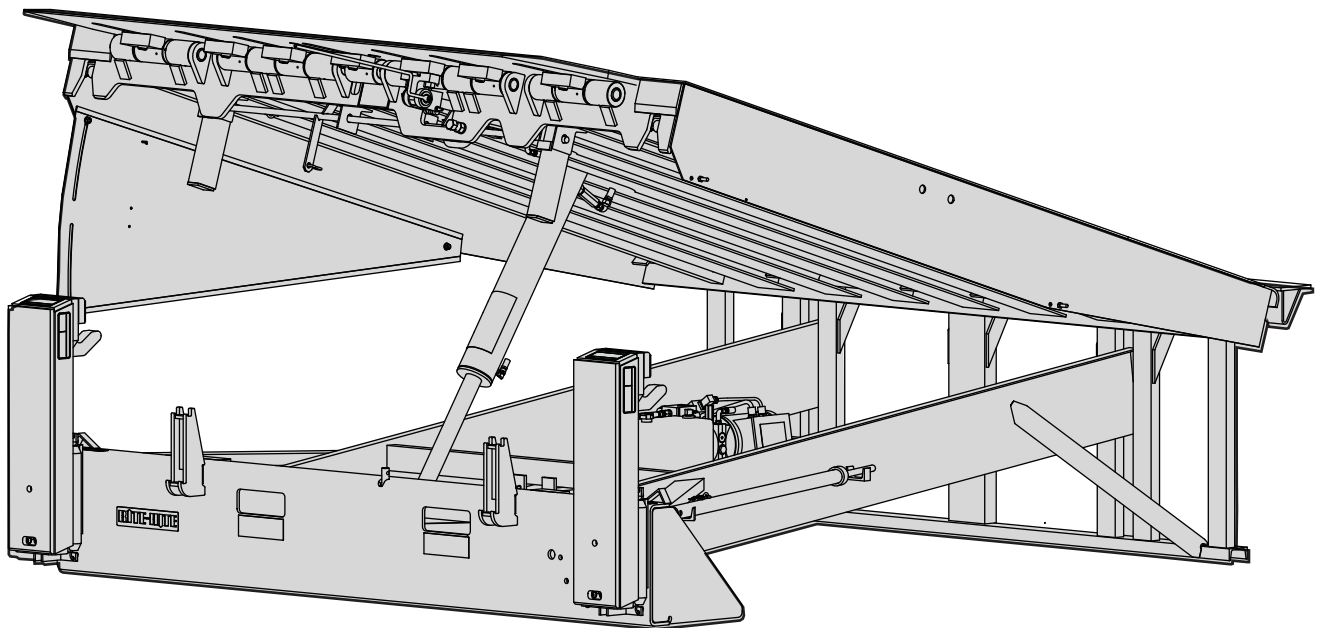


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# RHJ50 Jumbo Dock Leveler Owners Manual



*part of the SMOOTH TRANSITION DOK SYSTEM™*

**RITE·HITE®**  
ALWAYS LOOKING AHEAD



**This Manual Covers Dock Levelers Built After Serial Numbers:  
Date Code FO13\*\*\*\* and up**

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## PRODUCT SPECIFIC WARRANTY

RITE-HITE® warrants the RHJ50 Dock Leveler for five-years parts and one-year labor from date of shipment in accordance with Rite-Hite's Standard Warranty Policy.

## NOTICE TO USER

Your local Rite-Hite® representative provides a Planned Maintenance Program (P.M.P.) which can be fitted to your specific operation. Call your local representative or Rite-Hite® at 414-355-2600.

The Rite-Hite products in this manual are covered by one or more of the following U.S. patents: 5,546,623; 5,553,987; 5,582,498; 5,664,930; 5,702,223; 5,762,459 (RE: 37,570); 5,882,167; 6,065,172; 6,070,283; 6,085,375; 6,089,544; 6,092,970; 6,106,212; 6,116,839; 6,190,109; 6,276,016; 6,311,352; 6,318,947; 6,322,310; 6,360,394; 6,368,043; 6,431,819; 6,488,464; 6,499,169; 6,505,713; 6,520,472; 6,524,053; 6,634,049; 6,726,432; 6,773,221; 6,832,403; 6,880,301; 7,032,267; 7,062,814; 7,134,159; 7,213,285; 7,216,391; 7,363,670; 7,380,305; 7,503,089; 7,533,431; 7,546,655; 7,584,517; 7,681,271; 7,823,239; 7,841,823; 7,877,831; 7,914,042; 8,006,811; 8,065,770; 8,141,189; 8,191,194; 8,286,757; 8,287,223; 8,303,235; 8,307,956; 8,443,474; 8,464,384; 8,464,846; 8,465,245 and pending U.S and foreign patent applications. RITE-HITE®, THINMAN™, SAFE-T-LIP®, HYDRACHEK®, WHEEL-LOK™, DOK-LOK®, DUAL-DOK®, SAFE-T-STRUT™, DOK-COMMANDER®, JUMBO™, HYDRA-RITE™, SAFE-T-GATE®, RITE-VU™ LIGHT COMMUNICATION SYSTEM and SMOOTH TRANSITION DOK SYSTEM™, are trademarks of Rite-Hite®.

## SAFETY WARNINGS

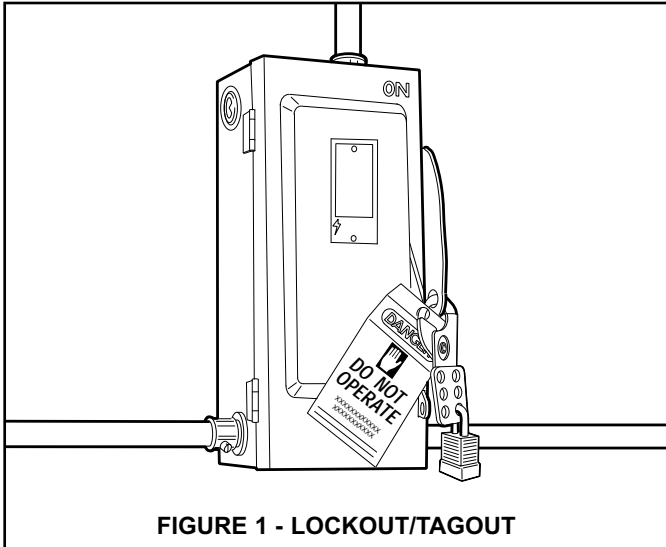


FIGURE 1 - LOCKOUT/TAGOUT

### WARNING

When working with electrical or electronic controls, make sure that the power source has been locked out and tagged out according to OSHA regulations and approved local electrical codes.

### LOCKOUT/TAGOUT PROCEDURES

The Occupational Safety and Health Administration (OSHA) requires, in addition to posting safety warnings and barricading the work area (including, but not limited to, trucking office and loading docks), that the power supply has been locked in the OFF position or disconnected. It is mandatory that an approved lockout device is utilized. An example of a lockout device is illustrated. The proper lockout procedure requires that the person responsible for the repairs is the only person who has the ability to remove the lockout device.

In addition to the lockout device, it is also a requirement to tag the power control in a manner that will clearly note that repairs are under way and state who is responsible for the lockout condition. Tagout devices have to be constructed and printed so that exposure to weather conditions, or wet and damp locations, will not cause the tag to deteriorate or become unreadable.

RITE-HITE® does not recommend any particular lockout device, but recommends the utilization of an OSHA approved device (refer to OSHA regulation 1910.147). RITE-HITE® also recommends the review and implementation of an entire safety program for the Control of Hazardous Energy (Lockout/Tagout). These regulations are available through OSHA publication 3120.

### DANGER

This is the highest level statement. Failure to follow the listed instructions will most likely result in severe injury or death.

### CAUTION

The statements used with this level of warning deal with a safe operating procedure. If the procedure is ignored the possibility of personal injury may exist.

### WARNING

This is a statement of serious hazard. Failure to follow the listed instructions could place the individual at risk of serious injury or death.

### IMPORTANT

IMPORTANT is used to draw attention to a procedure that needs to be followed to prevent machine damage.

## OTHER IMPORTANT OPERATIONAL SAFETY WARNINGS

### **DANGER**

Never be under the dock leveler platform or lip without:

- Installing the Safe-T-Strut™ or other supporting device.
- If lip needs to be extended, follow procedures shown under Safety Devices on the following page.
- Turning off power to the control box.
- Locking out and tagging out the main power source, as shown under Safety Warnings on preceding page.

### **WARNING**

Always barricade the dock leveler at ground level and dock level from any form of traffic when maintenance is required.

### **CAUTION**

Inspect the dock leveler monthly to ensure that there are no broken or worn parts which could cause injury to personnel or damage to the equipment.

### **WARNING**

- Before starting installation or maintenance, check and follow the safety procedures of the facility where the dock leveler is being installed.
- Never enter a truck/trailer until its brakes are set, air has been dumped from air ride suspension (if applicable), and you have visually inspected to be sure truck/trailer is securely held in place by a vehicle restraint or wheel chock per OSHA regulations.
- Never operate the leveler with you, anyone, or anything on, or in front of the leveler, or without a truck/trailer parked in position, or from on the truck/trailer bed.
- DO NOT operate with anyone under platform or in front of the lip.
- When leveler is not in use, always store it so that it is supported by the lip supports and that it is level with the surrounding dock floor.
- If a malfunction does occur, always call your authorized RITE-HITE® service representative immediately.

## SAFETY DEVICES

**! DANGER**

Never be under the dock leveler platform or lip without:

- Installing the Safe-T-Strut™. See below right. This can be done with the assistance of another person by:
  - Raise leveler until platform reaches its highest position and lip extends. Continue to maintain this position.
  - Then have assistant insert the smaller end of the Safe-T-Strut™ through the hole in the middle of the leveler lip and place the strut's wider open end over the base located on the leveler's front frame. Align the holes on the base and the Safe-T-Strut™ so that the leveler may be secured with the retaining pin and safety clip.
  - Release the pushbutton on powered levelers allowing the Safe-T-Strut™ to rest on the underside of the lip.
- Lockout/Tagout power supply.
  - Turn off the power to the control box.
  - Lockout/tagout the main power source, as shown under Safety Warnings on the inside front cover of this manual.
  - Always barricade the leveler at dock level and drive level to prevent any unauthorized use of the leveler.

Remove the Maintenance Support.

- For Safe-T-Strut™ removal, have an assistant raise the leveler to its highest position with lip fully extended. Release the safety clip and remove retaining pin. Lift strut off base, and remove from lip. Return the Safe-T-Strut™ to the proper storage position.
- If you are unable to install the Maintenance Support properly, contact your authorized RITE-HITE® Service Representative or RITE-HITE® Customer Service at 1-414-355-2600.

**! CAUTION**

- Post warnings and barricades at dock level and at drive level to indicate that work is being done around and under the leveler platform.
- Lockout/Tagout power to the leveler and post warnings when work is being performed on the leveler.

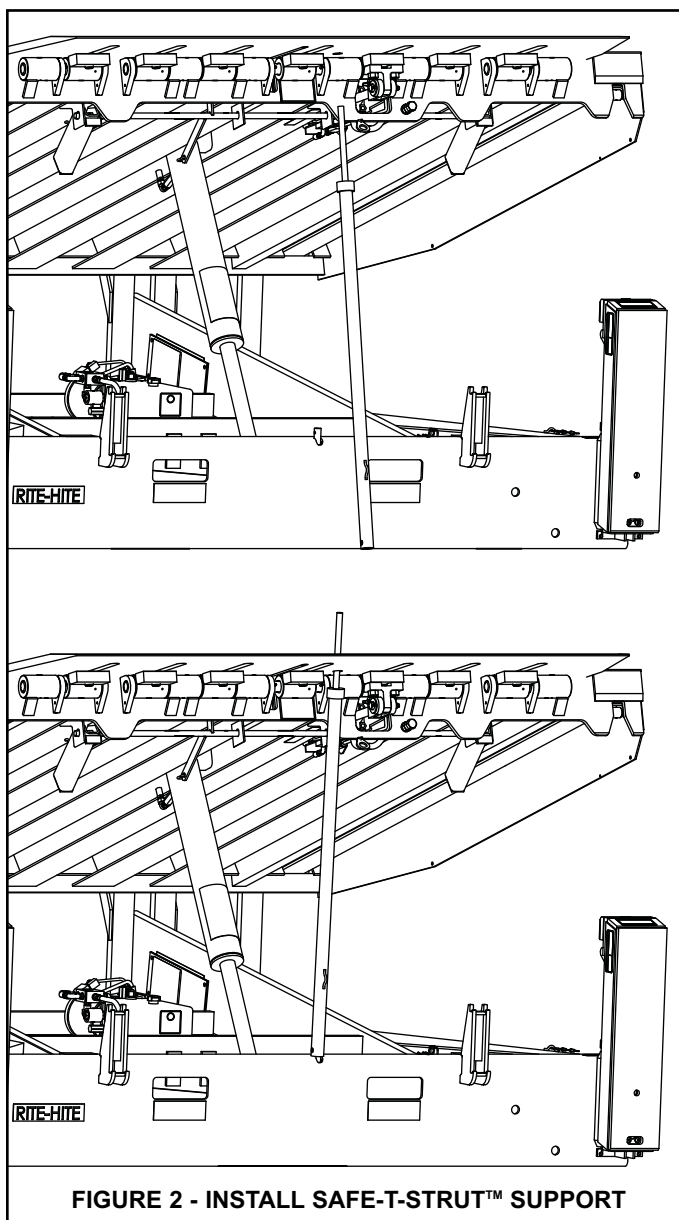


FIGURE 2 - INSTALL SAFE-T-STRUT™ SUPPORT

## **OWNER RESPONSIBILITY**

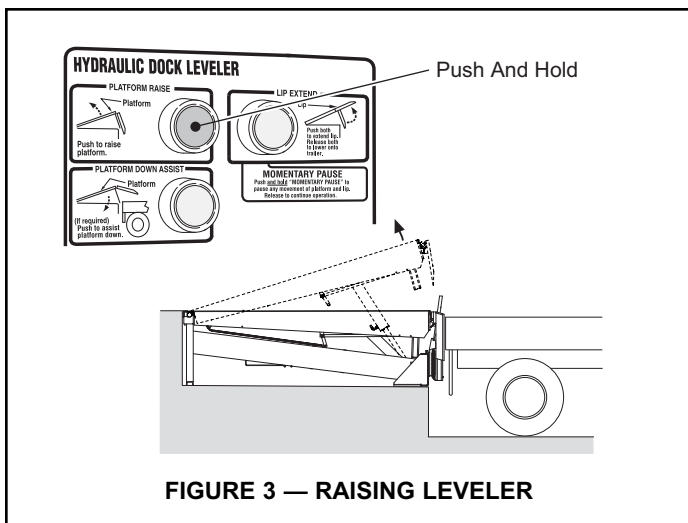
1. The owner should recognize the inherent danger of the interface between dock and transport vehicle. The owner should, therefore, train and instruct operators in the safe use of dock equipment in accordance with the information provided below. The manufacturer shall publish, provide to the initial purchaser, and make the following information readily available to owners:
  - Installation instructions
  - Recommended initial and periodic inspections procedures
  - Maintenance procedures
  - Operating instructions
  - Descriptions or specifications for replaceable or repairable parts
  - Tables identifying the grade (slope) for all variations of length or configuration of the dock equipment, and
  - Information identifying the maximum uncontrolled drop encountered upon sudden removal of support while within the working range of the equipment.

It shall be the responsibility of the owner to verify that the material listed in this section has been received and that it is made available for the instruction and training of personnel entrusted with the use or maintenance of the dock equipment.
2. When a transport vehicle is parked at a loading dock, it is important that the vehicle is relatively perpendicular to the dock face and in close contact with at least one of the dock bumpers.
3. Nameplates, cautions, instructions, and posted warnings shall not be obscured from the view of operating or maintenance personnel for whom such warnings are intended.
4. Manufacturer's recommended periodic maintenance and inspection procedures in effect at date of shipment shall be followed, and written records of the performance of these procedures should be kept.
5. As with any piece of machinery, dock equipment requires routine maintenance, lubrication, and adjustments. Your local RITE-HITE® representative offers owners the option of a Planned Maintenance Program (P.M.P.). As part of this service, your local RITE-HITE® representative will do all routine maintenance, lubrication, and adjustments.
6. Dock equipment that is structurally damaged shall be removed from service, inspected by a manufacturer's authorized representative, and repaired as needed before being placed back in service.
7. The manufacturer shall make available replacement nameplates, caution/instruction labels, and operating/maintenance manuals upon request of the owner. The owner shall see that all nameplates, caution/instruction markings or labels are in place and legible, and that the appropriate operating/maintenance manuals are provided to users.
8. Modifications or alterations of dock equipment shall be made only with written permission of the original manufacturer. These changes shall also satisfy all safety recommendations of the original equipment manufacturer for the particular application of the dock equipment.
9. In order to be entitled to the benefits of the standard product warranty, the dock equipment must have been properly installed, maintained and operated within its rated capacities and/or specific design parameters, and not otherwise abused.
10. It is recommended that trailers equipped with air ride suspensions should remove the air from the suspension to minimize trailer bed drop, prior to loading or unloading.
11. When industrial trucks are driven on and off transport vehicles during the loading and unloading operation, the brakes on the transport vehicle shall be applied and wheel chocks or a positive restraining device shall be engaged.
12. In selecting dock equipment, it is important to consider not only present requirements but also future plans or adverse environments.

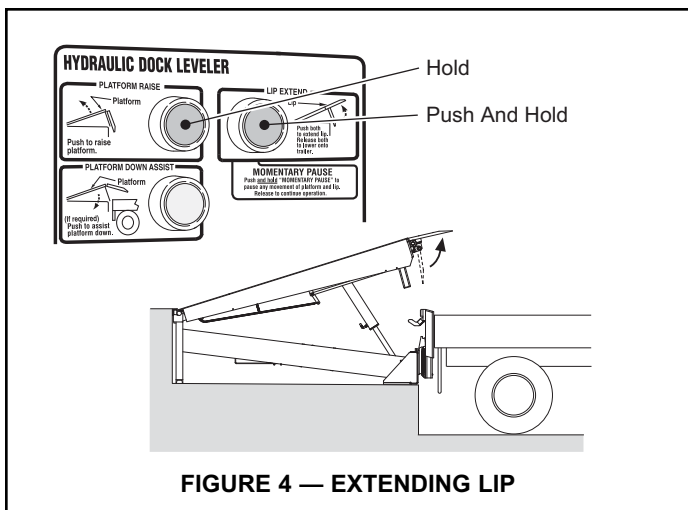
# OPERATION INSTRUCTIONS

## NORMAL OPERATION

1. Activate the leveler by pushing and holding the RAISE button to raise the platform. See figure 3.



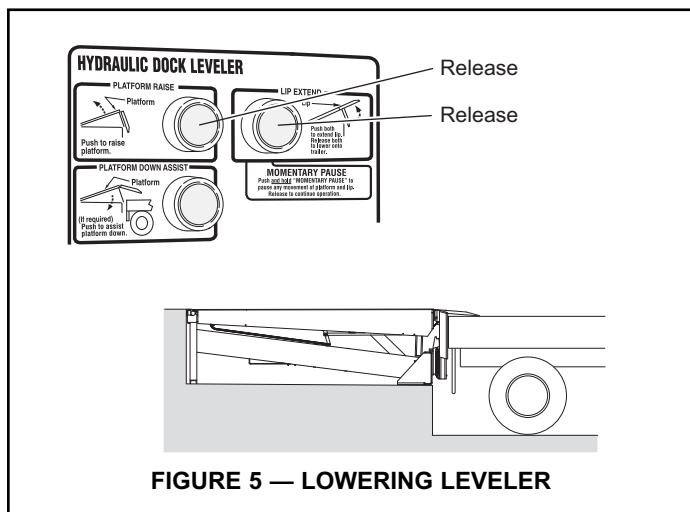
2. While pressing the RAISE button, push the LIP EXTEND button to fully extend the lip when the lip has cleared trailer bed. See figure 4.



3. When lip is fully extended, release RAISE and LIP EXTEND buttons. The leveler will automatically lower onto the truck/trailer bed. See figure 5.

### NOTES:

- a. Be sure the lip is in full contact with the truck/trailer bed before loading or unloading truck/trailer.



4. If at some point the platform becomes obstructed by the truck/trailer, push and hold the PLATFORM DOWN ASSIST button to lower the platform.

5. See *Storing Leveler*.

### NOTES:

- a. Levelers without Automatic Return to Dock (ARTD) If the truck/trailer departs, the leveler will move to its lowest position and the lip will fall to the pendant position inside the dock bumpers. See *Storing Leveler*.
- b. Levelers with Automatic Return to Dock (ARTD) If the lip is on the truck/trailer and the truck departs, the leveler will move to its lowest position and the lip will begin to lower. As the lip drops toward the pendant position, the ARTD system automatically returns the leveler to the stored position without operator assistance.

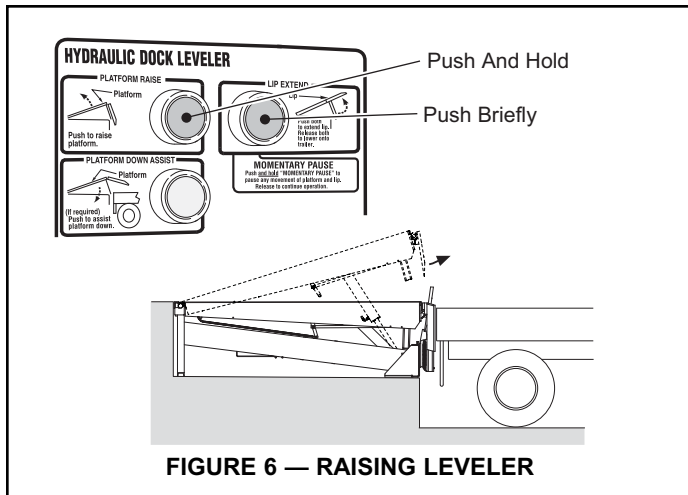
# OPERATION INSTRUCTIONS (Continued)

## END LOADING OPERATION

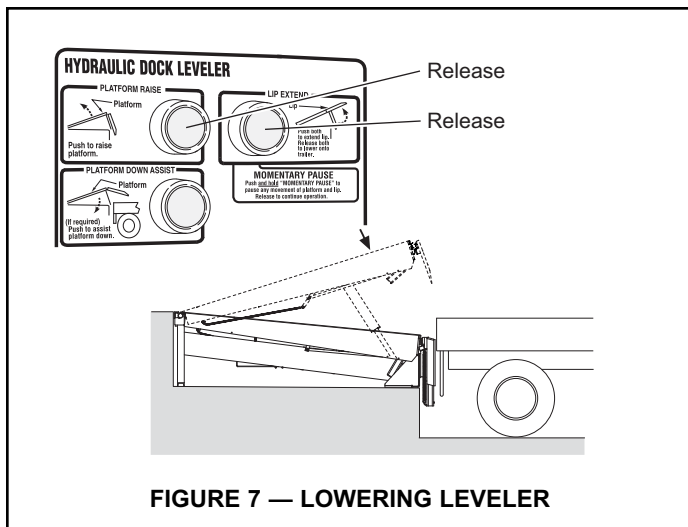
### NOTES:

On units without a Safe-T-Lip®, end load at dock level and above can be handled with the leveler in its stored position.

1. For units with Safe-T-Lip®, or all below dock end loads, activate the leveler by pushing and holding the RAISE button until the lip clears the lip supports. While pressing the RAISE button, push the LIP EXTEND button briefly to extend the lip beyond the lip supports. See figure 6.

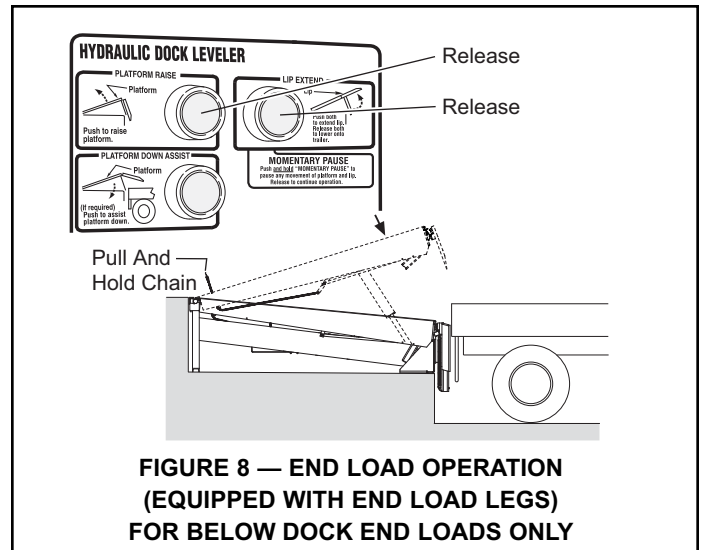


2. When lip extends about 2 inches, release RAISE and LIP EXTEND buttons. The leveler will lower to the below dock position with the lip positioned between the face of the loading dock and the truck/trailer bed. See figure 7.



### NOTES:

- a. If the lip extended too far, quickly push and release the RAISE button to slightly retract the lip.
  - b. If the lip was not extended far enough and hits the lip supports, repeat this steps 1 and 2 allowing the lip to extend farther.
  - c. If at some point the platform becomes obstructed by the truck/trailer while lowering, push and hold the PLATFORM DOWN ASSIST button to lower platform.
3. For units with Safe-T-Lip®, if equipped, pull and hold the End Load Leg Chain as the leveler lowers for below dock end loads. See figure 8. **DO NOT** pull chain for dock level end loads.



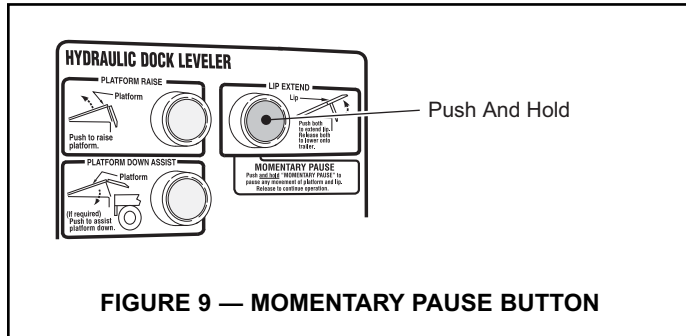
4. As soon as end load is complete, continue with normal operation or return the leveler to stored position. See *Storing Leveler*.



# OPERATION INSTRUCTIONS (Continued)

## MOMENTARY PAUSE

1. Push and hold only the LIP EXTEND button. This will STOP the leveler at any position going up or down. This position will be maintained as long as the LIP EXTEND button is pushed in. See Figure 9.

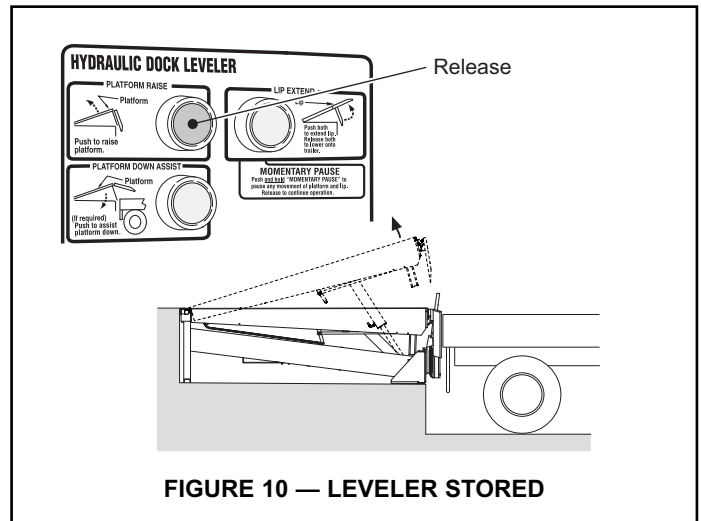


## STORING LEVELER

1. To store the leveler, push and hold the RAISE button until leveler is about 6 inches above dock level and lip is fully pendant.
2. Release RAISE button. Leveler will lower to dock level with lip resting in the lip supports. See figure 10.

### NOTE:

On Powered levelers with Automatic Return to Dock (ARTD). If the lip is on the truck/trailer and the truck departs, the leveler will move to its lowest position and the lip will begin to lower. As the lip drops toward the pendant position, the ARTD system automatically returns the leveler to the stored position without operator assistance.



## MAINTENANCE PROCEDURES

### WARNING

Read and obey these instructions to prevent personal injury.

- **Post safety warnings and barricade work area, at dock level and at ground level, to prevent unauthorized use of the dock position before maintenance has been completed.**
- **Make sure to install the maintenance support strut before proceeding with any repair work.**
- **Make sure leveler power is disconnected (locked out and tagged out according to OSHA regulations and approved local codes) before performing any welding on the leveler.**
- **DO NOT use the MOMENTARY PAUSE button as an Emergency Stop or maintenance tool.**

### SUGGESTED LEVELER MAINTENANCE

**NOTE:** Follow maintenance procedures below as outlined. Include the specific steps for your leveler model.

**NOTE:** Your local RITE-HITE® representative provides a Planned Maintenance Program (P.M.P.) which can be fitted to your specific operation. Call your local representative.

#### Daily

1. Remove debris on and around leveler. Be sure the hinge section of the lip and the platform is clean.
2. Check unit for proper operation.

#### 90 Days

1. Perform all Daily Maintenance.
2. Clean pit.
3. Inspect lip out mechanism (pins, lip lugs, lip cylinder). Replace if worn.
4. Lubricate the leveler with the proper lubricants. See figure 11.

5. Inspect all weather seals (if installed) and replace if worn or damaged.
6. Inspect dock bumpers. Ensure bumpers are solidly mounted and are functioning properly.
7. Check conditions of concrete, angles and welds. Repair or replace if necessary.
8. Inspect structure, hinge pins, clevis pins and cotter pins for abnormal wear.
9. Inspect all conduit boxes, control boxes and electrical connections for damage. Repair or replace if worn or damaged.

**NOTE:** If control box has evidence of condensation.

- a. Inspect conduit. Conduit should be routed to enter through the bottom or side of the enclosure. A drip leg may be needed if the conduit is filling with water.
  - b. Inspect the seal on the cover of the enclosure. The seal should be securely adhered to the cover with no signs of peeling or bubbling. Repair or replace if worn or damaged.
  - c. For non-metallic enclosures, breather vent part number 122130 may be installed. The vent is NEMA 4X and will not change the environmental rating of the control box.
10. With the leveler supported by the maintenance strut, check hydraulic fluid level in tank. Add fluid if necessary. Use only Rite-Hite approved hydraulic fluids.

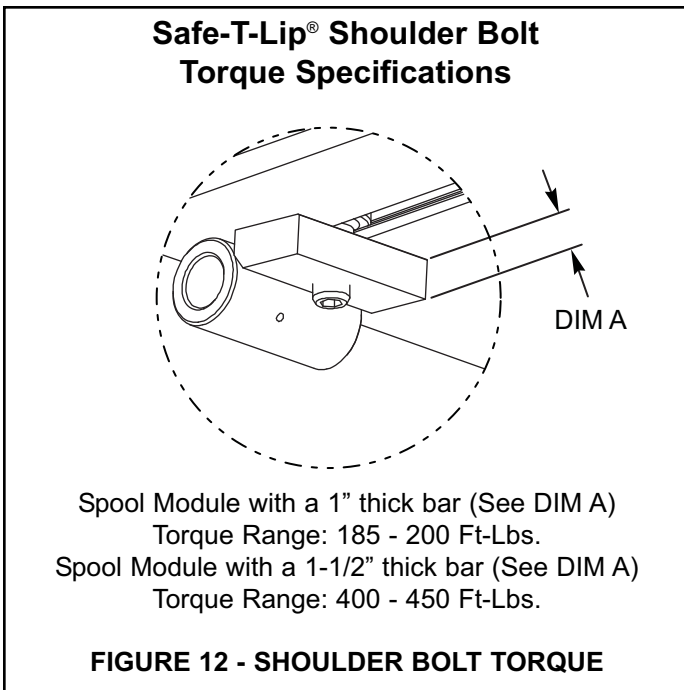
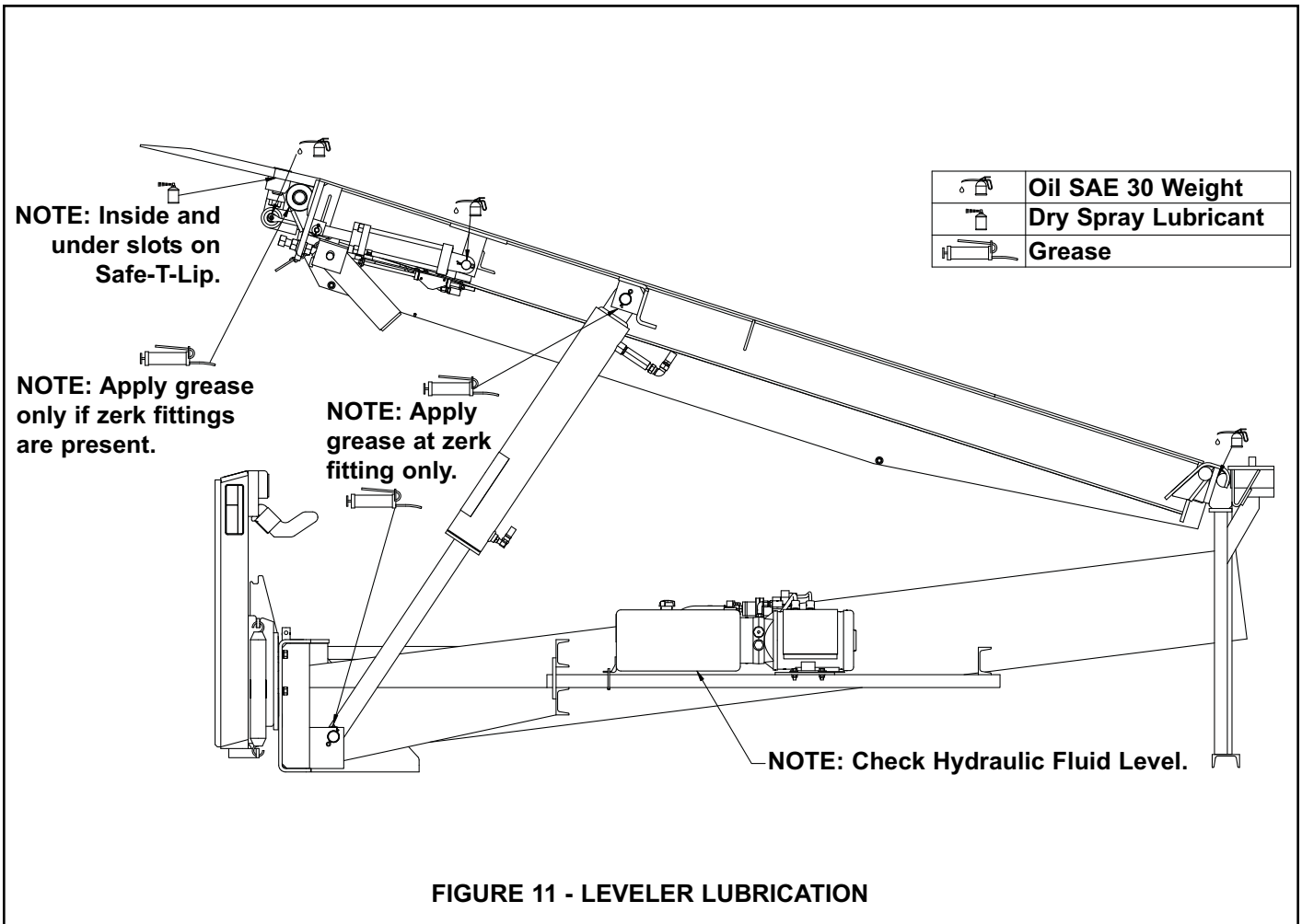
**STANDARD:** 119181 - Rite-Hite Biodegradeable Fluid (quart/light blue in color)

**OPTIONAL:** 108303 - Mil 5606 Fluid (quart/red in color)

#### 360 Days

1. Perform Daily and 90-Day Maintenance.
2. Check and tighten control box mounting hardware.
3. Retorque all shoulder bolts on units equipped with Safe-T-Lip®. See figure 12.

# LUBRICATION CHART



# LEVELER ADJUSTMENTS

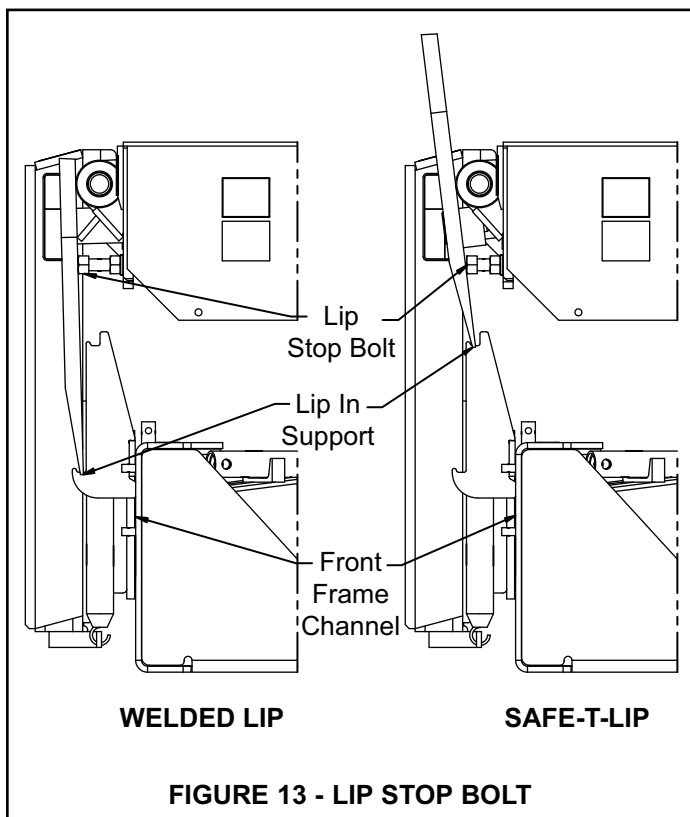
## ⚠ DANGER

- DO NOT operate leveler with anyone standing on or in front of the lip.
- NEVER go under the hydraulic leveler platform or lip without installing the Maintenance Support.
- Make sure that the leveler power is locked out and tagged out according to OSHA regulations and approved local codes.

### LIP STOP BOLT

The lip stop bolt adjusts the position of the lip when the leveler is stored to allow the lip to be centered on lip supports when stored.

**NOTE:** Lip stop bolt will need to be adjusted on longer lips to allow lip to be centered in the lip keepers.

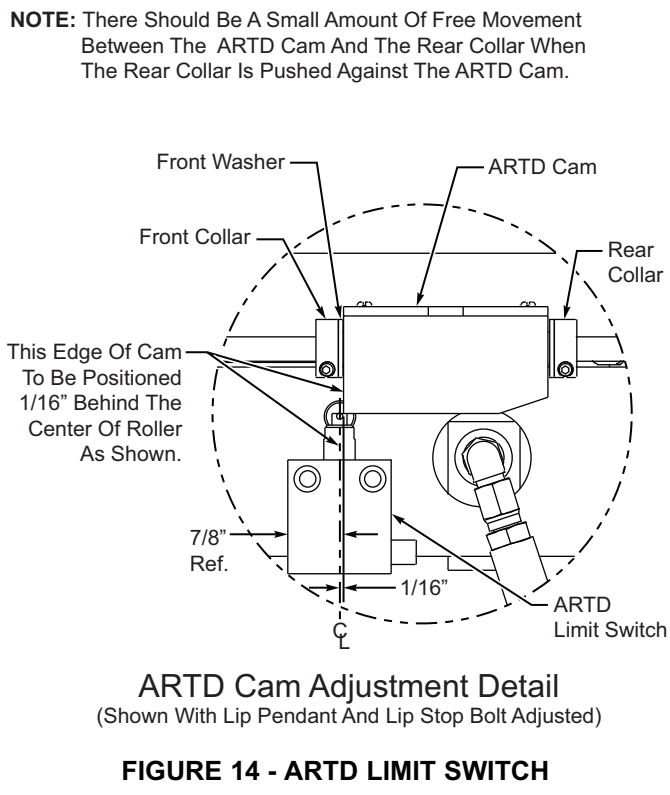


### ARTD CAM ADJUSTMENT

**NOTE:** Before continuing be sure the lip stop bolt is properly adjusted.

1. Raise leveler and install a strut securely behind the header or mini-header to allow the lip to hang pendant and rest against the lip stop bolt.
2. Adjust ARTD Cam.
  - a. Adjust collars so the front edge of ARTD cam is 1/16" behind the centerline of the ARTD limit switch. See figure 14.
  - b. Tighten front collar while holding the 1/16" adjustment.
  - c. Push the rear collar forward as much as possible and tighten. ARTD cam assembly should rotate freely.
3. Run the leveler to test the adjustment. Verify that the lip falls a minimum of 4" before ARTD is initiated. If not, move the cam forward slightly.

**NOTE:** It is not recommended to position the ARTD cam in front of the ARTD limit switch centerline.



## LEVELER ADJUSTMENTS (Continued)

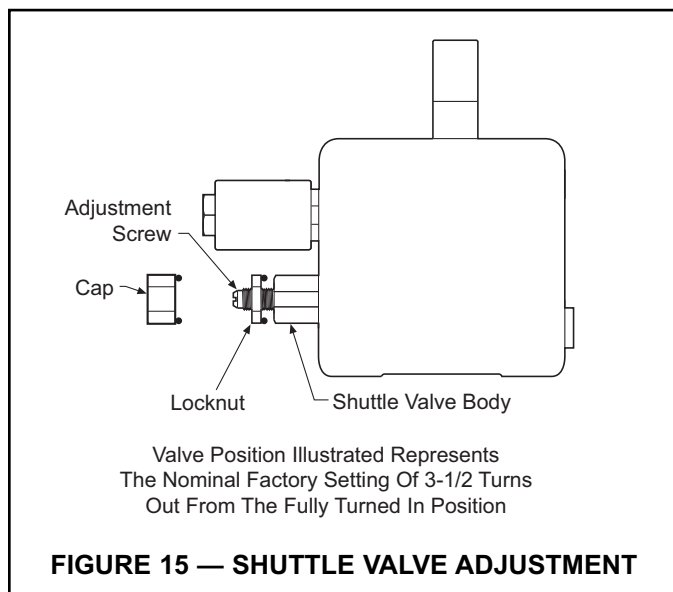
### WARNING

- Adjustments to be completed by trained technician only.

#### SHUTTLE VALVE ADJUSTMENT (Controls Leveler Descent)

**NOTE:** Check oil level before making any adjustments.

1. Leveler must be adjusted to lower, from full raised position with lip extended to the header stops in less than 20 to 24 seconds.
2. Remove protective cap and O-ring. Loosen locknut without turning valve body or adjustment screw. Turn adjustment screw to vary platform lowering speed. Adjustments should be no more than 1/8 turn increments.
3. Turn adjustment screw counterclockwise to decrease the lowering speed of platform (excessive loosening can eliminate platform lowering).
4. Turn adjustment screw clockwise to increase the lowering speed of platform (velocity fuse may lock-up as a result of increased platform speeds while lowering).
5. Tighten locknut without turning valve body or adjustment screw.
6. Reinstall o-ring and protective cap and tighten cap.
7. Re-test the unit several times to verify the setting.



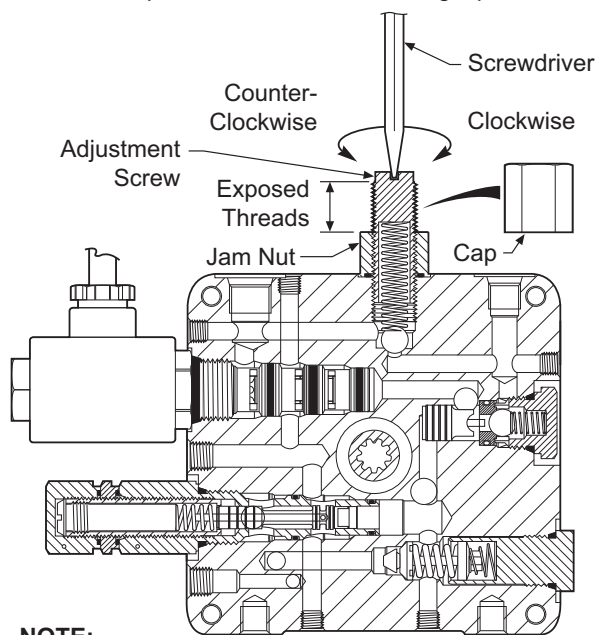
#### LIP CHECK VALVE ADJUSTMENT (Controls Lip Fall Speed)

**NOTE:** Check oil level before making any adjustments.

1. Leveler must be adjusted for the lip to fall in 3 to 4 seconds when the leveler is in below dock position.
2. Remove protective cap and O-ring. Loosen locknut without turning valve body or adjustment screw. Turn adjustment screw to vary lip fall speed. Adjustments should be no more than 1/8 turn increments.
3. Turn adjustment screw counterclockwise to decrease the speed the lip will extend. (If the lip does not start or complete fall, the Lip Check Valve is set to high.)
4. Turn adjustment screw clockwise to increase the speed the lip will fall. (If the lip falls too fast, the Lip Check Valve setting is too low.)
5. Tighten locknut without turning valve body or adjustment screw.
6. Reinstall o-ring and protective cap and tighten cap.
7. Re-test the unit several times to verify the setting.

**NOTE:**

Turn In Until Adjustment Screw Bottoms Out. The Number Of Full Turns Out Nominal Factory Settings Are: 5 Complete Turns Out On 20" Long Lip



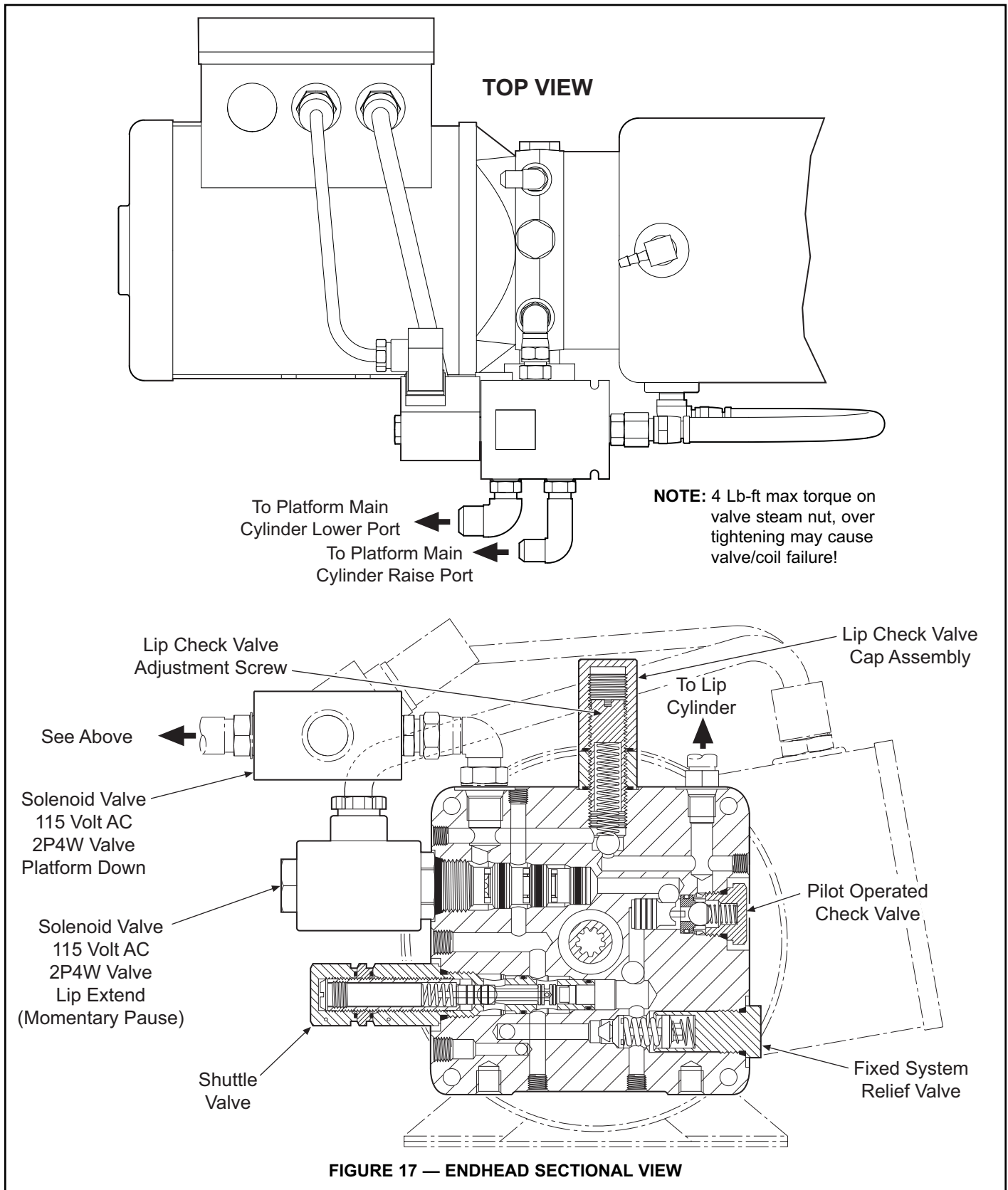
**NOTE:**

This Lip Check Valve Has An Adjustment Range Of 3 To 7 Complete Turns Out. Internal O-ring Seal Holds Adjustment Screw While Locknut Is Tightened.

**FIGURE 16 — LIP CHECK VALVE ADJUSTMENT**

# HYDRAULIC VALVE LOCATION

## HYDRAULIC PUMP SECTION VIEW



## TROUBLESHOOTING

### **! DANGER**

Never be under the dock leveler platform or lip without:

- Post safety warnings and barricade work area, at dock level and at ground level, to prevent unauthorized use of the dock position before maintenance has been completed.
- Make sure to engage the SAFE-T-STRUT before proceeding with any installation or repair work. See *Safety Device* information on page 5.
- Make sure leveler power is disconnected (locked out and tagged out according to OSHA regulations and approved local codes) when work is being performed on the unit, as shown under *Safety Warnings* on page 3.
- DO NOT use the MOMENTARY PAUSE button as an Emergency Stop or maintenance tool.

### **! CAUTION**

DO NOT allow leveler to run continuously for extended periods of time. This will cause damage to the power unit. Shut off power to unit via fused disconnect or circuit breaker.

### **IMPORTANT**

- Before attempting any troubleshooting procedures, verify that the leveler has been properly lubricated, and that all debris on, around, or under the unit has been removed.
- Before making adjustments, read and understand proper adjusting procedures and symptoms (pages 12-13). Also study hydraulic schematic on page 19.
- Always check oil level first.
- For all probable causes and remedies, contact your local authorized RITE-HITE Service Representative.

### **IMPORTANT**

Verify proper hydraulic fluid level before operating leveler by checking decal on the side of the tank. When adding oil, use only manufacturer approved hydraulic oils. Consult your authorized RITE-HITE service representative or call RITE-HITE customer service at (800) 456-0600.

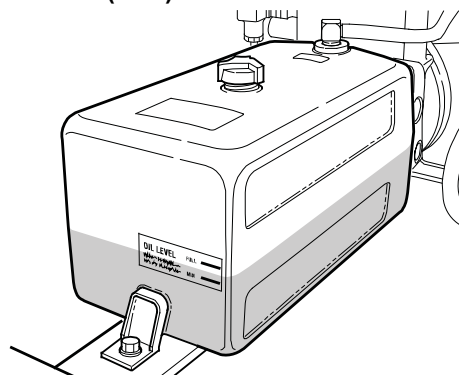


FIGURE 18 — HYDRAULIC FLUID LEVEL INDICATOR

This equipment is shipped from the factory fully tested and totally operative. Often operating problems are caused by UNNECESSARY ADJUSTMENTS BY UNTRAINED PERSONNEL. Check the oil level before making any adjustments. To conform to terms of warranty, contact your local RITE-HITE representative if you are having any difficulty with the leveler during the warranty period. Do not risk voiding the warranty by tampering with the equipment.

If for any reason the leveler cannot be repaired at the time of troubleshooting, store unit if possible then lockout and tagout the unit.


Check the oil level with the leveler in the up position, lip extended, SAFE-T-STRUT installed, and hydraulic system (hoses and cylinders) filled with oil. The oil level in the tank has to be at the FILL TO LINE marker on the reservoir tank. See Figure 18.

## TROUBLESHOOTING (Continued)

Problem	Probable Cause	Remedy
1. Platform does not raise (motor not running).	<ul style="list-style-type: none"> <li>a. Power is disconnected.</li> <li>b. Disconnect plug is pulled out or missing from terminal block in control box (terminals 4, 5, 7).</li> <li>c. The RAISE button is not working properly/loose wires.</li> <li>d. Tripped RESET button on motor starter overload relay.</li> <li>e. Fuse failure in control box.</li> </ul>	<ul style="list-style-type: none"> <li>a. Verify that power has not been disconnected.</li> <li>b. Disconnect plug must be installed in terminals 4, 5, 7, for unit to operate.</li> <li>c. Make sure that the button contact block and wire are functioning properly.</li> <li>d. Press RESET button on overload inside control box. (If overload trips repeatedly, see problem #12.)</li> <li>e. Replace with properly rated fuse.</li> </ul>
2. Platform does not raise (motor running).	<ul style="list-style-type: none"> <li>a. Hydraulic fluid level is low.</li> <li>b. Motor running backward (3 phase power only).</li> <li>c. Weight on top of platform.</li> </ul>	<ul style="list-style-type: none"> <li>a. Check for hydraulic system leaks and for proper hydraulic fluid level. Repair if necessary and refill with oil to proper level as needed.</li> <li>b. Reverse any 2 motor power leads.</li> <li>c. Remove weight from platform.</li> </ul>
3. Leveler runs continuously when power is turned on.	<ul style="list-style-type: none"> <li>a. ARTD cam is out of adjustment or damaged.</li> <li>b. Recycle limit switch is wired incorrectly or is defective.</li> <li>c. Unit is wired incorrectly.</li> </ul>	<ul style="list-style-type: none"> <li>a. See ARTD adjustment procedure on page 12.</li> <li>b. Confirm wiring and continuity of limit switch.</li> <li>c. Check wire connections and verify wiring.</li> </ul>
4. Lip extends slowly and/or does not fully extend.	<ul style="list-style-type: none"> <li>a. Debris in lip hinge.</li> <li>b. Hydraulic fluid level is low.</li> </ul>	<ul style="list-style-type: none"> <li>a. Clean and lubricate the lip hinge.</li> <li>b. Check for hydraulic system leaks and for proper hydraulic fluid level. Repair if necessary and refill with oil to proper level as needed.</li> </ul>
5. Lip does not extend when using LIP EXTEND button.	<ul style="list-style-type: none"> <li>a. PLATFORM RAISE button is not being pressed simultaneously with the LIP EXTEND button.</li> <li>b. The LIP EXTEND button is not working properly.</li> <li>c. The LIP EXTEND solenoid is not working properly.</li> </ul>	<ul style="list-style-type: none"> <li>a. Press PLATFORM RAISE button simultaneously with the LIP EXTEND button. (Make sure lip is above lip supports prior to pushing both buttons.)</li> <li>b. Make sure that the button contact block and wire are functioning properly.</li> <li>c. Verify solenoid is receiving power and is clear of debris. Clean or replace defective solenoid cartridge.</li> </ul>



## TROUBLESHOOTING (Continued)

Problem	Probable Cause	Remedy
<p>6. Platform does not lower.</p>	<ul style="list-style-type: none"> <li>a. Velocity fuse is locked up due to air trapped in the system.</li> <li>b. Velocity fuse locks up due to shuttle valve out of adjustment.</li> <li>c. Debris is lodged on or around the leveler.</li> <li>d. The pump did not shut off, causing the platform to remain in the fully raised position.</li> <li>e. Weight on top of platform.</li> <li>f. The RAISE button is not working properly/loose wires.</li> </ul>	<div style="border: 1px solid black; padding: 5px;"> <div style="background-color: #ff8c00; color: white; padding: 5px; text-align: center;">  <b>WARNING</b> </div> <p style="margin-top: 5px;"><b>DO NOT attempt to loosen/ disconnect hydraulic hoses/ fittings without SAFE-T-STRUT in place.</b></p> </div> <ul style="list-style-type: none"> <li>a. Cycle unit (5 to 10 times) until velocity fuse no longer locks up.</li> <li>b. See shuttle valve adjustment procedures on page 13.</li> <li>c. Check for lodged materials on or around the leveler.</li> <li>d. Check whether cam/limit switch is working properly. See page 12 for adjustment.</li> <li>e. Remove weight from platform, press and release PLATFORM RAISE button.</li> <li>f. Make sure that the button contact block and wire are functioning properly.</li> </ul>
<p>7. Platform raises very slowly.</p>	<ul style="list-style-type: none"> <li>a. Weight on top of platform.</li> <li>b. Hydraulic fluid level is low.</li> <li>c. Low voltage.</li> </ul>	<ul style="list-style-type: none"> <li>a. Remove weight from platform.</li> <li>b. Check for hydraulic system leaks and proper hydraulic fluid level. Repair if necessary and refill with oil to proper level as needed.</li> <li>c. Verify voltage while unit is running.</li> </ul>
<p>8. Lip does not store or store properly in lip supports.</p>	<ul style="list-style-type: none"> <li>a. The lip stop bolt is not adjusted properly.</li> <li>b. Debris in the lip supports.</li> <li>c. Lip supports are damaged.</li> <li>d. ARTD cam is out of adjustment or damaged.</li> </ul>	<ul style="list-style-type: none"> <li>a. Verify that the lip stop bolt is properly adjusted. See Lip Stop Bolt Adjustment on page 14.</li> <li>b. Verify that there is no debris lodged in the lip supports. Clean out as needed.</li> <li>c. Inspect the lip supports for damage, repair or replace as needed.</li> <li>d. See ARTD adjustment procedure on page 12.</li> </ul>

## TROUBLESHOOTING (Continued)

Problem	Probable Cause	Remedy
9. Unit will not recycle.	<ul style="list-style-type: none"> <li>a. Power is disconnected.</li> <li>b. Cam damaged or out of adjustment.</li> <li>c. Recycle limit switch is wired incorrectly or is defective.</li> <li>d. Unit is wired incorrectly.</li> </ul>	<ul style="list-style-type: none"> <li>a. Verify that power has not been disconnected.</li> <li>b. See ARTD adjustment procedure on page 12.</li> <li>c. Confirm wiring and continuity of limit switch.</li> <li>d. Check wire connections and verify wiring.</li> </ul>
10. Platform will not rise high enough to allow the lip to store into the lip supports.	<ul style="list-style-type: none"> <li>a. ARTD cam is out of adjustment or damaged.</li> </ul>	<ul style="list-style-type: none"> <li>a. See ARTD adjustment procedure on page 12.</li> </ul>
11. Motor starter overload relay is tripping.	<ul style="list-style-type: none"> <li>a. Short circuit in wiring.</li> <li>b. Running too small gage of wire and/or too long a distance (primarily on single phase.)</li> <li>c. Defective power unit.</li> </ul>	<ul style="list-style-type: none"> <li>a. Check wire connections and verify wiring.</li> <li>b. Verify wire gage and running voltage.</li> <li>c. Repair or replace as required.</li> </ul>
12. Lip stops falling. Dock leveler is resting in full below dock position, lip does not fall all the way to make limit switch contact.	<ul style="list-style-type: none"> <li>a. Check for debris in lip hinge.</li> <li>b. Excessive back pressure on Lip Check Valve</li> </ul>	<ul style="list-style-type: none"> <li>a. Clean lip hinge.</li> <li>b. Decrease back pressure. See adjustment procedure on Page 12</li> </ul>
13. Lip droop. After lip is fully extended, it drops too rapidly after releasing the RAISE or LIP EXTEND button.	<ul style="list-style-type: none"> <li>a. Insufficient back pressure on Lip Check Valve.</li> </ul>	<ul style="list-style-type: none"> <li>a. Increase back pressure. See adjustment procedure on Page 13.</li> </ul>
14. Unit will not power down while pressing POWER DOWN ASSIST button.	<ul style="list-style-type: none"> <li>a. The POWER DOWN ASSIST button is not working properly.</li> <li>b. Velocity fuse is locked up due to air trapped in the system.</li> <li>c. Velocity fuse locks up due to shuttle valve out of adjustment.</li> <li>d. The POWER DOWN ASSIST solenoid is not working properly.</li> </ul>	<ul style="list-style-type: none"> <li>a. Make sure that the button contact block and wire are functioning properly.</li> <li>b. Cycle unit (5 to 10 times) until velocity fuse no longer locks up.</li> <li>c. See shuttle valve adjustment procedures on page 13.</li> <li>d. Verify solenoid is receiving power and is clear of debris. Clean or replace defective solenoid cartridge.</li> </ul>

# NOTES

## ELECTRICAL WIRING CHARTS

Full Motor Load (Amps)	
Voltage / Phase / Hertz	1HP Motor
208 - 240 / 3 / 60	4.4 - 3.8
380 - 415 / 3 / 50/60	2.4
440 - 480 / 3 / 60	2.2
575 - 600 / 3 / 60	1.7

Minimum Wire Size Chart for Various Line Lengths and Line Loads									
		Line Length ( In Feet )							
		0-50	51-100	101-150	151-200	201-250	251-300	301-350	351-400
208-240/3	1HP	14	14	12	12	10	10	10	8
380-415/3	1HP	14	14	14	14	14	14	14	14
440-480/3	1HP	14	14	14	14	14	14	14	14
575-600/3	1HP	14	14	14	14	14	14	14	14

# ELECTRICAL SCHEMATIC

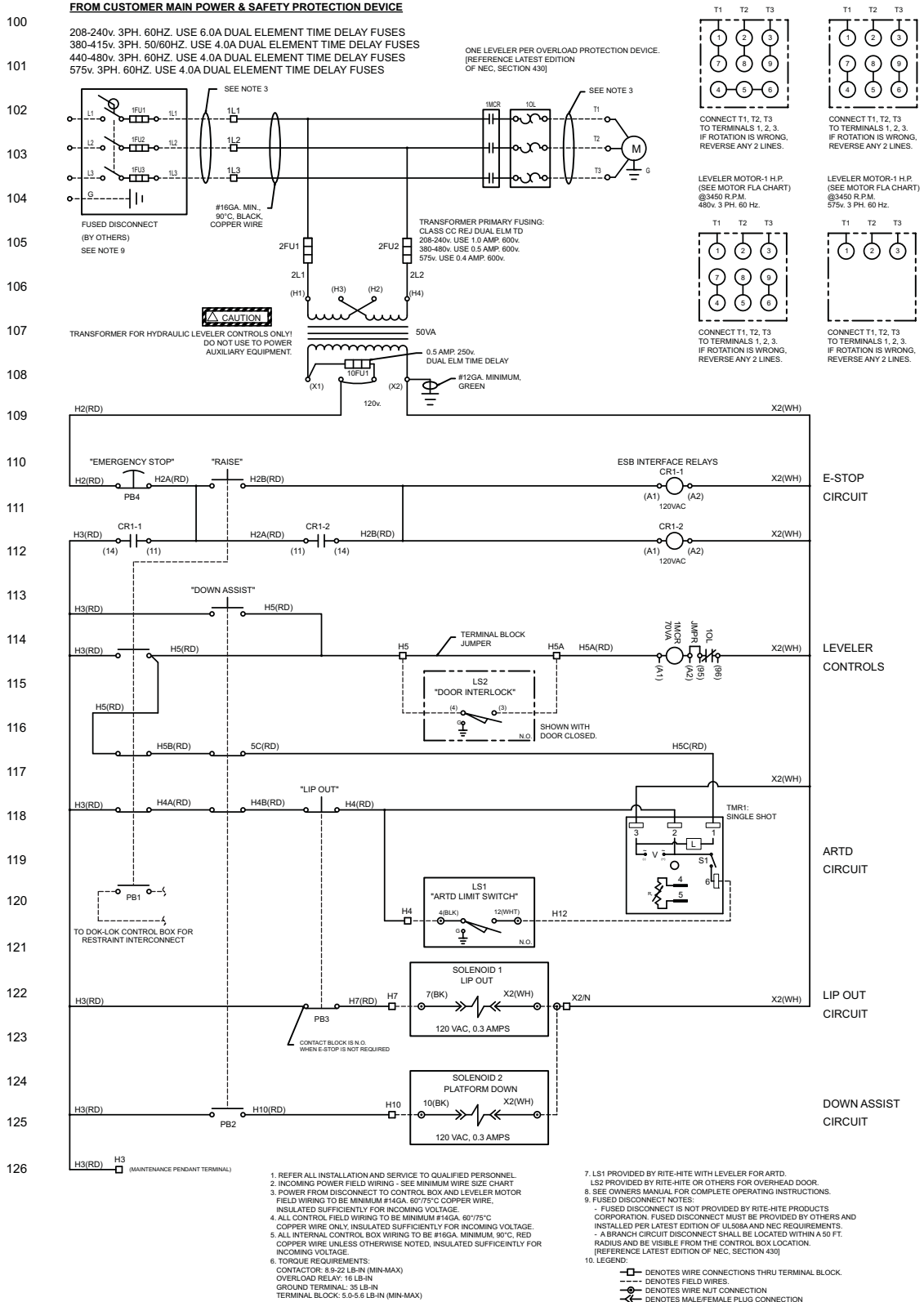


FIGURE 19 - ELECTRICAL SCHEMATIC - 3 PHASE (SEE VOLTAGES ABOVE)

# CONTROL BOX REPLACEMENT PARTS

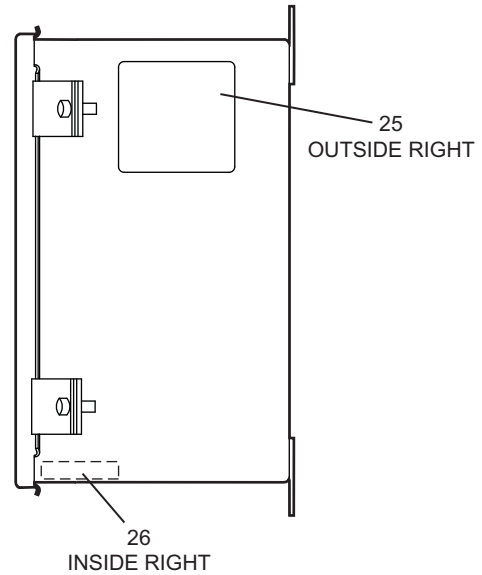
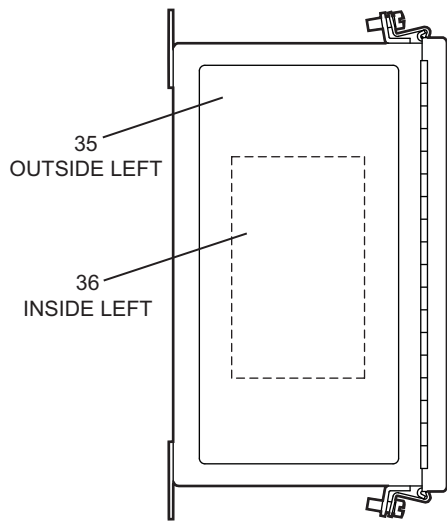
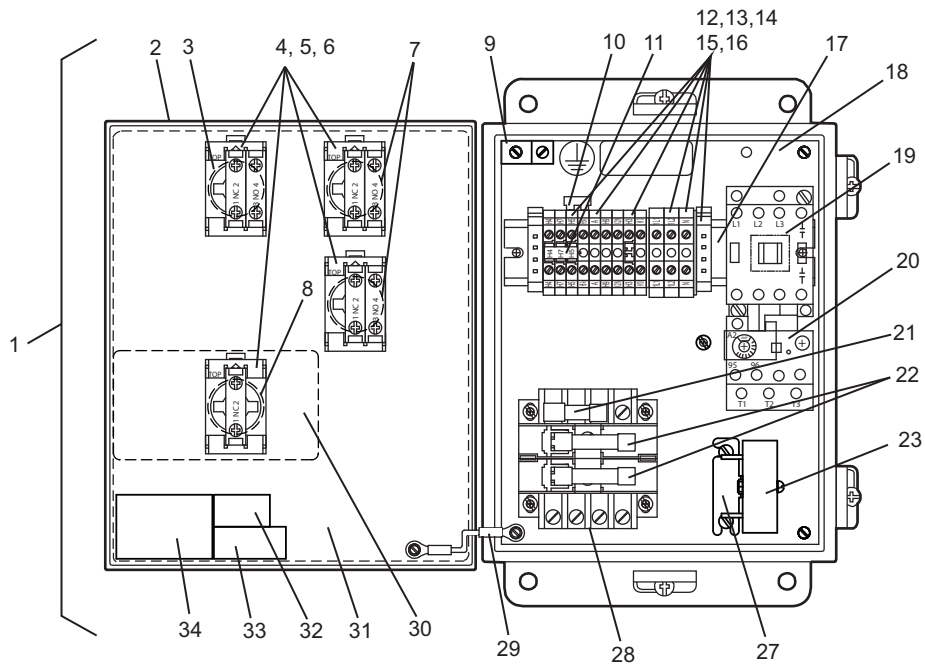


FIGURE 20 - CONTROL BOX

## CONTROL BOX REPLACEMENT PARTS LIST

Item	Qty.	Description	Part Number
1	1	CONTROL BOX COMPLETE	178.XXX
2	1	CONTROL BOX ENCLOSURE	187.XXX
3	1	PUSH BUTTON OPERATOR (22.5MM) RED N12/N4	124901
	1	PUSH BUTTON OPERATOR (22.5MM) RED N4X	124902
4	4	CONTACT BLOCK MOUNTING LATCH	124889
5	4	CONTACT BLOCK BLACK NO	124885
6	5	CONTACT BLOCK BLACK NC	124881
7	2	PUSH BUTTON OPERATOR (22.5MM) BLACK N12/N4	124898
	2	PUSH BUTTON OPERATOR (22.5MM) BLACK N4X	124899
8	1	EMERGENCY STOP OPERATOR (22.5MM) N12/N4	124905
	1	EMERGENCY STOP OPERATOR (22.5MM) N4X	124908
9	1	GROUND LUG	55902
10	1	TERMINAL JUMPER	65769
11	1	DISCONNECT PLUG ASSEMBLY	100277
12	4	TERMINAL BLOCK - CONTROL CIRCUIT	65606
13	3	TERMINAL BLOCK WITH PLUG - INCOMING POWER	66054
14	1	TERMINAL BLOCK - INCOMING POWER	65610
15	1	WHITE TERMINAL BLOCK - CONTROL CIRCUIT	66051
16	2	END ANCHOR TERMINAL BLOCK	66067
17	1	MOUNTING DIN RAIL	109341
18	1	BACK PANEL DRILLED 10 X 8	114363
19	1	LEVELER MOTOR CONTACTOR 3PH 9A 120VAC COIL	65911
20	1	LEVELER OVERLOAD RELAY 3PH	125694
21	1	LEVELER CONTROL FUSE 0.5A 250V DUAL ELEMENT	57024
22	2	TRANSFORMER PRIMARY FUSE 1A CC REJ. DUAL ELEMENT. 208-240V	66003
	2	TRANSFORMER PRIMARY FUSE 0.5A CC REJ. DUAL ELEMENT. 380-480V	66005
	2	TRANSFORMER PRIMARY FUSE 0.4A CC REJ. DUAL ELEMENT. 575V	66006
23	1	SINGLE SHOT TIME ARTD	117752
24	1	E-STOP RELAY	119176
25	1	DECAL LOCKOUT/TAGOUT	114331
26	1	CORROSION PAD	55561
27	1	TIMER MOUNTING BRACKET	115270
28	1	TRANSFORMER 50VA 240/480V	18736
	1	TRANSFORMER 50VA 380V	18737
	1	TRANSFORMER 50VA 575V	18738
29	1	GROUND HARNESS	114338
30	1	DECAL E-STOP OVERLAY	103352
31	1	DECAL CONTROL BOX	104266
32	1	DECAL FUSE REPLACEMENT	128261
34	1	DECAL UL/ULC - CONSULT RITE-HITE	-
34	1	DECAL VOLTAGE/PHASE/FLA	188.XXX
35	1	DECAL OPERATION	104248
36	1	DECAL ELECTRICAL SCHEMATIC	184.XXX

# NOTES



# HYDRAULIC SCHEMATIC

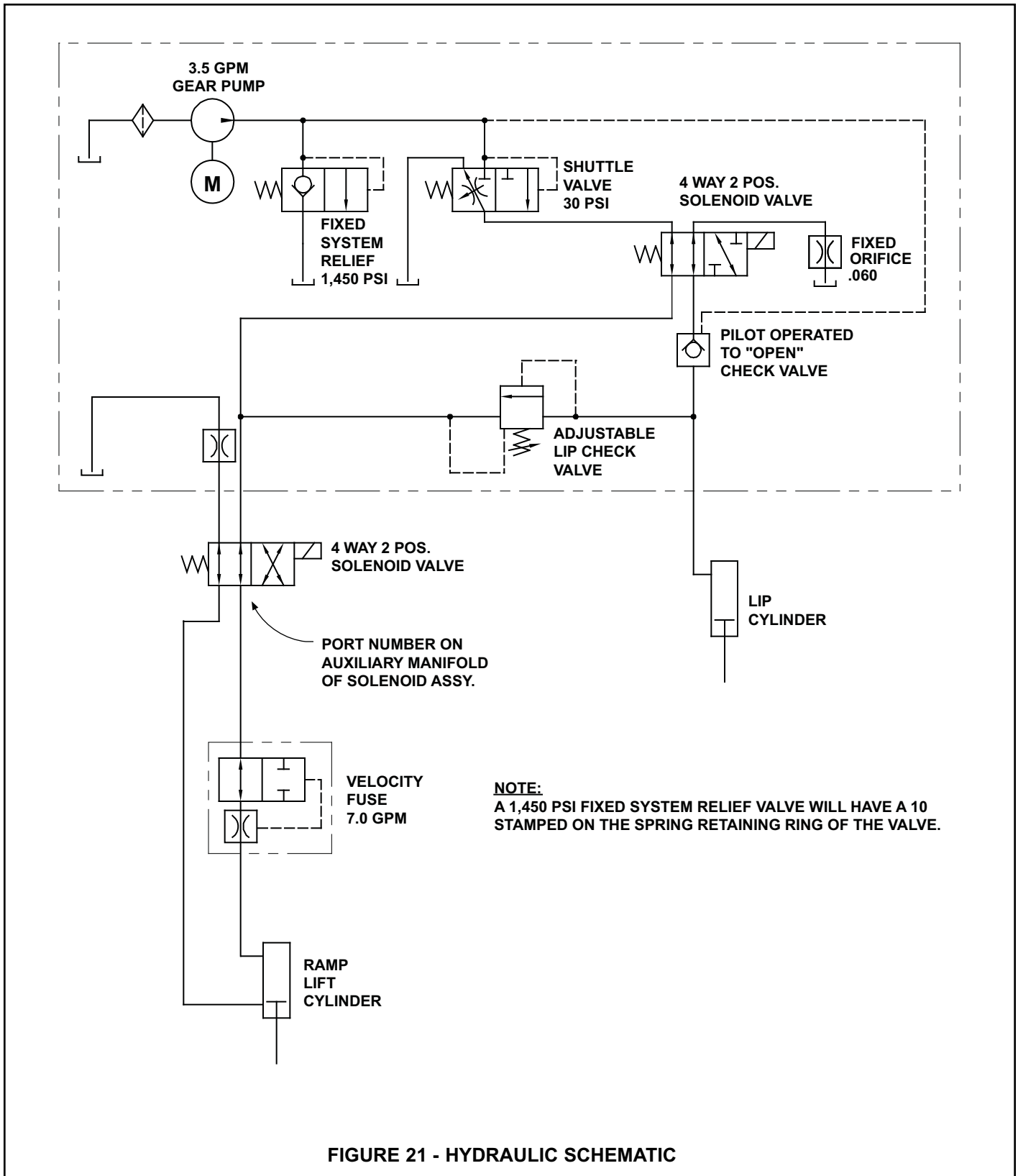


FIGURE 21 - HYDRAULIC SCHEMATIC

# REPLACEMENT PARTS - HYDRAULICS

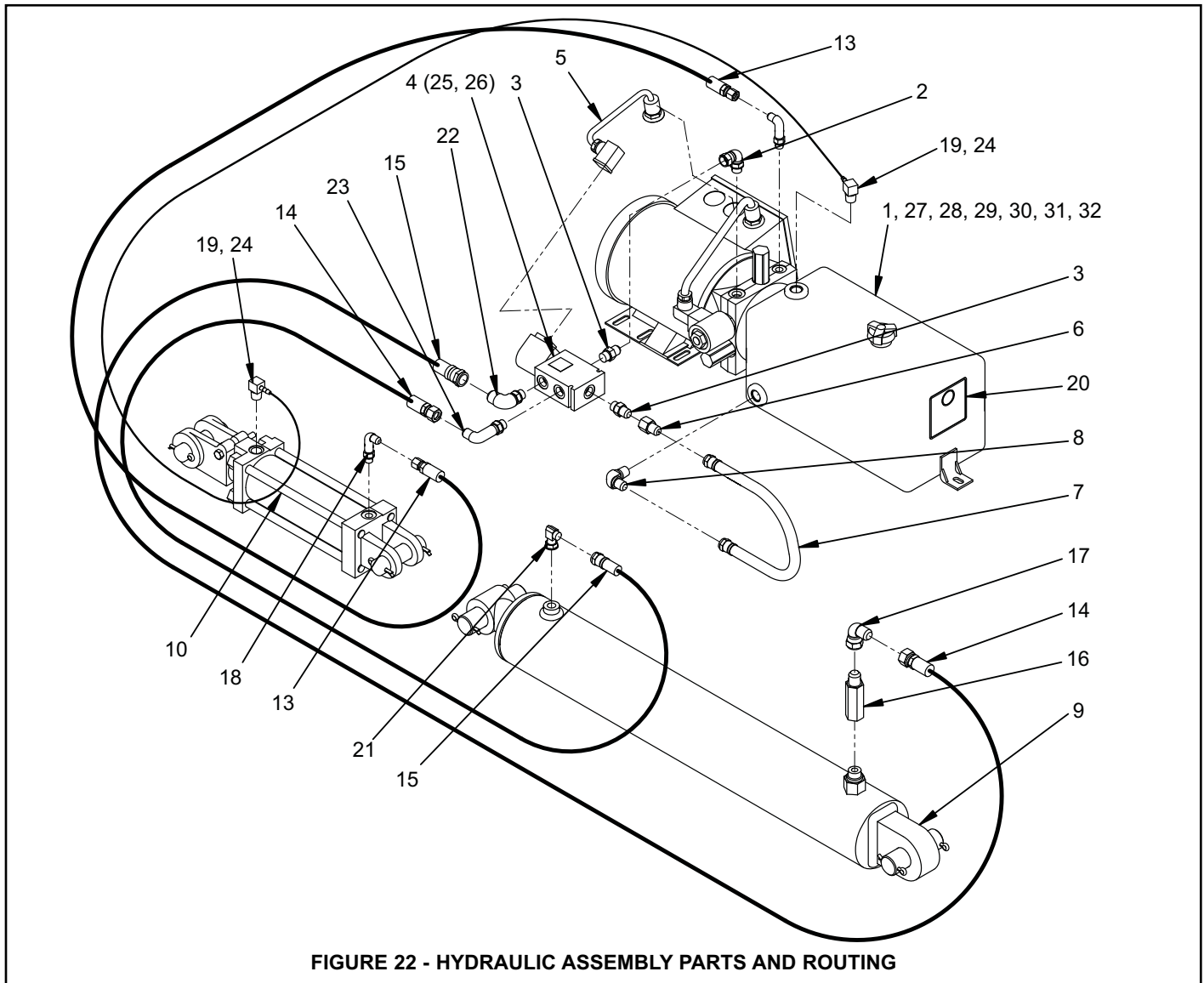


FIGURE 22 - HYDRAULIC ASSEMBLY PARTS AND ROUTING

**NOTE:** 4 Lb-ft max torque on solenoid valve steam nut (ref. items #26 & 33), over tightening may cause valve/coil failure!

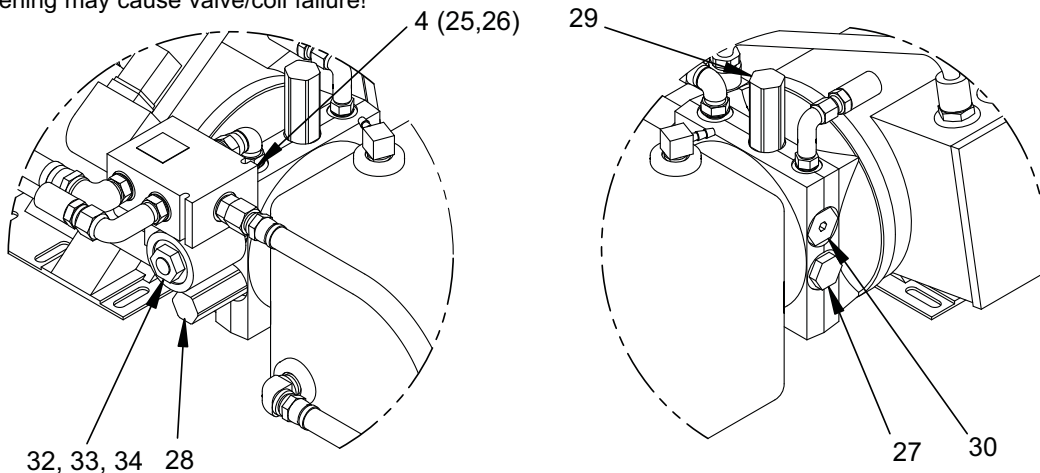


FIGURE 23 - POWERUNIT AND IFC PARTS

## HYDRAULICS REPLACEMENT PARTS LIST

Item	Qty.	Description	Part Number
1	1	POWERUNIT 240/380 - 415/480 3PH 1HP RLF(1200PSI)	104487
		POWERUNIT 575 3PH 1HP RLF(1200PSI)	104491
2	1	ELBOW 90 #6 MAORB #6 FJS	104779
3	2	FTG #6 MORB #6 MJ	55386
4	1	VALVE ASSY. HJ	103535
5	1	PLUG HIRSCHMANN 9L	105276
6	1	ORIFICE .094 #6 MJ #6 FJ	104834
7	1	HOSE ASSY. #6 FJS 16L	127408
8	1	FTG ELB 90 .38NPT 6MJ ZP	104787
9	1	CYL. HYD. 4 X 23 2PORT	128916
10	1	CYL. HYD. 2.5 BR X 6 STR 2PORT	119291
11	2	PIN CLEVIS 1.000 X 3.625 ZP	52630
12	4	PIN COTTER .188 DIA. X 1.50L ZP	51907
13	1	HOSE ASSY .25ID 93L 4FJS	120372
14	1	HOSE ASSY .38ID 71L 8FJS 6FJS	120373
15	1	HOSE ASSY .38ID 85L 8FJS 6FJS	129015
16	1	FUSE VELOCITY 7 GPM #8 FORB #8 MJ	124767
17	1	ELBOW 90 #8 MJ #8 FJS	16921
18	2	ELBOW 90 L #4 MAORB #4 MJ	16918
19	2	ELBOW 90 .375 MP .25 HB	17806
20	1	DECAL OIL HYD. BIO FL(85+%)	119530
21	1	FTG ELB 90 #6 SAE(M) #6 JIC(M)	55267
22	1	ELBOW 90 #6 MAORB #8 MJ	104928
23	1	ELBOW 90 L #6 MAORB #6 MJ	16917
24	2	HOSE .25ID (BULK)	55372
25	1	SOLENOID VALVE - PLATFORM DOWN ASSIST	105396
26	1	SOLENOID COIL	17273
27	1	SYSTEM RELIEF VALVE	103536
28	1	SHUTTLE VALVE	19092
29	1	LIP CHECK VALVE ASSEMBLY	17286
30	1	PILOT OPERATED CHECK VALVE	144335
31	1	OIL TANK WITH SEAL (O-RING)	105272
32	1	VALVE SPL DACT 2W 2P NO SAE8 (IFC OPTION ONLY)	17272
33	1	SOLENOID COIL 115/1(IFC OPTION ONLY)	17273
34	1	HIRSCHMANN CONNECTOR ASSEMBLY (IFC OPTION ONLY)	19091
35	-	STD - RH BIODEGRADABLE FLUID (QUART/LIGHT BLUE IN COLOR)	119181
	-	OPT - MIL 5606 FLUID (QUART/RED IN COLOR)	108303

# REPLACEMENT PARTS - LEVELER ASSEMBLY

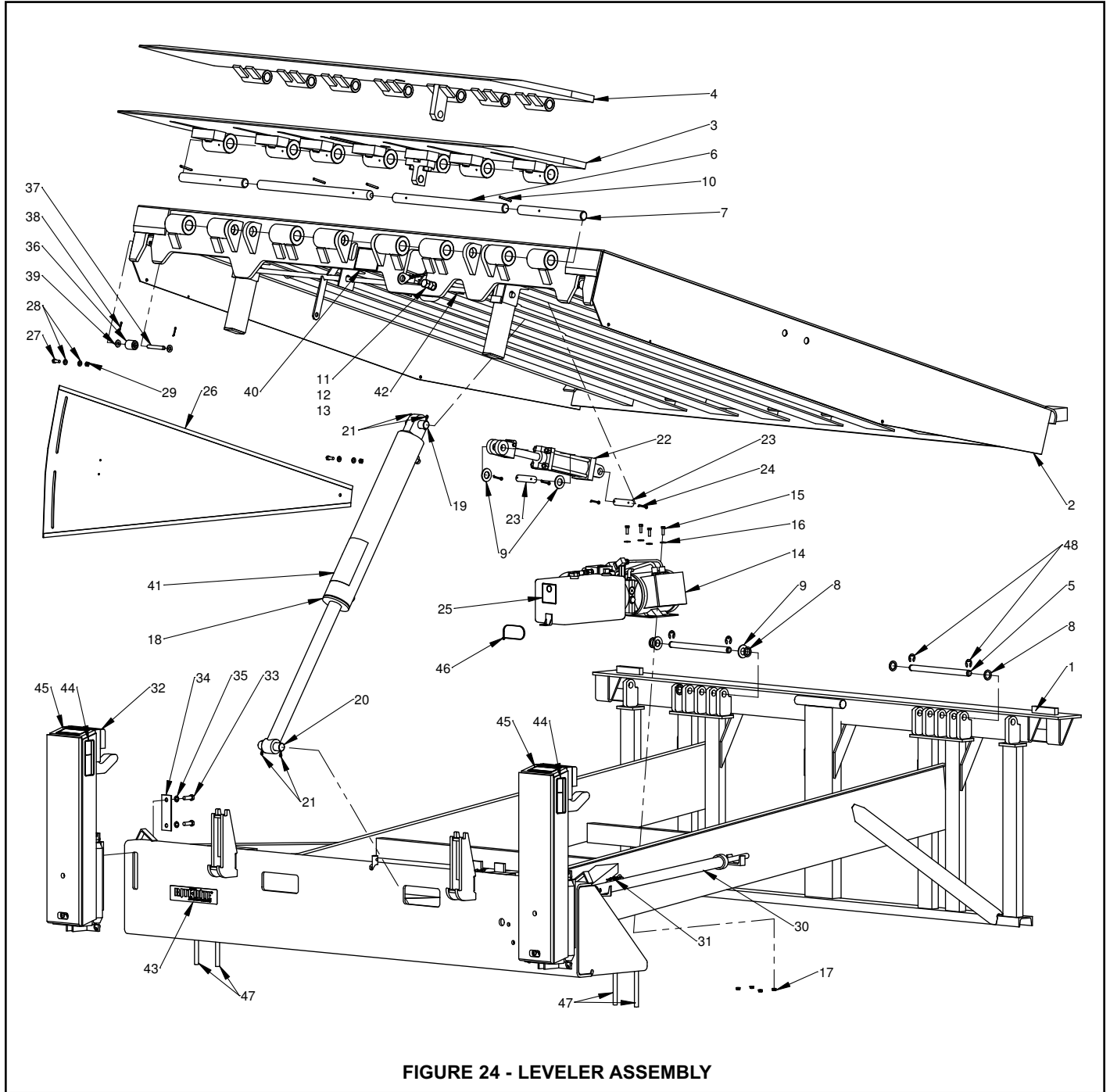
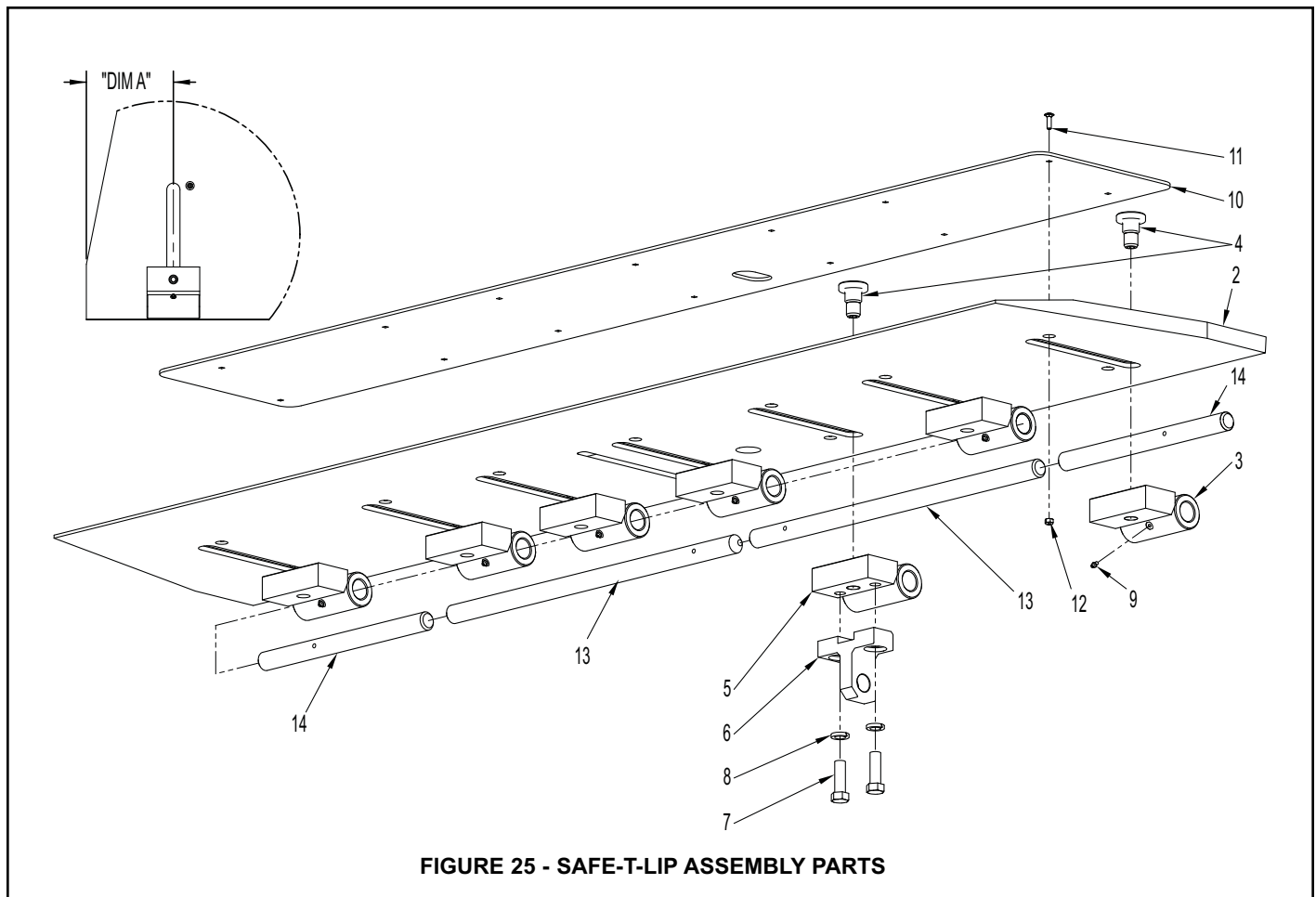


FIGURE 24 - LEVELER ASSEMBLY

## LEVELER ASSEMBLY REPLACEMENT PARTS LIST

Item	Qty.	Description	Capacity		
			F / G	J	L / M
1	1	FRAME WELDMENT	CONSULT FACTORY		
2	1	PLATFORM WELDMENT	CONSULT FACTORY		
3	1	SAFE-T-LIP ASSEMBLY	SEE SHEET 30-31		
4	1	LIP WELDMENT	CONSULT FACTORY		
5	2	PIN CLEVIS .875 X 13L 2GRV	139829	139829	139829
	2	PIN CLEVIS .875 X 13L 2GRV (STAINLESS STEEL)	139854	139854	139854
6	2	PIN LIP HINGE (INNER) 1.125 X 24.50L	SEE PAGE 30-31		
7	2	PIN LIP HINGE (OUTER) 1.125 X _L	SEE PAGE 30-31		
8	4	BUSHING 1.50OD 1.06ID .13THK ZP	51730	51730	51730
9	4	WASHER FLAT 1" SAE ZP	51721	51721	51721
10	2	PIN TENSION .25 DIA. ZP	123960	123960	52814
11	1	BOLT HEX .75-10 UNC ZP	51186	51186	128925
12	2	NUT .75-10 HEX GR5 ZP	51517	51517	51517
13	2	WASHER SPLIT LOCK .75 DIA HEAVY ZP	51814	51814	51814
14	1	POWER UNIT	SEE PAGE 26-27		
15	4	SCREW .312-18 X 1L HEX GR5 ZP	51627	51627	51627
16	4	WASHER .31 FLAT ZP	51728	51728	51728
17	4	NUT .31-18 NYLK FLG ZP	131171	131171	131171
18	1	HYDRAULIC CYLINDER - RAMP 4" BORE SA 2PORT	SEE PAGE 26-27		
19	1	PIN CLEVIS 1.25 X 4L 2HOLE ZP	52643	52643	52643
20	1	PIN CLEVIS 1.25 X 4.625L 2HOLE ZP	112467	112467	112467
21	4	PIN COTTER .188 DIA. X 1.75L ZP	51908	51908	51908
22	1	HYDRAULIC CYLINDER - LIP 2.5" BORE X 6 STROKE 2PORT	119291	119291	119291
23	2	PIN CLEVIS 1 X 3.625L ZP	52630	52630	52630
24	4	PIN COTTER .188 DIA. X 1.5L ZP	51907	51907	51907
25	1	DECAL OIL HYD BIO FL(85+%)	119530	119530	119530
26	2	TOEGUARD PLATE 8' AND 10' LONG LEVELERS	128920	128920	128920
	2	TOEGUARD PLATE 12' LONG LEVELERS	128921	128921	128921
27	4	BOLT .375-16 X 1L HEX G5 ZP	51600	51600	51600
28	8	WASHER FLAT .38 ZP	51700	51700	51700
29	4	NUT NYLOCK .38-16 UNC ZP	51501	51501	51501
30	1	SAFE-T-STRUT	128999	128999	128999
31	1	CHAIN ASSY - SAFE-T-STRUT	117678	117678	117678
32	2	BUMPER ASSY - VERTICAL BUMPER 7" PROJECTION	120474	120474	120474
33	4	BOLT .500-13X1.500 CAP HEX GR8	51608	51608	51608
34	2	WASHER PLATE - 2 X 5.5	129014	129014	129014
35	4	WASHER SPLIT LOCK .50 DIA	51831	51831	51831
36	2	ROLLER 1.375OD .5ID 1.563L BUSHING(FLANGED-STEEL)	111840	111840	111840
37	2	PIN CLEVIS .5 X 3.5L 2HOLE(.19DIA) 303SSST	111847	111847	111847
38	4	PIN COTTER .125DIA X 1L ZP	51901	51901	51901
39	4	WASHER .50 FLAT SAE ZP	51706	51706	51706
40	1	DECAL WARNING - TRAINED PERSONNEL	107953	107953	107953
41	1	DECAL DANGER - SAFE-T-STRUT	18901	18901	18901
42	1	DECAL WARNING - ROLLER PLUNGER - DISCONNECT POWER	64287	64287	64287
43	1	DECAL RITE-HITE	54100	54100	54100
44	4	DECAL WARNING - PINCH POINT	111826	111826	111826
45	2	DECAL WARNING - NO STEP	111900	111900	111900
46	-	TIES WIRE NYLON BLK 13.50L	55892	55892	55892
47	4	ANCHOR BOLT CONCRETE .625 X 6L	123991	123991	123991
48	4	RING RETAINING EXTERNAL (E) .875OD	129308	129308	129308

## REPLACEMENT PARTS - SAFE-T-LIP ASSEMBLY



SAFE-T-LIP ASSEMBLY REPLACEMENT PARTS LIST

Item	Qty.	Description	Capacity					
			F / G		J		L / M	
			A ~ 12"	A ~ 8"	A ~ 12"	A ~ 8"	A ~ 12"	A ~ 8"
1	1	SAFE-T-LIP ASSEMBLY (COMPLETE)	CONSULT FACTORY					
2	1	SAFE-T-LIP PLATE	CONSULT FACTORY					
3	6	SPOOL MODULE - 2.125 OD	131475	140211	131455	131455	2538	2538
4	7	SPOOL MODULE - 3.00 OD	58085					
		SHOULDER BOLT 1.00 DIA						
		SHOULDER BOLT 1.125 DIA		129099				
		SHOULDER BOLT 1.25 DIA			52746	52746	52746	52746
5	1	SPOOL MODULE - 2.125 OD LIP LUG MOUNT	131476	140212	131456	131456	125971	125971
6	1	SPOOL MODULE - 3.00 OD LIP LUG MOUNT	131452	131452	131452	131452	131452	131452
7	2	LIP LUG (SAFE-T-LIP)						
8	2	BOLT .75-10 X 2L HEX ZP	126025	126025	126025	126025	126025	126025
9	6	WASHER SPLIT LK .75 DIA HEAVY ZP	51814	51814	51814	51814	51814	51814
10	6	GREASE FITTING	51169	51169	51169	51169	51169	51169
11	1	PLATE SLOT COVER (SLOT COVER OPTION ONLY)	131457	140209	131457	140209	131457	140209
12	14	SCREW .25-20 X 1 SQ. NECK GRADE5 ZP (SLOT COVER OPTION ONLY)	116490	116490	116490	116490	116490	116490
13	2	NUT .25-20 NYLOCK MACHINE ZP (SLOT COVER OPTION ONLY)	51595	51595	51595	51595	51595	51595
		PIN LIP HINGE (INNER) 1.125 X 24.50L	774.100	774.100	774.100	774.100	774.100	774.100
		PIN LIP HINGE (INNER) 1.125 X 24.50L (STAINLESS STEEL)	776.100	776.100	776.100	776.100	776.100	776.100
		PIN LIP HINGE (INNER) 1.417 X 24.50L						
		PIN LIP HINGE (INNER) 1.417 X 24.50L (STAINLESS STEEL)						
14	2	PIN LIP HINGE (OUTER) 1.125 X 11.75L	131473		131473			
		PIN LIP HINGE (OUTER) 1.125 X 11.75L (STAINLESS STEEL)	128923		128923			
		PIN LIP HINGE (OUTER) 1.125 X 14L		140217		140217		
		PIN LIP HINGE (OUTER) 1.125 X 14L (STAINLESS STEEL)		140219		140219		
		PIN LIP HINGE (OUTER) 1.417 X 11.75L					131474	
		PIN LIP HINGE (OUTER) 1.417 X 11.75L (STAINLESS STEEL)					128924	
		PIN LIP HINGE (OUTER) 1.417 X 14L						140216
		PIN LIP HINGE (OUTER) 1.417 X 14L (STAINLESS STEEL)						140218

## REPLACEMENT PARTS - AUTOMATIC RETURN TO DOCK

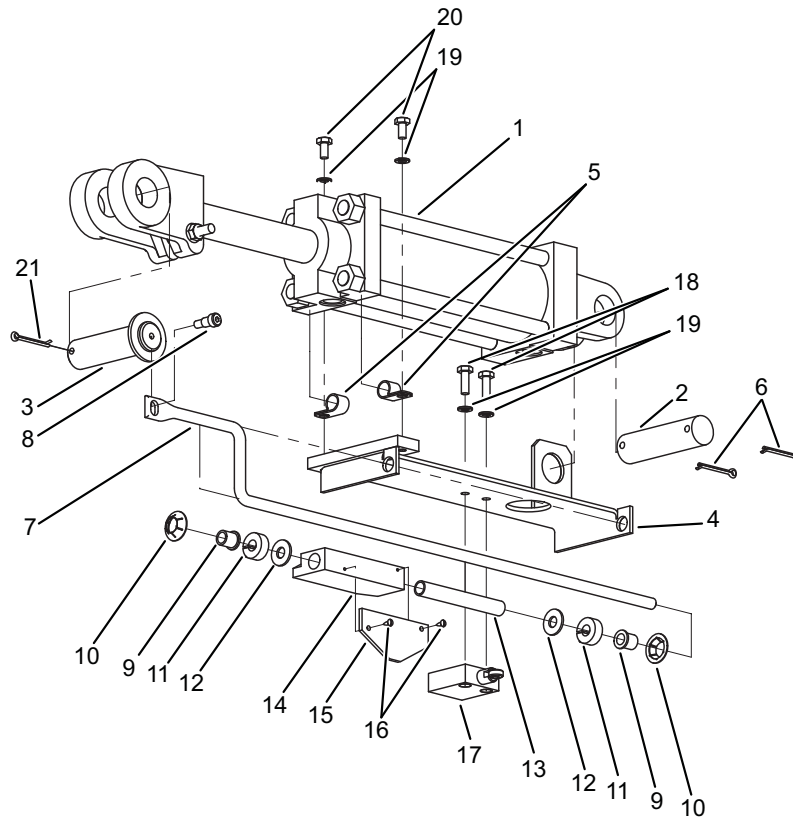


FIGURE 26 - AUTOMATIC RETURN TO DOCK (ARTD) PARTS

Item	Qty.	Description	Part No.
1	1	LIP CYLINDER, SINGLE ACTING	119291
2	1	CLEVIS PIN, 1.00DIA. X 3.625L ZP	52630
3	1	HD. CLEVIS PIN, 1 X 3.531L ZP	122186
4	1	MTG. BRACKET HD17/HL9	122183
5	2	STARP LOOP .05THK .5ID	110145
6	3	COTTER PIN .12DIA X 1.5L	51903
7	1	GUIDE ROD	122290
8	1	SHOULDER BOLT W/PEL .313 X .38 X .25-20 ZP	104394
9	2	FLANGE BUSHING .375 X .50 X .50L	68162
10	2	RETAINER CLIP .50 DIA.	19650
11	2	COLLAR SHAFT 3/8ID X 7/8OD BLK	68163
12	2	FLAT WASHER 3/8ID X 7/8OD 18-8 SS	18261
13	1	CAM PIVOT TUBE 3.156L	125410
14	1	ROTORY CAM 3.125L	125408
15	1	COUNTER WEIGHT PLATE 3.125L	68167
16	2	SHT. METAL SCREWS #4 X .375L	68161
17	1	LIMIT SWITCH ASSEMBLY	119557
18	2	BOLT HEX .25-20 UNC X .75 GR5 ZP	51648
19	4	WASHER .25 LK MED ZP	51800
20	2	BOLT .25-20UNC .5L HHCS ZP	122281
21	1	COTTER PIN .19 X 1.5 ZP	51907



## REPLACEMENT PARTS - ENDLOAD LEGS

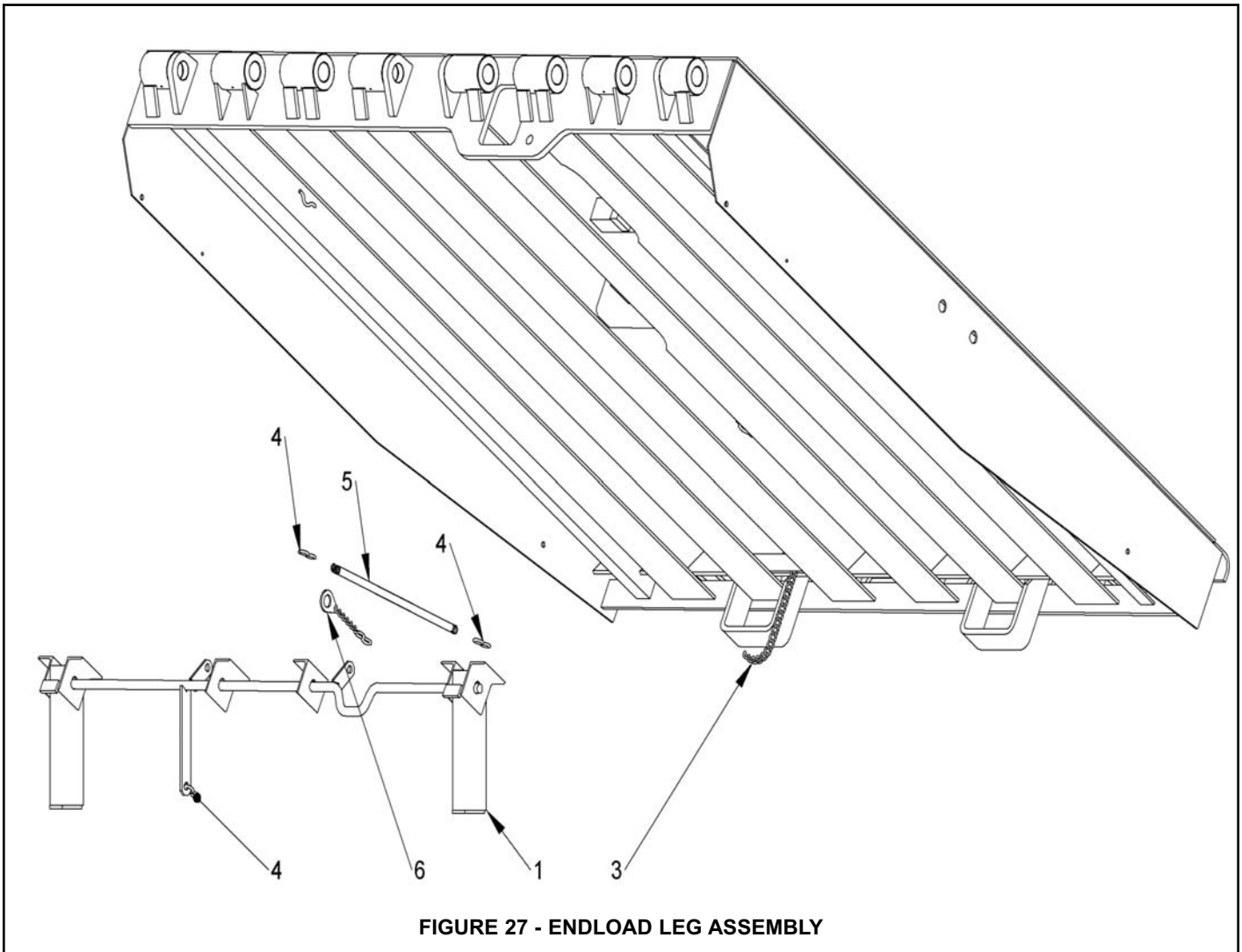


FIGURE 27 - ENDLOAD LEG ASSEMBLY

Item	Qty.	Description	Part Number
1	1	LINKAGE ENDLOAD LEG 11.469HGT	131490
2	2	LOOP ANCHOR 3L (NOT SHOWN)	51100
3	1	CHAIN ASSEMBLY LANYARD TWIST #1/0 ZP	510.XXX
4	3	S-HOOK .219 WIRE	51102
5	1	EXTENSION SPRING .654 OD WIRE (.0915DIA.)	52106
6	1	CHAIN ASSEMBLY ELL TO LIP LUG 7.25L	131495

## REPLACEMENT PARTS - VERTICAL BUMPER

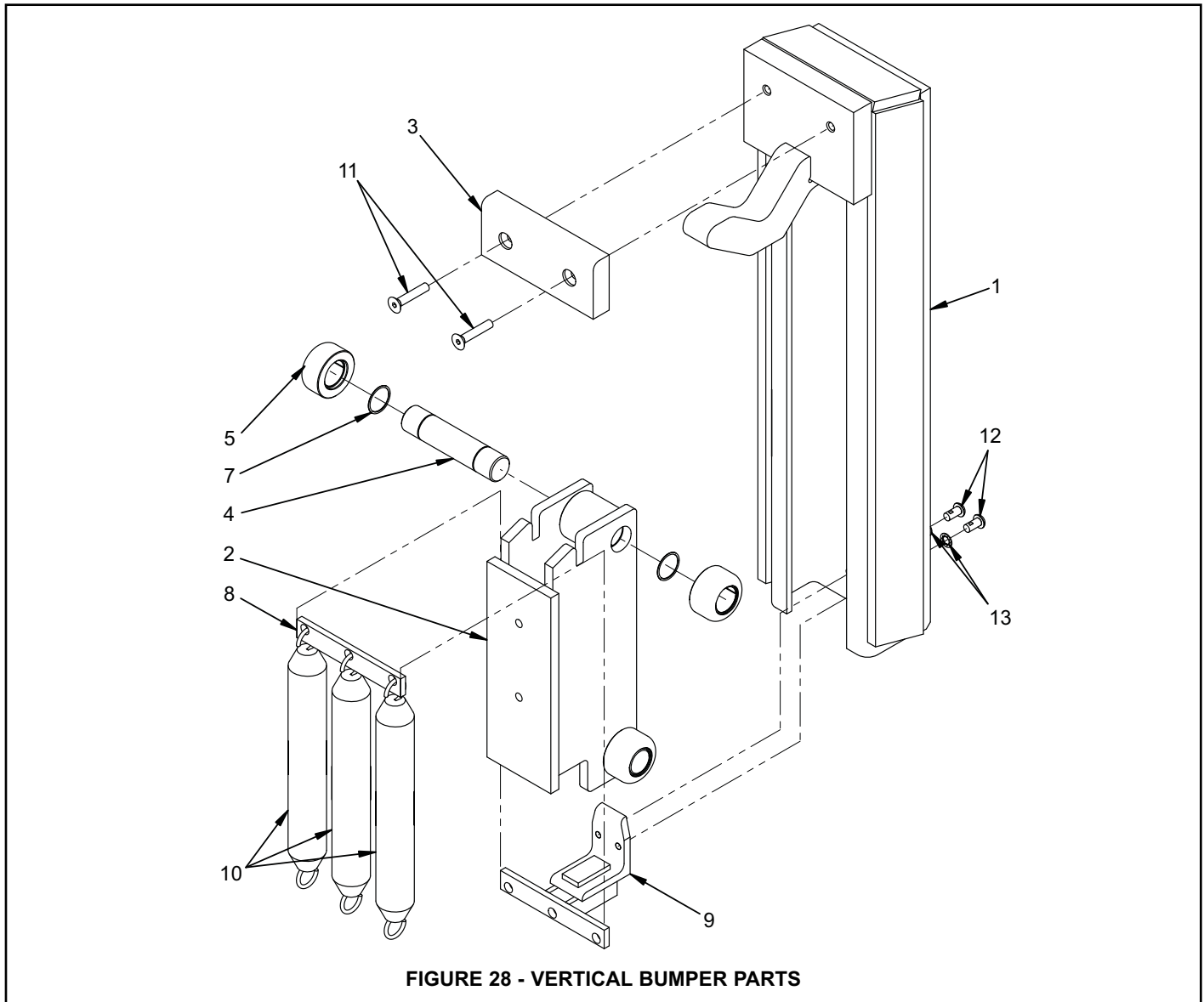


FIGURE 28 - VERTICAL BUMPER PARTS

Item	Qty.	Description	Part No.
1	1	TRACK WELDMENT	120173
2	1	AXLE WELDMENT	117845
3	1	WEAR PAD, UHMW	111843
4	2	ROLLER AXLE 1.25 X 5.63L	111845
5	4	ROLLER ASSEMBLY	111834
6	1	INTERIOR ROLLER ASSEMBLY	111838
7	4	SPLIT RING	56526
8	1	SPRING MOUNTING BAR (3 HOLE)	117818
9	1	SPRING MOUNT (LOWER)	120519
10	3	EXTENSION SPRING 2.75OD	52129
11	2	SCREW .375-16X2.000 CAP FLAT CTSK HEX ZP	111811
12	2	SCREW .375-16X.750 CAP BTN HEX	117797
13	2	WASHER .375 LK INTL TOOTH B ZP	117796

# NOTES

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Rite-Hite warrants that its products will be free from defects in design, materials, and workmanship for a period of 365 days from the date of shipment. All claims for breach of this warranty must be made within 30 days after the defect is or can, with reasonable care, be detected and in no event no more than 30 days after the warranty has expired. In order to be entitled to the benefits of this warranty, the products must have been properly installed, maintained, and operated within their rated capacities and/or specified design parameters, and not otherwise abused. Periodic lubrication and adjustment is the sole responsibility of the owner. This warranty is Rite-Hite's exclusive warranty. RITE-HITE EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. Non-standard warranties, if any, must be specified by Rite-Hite in writing.

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