



BM1 Series Mechanical Pit Levelers

BEACON® 

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WARNING

DO NOT install, operate or service product unless you have read and understand the Safety Procedures, Warnings, Installation and Operating instructions contained in this manual. Failure to do so could result in serious injury and/or death.

Safety Procedures



WARNING: Read and understand all safety practices and operating instructions Before installing, operating or servicing the dock leveler. Failure to follow the safety practices and operating instructions may result in property damage, serious bodily injury and/or death.

If you do not understand the safety procedures or the instructions, ask your supervisor to explain the safety procedures and/or teach you how to use the dock leveler.



CAUTION: The installer and/or operator MUST be very familiar with the operation, function and various parts of the BEACON Pit Leveler PRIOR to installation and/or operation. If this is not the case, it is IMPERATIVE that the installer and/or operator read, and fully understand, the entire contents of this manual. **Be certain to read and understand all warning and caution statements contained in this manual prior to any, operation or servicing of this unit.**

- 1 Do not operate this equipment while under the influence of drugs or alcohol.
- 2 Do not stand in the driveway between the dock leveler and a truck backing or pulling away.
- 3 Be sure the truck wheels are chocked, or the truck is held in place by a restraining device, before attempting to load or unload the truck.
- 4 Do not use the dock leveler if it looks broken or does not seem to operate correctly. Lockout/tag out the defective equipment. Tell your supervisor immediately.
- 5 Do not operate the leveler with equipment, material or people on the platform and/or lip or in front of the leveler.
- 6 Be certain that equipment, material and/or people are not on the dock leveler before allowing a truck to pull out.
- 7 Keep clear of the dock leveler when it is moving. Never place your hands, arms, feet, or legs in the position where a moving dock leveler or a moving load could cause injury. **If in doubt, do not do it!**
- 8 If the dock leveler is not working properly, using the operation instructions in this manual, **do not use the dock leveler.** Contact your authorized BEACON representative.
- 9 Never attempt to work under the dock leveler, for service or repair, without proper placement of maintenance strut.
- 10 Damage to the dock leveler, personal injury or death can result from abuse and/or negligent use of this equipment.
- 11 If you have any questions, or if a malfunction occurs which is not understood, ask your supervisor to contact your authorized BEACON representative for assistance PRIOR to attempting any corrective measures.



THIS IS THE SAFETY ALERT SYMBOL. IT IS USED TO ALERT YOU TO POTENTIAL PERSONAL INJURY HAZARDS. OBEY ALL SAFETY MESSAGES THAT FOLLOW THIS SYMBOL TO AVOID POSSIBLE INJURY AND/OR DEATH.



WARNING

INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN SERIOUS INJURY AND/OR DEATH.



KEEP THIS MANUAL AND ALL SAFETY PROCEDURES IN A SECURE LOCATION WITH EASY ACCESS.



WARNING! READ AND UNDERSTAND THIS ENTIRE MANUAL PRIOR TO OPERATING THIS EQUIPMENT.



WARNING! A DOCK LEVELER CAN BE A POTENTIAL THREAT TO PERSONS AND PROPERTY, IF NOT USED PROPERLY. SAFE OPERATION IS THE RESPONSIBILITY OF THE OPERATOR.



WARNING! DO NOT ENTER THE AREA IN FRONT OF OR BELOW THE DOCK LEVELER. SERIOUS PERSONAL INJURY AND/OR DEATH MAY RESULT.



WARNING! DO NOT ATTEMPT TO INSTALL, MAKE REPAIRS OR ADJUSTMENTS. ONLY A TRAINED AND AUTHORIZED SERVICE TECHNICIAN SHOULD PERFORM REPAIRS OR ADJUSTMENTS. ONLY A QUALIFIED CONTRACTOR/SUB-CONTRACTOR SHOULD PERFORM THE INSTALLATION PROCESS. CONTACT YOUR LOCAL BEACON DEALER FOR ASSISTANCE.

SECTION 1

**INSTALLATION INSTRUCTIONS
RECEIVING AND HANDLING**

RECEIVING:



WARNING

Before installing the dock leveler, read and follow the safety procedures and the operating instructions. Failure to follow the safety procedures could result in serious injury and/or death.

Check for possible damage or missing parts immediately upon receipt of unit. Note any damage on receiving papers.

Prepare any claims against carrier if necessary.

NOTE: Damage noticed after receipt must be reported to carrier within 5 days.

Notify Beacon of any damage or missing parts.

HANDLING:

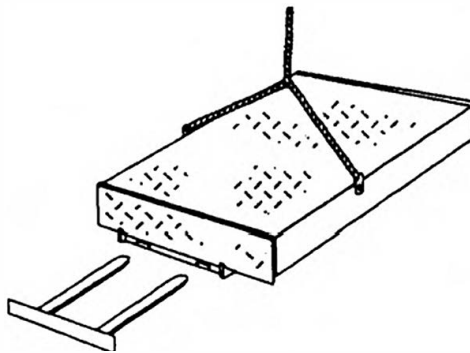


FIGURE A

Move leveler into position by using:

- chain sling inserted into side plate holes. (See Figure A).
- fork lift, inserted into front fork slots.
- fork lift, inserted into rear fork slots just below deck.

NOTE:

Two bumpers are shipped with each leveler and weather seals, if applicable, are strapped under leveler. Handle with care to avoid damage to these

SECTION 1

**INSTALLATION INSTRUCTIONS
INSTALLATION**

INSTALLATION: (Consists of 3 phases)

Pit Preparation

Leveler Preparation

Leveler Installation



CAUTION: Before you start to install the leveler, use proper safety signs and barriers to separate the work area from the remainder of the dock.

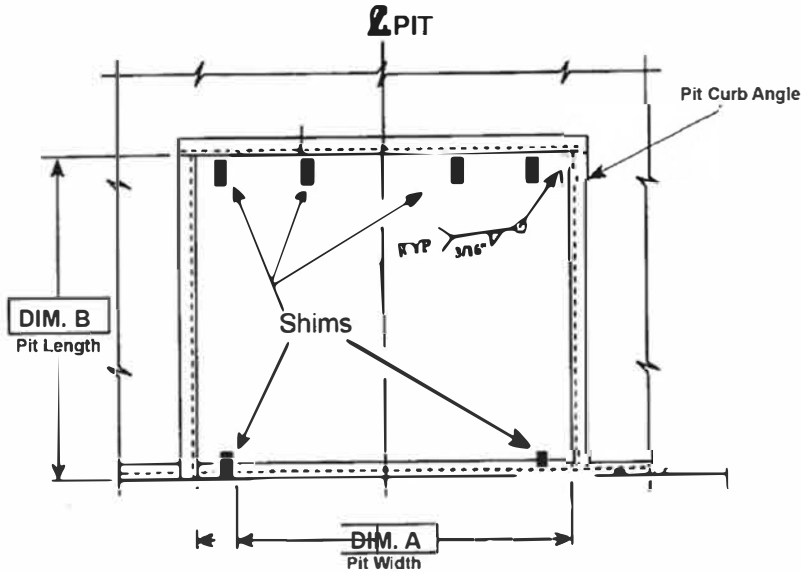


WARNING

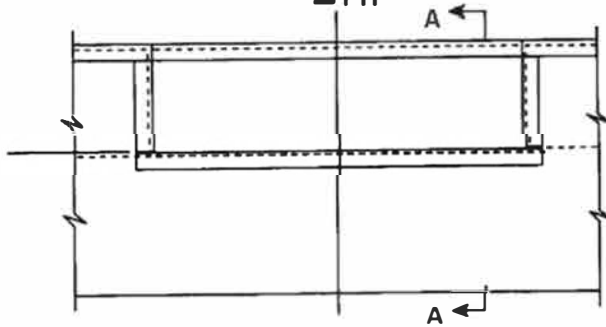
Never allow anyone to stand on or near dock leveler when it is being lifted or placed into the pit. Failure to follow this warning can allow the dock leveler to fall, tip, or swing into people, resulting in serious injury and/or death.

FIGURE B - PLAN VIEW

BM1Series Pit Detail



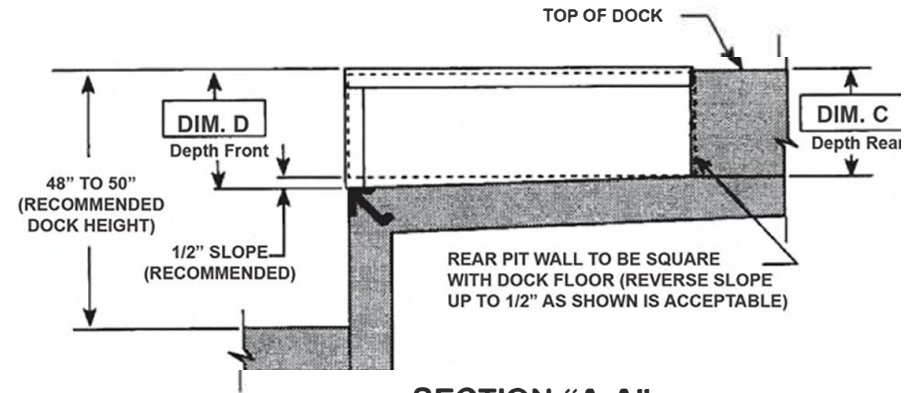
PLAN
DIM. "B" MAT'L; A-36 C. STEEL



FRONT ELEVATION
DIM. "B" MAT'L; A-36 C. STEEL

VARIABLE DIMENSIONS				
MODEL SIZE	"A"	"B"	"C"	"D"
6'W x 6'L	74"	63"	19.5"	20"
6'W x 8'L	74"	87"	19.5"	20"
6'6"W x 6'L	80"	63"	19.5"	20"
6'6" W x 8'L	80"	87"	19.5"	20"
7'W x 6'L	85"	63"	19.5"	20"
7'W x 8'L	85"	87"	19.5"	20"

INSERT SPECIFIC JOB DIMENSIONS FROM CHART



SECTION "A-A"
MAT'L; A-36 C. STEEL

NOTES

JOB

DRAWN: D.E.A.	SCALE: AS NOTED	DATE: 6/19/96	DRAWING NUMBER PMI-2010
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TOLERANCES		
Inch Dimension =	Decimal Dimension =	Angles =
1/16"	.005	1°

SECTION 1

INSTALLATION INSTRUCTIONS PIT PREPARATION

PIT PREPARATION

1. Examine pit.
2. Measure pit dimensions. (See Figure B, Page 2)



Before welding the rear frame, cover the rear weather seal with a sheet of steel to prevent setting fire to the weather seals. Failure to do so may result in property damage.

Pits walls should be square and plumb. Clean all debris from pit. Verify that walls are square and plumb.

PRE-PLACEMENT OF SHIMS:

1. Place shims in correct locations on pit floor before lowering leveler into place in pit.

Proper shim thickness will assure that deck of leveler is level with dock floor.

NOTE:

Shims are to be placed directly under rear frame uprights, and under lip keepers. (See Figure C, Page 3) and (See Plan View, Page 2).

SECTION 1

INSTALLATION INSTRUCTIONS LEVELER PREPARATION

LEVELER PREPARATION

1. Position leveler directly in front of pit.
2. Cut restraining band of lip.

Remove band completely from leveler.

FIGURE C

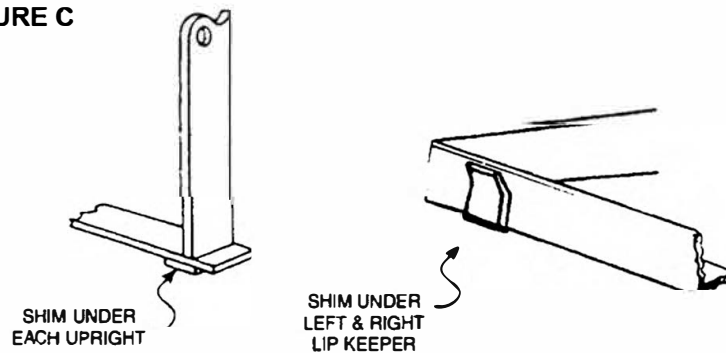
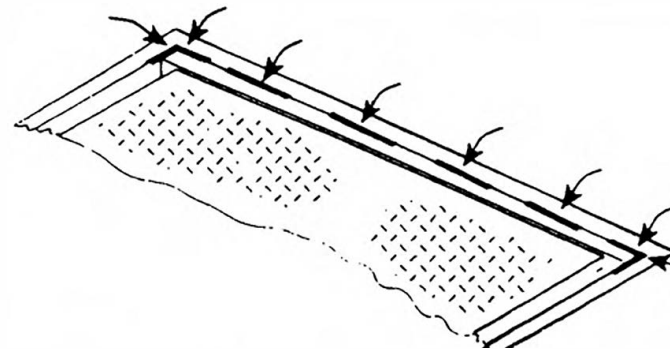


FIGURE D



! WARNING

Keep fingers, hands, and head away from the lip when it is released. Fingers, hands, or head could be struck by or caught between the lip and other parts of the dock leveler causing serious injury and/or death.

! WARNING

Improper installation of anchoring devices or installation into aged or unsound concrete could result in serious injury and/or death.

! WARNING

DO NOT work under the dock leveler, ramp, or lip unless the maintenance strut is in place.

LEVELER INSTALLATION:

1. Place leveler into pit opening.
2. Recheck shim packs to ensure leveler is at proper height, flush with level, front and rear, after restraining band has been cut.

Allow one inch (1") equal clearance between leveler sides and pit walls. Rear frame angle of leveler should be tight against and flush with rear curb angle for proper welding.

Shims must be placed properly under each rear frame upright, and front lip keepers. (See Figure C, Page 3. for close up view and Plan View B, Page 2, for shim locations.)

Skip weld rear of leveler to curb angle (weld center first then ends) and front shims to leveler and curb angle. (See Figure D, Page 3 & Figure C, Page 3)

3. Bring deck section of leveler to fully raised position.

To operate, pull and hold the ratchet release chain located at rear of leveler.

! WARNING

Be Careful of the lip falling before the lip lock is engaged. The lip plate could fall causing serious injury and/or death.

4. Place maintenance strut securely under leveler.

Place strut in tubes located on base & under lip.

SECTION 1

**INSTALLATION INSTRUCTIONS
LEVELER INSTALLATION**

LEVELER INSTALLATION:

5. Weld all shims securely in place.

Front shims must be welded securely to frame and steel curb angle.

Rear shims must be welded securely to the rear base frame.

6. Store maintenance strut.

7. Walk forward onto leveler, returning it to dock level with lip in keepers.

8. Install bumpers on dock face.

Securely bolt bumpers to dock face as close to pit opening as possible. Bumpers should be flush with dock floor or 48" off ground. Raised bumpers should be supported to floor from behind.

9. Complete weld at rear of leveler.

Weld to cover approximately 50% of the length of the rear angle. Ensure welds are placed directly behind frame uprights and at ends of angle. (See Figure D, Page 3)



CAUTION: Before you start to install the leveler, use proper safety signs and barriers to separate the work area from the remainder of the dock.

Figure E

20" LIP KEEPER INSTALLATION INSTRUCTIONS

Two separate lip keeper angles are provided with every unit that has a 20" lip. These angles are tack welded to the leveler base frame just behind the lip.

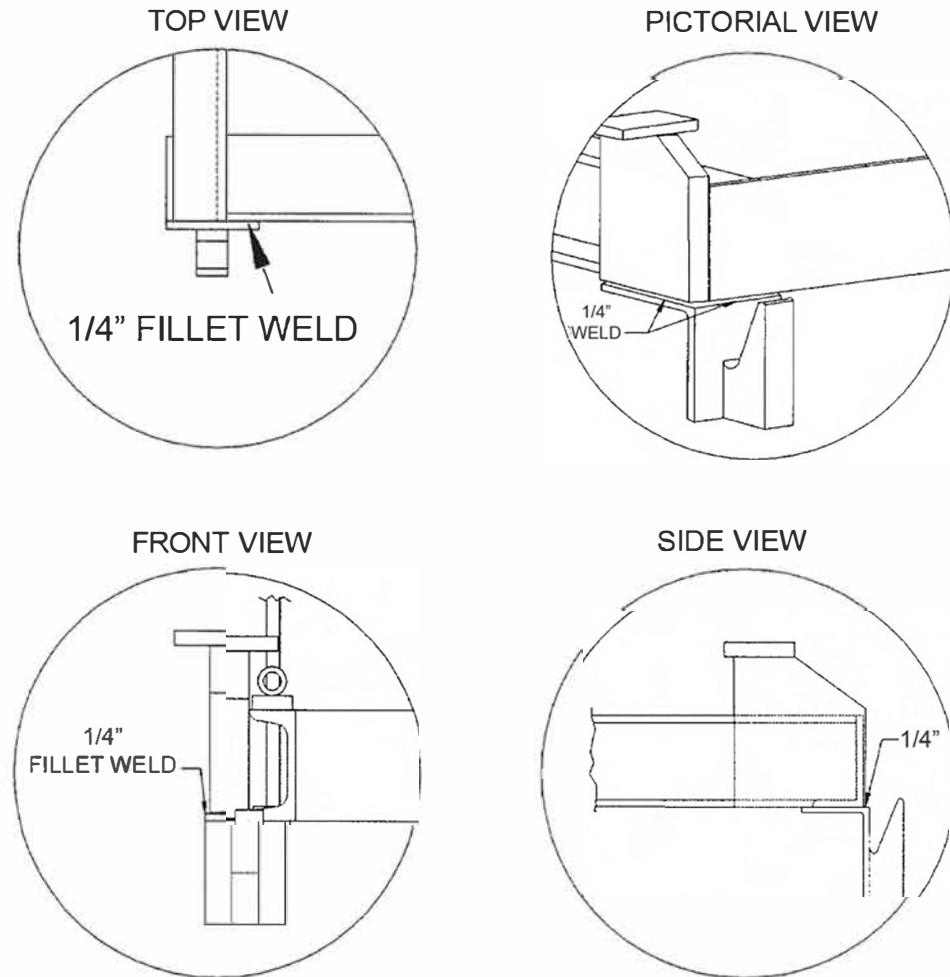
Break each one loose and set the leveler into the pit per the installation instructions in the owner's manual.

Prior to angle installation or shimming make sure that the unit is snug against the embedded curb angle at the back of the pit.

Place the lip keepers under the front base angle on either side of the unit with the top of the angle protruding out past the base 1/4" in the front and on the left for the left hand keeper and on the right for the right hand keeper. This will facilitate welding.

Fully weld the keeper angle to the base angle.

Proceed with shimming per the owner's manual.



SECTION 2

**OPERATING INSTRUCTIONS
ABOVE DOCK OPERATION**

! WARNING

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

- * **DO NOT** operate leveler with anyone standing on or in front of leveler.
- * **DO NOT** lift the leveler by hand.
- * **ALWAYS** keep fingers, hands, feet, and head clear of all moving parts.

! WARNING

If the lip does not fully extend, do not lift by hand. Restore leveler to dock level and try again. If lip still does not fully extend, the dock leveler requires maintenance or adjustment. Notify your supervisor. **DO NOT** use the leveler until it has been repaired. Failure to do so could result in serious injury and/or death.

! WARNING

If the lip does not fall to the stored position, the dock leveler requires maintenance or adjustment. Notify your supervisor. **DO NOT** use dock leveler until it has been repaired. Failure to do so could result in serious injury and/or death.

ABOVE DOCK USE:

1. Pull firmly and hold the release ring located in rear of deck.

When deck raises and lip extends, release the ring. **DO NOT** release the ring until the lip is fully extended.

2. Walk forward onto deck to lower unit onto truck bed. (Truck should be secured firmly against bumpers with "Truck Restraint" or wheel chocks.)

With standard locking type lip mechanism, lock will release once lip makes firm contact with truck bed.

3. When truck departs, lip will close to pendant (not stored) position.

This action applies when truck is above dock height.

4. Walk forward onto deck until unit is returned to stored position.

In this position, lip is secure in lip keepers, and ready to receive the next truck.

SECTION 2

**OPERATING INSTRUCTIONS
ABOVE DOCK OPERATION**

ABOVE DOCK USE:

5. Leveler may be recycled with truck at dock.

Pull the rear release ring in short, rapid pulls allowing deck to raise 6" - 8" above dock with lip down.

Walk forward on to leveler, returning it to dock level with lip in keepers.

This allows operator to close the truck and/or building door prior to truck departure.

SECTION 2**OPERATING INSTRUCTIONS
BELOW DOCK OPERATION****BELOW DOCK USE: (WITH LIP EXTENDED)**

1. Repeat steps 1 & 2 for above dock use.

2. As you walk forward on the leveler, pull the safety leg ring located in front of deck plate. (Toward the Lip)

This will pull safety legs away from the pads they would normally contact allowing unit to go below dock.

When lip makes firm contact with the truck bed, release the front ring.

3. When truck departs, lip will return to pendant (not stored) position.

Lip will be in front of lip keepers, and deck will remain below floor level.

4. To recycle unit after truck departure, pull release ring in short, rapid pulls.

This action will allow the deck to raise 2" - 3" above dock floor while the lip will remain in a pendant position.

5. Leveler may be recycled with **truck at dock.**

Follow Step #4 to recycle.

6. Following Step #4, walk forward onto deck until unit is returned to stored position.

Lip should be completely closed and resting in lip keepers which provide overnight security.

SECTION 2

OPERATING INSTRUCTIONS BELOW DOCK OPERATION

BELOW DOCK USE: (LIP RETRACTED FOR END LOADS)

BELOW DOCK CONTROL OPTION IS RECOMMENDED FOR THIS OPERATION:

1. Pull release ring in short rapid pulls.

Allow deck to raise 2" - 3" above dock floor. (This will raise lip out of lip keepers, without extending lip.)

2. As you walk forward on the leveler, pull the safety leg release ring located in front of deck plate.

With Below Dock Control option, lip will be pushed out in front of keepers while safety legs are being pulled away from pads.

3. When truck departs, lip will close to pendant (not stored) position.

Lip will be in front of keepers, and deck will remain below dock.

4. To recycle unit after truck departs, pull release ring in short, rapid pulls.

Continue this until unit is 6" - 8" above dock floor.

5. Leveler may be recycled with truck at dock.

Follow Step #4 to recycle.

6. Following Step #4, walk forward onto deck until unit is returned to stored position.

Lip should be completely closed and resting in lip keepers which also provide overnight security.



CAUTION: ALWAYS SECURE LEVELER WITH LIP IN KEEPERS AND SAFETY LEGS FORWARD TO INSURE SAFE CROSS TRAFFIC USE.

ALL BM1 SERIES LEVELERS ARE TESTED AND ADJUSTED AT THE FACTORY. HOWEVER, MINOR ADJUSTMENTS TO THE MAIN SPRINGS MAY BE REQUIRED ONCE THE UNIT IS INSTALLED.

(UNITS WITH WEATHER SEALS NORMALLY REQUIRE MAIN SPRING ADJUSTMENT TO INSURE PROPER LIP EXTENSION). SPRING ADJUSTMENTS ARE CONSIDERED NORMAL MAINTENANCE AND ARE NOT COVERED UNDER WARRANTY.

 **WARNING**

Read and follow the safety procedures in this manual before doing any service or repair to the dock leveler. ALWAYS SECURE LEVELER WITH MAINTENANCE STRUT BEFORE CLIMBING INTO THE DOCK LEVELER PIT OR DOING ANY MAINTENANCE OR REPAIR UNDER THE DOCK LEVELER. Failure to do so could result in serious injury and/or death.

SYMPTOM:	PROBABLE CAUSE:	CORRECTION:
<p>When release ring is pulled, deck raises but lip does not fully extend and lock.</p>	<p>1. Improper main spring adjustment.</p>	<p>Tighten both main spring adjustment nuts one or two rotation clockwise and re-test. (Item #4 (1 1/2" socket or wrench)</p>
	<p>2. Lip lock spring is stretched, broken, or disconnected.</p>	<p>Replace spring or lower spring one or two links in snubber chain. (Item #16; Assem. #6, Page 15)</p>
	<p>3. Front base angle installation welds broken free.</p>	<p>Re-weld per installation instructions.</p>
	<p>Leveler may be servicing trucks that are above the factory set service range (8' models - 12", 6' models - 8") causing lip to impact truck during upward movement.</p>	<p>Minor adjustments to service range above dock may be made in the field. Consult the local Beacon representative or call the factory for assistance.</p>

**CAUTION:**

Contact your Beacon representative or the factory if a malfunction occurs which is not understood. **DO NOT** attempt to correct the situation without proper information and understanding, as this may damage components and void the warranty.

 **WARNING**

BEFORE SERVICING THE DOCK LEVELER, READ AND FOLLOW ALL SAFETY PROCEDURES IN THIS MANUAL. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY AND/OR DEATH.

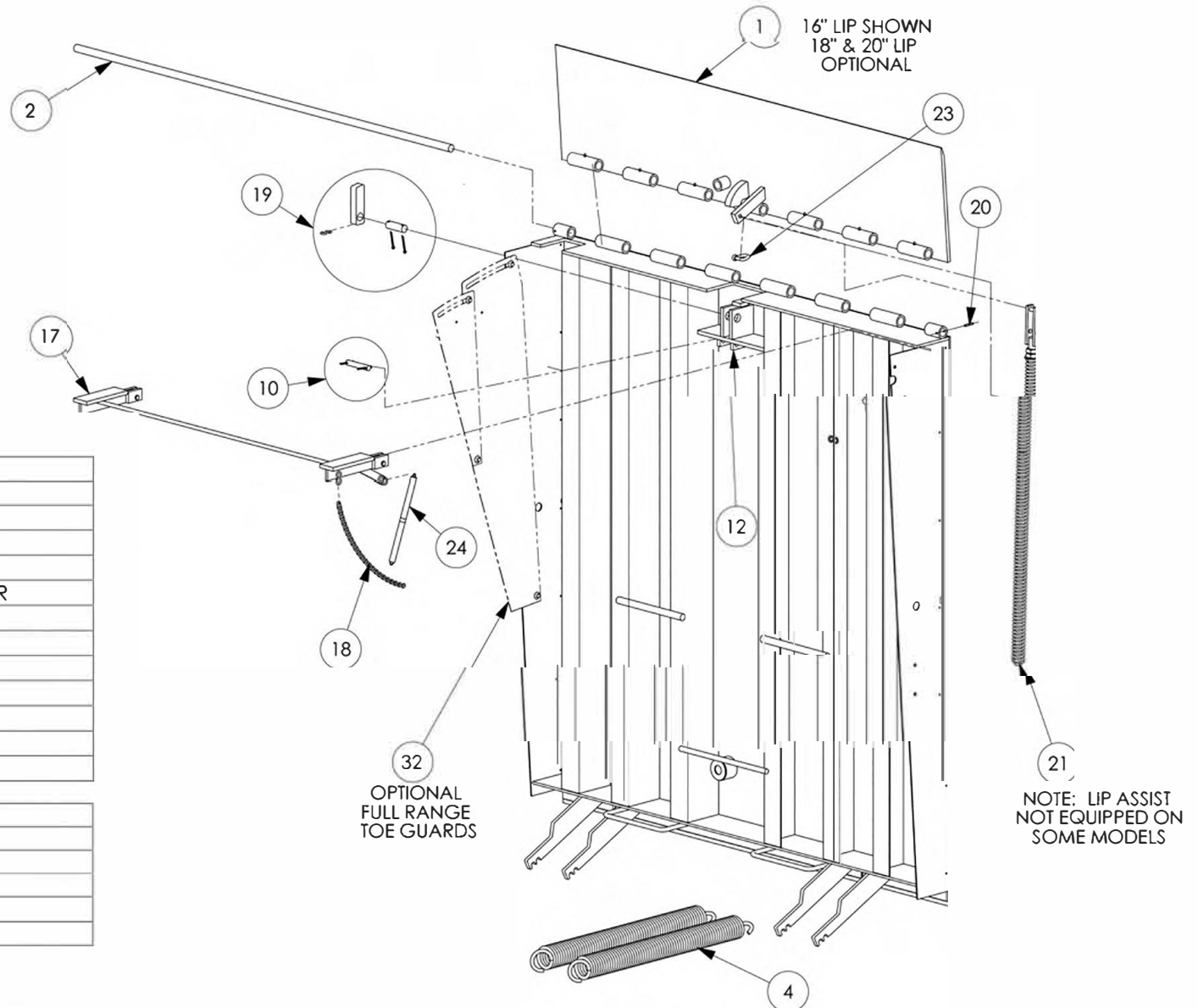
 **WARNING**

BEFORE SERVICING THE DOCK LEVELER, ALWAYS POSITION TRAFFIC CONES OR A BARRICADE BEHIND THE DOCK LEVELER. ALSO POSITION CONES OR BARRICADES IN FRONT OF THE LEVELER TO WARN AGAINST VEHICLE TRAFFIC.

- * ALWAYS NOTIFY A FOREMAN OR SUPERVISOR THAT YOU ARE WORKING UNDER THE EQUIPMENT.
- * ALWAYS MAKE SURE THAT THE MAINTENANCE STRUT IS IN POSITION BEFORE WORKING UNDER THE LEVELER.
- * ALWAYS MAKE SURE THAT THE OVERHEAD DOOR IS SECURELY HELD IN THE RAISED POSITION.

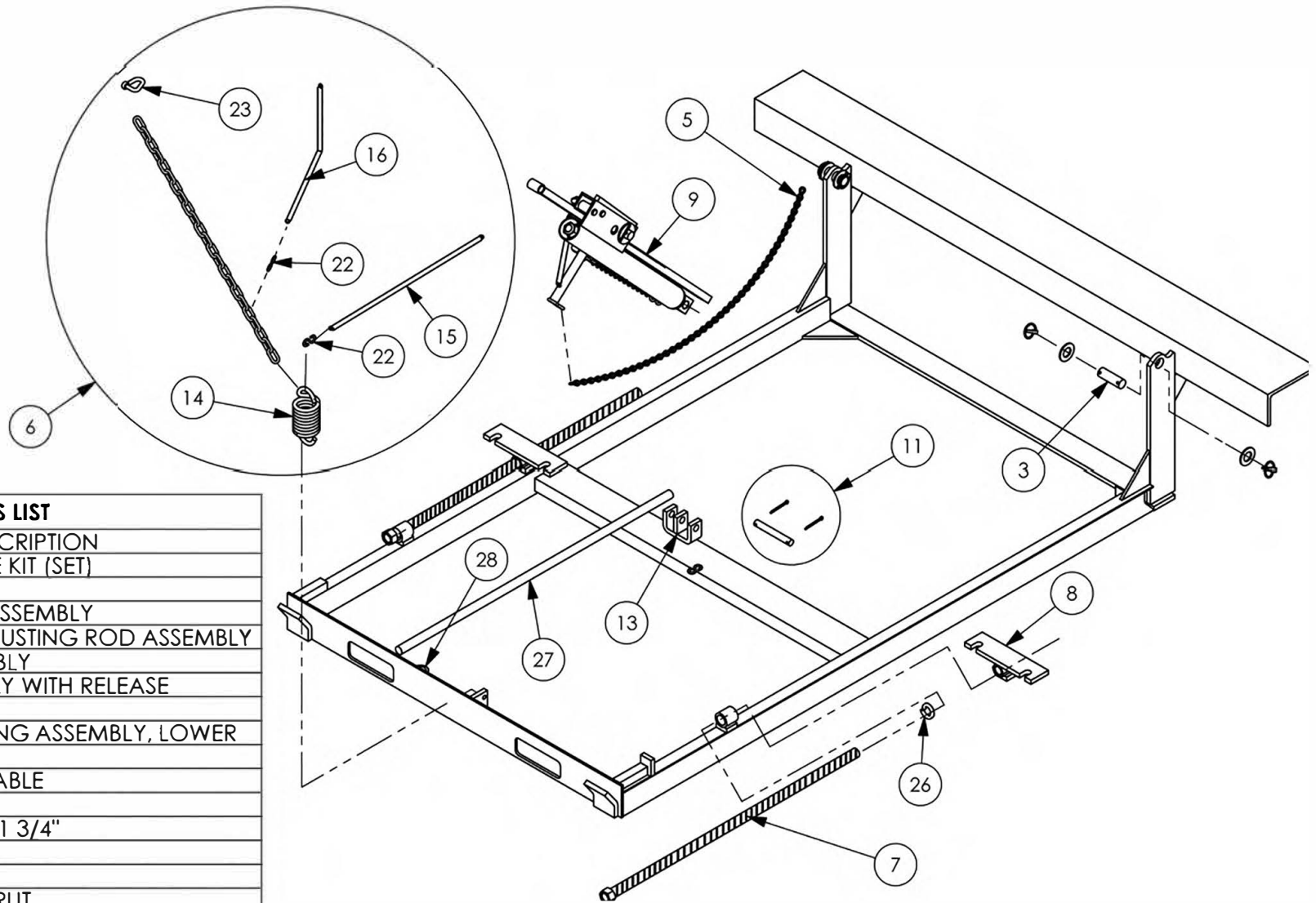
SERVICE AND MAINTENANCE

BEACON recommends periodic inspection and servicing of the BM1 Series mechanical leveler to assure proper operation and maximum life span of the dock leveler. Units should be inspected a minimum of every six months, and if needed, (See "TROUBLE SHOOTING", Page 11), can be adjusted and lubricated. Contact your local BEACON dealer to secure a complete maintenance plan.



PARTS LIST	
ITEM	DESCRIPTION
1	LIP PLATE ASSEMBLY, 16"
2	HINGE PIN, LIP
4	SPRING, MAIN
10	RATCHET MOUNTING ASS'Y, UPPER
17	SAFETY LEG ASSEMBLY
18	SAFETY LEG CHAIN ASSEMBLY
19	LIP LOCK ASSEMBLY
20	ROLL PIN
23	COLD SHUT, 3/8
24	SPRING, SAFETY LEG

OPTIONAL KITS	
ITEM	DESCRIPTION
21	LIP ASSIST ASSEMBLY
32	FULL RANGE TOE GUARDS(SET)
	WEATHER SEAL KIT



PARTS LIST	
ITEM	DESCRIPTION
3	DECK REAR HINGE KIT (SET)
5	PULL CHAIN
6	SNUBBER CHAIN ASSEMBLY
7	MAIN SPRING ADJUSTING ROD ASSEMBLY
8	WING NUT ASSEMBLY
9	RATCHET ASSEMBLY WITH RELEASE
11	LOWER PIN KIT
13	RATCHET MOUNTING ASSEMBLY, LOWER
14	SNUBBER SPRING
15	SPRING, SLACK CABLE
16	LIP LOCK SPRING
22	"S" HOOK, 3/16" X 1 3/4"
23	COLD SHUT, 3/8"
26	WASHER, 1" LOCK
27	MAINTENANCE STRUT
28	TUBE, MAINTENANCE STRUT

Limited Warranty

BM1 Series Dock Leveler

Beacon Industries, Inc. warrants that this BM1 Series Dock Leveler will be free from defects in design, materials and workmanship on all structural parts for a period of exactly one (1) year from date of shipment. All claims for breach of this warranty must be made within thirty (30) days after the defect is or can, with reasonable care, be detected and in no event more than one (1) year after shipment. This warranty is extended to the original purchaser of this product and is non-transferable.

Beacon warrants that this BM1 Series Dock Leveler will be free from defects in design, materials and workmanship on all mechanical and miscellaneous parts for a period of exactly one (1) year from date of shipment. All claims for breach of this warranty must be made within thirty (30) days after the defect is or can, with reasonable care, be detected and in no event more than one (1) year after shipment.

In order to be entitled to the benefits of this warranty, the unit must have been properly installed, maintained, operated within its capacity, and not otherwise abused. Ninety (90) day periodic maintenance, adjustment and documentation is the sole responsibility of the owner.

This warranty is Beacon's exclusive expressed warranty.

Beacon expressly disclaims all implied warranties including the implied warranties of merchantability and fitness.

In the event of any defects covered by this warranty, Beacon will remedy such defects by repairing or replacing any defective equipment or parts, bearing all of the costs for parts, from Beacon to site, labor by others. This shall be the exclusive remedy for all claims whether based on contract, negligence, or strict liability. **Beacon shall not, in any event, be liable for any loss of the use of any equipment or incidental or consequential damages of any kind.**

Proper Warranty Request

An authorized warranty request is for Beacon to receive a copy of the Beacon invoice to the customer that includes, invoice number, model number and ship date with a written request including your name, company name, address and phone number.

Mail
Beacon Industries Inc.
12300 Old Tesson Rd
St Louis, MO 63128 USA

Phone:
314-487-7600
Fax:
314-487-0100

Email:
sales@beacontechnology.com

Maintenance and validation by original purchaser is required to keep Warranty in effect. In order to keep this Warranty in effect, the original purchaser must do two things:

First: The original purchaser must have the BM1 Series Dock Leveler maintained and serviced as prescribed in the Beacon Owner's Manual.

Second: The original purchaser must present the seller with a maintenance schedule to show that the BM1 Series Dock Leveler has been maintained and serviced in accordance with the Beacon Owner's Manual. The validated maintenance schedule must be submitted whenever a claim is made under this Warranty.

Items not covered by Warranty. The seller does not cover:

(i) Defects, damage or deterioration due to normal use, wear and tear or exposure; (ii) normal maintenance services; (iii) the replacement of service items, (iv) damage or defects due to misuse, water damage, improper installation, alteration, negligence, freight, accident, product misuse, negligent operation, negligent repair, corrosion or use in corrosive environments, inadequate or improper maintenance, collisions or other incidental contacts from other equipment causing damage to the product; and (v) damage or defects due to the repair of the BM1 Series Dock Leveler by someone other than an authorized dealer or the installation of parts other than genuine Beacon part.

No other warranties made. This Warranty is in lieu of all other express or implied warranties of the Beacon BM1 Series Dock Leveler, the manufacturer and the selling dealer, including any implied warranty of merchantability or fitness for any particular purpose. Neither Beacon Industries, Inc. assumes, or authorizes any person to assume, on its behalf, any other obligation or liability.

Some states do not allow the exclusion on limitation of implied warranties or liability for incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This Warranty and, any and all claims that may arise shall be construed according to the laws of the State of Missouri, USA.