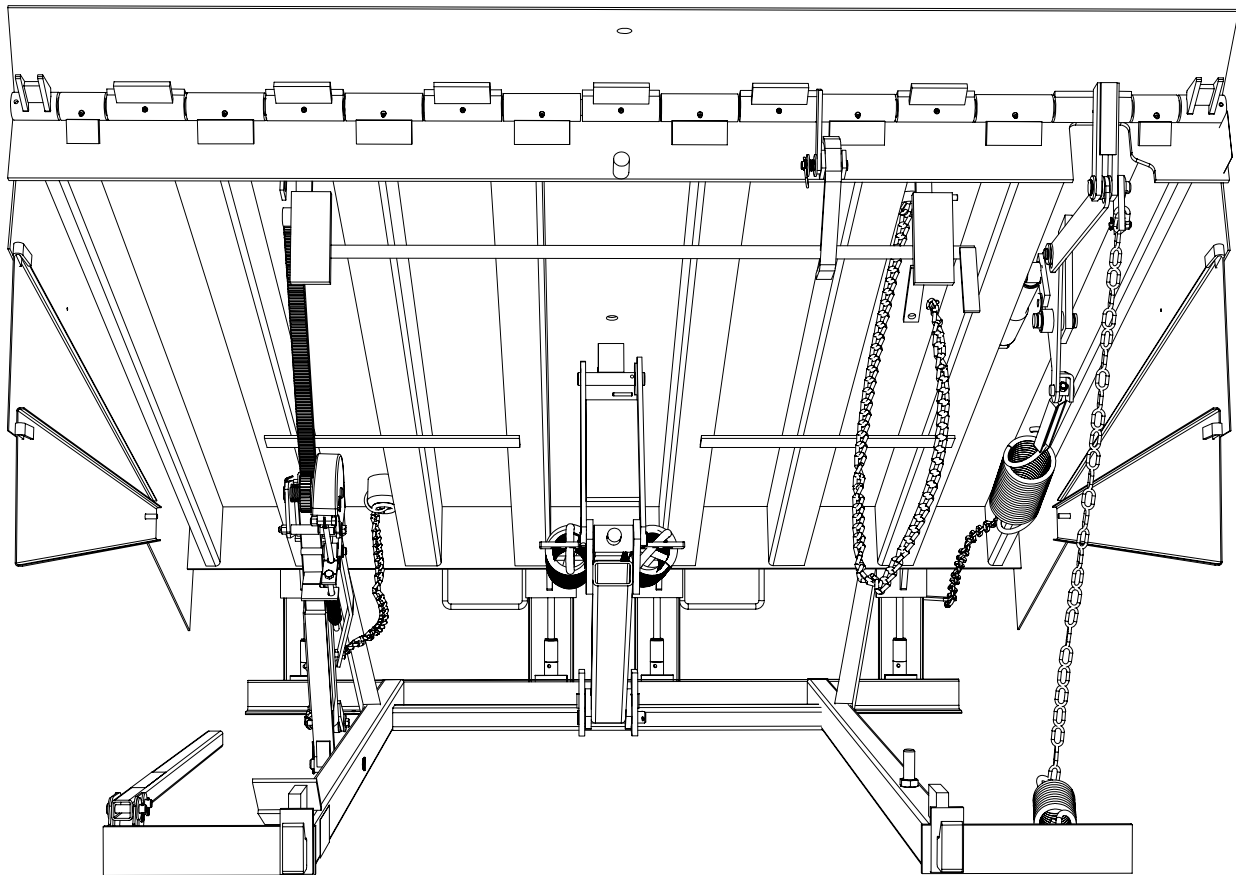


Mechanical Dock Levelers

Models CM, WL and WS

with HYDRA-CAM™ Lip Extension



This manual applies to dock levelers manufactured beginning November 2013 with the serial numbers 61095303 and higher

⚠ WARNING

Do not install, operate or service this product unless you have read and understand the Safety Practices, Warnings, Installation and Operating Instructions contained in this User's Manual. Failure to do so could result in death or serious injury.

User's Manual

Installation, Operations, Maintenance and Parts

Part No. 6004758M

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INTRODUCTION

Welcome and thank you for choosing this dock leveler for your material handling applications. This leveler is equipped with exclusive Posi-Trac® hold-down and Clean Frame® design. This dock leveler may be equipped with the optional ENERGY GUARD® dock leveler sealing system.

This User's Manual contains information that you need to safely install, operate, maintain and identify parts for the dock leveler. Please read and follow this User's Manual when installing the dock leveler.

SAFETY SIGNAL WORDS

You may find safety signal words such as DANGER, WARNING, CAUTION or NOTICE throughout this User's Manual. Their use is explained below:



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 death or injury.

▲ DANGER

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

▲ WARNING

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

▲ CAUTION

Indicates a potentially hazardous situation which, if not avoided may result in minor or moderate injury.

NOTICE

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

SAFETY PRACTICES

⚠ WARNING

Read these safety practices before installing, operating, or servicing the dock leveler. Failure to follow the safety practices could result in death or serious injury.

If you do not understand the instructions, ask your supervisor to explain them to you or call your authorized 4Front Engineered Solutions, Inc. distributor.

OPERATION

Use of dock leveler restricted to trained operators.

Do not use this unit to service vehicles outside of its intended working range which is 12" above dock and 12" below dock (15" above dock and 12" below dock for 10' models).

Do not operate the dock leveler when anyone is in front of it.

Follow procedures on placard(s) posted near dock leveler.

Stay clear of the dock leveler when it is moving.

STAY CLEAR OF HINGES AT ALL TIMES. Do not use hands to position dock leveler ramp or lip, or to store dock leveler.

Do not use the dock leveler if it appears damaged or does not operate properly. Inform your supervisor immediately.

Do not stand in the driveway between the dock leveler and the backing vehicle.

Chock vehicle wheels or lock vehicle into place with vehicle restraining device and set brakes before loading or unloading.

Visually check that the lip is supported by the vehicle floor or the lip is supported by both lip keepers before driving on the ramp.

Store the dock leveler at dock level with lip in both lip keepers after use.

Ensure lip avoids contact with vehicle sides and cargo. If lip does not lower to vehicle bed, reposition vehicle.

Move all equipment, material or people off the dock leveler and store the dock leveler before allowing the vehicle to pull out.

Do not walk on lip to lower the dock leveler.

Do not use a fork truck or other material handling equipment to lower the ramp.

Before chocking wheels, or engaging the vehicle restraint, dump all air from the air ride suspensions and set the parking brake.

INSTALLATION, MAINTENANCE AND SERVICE

Service of dock levelers restricted to trained personnel.

Place barricades on the dock floor around the dock leveler pit and in the driveway in front of the pit while installing, maintaining or repairing the dock.

Do not operate the dock leveler when anyone is standing in front of the dock leveler unless they are securing the maintenance strut.

Do not enter pit or do any maintenance or repair under dock leveler unless leveler is securely supported by maintenance strut.

Failure to follow these instructions could result in death or serious injury to operators and/or bystanders.

OWNER'S RESPONSIBILITIES

The owner's responsibilities include the following:

The owner should recognize the inherent danger of the interface between dock and transport vehicle. The owner should, therefore, train and instruct operators in the safe use of dock leveling devices.

When a transport vehicle is positioned at the dock, there shall be at least 4" of overlap between the front edge of the lip of the dock leveler and the edge of the floor or sill of the transport vehicle.

Nameplates, cautions, instructions and posted warnings shall not be obscured from the view of operating or maintenance personnel for whom such warnings are intended.

Manufacturer's recommended periodic maintenance and inspection procedures in effect at time of shipment shall be followed and written records of the performance of these procedures should be kept.

A dock leveler that is structurally damaged or has experienced a sudden loss of support while under load, such as might occur when a transport vehicle is pulled out from under the dock leveler, shall be removed from service, inspected by the manufacturer's authorized representative and repaired as needed before being placed back in service.

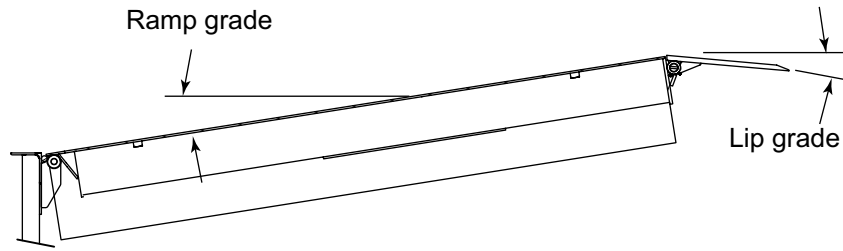
The owner shall see that all nameplates, caution and instruction markings or labels are in place and legible and that the appropriate operating and maintenance manuals are provided to users.

Modifications or alterations of dock leveling devices shall be made only with written permission of the original manufacturer.

When industrial vehicles 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 of wheel chocks engaged.

The dock leveler should never be used outside its vertical working range or outside the manufacturer's labeled rated capacity. It must also be compatible with the loading equipment and other conditions relating to the dock.

RAMP AND LIP GRADES



Vehicle bed position from dock, (in.)		Ramp and lip grades, % for each dock leveler length					
		6' Leveler		8' Leveler		10' Leveler	
		Ramp	Lip	Ramp	Lip	Ramp	Lip
Above Dock	15.0	---	---	---	---	13.9	7.5
	12.0	19.1	12.6	14.2	7.9	11.4	5.0
	10.0	16.2	9.8	12.1	5.8	9.7	3.4
	8.0	13.3	7.0	10.0	3.7	8.0	1.7
	6.0	10.5	4.2	7.9	1.6	6.3	-0.0
	4.0	7.8	1.5	5.8	-0.5	4.7	-1.6
	2.0	5.0	-1.3	3.8	-2.5	3.0	3.3
	0.0	2.2	-4.0	-4.6	-4.6	1.3	-4.9
Below Dock	-2.0	-0.5	-6.8	-6.7	-17.2	-0.3	-6.6
	-4.0	-3.3	-9.6	-8.8	-20.4	-2.0	-8.3
	-6.0	-6.0	-12.4	-10.8	-18.6	-3.6	-9.9
	-8.0	-8.8	-15.2	-12.9	-16.8	-5.3	-11.6
	-10.0	-11.6	-18.0	-15.1	-15.0	-7.0	-13.3
	-12.0	-14.4	-20.9	-17.2	-13.3	-8.6	-15.0

Ramp and lip grade, 4° lip bend, 16" lip.

Vehicle bed position from dock, (in.)		Ramp and lip grades, % for each dock leveler length					
		6' Leveler		8' Leveler		10' Leveler	
		Ramp	Lip	Ramp	Lip	Ramp	Lip
Above Dock	15.0	---	---	---	---	14.7	2.0
	12.0	20.5	7.7	15.3	2.6	12.2	-0.4
	10.0	17.6	4.9	13.2	0.5	10.5	-2.1
	8.0	14.8	2.1	11.1	-1.6	8.8	-3.8
	6.0	11.9	-0.7	9.0	-3.6	7.2	-5.4
	4.0	9.2	-3.4	6.9	-5.7	5.5	-7.1
	2.0	6.4	-6.2	4.8	-7.8	3.8	-8.8
	0.0	3.6	-9.0	2.7	-9.9	2.2	-10.4
Below Dock	-2.0	0.9	-11.8	0.6	-12.0	0.5	-12.1
	-4.0	-2.1	-14.6	-1.4	-14.1	-1.1	-13.8
	-6.0	-4.7	-17.4	-3.5	-16.2	-2.8	-15.5
	-8.0	-7.4	-20.3	-5.6	-18.3	-4.5	-17.2
	-10.0	-10.2	-23.2	-7.7	-20.5	-6.1	-18.9
	-12.0	-13.0	-26.1	-9.8	-22.7	-7.8	-20.6

Ramp and lip grade, 7° lip bend, 16" lip.

INSTALLATION

PIT CHECK

1. Inspect the pit and remove all loose trash and construction debris. Prepare the rear of the pit for the leveler mounting feet. Using a chisel, remove any high spots visible within 6" of the rear wall below the rear curb angle. Verify that the pit matches the pit details for your leveler. See the installation troubleshooting on page 11 if the pit varies from the specification. See Fig. 12.

LEVELER CHECK

1. Visually check that all rear hinge pins, cotter pins, and kliprings are in place.
2. Visually check that the lip pin retainers are in place on both ends of the lip rod.
3. Visually check that both the lip maintenance bar and maintenance strut are undamaged and pins securely attached.
4. Visually check that the foot assemblies at the rear of the leveler are in place and undamaged.

INSTALLATION

1. 4" x 4" steel shims are to be placed under the safety leg rests, D84 spring bracket, the outboard end of the D84 mounting plate, and the maintenance strut bracket at the front of the frame. See Fig. 1 and step 13.
2. Hold the leveler closed with shipping banding securing the lip plate to the frame. Install two load centering eye bolts into the front and rear of the top plate and hoist the leveler into the pit. The dock leveler should not be lifted in any other manner when placed into the pit. See Fig. 2.

⚠ WARNING

Inadequate lifting equipment or practices can cause a lifted load to fall unexpectedly. Make sure 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. Never allow anyone to stand on or near 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 fall, tip, or swing into people, resulting in death or serious injury.

3. Position the dock leveler in the pit so that the gaps along both sides of the leveler are equal ($\pm 1/8"$) and the rear of the leveler frame touches the rear pit curb angle. See Fig. 4.

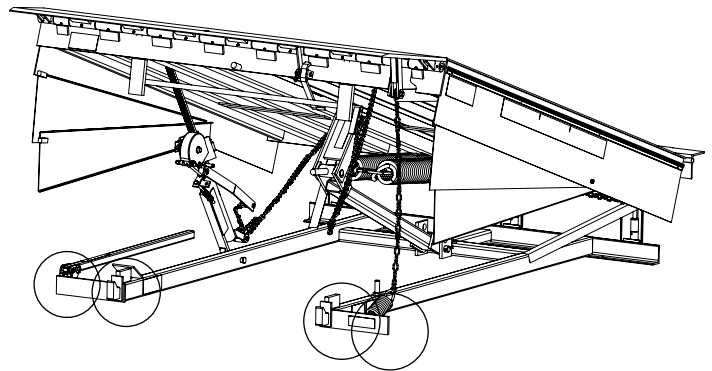
NOTE:

The rear frame angle should be about 3/4" lower than the pit curb angle before leveling. This is normal. Do not finish weld the rear angle until after performing the **LEVELING THE FRONT FRAME** steps on pages 8-9.

⚠ WARNING

Before installing the dock leveler, read and follow the Safety Practices on page 3 and the operating instructions on pages 14-18. Failure to follow the safety practices could result in death or serious injury.

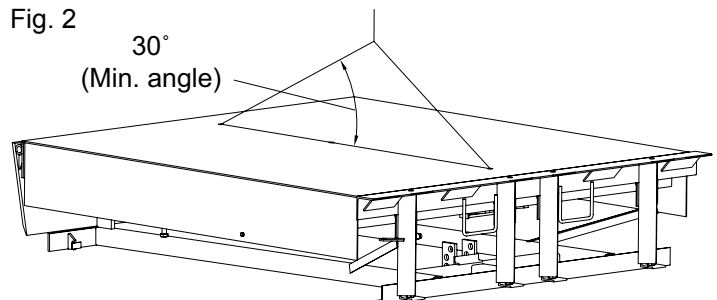
Fig. 1



NOTE:

Shim under front frame for all sizes of dock levelers in all shim locations shown.

Fig. 2



NOTE:

If the pit width conforms to the certified pit drawing, there be a 1/8" gap between the ends of the dock leveler's rear frame angle and the pit side curb angles. If this is not the case, the ends of the rear frame angle may require trimming to allow the gaps along both sides of the leveler to be equal ($\pm 1/8"$).

INSTALLATION, continued

LEVELING THE REAR FRAME

- Using a 1/2" square drive (1/2" ratchet) work from one side to the other, turn each (4) of the leveling screws on the rear angle, counterclockwise until the top surface of the rear angle is level with the rear pit curb angle. Repeat on each leg until all legs are in contact with the pit floor and the top frame angle is flush with the rear curb angle. See Fig. 3.

NOTICE

The rear edge of the dock leveler should be level or slightly (1/16" maximum) below dock level.

The top surface of the dock leveler should be level and a smooth transition with the dock floor curb steel. The front end should be level and parallel with the rear frame angle for proper operation. Unequal shimming of the front supports may be required to obtain a level front edge.

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

- Verify placement of the leveler in the pit is such that the rear frame angle is touching the rear pit curb angle and the gaps along both sides of the leveler are equal ($\pm 1/8"$). See Fig. 4.

NOTE:

If the pit is out-of-square, the resulting gap between the rear frame and the rear curb angle should be shimmed as necessary at the weld locations. Use steel shim(s) equal to the weld length and weld in place.

- Check the alignment of the top of the subframe and the top of the rear pit curb angle. The top of the subframe should be flush with the top of the rear pit curb angle. If a flush condition can not be achieved, the frame should be a maximum of 1/16" lower than the curb angle. Tack weld in four places min. 3/8", one at or near each leveling leg.

NOTE:

Do not finish weld the rear angle until after performing the **LEVELING THE FRONT FRAME** steps on pages 8-9.

- Remove the shipping banding from the lip plate.

Fig. 3

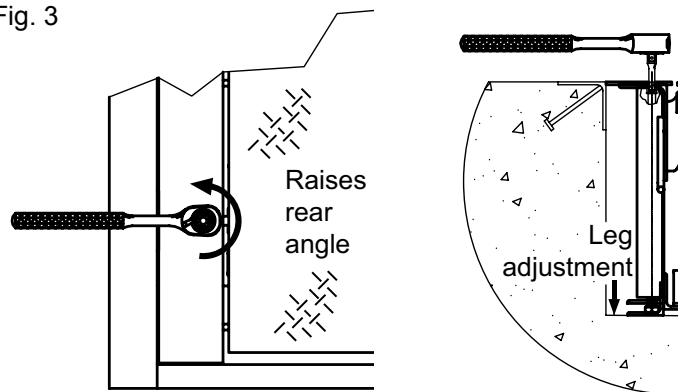
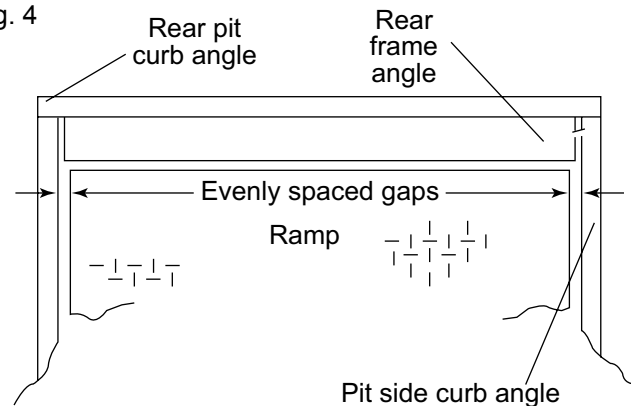


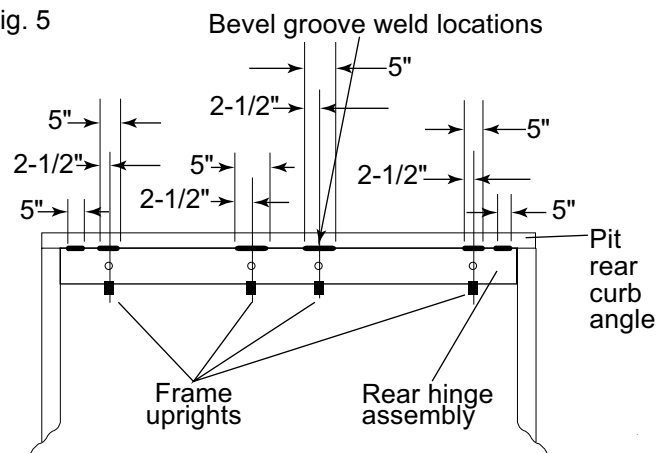
Fig. 4



INSTALLATION, continued

8. Pull the release chain, located at the rear of the ramp assembly, and allow the ramp to rise to its above dock position. The lip will extend automatically as the leveler raises.
9. Walk out onto the dock leveler, lowering it until the safety legs contact the safety leg rests on both sides of the frame. The lip should fall slowly.
10. After walking the dock leveler down, pull the release chain once more to raise the leveler to a slightly above dock position.
11. Walk the dock leveler down to its stored dock level position.
12. Check to ensure that the lip plate is supported in the lip keepers.

Fig. 5



LEVELING THE FRONT FRAME

13. With the lip stored in the lip keepers, place 4" x 4" steel shims of the appropriate thickness underneath the front of the leveler subframe, below the D84 spring, at the end of the D84 mounting plate, and the maintenance strut support. These shims should be flush with the front of the leveler frame, below or behind the lip keepers and of the proper thickness until top of deck is level with the dock surface. The shims at the end of the D84 mounting plate should be flush with the end of the plate to prevent the D84 chain from getting caught underneath it. See Fig. 6.

NOTE:

Ensure that the D84 shim fully supports the spring mount and is lined up with the outer edge of the support bracket.

14. Pull the release chain, located at the rear of the ramp assembly, and allow the ramp to rise to its above dock position. The lip will extend automatically as the leveler raises.
15. Walk the dock leveler down, then pull the release chain once more to raise the leveler to a slightly above dock position.
16. Walk the dock leveler down to its stored dock level position.
17. Check to ensure that the lip plate is supported in the lip keepers.

INSTALLATION, continued

18. To ensure that the ramp will be flush with the dock floor (where the overhead door makes contact) under normal operation proceed with steps 19-24.
19. Pull the release chain located at the rear of the ramp and allow the ramp to raise, but release the chain before the lip starts to extend.
20. Walk forward to the front of the ramp section of the dock leveler. Your weight will force the ramp down to its dock level (stored) position with the lip supported by both lip keepers.
21. When you step off the ramp, it may raise slightly. Adjust shims under the front of the both subframe members, below the safety leg supports and behind the lip keepers, until the top of the ramp is at the desired floor level.
22. Ensure the safety legs are centered on the safety leg posts. If not, adjust the frame runners as necessary. Tack weld the shims together and to the dock leveler subframe and front pit curb angle.
23. Check the shim height by repeating steps 19 and 20. When you step off, the top of the ramp should be at the desired floor level. If the ramp did not return to a position level with the dock floor, add or subtract shims as required. Then repeat steps 19 and 20.

NOTE:

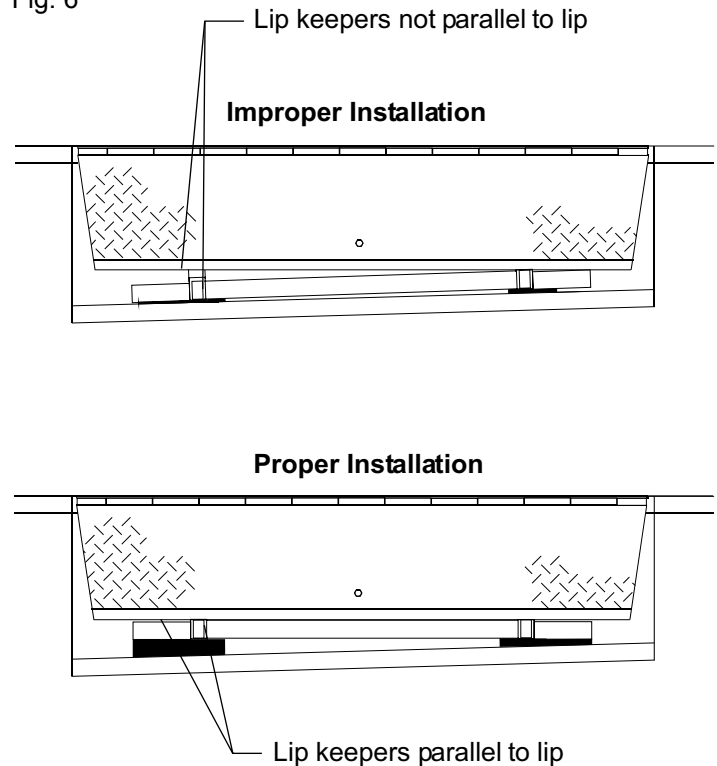
Shims must be placed under the maintenance post bracket, below the safety leg supports, under D84 spring, frame bracket and behind the lip keepers. The shims at the end of the D84 mounting plate should be flush with the end of the plate to prevent the D84 chain from getting caught underneath it. On 18" and 20" lips, shims must also be welded in between the lip keepers and the vertical face of the curb angle.

Before welding the dock leveler permanently into the pit, check the frame alignment again, to ensure that the lip keepers are parallel to the lip. See Fig. 6. Shimming of the frame members to a point where the front and rear are not parallel to each other will cause excessive float on one side of the ramp. The number of shims placed under the front frame will vary depending upon the "runout" in the poured pit and the desired location of the ramp when it is in dock level position.

FINISH WELDING

24. After verifying that both sides of the dock leveler are evenly spaced to the pit sides and the top edge of the rear frame angle is flush to a max. 1/16" below the rear curb angle, weld the rear frame angle to the rear curb angle using 1/4" bevel joint weld in the grooves provided. Shown in Fig. 5.

Fig. 6



INSTALLATION, continued

25. After the rear hinge angle is welded check that all leveling feet are in contact with the floor of the pit. Once all feet (4) are in contact with the floor. Torque each shimless leveling leg to 25-40 ft.-lbs. counterclockwise.
26. Weld all front shims solidly together and to the leveler subframe and to the front pit curb angle with 1/4" fillet welds.
27. Raise the dock leveler, remove and discard the cotter pins from toe guards on both sides of the leveler. Ensure telescopic toe guards (optional) move freely and do not bind. See Fig. 7. Store the dock leveler.
28. Perform the quarterly maintenance steps on page 19 in this manual.
29. Cycle the leveler four times going through the operational steps described on pages 14-18. Refer to all steps on pages 26-27 if any operational problems are encountered.
30. Mount the bumpers to the face of the dock. See Fig. 8.

Fig. 7

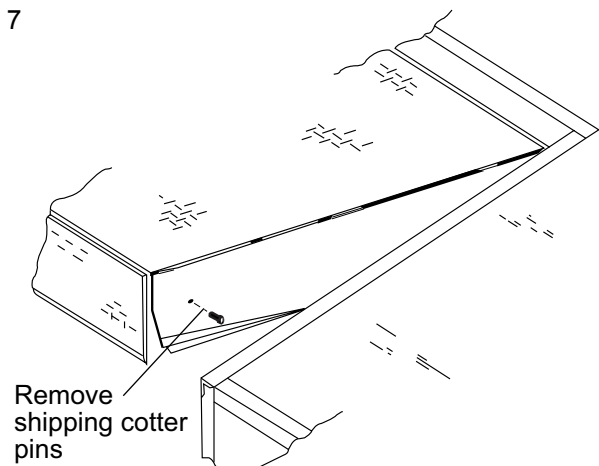


Fig. 8

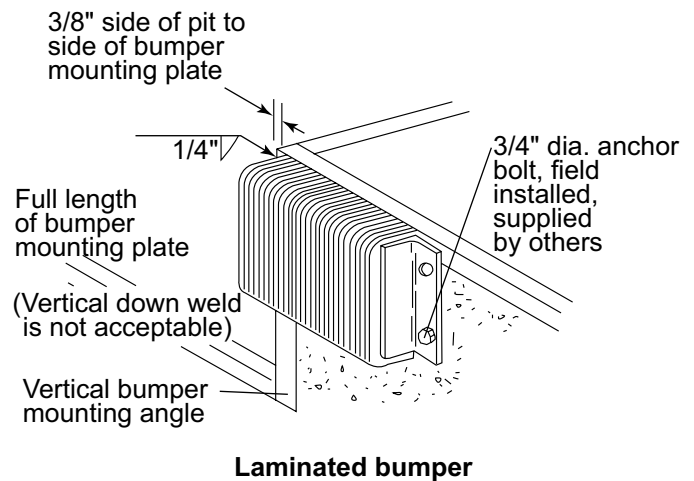
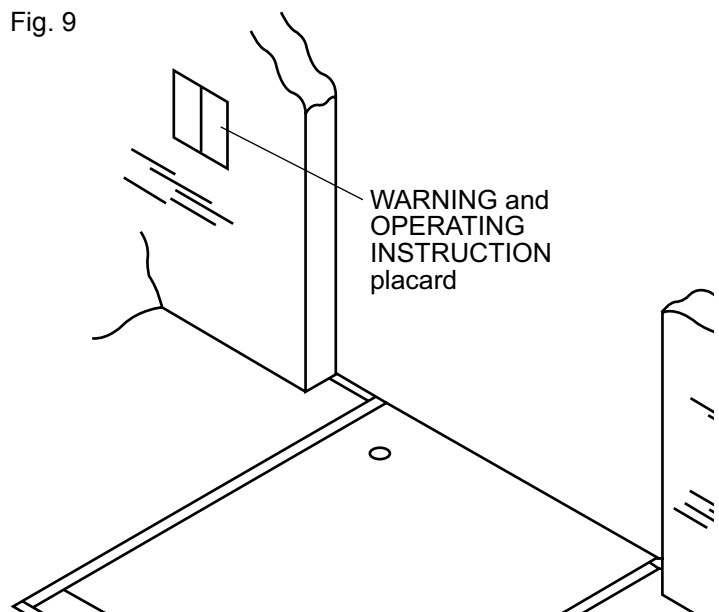


Fig. 9



⚠ WARNING

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

31. Permanently mount the dock leveler warning and operating placard on the wall near the dock leveler. See Fig. 9. *Make sure the customer gets the user's manuals and is properly trained.*
32. Optional (where applicable), install rear angle cap plugs (part number 6004488) into adjustment socket holes. Press cap flush with top surface to rear angle.

INSTALLATION, continued

INSTALLATION TROUBLESHOOTING

The following procedures apply after the leveler is level in the pit.

PROBLEM	POSSIBLE CAUSE	SOLUTION
1) Leveler will not fit properly in pit.	<p>a) Pit is out of square with the sides.</p> <p>b) One side and rear angle is out of square.</p> <p>c) Pit floor irregular in rear.</p> <p>d) Pit is too deep.</p>	<p>a) Align the sides of the leveler so that both sides are equal ($\pm 1/8"$). With the leveler's rear frame angle touching the rear curb angle, any gaps between the frame and the rear curb angle must be filled with steel shims of appropriate thickness and length equal to the frame's beveled weld locations. See Fig. 10.</p> <p>b) If the gap between the leveler and the side of the pit is less than $1/2"$ at any point, the performance of the leveler may be impaired, especially if weatherseal is attached to the leveler. Please consult 4Front Technical Services should this be the case.</p> <p>c) If large deformations exist in the concrete work, attempt to flatten out the rough surface using a chisel or grinder to take out the large obstructions. The rear leveling legs can be installed on out of plane surfaces up to $1/8"$ at each leg. See Fig. 12.</p> <p>d) Weld $4" \times 4"$ shims to the bottom of the adjustable legs.</p>

Fig. 10

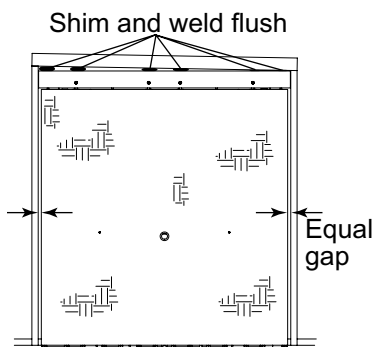


Fig. 11

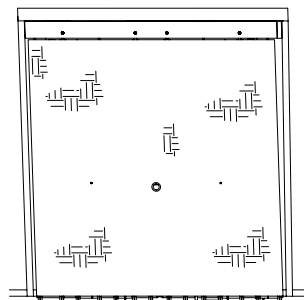
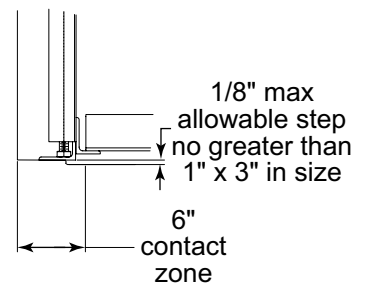


Fig. 12



SERVICE TOOLS

⚠ DANGER

Read and follow the Safety Practices on page 3 of this manual before doing any service or repair to the dock leveler. RAISE Maintenance strut before climbing into the dock leveler pit or doing any maintenance or repair under the dock leveler. Failure to follow these instructions could result in death or serious injury.

MAINTENANCE STRUT

1. To raise the maintenance strut:
 - a. Pull the hold down release chain to raise the dock leveler to the full above dock position
 - b. Lift the maintenance strut up and forward.
 - c. Allow it to drop down into the locked position. See Fig. 13
2. To lower the maintenance strut:
 - a. Lift the maintenance strut straight up.
 - b. While holding it up, push it back. It will then lower to the stored position.

Fig. 13

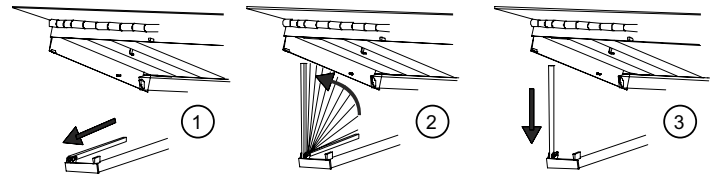
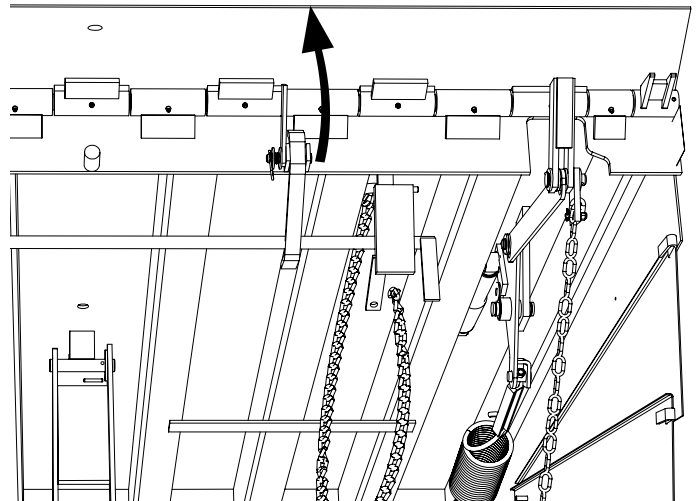


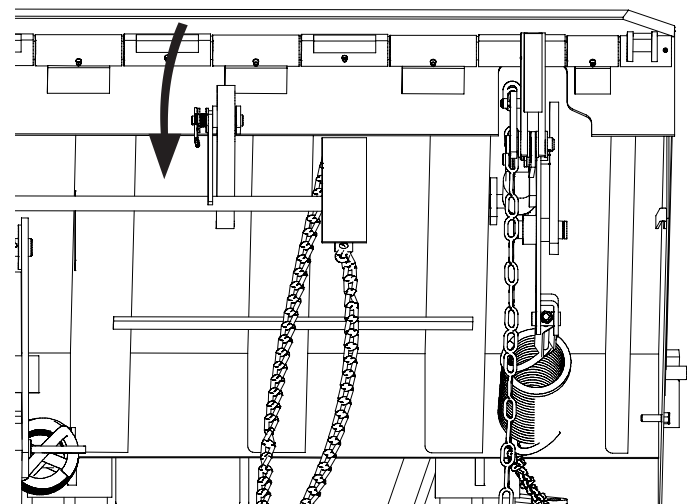
Fig. 14



LIP MAINTENANCE BAR

1. To Raise the lip maintenance bar:
 - a. Support the lip manually and swing up the lip maintenance bar so the lip will rest on it. Ensure the lip maintenance bar is fully raised before releasing the lip. See Fig. 14.
2. To release the lip maintenance bar:
 - a. Support the lip manually and pull the lip maintenance bar down. LIP WILL DROP without manual support. Ensure your head and fingers are away from the lip and any moving parts. See Fig. 15.

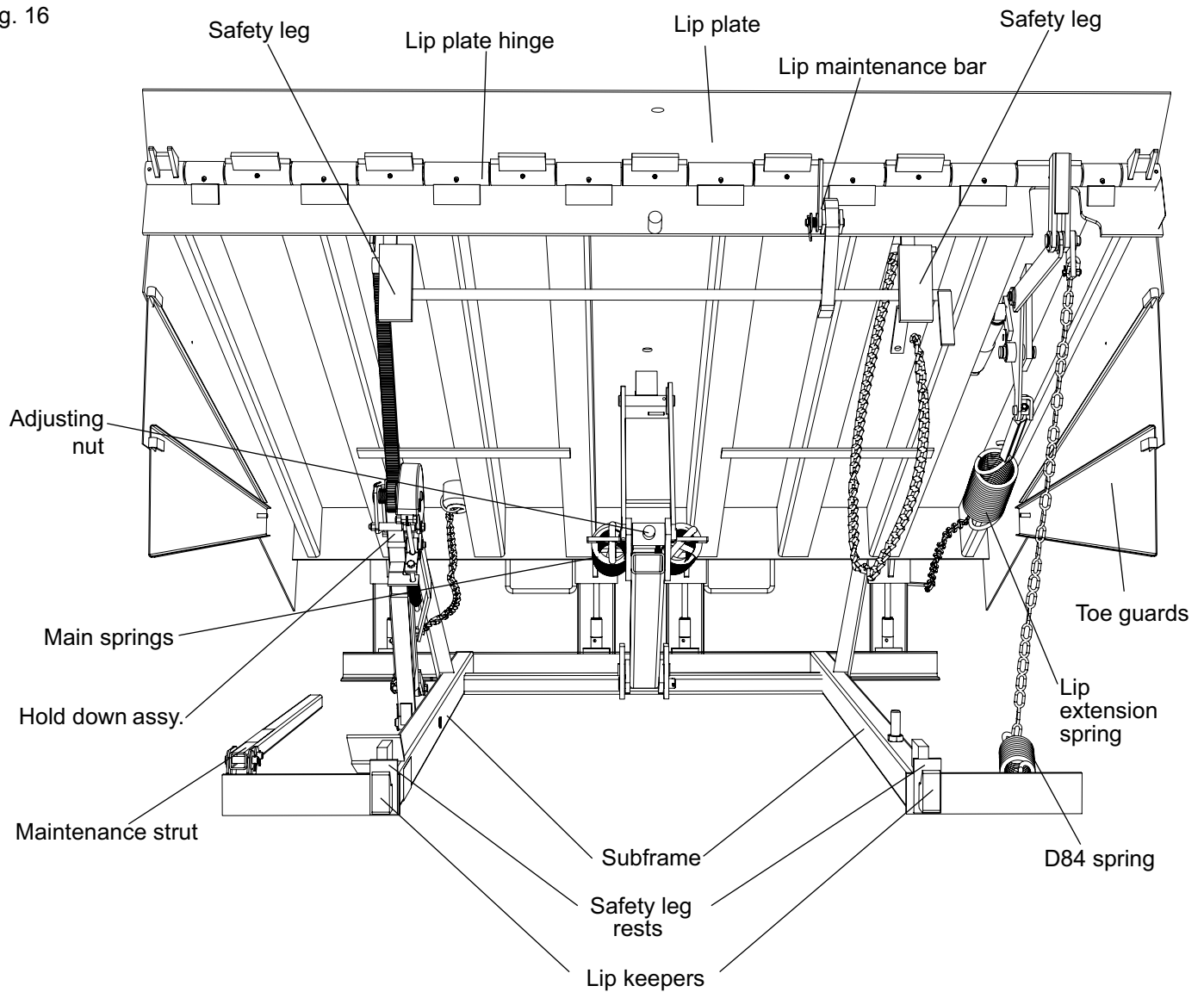
Fig. 15



COMPONENTS

The main components of the dock leveler are shown below. See the Parts List for specific part numbers.

Fig. 16



OPERATIONS

⚠ WARNING

Before operating the dock leveler, read and follow the Safety Practices on page 3.

Use of dock leveler restricted to trained operators. Follow procedures on placard posted near dock leveler.

DO NOT USE DOCK LEVELER IF IT LOOKS BROKEN, OR DOES NOT SEEM TO WORK RIGHT. Inform your supervisor immediately.

Before chocking wheels or engaging vehicle restraint, dump air from air ride suspensions and set parking brake.

Always be certain that the vehicle is properly restrained, before loading or unloading. VISUALLY INSPECT vehicle restraint to make sure vehicle does not pull away unexpectedly. Failure to do so could result in death or serious injury.

Before pulling release ring ensure lip avoids vehicle sides and cargo. If the lip does not lower to the vehicle bed, reposition vehicle.

Never walk on leveler lip to lower dock leveler.

Visually check that the lip is supported by the vehicle floor or the ramp is supported by both lip keepers before driving or walking on the ramp.

Always return the dock leveler to its dock level (stored) position before allowing the vehicle to leave the dock. If the vehicle pulls away before the dock leveler is stored, the lip will fall to its pendant position and may not be supported by the lip keepers. In addition, failure to properly store the dock leveler may leave the leveler in a position below the level of the dock floor. These conditions may result in unexpected drop of personnel or material handling equipment and result in death or serious injury.

Failure to follow these instructions could result in death or serious injury to operators and/or bystanders.

If the vehicle unexpectedly pulls away leaving the dock leveler unsupported, the maximum drop is as follows:

1) If the leveler is above dock it will fall approximately 2" below dock floor level.

2) If the leveler is below 2" below dock level it will fall to full below dock level.

INTRODUCTION

The dock leveler is designed to span and compensate for space and height differences between a loading dock and freight carrier to allow safe, efficient freight transfers.

The dock leveler uses a hold down mechanism to position the ramp. Pulling and holding the release chain allows springs to raise the ramp. Walking out onto the ramp causes the ramp to lower.

A mechanical linkage extends the dock leveler lip as the ramp is being raised from its stored position. When the leveler is lowered the extended lip rests on the trailer floor forming a bridge.

After loading, pulling and holding the release chain allows the ramp to raise. The lip will retract as the leveler is raised. Walking out onto the ramp lowers the leveler to the stored (dock level) position.

With the dock leveler in the stored position, lip keepers support the dock leveler ramp at a position level with the dock floor.

For below dock loads the safety legs can be retracted by pulling the below dock chain, located near the front of the deck before the deck lowers past dock level.

OPERATIONS — ABOVE DOCK LEVEL

Use these instructions for normal operations, when the height of the vehicle is above the loading dock.

⚠ WARNING

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

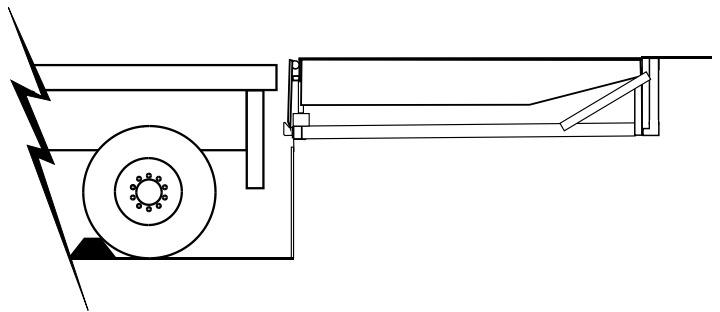
Do not operate dock leveler with anyone standing on or in front of it.

Do not lift the leveler lip by hand.

Always keep hands and feet clear of all moving parts.

Always restore the leveler to its safe dock level position with the lip supported in both lip keepers after servicing the vehicle.

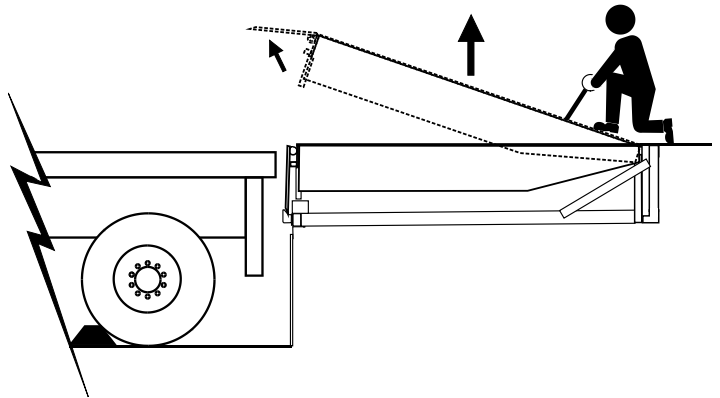
Fig. 17



RAISING THE LEVELER

1. Before operating the dock leveler, secure the vehicle with a vehicle restraint or wheel chocks. See Fig. 17.
2. To raise the leveler, **pull and hold the hold-down release ring** at the rear. When the leveler is fully raised, the lip will automatically extend. See Fig. 18.

Fig. 18



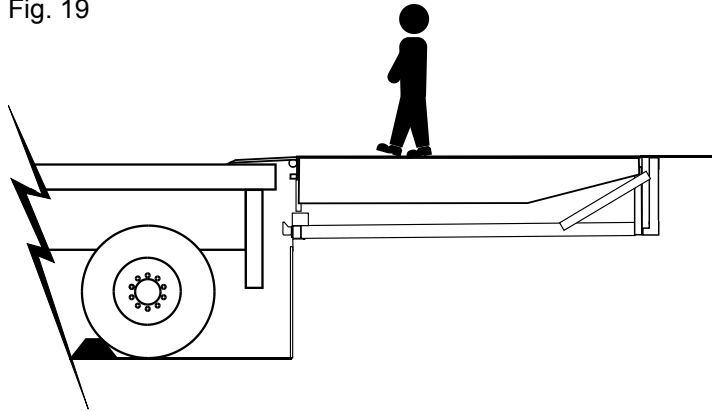
⚠ WARNING

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

OPERATIONS — ABOVE DOCK LEVEL, continued

- When the lip is fully extended, release the ring. **Walk forward to the front of the ramp.** The dock leveler will lower until the lip is resting on the vehicle. See Fig. 19.

Fig. 19



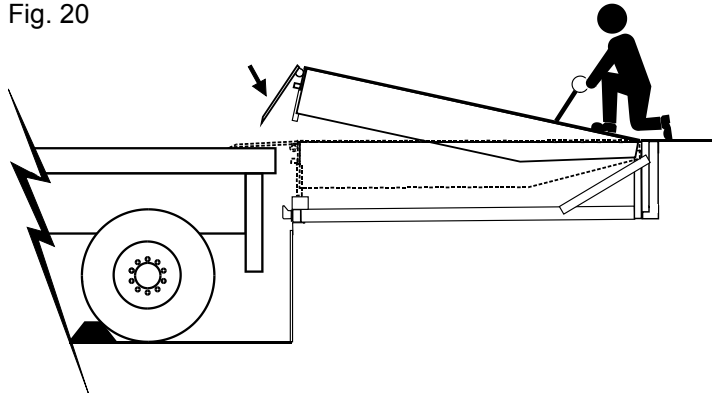
⚠ WARNING

Never walk on leveler lip to lower dock leveler.

STORING LEVELER

- To return the leveler to the stored position, gently **pull the hold-down release ring** to raise the leveler from the vehicle floor and allow the lip to fall. See Fig. 20.

Fig. 20

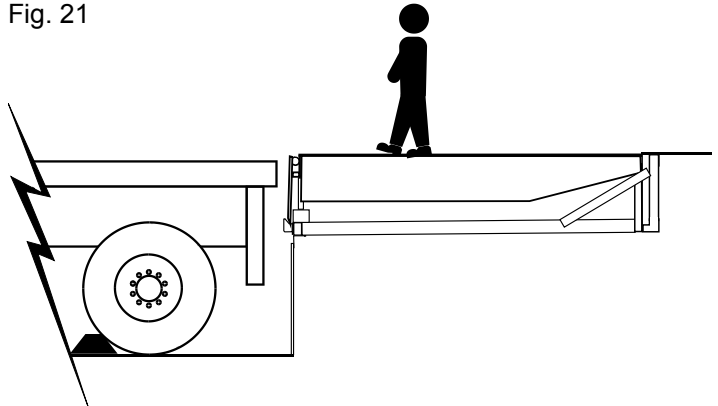


⚠ WARNING

If the lip does not fall to the stored position, the dock leveler requires maintenance or adjustment. Notify your supervisor. Do not use the dock leveler until it has been repaired. Failure to comply could result in death or serious injury.

- When the lip is fully retracted and clear of the vehicle, **walk forward to the front of the ramp.** The dock leveler will lower until the lip is resting in the lip keepers. See Fig. 21.

Fig. 21



OPERATIONS — BELOW DOCK LEVEL

Use these instructions when the height of the vehicle is below the loading dock.

⚠ WARNING

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

Do not operate dock leveler with anyone standing on or in front of it.

Do not lift the leveler lip by hand.

Always keep hands and feet clear of all moving parts.

Always restore the leveler to its safe dock level position with the lip supported in both lip keepers after servicing the vehicle.

1. To raise the leveler, **pull the hold-down release ring** (at the rear of the leveler). When the leveler is fully raised, the lip will automatically extend. See Fig. 22.
2. When the lip is fully extended, **walk forward to the front of the ramp. Pull the safety leg release ring** at the front of the leveler. The dock leveler will lower to the below dock position with the lip resting on the vehicle. See Fig. 23.

STORING LEVELER

1. To return the leveler to the stored position, gently **pull the hold-down release ring** to raise the leveler from the vehicle floor and allow the lip to fall. See Fig. 24.

⚠ WARNING

If the lip does not fall to the stored position, the dock leveler requires maintenance or adjustment. Notify your supervisor. Do not use the dock leveler until it has been repaired. Failure to comply could result in death or serious injury.

2. When the lip is fully retracted and clear of the vehicle, **walk forward to the front of the ramp.** The dock leveler will lower until the lip is resting in the lip keepers. See Fig. 25.

Fig. 22

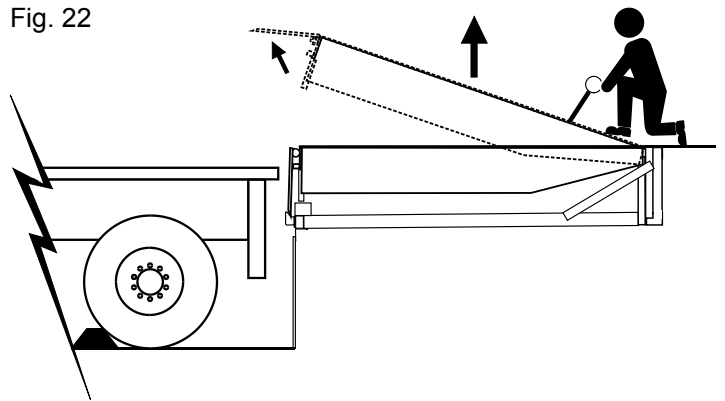


Fig. 23

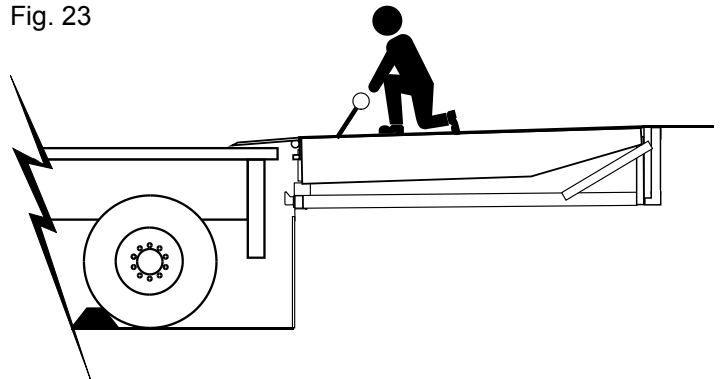


Fig. 24

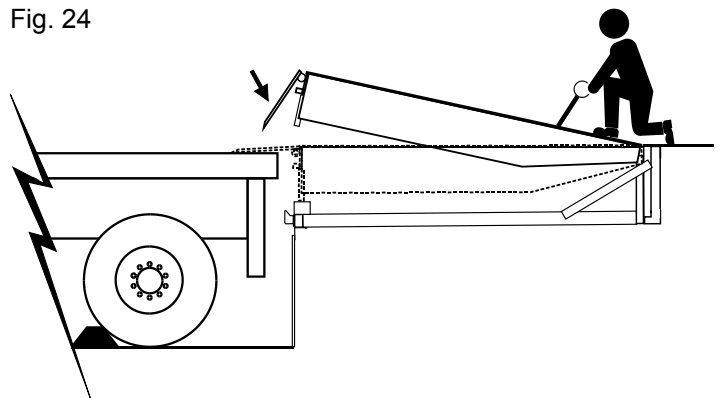
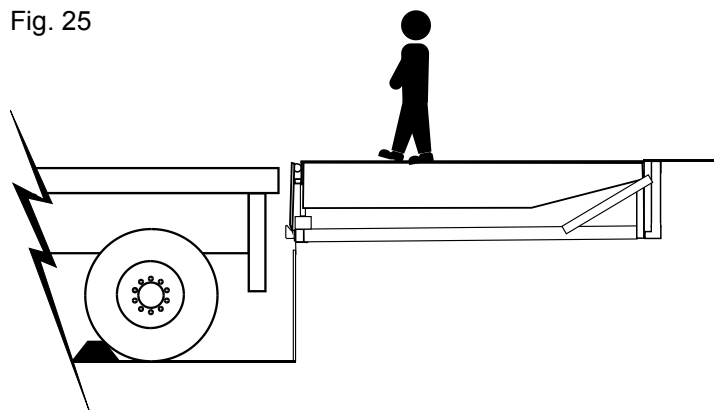


Fig. 25



OPERATIONS — BELOW DOCK LEVEL, END LOADING

Use these instructions when end loading a vehicle which is lower than the loading dock.

⚠ WARNING

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

Do not operate dock leveler with anyone standing on or in front of it.

Do not lift the leveler lip by hand.

Always keep hands and feet clear of all moving parts.

Always restore the leveler to its safe dock level position with the lip supported in both lip keepers after servicing the vehicle.

1. **Gently pull the hold-down release ring** until the leveler is about 6" above dock level. See Fig. 26.
2. **Walk towards the front** of the dock leveler. **Pull the safety leg release ring** to retract the safety legs and extend the lip ahead of the lip keepers. The dock leveler will lower to the below dock position. See Fig. 27.

STORING LEVELER

1. To return the leveler to the stored position, gently **pull the hold-down release ring** to raise the leveler from the vehicle floor and allow the lip to fall. See Fig. 28.

⚠ WARNING

If the lip does not fall to the stored position, the dock leveler requires maintenance or adjustment. Notify your supervisor. Do not use the dock leveler until it has been repaired. Failure to comply could result in death or serious injury.

2. When the lip is fully retracted and clear of the vehicle, **walk forward to the front of the ramp**. The dock leveler will lower until the lip is resting in the lip keepers. See Fig. 29.

Fig. 26

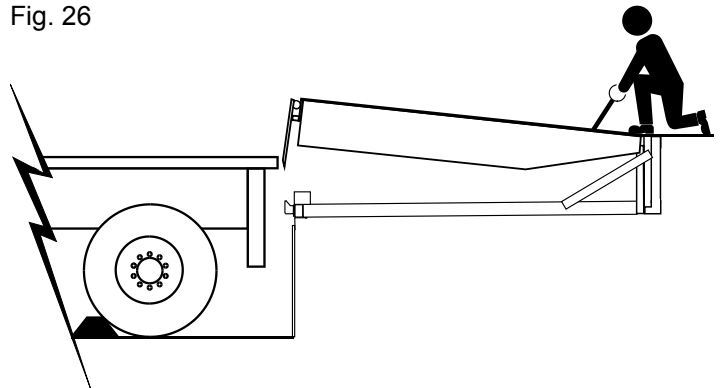


Fig. 27

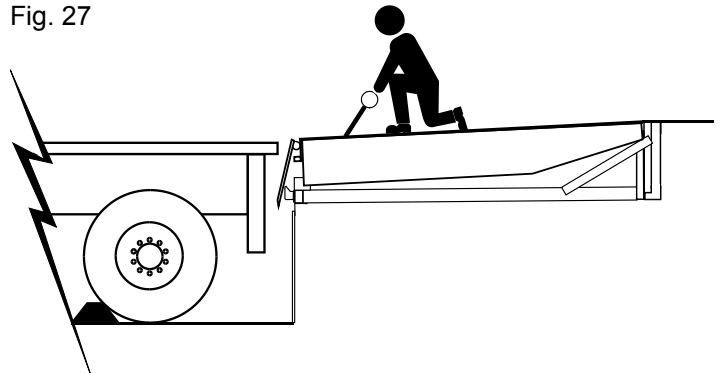


Fig. 28

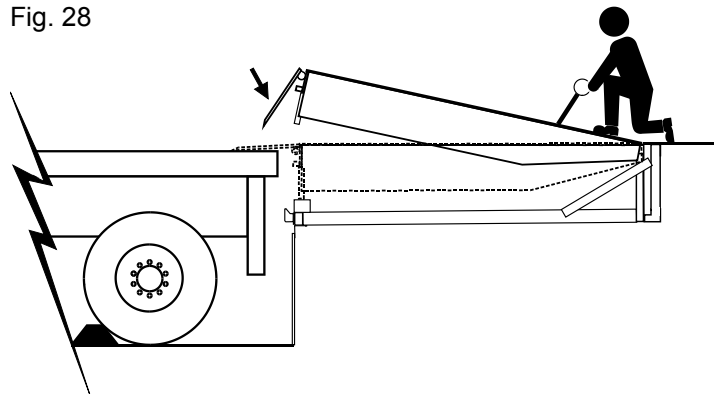
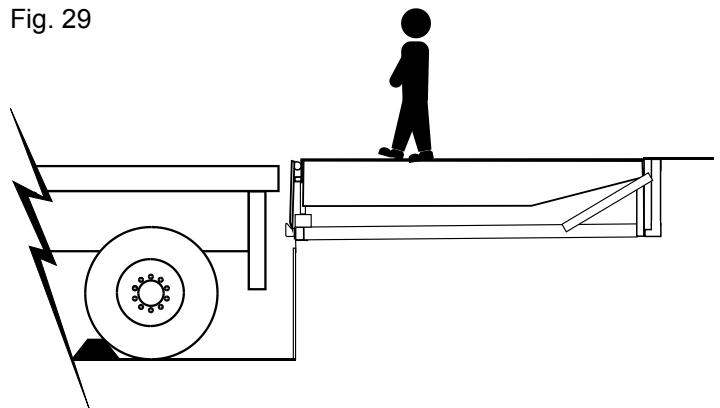


Fig. 29



PLANNED MAINTENANCE

▲ DANGER

Be certain, before climbing into the dock leveler pit or doing any maintenance or repair under the dock leveler, that the maintenance strut is raised and supporting the top plate in case of emergency. Failure to do so could result in death or serious injury.

WEEKLY

1. Inspect for debris in lip hinge. Clean as required.
2. Inspect for debris in rear hinge area of the leveler and between the sides and curb angles to ensure smooth operation. Clean as required.
3. Inspect the safety leg system for free operation, structural flaws, pull chain and return spring operation.
4. Inspect the operation of the telescopic toe guards (optional) to ensure they are not distorted or binding when operating the leveler.

QUARTERLY

1. Inspect all warning labels and placards. See page 21. Replace as necessary.
2. Clean out the inside of the pit area.
3. Inspect and lubricate all mechanical pivot points on the leveler with a light oil such as S.A.E. 30. See Fig. 30.

▲ DANGER

Do not lubricate between the brake band and brake drum.

4. Clean the hold down rack and gear. Apply a light coat of S.A.E. 30 oil to the gear and all sides of the rack. Lubricate the spur gear axle by rotating the spur gear by raising or lowering the leveler until the 1/4" hole is visible on the gear next to the teeth. Apply a couple of drops of S.A.E. 30 oil into this hole.

▲ WARNING

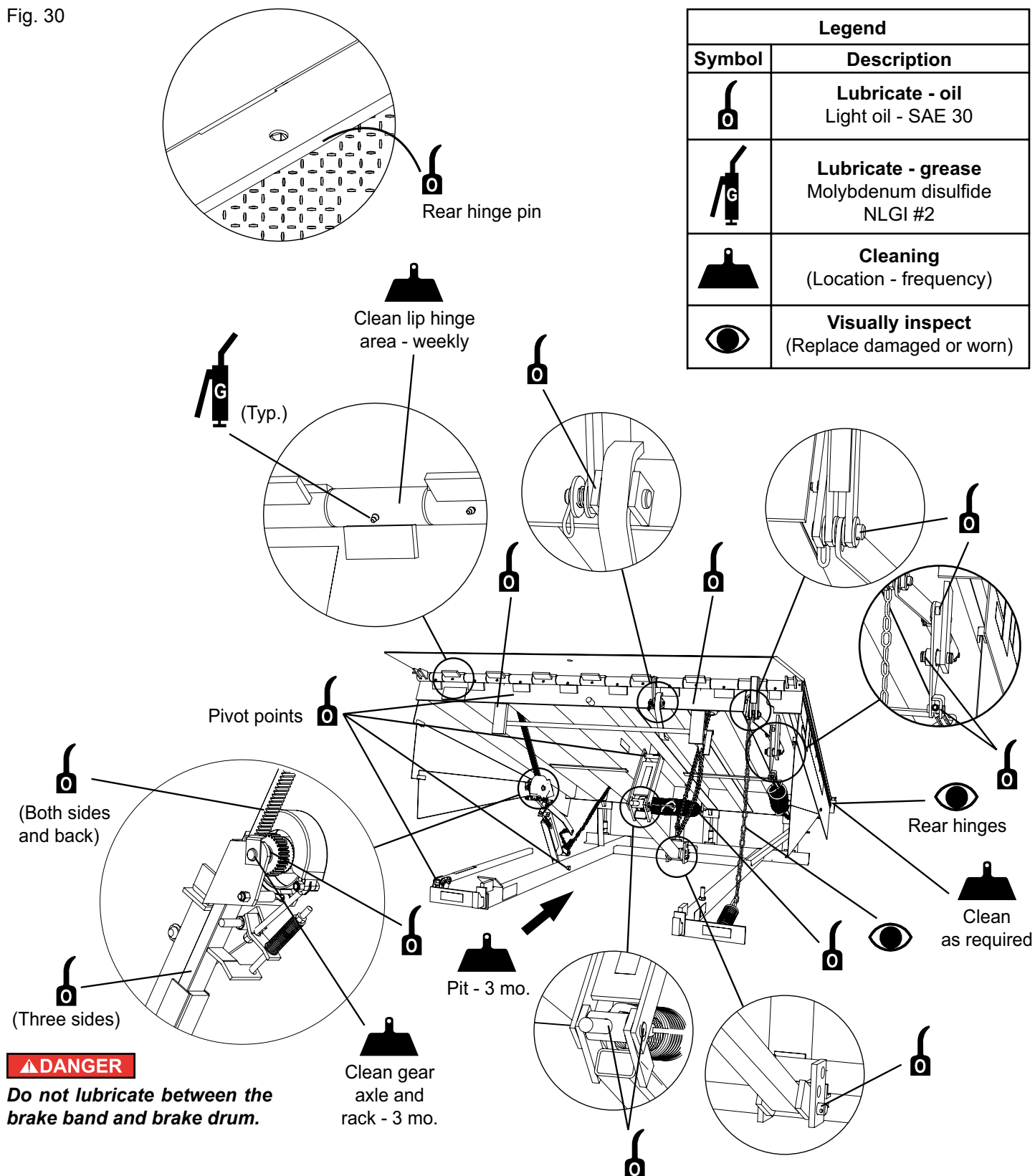
Before servicing the dock leveler, read and follow the Safety Practices on page 3 and the operations sections of this manual. Failure to follow the Safety Practices could result in death or serious injury.

QUARTERLY (continued)

5. Check hold down for proper float as described on page 24. Make any adjustments required.
6. Inspect the main springs and pivot pin for excessive wear.
7. Inspect the lip push out arm and lip counterbalance assemblies for damage and check the chain and springs for elongation.
8. Inspect all welds under the leveler for fatigue or failure, particularly the lip plate hinge and top plate beams and front hinge bar.
9. Check the full operation of the leveler. Make any adjustments required. Before making any adjustments to the leveler mechanisms, be sure to clean, lube per instructions on this page and page 20, and operate leveler several times.
10. Lubricate the lip hinge tubes with molybdenum disulfide grease NLGI #2. Do not over grease. Stop when grease begins to ooze out of the hinge tube ends. Wipe off excess grease.
11. Inspect dock bumpers. Four inches (4") of bumper protection is required. Worn, torn, loose or missing bumpers must be replaced.

PLANNED MAINTENANCE, continued

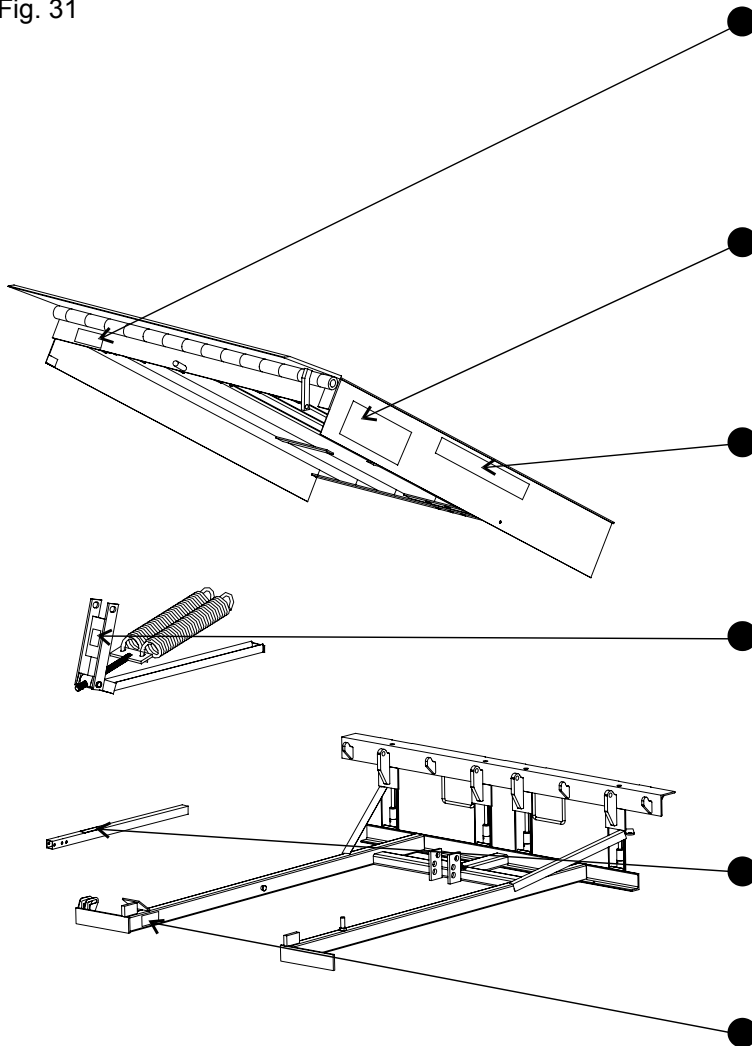
Fig. 30








PLANNED MAINTENANCE, continued

Every 90 days (quarterly) inspect all safety labels and tags to ensure they are on the dock leveler and are easily legible. If any are missing or require replacement, please your authorized 4Front Engineered Solutions, Inc. distributor.

Fig. 31



921-217	 <p>⚠ DANGER</p> <p>CRUSH HAZARD Maintenance strut must support leveler behind bar. Do not force maintenance strut forward of bar to support it. Refer to user's manual for proper use. Failure to do so will result in death or serious injury.</p> <p>02162173</p>
6008485 (x2)	<p>⚠ DANGER</p> <p>Unupported dock leveler ramps can lower unexpectedly.</p> <p>Before allowing vehicle to leave the dock, always:</p> <ul style="list-style-type: none"> • Ensure no equipment, material or people are on dock leveler. • Return dock leveler to its stored position at dock level. <p>Failure to follow posted instructions will result in death or serious injury.</p> <p>SAFETY INSTRUCTIONS</p> <p>OPERATION</p> <ol style="list-style-type: none"> 1. Read and follow all restrictions and warnings in user's manual. 2. Use of dock leveler restricted to trained operators. 3. Always check trailer wheel or support trailer restraint before opening dock leveler or beginning to load or unload. 4. Never use hands or equipment to move ramp or its components. 5. Always secure dock leveler. 6. Ensure trailer is locked in against latches. 7. Remove any and all loads if required. 8. Check trailer alignment to avoid lip interference. If it does not level to trailer lock, reposition vehicle. 9. Ensure truck bed supports extended by or leveler frame supports ramp before driving or unloading. 10. Stop clear of hinges and front and sides of moving dock leveler. <p>MAINTENANCE/SERVICE</p> <ol style="list-style-type: none"> 1. Read and follow all instructions, warnings and maintenance schedules in user's manual. 2. Always use proper technique when working on dock leveler. 3. Place barriers on driveway and dock floor to show service work is being performed. 4. DO NOT ENTER PIT unless dock leveler is securely supported by maintenance strut. 5. If electrically powered turn off and use OSHA lockout/tagout procedures. <p>Call 800-816-1000 for replacement placards, warning labels, or user's manual.</p>
138-837 (x2)	
921-117	<p>⚠ DANGER</p>  <p>CRUSH HAZARD Do not remove main springs until leveler is securely supported by a suitable lifting device. Main springs contain stored energy. Be sure springs are fully unloaded and ends are loose before removal. Failure to comply will result in death or serious injury. Refer to User's Manual for proper maintenance procedures.</p> <p>021-117F</p>
921-074	<p>⚠ DANGER</p>  <p>CRUSH HAZARD Do not work under dock leveler unless this maintenance strut has been secured in the upright position. See user's manual for proper procedures.</p> <p>921-074E</p>
921-070	<p>⚠ DANGER</p>  <p>CRUSH HAZARD DO NOT ENTER PIT unless dock leveler is securely supported by the maintenance strut. Place barriers on driveway and dock floor to indicate service work being performed. Failure to comply will result in death or serious injury. Refer to user's manual for proper maintenance procedures.</p> <p>901-070C</p>
6001946	<p>⚠ DANGER</p> <p>OPERATING INSTRUCTIONS</p> <p>WARNING AND OPERATION PLACARD (MOUNTED ON WALL NEAR LEVELER)</p>

ADJUSTMENTS — LIP ASSIST WITH HYDRA-CAM™

⚠ DANGER

Before servicing the dock leveler, always position traffic cones or a barricade behind the dock leveler to warn fork vehicle operators and pedestrians away from the leveler.

Always position traffic cones or a barricade 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 the raised position before working under the dock leveler.

Always make sure that the overhead door is securely held in the raised position.

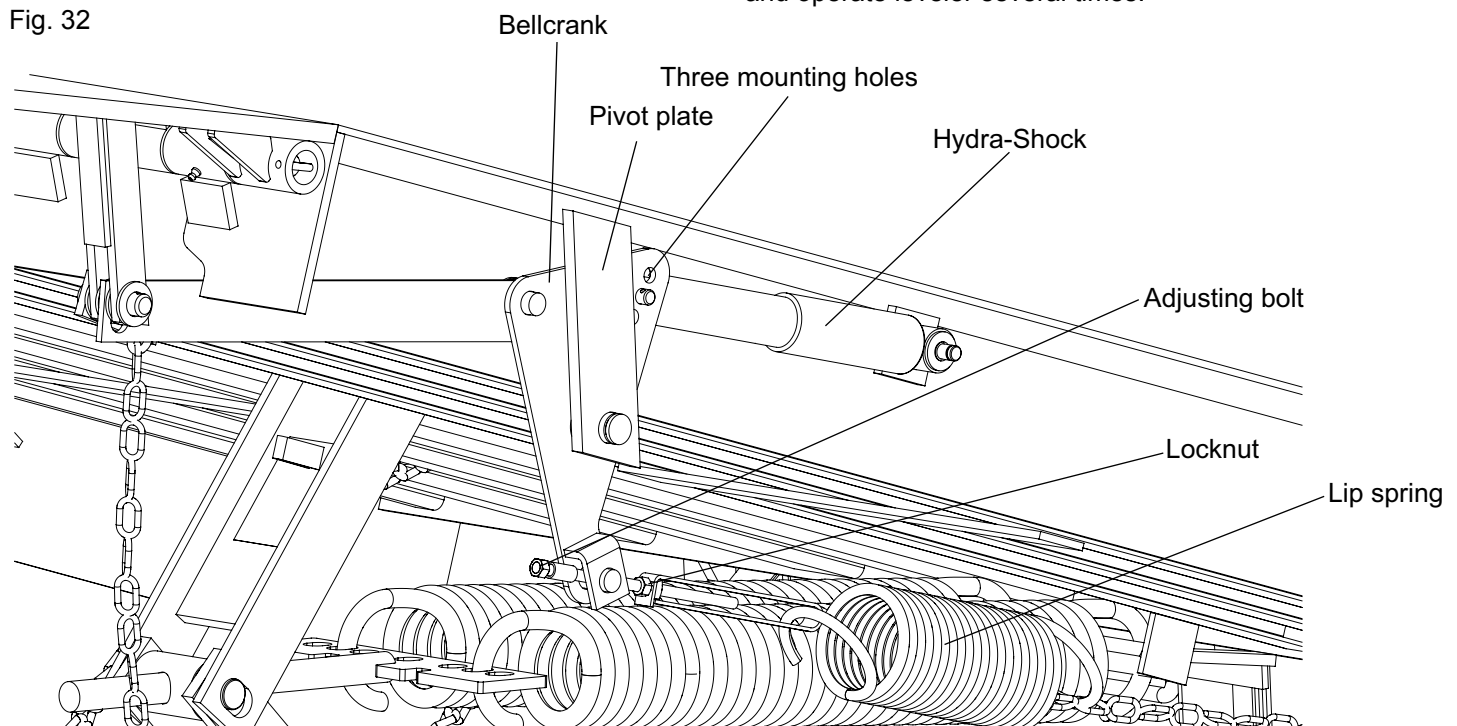
1. Ensure that lip hinges have been greased and all other pivot pins have been lubricated.
2. Fully raise the leveler and extend the lip. The lip should remain fully extended. Check that all lip assist pivot points are lubricated with light oil.
3. If the lip starts to fall, increase the lip spring tension by turning the adjusting bolt clockwise. Securely tighten locknut after adjusting.

4. Walk the leveler down approximately 12". The lip should start to drop very slowly.
5. If the lip does not start to fall, decrease the lip spring tension by turning the adjusting bolt counter clockwise. Securely tighten the locknut after adjusting.
6. Walk the leveler down an additional 6". The lip should fall to the pendant position. Further decrease lip spring tension if required. Securely tighten the locknut after adjusting.
7. After the lip spring has been properly adjusted, walk the leveler down to dock level. The lip should fall completely within 20 seconds.
8. Because the force of the Hydra-Shock is affected by temperature, the bellcrank has three mounting holes. The front of the Hydra-Shock is normally mounted in the outermost position. To adjust the Hydra-Shock, the lip must be pendant. If the lip falls too quickly, remove the spring clip and clevis pin and move it to a hole farther from the center of the bellcrank. If the lip falls too slowly, move the pin to the hole closer to the center of the bellcrank and secure with pin.

NOTE:

Before making any adjustments to the leveler mechanisms, be sure to clean, lube per instructions on page 19 and 20, and operate leveler several times.

Fig. 32



ADJUSTMENTS — MAIN SPRING COUNTERBALANCE

The main spring should be adjusted so that the leveler raises enough to fully extend the lip, yet still be easy to walk down.

NOTE:

Make sure that the hold down is operating freely. Excessive drag from the hold down may cause the leveler to raise too slowly.

Make sure that the lip hinge and deck hinges are lubricated and are operating freely. Excessive friction in the lip or deck hinges can prevent the lip from raising easily.

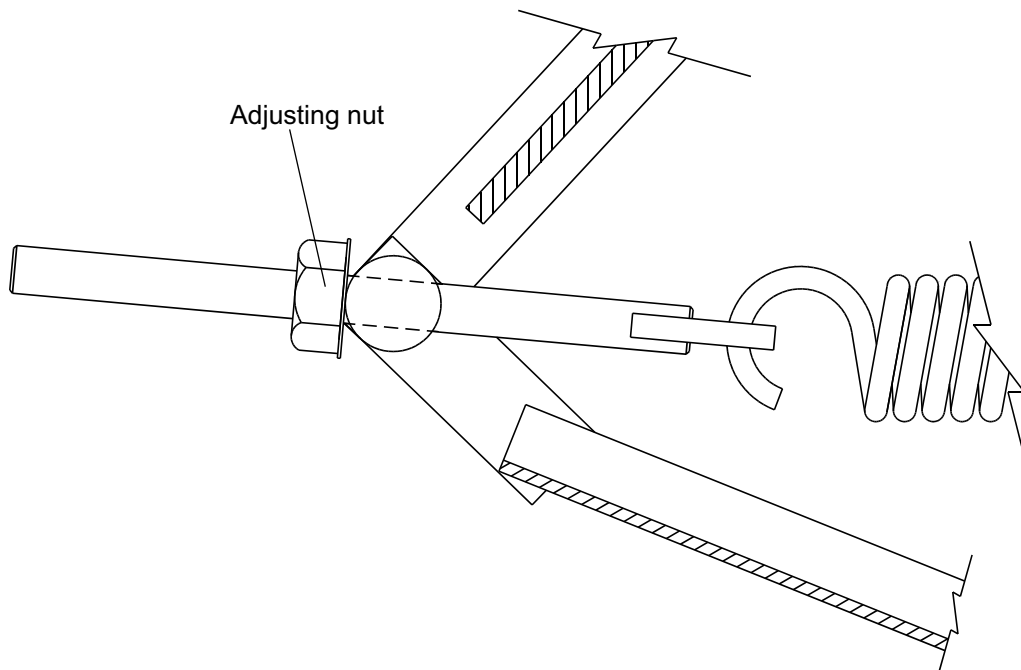
NOTE:

Before making any adjustments to the leveler mechanisms, be sure to clean, lube per instructions on page 19 and 20, and operate leveler several times.

▲ DANGER

Extended springs contain stored energy. Never attempt to remove main springs without completely removing the load from the springs first. Do not remove the main springs until the leveler and the lip are safely supported by a suitable lifting device.

Fig. 33



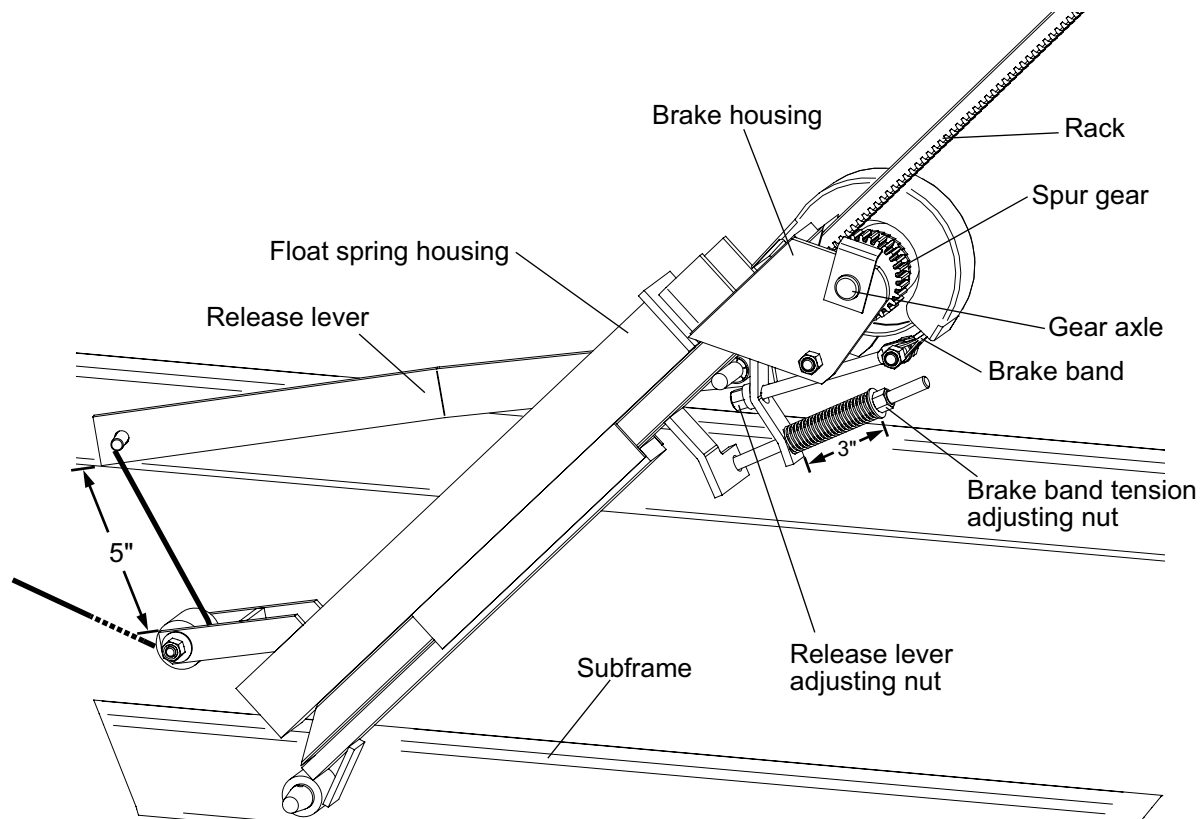
Tools Required: 1-1/2" open end wrench

1. If the lip does not fully extend, turn the adjusting nut clockwise to increase the main spring tension.
2. If the leveler is too hard to walk down, turn the adjusting nut counter-clockwise to decrease the main spring tension.

ADJUSTMENTS — HOLD DOWN ASSEMBLY

The hold down uses a friction brake to hold the leveler in position. The brake is released to allow the leveler to raise and the lip to extend.

Fig. 34



ADJUSTMENTS — HOLD DOWN ASSEMBLY, continued

NOTE:

Before making any adjustments to the leveler mechanisms, be sure to clean, lube per instructions on page 19 and 20, and operate leveler several times.

▲DANGER

Do not lubricate between the brake band and brake drum.

If the leveler raises without pulling the hold down release ring, inspect the gear teeth on the rack bar and pinion gear. Also make sure that the pinion gear is free to slide along the axle to engage the clutch teeth on the side of the brake drum assembly. If foreign material has accumulated on the gear axle it will interfere with free movement of the spur gear. Clean the axle and small compression spring which fits over the axle.

If the leveler raises by itself, or if the leveler will not raise quickly when the hold down release ring is pulled, the hold down requires adjustment or replacement.

To adjust the hold down to provide optimum performance the following adjustments are to be made in the sequence shown.

1. **Clean** the hold down rack and gears and apply a light automotive grease. **Do not lubricate between the brake band and brake drum.**
2. **Release Lever Adjusting Nut** - The end of the release lever should be approximately 5" away from the chain guide assembly, as shown. Adjust the release lever adjusting nut to maintain the 5" distance.
3. **Brake Band Tension Adjusting Nut** - The brake spring applies tension to the brake band. The spring is factory set to 3" compressed length, as shown in Fig. 34.

To check the adjustment of the brake spring to provide proper hold down float:

- Pull the hold down release chain and hold until the lip fully extends.
- Engage the lip maintenance bar.
- Lower the leveler to dock level.
- Lift up on the leveler until the brake housing moves away from the float spring housing.
- Measure the brake housing extension distance when the brake starts to slip.

▲DANGER

Do not lubricate between the brake band and brake drum.

When the dock leveler is forced upward, the brake should not slip until the brake housing has extended at least 1-1/2" away from the float spring housing. Tighten the brake band tension adjusting nut to increase the braking force if required. Do not tighten the brake spring to less than 2-1/2" long or the brake may not release properly. If slippage occurs in either the gears or the brake band before the float tube extends at least 1-1/2", or the brake will not hold, replace the hold down assembly.

TROUBLESHOOTING GUIDE

▲ DANGER

Be certain, before climbing into the dock leveler pit or doing any maintenance or repair under the dock leveler, that the maintenance strut is raised and supporting the top plate in case of emergency. Failure to do so could result in death or serious injury.

Use the Troubleshooting Guide if ever the leveler fails to perform properly. Find the condition that most closely matches your situation, and make the recommended adjustments.

▲ WARNING

Before servicing the dock leveler, read and follow the Safety Practices on page 3 and the Operating Instruction section in this manual.

NOTE:

Before making any adjustments to the leveler mechanisms, be sure to clean, lube per instructions on page 19 and 20, and operate leveler several times.

PROBLEM	POSSIBLE CAUSE	SOLUTION
1. Leveler will not raise when release ring is pulled	a) How down release chain is binding. b) Hold down is binding or rack is bent. c) Brake band dragging. d) Main springs require adjustment.	a) Inspect release chain. b) Clean rack assy. and lubricate (Do not lubricate between the brake band and brake drum). If rack is bent, it must be replaced. c) Inspect brake band. Adjust hold down, if required, as shown on pages 24-25. d) Adjust spring tension, if required, as shown on page 23.
2. Leveler cannot be walked down.	a) Rack assy. is binding or bent. b) Main spring over adjusted.	a) Clean rack assy. and lubricate. (Do not lubricate between the brake band and brake drum). If rack is bent, it must be replaced. b) Adjust spring tension, if required, as shown on page 23.
3. Lip plate will not fully extend when leveler is raised.	a) Debris or corrosion in lip hinge. b) Debris or corrosion in rear hinge. c) Lip spring adjustment incorrect. d) Hold down not releasing freely. e) Main spring adjustment.	a) Clean and lubricate lip hinge. b) Clean and lubricate rear hinge. c) Adjust lip spring as shown on page 24 and lubricate mechanism. d) Adjust hold down, if required, as shown on pages 24-25. e) Adjust main springs as shown on page 23.

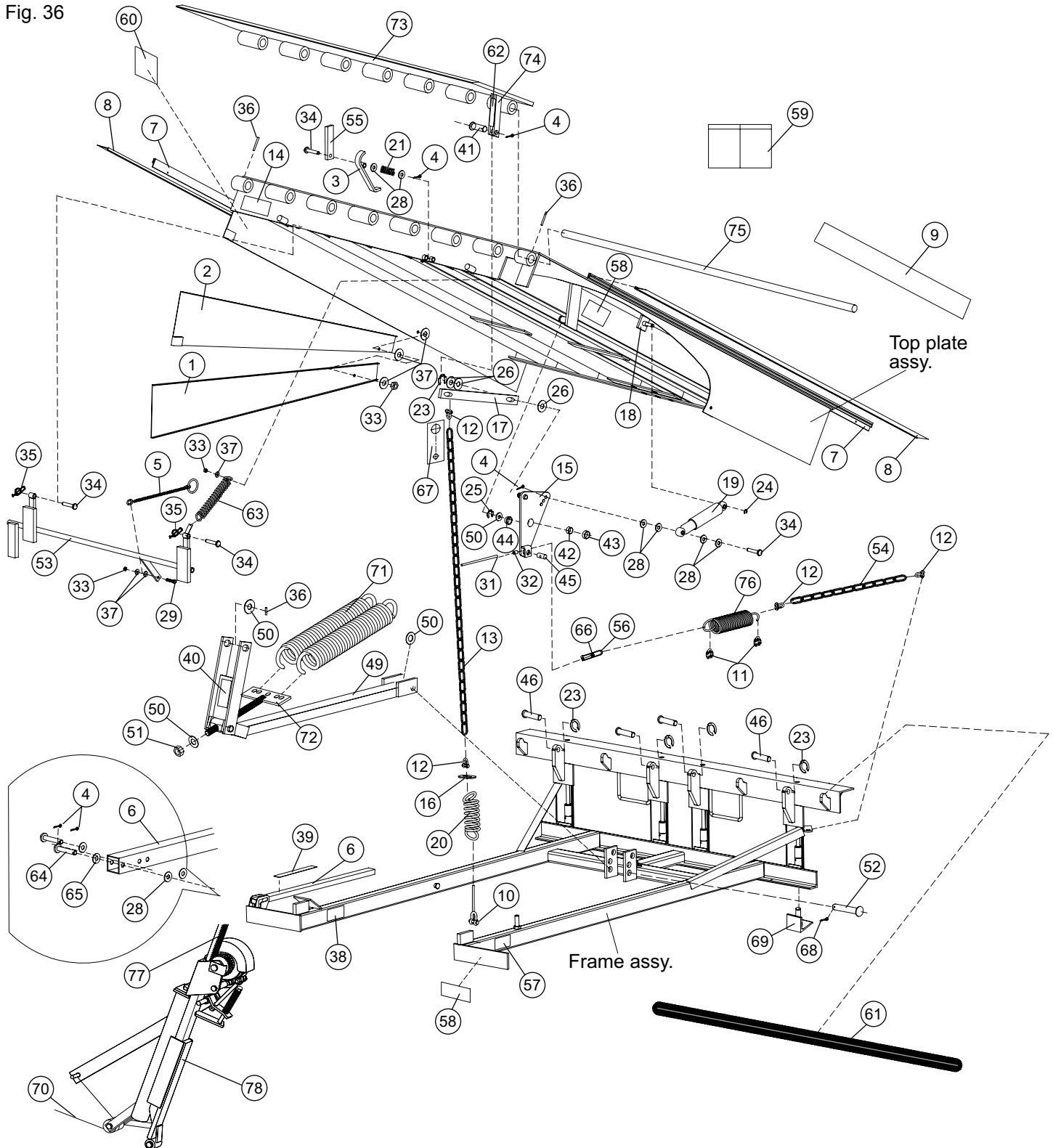
TROUBLESHOOTING GUIDE, continued

PROBLEM	POSSIBLE CAUSE	SOLUTION
4. Lip plate will not extend at all when leveler is raised.	a) Lip chain is disconnected. b) Lip hinge is binding.	a) Inspect and repair as required. b) Clean and lubricate the lip hinge.
5. Lip falls before it can be walked down to the vehicle.	a) Lip spring requires more tension. b) Front of Hydra-Shock is mounted in the cold weather position. c) Hydra-Shock missing or damaged.	a) Adjust lip spring tension as shown on page 22. b) Move the Hydra-shock front mounting pin as shown on page 22. c) Replace Hydra-Shock.
6. Lip plate does not fall when leveler is in working range.	a) Debris or corrosion in lip hinge. b) Lip spring is over-tensioned.	a) Clean and lubricate lip hinge. b) Adjust lip as shown on page 22 and lubricate mechanism.
7. Leveler will not travel below dock.	a) Safety legs or chain stuck or binding. b) Hold down binding or rack is bent. c) Main springs adjustment incorrect.	a) Inspect safety legs and lubricate or repair as required. b) Inspect hold down assy. and adjust, lubricate or replace as required. (Do not lubricate between the brake band and brake drum). If rack is bent it must be replaced. c) Inspect main springs and adjust as required. See page 23.
8. Leveler travels below 2-1/2" below dock when lip is out of lip keepers.	a) Safety legs stuck in retracted position.	a) Inspect safety legs and lubricate or repair as required. Check that return spring is properly installed.
9. Leveler does not follow when vehicle floor moves down.	a) Safety legs are engaging the frame. b) Hold down has insufficient float.	a) Retract safety legs and lubricate or repair as required. b) Check float as shown on page 24 and adjust hold down, if required.
10. Leveler will not stay down on vehicle bed or in stored position.	a) Hold down requires adjustment or maintenance.	a) Clean, adjust and lubricate hold down as shown on pages 19 and 24-25. Replace entire hold down assy. if leveler will not stay down after lubrication and adjustment.

PARTS LIST, continued

CM, WL AND WS SERIES DOCK LEVELER

Fig. 36



PARTS LIST, continued

CM, WL AND WS SERIES DOCK LEVELER

Item	Qty.	Part Description	Part Number		
			CM600 WS600 WL600	CM800 WS800 WL800	CM1000 WS1000 WL1000
1	1 1	Toe Guard, 2nd stage, left (when specified) Toe Guard, 2nd stage, right (when specified)	586-1659 586-1660	586-0440 586-0441	586-1045 586-1044
2	1 1	Toe Guard, 1st stage, left (when specified) Toe Guard, 1st stage, right (when specified)	586-1657 586-1658	586-0439 586-0438	586-1043 586-1042
3	1 1	Pusher Assy. (for safety legs) Pusher Assy. (below dock control)	3-4666 3-4799	3-4666 3-4799	3-4666 3-4799
4	4	Cotter Pin 1/8 x 3/4	231-341	231-341	231-341
5	1	Chain Assy. B.D.C. (below dock control)	8-9610	8-9610	8-9610
6	1	Maintenance Strut 600 - CP	586-2966	586-2966	586-2966
7	2	Weather Seal Mounting Strip (with rubber seal only)	328-897	328-898	328-898
8	2 2 2 2	Weather Seal - Narrow Projection - Rubber (1-1/4") Weather Seal - Wide Projection - Rubber (1-3/4") Weather Seal - Narrow Projection - Brush Weather Seal - Wide Projection - Brush	152-324(5ft) 152-325(5ft) 328-886 328-907	152-324(7ft) 152-325(7ft) 328-887 328-908	152-324(7ft) 152-325(7ft) 328-888 328-909
9	2	Hazard Stripe	138-837	138-837	138-837
10	1	Spring Guide Assy	3-5335	3-5335	3-5335
11	2	Cable Clamp	441-103	441-103	441-103
12	4	Chain Shackle 1/4"	442-800	442-800	442-800
13	1	Chain - Lip	586-1921	586-0052	586-1947
14	1	Decal, Maint Strut Danger	921-217	921-217	921-217
15	1	Bellcrank Weldment - HYDRA-CAM - CP	3-3332	3-3332	3-3332
16	1	Chain Stop	341-014	341-014	341-014
17	1	Lip Assist Bar - "HS"	328-685	328-685	328-685
18	1	HYDRA-SHOCK Plate Assy.	8-9043	8-9043	8-9043
19	1	Hydra-Shock	328-729	328-729	328-729
20	1	Extension Spring (D84)	333-029	333-029	333-029
21	1	Compression Spring	332-069	332-069	332-069
22	2	Extension Spring - Latch Bar	333-042	333-042	333-042
23	5	Retaining Ring (5304-75)	236-110	236-110	236-110
24	1	Retaining Ring (5304-50)	236-106	236-106	236-106
25	1	Retaining Ring (5304-100)	236-114	236-114	236-114
26	7	Plain Washer - 3/4 ID x 1/2 OD Hardened	234-143	234-143	234-143

PARTS LIST, continued

CM, WL AND WS SERIES DOCK LEVELER, continued

Item	Qty.	Part Description	Part Number		
			CM600 WS600 WL600	CM800 WS800 WL800	CM1000 WS1000 WL1000
27	1	User's manual	6004758	6004758	6004758
28	6	Plain Washer - 9/16" I.D.	234-260	234-260	234-260
29	1	Hex Bolt - 3/8" - 16 UNC x 1-1/4" lg	212-104	212-104	212-104
30	1	Hex Bolt - 3/8" x 3" lg	212-118	212-118	212-118
31	1	Bolt Rod Assy. - CP	3-4737	3-4737	3-4737
32	1	EL Rod Spacer	586-1999	586-1999	586-1999
33	5	Hex Nut - 3/8" Nylock	214-538	214-538	214-538
34	4	Clevis Pin - 1/2" DIA x 2-3/4" lg	231-502	231-502	231-502
35	2	Rue Ring	6006050	6006050	6006050
36	3	Spring Pin	231-123	231-123	231-123
37	9	Plain Washer 3/8" Bolt Size - 7/16" Hole	234-101	234-101	234-101
38	1	Danger Label (Entering Pit)	921-070	921-070	921-070
39	1	Danger Label	921-074	921-074	921-074
40	1	Danger Label (Springs)	921-117	921-117	921-117
41	1	Pin - 3/4" Dia x 2-7/8" Gr-Rng	583-0003	583-0003	583-0003
42	1	DU Bushing: 16DU08	821-034	821-034	821-034
43	1	Bellcrank Spacer	586-3031	586-3031	586-3031
44	1	DU Bushing - Flanged: 16FDU08	821-033	821-033	821-033
45	1	EL - Yoke Pin	586-1998	586-1998	586-1998
46	4	Pin - 3/4" Dia	586-1467	586-1467	586-1467
47	1	Pin - 3/4" Dia x 2-1/18" Gr-Rng	586-0003	586-0003	586-0003
48	1	EL - Latch Bar Return Spring	333-045	333-045	333-045
49	1	Lift Arm Assy.	Consult Factory		
50	4	Plain Washer - 1" Bolt Size - 1-1/16" Hole Size	234-161	234-161	234-161
51	1	Hex Nut 1" - 8	214-341	214-341	214-341
52	1	Pin - 1" Dia 5-1/2" Gr-Rng	586-1070	586-1070	586-1070
53	1	Upper Safety Leg Assy.	6002984	6002984	6002984
54	1	Rear Chain	586-3016	586-3020	586-3120
55	1	Lip Plate Maint. Bar	586-2969	586-2969	586-2969

PARTS LIST, continued

CM, WL AND WS SERIES DOCK LEVELER, continued

Item	Qty.	Part Description	Part Number		
			CM600 WS600 WL600	CM800 WS800 WL800	CM1000 WS1000 WL1000
56	1	Spring Adjusting Loop	586-3009	586-3009	586-3009
57	1	Serial tag	6009761	6009761	6009761
58	2	Serco Name Plate	824-002	824-002	824-002
	2	Kelley Name Plate	921-140	921-140	921-140
59	1	Placard	6001946	6001946	6001946
60	2	User Warning Label	6008485	6008485	6008485
61	1	Rear WeatherSeal CP 6ft.	6015410	6015410	6015410
	1	Rear WeatherSeal CP 6.5ft.	6015411	6015411	6015411
	1	Rear WeatherSeal CP 7ft.	6015594	6015594	6015594
62	1	S/L Guide Arm - CP	586-2959	586-2959	586-2959
63	1	Safety Leg Spring	333-055	333-055	333-055
64	4	Clevis Pin 1/2" DIA x 2-1/4 lg	231-506	231-506	231-506
65	4	SAE - 1/2" Washer	234-260	234-260	234-260
66	1	SQ. Nut 3/8-16 UNC Plain	214-826	214-826	214-826
67	1	Latch Tab Hydra	586-1384	586-1384	586-1384
68	5	Cotter Pin 5/32 x 2	6001832	6001832	6001832
69	4	Foot Assembly	6002915	6002915	6002915
70	1	Hold down chain assy.	8-9611	8-9612	8-9612

DOCK LEVELER — 600

Item	Qty.	Part Description	Capacity			
			30,000	35,000	40,000	45,000
71	3	Main Spring, Extension - 6 ft x 16 in	333-049	333-049	333-049	333-049
		Main Spring, Extension - 6 ft x 18 in	333-049	333-049	333-054*	333-054*
		Main Spring, Extension - 6 ft x 20 in	333-054*	333-054*	333-054*	333-054*
71	2	Main Spring, Extension - 6.5 ft x 16 in	333-054	333-054	333-054	333-054
		Main Spring, Extension - 6.5 ft x 18 in	333-054	333-054	333-054	333-054
		Main Spring, Extension - 6.5 ft x 20 in	333-054	333-054	333-054	333-054
71	2	Main Spring, Extension - 7 ft x 16 in	333-054	333-054	333-054	333-054
		Main Spring, Extension - 7 ft x 18 in	333-054	333-054	333-054	333-054
		Main Spring, Extension - 7 ft x 20 in	333-054	333-054	333-054	333-054
72	1	Main Spring, Support Assembly	3-5073	3-5073	3-5073	3-5073

*Quantity — 2

PARTS LIST, continued

DOCK LEVELER — 800

Item	Qty.	Part Description	Capacity			
			30,000	35,000	40,000	45,000
71	2	Main Spring, Extension - 6 ft x 16 in	333-054	333-054	333-054	333-054
	1	Main Spring, Extension - 6 ft x 16 in			333-049	333-049
	2	Main Spring, Extension - 6 ft x 18 in	333-054	333-054	333-054	333-054
	1	Main Spring, Extension - 6 ft x 18 in	—	—	333-049	333-049
	2	Main Spring, Extension - 6 ft x 20 in	333-054	333-054	333-054	333-054
	1	Main Spring, Extension - 6 ft x 20 in	—	—	333-049	333-049
71	2	Main Spring, Extension - 6.5 ft x 16 in	333-054	333-054	333-054	333-054
	1	Main Spring, Extension - 6.5 ft x 16 in	333-049	333-049	333-049	333-049
	2	Main Spring, Extension - 6.5 ft x 18 in	333-054	333-054	333-054	333-054
	1	Main Spring, Extension - 6.5 ft x 18 in	333-049	333-049	333-049	333-049
	2	Main Spring, Extension - 6.5 ft x 20 in	333-054	333-054	333-054	333-054
	1	Main Spring, Extension - 6.5 ft x 20 in	333-049	333-049	333-049	333-049
71	2	Main Spring, Extension - 7 ft x 16 in	333-054	333-054	333-054	333-054
	1	Main Spring, Extension - 7 ft x 16 in	333-049	333-049	333-049	333-049
	2	Main Spring, Extension - 7 ft x 18 in	333-054	333-054	333-054	333-054
	1	Main Spring, Extension - 7 ft x 18 in	333-049	333-049	333-049	333-049
	2	Main Spring, Extension - 7 ft x 20 in	333-054	333-054	333-054	333-054
	1	Main Spring, Extension - 7 ft x 20 in	333-049	333-049	333-049	333-049
72	1	Main Spring, Support Assembly	3-5073	3-5073	3-5073	3-5073

DOCK LEVELER — 1000

71	2	Main Spring, Extension - 6 ft x 16 in	333-054	333-054	333-054†	333-054†
	1		333-049	333-049	333-049	333-049
71	2	Main Spring, Extension - 6 ft x 18 in	333-054	333-054	333-054†	333-054†
	1		333-049	333-049	333-049	333-049
71	2	Main Spring, Extension - 6 ft x 20 in	333-054	333-054	333-054†	333-054†
	1		333-049	333-049	333-049	333-049
71	2	Main Spring, Extension - 6.5 ft x 16 in	333-054	333-054	333-054†	333-054†
	1		333-049	333-049	333-049	333-049
71	2	Main Spring, Extension - 6.5 ft x 18 in	333-054	333-054	333-054†	333-054†
	1		333-049	333-049	333-049	333-049
71	2	Main Spring, Extension - 6.5 ft x 20 in	333-054	333-054	333-054†	333-054†
	1		333-049	333-049	333-049	333-049
71	3	Main Spring, Extension - 7 ft x 16 in	333-054	333-054	333-054‡	333-054‡
	3	Main Spring, Extension - 7 ft x 18 in	333-054	333-054	333-054‡	333-054‡
	3	Main Spring, Extension - 7 ft x 20 in	333-054	333-054	333-054‡	333-054‡
72	1	Main Spring, Support Assembly	3-5254	3-5254	3-5254	3-5254

*Quantity — 2; †Quantity — 3; ‡Quantity — 4

PARTS LIST, continued

DOCK LEVELER — ALL

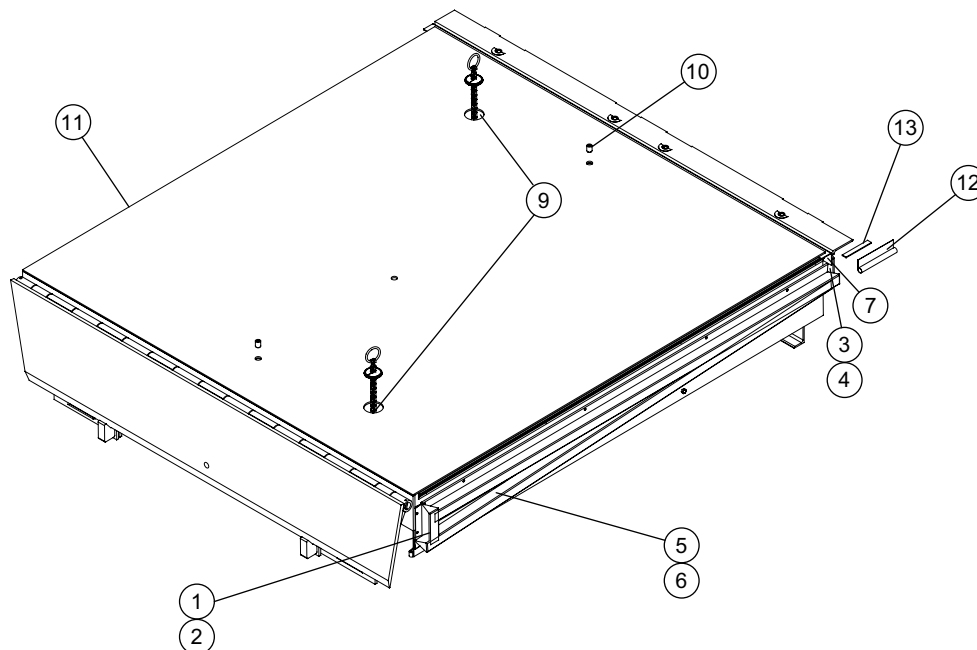
Item	Qty.	Part Description	Capacity			
			30,000	35,000	40,000	45,000
73	1	Lip Assembly - "L" - 6 ft x 16 in	3-0845	3-0848	3-0851	3-0854
		Lip Assembly - "L" - 6 ft x 18 in	3-0846	3-0849	3-0852	3-0855
		Lip Assembly - "L" - 6 ft x 20 in	3-0847	3-0850	3-0853	3-0856
	1	Lip Assembly - "L" - 6.5 ft x 16 in	3-0863	3-0866	3-0869	3-0872
		Lip Assembly - "L" - 6.5 ft x 18 in	3-0864	3-0867	3-0870	3-0873
		Lip Assembly - "L" - 6.5 ft x 20 in	3-0865	3-0868	3-0871	3-0874
	1	Lip Assembly - "L" - 7 ft x 16 in	3-0881	3-0884	3-0887	3-0890
		Lip Assembly - "L" - 7 ft x 18 in	3-0882	3-0885	3-0888	3-0891
		Lip Assembly - "L" - 7 ft x 20 in	3-0883	3-0886	3-0889	3-0892
74	2	Latch Assist Arm - 1-3/4" Tube - "L"	586-2272	586-2272	—	—
	2	Latch Assist Arm - 2-3/8" Tube - "L"	—	—	586-2638	586-2638
75	1	Lip Hinge Pin - 6 ft wide	586-0017	586-0017	586-0287	586-0287
	1	Lip Hinge Pin - 6.5 ft wide	586-1494	586-1494	586-1495	586-1495
	1	Lip Hinge Pin - 7 ft wide	586-0201	586-0201	586-0392	586-0392
76	1	Extension Spring, Lip - 6 ft x 16 in	333-043	333-043	333-043	333-043
	1	Extension Spring, Lip - 6 ft x 18 in	333-044	333-044	333-043	333-043
	1	Extension Spring, Lip - 6 ft x 20 in	333-044	333-044	333-044	333-044
	1	Extension Spring, Lip - 6.5 ft x 16 in	333-043	333-043	333-043	333-043
	1	Extension Spring, Lip - 6.5 ft x 18 in	333-044	333-044	333-044	333-044
	1	Extension Spring, Lip - 6.5 ft x 20 in	333-044	333-044	333-044	333-044
	1	Extension Spring, Lip - 7 ft x 16 in	333-043	333-043	333-043	333-043
	1	Extension Spring, Lip - 7 ft x 18 in	333-044	333-044	333-044	333-044
	1	Extension Spring, Lip - 7 ft x 20 in	333-044	333-044	333-044	333-044
77	1	Hold down rack	88786	88786	88786	88786
78*	1	Hold down assy	6013680	6013680	6013680	6013680

*Does not include item 77 hold down rack.

PARTS LIST, continued

OPTIONAL ENERGY GUARD® DOCK LEVELER SEALING SYSTEM

Fig. 37



Item	Description	Quantity									Part Number
		6x6 6008228	6.5x6 6008229	6x7 6008230	6x8 6008231	6.5x8 6008232	7x8 6008233	6x10 6008234	6.5x10 6008235	7x10 6008236	
1	5-1/2" Front seal	2	2	2	2	2	2	2	2	2	6008166
2	Vertical seal	2	2	2	2	2	2	2	2	2	6008173
3	6' Upper seal 8' Upper seal 10' Upper seal	2	2	2	2	2	2	2	2	2	6008167 6008169 6008171
4	Aluminum strip 53-1/2" Aluminum strip 77-1/2" Aluminum strip 101-1/2"	2	2	2	2	2	2	2	2	2	6008175 6008177 6008179
5	6' Lower seal 8' Lower seal 10' Lower seal.	2	2	2	2	2	2	2	2	2	6008168 6008170 6008172
6	Aluminum strip 6' upper Aluminum strip 8' upper Aluminum strip 10' upper	2	2	2	2	2	2	2	2	2	6008174 6008176 6008178
7	6' Serco rear seal 6.5' Serco rear seal 7' Serco rear seal	1	1	1	1	1	1	1	1	1	6007674 6007675 6007676
8	Tech screws (not shown)	6	6	6	8	8	8	10	10	10	000699
9	Chain cup seal	2	2	2	2	2	2	2	2	2	0392
10	3/4-10 Set screw	2	2	2	2	2	2	2	2	2	6008249
11	W/seal 600 W brush W/seal 800 W brush W/seal 600 W brush cut	2	2	2	2	2	2	2	2	2	328907 328908 328910
12	Corner bulb seal	2	2	2	2	2	2	2	2	2	6009507
13	Transition angle seal (optional)	2	2	2	2	2	2	2	2	2	6008247

LIMITED WARRANTY — MECHANICAL DOCK LEVELER

THIS LIMITED WARRANTY IS 4FRONT'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE DOCK LEVELER AND IS IN LIEU OF ANY OTHER GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED.

4FRONT warrants that this DOCK LEVELER will be free from flaws in material and workmanship under normal use for a period of one (1) year from the earlier of 1) 60 days after the date of initial shipment by 4FRONT, or 2) the date of installation of the DOCK LEVELER by the original purchaser, provided that the owner maintains and operates the DOCK LEVELER in accordance with this User's Manual.

Main Spring Warranty – All main springs are warranted to cover the cost of replacement parts and freight only for an extended period of four (4) years after the initial 1 year warranty period.

Parts warranty – All spare parts or replacement parts are warranted to cover the cost of replacement parts and freight only for ninety (90) days from the date of shipment.

In the event that this DOCK LEVELER proves deficient in material or workmanship within the applicable Limited Warranty period, owner shall so notify 4FRONT, and 4FRONT will, at its option:

1. Replace the DOCK LEVELER, or the deficient portion(s) thereof, without charge to the owner; or
2. Alter or repair the DOCK LEVELER, on site or elsewhere, without charge to the owner.

This Limited Warranty does not cover any failure caused by improper installation, abuse, improper operation, negligence, or failure to maintain and adjust the DOCK LEVELER properly. Parts requiring replacement due to damage resulting from vehicle impact, abuse, or improper operation are not covered by this warranty. 4FRONT DISCLAIMS ANY RESPONSIBILITY OR LIABILITY FOR ANY LOSS OR DAMAGE OF ANY KIND (INCLUDING WITHOUT LIMITATION, DIRECT, INDIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES, OR LOST PROFITS OR LOST PRODUCTION) arising out of or related to the use, installation or maintenance of the DOCK LEVELER (including premature product wear, product failure, property damage or bodily injury resulting from use of unauthorized replacement parts or modification of the DOCK LEVELER). 4FRONT's sole obligation with regard to a DOCK LEVELER that is claimed to be deficient in material or workmanship shall be as set forth in this Limited Warranty. This Limited Warranty will be null and void if the original purchaser does not notify 4FRONT's warranty department within ninety (90) days after the product deficiency is discovered.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, INCLUDING, BUT NOT LIMITED TO, A WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH 4FRONT HEREBY DISCLAIMS.

Please direct questions about your dock leveler to your local distributor or to 4Front Engineered Solutions, Inc.

Your local 4Front Engineered Solutions, Inc. distributor is:

Corporate Head Office:

1612 Hutton Dr. Suite 140
Carrollton, TX. 75006
Tel. (972) 466-0707
Fax (972) 323-2661

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