INSTALLATION

NOTE: Prior to accepting shipment and pouring, check pour-in pan and structural angle for damage. Perform installation instructions in the same sequence as they are listed below. To accommodate a complete installation there is a blank space provided beside each numbered step in the installation instructions. Please check off the steps sequentially as they are completed. This will assist in confirming a complete installation.

IMPORTANT: In some instances shipping and handling can result in damage to the dock leveler. Prior to accepting the shipment and prior to installing the equipment check the dock leveler for damage. Be sure to check the pour-in pan components and the pour in angles (See Figure 30: Pour-In Pan Components on page 23).
If damage does exist;

1) Do not accept the shipment until you have made a damaged notation on the delivery receipt. It is the consignees obligation to count and examine the condition of the shipment at the time of the delivery.
2) Do not install the equipment until appropriate repairs are made.
3) Contact your Pentalift representative for assistance.

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.

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

⚠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 **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 **NEVER GO BENEATH THE DOCK LEVELER FOR ANY REASON UNLESS THE DECK AND LIP ARE PROPERLY SUPPORTED (SEE "HOW TO SUPPORT..." IN THE OWNER'S MANUAL) AND THE POWER IS DISCONNECTED, PROPERLY TAGGED AND LOCKED OUT. IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT NO LOAD NOR TRAFFIC IS PLACED ON THE DECK WHILE THE MAINTENANCE STAND IS ENGAGED. THE CONSTRUCTION OF THE MAINTENANCE STAND IS INTENDED TO SUPPORT THE WEIGHT OF THE UNLOADED DOCK LEVELER ONLY.**

Generic manual for reference only. Contact Pentalift with proper serial number to receive owner's manual for your specific equipment

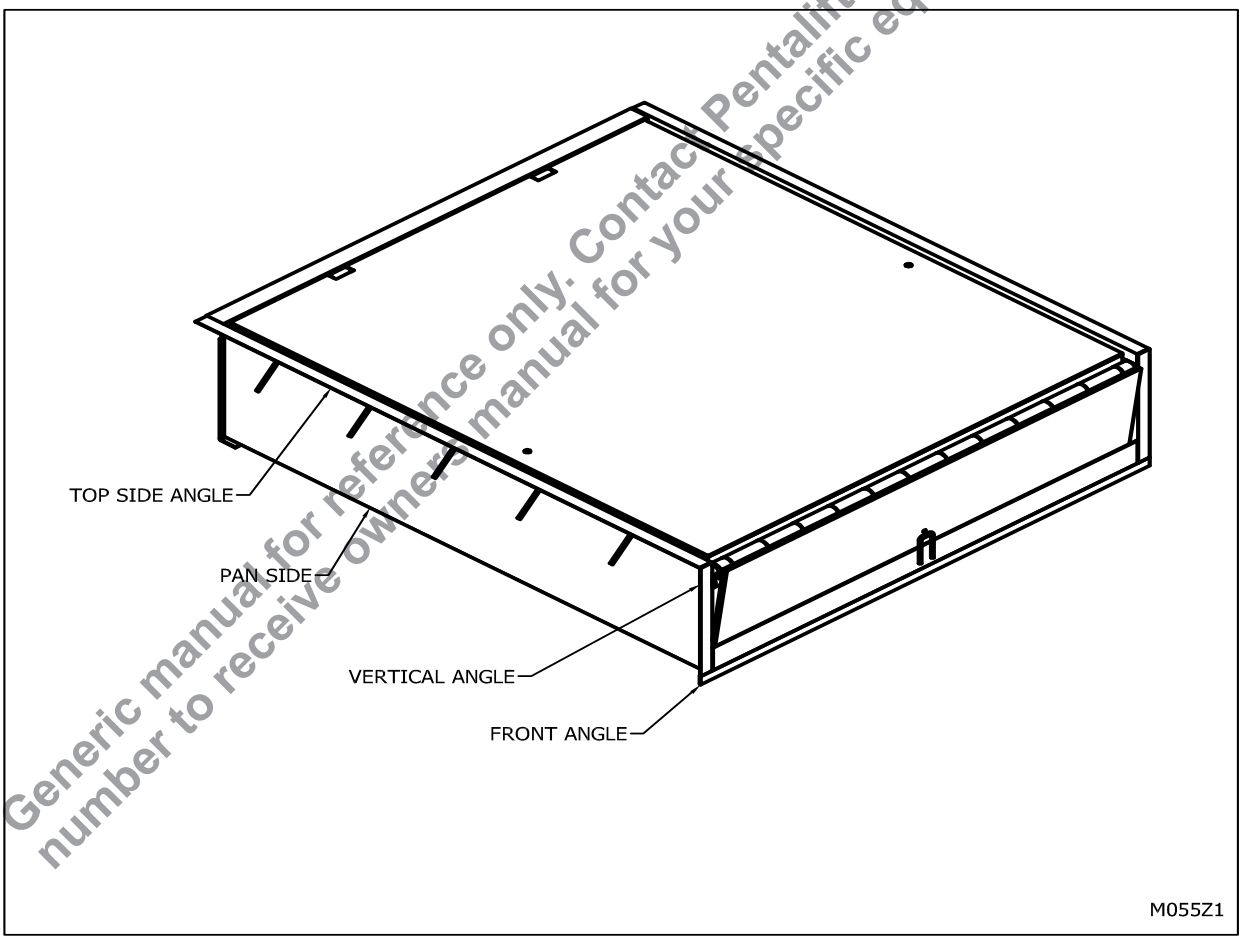


Figure 30: Pour-In Pan Components

1. __ Find the pre-determined floor level (See Figure 31: Foundation cut out and support pad on page 24) and ensure the foundation cut-out and support pad are in place to properly locate and support the dock leveler is appropriate according to the sizes shown on the dock leveler drawing provided by the Pentalift. For the dimensions of the foundation cut-out refer to Pentalift drawing 260-4755.

2. __ Position the dock leveler into the foundation cutout (see Figure 32: Dock Leveler in Position on page 25).

3. __ Shim the front and rear of the dock to the desired, correct and level position. Confirm side to side positioning at the pre-determined floor level.

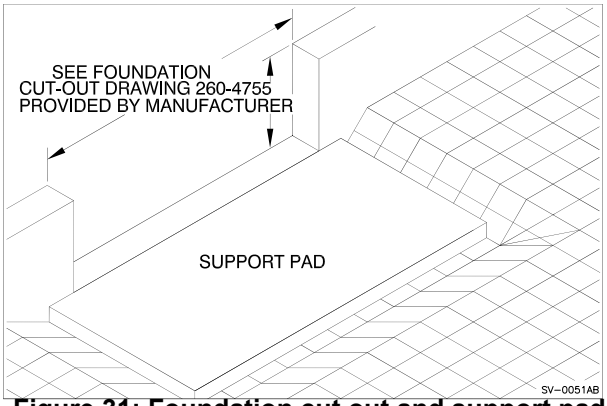


Figure 31: Foundation cut out and support pad

4. __ Ensure there is a one inch (1") gap between the deck and side pan curb angle. Confirm this on both sides of the dock leveler. Once the gaps are confirmed as correct, ensure the adjusting bolts are in contact with the side panels. See Figure 33: One Inch (1") Gap on page 25. Use the adjusting bolts to increase the gap to 1" if required.

5. __ Securely brace the dock leveler to prevent any movement or "floating" during the pouring of the concrete. Use lag bolts in the provided lagging brackets to assist in securing the dock leveler (see Figure 32: Dock Leveler in Position on page 25). Note that these brackets are intended to assist in bracing the dock leveler and that consideration and use of additional supporting means may be required.

6. __ Prior to pouring the concrete, confirm that pour-in pan sides and top side angles are straight and undamaged, reconfirm that the pan structure will maintain a 1" gap between edge of the dock leveler deck and the finished pan side walls for the entire length of the deck.

7. __ Prior to pouring the concrete, re-examine the front and rear of the unit to ensure the top of the unit has remained level and in the desire final position. Once the concrete has been poured around the dock leveler, repositioning the dock leveler is very difficult and expensive.

8. __ Pour concrete to finished floor level and flush with the curb angle on all three (3) sides in **two stages**.

NOTE: Care must be taken when placing concrete around pan of the dock leveler. Excessive concrete force on the pan components will cause distortion and or deflection of the pan assembly.It may also cause the dock leveler to move from the desired final position. This could create many serious issues including and not limited to; impeding the required movement of the dock leveler. Creating misalignment of the dock leveler with the trucks and trailers, and look bad visually. It is very important to not create excessive forces onto dock leveler pan components. Concrete tampers or compactors should be used carefully as these can create high forces.

First Stage – allow concrete to flow under entire base of pan and ten inches (10") up the sides. The purpose of this pour is to have the concrete flow under dock leveler for proper below frame support and to further support and hold the dock leveler in the desired location during the second stage pour. Allow the concrete to cure to full strength.

Second Stage – fill to pre-determined floor level and flush with the curb angle on all three (3) sides.

9. __ Remove all excess concrete.

10. __ Once the concrete is cured, remove the side adjusting bolts. (see Figure 33: One Inch (1") Gap on page 25)

11. __ Remove the shipping wire. Then remove the top shipping bolts (if equipped) and front shipping bolts and lifting brackets. (See Figure 34: Shipping Wire, Bolts and Lifting Devices. on page 25)

12. __ For any model of mechanical dock leveler, review the position of the top edge dock leveler deck relative to the top of the curb angle (See Figure 35: Deck Alignment on page 26). If the deck is too low in relation to the installation requirements, shim the dock leveler using steel shim(s) on both sides as indicated in Figure 36: Shimming 16" & 18" Lips on page 26 and in Figure36A: Shimming 20" Lips on page 26.

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

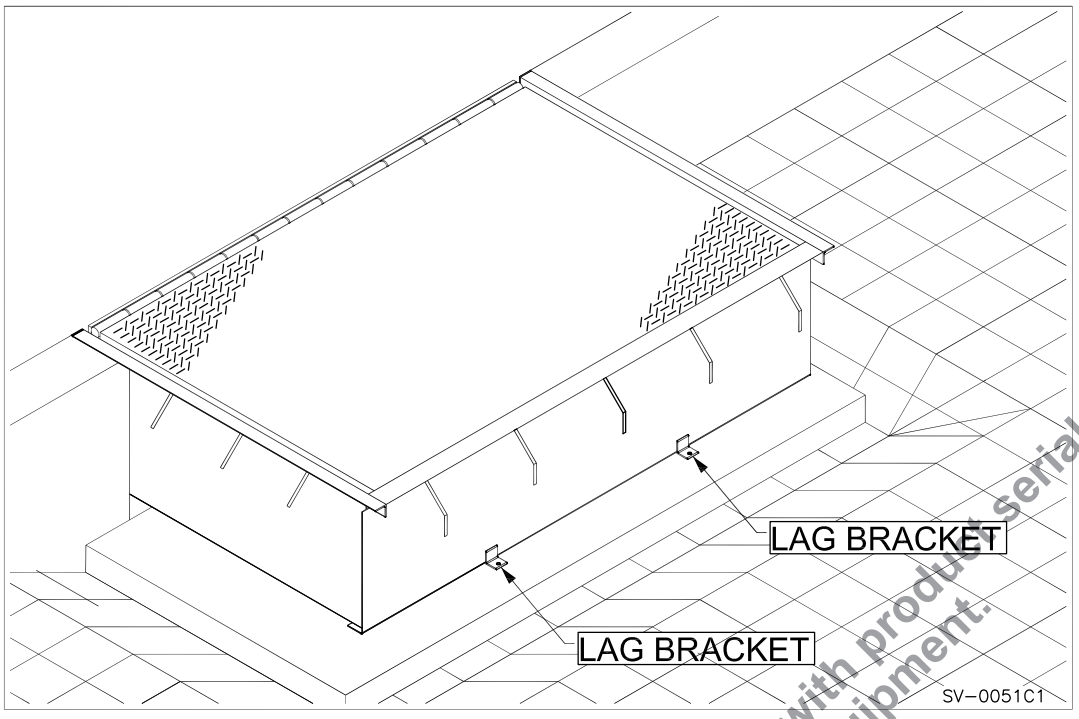


Figure 32: Dock Leveler in Position

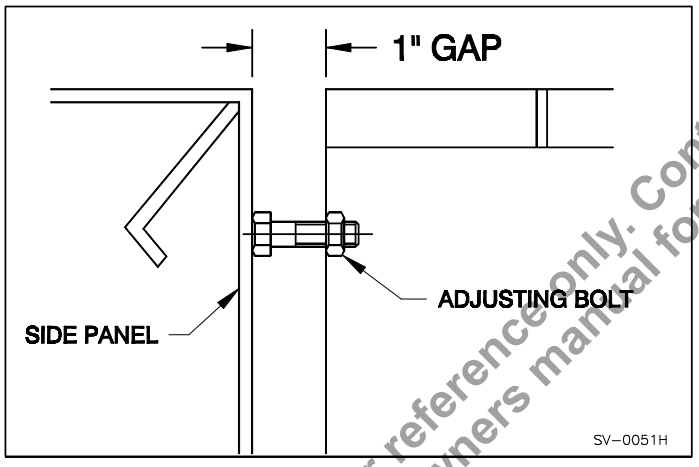


Figure 33: One Inch (1") Gap

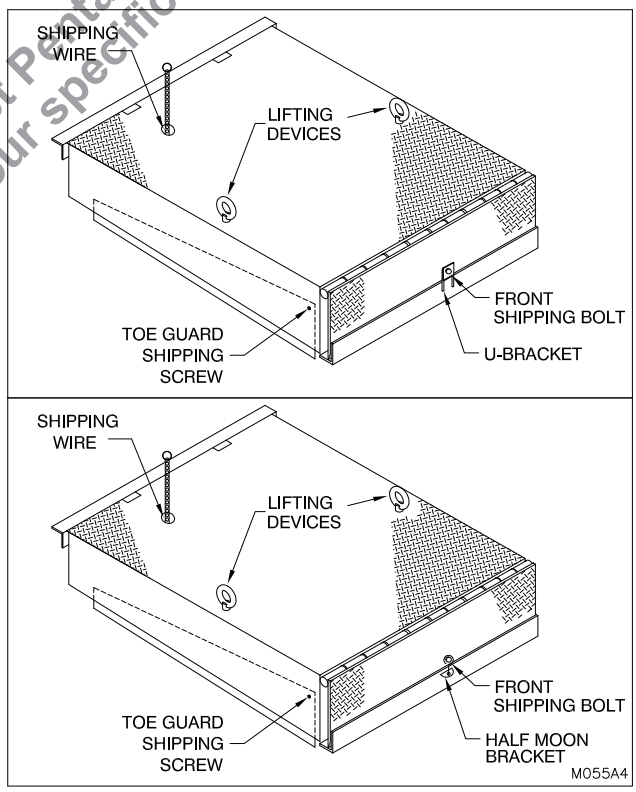


Figure 34: Shipping Wire, Bolts and Lifting Devices.

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

Installer Name (Print)

Installer Signature

Date Installation Completed

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

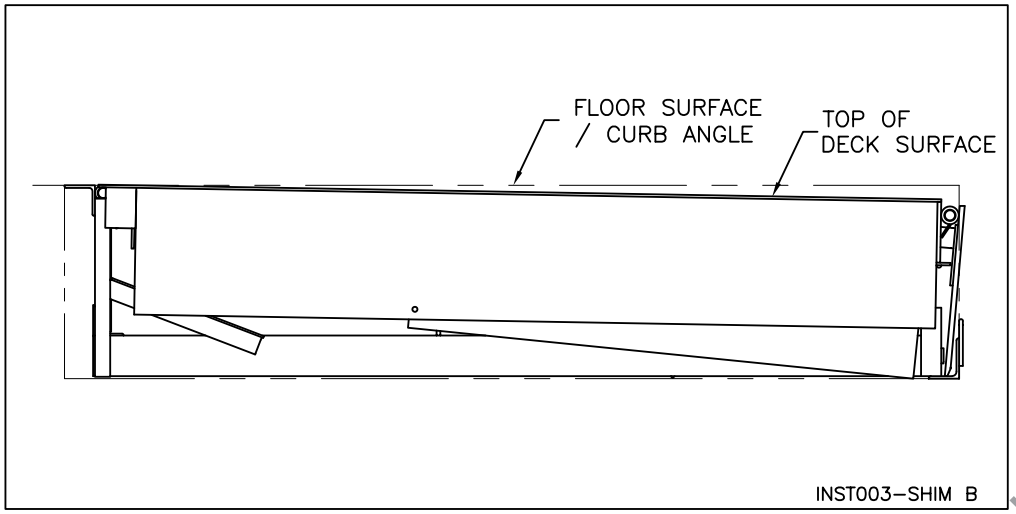


Figure 35: Deck Alignment

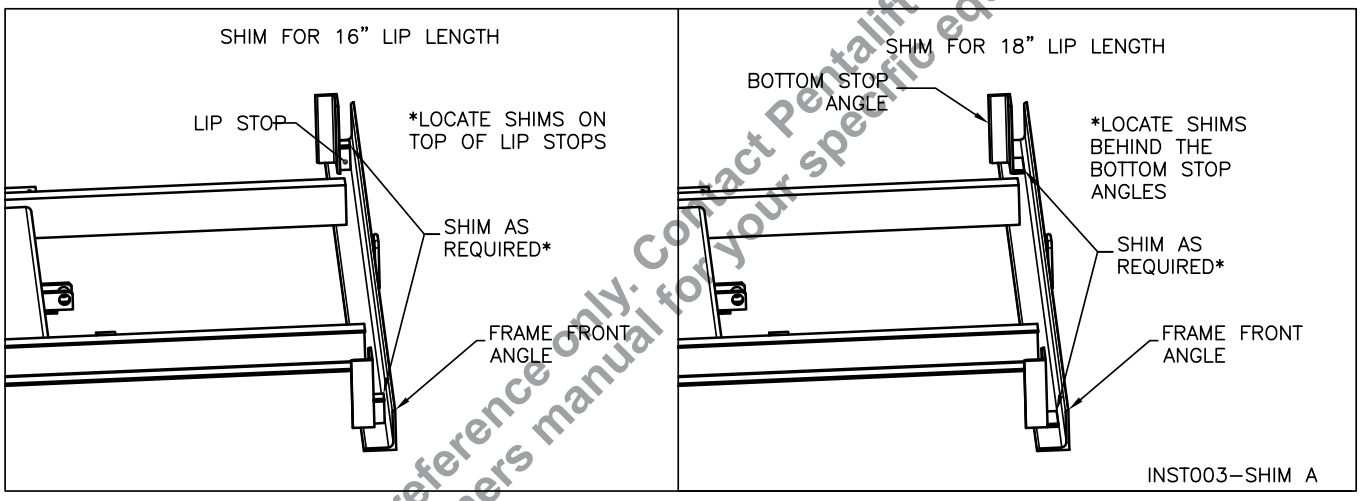


Figure 36: Shimming 16" & 18" Lips

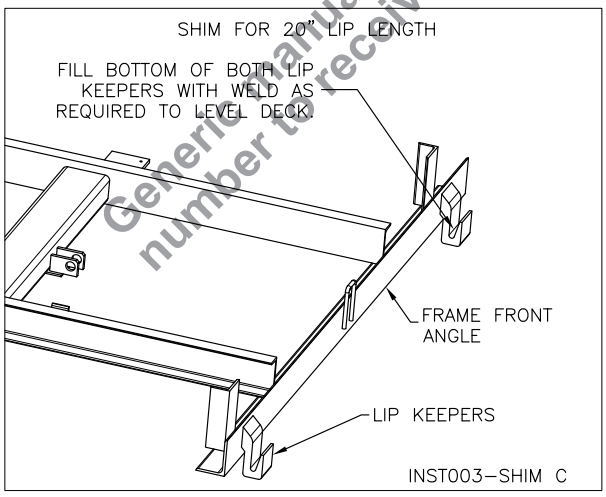


Figure36A: Shimming 20" Lips

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

INSTALLATION PICTURES

Upon completion of installation, photograph the following views as depicted below. Keep photos with owners manual.

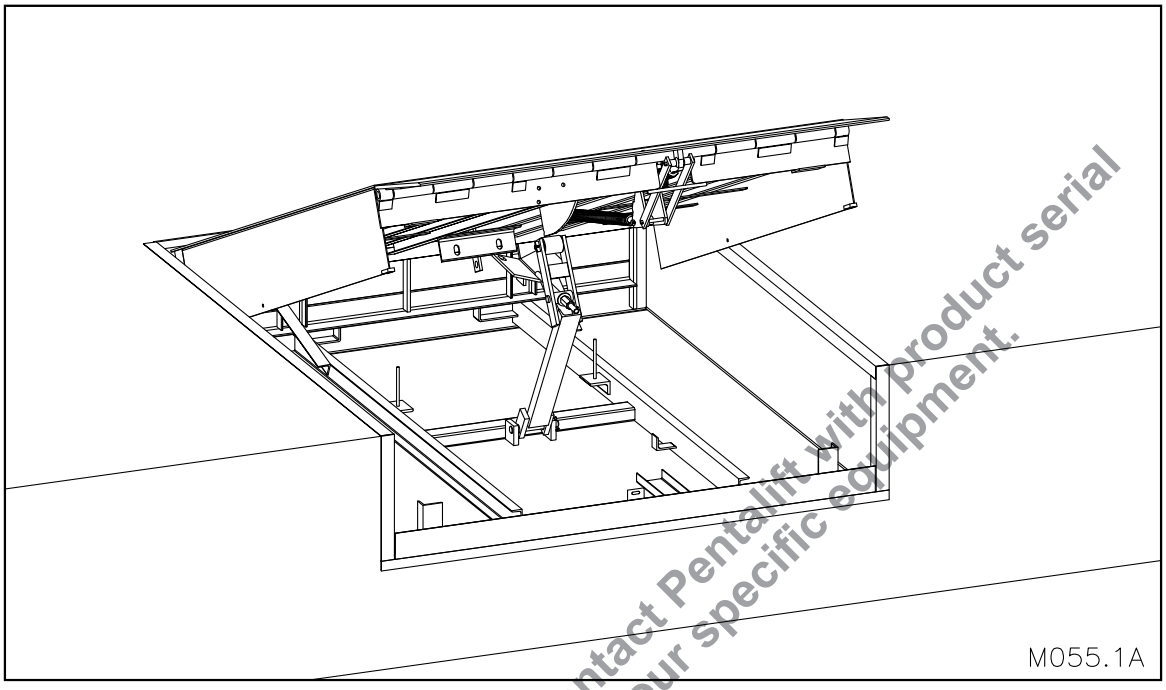


Figure 37: Dock Leveler Installed

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

Installer Name (Print)

Installer Signature

Date Installation Completed

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 (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.

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

1. Confirm that lip hinge assembly is free from debris and obstructions. Concrete, stucco, parging materials, nails, screws, pieces of wood from pallets and skids and other debris can be present at the hinge assembly. Any debris of this nature can inhibit the proper operation by creating additional friction or impediments to the lips rotational engagement. Debris of this nature should be removed on a regular ongoing basis. The user of the equipment should be made aware of this concern and the need to clean and maintain this aspect of the dock leveler on a regular basis.

DANGER **ALWAYS ENSURE 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. Make sure the dock leveler lip hinge assembly is properly lubricated in accordance with the owner's manual instructions (see MAINTENANCE AND LUBRICATION on page 39).

3. Cycle the dock leveler by fully pulling and holding the release ring on the dock leveler. Confirm the dock leveler lip extends and locks into a fully extended position. If the dock leveler lip does not lock in an extended position then install the maintenance stand (see SUPPORTING THE LEVELER FOR MAINTENANCE on page 37) and move to step 6.

4. If the lip locks in an extended position then move to step 5.

5. 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 41: Walk Down the Deck on page 32). If the dock leveler walks down with an acceptable lowering force, then the complete step 7.

6. **Do not** start by adding spring tension onto the dock leveler lift springs. This is by far the most common first step mistake that is made when addressing mechanical dock leveler issues. Adding lift spring tension at too high a level can be the source of other issues, including and not limited to:

    a. Dock leveler deck twist when the dock leveler is in the parked position,
    b. The hold down assembly not properly holding the dock leveler down. For example, the dock leveler floats up when parked or during use.
    c. Too high of a walk down force or weight required to lower the dock leveler.

7. Make sure the other areas of the dock leveler are properly lubricated in accordance with the owner's manual instructions (see MAINTENANCE AND LUBRICATION on page 39).

8. Make sure the dock leveler lip assist spring adjustment is set at the correct level as per the instructions on (see LIP ASSIST SPRING ADJUSTMENT on page 46). This is a vital adjustment. Proper adjustment of the lip assist spring will allow the lift spring adjustment to be minimized and avert the issues listed item 5 above.

9. After confirming the lip assist spring adjustment is correct. Remove the maintenance stand.

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

10. If the maintenance stand has not released the lip then release the lip from its locked (extended) position by using the following set of steps.
    a. Stand facing the lip end of the dock leveler and firmly grasp the lip with both hands (wear gloves). (See Figure 38: Lift Until Liplock Releases on page 29)
    b. Lift the lip upwards until you feel the lip lock mechanism release.
    c. Once the lip lock releases continue to bear the weight of the lip.
    d. If the weight is excessive with the lip at 45 degrees (greater than approximately 15 to 20 lbs.) then adjust the lip assist spring tension as per (reference lip assist spring adjustment).
    e. After lip spring adjust is completed, cycle the dock leveler again and confirm operation takes place. (See Figure 39: Lower Until Vertical on page 29). Again test the lip weight at 45 degrees is approximately 15 to 20 lbs. If it is then go to step 11. If not continue to add more tension to the lip assist spring until the approximately 15 to 20 lbs. weight is achieved.

11. Return the dock leveler to the parked position and cycle the dock leveler again. If the dock leveler deck assembly walks down with an acceptable weight then the adjustment and set up is complete. If not reduce lift spring tension by turning the lift spring tension nut counter clockwise 2 turns at a time. There is a balance that must be maintained between sufficient lift spring tension to lift the deck assembly and extend the lip versus the walk down force required to lower the leveler to the truck or to park it. Confirm that the dock leveler lift spring tension is properly set. The tension should be sufficient to extend the lip but with not too heavy a walk down force. If the lip is extending experiment with the lift spring tension by reducing the tension until activating the dock leveler by firmly pulling and holding the release chain to it's full extent. If the lip continues to extend and lock the lift spring tension is sufficient. If the lip does not extend and lock more lift spring tension maybe required. If the dock is too heavy to walk down adjust to less lift spring tension.

12. To return the dock leveler to its stored position, pull the release ring by jogging it up and down until the leveler raises slightly and the lip clears the front frame of the dock leveler. Then "walk" the dock leveler into its stored position.

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

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 30 and Trouble Shooting Guide on page 52 or contact your Pentalift representative.**

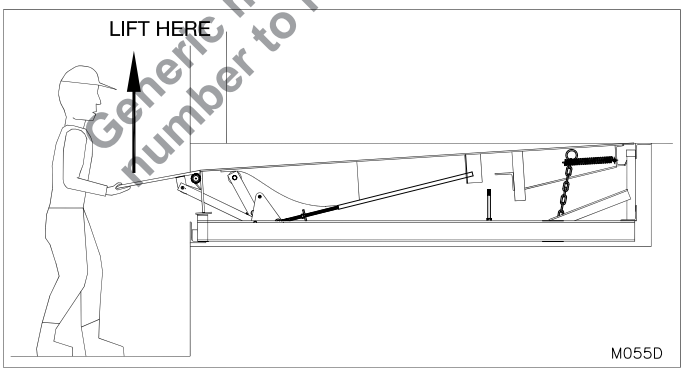


Figure 38: Lift Until Liplock Releases

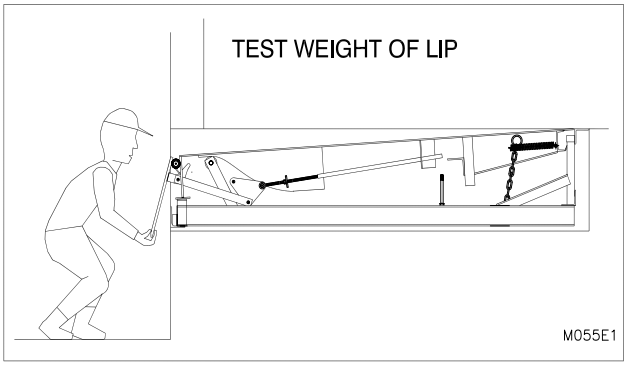


Figure 39: Lower Until Vertical

OPERATING INSTRUCTIONS

Note On Capacity: The dock leveler capacity indicated on the serial plate must be divided with a factor to accommodate dynamic loading factors. For more information see Pentalift document - Dock Leveler Capacity – Understanding Loading Dock Capacity at http://www.pentalift.com/dock-leveler-capacity.php

Note regarding above and above level ranges of dock levelers relative to dock leveler deck length : This dock leveler is designed to accommodate truck and trailer beds that arrive at the facility with heights that are different than the dock height of the facility. The dock leveler deck assembly pivots and rests at angle to accommodate the variance in the truck or trailer bed height. In doing this dock leveler accommodates truck and trailer beds that are both above and below the loading dock floor height.

It is important to manage the extent of this compensation for the difference to a reasonable and desirable level. Factors that determine reasonable and desirable levels include but are not limited to the following:

- The length of the dock leveler deck assembly. The longer the dock leveler deck assembly is the better it will be for accommodating dimensional differences in the truck / trailer bed heights relative to the load dock height. For example, all other conditions being equal, an 8ft long dock leveler deck assembly accommodates a greater height differences than 6ft long dock leveler deck assembly. The longer deck assembly simply reduces the angle of incline that the loading / unloading equipment (IE fork lift or pump truck) have to drive up and down as they go in and out of the truck / trailer.

- The type of loading / unloading equipment being used at the loading dock. For example a gas powered fork lift truck will generally have more power and larger wheels to accommodate larger angles of incline than an electrically powered pallet truck or a manually pushed pallet truck or cart.

- For obvious reasons, larger inclines create more wear and tear on equipment that is powered driven and has brakes.

- Larger inclines can result impact loads applied to the dock leveler as the fork lift hits the inclined dock leveler assembly and this can overload the leveler and result in damage to the dock leveler.

- Large inclines can create safety concerns due to possible run away loads. This is particularly true for manually propelled pump trucks or carts. As well, large inclines can make it onerous to push the same equipment up the inclines.

- Consideration of these factors should be made at the time the loading dock is designed.

- These factors should also be considered whenever changes to the factors listed above change at the loading dock.

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

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 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.**

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

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 41: Walk Down the Deck on page 32) 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 46: End Loading/ Unloading on page 36. (See END LOADING/ UNLOADING INSTRUCTIONS on page 36 and END LOADING BELOW LEVEL CONTROL OPERATION on page 36)

⚠DANGER **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 OPERATING PATH AT ALL TIMES.**

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.

⚠DANGER **NEVER WALK ON THE LIP TO LOWER THE DOCK LEVELER ONTO A TRUCK BED. (SEE Figure 41: Walk Down the Deck on page 32) 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 42: 4" Penetration on page 32)

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 46: Below Level Control Operation on page 35) 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 42: 4" Penetration on page 32)

4. Complete loading or unloading.

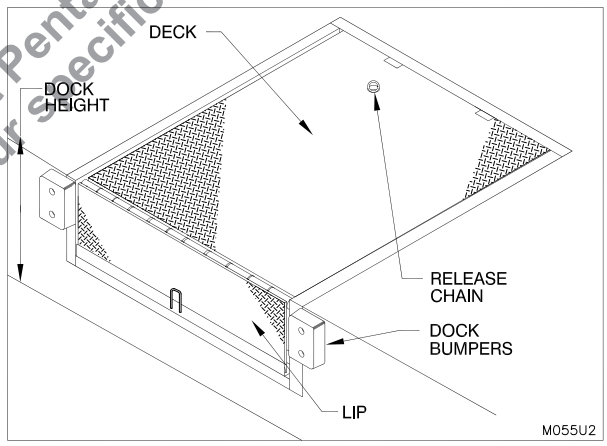


Figure 40: Deck in Stored Position

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

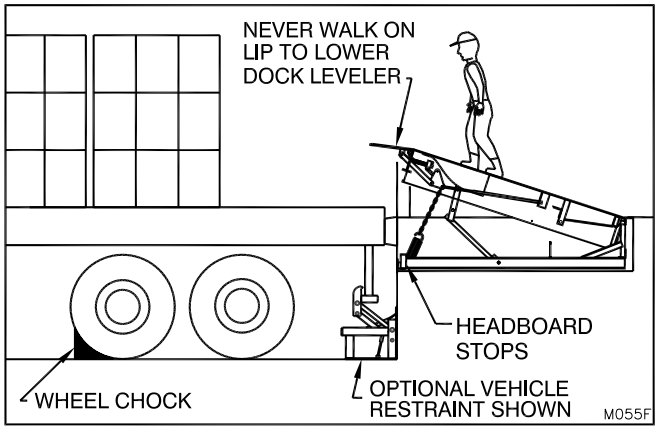


Figure 41: Walk Down the Deck

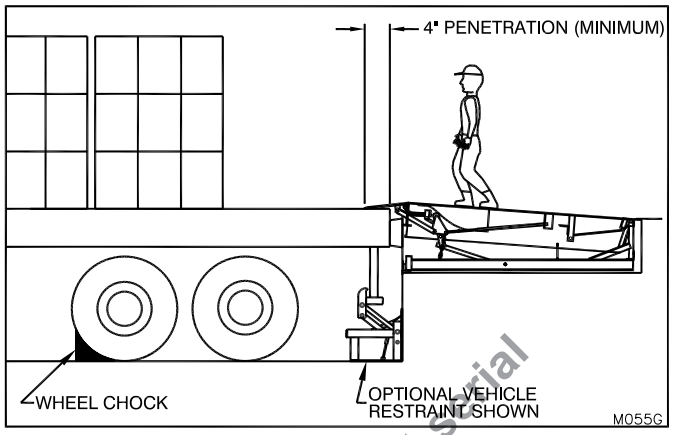


Figure 42: 4" Penetration

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 44: Below Level Control Operation on page 35) Never attempt to adjust the below level position while a load is on the deck.**

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) Release the chain and walk the deck down to the stored position, assuring that the lip is behind the front angle. (See Figure 45: Lip Keeper on page 35)

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 45: Lip Keeper on page 35)
- If the deck was less that 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 45: Lip Keeper on page 35).

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

HYDRAULIC CONVERSION KIT - FOR CURRENT MECHANICAL DOCK LEVELER OWNER

Note: This dock leveler is easy to convert from the existing manual mechanical operation to hydraulic – push button operation by utilizing Pentalift's MDHCK conversion kit. The conversion will provide the following benefits:

Ergonomics: Converting the dock leveler to push button operation from manual release chain operation improves ergonomics. Operators are not put at risk from bending and pulling the manual release chain. As well, concerns with the limitations of lighter operator's ability to walk down the mechanical dock leveler are eliminated.

Safety: Push button operation simplifies and assists operator control, thereby increasing safety. Dock leveler can be interlocked with a new vehicle restraint, overhead door and other equipment.

Hydraulic Operation: Both the deck assembly and the lip operator are activated by the hydraulic cylinder.

Reliability: Elimination of mechanical components such as hold-downs and the lifting spring mechanisms reduces breakdowns and down time and maintenance costs.

Push Button Operation: NEMA 12, wall mounted push button facilitates simple and efficient operation of the dock leveler.

Maintenance & Operating Cost: Costs are significantly lowered or eliminated through hydraulic conversion.

Reduced Noise Levels: Smoother hydraulic operation reduces operating noise levels.

For more information got to www.pentalift.com and search MDHCK conversion kit. For installation pricing contact your Pentalift representative.

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

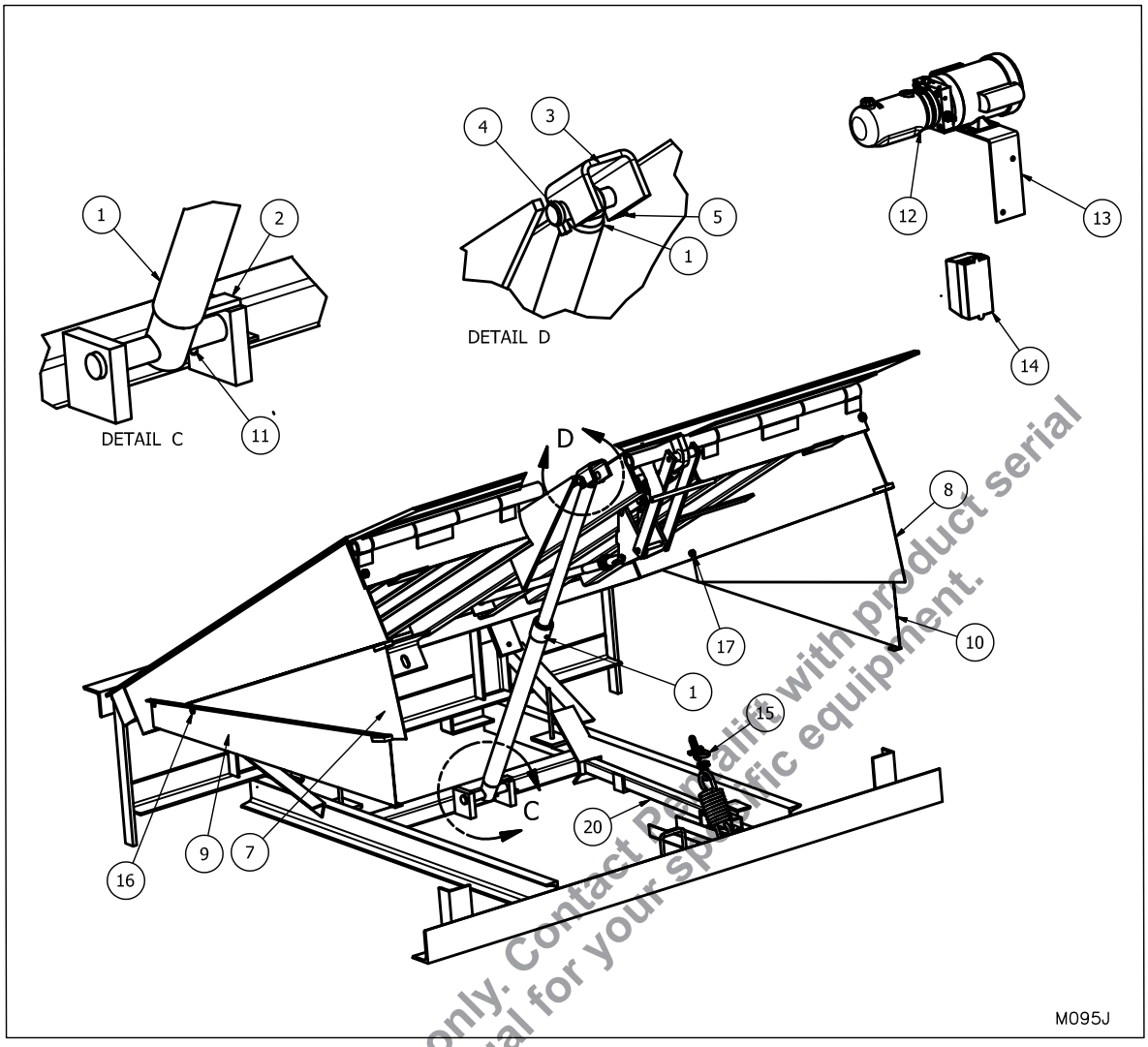


Figure 43: Hydraulic Conversion Kit

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

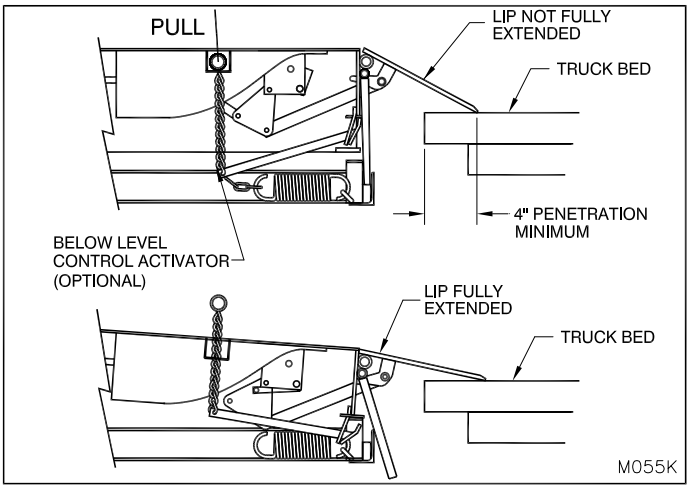


Figure 44: Below Level Control Operation

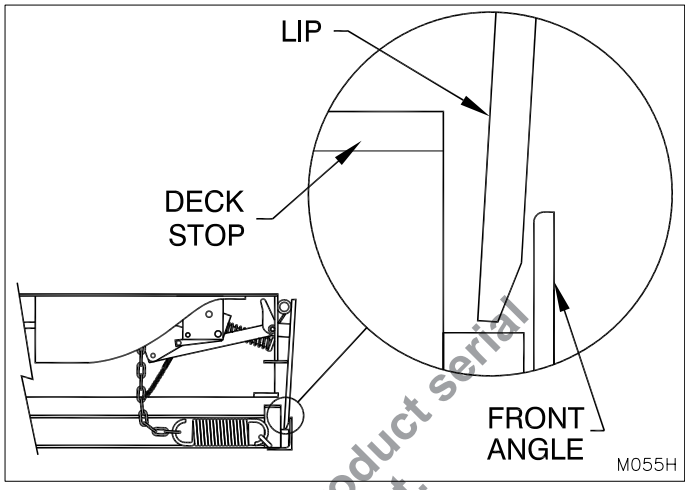


Figure 45: Lip Keeper

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

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 30), 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.

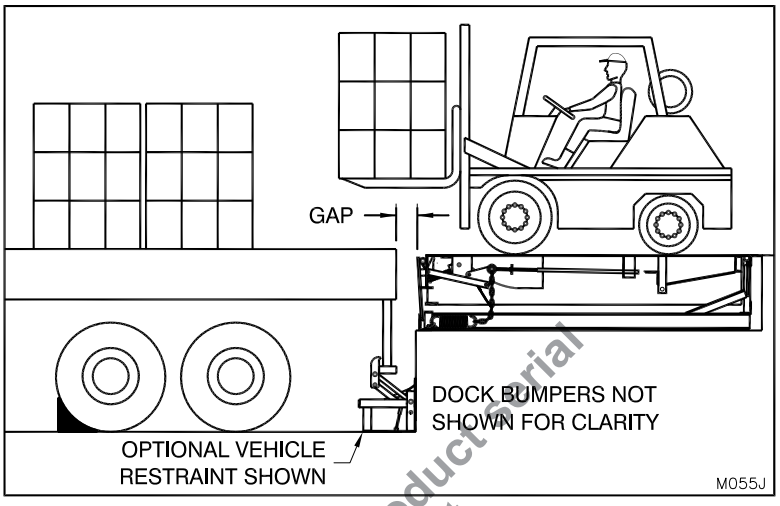


Figure 46: End Loading/ Unloading

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.

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

END LOADING BELOW LEVEL CONTROL OPERATION

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 47: Below Level End Loads on page 36)
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 45: Lip Keeper on page 35)

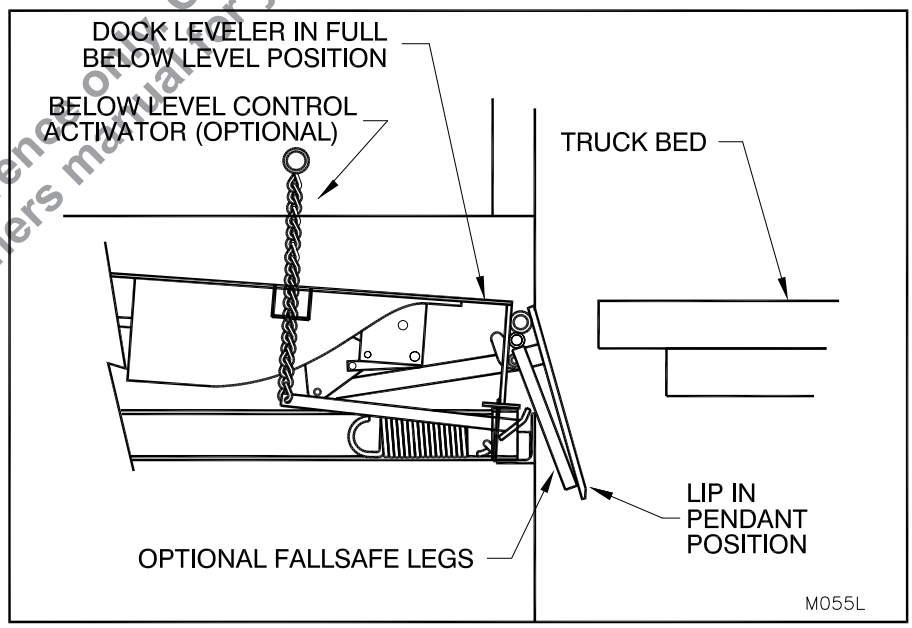


Figure 47: Below Level End Loads

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 37). 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.**

WARNING **THE RATCHET HOLD DOWN CONTAINS A COMPRESSED SPRING WHICH WILL EJECT FROM THE TUBE IF OPENED AND COULD CAUSE SERIOUS INJURY OR DEATH. DO NOT TRY TO OPEN, TAKE APART OR TAMPER WITH THE TUBE. IF THIS PART IS DAMAGED, REMOVE AND REPLACE.**

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 37).

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.

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

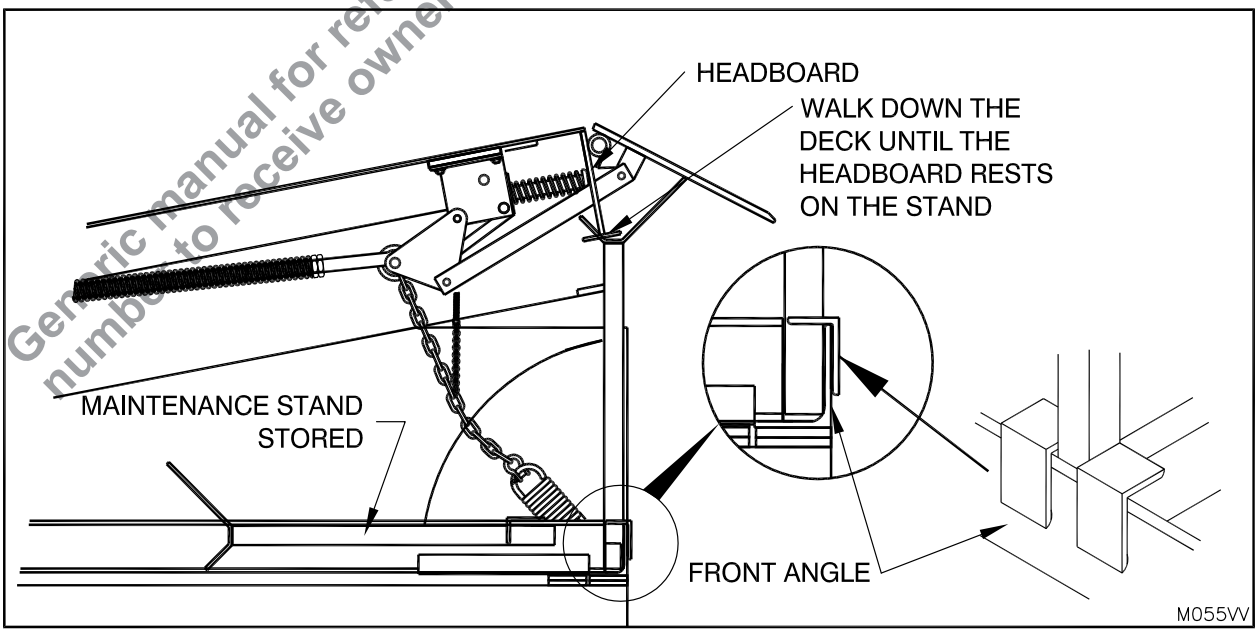


Figure 48: Supporting the Dock Leveler for Maintenance

DANGER **NEVER WALK ON THE LIP TO LOWER THE DOCK LEVELER. (SEE Figure 41: Walk Down the Deck on page 32)**

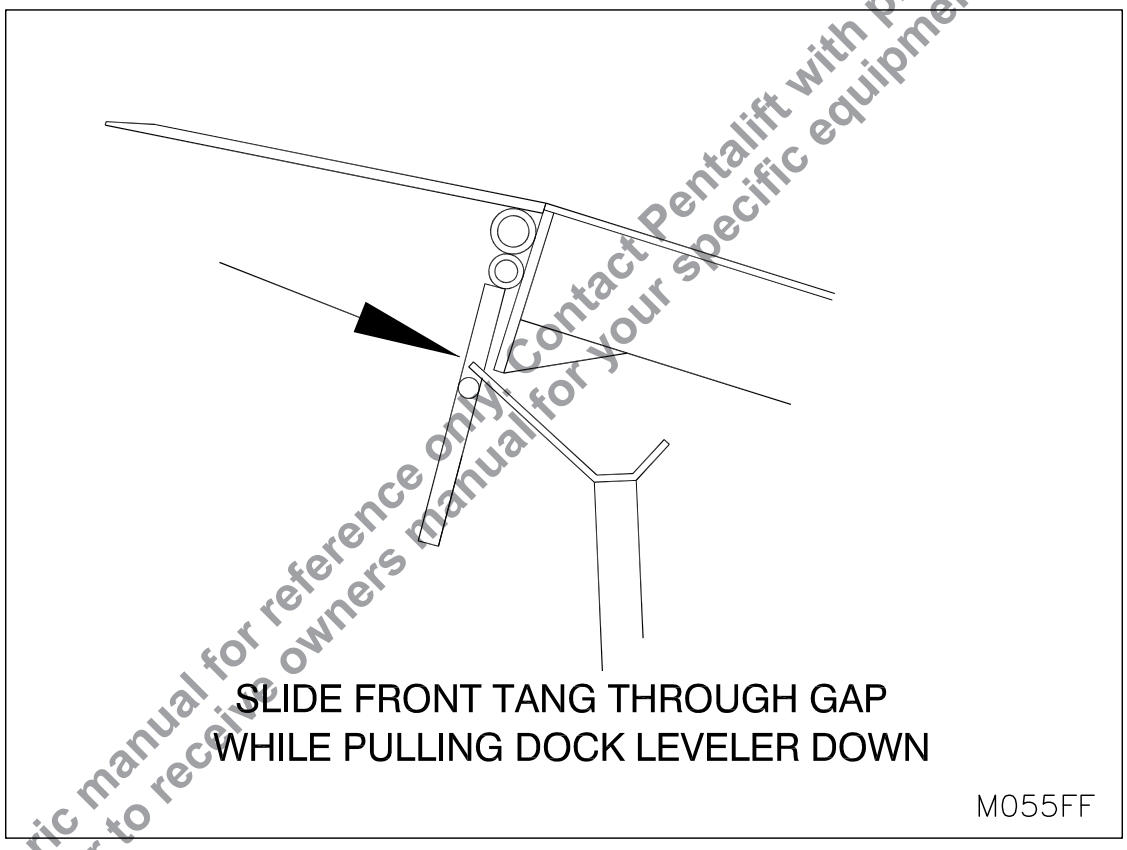
Also follow all safe working procedures and the SAFETY INFORMATION AND WARNINGS on page II.

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 49: Supporting the Dock Leveler with Mechanical Fallsafe on page 38).



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

Figure 49: 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.

NOTE: A very high level of field issues with this type of equipment can be directly attributed to improper or incomplete installation. The installation instructions and information provided for this equipment is thorough. A step by step sequence for installation is provided. All steps must be followed and completed to provide a complete installation. Incomplete or improper installations can lead to equipment malfunction and / or damage, create safety issues and void warranties. Please follow all installation and set ups steps as indicated in the installation instructions and owner's manual. If you are unclear or uncertain regarding any of the steps contact your Pentalift representative for clarification. A copy of the completed steps listing with the sign off and photos of the installation as indicated at the conclusion of the installation instructions will be required prior to any Pentalift factory trouble shooting assistance.

NOTE: The deck, lip and frame assemblies of the dock leveler are structurally subjected to loads on going. It is important to regularly visually inspect the dock levelers structurally for signs of damage or wear. Damage could be in the form of distorted, cracked or broken structural members or welds. Areas to review include but are not limited to; lip and headboards tubes, deck beam adhesion to the head board, deck plate and tail board and rear frame attachment to rear curb angle. Any damage or signs of cracking, etc. should be noted and addressed immediately. Immediate attention and action to address issues of this nature generally results in simple repairs. Issues that are left unchecked and / or unaddressed result in significant repairs and even entire replacement. The frequency of reviews should be a maximum of every 30 days. The frequency should be increased for higher frequency and use applications i.e. multiple shifts or high traffic loading docks.

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

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 37). 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.**

On an ongoing basis perform the following:

- **Read the SAFETY INFORMATION AND WARNINGS before servicing the dock leveler. (See page II.)**
- **Remove all debris from the dock leveler and pit area. Make sure that all lip hinges are free from debris.**
- **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 Figure 1: Precautionary Labels on page 2)**
- **Inspect equipment for protective coatings (i.e. paint) that has deteriorated or been removed. Prepare affected area and reapply protective coating as required.**
- **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.**
- **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 59: Optional Fallsafe Replacement Parts on page 56)**

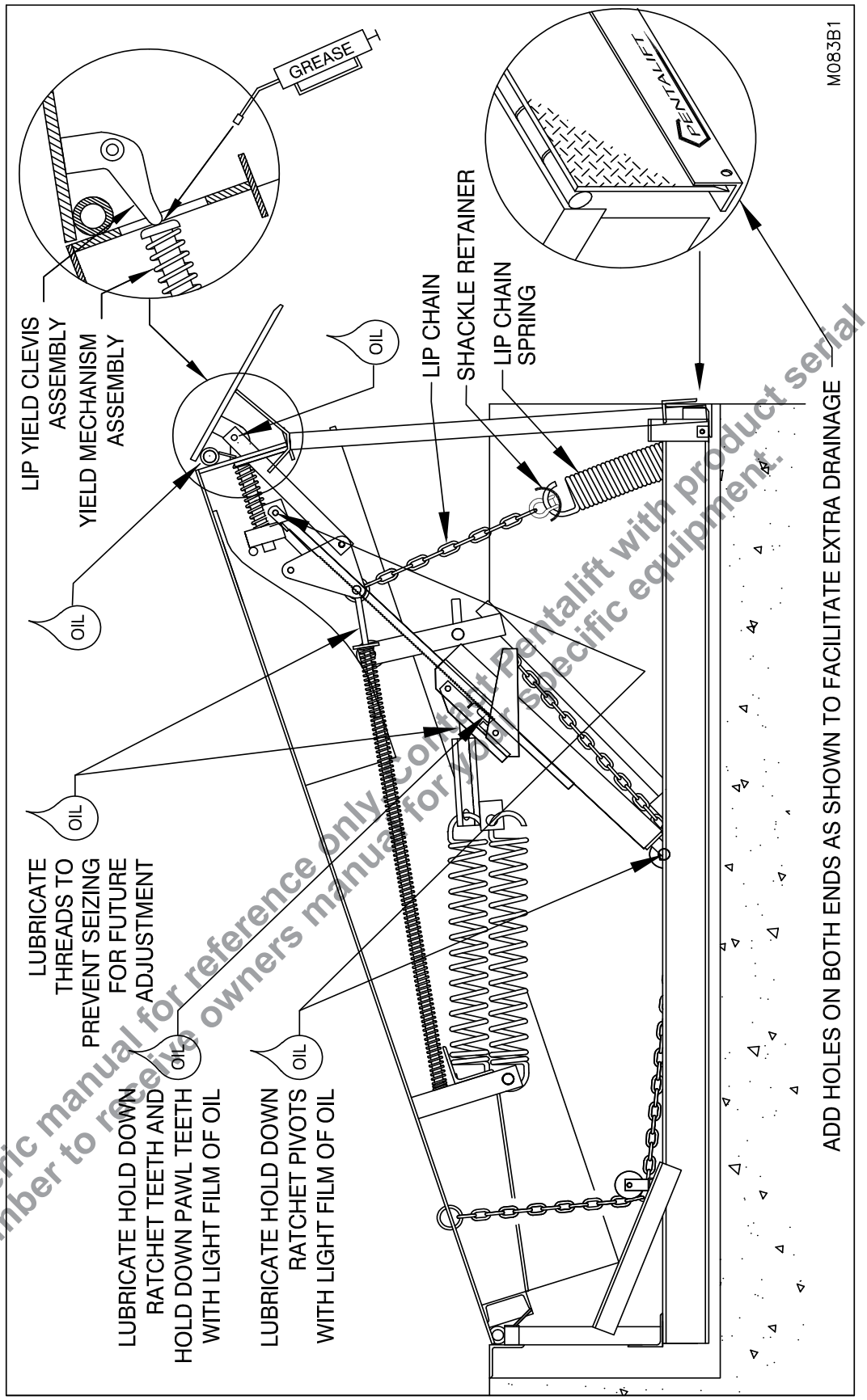
Inspect the lifting arm and the lifting arm roller's physical relationship with the cam. Confirm the lifting arm roller is running predominately in the center of the cam. If the lifting arm roller is not running predominately in the center of the cam determine the reason and address (see Figure 51: CAM ROLLER POSITION on page 42)

The lip chain, shackle retainer,lip chain spring function as an assembly to help activate the lip. They also serve the important function of stopping the dock levelers upward travel. They prevent the dock leveler from upward over travel. If these components break or are compromised, significant consequences may result. Confirm the proper placement and function of these components. If the components appear, worn damaged or compromised in any way discontinue the use of the dock leveler and replace the components immediately.
See the preceding adjustments pages for more information regarding adjustments to the dock leveler. Read the adjustments section entirely prior to making adjustments.

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, the yield mechanism assembly and lifting arm assembly (See Figure 50: Lubrication Points on page 41 and 39). 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.

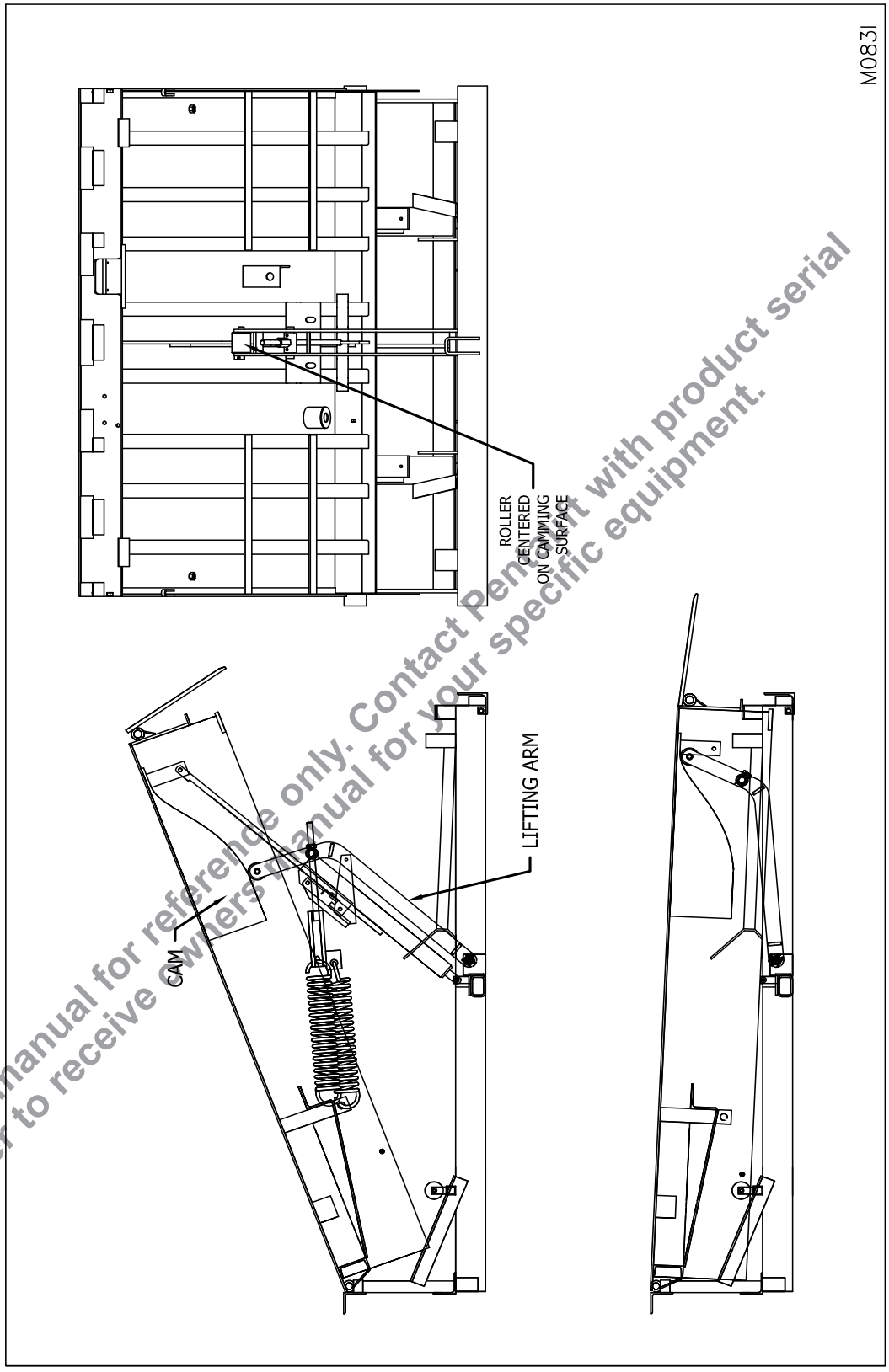
NOTE: This dock leveler is easy to convert from the existing manual mechanical operation to hydraulic – push button operation by utilizing Pentalift's MDHCK conversion kit. (See (HYDRAULIC CONVERSION KIT - FOR CURRENT MECHANICAL DOCK LEVELER OWNER on page 33)

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



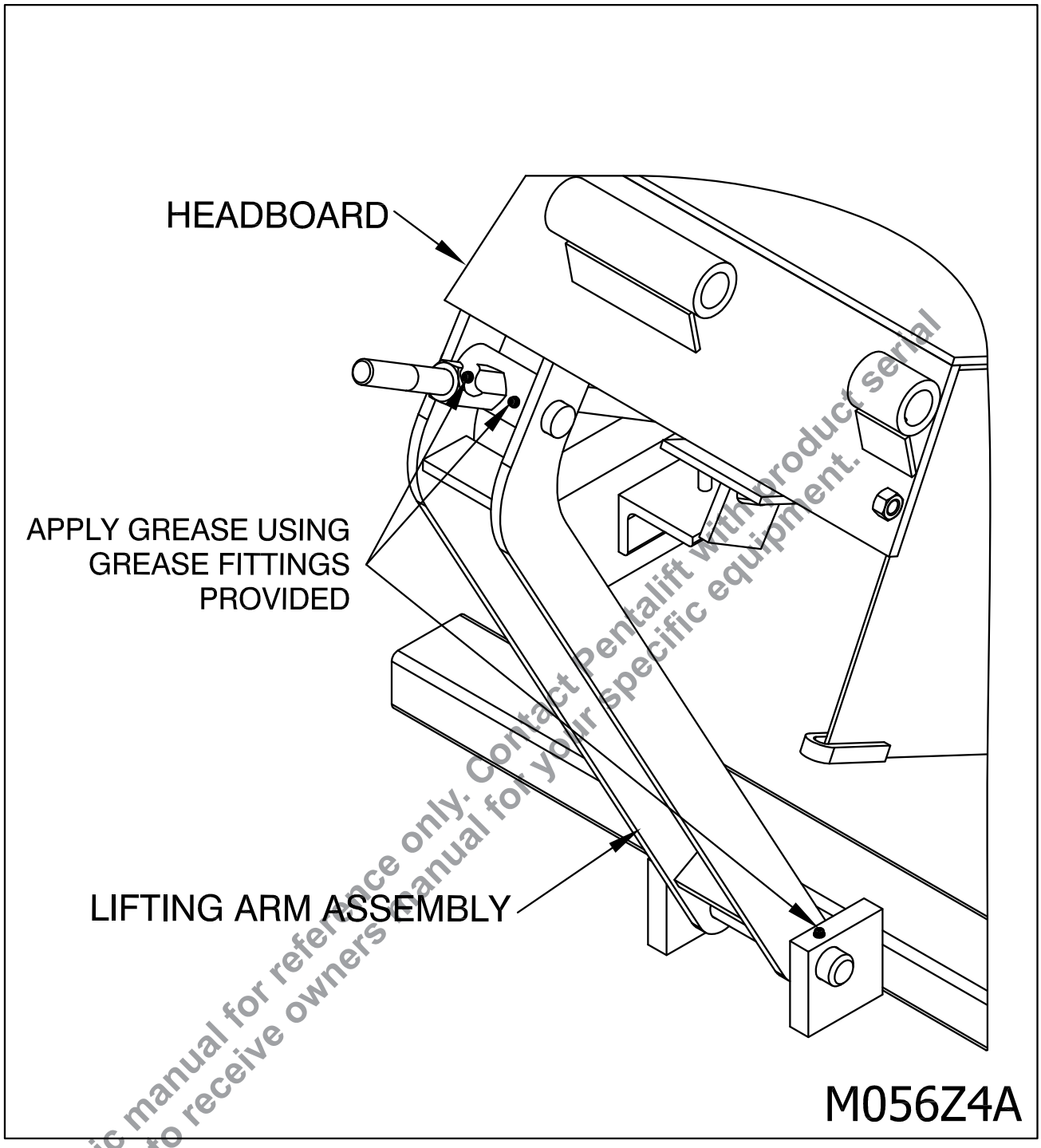
Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.

Figure 50: Lubrication Points



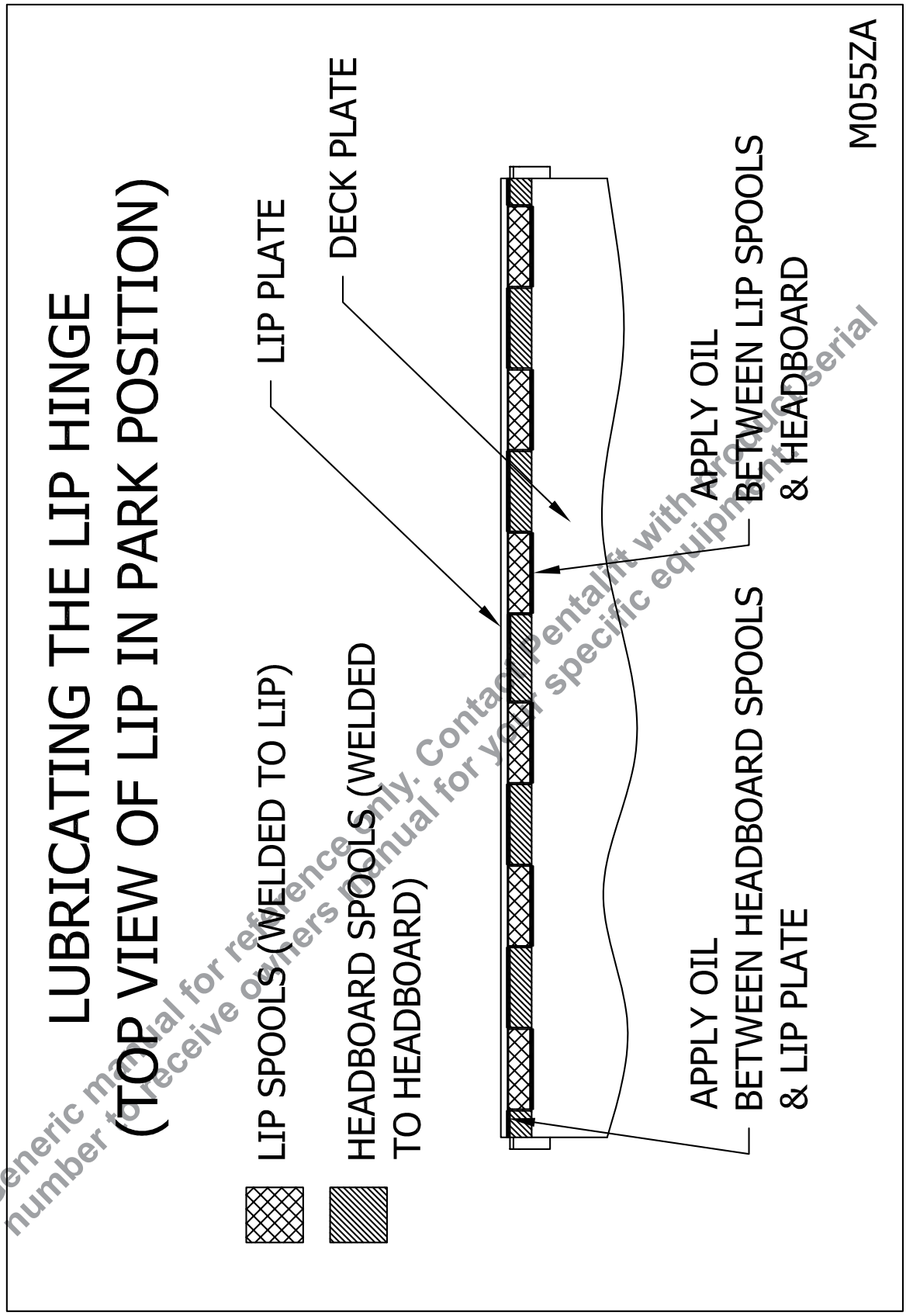
Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.

Figure 51: CAM ROLLER POSITION



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

Figure 52.1: Lubrication Points for Lifting Arm Assembly



Generic manual for reference only. Contact Pentalift with your 6 digit serial number to receive owners manual for your specific equipment.

Figure 52.2: Lubrication Points (Lip spools and Headboard spools)

ADJUSTMENTS

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 37). 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 39.

NORMAL SEQUENCES OF STEPS TO ADJUST MECHANICAL DOCK LEVELER THAT IS NOT PROPERLY FUNCTIONING

Whenever there is an issue with the operation of the mechanical dock leveler the following steps should be completed.

Note: The dock levelers are tested and set up at the factory. Over time, springs take a set and change in tension. As well site conditions and the friction of weather seal (if provided) can affect the required adjustments on the dock levelers.

1. **Do not** start by adding spring tension onto the dock leveler lift springs. This is the most common first step mistake that is made when addressing mechanical dock leveler issues. Adding lift spring tension at too high a level can be the source of other issues, including and not limited to: a) dock leveler deck twist when the dock leveler is in the parked position, b) hold down assembly not properly holding the dock leveler down or c) too high of a walk down force or weight required to lower the dock leveler.

2. Confirm that lip hinge assembly is free from debris and obstructions. Concrete, stucco, parging materials, nails, screws, pieces of wood from pallets and skids and other debris can be present at the hinge assembly. Any debris of this nature can inhibit the proper operation by creating additional friction or impediments to lips rotational engagement movement. Debris of this nature should be removed on a regular ongoing basis. The user of the equipment should be made aware of this concern and the need to clean and maintain this aspect of the dock leveler on a regular basis.

3. Make sure the dock leveler lip hinge assembly is properly lubricated in accordance with the owner's manual instructions (see MAINTENANCE AND LUBRICATION on page 39).

4. Make sure the dock leveler lip spring adjustment is set at the correct level as the instructions on (see LIP ASSIST SPRING ADJUSTMENT on page 46). This is a vital adjustment. Proper adjustment of the lip assist spring will allow the lip spring adjustment to be minimized and avert the issues listing item 1 above.

5. Confirm that the hold-down is holding the deck correctly. (See ADJUSTMENTS TO LIP AND LIFT SPRINGS RELATIVE TO RATCHED HOLD DOWN on page 49)

6. Confirm that the dock leveler lift spring tension is properly set. The tension should be sufficient to extend the lip (with proper adjustment on the lip assist spring) but with not too heavy a walk down force. If the lip is fully extending when the dock leveler is activated, experiment with the lift spring tension by reducing the tension until the low possible walk down force required results but yet the lip still extends and locks when the dock leveler is activated from the stored / parked position. The goal is to balance the force required to extend the lip to lock when the dock leveler is activated against the a low walk down force. Activating the dock leveler by firmly pulling and holding the release chain to it's full extent. If the lip continues to extend and lock the lift spring tension is sufficient. If the lip does not extend and lock more lift spring tension may be required. Again, you are working on a balance point.

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

LIP ASSIST SPRING ADJUSTMENT

Note: This is a very important adjustment that is often not understood or properly set up.

Note: On deck levelers with lighter lips additional spring assist tension is not required and therefore the lip spring bar is provided with no threads for adjustment. For dock levelers of this configuration lip tension adjustment is not provided.

The purpose of the lip assist spring adjustment is to provide a means of compensating for the dock leveler lip weight to the point that the dock leveler lip is downward bias but with a lower level of downward bias. The benefit of proper adjustment of the lip assist spring is that it reduces the lift spring tension required in order to make the dock leveler properly function and extend and lock the lip when the dock leveler is activated.
Adjusting the lip assist spring with too much spring tension will result in the lip not having sufficient downward bias to move to the pendent and parked position and to fully retract behind the lip keepers when the dock leveler is in the stored position. Too little lip assist spring adjustment may result in one or more of the following issues:

1) When the dock leveler is activated from the stored / parked position the dock leveler lip assembly will not rotate sufficiently high to allow full locking activation of the lip into the extended position. This puts the dock leveler in a condition where it is not usable.

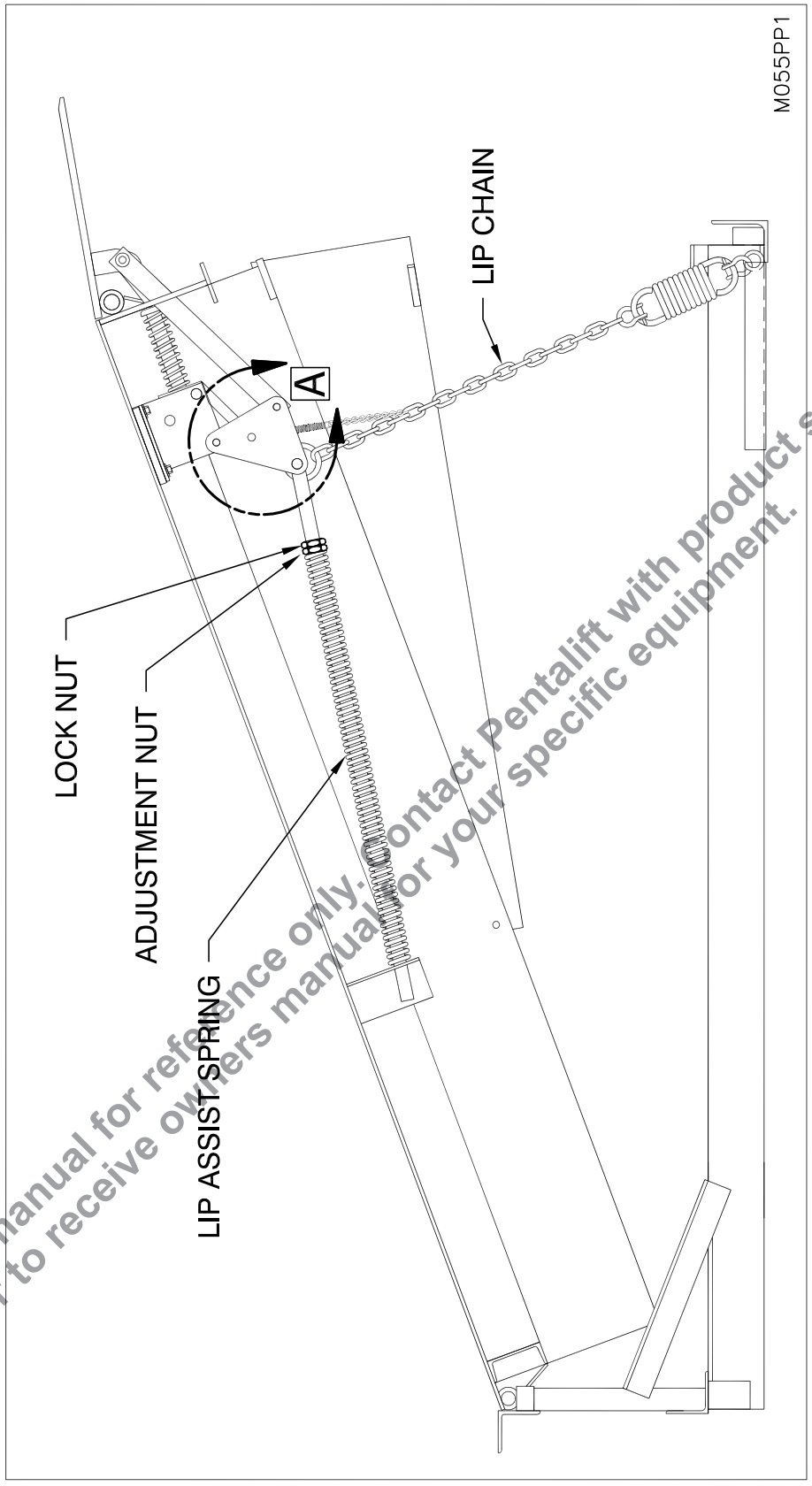
2) If the lift springs are adjusted with more (and too much) tension to compensate for the insufficient adjustment of the lip assist spring this will result in one or more of the following issues:
   a. Dock leveler deck twist when the dock leveler is in the parked position
   b. The hold down assembly not properly holding the dock leveler down. The dock leveler deck drifts up when parked or bounces up as weight is driven over it. This is due to an overload of upward force due to too much lift spring tension.
   c. Too high of a walk down force or weight required to lower the dock leveler after it is activated into the raised position with the lip extended.

To adjust the lip assist spring, release the lock nut and advance the adjustment nut clockwise 1 to 2 turns at a time (See Figure 53: Lip Spring Adjustment on page 47) to produce the appropriate tension to allow the lip to extend and lock the lip while still allowing the lip to fully fall to the pendant position when the lip is released. To determine when sufficient spring tension adjustment has been achieved hold the dock leveler lip at 45 degrees. It should take approximately 15 to 20 lbs of force maximum to hold the lip from falling when in this position. If the force is more add more lip assist spring tension if the force is less remove lip assist spring tension. Also confirm that from the 45 degree position when the lip is released (let go) by hand, it will fall to the fully pendant position. If it does not then remove lip assist spring tension.

Note: 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. Shortening the chain will interrupt the dock levelers lip extension or cause the lip to extend too early resulting in a lowered above level service range for the dock leveler.

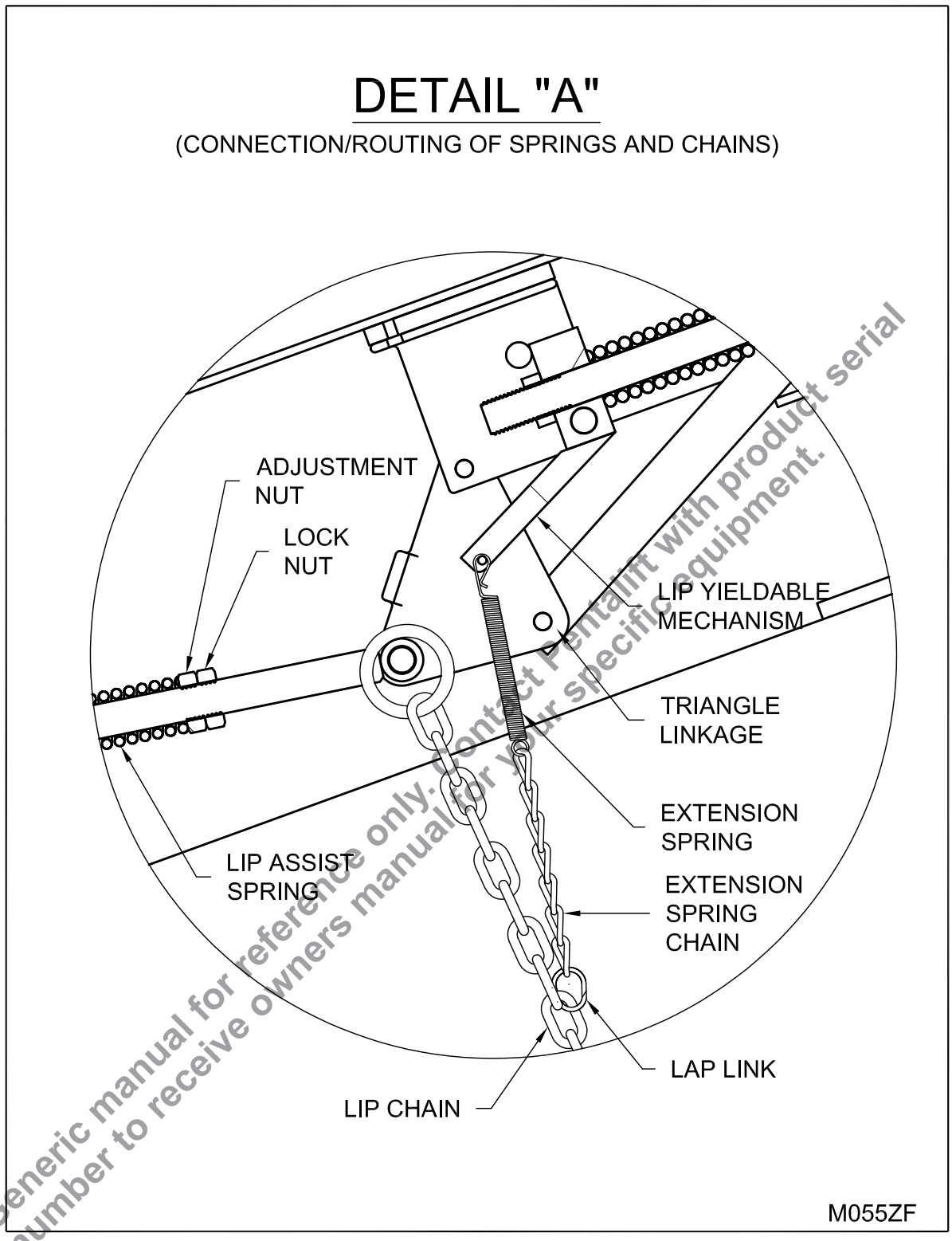
Note: When replacing lip chain, extension spring chain and extension spring, ensure each component is properly connected, routed and secured to the appropriate connection points (seeFigure 54: Chain and Spring connection and routing for Lip Yieldable Mechanism on page 48).

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



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

Figure 53: Lip Spring Adjustment



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

Figure 54: Chain and Spring connection and routing for Lip Yieldable Mechanism

MAIN LIFT SPRING ADJUSTMENT

Do not attempt to adjust the Main Lift Springs until the Lip Assist Springs have been adjusted. Refer to “Normal sequence to adjust Mechanical Dock Leveler that is not properly functioning” (see NORMAL SEQUENCES OF STEPS TO ADJUST MECHANICAL DOCK LEVELER THAT IS NOT PROPERLY FUNCTIONING on page 45). Proper adjustment of the main lift spring is to provide enough spring tension to allow the deck to fully rise with sufficient speed and force to completely extend and lock the lip at the fully raised position while not having too much tension. If the deck appears to have enough speed and force 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 55: Main Lift Spring Adjustment on page 49) clockwise ½ 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.

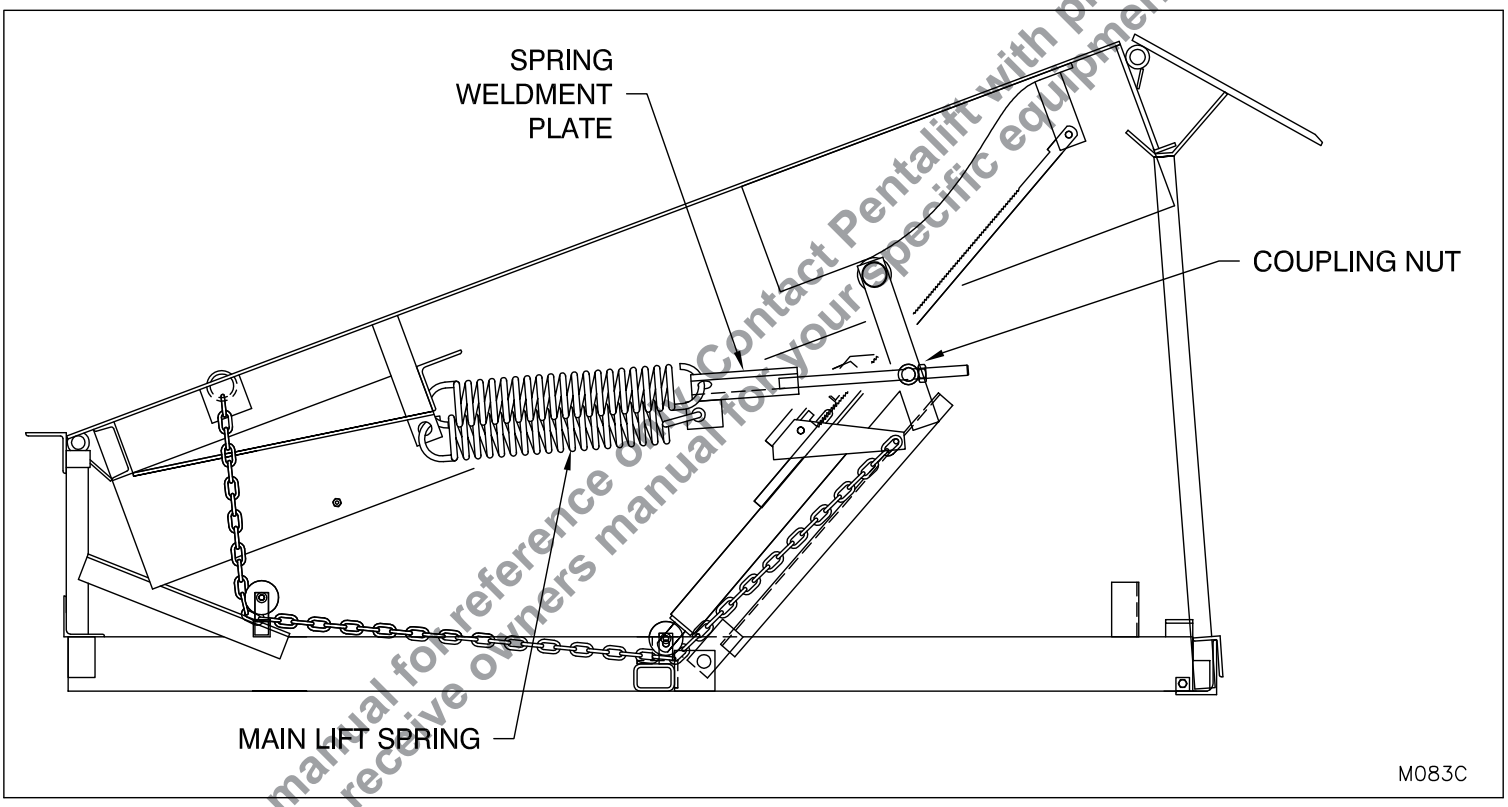


Figure 55: Main Lift Spring Adjustment

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

ADJUSTMENTS TO LIP AND LIFT SPRINGS RELATIVE TO RATCHET HOLD DOWN

If the deck of the dock leveler has a tendency to have an excessive upward float, confirm the Lip Assist and Main Lift Springs are properly adjusted. If the dock leveler raises back up slightly when it is “walked down” to the cross traffic or parked position, the ratchet or pawl may be worm or broken (with broken teeth) and require repair.

LIP YIELD MECHANISM

Lip Actuator and Lip Assist Chain connections and routings;

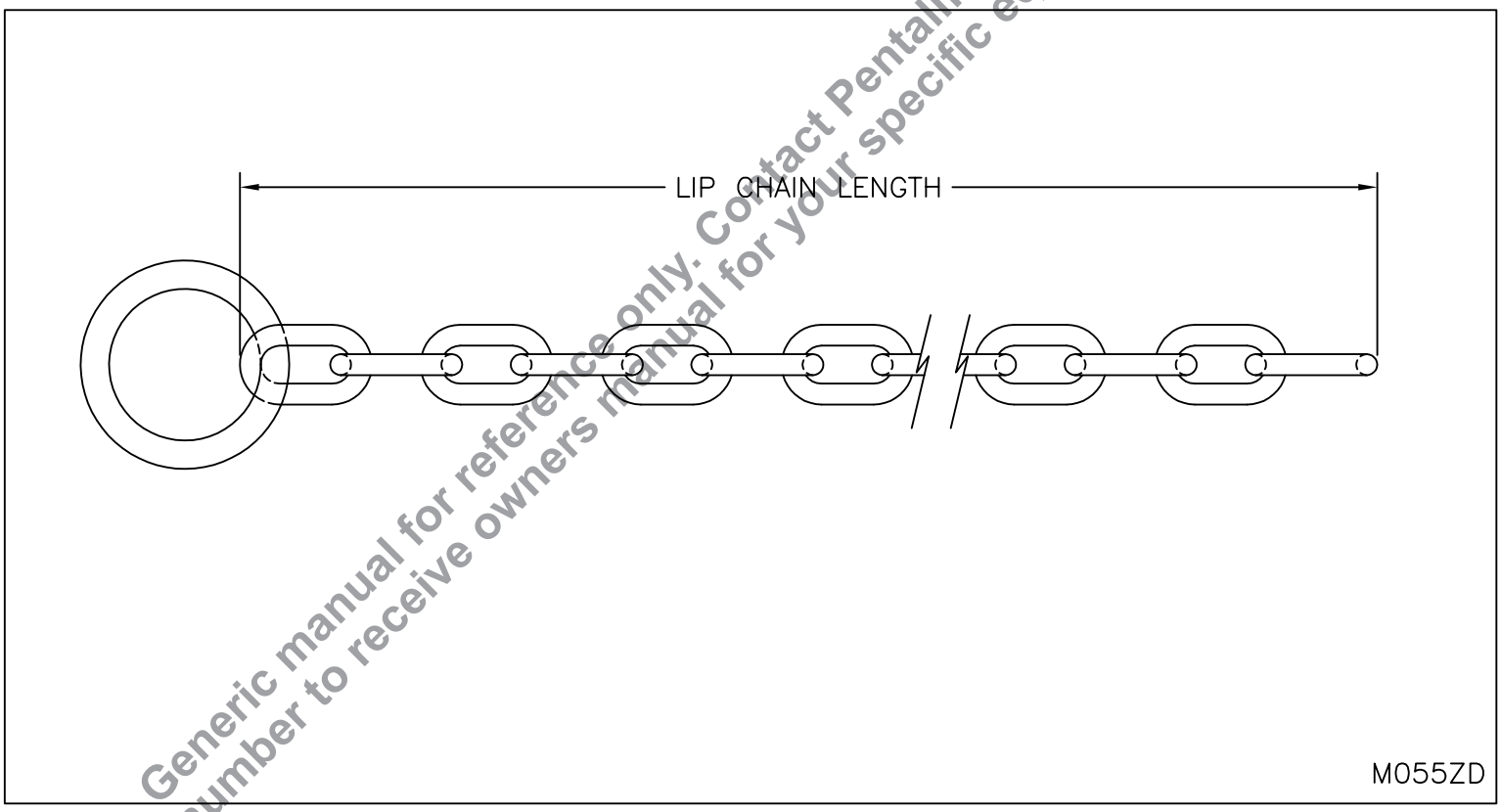
Visually confirm that the component, spring and chain arrangements and routing paths shown in these illustrations exist on the subject dock leveler (See Figure 57: Chains and Spring Components on page 51). If anything is missing or appears damaged then repair or replace to match the arrangement shown here. Look for damaged or worn springs or spring connections.

Note: The length of the lip chain at the front of the dock leveler is preset at the factory. It is important that the length of this chain not be altered. Lengthening of the chain could allow the deck to over-travel causing the lifting arm roller to roll off the back of the cam and other functional issues. Shortening the chain will reduce the above level range of the dock leveler as well as cause other functional issues.

The following is the lip chain length for the various dock leveler length:

1. For a 6 feet long dock leveler, the lip chain length is 22 inches nominal.
2. For a 8 feet long dock leveler, the lip chain length is 23 3/4 inches nominal.
3. For a 10 feet long dock leveler, the lip chain length is 25 5/8 inches nominal.

The tolerenaces on the lip chain length is +3/8 and -1/4 inches.



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

Figure 56: Lip Chain

NOTE: This dock leveler is easy to convert from the existing manual mechanical operation to hydraulic – push button operation by utilizing Pentalift's MDHCK conversion kit. (See (HYDRAULIC CONVERSION KIT - FOR CURRENT MECHANICAL DOCK LEVELER OWNER on page 33)

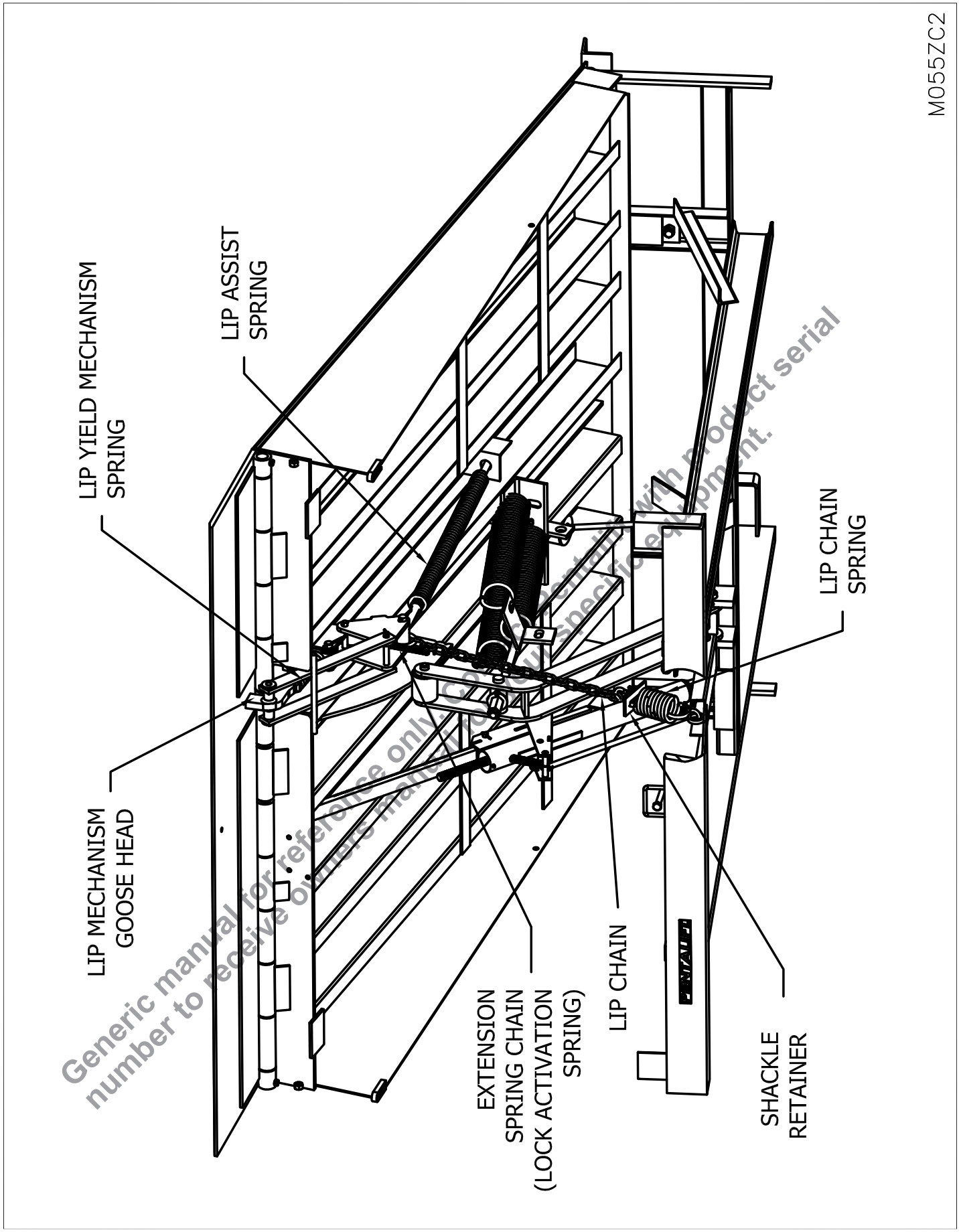


Figure 57: Chains and Spring Components

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 or improper adjustment. 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 incorrectly adjusting or tampering with the equipment.

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

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 49.

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 optimal operation of the dock levler. 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 46.

It is important to understand that because this is a mechanical device relying on a proper “balance” between various mechanisms 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**.

Below are some common symptoms and potential corrective actions. Utilizing these points of information make sure that all aspects of the normal sequence of steps to adjust the mechanical dock leveler have been followed (see NORMAL SEQUENCES OF STEPS TO ADJUST MECHANICAL DOCK LEVELER THAT IS NOT PROPERLY FUNCTIONING on page 45).

⚠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 37). 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 reference only. Contact Pentalift with product serial number to receive owner's manual for your specific equipment.

Deck fails to rise when release ring is pulled.

1. Confirm the release chain is fully pulled quickly to its stopping point and held at the stopping point until the dock leveler discontinues to move. Partially pulling the chain or letting the chain go too soon will cause the dock leveler to malfunction.
2. Check release chain to ensure it is properly attached to release arm.
3. Check for any friction points that may be holding the dock leveler from moving.
4. Follow all steps of steps to adjust main lift spring (see MAIN LIFT SPRING ADJUSTMENT on page 49).
5. If the problem cannot be solved, consult your authorized Pentalift representative.

Deck fails to rise completely and or the dock leveler lip fails to extend when the release ring is pulled.

1. Confirm the release chain is fully pulled quickly to its stopping point and is held at the stopping point until the dock leveler discontinues to move. Partially pulling the chain or letting the chain go too soon will cause the dock leveler to malfunction.
1. Ensure all steps have been properly followed to adjust main lift spring and/or lift assist spring (see ADJUSTMENTS on page 45)
2. Check for debris or obstruction that may interfere with the operation of any moving parts. Specifically inspect & remove any debris or obstructions in the lip hinges of the dock leveler.
3. If the problem cannot be solved, consult your authorized Pentalift representative.

Deck cannot be walked down.

1) Confirm that the weight of the person walking down the dock leveler is sufficient. The weight required will vary depending on the size and configuration of the dock leveler.
2) Check deck assembly for obstruction.
3) Too much main lift spring tension or improper adjustment (see ADJUSTMENTS on page 45). Follow all steps under sequence of adjustment.
4) If the problem cannot be solved, consult your authorized Pentalift representative.

Deck drifting up when parked.

1. Confirm the release chain and link is not binding and preventing the ratchet from fully engaging.
2. Inspect that no foreign substances such as grease, paint or dirt are on the ratchet teeth. Remove any foreign substances that may interfer with the operation of the hold down.
3. Check for broken teeth on the ratchet or pawl. Replace damaged ratchet and pawl.
4. Excessive lift spring tension. Excessive lift spring tension results in an overloading of upward force on the hold down, which results in ratchet slippage. Follow steps on dock leveler set up. (see ADJUSTMENTS on page 45)
5. If the problem cannot be solved, consult your authorized Pentalift representative.

Lip will not return to pendant position.

1) Inspect lip spools for debris or obstruction.
2) Make sure the dock leveler is properly lubricated. Focus in particular on the lip hinge maintenance. (See MAINTENANCE AND LUBRICATION on page 39)
3) Lip assist spring is out of adjustment (see ADJUSTMENTS on page 45).
4) If the problem cannot be solved, consult your authorized Pentalift representative.

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

1. Follow all steps under sequence of steps for addressing dock leveler.
2. If the problem cannot be solved, consult your authorized Pentalift representative.

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

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.

NOTE: This dock leveler is easy to convert from the existing manual mechanical operation to hydraulic – push button operation by utilizing Pentalift's MDHCK conversion kit. (See (HYDRAULIC CONVERSION KIT - FOR CURRENT MECHANICAL DOCK LEVELER OWNER on page 33)

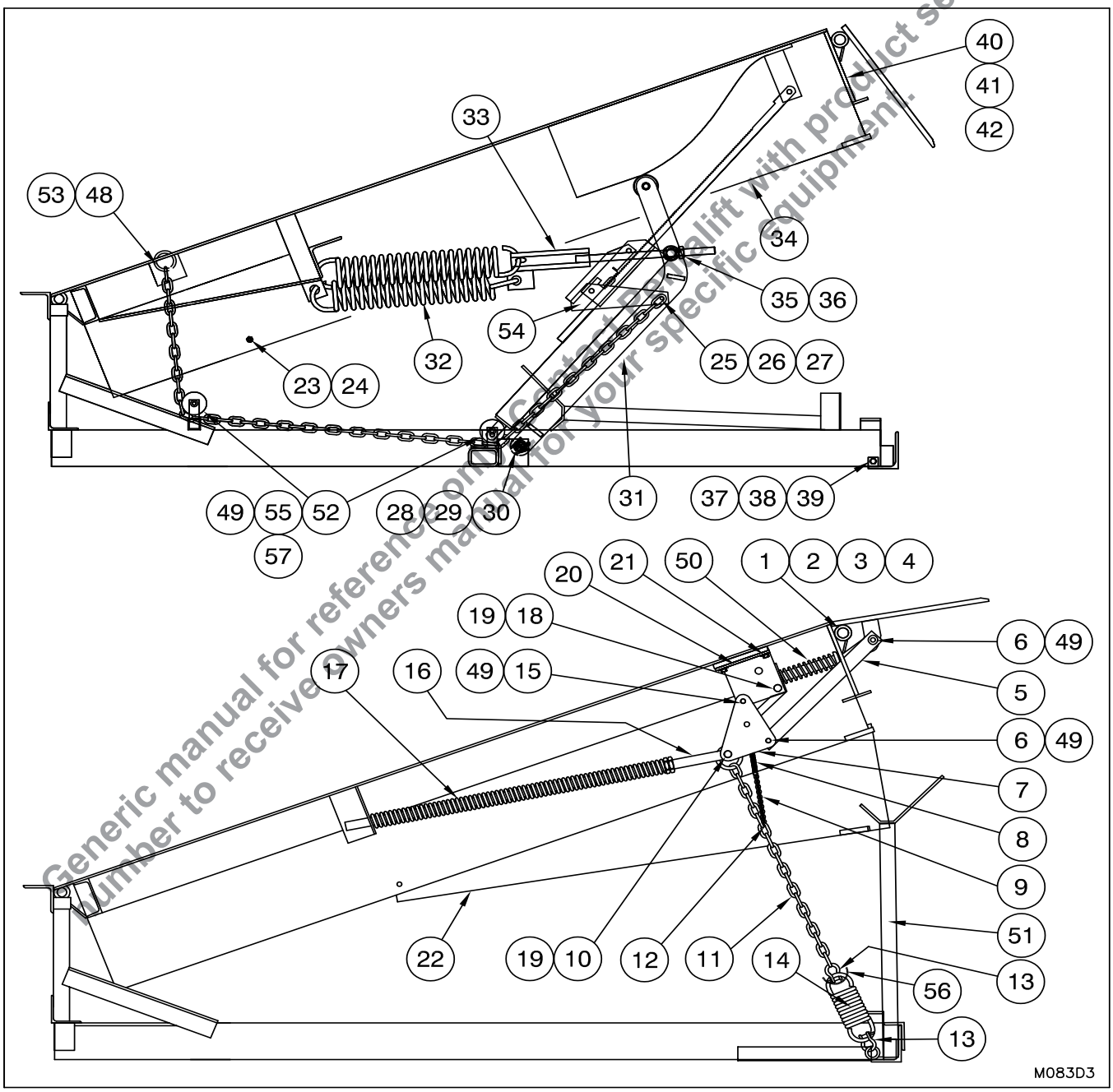
REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

⚠DANGER **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.



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

Figure 58: Dock Leveler Replacement Parts

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

DOCK LEVELER REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

Item #	Part No.	Description
1	302-0379	Lip Pin for 6 ft wide deck
	302-0381	Lip Pin for 7 ft wide deck
2	072-0018	Lip Pin Retaining Bolt
3	070-0010	Lip Pin Retaining Nut
4	074-0025	Lip Pin Retaining Washer
5	302-1010	Middle Linkage Arm
6	302-1023	Middle Linkage Pin
7	802-1830	Triangle Linkage Weldment
8	302-1275	Extension Spring
9	302-1085	Extension Spring Chain
10	302-1026	Lip Assist Rod Pin
11	NOTE	Lip Chain for a
	802-2306	6 ft long dock leveler
	802-2307	8 ft long dock leveler
	802-2308	10 ft long dock leveler
12	087-0159	Lap Link
13	087-0037	Shackle
14	302-0951	Lip Chain Spring
15	302-1025	Triangle Linkage Pin
16	NOTE	Lip Assist Welment for a
	802-3191	16” lip and 1/2” thick lip plate
	802-1828	Lip greater than 16” and/or lip thickness greater than 1/2”
17	302-1004	Lip Assist Spring
18	302-1024	Yield Mechanism Pivot Pin
19	082-0010	3/16” x 2” Cotter Pin
20	802-1829	Bracket Box Weldment
21	072-0232	Bracket Box Bolts
22	NOTE	Full Range Toe Guards (Optional)
	302-1053	10 ft Upper
	302-1054	10 ft Lower
	302-1048	8 ft Upper
	302-1051	6/8 ft Lower
	302-1050	6 ft Upper
23	072-0095	Toe Guard Bolt
24	070-0022	Toe Guard Lock-Nut

Item #	Part No.	Description
25	072-0005	Release Chain Bolt
26	070-0018	Release Chain Nut
27	074-0005	Release Chain Washer
28	302-9007	Lifting Arm Pivot
29	080-0001	Spring Pin
30	052-0170	Grease fitting
31	802-3099	Lifting Arm Weldment
32	302-0390	Lift Spring
33	802-1446	Spring Plate Weldment (3)
	802-1450	Spring Plate Weldment (4)
	802-1454	Spring Plate Weldment (5)
34	802-0604	6 ft Long Release Arm
	802-0603	8 ft Long Release Arm
	802-0602	10 ft Long Release Arm
35	074-0025	Washer
36	070-0082	Coupling Nut
37	072-0138	Bolt
38	070-0015	Nut
39	074-0015	Washer
40	072-0001	Bolt
41	070-0049	Nut
42	074-0018	Washer
43	-	-
44	-	-
45	-	-
46		
47		
48	802-0605	Release Chain Weldment
49	082-0001	1/8” x 1” Cotter Pin
50	802-1832	Lip Yield Mechanism Assembly
51	802-2716	Maintenance Stand
52	302-1509	Chain Roller
53	802-2764	Release Chain for 6ft Deck
	802-2765	Release Chain for 8ft Deck
	802-2766	Release Chain for 10ft Deck
54	802-3101	Ratchet Hold Down
55	0720040	Bolt;Hex;3/8-16 X 2;Gr.2
56	302-9048	Retainer Shakle
57	0700022	Nut;Hex;Nylock;3/8-16;Zinc

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

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

OPTIONAL FALLSAFE REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

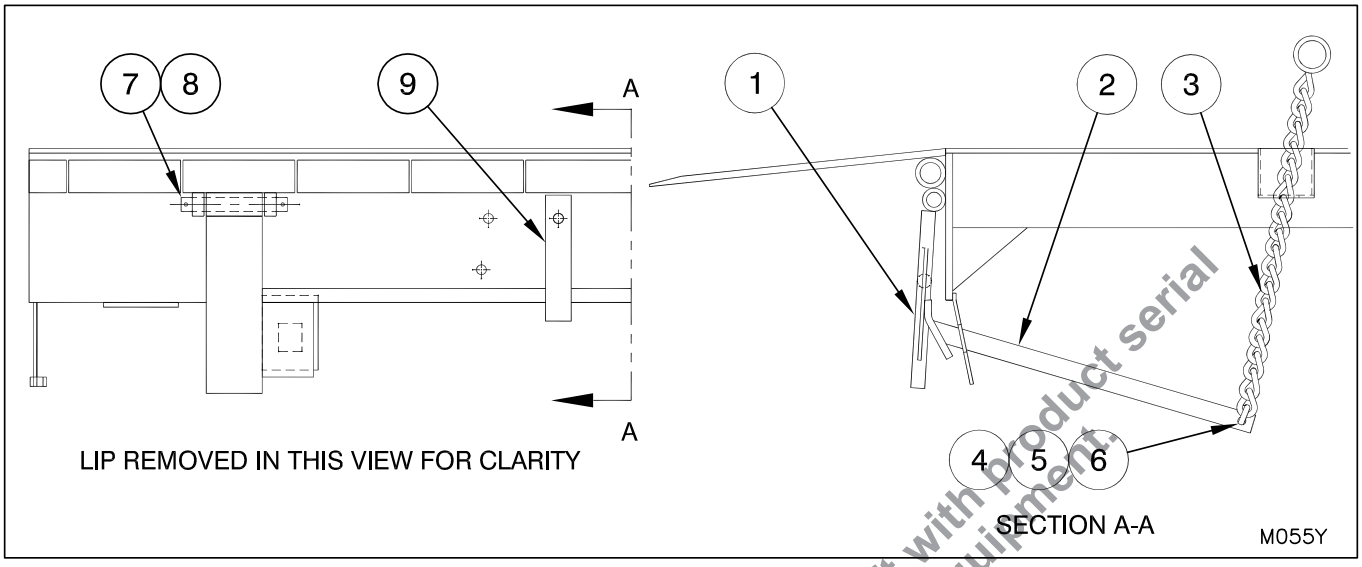


Figure 59: Optional Fallsafe Replacement Parts

Item #	Part No.	Description
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.

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

LIST OF ILLUSTRATIONS

Figure 1: Precautionary Labels 2
Figure 2a: Precautionary Label Locations - Front Angle 3
Figure 2: Precautionary Label Locations 3
Figure 3: Hoist Using Lifting Devices 6
Figure 4: Shipping Wire, Bolts and Lifting Devices 7
Figure 5: Shim Front Frame 7
Figure 6: Shim Rear Frame 7
Figure 7: Wedging the Rear Frame Angle to the Rear Pit Curb Angle 8
Figure 8: Weld to Rear Curb Angle 8
Figure 9: Weld to Front Curb Angle 9
Figure 10: Shim Beneath Lifting Arm Bracket 9
Figure 11: Top Flange Removal Diagram 9
Figure 12: Tighten the Shackle 10
Figure 13: Curb Angle Force Chart 11
Figure 14: Rear Shim (4” Shim Kit Shown) 12
Figure 15: C-channel Shims 12
Figure 16: Rear Shim Location (4” High Rear Shim Shown) 13
Figure 17: Hoist Leveler with Chain 13
Figure 18: Top Flange Removal Diagram 14
Figure 19: 30,000 lb + Outer Rear Shims (4” Shim Kit Channel Shim Shown) 14
Figure 20: Welding the 3 X 3 Square Tubing to the Curb Angles 16
Figure 21: Welding the 4 X 3 Rectangular Tubing to the Curb Angles 16
Figure 22: Welding the 4 X 3 Rectangular Tubing to the Curb Angles 17
Figure 23: Installing the filler plate 17
Figure 24: Welding the 4 X 3 Rectangular Tubing to the Curb Angles 18
Figure 25: Installing the filler plate 19
Figure 26: Front Angle and Optional Failsafe Support Block Shims 20
Figure 27: Thrust Beam Shims 20
Figure 28: Rear Shims 21
Figure 29: Rear Angle Flush with Curb Angle 21
Figure 30: Pour-In Pan Components 23
Figure 31: Foundation cut out and support pad 24
Figure 32: Dock Leveler in Position 25
Figure 33: One Inch (1”) Gap 25
Figure 34: Shipping Wire, Bolts and Lifting Devices 25
Figure 35: Deck Alignment 26
Figure36A: Shimming 20” Lips 26
Figure 36: Shimming 16” & 18” Lips 26
Figure 37: Dock Leveler Installed 27
Figure 38: Lift Until Liplock Releases 29
Figure 39: Lower Until Vertical 29
Figure 40: Deck in Stored Position 31
Figure 41: Walk Down the Deck 32

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

Figure 42: 4” Penetration 32
Figure 43: Hydraulic Conversion Kit 34
Figure 44: Below Level Control Operation 35
Figure 45: Lip Keeper 35
Figure 46: End Loading/ Unloading 36
Figure 47: Below Level End Loads 36
Figure 48: Supporting the Dock Leveler for Maintenance 37
Figure 49: Supporting the Dock Leveler with Mechanical Fallsafe 38
Figure 50: Lubrication Points 41
Figure 51: CAM ROLLER POSITION 42
Figure 52.1: Lubrication Points for Lifting Arm Assembly 43
Figure 52.2: Lubrication Points (Lip spools and Headboard spools) 44
Figure 53: Lip Spring Adjustment 47
Figure 54: Chain and Spring connection and routing for Lip Yieldable Mechanism 48
Figure 55: Main Lift Spring Adjustment 49
Figure 56: Lip Chain 50
Figure 57: Chains and Spring Components 51
Figure 58: Dock Leveler Replacement Parts 54
Figure 59: Optional Fallsafe Replacement Parts 56

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 change 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.

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

WR001R02

PENTALIFT TM

P.O. Box 1510, Buffalo, NY, U.S.A. 14240-1510
Phone: (519) 763-3625 □ FAX (519) 763-2894
P.O. Box 1060, Guelph, ON, Canada N1H 6N1
Phone: (519) 763-3625 □ FAX (519) 763-2894

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