

INSTALLATION & OWNER'S MANUAL



⚠ WARNING

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.

TABLE OF CONTENTS

1.	ABOUT THE U-SERIES MECHANICAL DOCK LEVELER	1
	1.1 Owner's Purchase Record.....	1
2.	INTRODUCTION	2
	2.1 Warranty Information.....	2
	2.2 Exclusion of Liability.....	2
	2.3 Manufacturer's Note.....	2
3.	OPERATOR'S MANUAL SAFETY MESSAGE COLOR IDENTIFICATION	3
	3.1 Operational Safety Warnings.....	3
4.	DOCK LEVELER INSTALLATION INSTRUCTIONS	4
	7.1 Installation Inspection.....	5
5.	OPERATING INSTRUCTIONS	6
	5.1 Functional Description.....	6
	5.2 Deploying the Dock Leveler.....	6
	5.3 Below Level / End Loading.....	7
	5.4 Storing the Dock Leveler.....	7
	5.5 Overriding the Fall-Safe Option.....	7
6.	DOCK LEVELER TROUBLESHOOTING	8
7.	MAINTENANCE	9
	7.1 Planned Maintenance.....	9
	7.2 Operator Daily Inspection.....	9
	7.3 Routine Servicing and Maintenance.....	9
	7.4 Planned Maintenance Intervals	9
	7.5 Maintenance Sequence.....	9
	7.6 PM Checklist.....	10
8.	DOCK ASSEMBLY COMPONENTS	11
8A.	SPARE PARTS LIST- U-SERIES MECHANICAL DOCK	12
9.	LIFTING ARM ASSEMBLY	13
10.	HOLD-DOWN ASSEMBLY	14
11.	LIP ASSIST SPRING ASSEMBLY	15
12.	SAFETY STRUT ASSEMBLY	15
13.	GENERAL PARTS	16
	13.1 Molded Rubber Bumpers.....	16
	13.2 Face Plates for Molded Rubber Bumpers.....	16
	13.3 Laminated Bumpers.....	16
	13.4 Face Plates for Laminated Bumpers	16
	13.5 Flood Light.....	16
14.	RECOMMENDED SPARE PARTS	17

1. ABOUT the U-SERIES MECHANICAL DOCK LEVELER

The Blue Giant **U-Series Mechanical Dock Leveler** is a high performance yet easy to operate system. No manual lifting is involved: simply pull the release chain that activates the locking hold-down system, and the deck moves upward, propelled by heavy-duty lift springs. "Walk" the dock down onto the truck bed, and begin loading / unloading.

The **hold-down system** is controlled by a 45,000 PSI precision-milled steel ratchet with 13 deep grooves and four pawls, offering strong locking capabilities. Its components include a disk brake and lifting strap rated at 6,500 lbs (2955 kg) to ensure that the dock movement seamlessly matches that of the trailer suspension.

The **lip actuator** allows the lip to power smoothly out to the locked position as the deck rises. When the truck departs, the lip will automatically release and lower.

Sturdy steel **U-Beams** are welded at dynamic impact points on the underside of the deck, preventing 'dishing' and providing structural integrity.

Additional features include anti-slip checker plate flooring, mechanical locks and stops, and maintenance-free springs.

ANSI / MH30.1 (2007) Approved.

1. 1 OWNER'S PURCHASE RECORD

OWNER'S PURCHASE RECORD Please record information for future inquiries	
Dealer:	Date in Service:
Serial Number(s):	Number of Units:
	Door # :

The manufacturer offers a full line of dock levelers, dock safety equipment, accessories, ergonomic and scissor lift equipment, and industrial trucks. Concurrent with a continuing product improvement program, specifications are subject to change without notice. Please contact the manufacturer for latest information. Some features illustrated may be optional in certain market areas.

2.

INTRODUCTION

The following is a quick reference to important procedures that must be followed while using the Dock Leveler System. It is not intended to cover, or suggest that it does cover, all procedures necessary to ensure safe operation. All operators should be aware of and abide by all workplace safety regulations applicable to the operation of the Dock Leveler System. These laws and regulations include but are not limited to:

- The Occupational Safety and Health Act (USA)
- Occupational Safety and Health Acts for Individual States (USA)
- Canadian Material Handling Regulations

For additional information on these regulations as well as industry standards that may apply to this product, please contact:



American National Standards Institute (ANSI)
1430 Broadway
New York, NY 10018
(212) 642-4900



ALSO MEMBERS OF :
Loading Dock Equipment Manufacturers
A Product Section of Material Handling Industry of America,
A Division of Material Handling Industry
8720 Red Oak Blvd., Suite 201, Charlotte, NC, 28217-3992
Telephone: (704) 676-1190 Fax: (704) 676-1199

2.1

WARRANTY INFORMATION

Thank you for purchasing Blue Giant products. We appreciate your business, and are confident that our product will serve you for many years to come. In the event that you experience a problem with our product, our Warranty Center is here to support the Blue Giant Product(s) that you have purchased.

To validate warranty on recently purchased equipment, please complete and submit your information with our on-line Warranty Registration at www.BlueGiant.com.

For more information about Blue Giant's Warranty Support, please contact your local Blue Giant Equipment dealer, representative or authorized partner near you. You may also visit www.BlueGiant.com or phone 1-905-457-3900.

* Note that failure to validate warranty at the time of receipt can seriously affect the outcome of any claim.

2.2

EXCLUSION OF LIABILITY

The manufacturer assumes no liability for damage or injury to persons or property which occur as a result of defects or faults in or incorrect use of Dock Leveler System. The manufacturer also assumes no liability for lost profits, operating downtimes, or similar indirect losses incurred by the purchaser. Injury to third parties, irrespective of its nature, is not subject to compensation.

The manufacturer reserves the right to make changes at any time to the modules, components, and accessories, concurrent with its continuing product development program. Specifications, operating instructions, and illustrations included in this manual are subject to change without notice. Please contact manufacturer for the latest information.




2.3

MANUFACTURER'S NOTE


The Dock Leveler has been carefully inspected and tested at the manufacturer's plant prior to shipment, but should be checked upon receipt for transport damage. Any observed transport damage is to be listed on the signed copy of the freight document. Notify the freight forwarder of any damage **WITHIN 48 HOURS**.

3. OPERATOR'S MANUAL SAFETY MESSAGE COLOR IDENTIFICATION


This manual includes color-coded safety messages that clarify instructions and specify areas where potential hazard exists. To prevent the possibility of equipment damage and serious injury or death, please observe strictly the instructions and warnings contained in the messages. If warning decals become damaged or missing, replace them immediately. Avoid accidents by recognizing dangerous procedures or situations before they occur.


 DANGER	IMPORTANT
Serious injury or death will likely occur if the instructions are not followed.	Procedures marked IMPORTANT must be followed in order to prevent damage to machinery.
 WARNING	 CAUTION
Serious injury or death may occur if the instructions are not followed.	Instructions marked CAUTION concern safe operating procedure. Failure to comply may result in personal injury.

3.1 OPERATIONAL SAFETY WARNINGS

 **DANGER**

- DO NOT** enter the pit area below the dock leveler.
- Never operate a broken or damaged dock leveler. Have repairs done immediately by a qualified service technician.
- Always secure and center loads on the forklifts. Loose or unbalanced loads are dangerous.

 WARNING	IMPORTANT
<ul style="list-style-type: none"> The upper hinge point is a hazardous pinch point. Do not use fingers or hands to remove foreign materials. Post safety warnings and barricade working area at dock level and at ground level to prevent unauthorized use of the leveler during maintenance/service. Never leave the dock leveler unattended in the raised position. Always make sure that the lip is seated inside the lip keepers after putting the dock in the parked position. Never leave loads sitting on the dock leveler. Do not attempt to raise the dock leveler if someone is standing on it. Never try to lift any part of the dock leveler manually. Do not use the dock leveler if the lip's full width is not fully supported by the vehicle load bed. Never try to lift any part of the dock leveler manually. Do not operate the dock leveler beyond its rated capacity. 	<ul style="list-style-type: none"> Always keep the work area clean and free of litter. Always clean all side openings of dirt and debris. Always clean all dirt and debris from the lip hinge. Always clean up dry and liquid spills immediately after they occur. Always maintain proper lighting in the work area. If a procedure is not clearly defined in this manual, contact your authorized Service Representative.

 **CAUTION**

- ONLY TRAINED PERSONNEL** should operate or service this equipment.
- DO NOT** operate leveler until freight carrier is parked against the dock bumpers and has been secured by a vehicle restraint and/or chocks.
- ALWAYS** return the leveler platform to the proper stored position.
- ALWAYS** conduct routine inspections and maintenance. Failure to conduct could cause personal injury or damage to equipment.

4. DOCK LEVELER INSTALLATION INSTRUCTIONS

WARNING

Do not install, operate and/or service this leveler until you have read and understood all of the safety information and instructions contained herein and on the leveler.
 Do not work under or around leveler being installed without first placing adequate barriers to positively prevent vehicle traffic from entering the work area.
 Keep hands and feet clear of dock leveler pinch points.

IMPORTANT

The information below is crucial to proper installation:
Pit Curb Angles
 A. Must be level side-to-side and front-to-back.
 B. Must be square at both rear corners.
 C. Side curb angles must be parallel to each other.
 D. Finished floor to be flush with top surface of curb angle.
 The leveler must be welded to a firmly embedded steel or other dock steel as described in the installation instructions. Do not attempt to use only bolts or anchors, to attach the dock leveler to the concrete.

1. Prior to installation, clean pit thoroughly and verify that all dimensions are in accordance with manufacturer specifications.
2. Measure height of rear corners of dock leveler, bottom of frame to top of deck plate, typically 19" or 23" (485 or 585mm). Measure depth of pit at both rear corners where rear bottom corners of frame will be positioned. Locate and place suitable shims (not supplied) in pit corners to produce a depth to match frame height.
3. Measure height of dock leveler front corners, bottom of frame to top of deck plate, typically 19-1/2" or 23-1/2" (495 or 595mm). Measure depth of pit at both front corners where front bottom corners of frame will be positioned. Locate and place suitable shims (not supplied) at both front corners to produce a depth to match frame height. See Figure 1.
4. Using slings that are rated for a minimum capacity of 2,000 lbs (1,000 kg), carefully sling the dock leveler into place squarely above the pit and lower it gently onto the pre-located shims. Position the leveler to best suit the pit and the dock face. Space between the sides of the deck and sides of the pit should be equal.
5. If the rear beam does not line up squarely with the rear curb angle, use 3" x 6" (75mm x 150mm) shims of suitable thickness to fully support top rear and bottom rear of rear beam at weld areas.

IMPORTANT

It is important that the shims fill the space between the bottom edge of the back beam and face of the curb angle, as well as behind each hinge lug on the top edge. Confirm that the top of the back beam is flush with the top surface of the rear curb angle, and then finish weld back beam to curb angle.

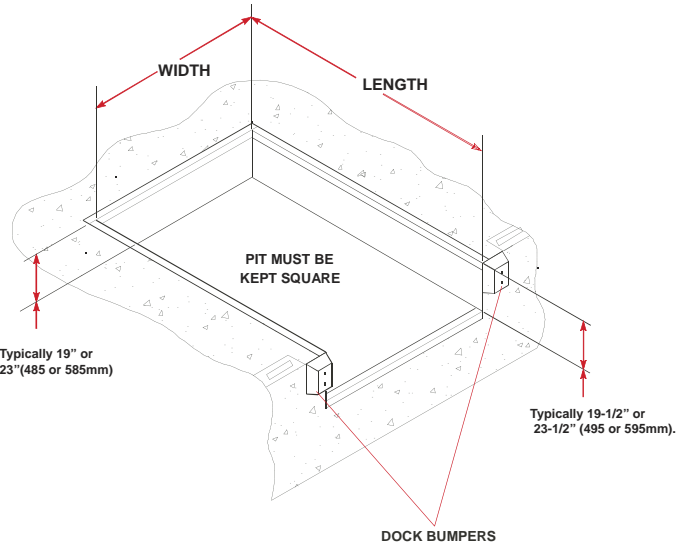


Figure 1 : Pit Layout - Typical (Four piece curb angle shown)

WARNING

Use caution when lifting or moving the leveler. Do not attempt to lift without suitable hoisting equipment capable of lifting as much as 2,000 lbs (1,000 kg). Follow all hoisting safety requirements.

6. Remove sling brackets, chains, etc. from the deck. Remove and discard the shipping bolt from the front of the lip plate. Remove or add shims at each front corner to position the top surface of the deck flush with the top surface of the side curb angles.
7. Locate and place adequate and appropriate spacer shims to completely fill the space between the curb angle and frame at the following locations under the front frame:
 - A) Under the maintenance strut base mounting bracket between the curb angle and frame.
 - B) Under the lip keeper brackets (one at each side of frame) between the curb angle and the frame.
 - C) Under the center point of the front frame between the curb angle and the frame.
8. Partially operate the dock leveler by pulling firmly upward on the hold-down release ring, which is located in the rear left corner of the deck surface, and then immediately releasing the chain so that the deck rises approximately four to twelve inches.
9. Lower the deck back to its stored position by walking up its slope. Ensure that the deck is fully stored, with the lip parked inside the lip keepers.
10. Adjust the height of all front shims as required to level the front sides of the deck with the pit curb angles. Tack-weld the front shims together as well as to the dock leveler frame and the pit curb angle.
11. Partially operate the dock leveler by pulling firmly upward on the hold down release ring and quickly releasing it so that the deck rises approximately 4" to 6" (101 to 150mm).

4.

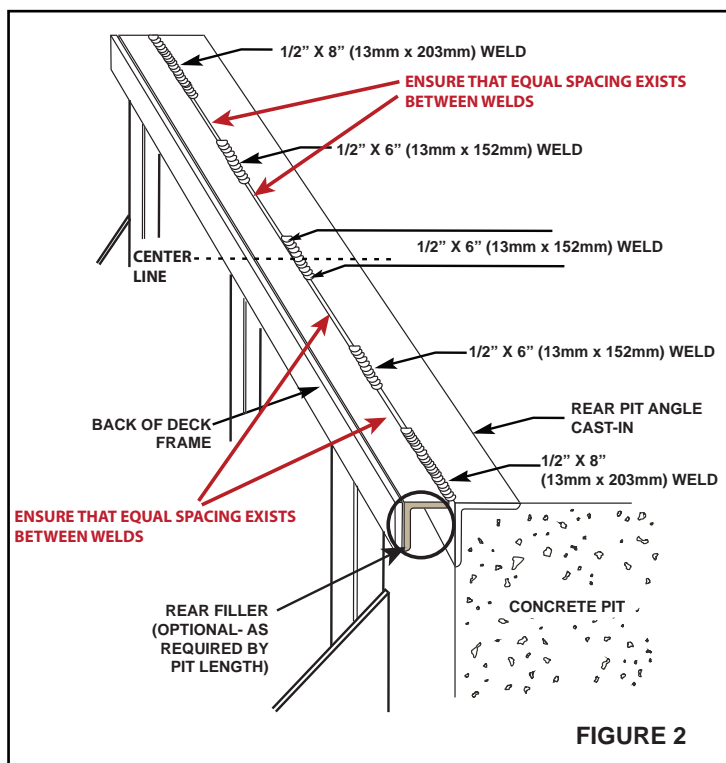
DOCK LEVELER INSTALLATION INSTRUCTIONS

12. Enter the pit area and reposition the rear corner tilt bolts.
13. Remove the shipping lock bolt and nut from the front end of the sliding side safety skirts (if supplied) and allow the front ends to swing down to working position.
14. The rear frame on most models has one or more vertical frame members in addition to the rear corner verticals. Place adequate shims directly under each vertical member to fill the space between the bottom frame and the floor of the pit. Finish weld all shims.
15. Finish weld all front frame shims securely to the front curb angle and the front frame.
16. Install specified dock bumpers as required. Do not use the dock leveler to be used without bumpers, as damage to both building and leveler may result.
17. Mount "Operating Hazards DANGER" placard, provided with these Instructions to the wall in plain view of dock leveler operations.

4.1

Installation Inspection

1. Clean up the entire work area and apply touch-up paint to all welds, scratches and burns.
2. Test operate the unit through several full cycles of operation. Refer to the Operating Procedures section. If problems are noted, consult the TROUBLESHOOTING section of this manual.
3. Leave these Instructions with the dock leveler for use by owner.



5. OPERATING INSTRUCTIONS

⚠ WARNING

Do not operate this leveler unless you have been trained and authorized to do so, and have read and understood all of the safety information and instructions contained herein.

Do not operate the dock leveler beyond its rated capacity.

Do not operate this leveler until you have checked its condition. Report the need for repairs to your supervisor immediately and do not operate the unit until repairs are made. Neglect may cause a minor repair to become a major service problem and cause the leveler to become unsafe.

Never try to lift or move any part of the dock leveler manually.

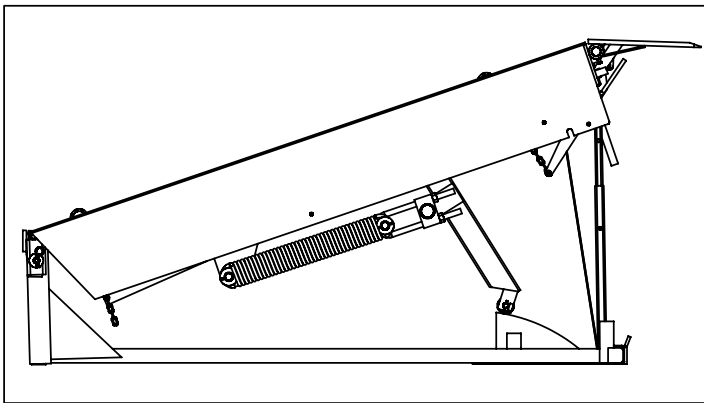
Do not drive on the leveler unless the lip is securely on the truck bed and has a minimum of 4" (100mm) overlap on its surface.

Do not exceed 4 mph when driving over the dock leveler.

Do not drive over edges of the leveler and / or dock bumper blocks (bumpers blocks are not structural).

⚠ WARNING

Secure the transport vehicle with a vehicle restraint, wheel chocks or other method before commencing traffic across the dock leveler.



5.1 Functional Description

The **U-Series Mechanical Dock Leveler** serves as a bridge between a loading dock floor and the load bed of a transport vehicle. The leveler's upper deck plate, complete with a hinged, vertically hanging lip, is in a shallow pit at the edge of the dock, flush with the dock's edge and the floor surface.

After the door has been opened, the rear of a transport vehicle is parked and restrained in place against the outer wall of the loading dock, in working alignment with the dock leveler. To activate the dock leveler, firmly pull the hold-down release ring in the left rear corner of the deck, holding it until the lift springs completely raise the deck. The lip will automatically extend and lock as the deck reaches the fully raised position.

The dock attendant walks up the slope of the deck to lower it. The extended lip makes firm contact with the truck bed. At this point the bridge is formed.

NOTE: Although the lift springs are always trying to lift the deck, their upward force is opposed by the hold-down mechanism.

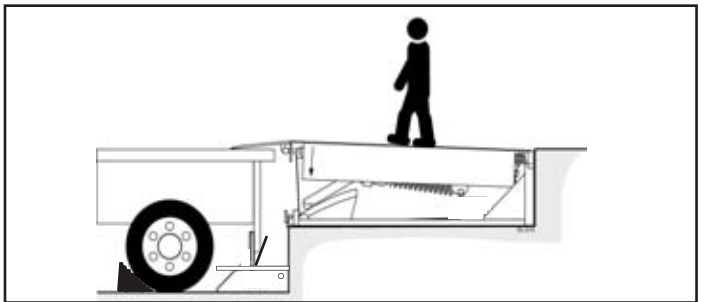
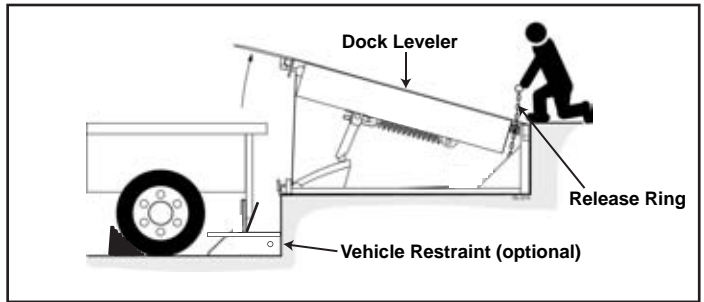
5.2 Deploying the Dock Leveler

Raise the dock leveler by firmly pulling up the hold-down release ring in the left rear corner of the deck. As the deck rises, the lip plate automatically swings up and extends. Let go of the release ring once the deck reaches full height and walk down the slope to lower the deck onto the vehicle load bed.

It is important that the walk-down step be performed soon after the deck has reached full height, otherwise the lip plate may drop prematurely and fail to make contact with the load bed. In this event, the deployment procedure will have to be done over.

While in use, the deck will raise and lower to match the vertical motion of the freight carrier.

NOTE: Letting go of the hold-down release ring at any time will stop the upward travel of the deck.



5.

OPERATING INSTRUCTIONS

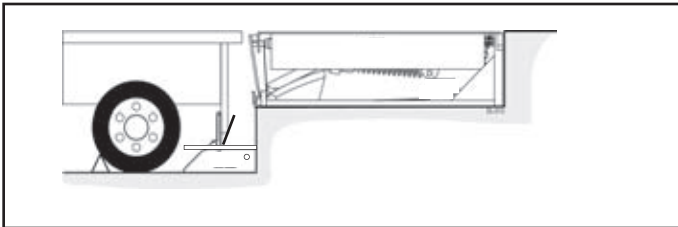
5.3 Below Level / End Loading

This section outlines dock leveler operation in situations where the lip plate cannot make contact with the vehicle load bed (i.e. loading or unloading the first skid or pallet from the truck when there is not enough room to extend the lip plate) or the truck height is below dock level.

1. Raise the dock leveler deck by firmly pulling on the hold-down release ring and holding it until the deck reaches its full height.
2. Release the ring and walk down the deck, properly timing the walk-down so that the lip plate folds before reaching the load bed, but not enough for it to fall into the lip keepers. The lip plate will assume the pendant position and slip between the edge of the load bed and the building foundation.

5.4 Storing the Dock Leveler

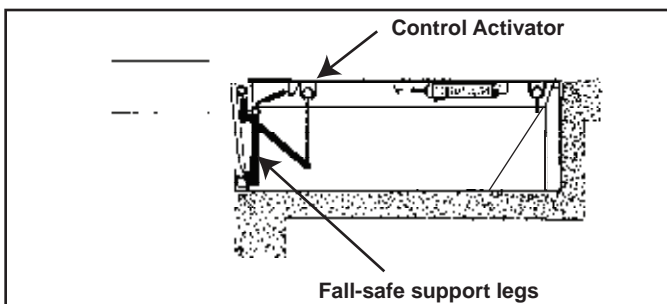
When loading / inloading operations have been completed, pull on the hold-down release ring until the deck raises high enough for the lip plate to clear the load bed. Then release the ring and walk down the deck after allowing enough time for the lip plate to completely fold in. Ensure that the lip is parked inside the lip keepers.



5.5 Overriding the Fall-Safe Option

The mechanical fall-safe option consists of two support legs held rigidly in place by springs. Their purpose is to stop downward travel of the deck by approximately 2.5 inches (60mm) below level position.

When situations arise that require the deck to be lowered more than 2.5 inches (60mm) below the cross-traffic position, retract the fall-safe support legs via the Control Activator located at the left front corner of the deck. The Control Activator pull ring retracts the support legs and allows the dock leveler to lower a full 12 inches (304mm) below level position. The support legs will return to the normal pendant position when the Control Activator ring is released and the deck has risen high enough via operation of the hold-down release ring.



6. DOCK LEVELER TROUBLESHOOTING	
⚠ WARNING	Do not attempt to install, make repairs or adjustments. Only a trained and authorized service technician should perform the installation process. Contact your local dealer or distributor for assistance.
PROBLEM	PROBLEM CAUSE
Deck will not raise.	<ol style="list-style-type: none"> 1. Hold-down mechanism is not releasing. The release chain, handle, or locking roller may be jammed or broken. 2. Foreign material may be lodged between the side of the deck and the pit wall. 3. The bumpers may be damaged or missing, allowing truck to contact and hold the lip. 4. The lifting arm cam roller knocked off cam and jammed.
The deck does not raise quickly enough to swing the lip up into the fully extended position.	<ol style="list-style-type: none"> 1. Foreign material lodged in the lip hinge, preventing full rotation. 2. Deck may be dragging on the side of the pit, slowing its movement. 3. Foreign material may be lodged between the side of the deck and the pit wall. 4. Lifting arm cam roller has groove worn in by the cam. 5. Lack of lubrication on the lip hinge spools. 6. Lifting springs may require adjustment. (Rule out all other causes first)
The lip does not lock after fully extending.	<ol style="list-style-type: none"> 1. The lip lock is not engaging. The spring may be broken or stretched, or the lock itself may have seized. 2. The lip actuator is bent or broken. 3. Foreign material is lodged in the lip lock mechanism.
The deck will not 'walk down'.	<ol style="list-style-type: none"> 1. Foreign material in the pit may be blocking the mechanism. 2. Side safety skirts are damaged and jammed against the pit wall. 3. The lifting arm cam roller is knocked off, causing the lift arm to jam against the cam.
The deck is difficult to 'walk down'.	<ol style="list-style-type: none"> 1. Weather seals, skirts, or deck may be dragging against the pit wall. 2. Foreign material may be in the pit. 3. Cam roller may be badly grooved by wear. 4. Cam roller bearing may have seized. 5. Lack of lubrication. 6. Lift springs are improperly adjusted. Tension may have been mistakenly increased to troubleshoot another problem.
The lip does not release and swing down when the truck departs.	<ol style="list-style-type: none"> 1. The lip lock may have seized due to lack of lubrication or foreign material in the pit. 2. Lip lock may be held in locked position by foreign material in the pit.
The deck does not stay down: it springs back up after being walked down.	<ol style="list-style-type: none"> 1. Hold-down strap may be broken, or the hold-down assembly may be jammed. 2. Foreign material in the hold-down assembly stopping the rotation of the ratchet hub. 3. Pawl worn out or pawl spring broken. 4. Tension strap broken or tension strap spring broken. 5. Disc brake handle jammed or foreign material lodged under the brake handle. 6. The disc brake may be worn or damaged, or have been accidentally lubricated during maintenance. The brake lining may also be worn. 7. Disc brake caliper may be damaged or jammed, or the caliper holder damaged by foreign material. 8. Improperly adjusted brake lining clearance.
The lip strikes the rear of the truck as the deck raises, stops, or slows down, and lip does not extend in the locked position.	<ol style="list-style-type: none"> 1. Damaged or missing dock bumpers allow the truck to park too close to the leveler. 2. Height difference between the dock and truck bed may be greater than recommended. 3. The lip actuator assembly may be damaged, causing lip to begin extending too early in the cycle. 4. The lip actuator requires adjustment.
The lip will not clear the rear of the truck when attendant attempts to park the dock while the truck is parked.	<ol style="list-style-type: none"> 1. Damaged or missing dock bumpers allow the truck to park too close to the leveler. 2. Height difference between the dock and truck bed may be greater than recommended. 3. The lip actuator assembly may be damaged, causing lip to be held out too late in the cycle. 4. The lip actuator requires adjustment.

7. MAINTENANCE

⚠ WARNING

Do not operate and/or service this dock leveler until you have read and understood all of the safety information and instructions contained herein and on the dock leveler.

Do not work under or around dock leveler without first placing adequate barriers to positively prevent vehicle traffic from entering the work area.

Follow proper lock-out/tag-out procedures.

Keep hands and feet clear of dock leveler pinch points and wear appropriate safety attire - glasses, gloves and work boots.

⚠ WARNING

The Maintenance strut must be in place before commencing maintenance procedures.

7.3 Routine Servicing and Maintenance

Regular maintenance and care of the dock leveler is very important for cost and operation efficiency and more importantly; operator safety. A faulty dock leveler is a potential source of danger to the operator, and to other personnel working near it. As with all quality equipment, keep the dock leveler in good operating condition by following the recommended schedule of maintenance.

Failure to properly maintain or operate the dock leveler within its rated capacity can void the manufacturer warranty.

7.1 Planned Maintenance

In addition to the daily operator inspection, the manufacturer recommends (and local government regulations may require) that a planned maintenance (PM) and safety inspection program be performed by a trained and authorized service technician on a regular basis to maintain the equipment in safe operating condition. The PM will provide an opportunity to make a thorough inspection of the safety and operating condition of the dock leveler. Necessary adjustments and repairs can be done during the PM, which will increase the life of components and reduce unscheduled downtime.

Recommended procedures for a periodic planned maintenance program that covers inspections, operational checks, cleaning, lubrication, and minor adjustments are outlined in this manual. An authorized dealer or distributor is prepared to assist with a planned maintenance program by offering trained service personnel with expertise in dock leveler maintenance requirements.

7.4 Planned Maintenance Intervals

Arrange for a qualified dock leveler repair technician to perform regularly scheduled planned maintenance on your dock leveler every 3 months for single shift operations or monthly for multi-shift operations.

Call your authorized manufacturer/ dealer for further details.

7.5 Maintenance Sequence

1. Cleaning, including pit area.
2. Visual inspection of all components.
3. Lubrication, as required. (by a trained service technician only)
4. Test operate all functions.
5. Adjustments, if required. (by a trained service technician only)
6. Check for missing or damaged dock bumpers.
7. Record inspection details and findings for owners' files.

7.2 Operator Daily Inspection

The dock leveler should always be examined by the operator PRIOR TO ANY USE to verify that it is safe to operate.

The manufacturer recommends making multiple photocopies of the Operator's Daily Checklist. The operator should fill out this form to keep a daily record of operation and maintenance issues.

MAINTENANCE & SERVICE TIME INTERVALS FOR SPECIFIC DOCK COMPONENTS CHART

	<i>EXTENSION SPRINGS</i>	<i>DECK ASSEMBLY</i>	<i>SAFETY LEGS</i>	<i>LIP HINGE ASSEMBLY</i>	<i>LIP EXTENSION SYSTEM</i>	<i>HOLD-DOWN ASSEMBLY</i>
INSPECT	ALL THE ABOVE EVERY 90 DAYS (for multi-shift operations every 30 days is required)					
CLEAN	ALL THE ABOVE EVERY 90 DAYS Clean Lip As Required (for multi-shift operations every 30 days is required)					
LUBRICATE	As Needed	Every 90 Days Pivot Points (Light Oil)	Every 90 Days (Light Oil)	Every 90 Days (Grease)	Every 90 Days (Light Oil)	Not Required
ADJUST	As Needed	Not Required	Not Required	Not Required	As Needed	As Needed

Note : In many localities, all lifting devices must be inspected a minimum once per year.

7.6 PM CHECK LIST - DOCK EQUIPMENT

Customer		Tel		SWO#	
Location		Cust. Contact			
Date		Inspected By			

Barricade Work Area

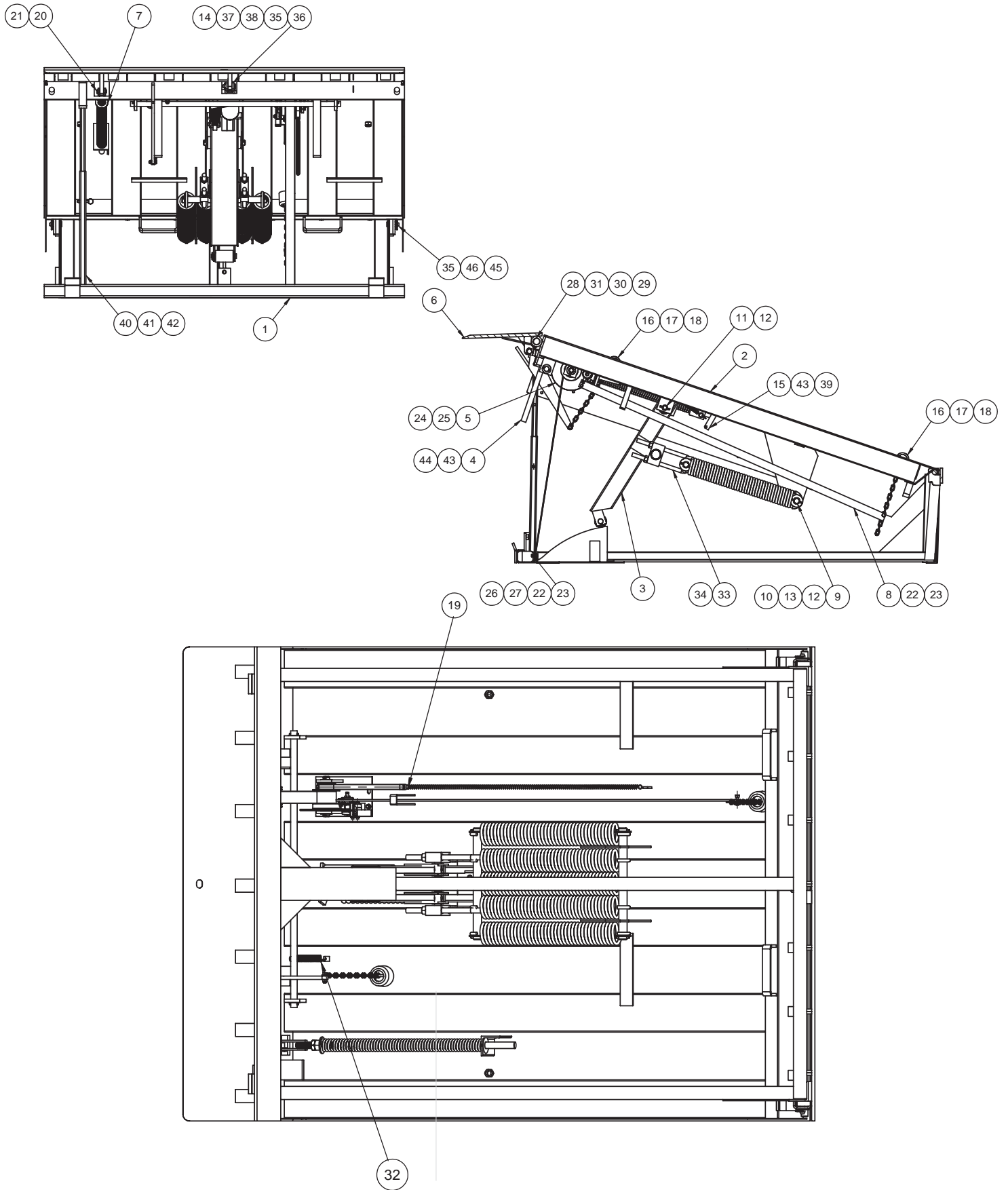
CLEAN	Repairs?	OK	CHECK / ADJUST / LUBE	Repairs?	OK
Pit Area			Check Clevis Pins & Lubricate		
Deck Hinge			Check Dock Bumpers		
Lip Hinge			Check Weather Seals		
			Check Dock Seal/Dock Shelter		
CHECK	Repairs?	OK	Check For Proper Operation		
Check Full Operating Cycle			Clean Up Of Dock Leveler Area		
Check Instruction, Caution, Danger Labels			Place Updated Service Sticker On Equipment		
Check Welds On Dock Leveler					
Check Maintenance Strut / Lip Latch					
Check Ramp Rear Hinges					
Check Dock Leveler Structure, Sub Frame, Shim					
Lubricate Rear Hinges & Pins					
Lubricate Dock Leveler Lip Hinge					
Structural Damage					
Check Lip Crown					
Dock Bumpers / Extensions					
Overhead Door					
Curb Angle					
Safety Skirts					

COMMENTS

REPAIRS RECOMMENDED

 WARNING
<p><i>Do not install this leveler, operate and/or service unless you have been trained and authorized to do so.</i></p>

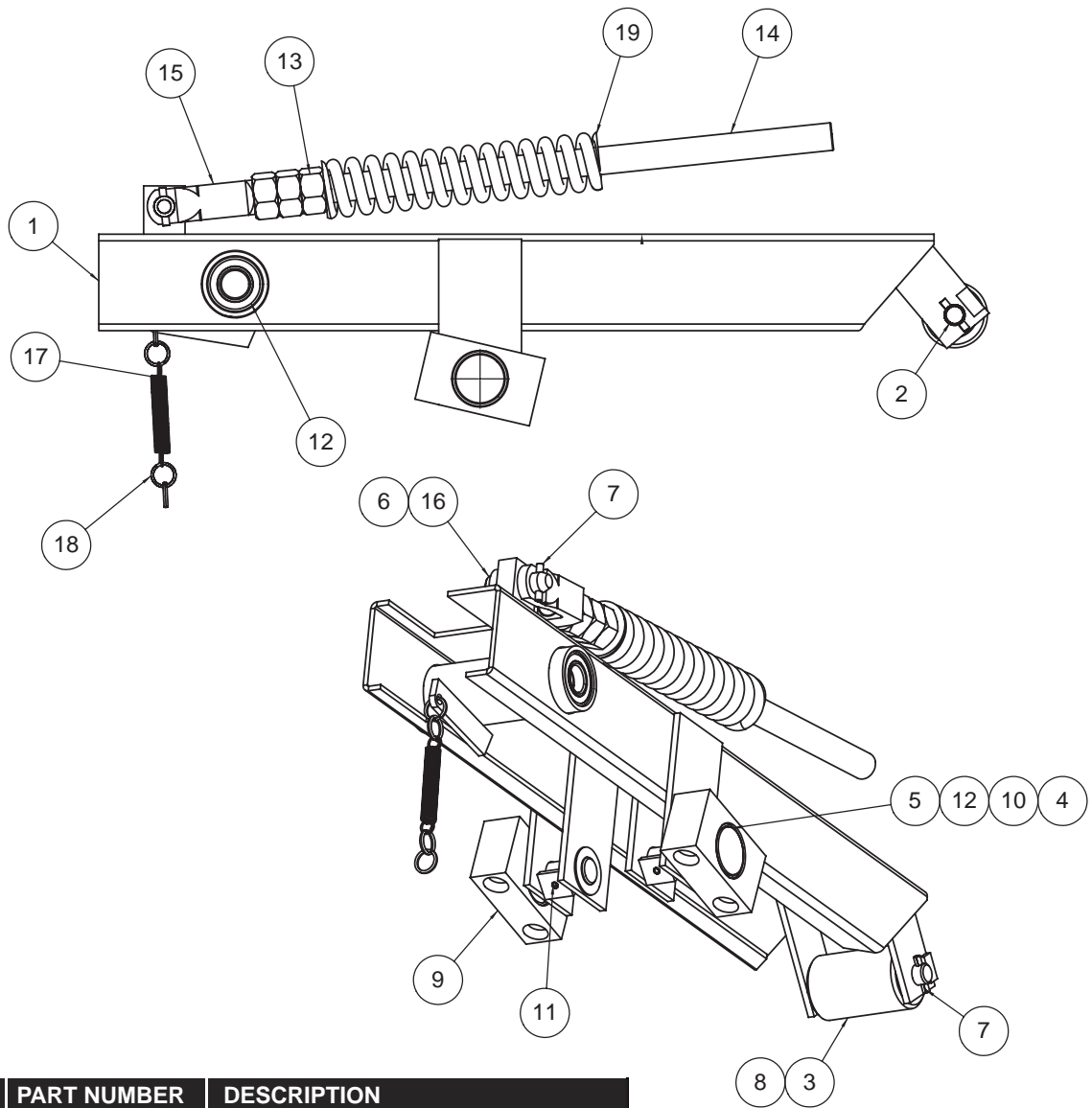
8. DOCK GENERAL ASSEMBLY COMPONENTS



U-SERIES MECHANICAL DOCK LEVELER

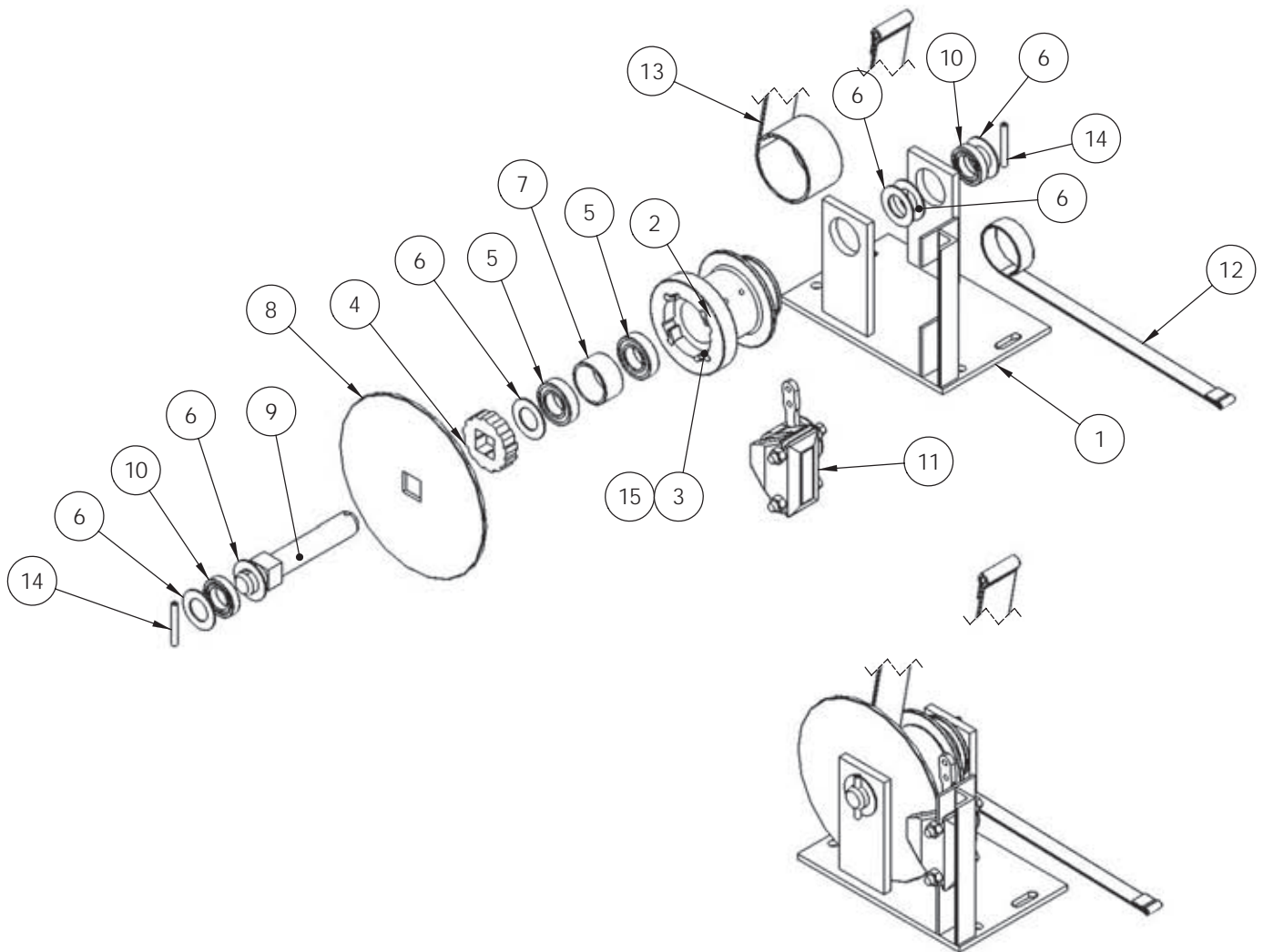
8A. SPARE PARTS LIST - U-SERIES MECHANICAL DOCK			
ITEM	QTY	PART ID	GENERAL DESCRIPTION
1	1	24-000820	MAIN FRAME WELD
2	1	24-000548-2	FALL SAFE
3	1	24-003405	LIFTING ARM ASSEMBLY
4	1	24-000608	FALL SAFE WELDMENT
5	1	24-000618	HOLD-DOWN ASSEMBLY
6	1	24-000746	LIP WELDMENT 72"W
7	1	200-03461-1	LIP ASSIST SPRING ASSEMBLY
8	1	24-000751	BRAKE HANDLE
9	2	109-137	MAINSRING HANGER
10	5	223-0004	MAIN SPRING
11	1	113-207	LIFTING ARM PIN
12	6	013-012	1/4 DIA. SPRING PIN 2 LG
13	4	012-250	FLAT WASHERS 1"
14	1	24-003409	SHOCK ASSEMBLY
15	1	793-965	DOG ASSEMBLY
16	2	788-197	PULL CHAIN
17	2	010-077	CAP SCREW 3/8-16 X 1 1/4 HH GR. 2 ZC. F/T
18	2	011-552	NYLON INSERT LOCKNUTS 3/8"-16 (U.S.)
19	1	200-02547	TENSION SPRINGS
20	1	013-621	CLEVIS PIN
21	1	013-025	COTTER PIN 3/16" X 1.5"
22	4	010-001	CAP SCREW 1/4-20 X 1 HH
23	4	011-545	NYLON INSERT LOCKNUTS 1/4" - 20 (U.S.)
24	4	011-507	HEX NUTS 3/8" - 16 UNC
25	4	012-201	LOCK WASHERS 3/8" HELICAL
26	1	200-02346	STRAP RETAINING BAR
27	1	200-02409	STRAP RETAINING PIN
28	1	110-763 / 111-594	6'W DOCK / 7'W DOCK
29	2	010-037	CAP SCREW 5/16-18 X 3/4 HH GR.5 ZC
30	2	012-200	REGULAR SPRING LOCK WASHERS 5/16" (U.S.)
31	2	011-502	HEX NUTS (U.S.)
32	1	017-012	TENSION SPRING
33	2	111-570	U-BOLT
34	4	011-510	NUTS HEX 3/4-10 PLTD
35	3	107-196	CLEVISPIN
36	1	114-663	CLEVIS
37	1	011-531	HEX NUTS (U.S.)
38	1	013-010	1/4 DIA. SPRING PIN 1.25 LG
39	1	222-010	PIN, DOG
40	1	200-5001	SAFETY STRUT ASSEMBLY
41	1	010-027	HHCS
42	1	011-554	NYLON INSERT LOCKNUTS 1/2" - 13 (U.S.)
43	3	013-011	1/4 DIA. SPRING PIN 1.38 LG.
44	2	106-389	FLAT WASHER
45	2	013-029	HAIRPIN COTTER
46	2	012-214	FLAT WASHERS (U.S.) 3/4"

9. LIFTING ARM ASSEMBLY



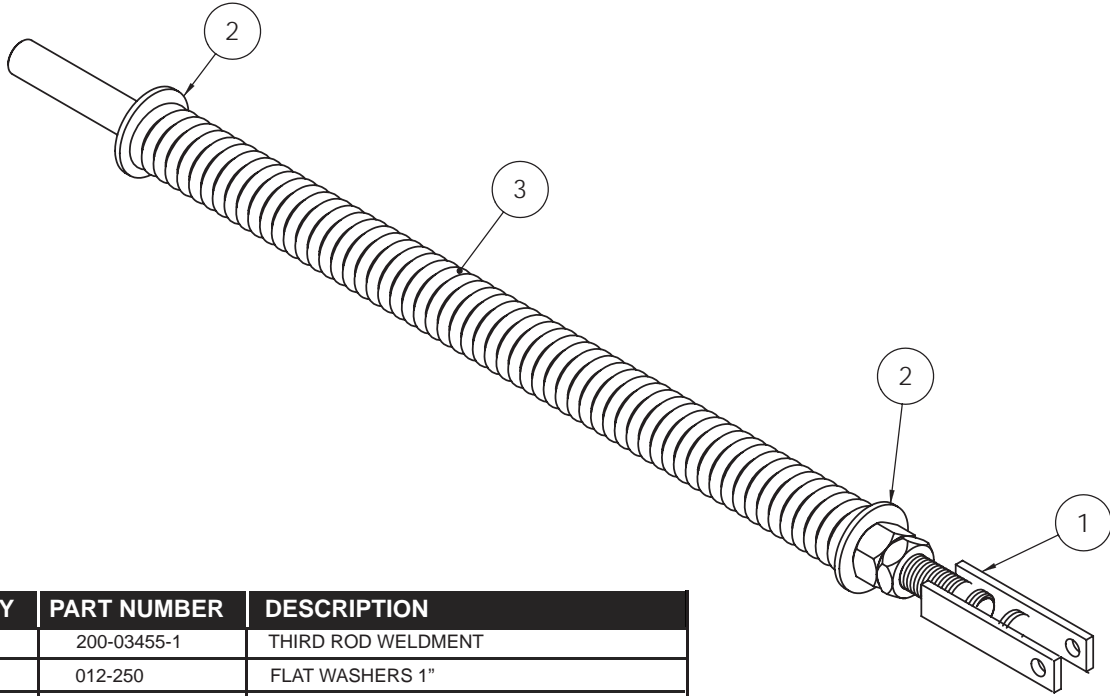
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	24-003406	LIFTING ARM ASSEMBLY
2	1	223-0000	AXLE
3	1	109-791	LIFTING ARM ROLLER
4	2	106-389	FLAT WASHER
5	2	788-085	U FLOAT BLOCK PIN
6	1	018-001	BUSHING
7	2	013-011	1/4 DIA. SPRING PIN 1.38LG
8	2	018-500	BALL BEARING
9	2	111-572	ADJUSTING BRACKET
10	2	106-389	SPACER WASHER
11	2	013-090	1/4 DIA. SPRING PIN 1.5LG.
12	6	18-501	BEARING
13	3	011-531	HEX NUTS
14	1	24-003386	LIP PUSHER SHAFT
15	1	114-663	CLEVIS
16	1	107-196	CLEVIS PIN
17	1	109-107	DOG SPRING
18	4	013-012	RING, SPLIT
19	1	223-0005	COMPRESSION SPRING

10. HOLD-DOWN ASSEMBLY



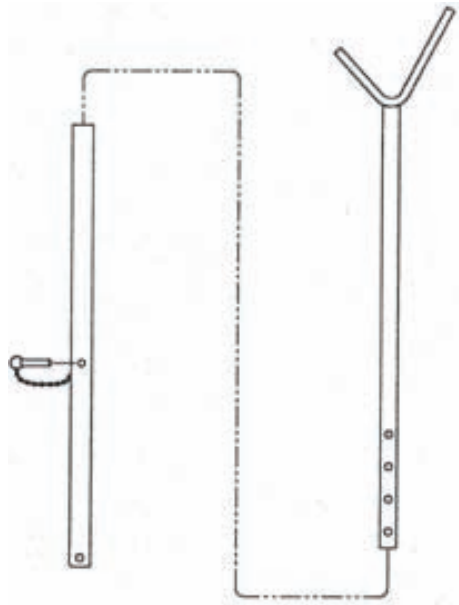
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	200-03017	BASE WELDMENT
2	1	200-02488	RATCHET HOUSING
3	4	200-02417	PAWL
4	1	200-02484	RATCHET GEAR
5	2	018-632	BALL BEARING
6	7	106389	FLAT WASHER
7	1	200-02427	SPACER TUBE
8	1	200-02485	BRAKE DISH
9	1	200-02428	SHAFT
10	2	018-633	BALL BEARING
11	1	24-000731	BRAKE CALIPER ASSEMBLY
12	1	200-02423	TENSION STRAP
13	1	200-02422	HOLD DOWN STRAP
14	2	013-012	1/4 DIA. SPRING PIN 2 LG.
15	4	200-02429	PAWL SPRING

11. LIP ASSIST SPRING ASSEMBLY



ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	200-03455-1	THIRD ROD WELDMENT
2	2	012-250	FLAT WASHERS 1"
3	1	200-03460	COMPRESSION SPRING

12. SAFETY STRUT ASSEMBLY



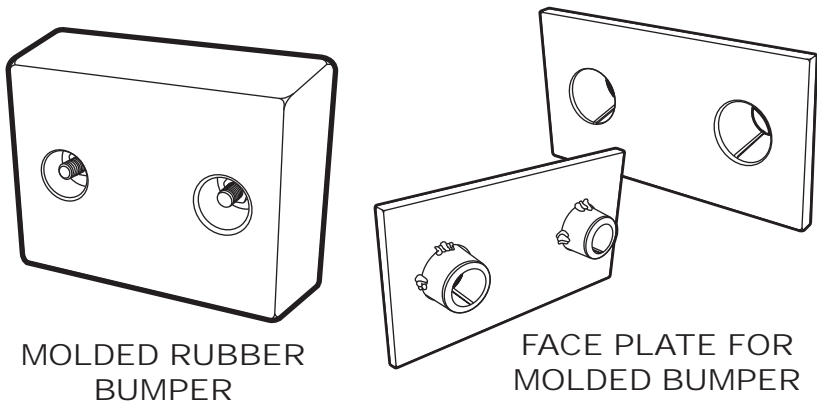
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	200-5001	Safety Strut Assembly

13. GENERAL PARTS

13.1 MOLDED RUBBER BUMPERS

MOLDED RUBBER BUMPERS

PART ID	DESCRIPTION
DB13	4" x 10" x 13"
DB18	4" x 10" x 18"
DB30	4" x 10" x 30"
DBL18	4" x 18" x 18"



MOLDED RUBBER BUMPER

FACE PLATE FOR MOLDED BUMPER

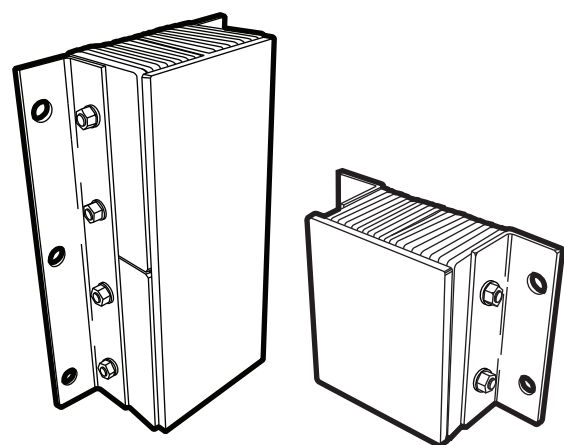
13.2 FACE PLATES FOR MOLDED RUBBER BUMPERS

PART ID	DESCRIPTION
DB13FP	4" x 10" x 13"
DB18FP	4" x 10" x 18"

13.3 LAMINATED BUMPERS

LAMINATED BUMPERS

PART ID	DESCRIPTION
DB411	4.5" x 14" x 10"
DB511	5.5" x 14" x 10"
DB412	4.5" x 14" x 20"
DB512	5.5" x 14" x 20"
DB421	4.5" x 24" x 10"
DB521	5.5" x 24" x 10"
DB431	4.5" x 36" x 10"
DB531	5.5" x 36" x 10"



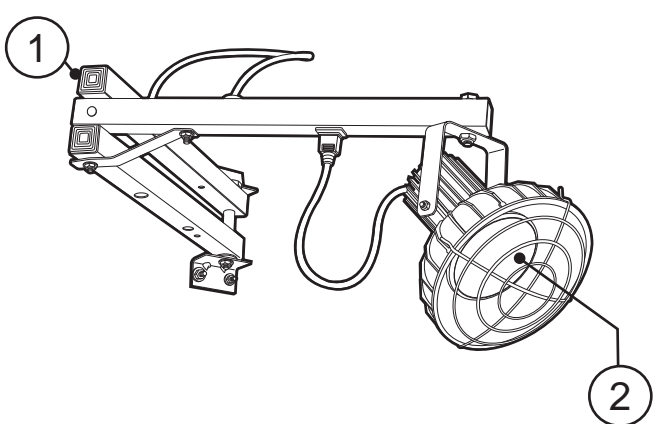
LAMINATED BUMPER WITH FACE PLATE

13.4 FACE PLATES FOR LAMINATED BUMPERS

PART ID	DESCRIPTION
DB411FP	4.5" x 14" x 10"
DB511FP	5.5" x 14" x 10"
DB412FP	4.5" x 14" x 20"
DB512FP	5.5" x 14" x 20"

13.5 FLOOD LIGHT

ITEM	QTY	PART ID	DESCRIPTION
1	1	LDL-150	LOADING DOCK LIGHT - 150W MAX
2	1	026-725	90W HALOFLOOD BULB - 130V



14.

RECOMMENDED SPARE PARTS

Part #	Description	Qty Req'd
24-000618	HOLD DOWN DISC ASSEMBLY	1
200-02422	HOLD DOWN STRAP 60" OAL	1
200-02422-1	HOLD DOWN STRAP 90" OAL	1
24-000731	BRAKE CALIPER ASS'Y	1
200-02547	TENSION SPRING (HOLD DOWN BOX)	1
24-000751	BRAKE HANDLE "C" (HOLD DOWN BOX)	1
HARDWARE REQ'D:		
QTY: X 2 Cap Screw, Part # 010-001 & QTY: X 2 Nylon Locknuts, Part # 011-545		
200-02346	STRAP RETAINING BAR (HOLD DOWN BOX)	1
HARDWARE REQ'D:		
QTY: X 1 Retaining Pin, Part # 200-02409, QTY: X 2 Screw, Part # 010-001 & QTY: X 2 Locknuts, Part # 011-545		

Complements For Lifting Arm Assembly

Part #	Description	Qty Req'd
109-107	SPRING (DOG ASSEMBLY)	2
HARDWARE REQ'D:		
QTY: X 4 Spit Ring, Part # 013-012		
24-003386	LIP PUSHER SHAFT	1
114-663	CLEVIS	1
HARDWARE REQ'D:		
QTY: X 1 Clevis Pin, Part # 107-196 & QTY: X 1 Spring Pin, Part # 013-011		
011-531	NUT	3
223-0005	COMPRESSION SPRING-LIP ASSIST	1
109-791	LIFTING ARM ROLLER	1
HARDWARE REQ'D:		
QTY: X 2 Bearings Part # 018-500, QTY: X 1 Axle, Part # 223-0000 & QTY: X 2, Spring Pin, Part # 013-011		
018-501	BEARING	6
788-085	U FLOAT BLOCK PIN	1
HARDWARE REQ'D:		
QTY: X 2 Washer, Part # 106-389, QTY: X 2 Washer, Part # 106-389 & QTY: X 2, Spring Pin, Part # 013-090		

Part #	Description	Qty Req'd
200-03461-1	LIP ASSIST SPR. SUB ASSY (Complete)	1
200-03461-2	LIP ASSIST SPR. SUB ASSY (Complete)	1
C/W: QTY: X 1, Part # 200-03455-1 Third Rod, QTY: X 2, Part # 012-250 Washer & QTY: X 1, Part # 200-03460 Spring		
013-621	CLEVIS PIN	1
HARDWARE REQ'D:		
QTY: X 1 Cotter Pin, Part # 013-025		
223-0004	MAIN SPRING	5
109-137	MAIN SPRING HANGER SHAFT	2
HARDWARE REQ'D:		
QTY: X 6 Spring Pin, Part # 013-012 & QTY: X 4 Washers, Part # 012-250		
24-003409	SHOCK ABSORBER	1
017-012	SPRING TENSION (FALL SAFE)	1
793-965	DOG ASSEMBLY	1
788-197	PULL CHAIN ASSEMBLY	2
HARDWARE REQ'D:		
QTY: X 2 Cap Screw, Part # 010-077 & QTY: X 2 Nut, Part # 011-552		

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