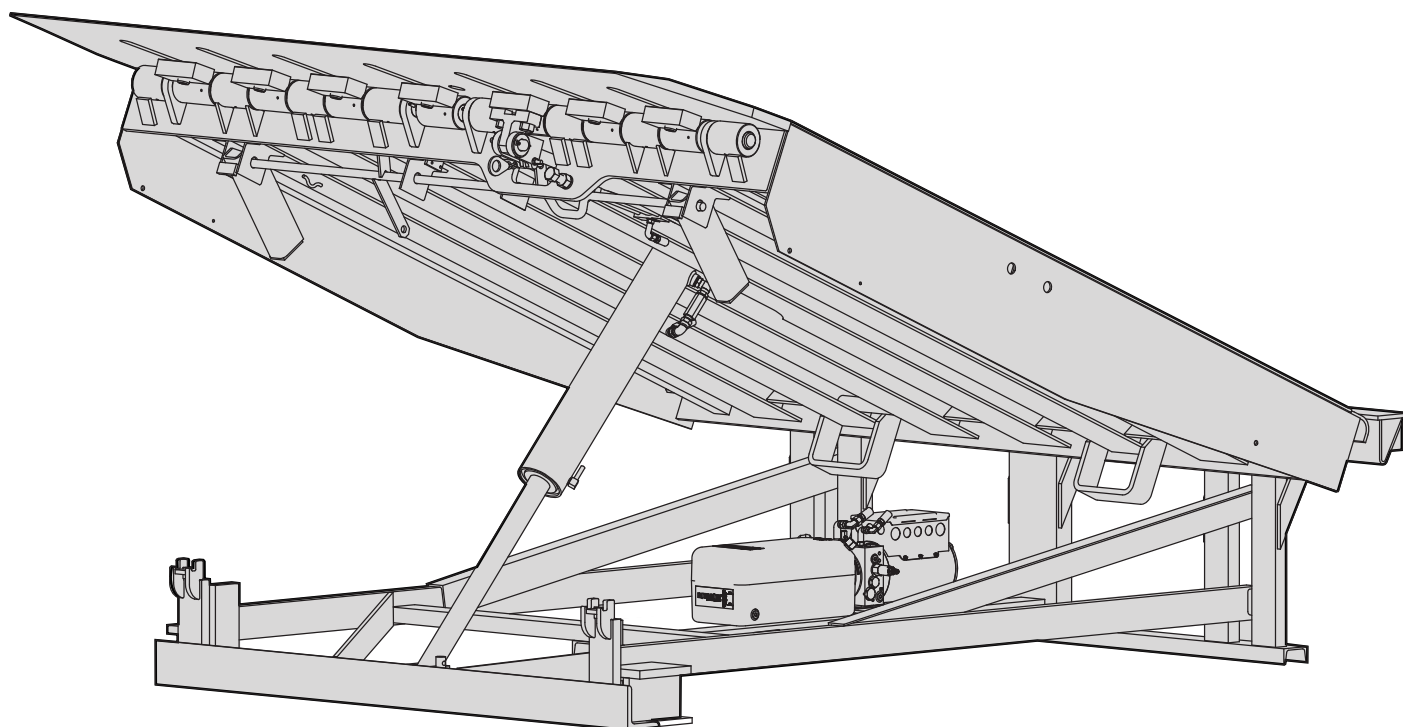


# RHH-5000 High Capacity Dock Leveler Owners Manual



*part of the SMOOTH TRANSITION DOK SYSTEM™*

**RITE-HITE**  
ALWAYS LOOKING AHEAD



MADE IN U.S.A.

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

## NOTES

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## PRODUCT SPECIFIC WARRANTY

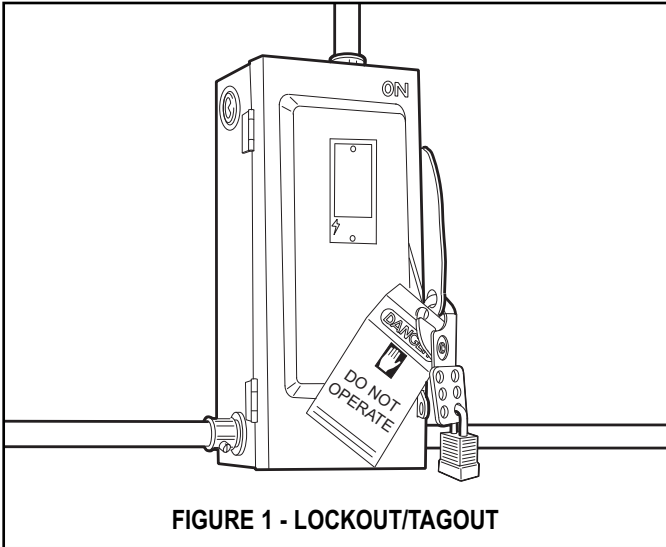
Rite-Hite warrants the RHH50 Dock Leveler for five-years parts and one-year labor from date of shipment in accordance with Rite-Hite's Standard Warranty Policy.

## 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: 5882167, 6065172, 6070283, 6085375, 6092970, 6106212, 6116839, 6190109, 6276016, 6311352, 6318947, 6322310, 6360394, 6368043, 6431819, 6488464, 6524053, 6726432, 6773221, 6832403, 6880301, 7032267, 7062814, 7213285, 7216391, 7363670, 7380305, 7503089, 7533431, 7546655, 7584517, 7681271, 7823239, 7841823, 7877831, 7914042, 8006811, 8065770, 8141189, 8191194, 8286757, 8287223, 8303235, 8307956, 8443474, 8464384, 8464846, 8465245, 8497761, 8499897, 8544130, 8547234, 8590087, 8590673, 8616826, 8657551, 8662535, 8678736, 8690087, 8905198, 9010501, 9096170, 9096397, 9126775, 9139384, 9145273, 9150367, 9174811, 9227799, 9230419 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



### 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.

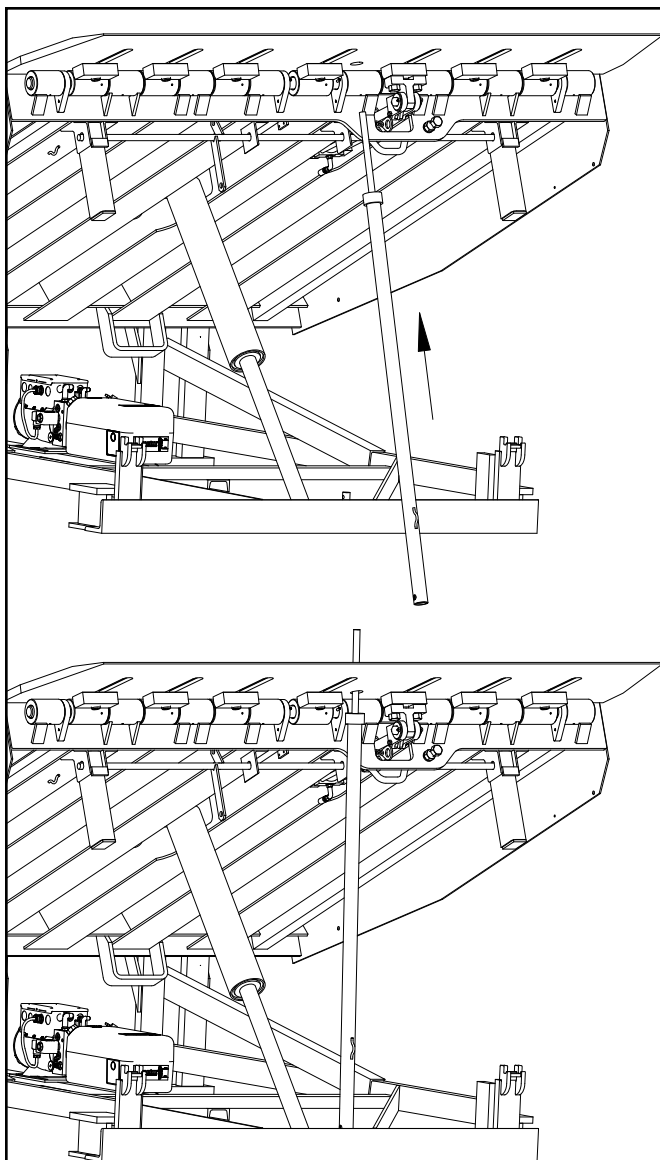


FIGURE 2 - INSTALL SAFE-T-STRUT™ SUPPORT

## OWNER RESPONSIBILITY

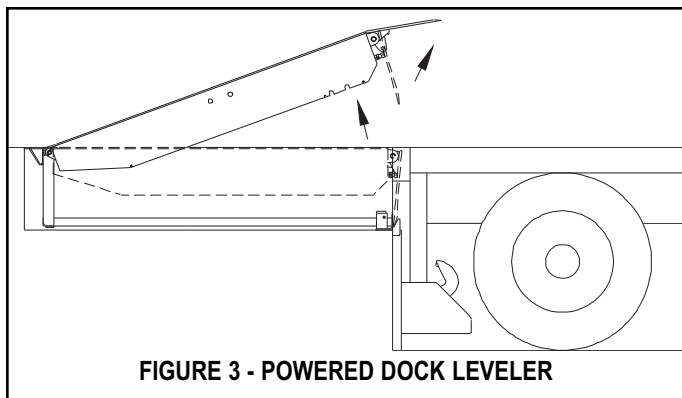
1. The owner should recognize the inherent danger of the interface between dock and transport vehicle. The owner should, therefore, train and instruct operators in the safe use of dock equipment in accordance with the information provided below. The manufacturer shall publish, provide to the initial 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

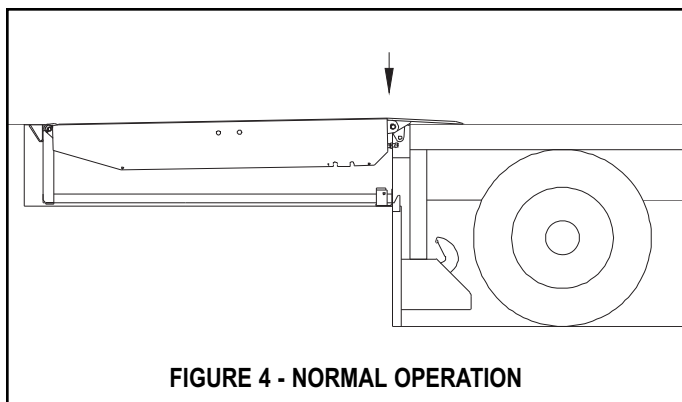
1. Activate the leveler by pushing and holding the RAISE button to raise the platform. While pressing the RAISE button, if equipped, push the LIP EXTEND button to fully extend the lip when the lip has cleared trailer bed. See figure 3.



2. When lip is fully extended, release RAISE and if equipped, LIP EXTEND buttons. The leveler will automatically lower onto the truck/trailer bed. See figure 4.

### NOTES:

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



3. 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*.

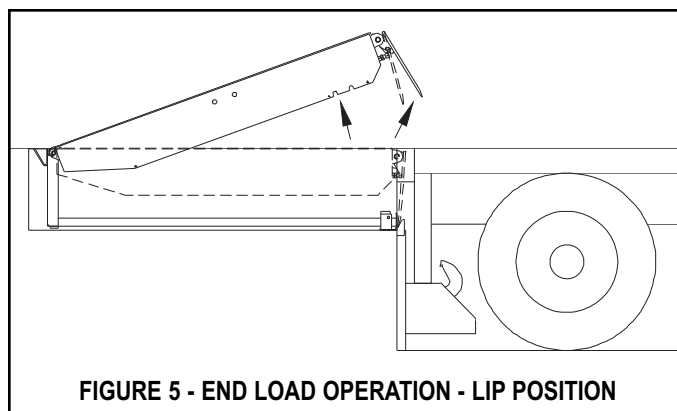
- b. **Levelers with Automatic Return to Dock (ARTD)** If the lip is on the truck/trailer and the truck departs, the leveler will move to its lowest position and the lip will begin to lower. As the lip drops toward the pendant position, the ARTD system automatically returns the leveler to the stored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

## END LOADING OPERATION

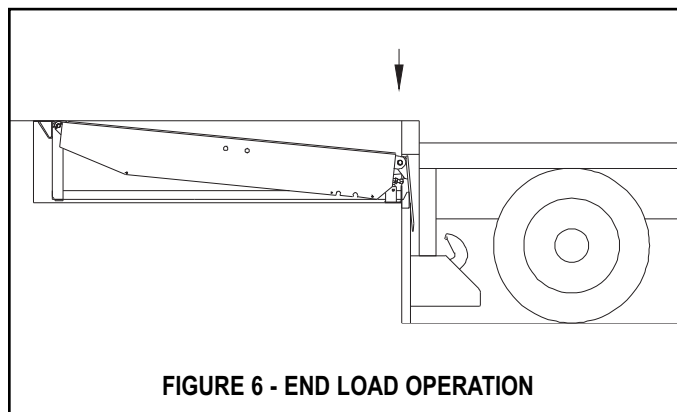
### NOTES:

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, if equipped, push the LIP EXTEND button briefly to extend the lip beyond the lip supports. See figure 5.



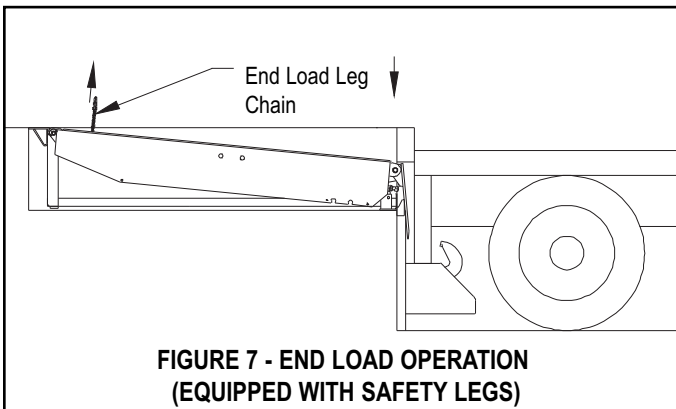
2. When lip extends about 2 inches, release RAISE and if equipped, LIP EXTEND buttons. The leveler will lower to the below dock position with the lip positioned between the face of the loading dock and the truck/trailer bed. See figure 6.



## OPERATION INSTRUCTIONS (Continued)

### NOTES:

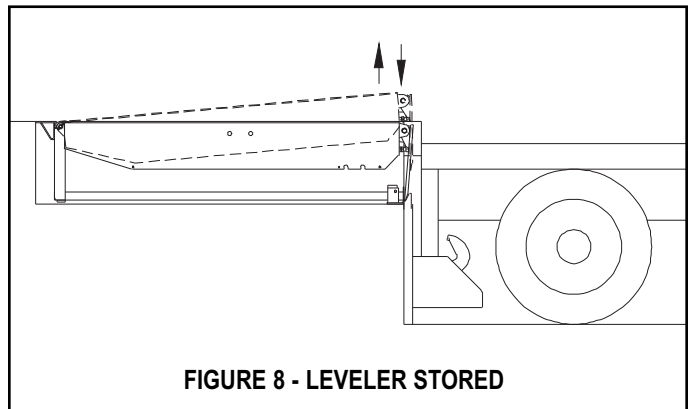
- a. If the lip extended too far, quickly push and release the RAISE button to slightly retract the lip.
- b. If the lip was not extended far enough and hits the lip supports, repeat this step allowing the lip to extend farther.
3. For units with Safe-T-Lip®, if equipped, pull and hold the End Load Leg Chain as the leveler lowers for below dock end loads. See figure 7. DO NOT pull chain for dock level end loads.
4. When loading/unloading is complete, continue with normal operation or return the leveler to stored position. See *Storing Leveler*.



### 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 8.

**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 9.
5. Inspect all weather seals (if installed) and replace if worn or damaged.
6. Inspect dock bumpers. Four inches (4") of bumper protection is required. Worn, torn, loose or missing bumpers must be replaced.

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.

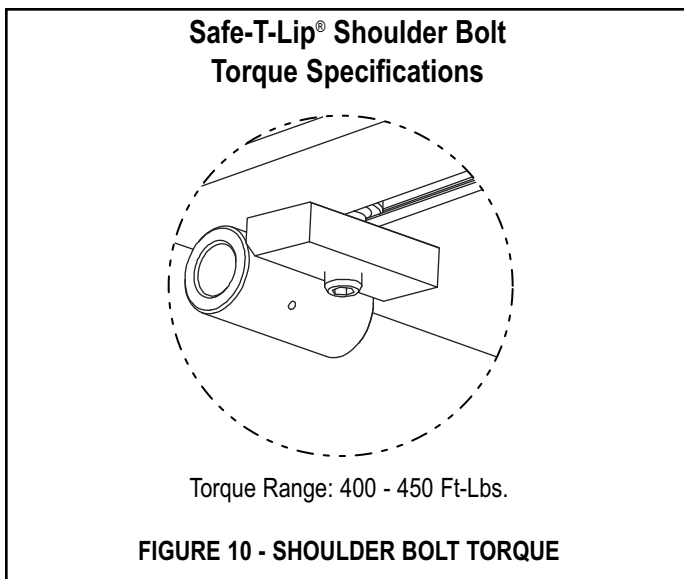
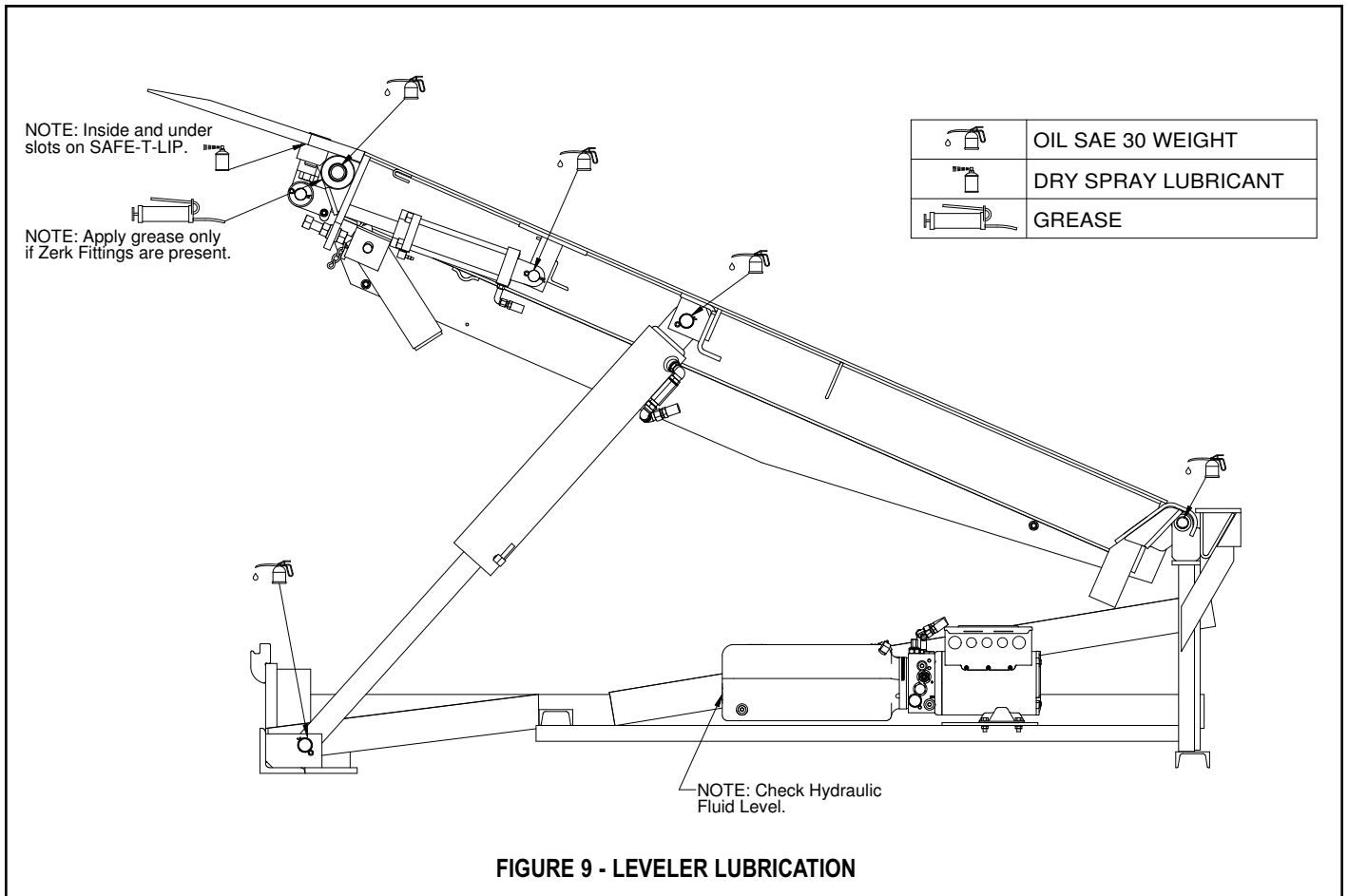
STANDARD: 119181 - Rite-Hite Biodegradeable Fluid (quart/light blue in color)

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 10.

# 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.

## WARNING

- Adjustments to be completed by trained technician only.

### 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.

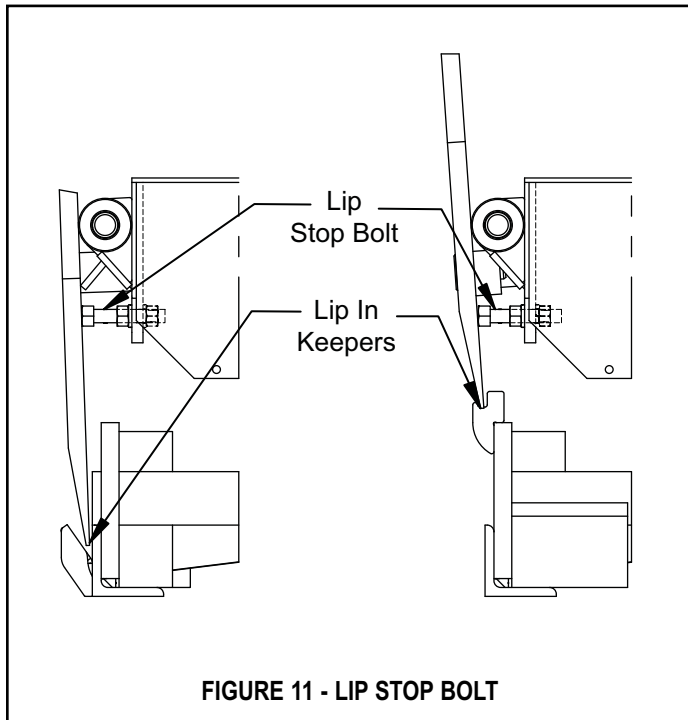


FIGURE 11 - LIP STOP BOLT

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

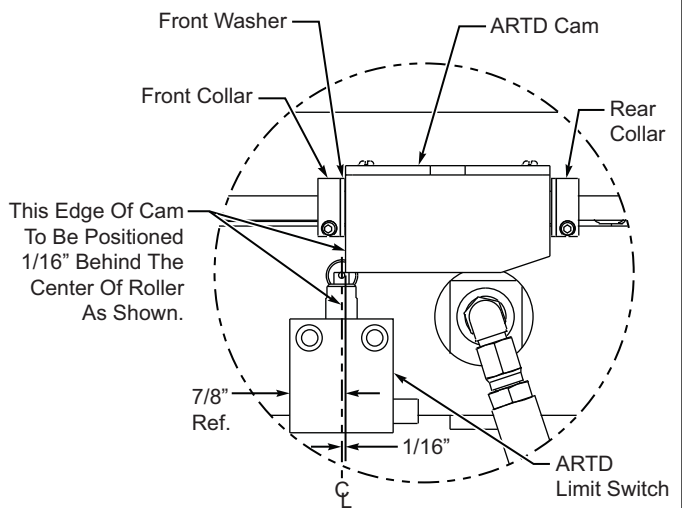
### ARTD CAM ADJUSTMENT

**NOTE:** Before continuing be sure the lip stop bolt is properly adjusted. See figure 11.

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 12.
  - 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.

**NOTE:** There Should Be A Small Amount Of Free Movement Between The ARTD Cam And The Rear Collar When The Rear Collar Is Pushed Against The ARTD Cam.



ARTD Cam Adjustment Detail  
(Shown With Lip Pendant And Lip Stop Bolt Adjusted)

FIGURE 12 - ARTD LIMIT SWITCH

## LEVELER ADJUSTMENTS (Continued)

### HYDRAULIC VALVE ADJUSTMENTS (SPX POWER UNIT)

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

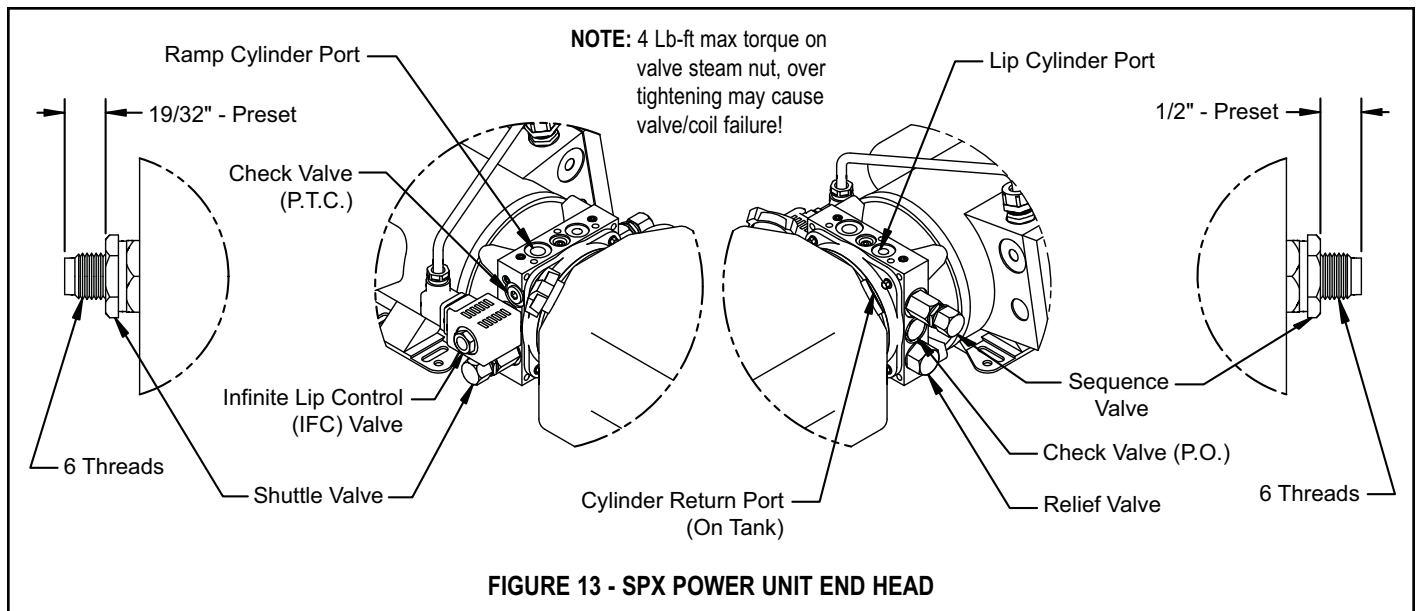
**NOTE:** Check oil level before making any adjustments.

1. Leveler must be adjusted to lower, from full raised position with lip extended to the header stops in less than 13 to 18 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.

#### SEQUENCE VALVE ADJUSTMENT (Controls Lip Extension)

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

1. Leveler must be adjusted to extend the lip in 3 to 4 seconds.
2. Remove protective cap and O-ring. Loosen locknut without turning valve body or adjustment screw. Turn adjustment screw to vary lip extension speed. Adjustments should be no more than 1/8 turn increments.
3. Turn adjustment screw clockwise to decrease the speed the lip will extend. (If the lip begins to extend at any time before the platform has fully raised, the Sequence Valve setting is too low.)
4. Turn adjustment screw counterclockwise to increase the speed the lip will extend. (When the leveler is fully raised and the lip does not extend, the Sequence Valve is set too high.)
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.



## LEVELER ADJUSTMENTS (Continued)

### WARNING

- Flow Control valve is factory adjusted.
- Adjustments to be completed by trained technician only.

### HYDRAULIC VALVE ADJUSTMENTS (BUCHER POWER UNIT)

#### FLOW CONTROL 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 seconds
2. Press RAISE button and run the platform up until the lip extends.
3. Release RAISE button and allow the platform to fall completely below dock and stop. Verify with a stop watch that the platform falls according to the times in step 1. If not, readjust flow control valve.
4. Set flow control valve (first loosen locknut on valve). See Figure 14.
  - To fall slower - Turn in (clockwise) in 1/4 turn increments.
  - To fall faster - Turn out (counter-clockwise) in 1/4 turn increments.

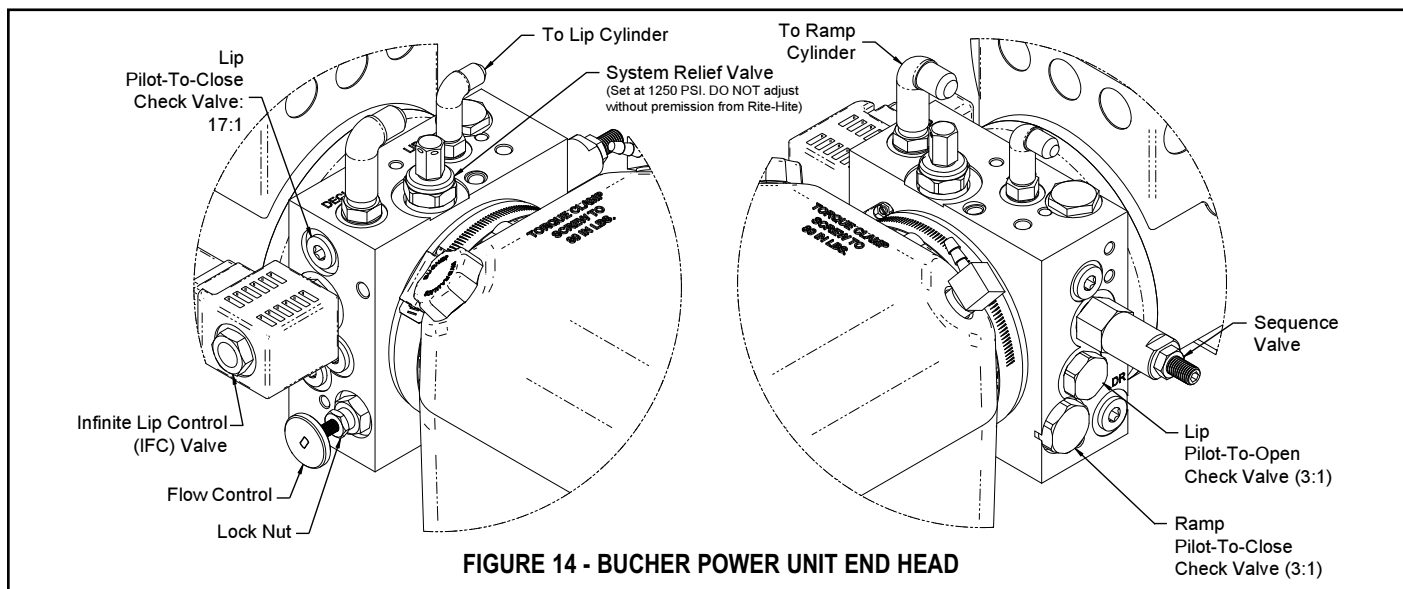
Or set valve at starting point (3-1/2 turns clockwise from fully out).
5. Repeat procedure to verify fall time as needed to fall according to step 1. 1/8 turns might be necessary to fine tune the adjustment.
6. Tighten locknut on flow control valve.

#### SEQUENCE VALVE ADJUSTMENT (Controls Lip Extension)

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

**NOTE:** Sequence valve is factory set. Adjustments to be completed by trained technician only.

1. When the leveler is fully raised and the lip does not extend, the Sequence Valve is set too high.
2. Loosen adjustment nut.
3. Turn adjustment screw in completely (clockwise) with an allen wrench. See Figure 14.
4. Back screw out 5 1/2 turns to get to factory starting point and tighten adjustment nut.
5. Press RAISE button and run the platform up until the lip extends.
6. Verify that the lip extends only at the top of the ramp cylinder stroke. If not, continue with Sequence Valve adjustment.
  - Turn adjustment screw out (counter-clockwise) in 1/8 turn increments. Lip will extend more quickly.
  - Turn adjustment screw in (clockwise) in 1/8 turn increments. Lip will extend more slowly.
7. Release RAISE button and allow the platform to fall completely below dock and stop.
8. Verify that the lip will fall to pendant as the platform is raised up to store the lip in the keepers. If lip re-extends, turn adjustment screw in (clockwise) in 1/8 turns and retest.
9. Re-test the unit several times to verify the setting.



## TROUBLESHOOTING

Problem	Probable Cause	Solution
1. Platform does not raise	a. Power has been disconnected.  b. The motor has been miswired.  c. Overload tripped. d. Debris is lodged on or around the leveler. e. Hydraulic fluid level is low.	a. Verify that power has not been disconnected. Verify that disconnect circuit breaker or fuses are not tripped. b. Verify that the motor has been wired according to the motor wiring diagram. c. Push RESET on overload relay. d. Check for and remove any lodged materials on or around the leveler. e. Check oil level when the unit is held open with the maint. support. Refill if necessary.
2. Leveler runs continuously.	a. The pushbutton, contact block or motor contactor damaged.	a. Repair or replace components.
3. Lip extends slowly and/or does not extend.	a. Debris on lip hinge. b. Lip impacted or bent.  c. Hydraulic fluid level low.	a. Remove debris from the lip hinge. b. Lubricate per maintenance procedures or replace lip. c. Check oil level when unit is held open with the maint. support. Refill if necessary.
4. Platform does not lower.	a. Velocity fuse has locked up.  b. Debris is lodged on or around the leveler.	a. Attempt to raise the unit to unlock the velocity fuse. b. Check and remove any lodged debris on or around leveler.
5. Platform raises very slowly.	a. Weight on top of platform. b. Hydraulic fluid level is low.  c. Low voltage  d. Power unit/pump/motor failure.	a. Remove weight from platform. b. Check oil level when the unit is held open with the maint. support. Refill if necessary. c. Verify $\pm 10\%$ nominal voltage while unit is running. d. Replace power unit assembly.
6. Lip does not store properly.	a. The lip stop bolt is not adjusted properly. b. Debris. c. Lip supports.	a. Verify that the lip stop bolt is properly adjusted. b. Remove debris. c. Repair or replace the lip supports.
7. Fuse or circuit breaker trips.	a. Undersized fuse or circuit breaker. b. Low voltage.  c. Short circuit in wiring. d. Wire gage is too small. Distance is too long.	a. Verify 25 amp for 120VAC/1PH and 10 amp for 240VAC/1PH. b. Verify $\pm 10\%$ nominal voltage while unit is running. c. Check wiring connections and verify. d. Verify minimum wire gage per distance is correct. See chart on page 16.

## LED STATUS CHART - STANDALONE

PIT DOCK LEVELER RITE-HITE PRODUCTS CORP. STANDALONE CONTROLS		LEVELER CONTROL BOARD									LEVELER AUX BOARD		
		INPUTS							OUTPUTS		OUTPUTS		
		FIELD				PUSH BUTTONS			12VDC		RELAY		12VDC
		ARTD INPUT	COMBINED POWER UNIT INPUT [CMBD PU]	GREEN LIGHT TO OPERATE LEVELER INPUT [GLT ITL] [SEE DIP SWITCH #2]	OVERHEAD DOOR OPEN INTERLOCK INPUT [OHD ITL] [SEE DIP SWITCH #3]	RAISE PUSH BUTTON	LIP OUT PUSH BUTTON	EMERGENCY STOP MUSHROOM BUTTON [IF EQUIPPED]	MOTOR CONTACTOR OUTPUT [LVLR CONTR]	12VDC POWER SUPPLY OK	LEVELER SOLENOID #1 - LIP OUT (K1) [STANDARD]	LEVELER SOLENOID #1 - LIP OUT (K1) [E-STOP EQUIPPED]	AUX BOARD POWER SUPPLY OK
TERMINAL BLOCK NO.		J9.2	J11.2	J11.1	J9.1	J16.4	J16.3	J16.1	J10.3	J10.1-2	J2.3	J2.3	-
LEVELER CONTROL BOARD LEDs		LD5	LD3	LD2	LD4	LD11	LD12	LD14	LD6	LD1	-	-	-
LEVELER AUX BOARD LEDs		-	-	-	-	-	-	-	-	-	LD1	LD1	LD4
02.01.00	REST STATE	F	F	?	?	-	-	T	F	T	F	T	T
02.01.01	RAISE SEQUENCE	F	F	ITL	ITL	M	-	T	T	T	F	T	T
02.01.02	AUTOMATIC RETURN TO DOCK	T	F	ITL	ITL	-	-	T	T	T	F	T	T
02.01.03	COMBINED POWER UNIT SEQ	F	T	?	?	-	-	T	T	T	F	T	T
02.02.00	LIP EXTEND SEQUENCE	F	F	ITL	ITL	M	M	T	T	T	T	F	T
02.02.01	PLATFORM HOLD STATE	F	F	?	?	-	M	T	F	T	T	F	T
02.04.00	EMERGENCY STOP STATE [IF EQUIPPED]	?	?	?	?	?	?	F	F	T	F	F	T
02.05.00	RUN FAULT STATE	?	?	?	?	?	?	?	F	T	?	?	T
NO.	STATE / SEQUENCE NO.												

KEY	
? - VARYS DEPENDING ON OPERATION	M - LIGHTS WHEN BUTTON PRESSED
F - OFF	P - PULSING / FLASHING [SET TO STEADY USING DIP SWITCHES]
ITL - INTERLOCK INPUT ON	T - STEADY ON

RUN FAULT STATE	
If Leveler Motor is operated continuously for 60 seconds, system will enter RUN FAULT STATE.	
After a 60 second rest period, system will automatically enter the REST STATE and resume normal operation.	

## LED STATUS CHART - DOK-COMMANDER

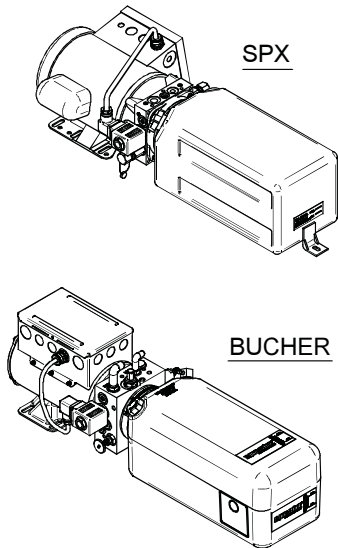
PIT DOCK LEVELER RITE-HITE PRODUCTS CORP. STANDALONE CONTROLS		LEVELER CONTROL BOARD									LEVELER AUX BOARD		
		INPUTS							OUTPUTS		OUTPUTS		
		FIELD				PUSH BUTTONS			12VDC		RELAY		12VDC
		ARTD INPUT	COMBINED POWER UNIT INPUT [CMBD PU]	GREEN LIGHT TO OPERATE LEVELER INPUT [GLT ITL] [SEE DIP SWITCH #2]	OVERHEAD DOOR OPEN INTERLOCK INPUT [OHD ITL] [SEE DIP SWITCH #3]	RAISE PUSH BUTTON	LIP OUT PUSH BUTTON	EMERGENCY STOP MUSHROOM BUTTON [IF EQUIPPED]	MOTOR CONTACTOR OUTPUT [LVLR CONTR]	12VDC POWER SUPPLY OK	LEVELER SOLENOID #1 - LIP OUT (K1) [STANDARD]	LEVELER SOLENOID #1 - LIP OUT (K1) [E-STOP EQUIPPED]	AUX BOARD POWER SUPPLY OK
TERMINAL BLOCK NO.		J9.2	J11.2	J11.1	J9.1	J16.4	J16.3	J16.1	J10.3	J10.1-2	J2.3	J2.3	-
LEVELER CONTROL BOARD LEDs		LD5	LD3	LD2	LD4	LD11	LD12	LD14	LD6	LD1	-	-	-
LEVELER AUX BOARD LEDs		-	-	-	-	-	-	-	-	-	LD1	LD1	LD4
02.01.00	REST STATE	F	F	?	?	-	-	T	F	T	F	T	T
02.01.01	RAISE SEQUENCE	F	F	ITL	ITL	M	-	T	T	T	F	T	T
02.01.02	AUTOMATIC RETURN TO DOCK	T	F	ITL	ITL	-	-	T	T	T	F	T	T
02.01.03	COMBINED POWER UNIT SEQ	F	T	?	?	-	-	T	T	T	F	T	T
02.02.00	LIP EXTEND SEQUENCE	F	F	ITL	ITL	M	M	T	T	T	T	F	T
02.02.01	PLATFORM HOLD STATE	F	F	?	?	-	M	T	F	T	T	F	T
02.04.00	EMERGENCY STOP STATE [IF EQUIPPED]	?	?	?	?	?	?	F	F	T	F	F	T
02.05.00	RUN FAULT STATE	?	?	?	?	?	?	?	F	T	?	?	T
NO.	STATE / SEQUENCE NO.												

KEY	
? - VARIES DEPENDING ON OPERATION	M - LIGHTS WHEN BUTTON PRESSED
F - OFF	P - PULSING / FLASHING [SET TO STEADY USING DIP SWITCHES]
ITL - INTERLOCK INPUT ON	T - STEADY ON

RUN FAULT STATE	
If Leveler Motor is operated continuously for 60 seconds, system will enter RUN FAULT STATE.	
After a 60 second rest period, system will automatically enter the REST STATE and resume normal operation.	

ELECTRICAL WIRING CHARTS

MOTOR CONNECTION DETAIL / FLA



RHH50	Motor FLA Ratings & Connection Detail				Minimum Wire Size (AWG) Chart for Various Line Lengths and Line Loads			
	SPX		BUCHER		Line Length (ft)			
	FLA	CONN DETAIL	FLA	CONN DETAIL	0-50	51-100	101-150	151-200
110-120/1/60/1.0 HP	14.5	A	19.0	D	10	8	6	4
208-240/1/50/1.0 HP	7.3	B	16.0	C	14	12	12	10
208-240/1/60/1.0 HP	7.3	B	9.5	C	14	12	12	10
208-240/3/60/1.0 HP	4.4	E	3.0	E	14	14	12	12
380-415/3/50/1.0 HP	2.4	F	1.7	F	14	14	14	14
440-480/3/60/1.0 HP	2.2	F	1.5	F	14	14	14	14
575/3/60/1.0 HP	1.7	G	1.4	G	14	14	14	14

1 PH CONNECTION DETAIL

A

B

MOTOR ROTATION IS NOT REVERSIBLE

3 PH CONNECTION DETAIL

E

G

F

IF ROTATION IS WRONG REVERSE ANY 2 LINES

C

D

IF ROTATION IS WRONG REVERSE 5 AND 8

## ELECTRICAL SCHEMATICS

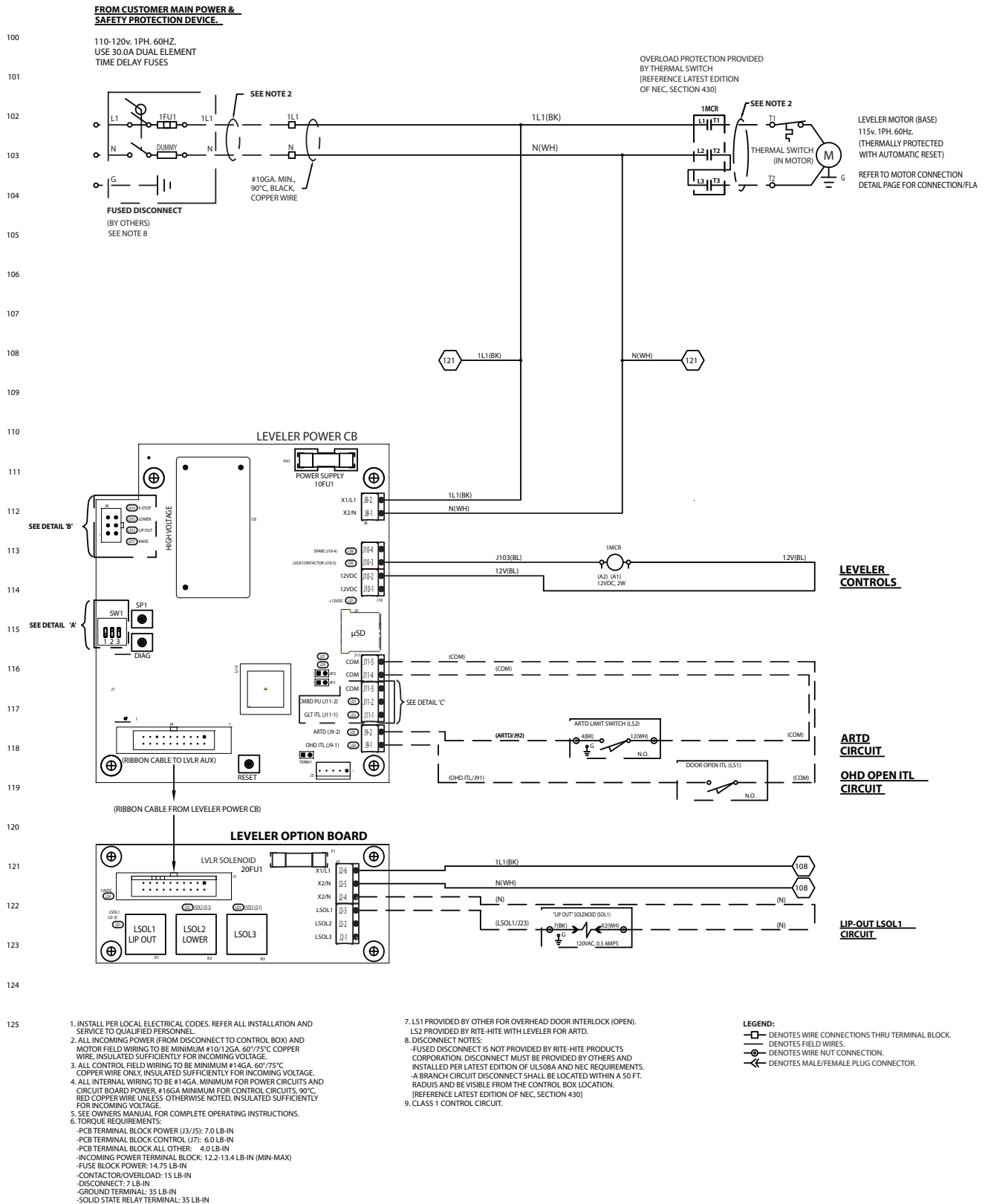


FIGURE 15A - ELECTRICAL SCHEMATIC - 115V/60HZ. SINGLE PHASE - PAGE 1 OF 2

ELECTRICAL SCHEMATIC (Continued)

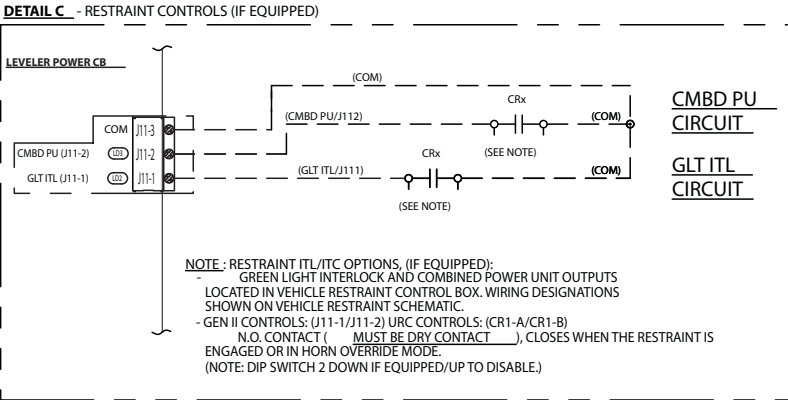
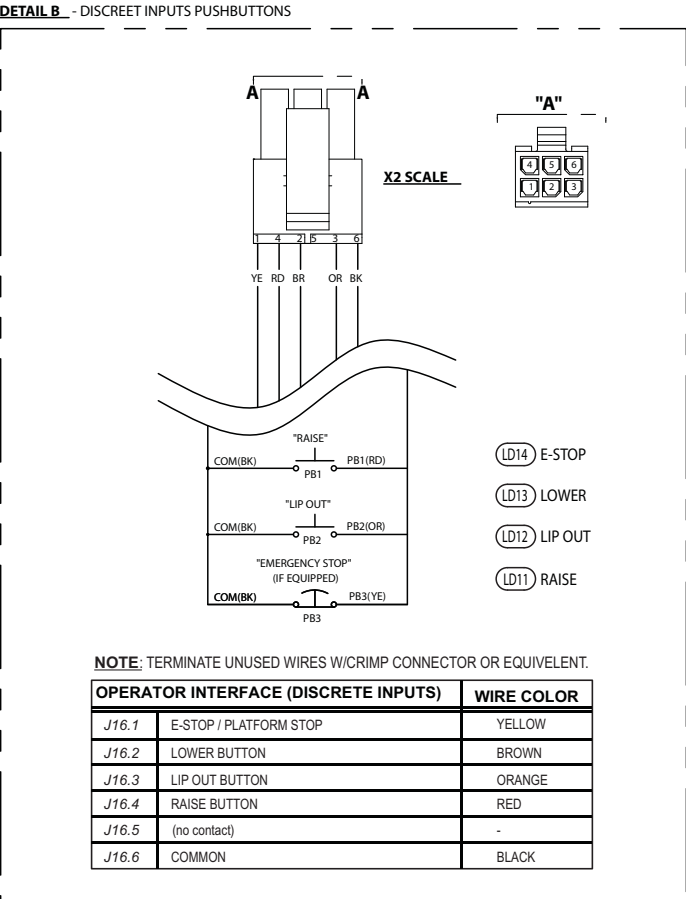
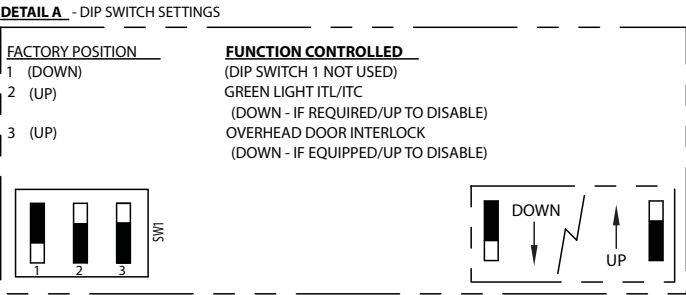


FIGURE 15B - ELECTRICAL SCHEMATIC - 115V/60HZ. SINGLE PHASE - PAGE 2 OF 2

## ELECTRICAL SCHEMATIC (Continued)

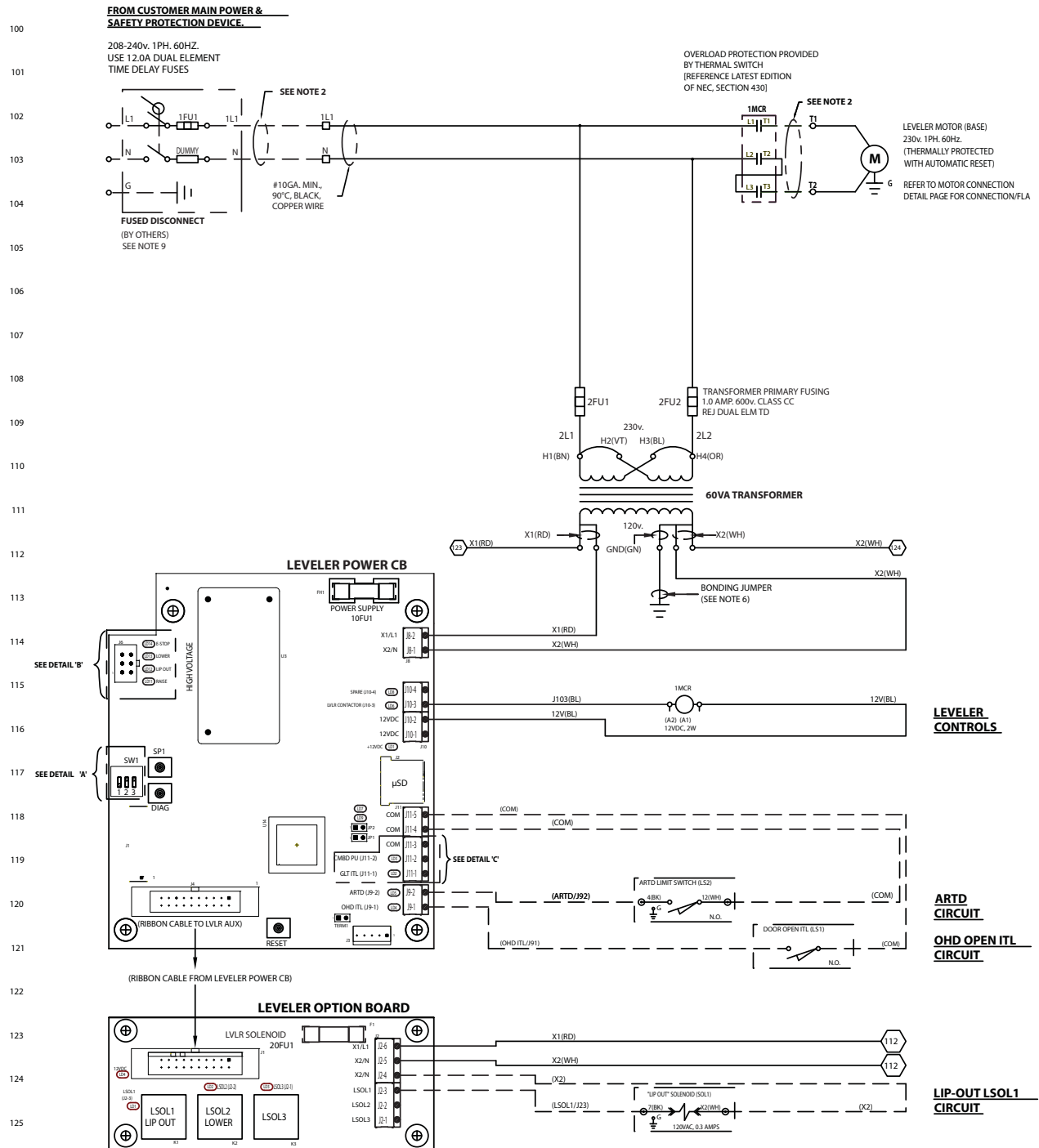


FIGURE 16A - ELECTRICAL SCHEMATIC - 230V./60HZ. SINGLE PHASE - PAGE 1 OF 2

ELECTRICAL SCHEMATIC (Continued)

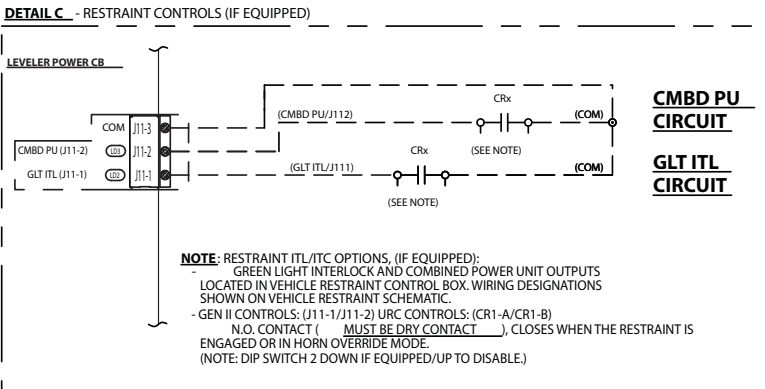
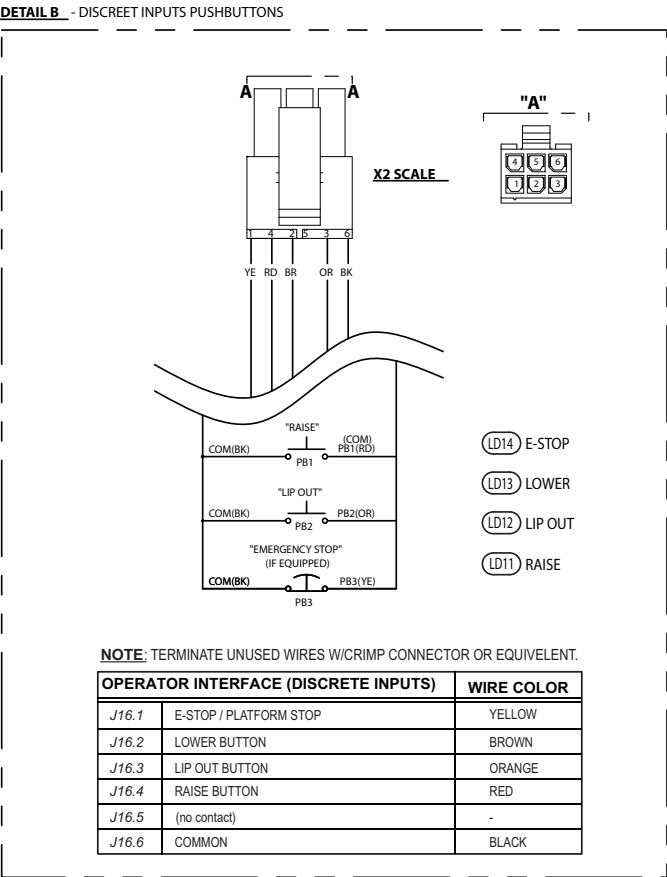
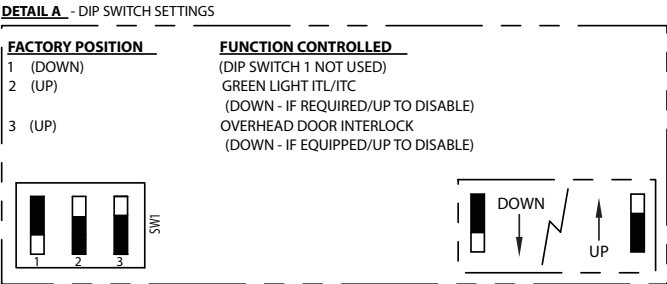


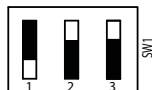
FIGURE 16B - ELECTRICAL SCHEMATIC - 230V/60HZ. SINGLE PHASE - PAGE 2 OF 2



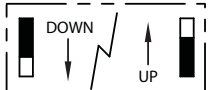
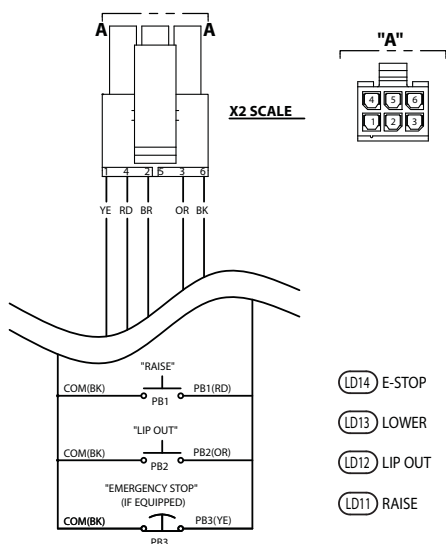
## ELECTRICAL SCHEMATIC (Continued)

**DETAIL A - DIP SWITCH SETTINGS****FACTORY POSITION**

- 1 (DOWN)
- 2 (UP)
- 3 (UP)

**FUNCTION CONTROLLED**

(DIP SWITCH 1 NOT USED)  
 GREEN LIGHT ITC/ITC  
 (DOWN - IF REQUIRED/UP TO DISABLE)  
 OVERHEAD DOOR INTERLOCK  
 (DOWN - IF EQUIPPED/UP TO DISABLE)

**DETAIL B - DISCREET INPUTS PUSHBUTTONS**

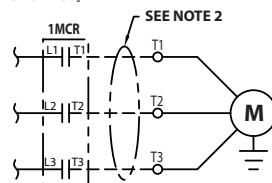
**NOTE:** TERMINATE UNUSED WIRES W/CRIMP CONNECTOR OR EQUIVALENT.

OPERATOR INTERFACE (DISCREET INPUTS)	WIRE COLOR
J16.1 E-STOP / PLATFORM STOP	YELLOW
J16.2 LOWER BUTTON	BROWN
J16.3 LIP OUT BUTTON	ORANGE
J16.4 RAISE BUTTON	RED
J16.5 (no contact)	-
J16.6 COMMON	BLACK

**DETAIL D - LEVELER MOTOR WIRING (BASE)**

OVERLOAD PROTECTION PROVIDED  
 BY BRANCH CIRCUIT FUSES  
 [REFERENCE LATEST EDITION  
 OF NEC, SECTION 430]

**230/460V**  
**3PH**

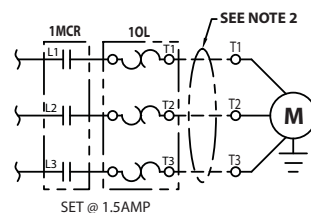


LEVELER MOTOR  
 208-240v. 3 PH. 60 Hz.  
 460v. 3 PH. 60 Hz.

REFER TO MOTOR CONNECTION  
 DETAIL PAGE FOR CONNECTION/FLA

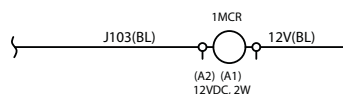
ONE LEVELER PER OVERLOAD  
 PROTECTION DEVICE,  
 [REFERENCE LATEST EDITION  
 OF NEC, SECTION 430]

**575V**  
**3PH**

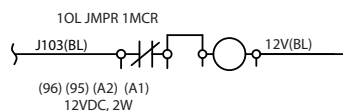


LEVELER MOTOR  
 575v. 3 PH. 60 Hz.

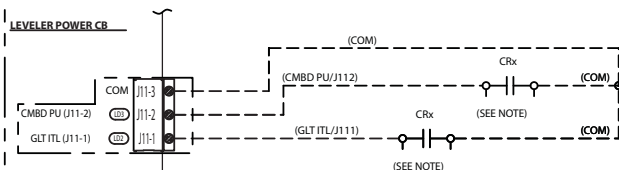
REFER TO MOTOR CONNECTION  
 DETAIL PAGE FOR CONNECTION/FLA

**DETAIL F - CONTACTOR WIRING**

**230/460V**  
**3PH**



**575V**  
**3PH**

**DETAIL C - RESTRAINT CONTROLS (IF EQUIPPED)**

**COMB PU**  
**CIRCUIT**

**GLT ITC**  
**CIRCUIT**

**NOTE:** RESTRAINT ITC/ITC OPTIONS, (IF EQUIPPED):  
 - GREEN LIGHT INTERLOCK AND COMBINED POWER UNIT OUTPUTS  
 LOCATED IN VEHICLE RESTRAINT CONTROL BOX. WIRING DESIGNATIONS  
 SHOWN ON VEHICLE RESTRAINT SCHEMATIC.  
 - GEN II CONTROLS: (J11-1/J11-2) URC CONTROLS: (CR1-A/CR1-B)  
 N.O. CONTACT ( ) MUST BE DRY CONTACT ( ), CLOSES WHEN THE RESTRAINT IS  
 ENGAGED OR IN HORN OVERRIDE MODE.  
 (NOTE: DIP SWITCH 2 DOWN IF EQUIPPED/UP TO DISABLE.)

**FIGURE 17B - ELECTRICAL SCHEMATIC - THREE PHASE - PAGE 2 OF 3**

# ELECTRICAL SCHEMATIC (Continued)

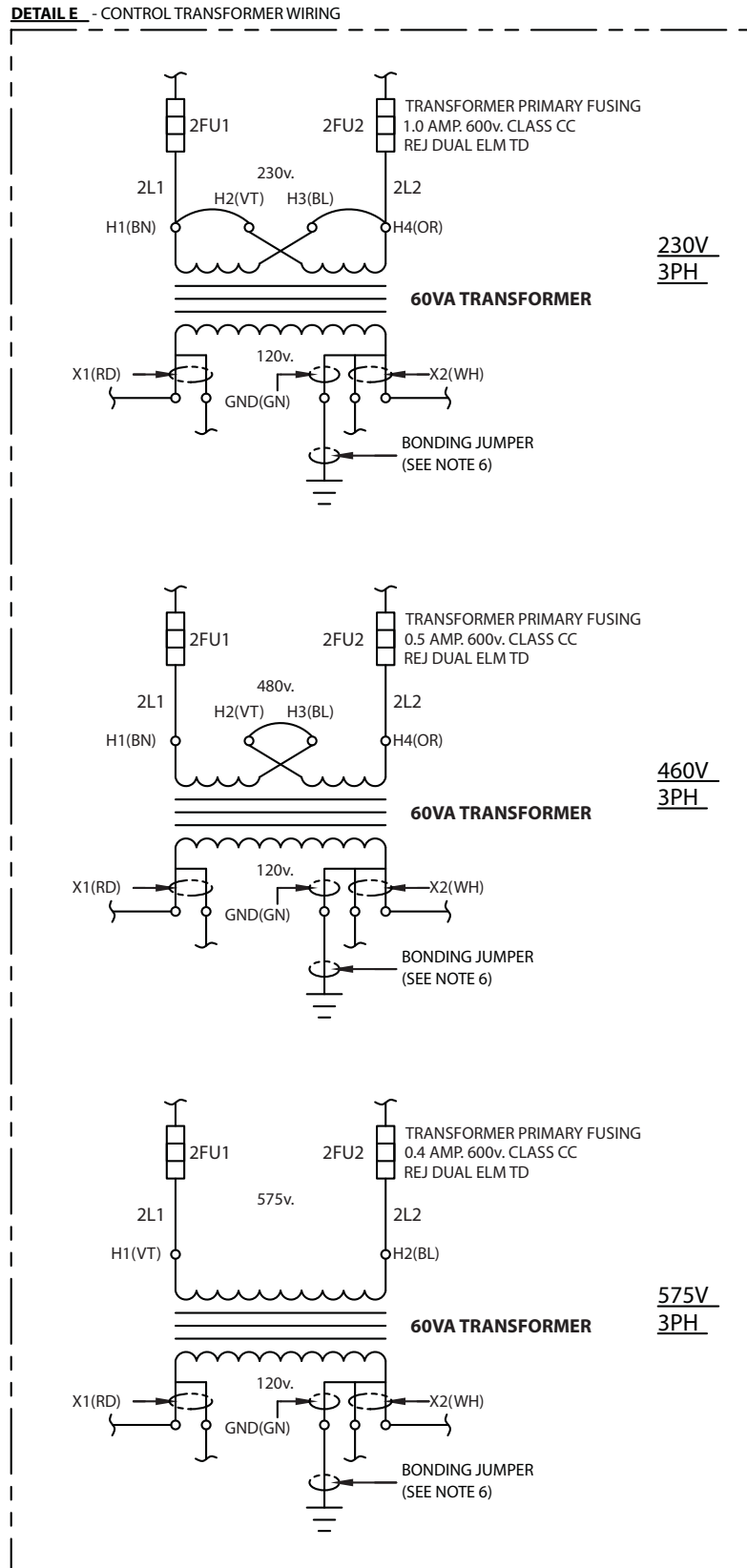


FIGURE 17C - ELECTRICAL SCHEMATIC - THREE PHASE - PAGE 3 OF 3

## REPLACEMENT PARTS - CONTROL BOX

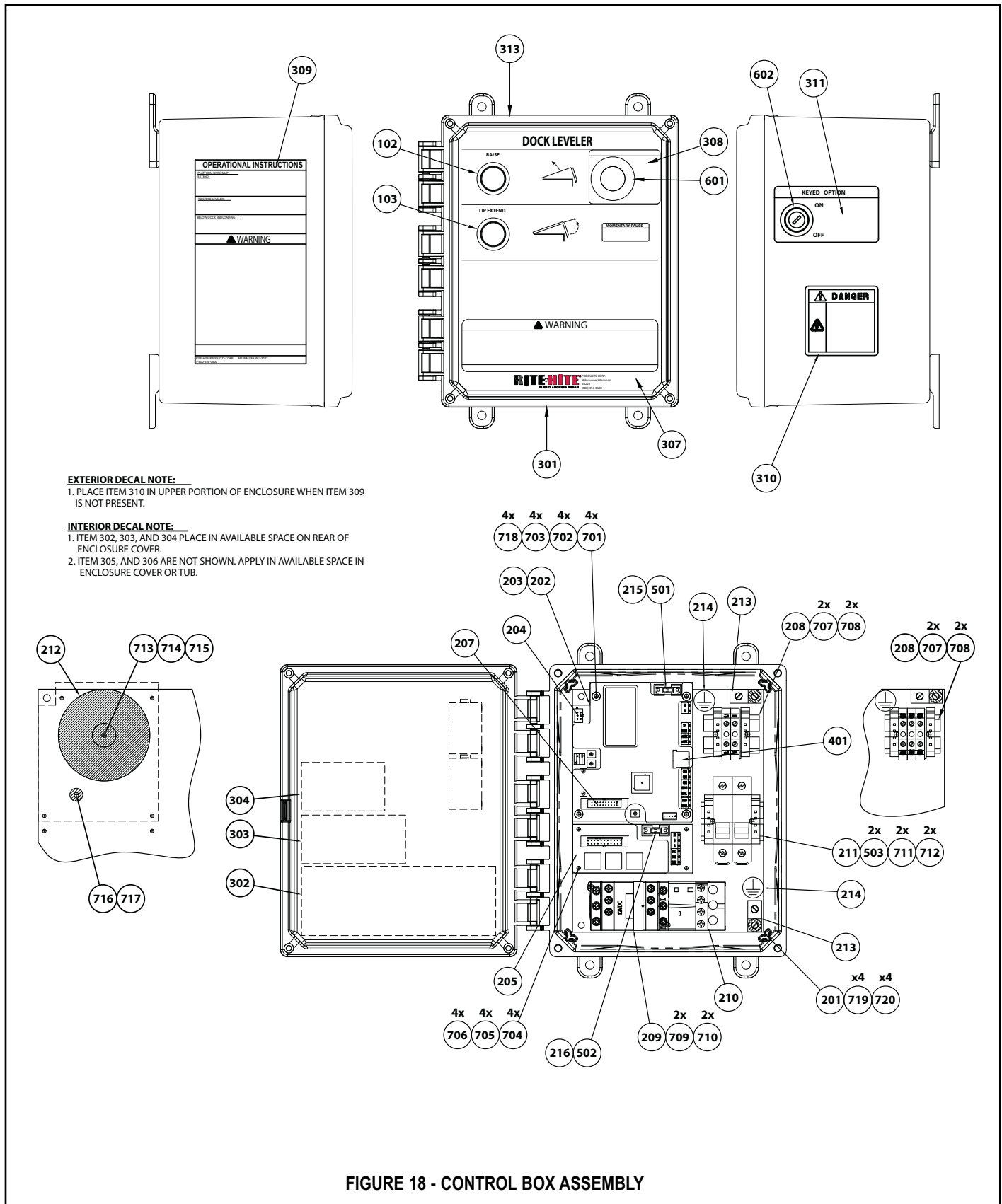
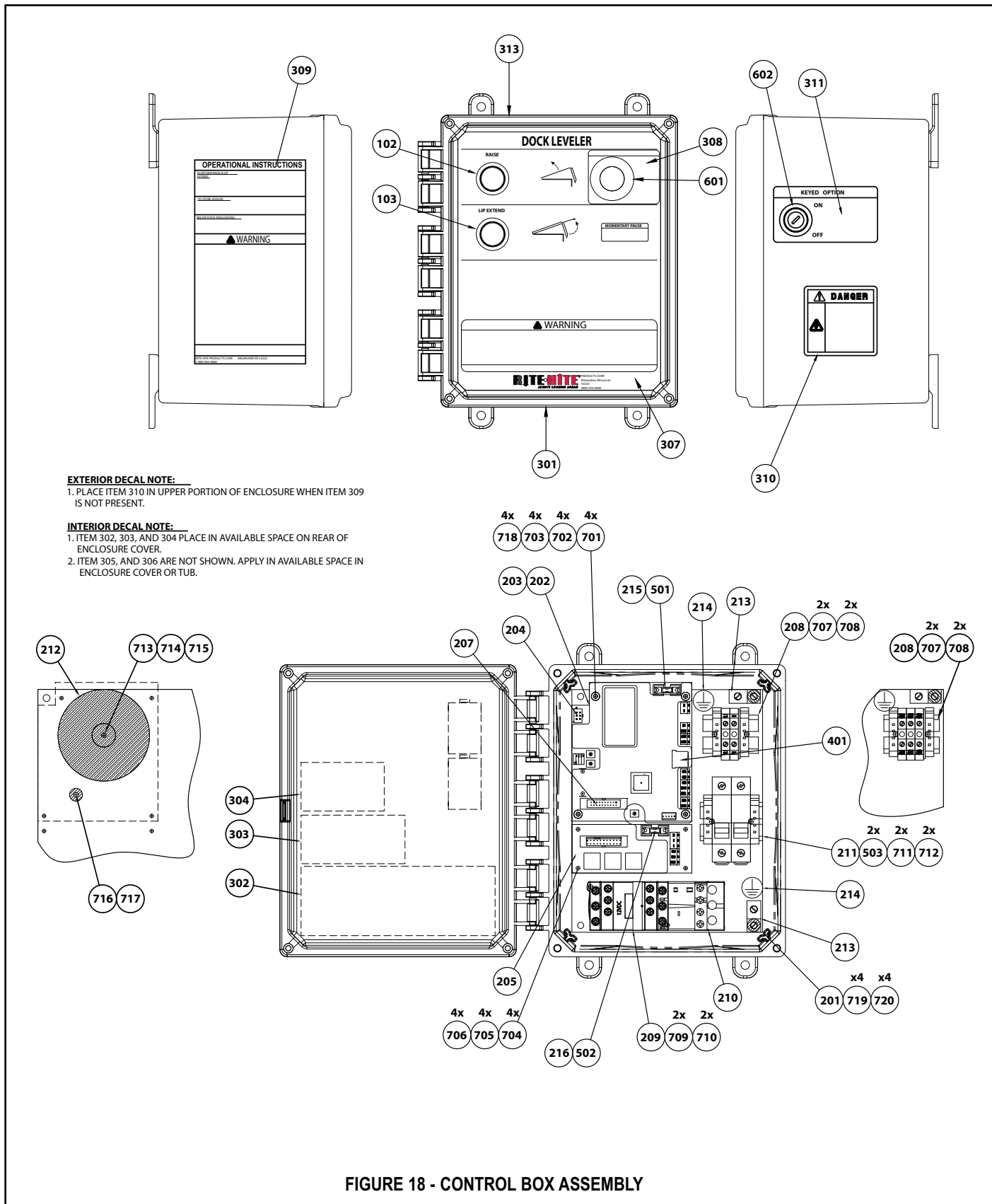


FIGURE 18 - CONTROL BOX ASSEMBLY

**CONTROL BOX REPLACEMENT PARTS LIST**

Item	Qty.	Description	Part Number
1	1	Control box assembly, Complete (Consult Rite-Hite for specific part number)	873.xxx
102	1	Push button, black	146827
103	1	Push button, red	146829
201	1	Pre-drilled control box sub panel	144763
202	1	Standard Leveler Control Board, Blank	144555-883D100
		Standard Leveler Control Board, Including Fuse	144574-883D100
		Leveler control board with Program Options, Blank (Consult Rite-Hite for specific part number)	144555-xxx
		Leveler control board with Program Options, Including Fuse (Consult Rite-Hite for specific part number)	144574-xxx
203	1	Leveler circuit board cover	146552
204	1	Control wiring harness	144862-06
205	1	Options Board, Leveler, Blank	143135
		Options Board, Leveler, Including Fuse	143137
207	1	Ribbon Cable for leveler micro control board to leveler options board	144866
208	1	Terminal block assembly, 115V 1PH	144559
		Terminal block assembly, 230V 1PH	146662
209	1	Terminal block assembly, 3PH	144884
		Motor Contactor, 1PH	144540
		Motor Contactor, 1PH, Hydra-Rite	144879
		Motor Contactor, 3PH	144541
210	1	Motor Overload Relay	145118
211	1	Transformer fuse assembly	146341
212	1	Transformer, 60VA, 230/460V	144800
		Transformer, 60VA, 575V	144801
213	2	Ground lug	55902
214	2	Ground lug decal	105454
215	1	Fuse cover, 5mm x 20mm	144544
216	1	Fuse cover, 5mm x 20mm	144544
301	1	Standard Enclosure with decals, English	875.103
		Standard Enclosure with decals, IFC, English	875.100
		Enclosure with decals other than above (Consult Rite-Hite for specific part number)	875.xxx
	1	Enclosure mounting feet, includes 4 feet (Not needed if ordering new enclosure)	147845
302	1	Electrical schematic decal (Consult Rite-Hite for specific part number)	880.xxx
303	1	Fuse replacement decal	144850
304	1	Full load amperage and voltage/phase decal (Consult Rite-Hite for specific part number)	882.xxx
305	1	Program configuration decal (Consult Rite-Hite for specific part number)	884.xxx
307	1	Cover decal, stand alone pit leveler	144361
		Cover decal, stand alone pit leveler, IFC	144357
308	1	Emergency stop overlay decal, English	144836
309	1	Operation/danger/warning decal for pit leveler	144844
		Operation/danger/warning decal for pit leveler, IFC	144846
310	1	Lockout/tagout/multiple disconnect warning decal	114331
311	1	Control power ON/OFF decal	144838
312	1	Circuit board UL rating decal	144860
313	1	Do Not Drill decal	147552
501	1	0.5A fuse, 5mm x 20mm	145216
502	1	0.5A fuse, 5mm x 20mm	145216
503	2	1A fuse, CC, Dual element time delay	66003
		0.5A fuse, CC, Dual element time delay	66005
		0.4A fuse, CC, Dual element time delay	66006
601	1	Mushroom stop button (Emergency stop - if equipped)	125163
602	1	Selector switch, keyed (If equipped)	149175

## REPLACEMENT PARTS - CONTROL BOX

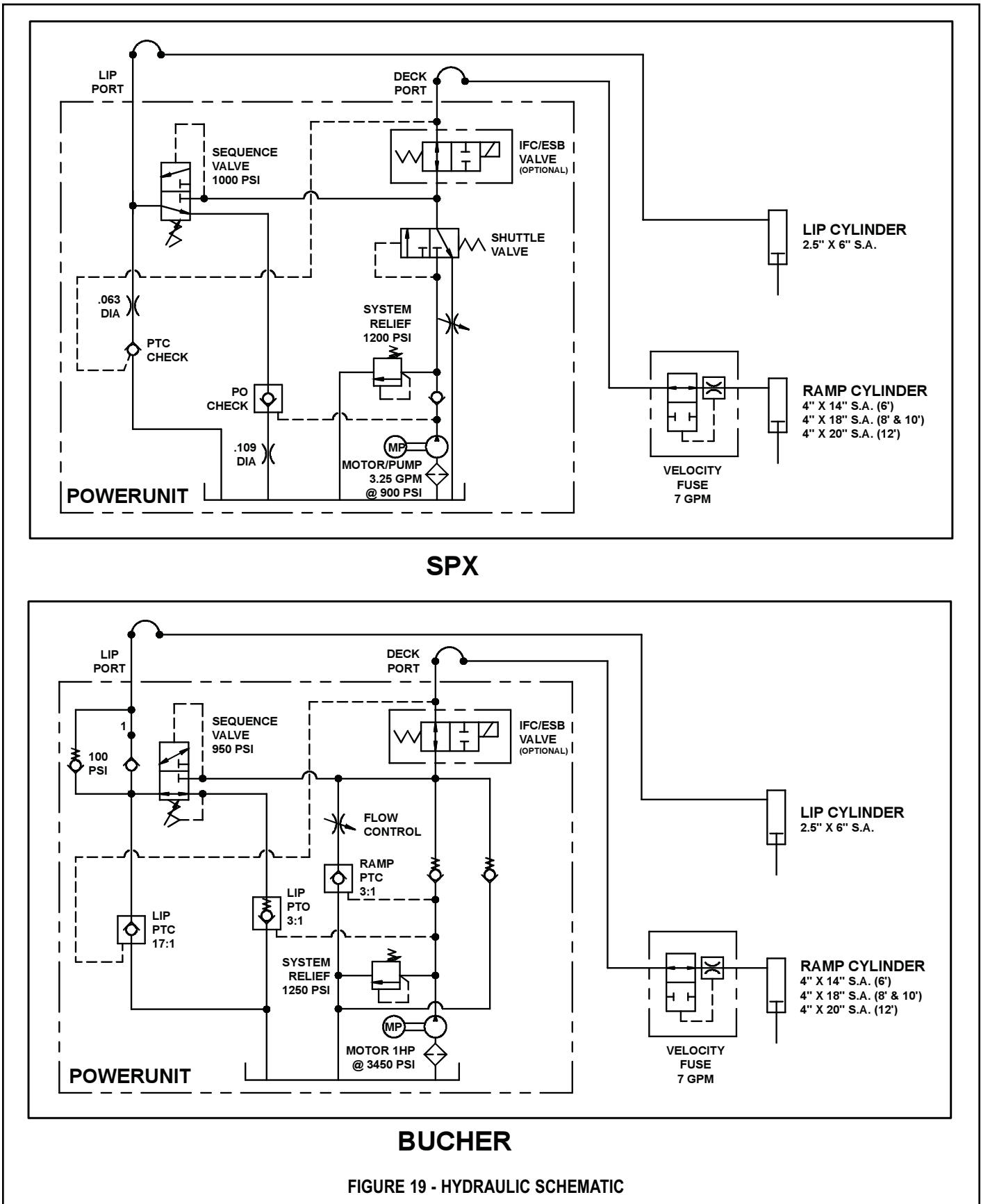


**CONTROL BOX REPLACEMENT PARTS LIST**

<b>Item</b>	<b>Qty.</b>	<b>Description</b>	<b>Part Number</b>
701	4	Standoff, Male/Female, #6-32, 2.5" length	133365
702	4	Screw, round head, #6-32, 0.25" length	133366
703	4	Lock washer, #6	51826
704	4	Standoff, Male/Female, #6-32, 2.5" length	133365
705	4	Screw, round head, #6-32, 0.25" length	133366
706	4	Lock washer, #6	51826
707	2	Screw, round head, #8-32, 0.5" length	51645
708	2	Lock washer, star, #8	51839
709	2	Screw, round head, #8-32, 0.5" length	51645
710	2	Lock washer, star, #8	51839
711	2	Screw, round head, #8-32, 0.5" length	51645
712	2	Lock washer, star, #8	51839
713	1	Screw, round head, #8-32, 2.0" length	111165
714	1	Washer, flat, 0.25" diameter	51737
715	1	Lock washer, star, #8	51839
716	1	Screw, round head, #8-32, 0.5" length	51645
717	1	Lock washer, star, #8	51839
718	4	Standoff, Male/Female, #6-32, 0.875" length	115871
719	4	Screw, round head, #10-32, 0.5" length	51629
720	4	Lock washer, star, #10	51762

## NOTES

# HYDRAULIC SCHEMATIC



## SPX REPLACEMENT PARTS - HYDRAULICS

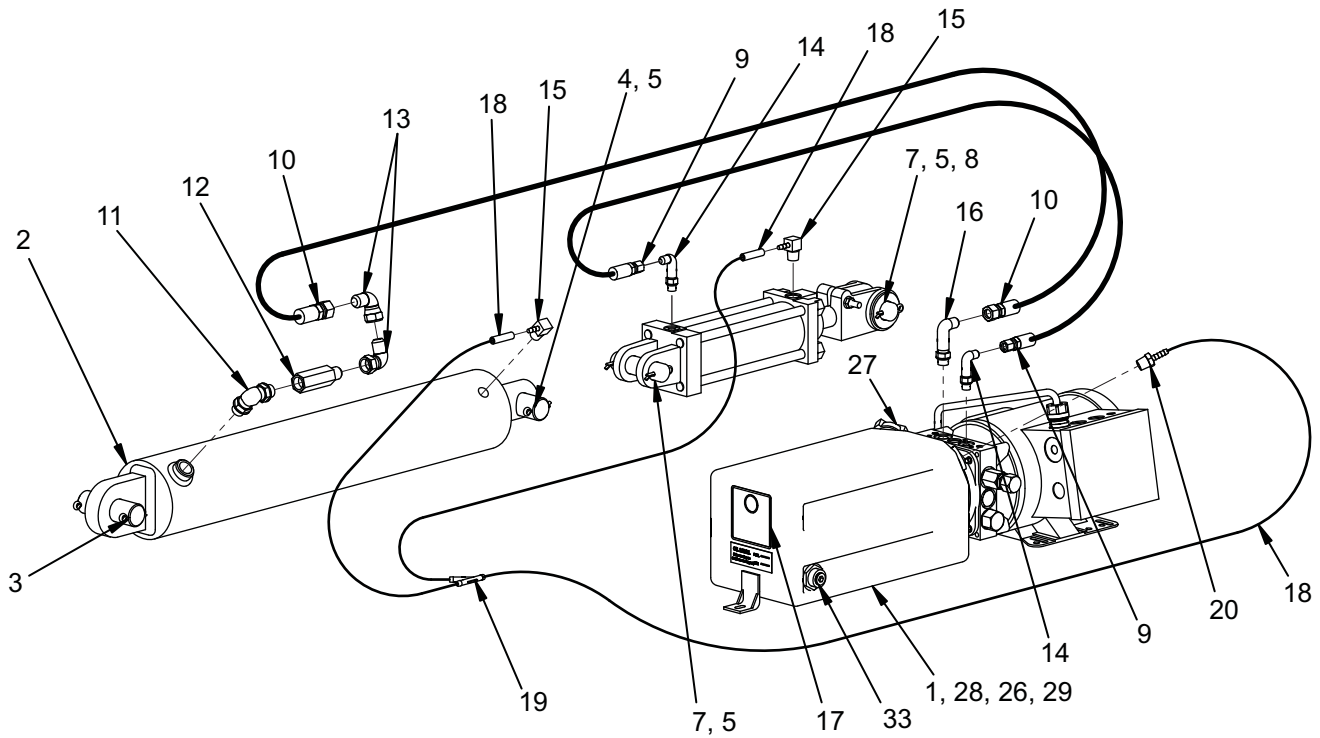


FIGURE 20 - SPX HYDRAULIC ASSEMBLY PARTS AND ROUTING

**NOTE:** 4 Lb-ft max torque on solenoid valve stem nut (ref. item # 31), over tightening may cause valve/coil failure!

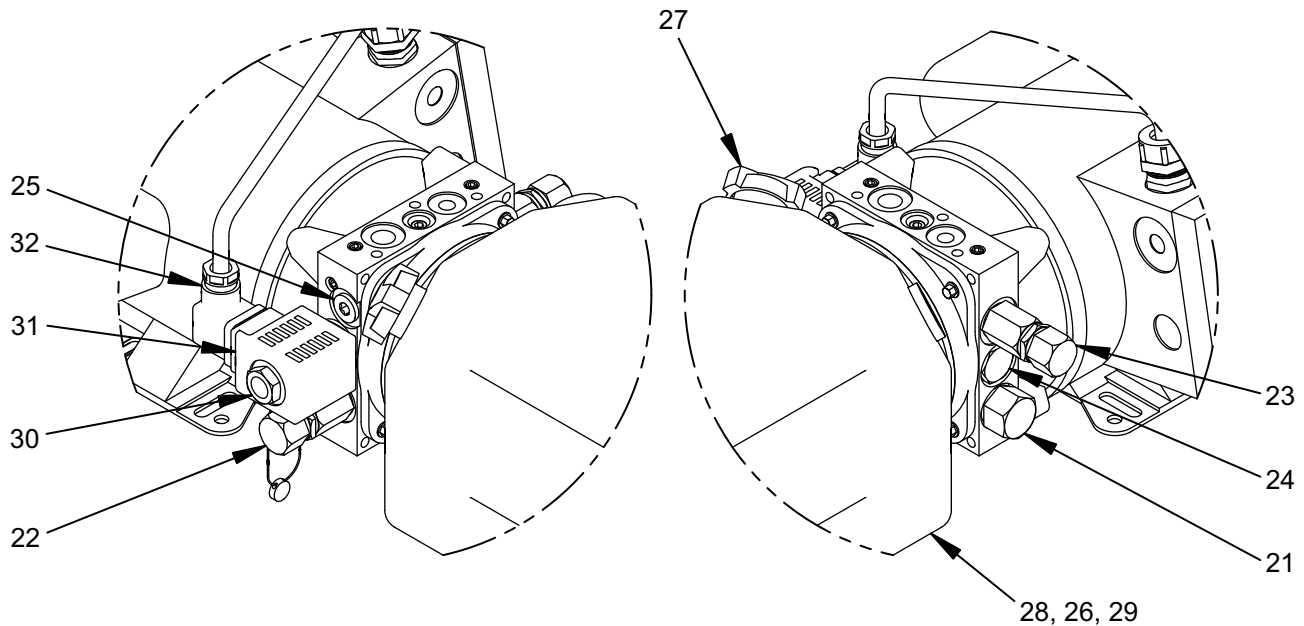


FIGURE 21 - SPX POWERUNIT AND IFC PARTS

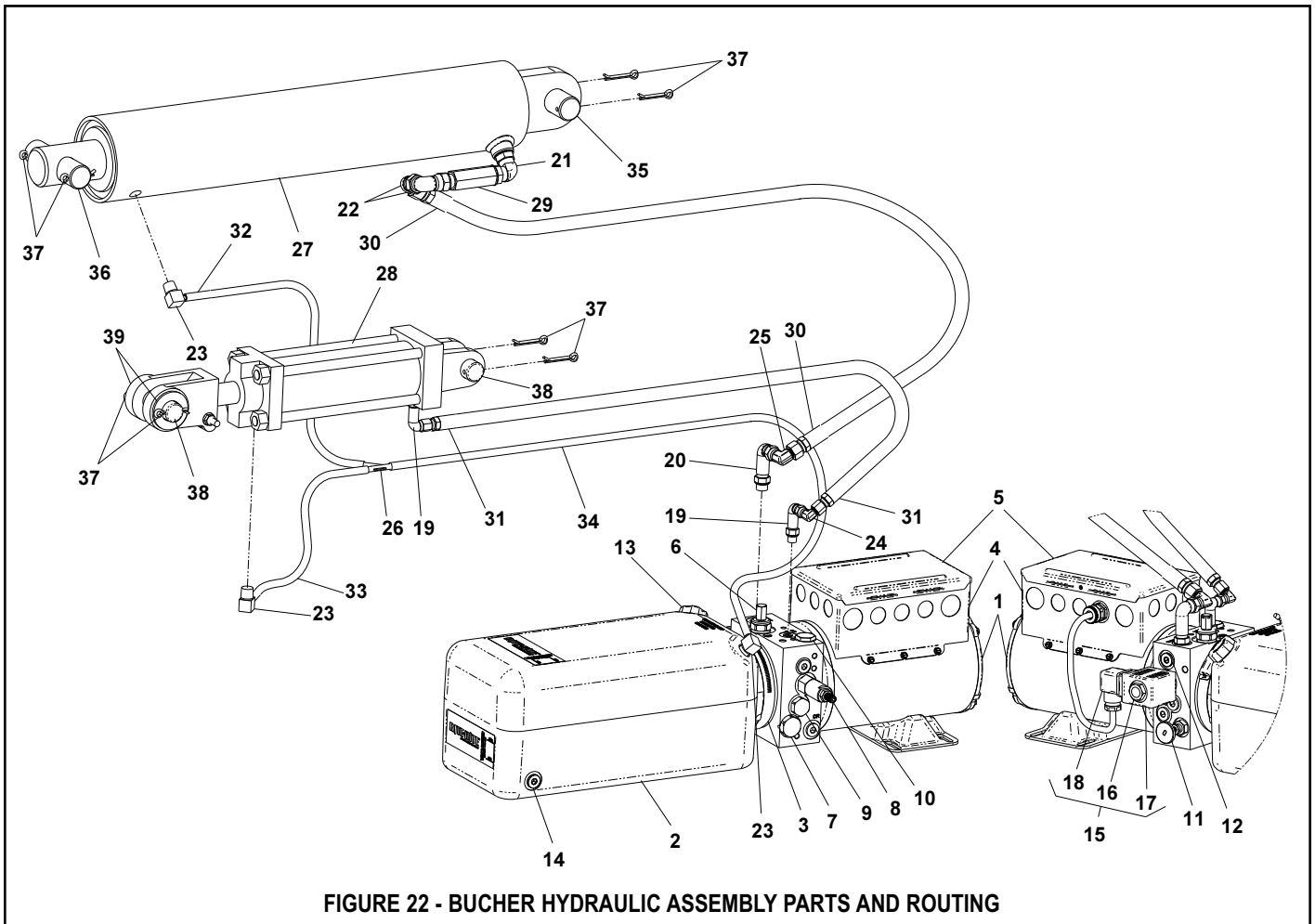
**SPX HYDRAULICS REPLACEMENT PARTS LIST**

Item	Qty.	Description	Part Number
1	1	Powerunit 100-115/200-230V 1PH 50/60HZ 1HP RLF(1200PSI)	128900
		Powerunit Assy. SPX 110/240V/1PH IFC(110V)	132823
		Powerunit 190-415/208-460V 3PH 50/60HZ 1HP RLF(1200PSI)	128901
		Powerunit Assy. SPX 240/460V/3PH IFC(110V)	132824
		Powerunit 475-500/575V 3PH 50/60HZ 1HP RLF(1200PSI)	128902
		Powerunit Assy. SPX 575V/3PH IFC(110V)	132825
2	1	Cylinder Hydraulic 4 x Length SA 2Port	See Below
3	1	Pin Clevis 1.250 x 4.000L ZP	52643
4	1	Pin Clevis 1.25 x 4.625L 2Hole	112467
5	8	Pin Cotter .188 DIA. x 1.50L ZP	51907
6	1	CYL HYD 2.5 BR x 6 STR 2Port	119291
7	2	Pin Clevis 1.000 x 3.625 ZP	52630
8	2	Washer Flat 1.00 SAE ZP	51721
9	1	Lip Cyl.. Hose Assy. .25 4FJS (6' Long)	16931
	1	Lip Cyl.. Hose Assy. .25 4FJS (8', 10' & 12' Long)	120372
10	1	Ramp Cyl. Hose Assy. .38 90 8FJS 6FJS (6' Long)	16927
	1	Ramp Cyl. Hose Assy. .38 90 8FJS 6FJS (8', 10' & 12' Long)	120373
11	1	Elbow 90 #8 MAORB	17808
12	1	Fuse Velocity 7 GPM #8 FORB #8 MJ	124767
13	2	Elbow 90 #8 MJ #8 FJS	16921
14	2	Elbow 90 L #4 MAORB #4 MJ	16918
15	2	Elbow 90 .375 MP .25 HB	17806
16	1	Elbow 90 L #6 MAORB #6 MJ	16917
17	1	Decal Oil Hyd. BIO FL(85+%)	119530
18	2	Hose .25ID (Bulk)	55372
19	1	Fitting Y .25BARB	17807
20	1	Fitting STRT .38NPT .25BARB	128179
21	1	System Relief Valve	128908
22	1	Shuttle Valve	19092
23	1	Sequence Valve	102664
24	1	Check Valve - Pilot To Open	114336
25	1	Check Valve - Pilot To Close	128909
26	1	Tank Seal / O-Ring (Not Shown)	103713
27	1	Oil Tank Cap	19095
28	1	Oil Tank	128905
29	4	Oil Tank Screws	103714
30	1	Valve SPL DACT 2W 2P NO SAE8 (IFC Option Only)	128907
31	1	Solenoid Coil 115/1(IFC Option Only)	17273
32	1	Hirschmann Connector Assy. (IFC Option Only)	19091
33	1	Oil Tank Plug	55062
34	-	STD - RH Biodegradeable Fluid (quart/light blue in color)	119181
	-	OPT - Mil 5606 Fluid (quart/red in color)	108303

**RAMP CYLINDER USAGE CHART (Item 2)**

CAP	FRAME	LEVELER LENGTH				
		6' Long	8' Long	8' Long	10' Long	12' Long
J CAP	20"	14" 119227	16" 123014	18" 119226	18" 119226	20" 119228
	24"	18" 119226	20" 119228	20" 119228	22" 121119	22" 121119
.188 WALL	24" W ADS	N/A			23" 116160	23" 116160

## BUCHER HYDRAULIC REPLACEMENT PARTS - HYDRAULICS



## BUCHER HYDRAULICS REPLACEMENT PARTS LIST

Item	Qty.	Description	Leveler Length			
			6' Long	8' Long	10' Long	12' Long
1	1	Power Unit 115/230v 1ph	141170	141170	141170	141170
	1	Power Unit 208-230/380-460v 3ph	141171	141171	141171	141171
	1	Power Unit 575v 3ph	141172	141172	141172	141172
2	1	Tank Assembly 16.5L Plastic	141178	141178	141178	141178
3	1	Hose clamp	132754	132754	132754	132754
4	1	Junction Box 3ph	132760	132760	132760	132760
	1	Junction Box 1ph	141162	141162	141162	141162
5	1	Junction Box Cover 3ph	132759	132759	132759	132759
	1	Junction Box Cover 1ph	141163	141163	141163	141163
6	1	Relief Valve Kit	132757	132757	132757	132757
7	1	Check Valve PTC 3:1 (Ramp)	142602	142602	142602	142602
8	1	Sequence Valve	147019	147019	147019	147019
9	1	Check Valve PTO 3:1 (Lip)	142605	142605	142605	142605
10	1	Check Valve with Screen	142606	142606	142606	142606
11	1	Needle Valve (Flow control)	142607	142607	142607	142607
12	1	Check Valve PTC 17:1 (Lip)	143218	143218	143218	143218
13	1	Breather cap	141470	141470	141470	141470
14	1	Plug fitting	137254	137254	137254	137254
15	1	ESB Kit 120v	128904	128904	128904	128904
	1	IFC Kit 120v	128903	128903	128903	128903
16	1	ESB valve	128906	128906	128906	128906
	1	IFC valve	128907	128907	128907	128907
17	1	ESB/IFC Coil 120v	17273	17273	17273	17273
18	1	Harness	19091	19091	19091	19091
19	2	Elbow fitting #4	16918	16918	16918	16918
20	1	Elbow fitting #6	16917	16917	16917	16917
21	1	Elbow fitting #8	17808	17808	17808	17808
22	2	Elbow fitting #8	16921	16921	16921	16921
23	3	Elbow fitting barb	17806	17806	17806	17806
24	1	Elbow fitting #4	16924	16924	16924	16924
25	1	Elbow fitting #6	55396	55396	55396	55396
26	1	Y-fitting	17807	17807	17807	17807
27	1	Main Cylinder	See Chart			
28	1	Lip Cylinder	119291	119291	119291	119291
29	1	Velocity fuse	124767	124767	124767	124767
30	1	Hose Assembly (Ramp)	16927	120373	120373	120373
31	1	Hose Assembly (Lip)	16931	120372	120372	120372
32	*	Return Hose, Ramp Cylinder (Qty = 1" of hose)	55372	55372	55372	55372
33	*	Return Hose, Lip Cylinder (Qty = 1" of hose)	55372	55372	55372	55372
34	*	Return Hose, Power Unit (Qty = 1" of hose)	55372	55372	55372	55372
35	1	Clevis pin, Main Cylinder (Top)	52643	52643	52643	52643
36	1	Clevis pin, Main Cylinder (Bottom)	112467	112467	112467	112467
37	8	Cotter pin, .188dia	51907	51907	51907	51907
38	1	Clevis pin, Lip Cylinder (Rear)	52630	52630	52630	52630
	1	Clevis pin, Lip Cylinder (Front, no ARTD)	52630	52630	52630	52630
39	2	Washer	51721	51721	51721	51721
40	-	STD - Rite-Hite Biodegradeable Fluid (quart/light blue in color)	119181	119181	119181	119181
	-	OPT - Mil 5606 Fluid (quart/red in color)	108303	108303	108303	108303

## RAMP CYLINDER USAGE CHART (Item 2)

CAP	FRAME	LEVELER LENGTH				
		6' Long	8' Long	10' Long	12' Long	
J / L / M CAP	20"	14" 128997	16" 128912	18" 128913	18" 128913	20" 128914
	24"	18" 128913	20" 128914	20" 128914	22" 128915	22" 128915
.25 WALL	24" W/ ADS	N/A			23" 128916	23" 128916

## REPLACEMENT PARTS - LEVELER ASSEMBLY

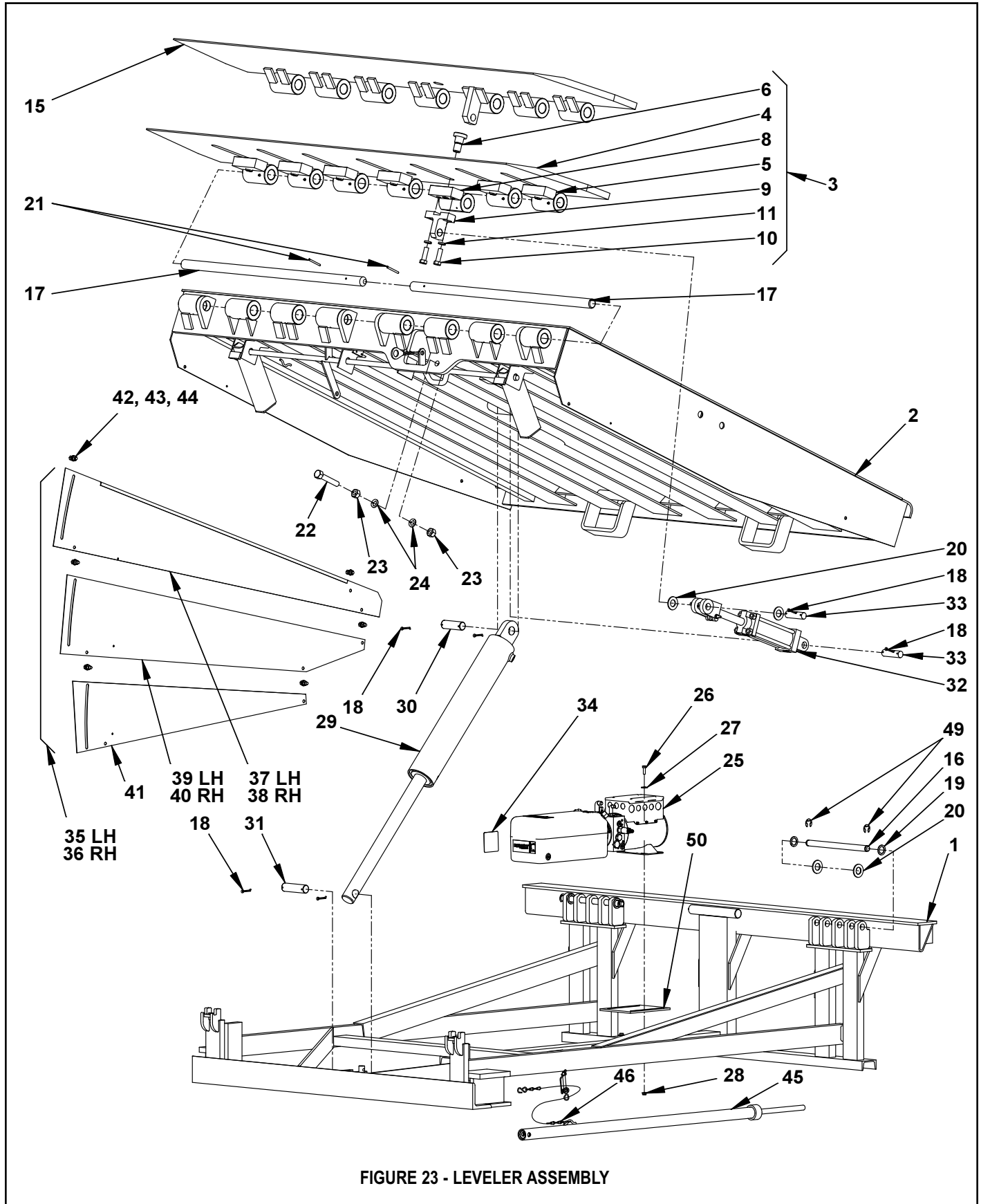


FIGURE 23 - LEVELER ASSEMBLY

**LEVELER ASSEMBLY REPLACEMENT PARTS LIST**

Item	Qty.	Description	J Cap. P/N	L/M Cap. P/N
1	1	Frame Weldment	Consult Factory	
2	1	Platform Weldment	Consult Factory	
3	1	Safe-T-Lip Assembly	Consult Factory	
		Safe-T-Lip Assembly W/Slot Cover	Consult Factory	
4	1	Safe-T-Lip Plate	Consult Factory	
		Safe-T-Lip Plate For Slot Cover	Consult Factory	
5	6	Spool Module - 2.125 OD	131455	2538
		Spool Module - 3.00 OD		
6	7	Shoulder Bolt 1.25 DIA	52746	52746
7	8	Grease Fitting (Not Shown)	51169	51169
8	1	Spool Module - 2.125 OD Lip Lug Mount	131456	
		Spool Module - 3.00 OD Lip Lug Mount		125971
9	1	Lip Lug (Safe-T-Lip)	131452	131452
10	2	Bolt .75-10 x 2L Hex ZP	126025	126025
11	2	Washer Split LK .75 DIA Heavy ZP	51814	51814
12	1	Plate Slot Cover Slot Cover Opt. (Not Shown)	131457	131457
13	14	Screw .25-20 x 1 SQ NK G5 ZP Slot Cover Opt. (Not Shown)	116490	116490
14	14	Nut .25-20 Nylock Mach. ZP Slot Cover Opt. (Not Shown)	51595	51595
15	1	Lip Weldment 1" Thick	Consult Factory	
16	2	Pin Clevis .875 x 13L	139829	139829
		Pin Clevis .875 x 13L Stainless Steel	139854	139854
17	2	Pin Lip Hinge 1.125 or 1.42 x 34.88L (6' Wide)	774d101	775d101
		Pin Lip Hinge 1.125 or 1.42 x 34.88L (6' Wide) Stainless Steel	776d101	777d101
		Pin Lip Hinge 1.125 or 1.42 x 38.75L (6.5' & 7' Wide)	774d102	775d102
		Pin Lip Hinge 1.125 or 1.42 x 38.75L (6.5' & 7' Wide) Stainless Steel	776d102	777d102
18	8	Pin Cotter .188 DIA. x 1.50L ZP	51907	51907
19	4	Busing Machine 1.50 OD x 1.00 ID x .134 THK ZP	51730	51730
20	4	Washer Flat 1" SAE ZP	51721	51721
21	2	Pin Tension .25 DIA. ZP	123960	52814
22	1	Bolt Hex .75-10 UNC ZP	51186	128925
23	2	Nut .75-10 Hex GR5 ZP	51517	51517
24	2	Washer Split Lock .75 DIA Heavy ZP	51814	51814
25	1	Power Unit 1HP RLF(1200PSI)	See Pages 32 - 35	
26	4	Screw .312-18 x 1L Hex GR5 ZP	51627	51627
27	4	Washer .31 Flat ZP	51728	51728
28	4	Nut .31-18 NYLK FLG ZP	131171	131171
29	1	Cylinder Hydraulic 4" Bore SA 2PORT	See Pages 32 - 35	
30	1	Pin Clevis 1.25 x 4L 2Hole ZP	52643	52643
31	1	Pin Clevis 1.25 x 4.625L 2Hole ZP	112467	112467
32	1	Cylinder Hydraulic 2.5" Bore x 6 Stroke 2Port	119291	119291
33	2	Pin Clevis 1 x 3.625L ZP	52630	52630
34	1	Decal Oil Hyd. Bio. FL(85+%)	119530	119530
35-41		Toeguard Assembly And Parts	See Page 39	
42	8	Bolt .375-16 x 1L Hex G5 ZP	51600	51600
43	16	Washer Flat .38 ZP	51700	51700
44	8	Nut Nylock .38-16 UNC ZP	51501	51501
45	1	Safe-T-Strut	See Page 39	
46	1	Chain Assembly - Safe-T-Strut	117678	117678
47	1	Decal Sheet	128116	128116
48		Ties Wire Nylock BLK 13.50L	55892	55892
49	4	Ring Retaining External (E) .875OD	129308	129308
50	1	Motor Mount Plate	147192	147192

## REPLACEMENT PARTS - LEVELER ASSEMBLY (Continued)

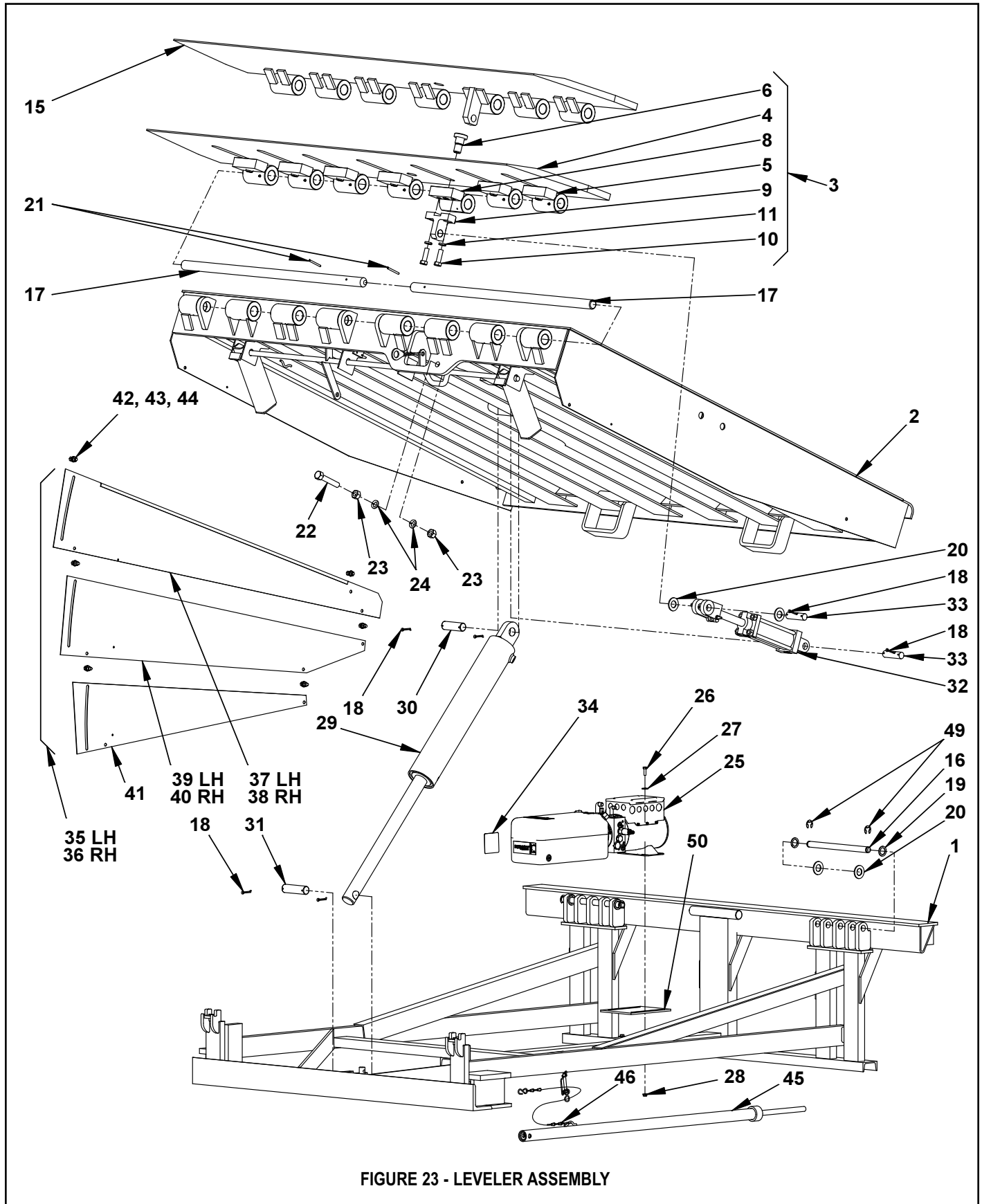


FIGURE 23 - LEVELER ASSEMBLY

**LEVELER ASSEMBLY REPLACEMENT PARTS LIST**

Item	Qty.	Description	Leveler Length			
			6' Long	80" / 8' Long	10' Long	12' Long
35	1	Toeguard Assy. 2FAN LH	755d100	755d101	755d101	755d102
		Toeguard Assy. 3FAN LH			759d104	759d103
36	1	Toeguard Assy. 2FAN RH (Not Shown)	754d100	754d101	754d101	754d102
		Toeguard Assy. 3FAN RH (Not Shown)			758d104	758d103
37		Toeguard Fan Ext. .075 x 12 LH (3 Fan Only)			752d108	752d107
38		Toeguard Fan Ext. .075 x 12 RH (3 Fan Only)			752d108	752d107
39		Toeguard Fan Full .075 x 12 RH	756d100	756d101	756d101	756d103
40		Toeguard Fan Full .075 x 12 LH (Not Shown)	756d100	756d101	756d101	756d104
41		Toeguard Fan Extd. 14GA x 11 1Slot	416d100	416d101	416d101	416d101

**REPLACEMENT PARTS - SAFE-T-STRUT (From Page 37)**

RHH50 - J Capacity		
	19.5	23.5
6L	16645 (52.75")	104734 (55")
80L	15799 (53.75")	146175 (60.25")
8L	104736 (57")	146175 (60.25")
10L	104734 (55")	146175 (60.25")
12L	104736 (57")	146175 (60.25")

RHH50 - L or M Capacity		
	19.5	23.5
6L	16645 (52.75")	15799 (53.75")
80L	15799 (53.75")	146175 (60.25")
8L	128999 (58.5")	146175 (60.25")
10L	104734 (55")	146175 (60.25")
12L	104736 (57")	146175 (60.25")

## REPLACEMENT PARTS - AUTOMATIC RETURN TO DOCK

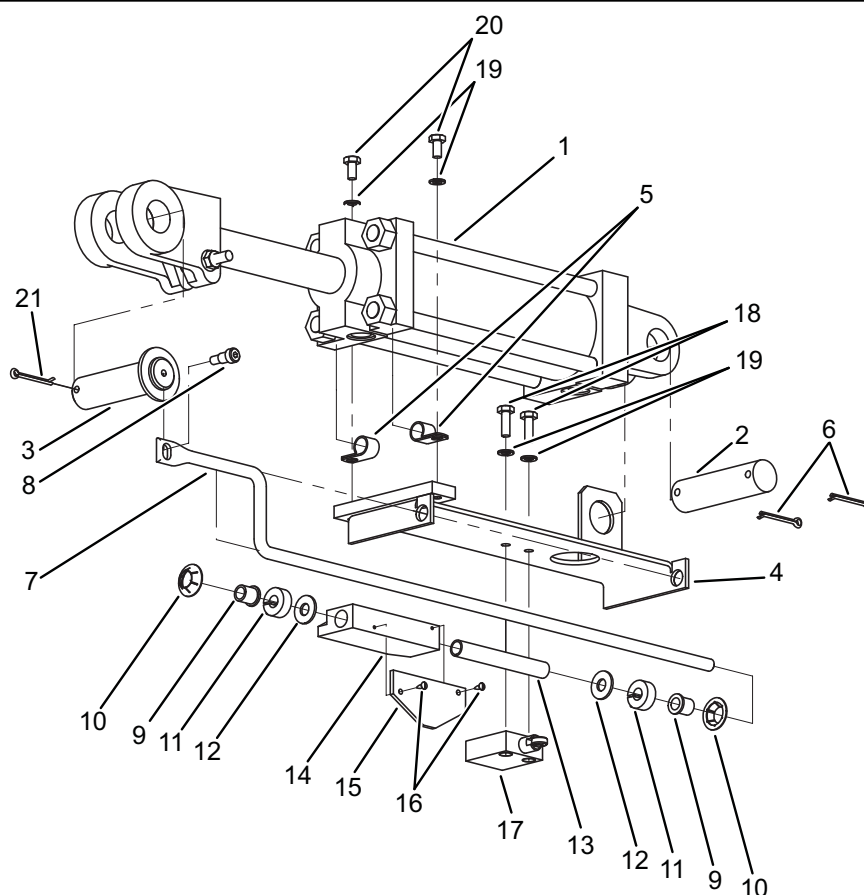
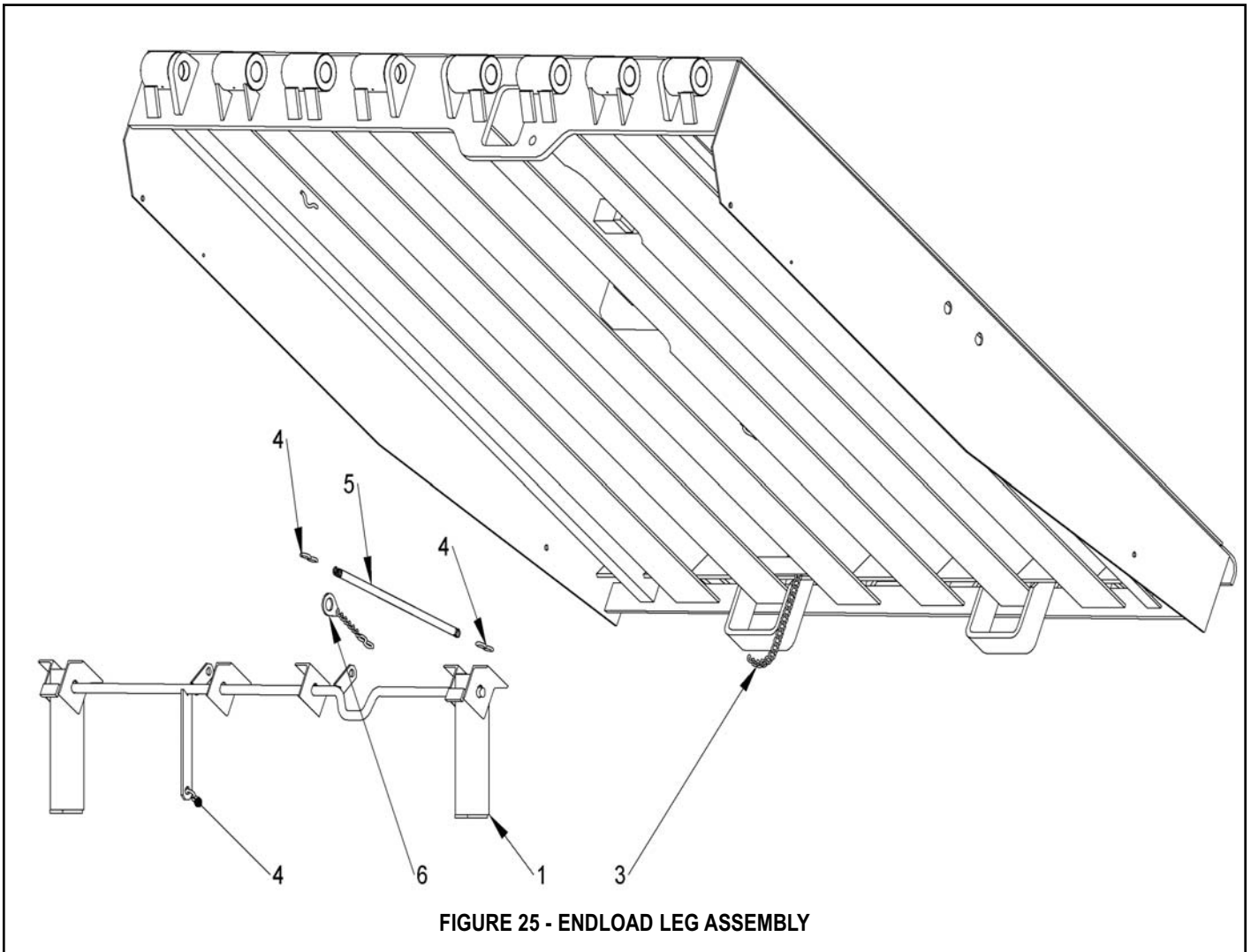


FIGURE 24 - AUTOMATIC RETURN TO DOCK (ARTD) PARTS

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	Sharp 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	Rotary 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



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	510dXXX
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

## NOTES

## **NOTES**

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