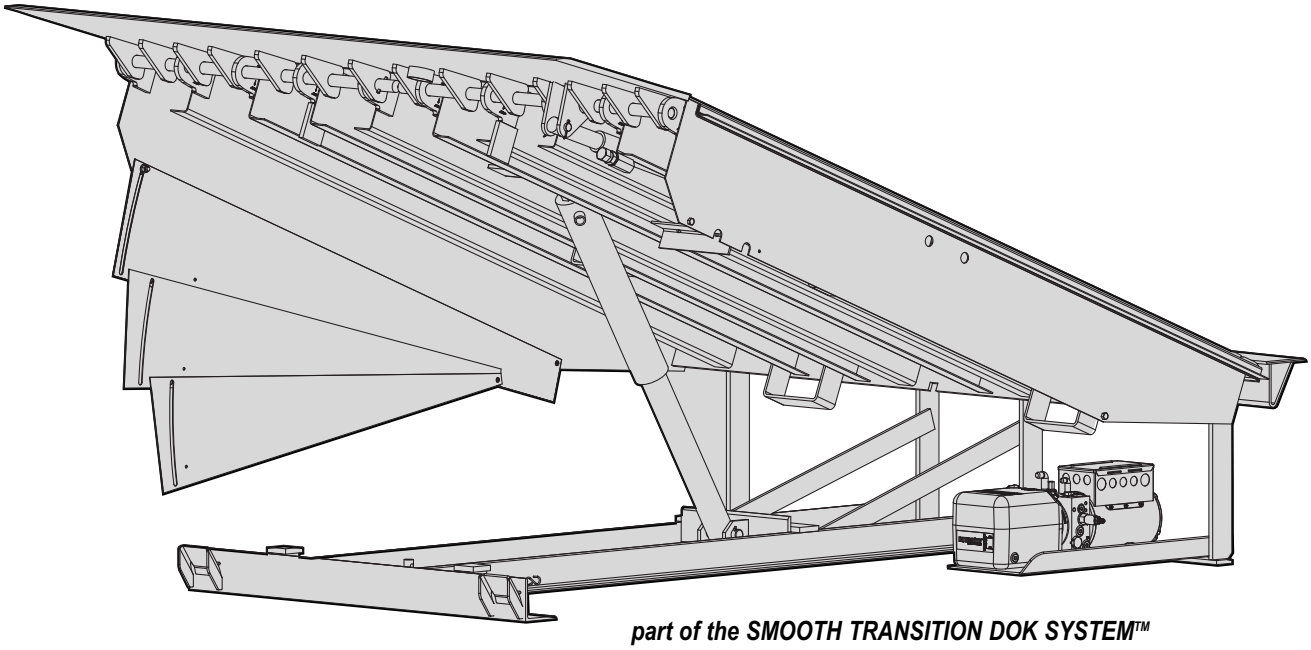
HL-900

Dock Leveler
Owners Manual



part of the SMOOTH TRANSITION DOK SYSTEM™

genisys
By Rite-Hite

MADE IN U.S.A.

This Manual Covers Dock Levelers Built After Serial Numbers:
13GD480708M and up

PRINTED IN U.S.A.
RITE-HITE PRINT SHOP

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NOTES

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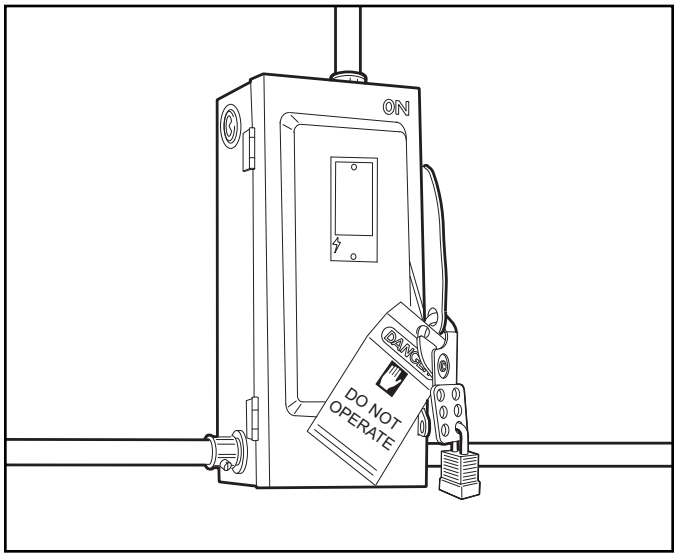
PRODUCT SPECIFIC WARRANTY

Rite-Hite® warrants the HL9 Dock Leveler for one-year parts and 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.

SAFETY WARNING



⚠ 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

- 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.

⚠ 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.

SAFETY DEVICES

⚠ DANGER

Never be under the dock leveler platform or lip without:

- **Installing the Maintenance 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 Maintenance Strut over the base located on the leveler's front frame.**
  - **Release the pushbutton on powered levelers allowing the support to rest inside the lip cup 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 Strut.

- **For Maintenance Strut removal, have an assistant raise the leveler to its highest position with lip fully extended. Lift the support off base. Return the Maintenance Strut to the proper storage position.**
- **If you are unable to install the Maintenance Strut 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.**

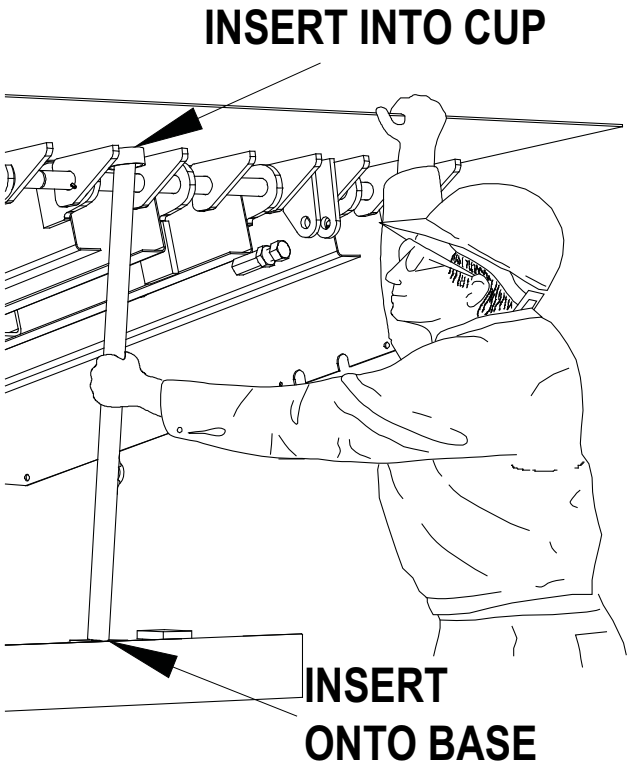


FIGURE 2 - INSTALL MAINTENANCE STRUT

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 presonnel 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 until leveler is fully raised and lip is fully extended. See figure 3.

   NOTE: Some levelers may be equipped with a two button control box. If so, push and hold the RAISE button to raise the platform. While pressing the RAISE button, push the LIP EXTEND button to fully extend the lip when the lip has cleared trailer bed.

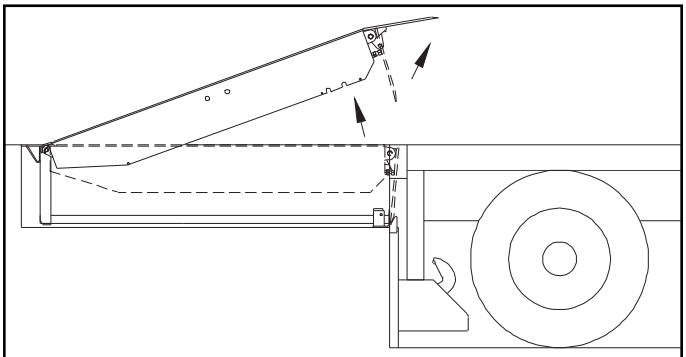


FIGURE 3 - POWERED DOCK LEVELER

2. When lip is fully extended, release RAISE button. The leveler will automatically lower onto the truck/trailer bed. See figure 4.

NOTES:

a. Some levelers may be equipped with a two button control box. If so, release RAISE and LIP EXTEND buttons.

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

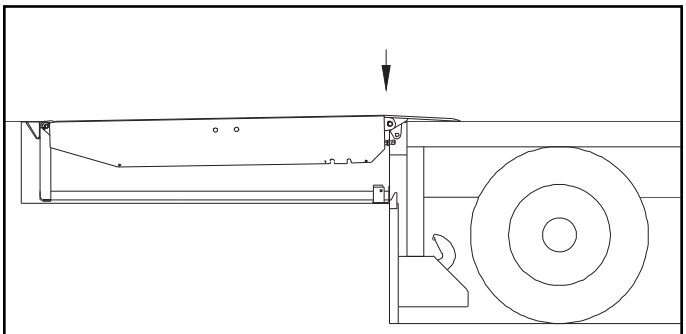


FIGURE 4 - NORMAL OPERATION

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.

BELOW DOCK LOADING OPERATION

1. Activate the leveler by pushing and holding the RAISE button until leveler is fully raised and lip is fully extended. See figure 3.

   NOTE: Some levelers may be equipped with a two button control box. If so, push and hold the RAISE button to raise the platform. While pressing the RAISE button, push the LIP EXTEND button to fully extend the lip when the lip has cleared trailer bed.

2. When lip is fully extended, release RAISE button.

   NOTE: Some levelers may be equipped with a two button control box. If so, release RAISE and LIP EXTEND buttons.

3. When loading/unloading is complete, continue with normal operation or return the leveler to stored position. See *Storing Leveler.*

OPERATION INSTRUCTIONS CONT.

DOCK LEVEL (OR LOWER) END LOADING OPERATION

1. Activate the leveler by pushing and holding the RAISE button until leveler is fully raised and lip begins to extend. See figure 5.

   NOTE: Some levelers may be equipped with a two button control box. If so, push and hold 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.

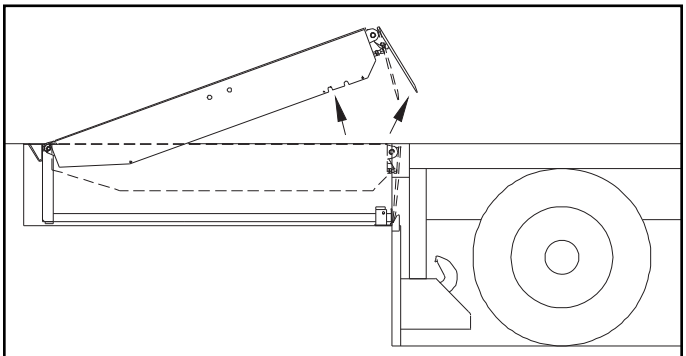


FIGURE 5 - END LOAD OPERATION - LIP POSITION

2. When lip extends about 2 inches, release RAISE button. See figure 5. 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.

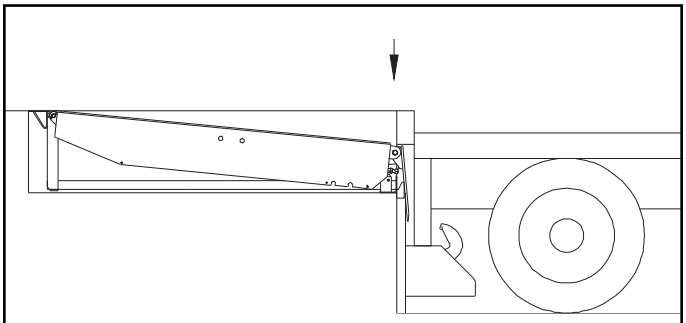


FIGURE 6 - END LOAD OPERATION

NOTES:

a. Some levelers may be equipped with a two button control box. If so, release RAISE and LIP EXTEND buttons

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

c. If the lip extended too far, quickly push and release the RAISE button to slightly retract the lip.

d. If the lip was not extended far enough and hits the lip supports, repeat this step allowing the lip to extend farther.

3. 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 7.

   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.

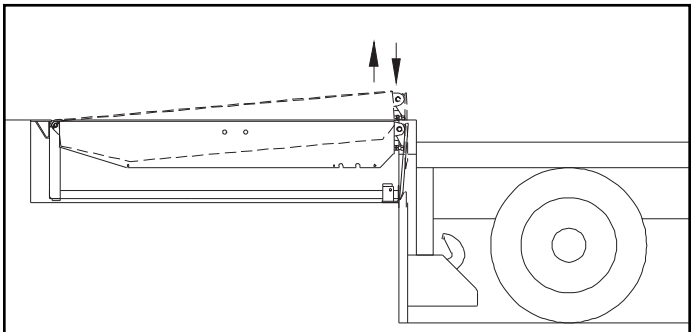


FIGURE 7 - LEVELER STORED

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 Strut before proceeding with any repair work.**

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 hydraulic system (cylinders, hoses, fittings, and power unit).
4. Lubricate the leveler with the proper lubricants. See figure 8.
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-metalic enclosures, breather vent part number 122130 may be installed. The vent is NEMA 4X and will not change the enviromental 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: 108303 - Mil 5606 Fluid (quart/red in color)

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

360 Days

1. Perform Daily and 90-Day Maintenance.
2. Check and tighten control box mounting hardware.

MAINTENANCE PROCEDURES

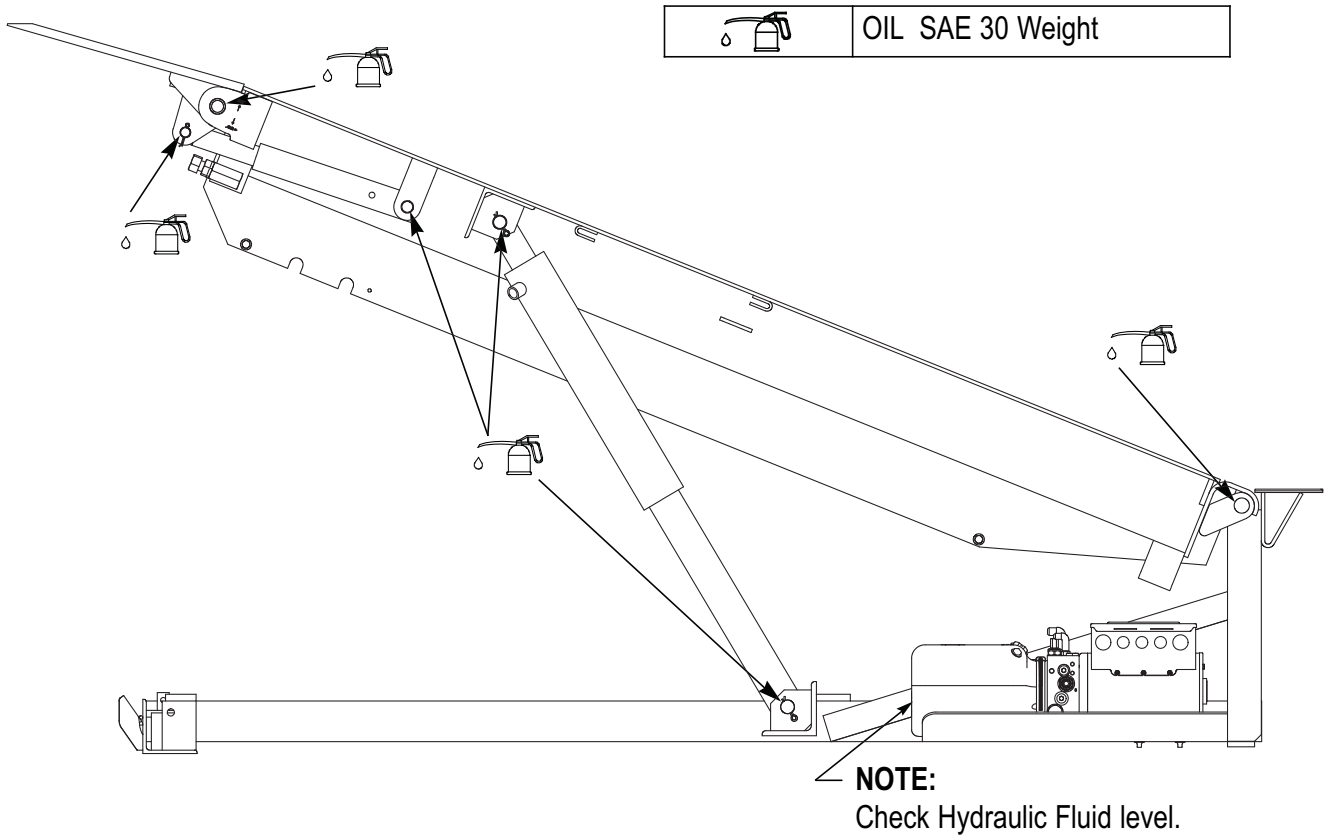


FIGURE 8 - HYDRAULIC POWERED LEVELER LUBRICATION

LEVELER ADJUSTMENTS

HYDRAULIC LEVELER ADJUSTMENTS

NOTE:

The adjustments listed below are factory averages, field adjustment may be necessary. None of the adjustments will change the operating speed of the hydraulic dock leveler.

LIP STOP BOLT:

The lip stop bolt adjusts the position of the lip when the leveler is stored. The lip stop bolt is factory adjusted on units with 16" and 18" lips, to allow the lip to be centered on lip supports when stored. See figure 9.

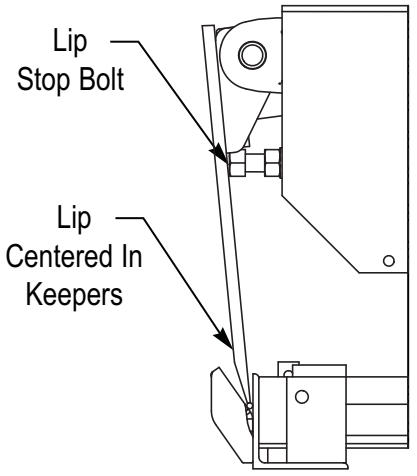


FIGURE 9 - LIP STOP BOLT

OPTIONAL ARTD ADJUSTMENTS:

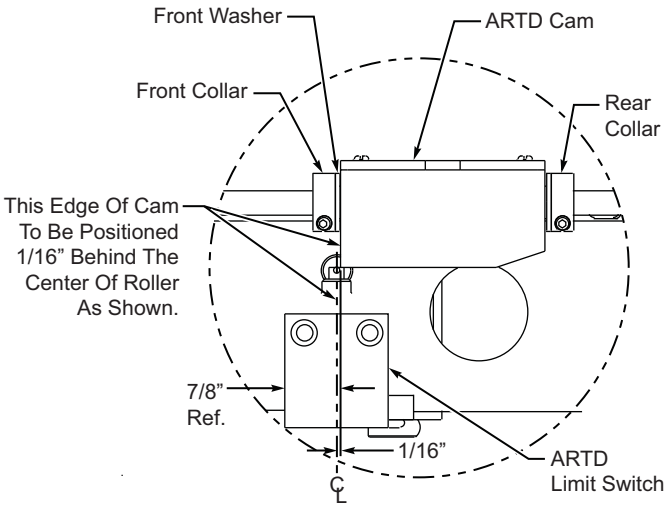
ARTD Limit Switch Cam

NOTE: Before continuing be sure the lip stop bolt is properly adjusted. See figure 9.

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 10.
   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)

10 - ARTD CAM ADJUSTMENT

LEVELER ADJUSTMENTS CONT.

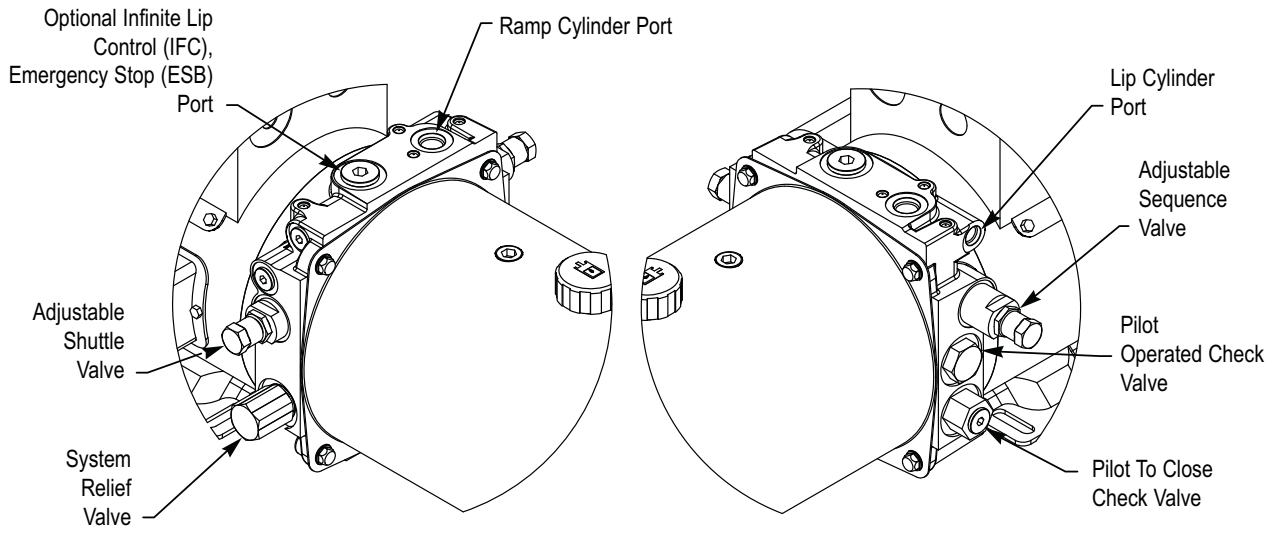


FIGURE 11 - HALDEX POWER UNIT END HEAD

⚠ 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 Strut.
- Make sure that the leveler power is locked out and tagged out according to OSHA regulations and approved local codes.

⚠ WARNING

- Shuttle valve is factory adjusted and sealed.
- Adjustments to be completed by trained technician only.

HYDRAULIC VALVE ADJUSTMENTS (HALDEX 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 8 to 12 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. See Figure 11.
3. Adjustments should be no more than 1/8 turn increments.
4. Loosen adjustment screw to decrease platform speed while lowering (excessive loosening can eliminate platform lowering).
5. Tighten adjustment screw to increase platform speed while lowering (velocity fuse may lock-up as a result of increased platform speeds while lowering).
6. Tighten locknut without turning valve body or adjustment screw.
7. Reinstall o-ring and protective cap and tighten cap.
8. Re-test the unit several times to verify the setting.

LEVELER ADJUSTMENTS CONT.

SEQUENCE VALVE ADJUSTMENT

(CONTROLS LIP EXTENSION)

Note:

- Check oil level before making any adjustments.
- Sequence valve is factory sealed. 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. Remove protective cap and O-ring. Loosen locknut without turning valve body or adjustment screw. Turn adjustment screw counterclockwise to lower the valve pressure setting.

   Note: Valve is factory set at 0.70".
3. Adjustments should be no more than 1/8 turn increments.
4. Tighten locknut without turning valve body or adjustment screw.
5. Reinstall O-ring and protective cap and tighten cap.
6. Re-test the unit several times to verify the setting.
7. If the lip begins to extend at any time before the platform has fully raised, the Sequence Valve setting is too low.
8. Remove protective cap and O-ring. Loosen locknut without turning valve body or adjustment screw. Turn adjustment screw clockwise to increase the valve pressure setting.
9. Adjustments should be no more than 1/8 turn increments.
10. Tighten locknut without turning valve body or adjustment screw.
11. Reinstall O-ring and protective cap and tighten cap.
12. Re-test the unit several times to verify the setting.

LEVELER ADJUSTMENTS CONT.

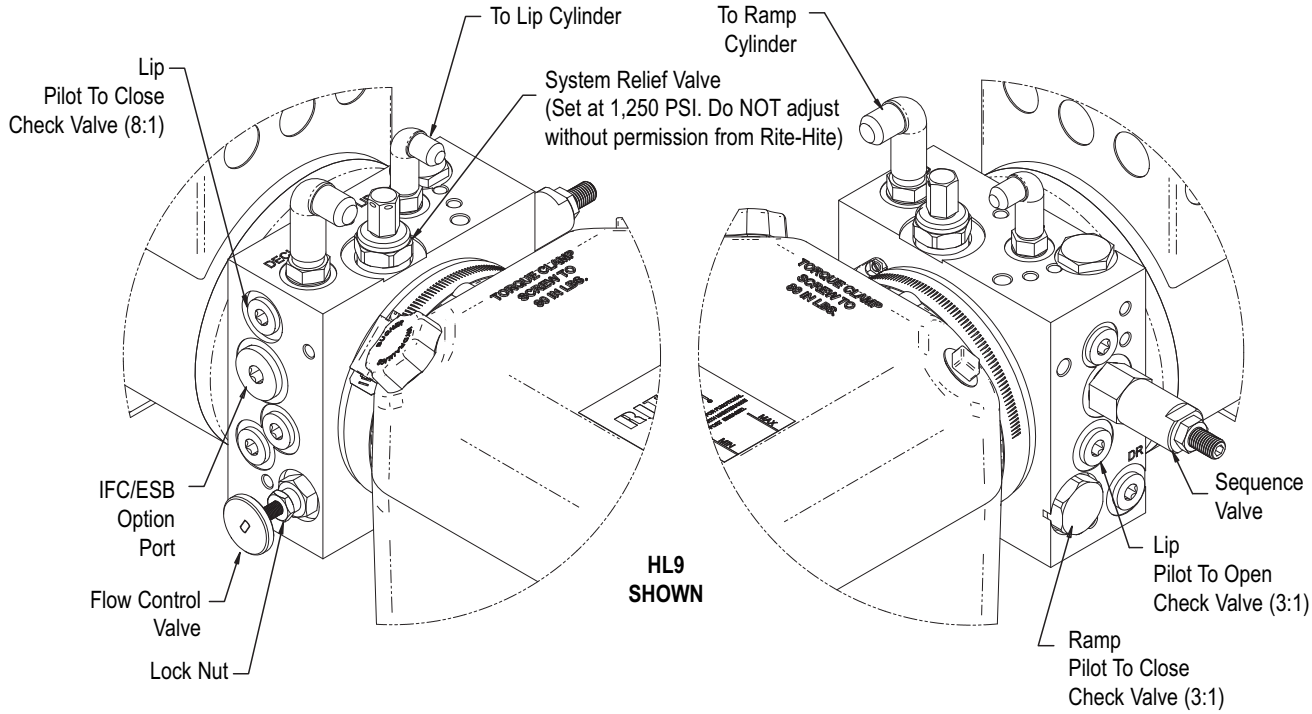


FIGURE 12 - BUCHER POWER UNIT END HEAD (HL9)

⚠ 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 Strut.
- Make sure that the leveler power is locked out and tagged out according to OSHA regulations and approved local codes.

⚠ 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 the proper time frame. See below

   HL9 8 to 12 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 12.

   - 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.

LEVELER ADJUSTMENTS CONT.

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 12.
4. Back screw out to get to factory starting point:

   For power units built before April 2015: 2-1/2 turns.
   For power units built after March 2015: 5-1/2 turns.

   Tighten adjustment nut once at factory starting point.
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.

LEVELER TROUBLESHOOTING

Problem	Probable Cause	Solution
1. Platform does not raise a.	Power has been disconnected.	a. Verify that power has not been disconnected. Verify that disconnect circuit breaker or fuses are not tripped.
	b. The motor has been miswired.	b. Verify that the motor has been wired according to the motor wiring diagram.
	c. Overload tripped. q	c. Push RESET on overload relay.
	d. Debris is lodged on or around the leveler.	d. Check for and remove any lodged materials on or around the leveler.
	e. Hydraulic fluid level is low.	e. Check oil level when the unit is held open with the maint. support. See Figure 9. 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.	a. Remove debris from the lip hinge.
	b. Lip impacted or bent.	b. Lubricate per maintenance procedures or replace lip.
	c. Hydraulic fluid level low.	c. Check oil level when unit is held open with the maint. support. See Figure 9. Refill if necessary.
4. Platform does not lower.	a. Velocity fuse has locked up.	a. Attempt to raise the unit to unlock the velocity fuse.
	b. Debris is lodged on or around the leveler.	b. Check and remove any lodged debris on or around leveler.
5. Platform raises very slowly.	a. Weight on top of platform.	a. Remove weight from platform.
	b. Hydraulic fluid level is low.	b. Check oil level when the unit is held open with the maint. support. See Figure 9. Refill if necessary.
	c. Low voltage	c. Verify ± 10% nominal voltage while unit is running.
	d. Power unit/pump/motor failure.	d. Replace power unit assembly.
6. Lip does not store properly.	a. The lip stop bolt is not adjusted properly.	a. Verify that the lip stop bolt is properly adjusted.
	b. Debris.	b. Remove debris.
	c. Lip supports.	c. Repair or replace the lip supports.
7. Fuse or circuit breaker trips.	a. Undersized fuse or circuit breaker.	a. Verify 20 amp for 120VAC and 15 amp for 240VAC.
	b. Low voltage.	b. Verify ± 10% nominal voltage while unit is running.
	c. Short circuit in wiring.	c. Check wiring connections and verify.
	d. Wire gage is too small. Distance is too long.	d. Verify minimum wire gage per distance is correct. See chart on page 19.

HYDRAULIC SCHEMATIC

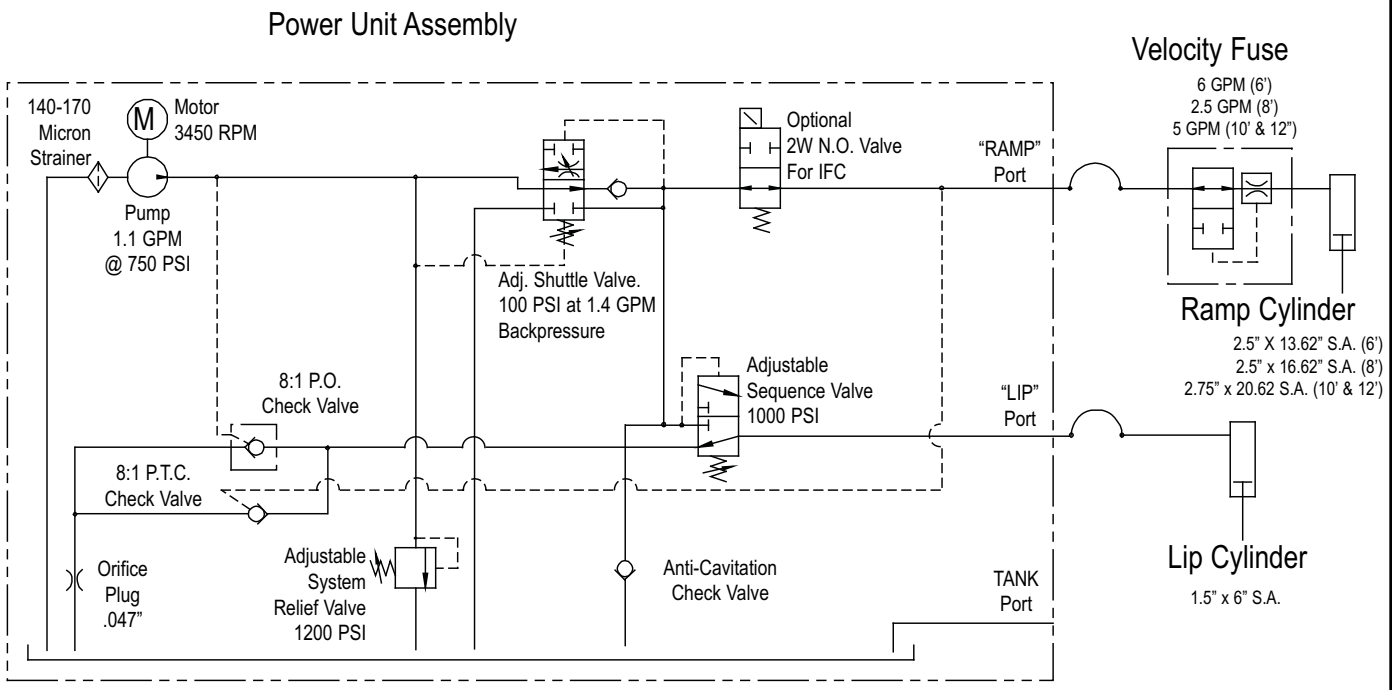


FIGURE 13 - HYDRAULIC SCHEMATIC (HALDEX POWER UNIT)

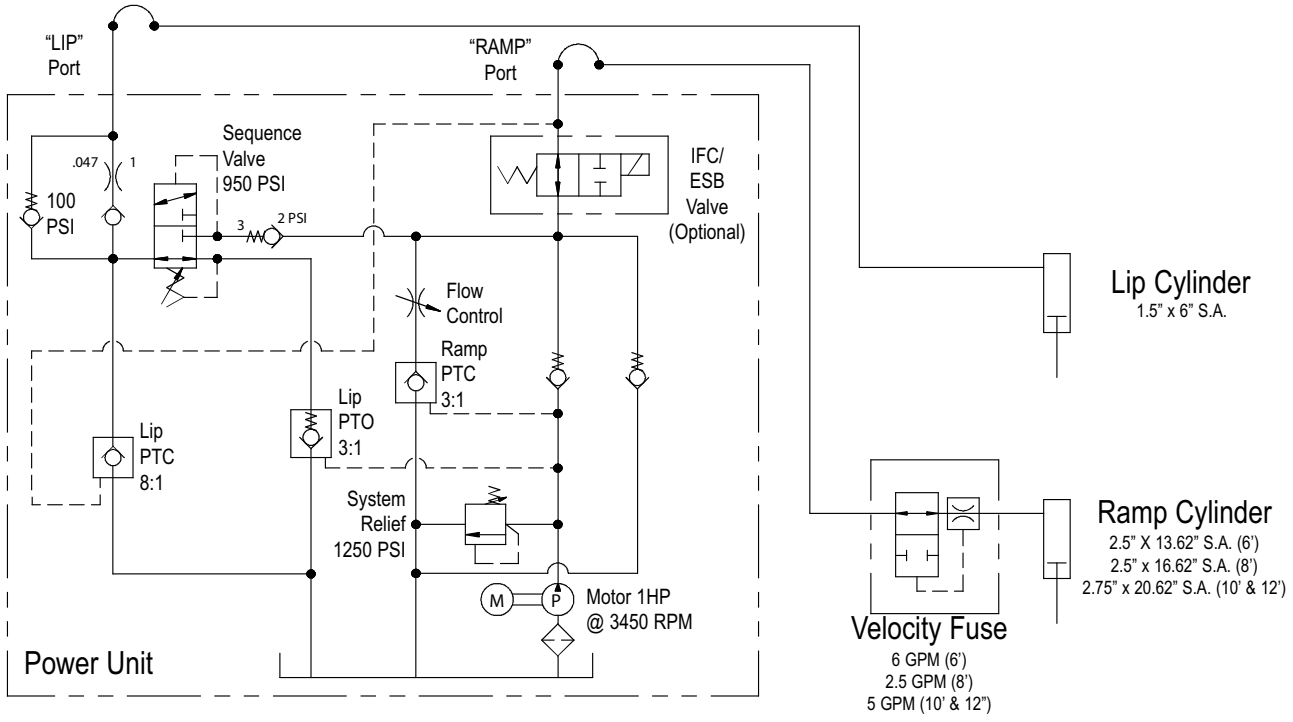


FIGURE 14 - HYDRAULIC SCHEMATIC (BUCHER POWER UNIT)

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. DOK-COMMANDER CONTROLS		MICRO CONTROL BOARD							POWER BOARD	LEVELER AUX BOARD		
		INPUTS						OUTPUTS		OUTPUTS		
		FIELD			PUSH BUTTONS			12VDC	12VDC	RELAY		12VDC
		ARTD INPUT	OVERHEAD DOOR OPEN INTERLOCK INPUT [OHD ITL]	LEVELER STORED INTERLOCK TO UNLOCK* [UNLK ITL]	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.	J14.4	J14.2	J14.3	MEMBRANE	MEMBRANE	J7.8	J15.1	J2.1-6	J7.3	J7.3	-
	MICRO CONTROL BOARD LEDs	LD32	LD29	LD30	LD52	LD52	LD31	LD42	LD7	-	-	-
	LEVELER AUX BOARD LEDs	-	-	-	-	-	-	-	-	LD10	LD10	LD4
02.01.00	REST STATE	F	?	?	-	-	T	F	T	F	T	T
02.01.01	RAISE SEQUENCE	F	ITL	?	M	-	T	T	T	F	T	T
02.01.02	AUTOMATIC RETURN TO DOCK	T	ITL	?	-	-	T	T	T	F	T	T
02.01.03	COMBINED POWER UNIT SEQ	F	?	?	-	-	T	T	T	F	T	T
02.02.00	LIP EXTEND SEQUENCE	F	ITL	?	M	M	T	T	T	T	F	T
02.02.01	PLATFORM HOLD STATE	F	F	?	-	M	T	T	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.											

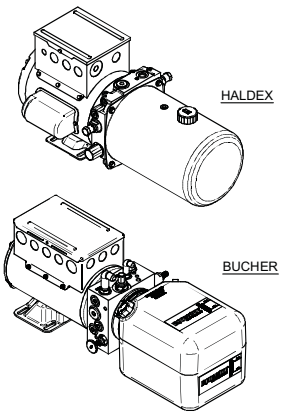
KEY	
? - VARYS DEPENDING ON OPERATION	M - LIGHTS WHEN BUTTON PRESSED
F - OFF	P - PULSING / FLASHING [SET TO STEADY USING DIP SWITCHES]
ITL - INTERLOCK INPUT ON	T - STEADY ON

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.

ELECTRICAL WIRING CHARTS

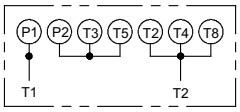
MOTOR CONNECTION DETAIL / FLA



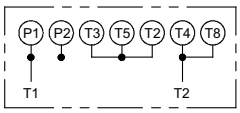
HL9	Motor FLA Ratings & Connection Detail				Minimum Wire Size (AWG) Chart for Various Line Lengths and Line Loads			
	HALDEX		BUCHER		Line Length (ft)			
	FLA	CONN DETAIL	FLA	CONN DETAIL	0-50	51-100	101-150	151-200
110-120/1/60/.75HP	10	A			12	10	8	6
110-120/1/60/1.0HP			12.4	C	10	8	6	6
208-240/1/50/.75HP	5.0	B			14	14	14	12
208-240/1/50/1.0HP			7.0	D	14	12	12	10
208-240/1/60/.75HP	5.0	B			14	14	14	12
208-240/1/60/1.0HP			6.6	D	14	12	12	10
208-240/3/60/1.0 HP	3.8	E	3.0	E	14	14	12	12
380-415/3/50/1.0 HP	2.5	F	1.7	F	14	14	14	14
440-480/3/60/1.0 HP	1.9	F	1.5	F	14	14	14	14
575/3/60/1.0 HP	1.5	G	1.4	G	14	14	14	14

1 PH CONNECTON DETAIL

A

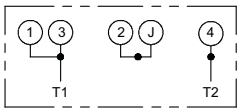


B

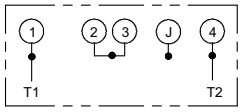


IF ROTATION IS WRONG REVERSE T5/5 AND T8/8

C



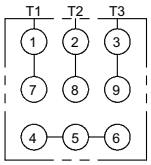
D



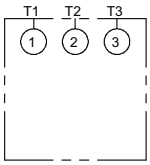
MOTOR ROTATION IS NOT REVERSIBLE

3 PH CONNECTON DETAIL

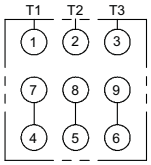
E



G

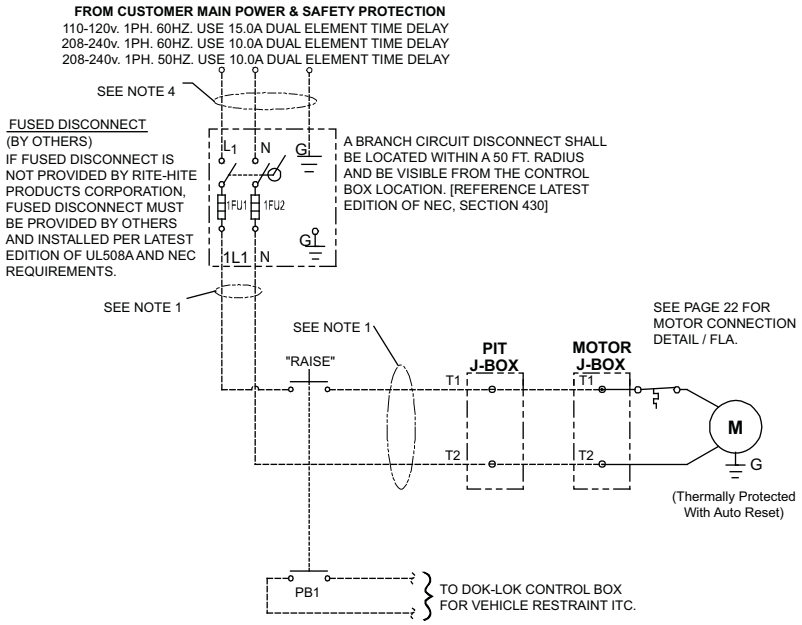


F



IF ROTATION IS WRONG REVERSE ANY 2 LINES

ELECTRICAL SCHEMATIC



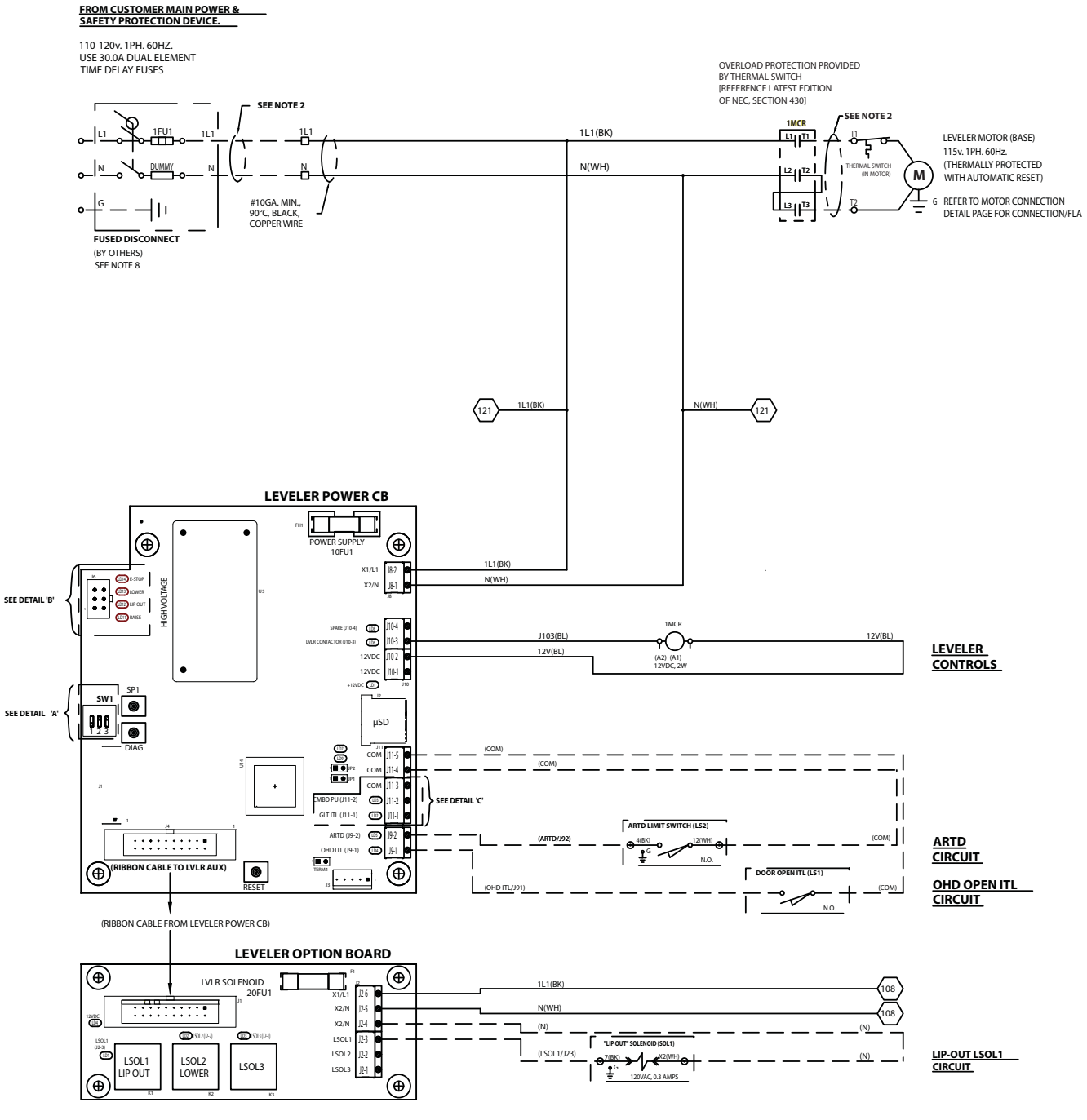
NOTE:
1. All Incoming Power (From Disconnect to Control Box) and Leveler Motor Field Wiring To Be Minimum #12GA./Maximum #10GA. 60/75 Deg. C Copper Wire, Insulated Sufficiently For Incoming Voltage.
2. All Control Field Wiring To Be Minimum #14GA. 60/75 Deg. C Copper Wire Only, Insulated Sufficiently For Incoming Power.
3. All Internal Control Box Wiring To Be Minimum #16GA. 90 Deg. C, Red Copper Wire Unless Otherwise Noted, Insulated Sufficiently For Incoming Power.
4. Incoming Power Field Wiring: See Minimum Wire Size Chart.

LEGEND:

DENOTES WIRE CONNECTIONS THRU TERMINAL BLOCK.
DENOTES FIELD WIRES.
DENOTES WIRE NUT CONNECTION
DENOTES MALE/FEMALE PLUG CONNECTION

FIGURE 15 - HL-900 TYPE 1 CONTROL BOX - 120V./208-240V. 50/60HZ. SINGLE PHASE

ELECTRICAL SCHEMATIC CONT.



1. INSTALL PER LOCAL ELECTRICAL CODES. REFER ALL INSTALLATION AND SERVICE TO QUALIFIED PERSONNEL.
2. ALL INCOMING POWER (FROM DISCONNECT TO CONTROL BOX) AND MOTOR FIELD WIRING TO BE MINIMUM #10/12GA. 60°/75°C COPPER WIRE, INSULATED SUFFICIENTLY FOR INCOMING VOLTAGE.
3. ALL CONTROL FIELD WIRING TO BE MINIMUM #14GA. 60°/75°C COPPER WIRE ONLY, INSULATED SUFFICIENTLY FOR INCOMING VOLTAGE.
4. ALL INTERNAL WIRING TO BE #14GA. MINIMUM FOR POWER CIRCUITS AND CIRCUIT BOARD POWER, #16GA MINIMUM FOR CONTROL CIRCUITS, 90°C, RED COPPER WIRE UNLESS OTHERWISE NOTED, INSULATED SUFFICIENTLY FOR INCOMING VOLTAGE.
5. SEE OWNERS MANUAL FOR COMPLETE OPERATING INSTRUCTIONS.
6. TORQUE REQUIREMENTS:
   - -PCB TERMINAL BLOCK POWER (J3/J5): 7.0 LB-IN
   - -PCB TERMINAL BLOCK CONTROL (J7): 6.0 LB-IN
   - -PCB TERMINAL BLOCK ALL OTHER: 4.0 LB-IN
   - -INCOMING POWER TERMINAL BLOCK: 12.2-13.4 LB-IN (MIN-MAX)
   - -FUSE BLOCK POWER: 14.75 LB-IN
   - -CONTACTOR/OVERLOAD: 15 LB-IN
   - -DISCONNECT: 7 LB-IN
   - -GROUND TERMINAL: 35 LB-IN
   - -SOLID STATE RELAY TERMINAL: 35 LB-IN
7. LS1 PROVIDED BY OTHER FOR OVERHEAD DOOR INTERLOCK (OPEN). LS2 PROVIDED BY RITE-HITE WITH LEVELER FOR ARTD.
8. DISCONNECT NOTES:
   - -FUSED DISCONNECT IS NOT PROVIDED BY RITE-HITE PRODUCTS CORPORATION. DISCONNECT MUST BE PROVIDED BY OTHERS AND INSTALLED PER LATEST EDITION OF UL508A AND NEC REQUIREMENTS.
   - -A BRANCH CIRCUIT DISCONNECT SHALL BE LOCATED WITHIN A 50 FT. RADUIS AND BE VISIBLE FROM THE CONTROL BOX LOCATION. [REFERENCE LATEST EDITION OF NEC, SECTION 430]
9. CLASS 1 CONTROL CIRCUIT.

LEGEND:
- DENOTES WIRE CONNECTIONS THRU TERMINAL BLOCK.
- DENOTES FIELD WIRES.
- DENOTES WIRE NUT CONNECTION.
- DENOTES MALE/FEMALE PLUG CONNECTOR.

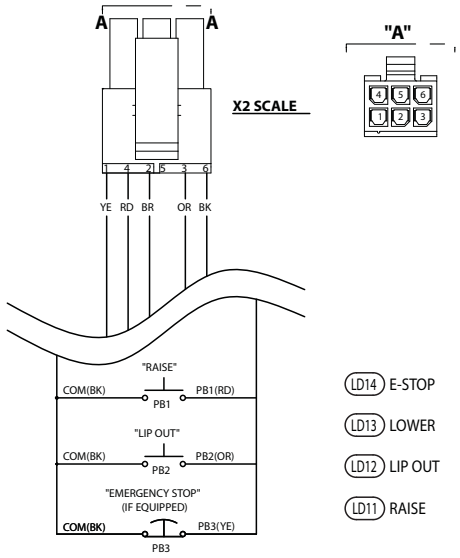
FIGURE 16A - HL-900 CONTROL BOX - 115V. SINGLE PHASE - 1 OF 2

ELECTRICAL SCHEMATIC CONT.

DETAIL A - DIP SWITCH SETTINGS

FACTORY POSITION	FUNCTION CONTROLLED
1 (DOWN)	(DIP SWITCH 1 NOT USED)
2 (UP)	GREEN LIGHT ITL/ITC (DOWN - IF REQUIRED/UP TO DISABLE)
3 (UP)	OVERHEAD DOOR INTERLOCK (DOWN - IF EQUIPPED/UP TO DISABLE)

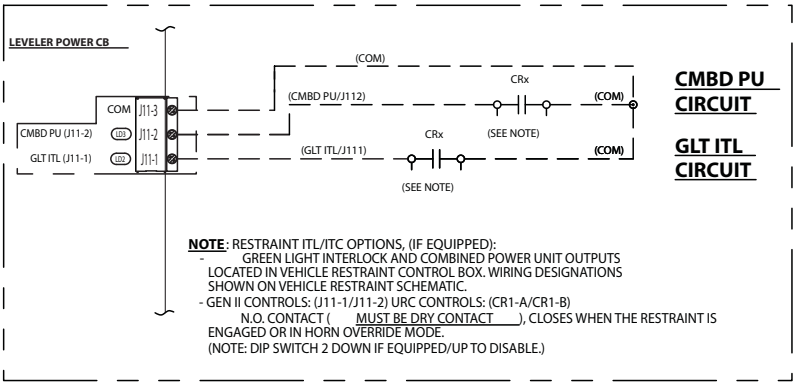
DETAIL B - DISCREET INPUTS PUSHBUTTONS



NOTE: TERMINATE UNUSED WIRES W/CRIMP CONNECTOR OR EQUIVELENT.

OPERATOR INTERFACE (DISCRETE 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

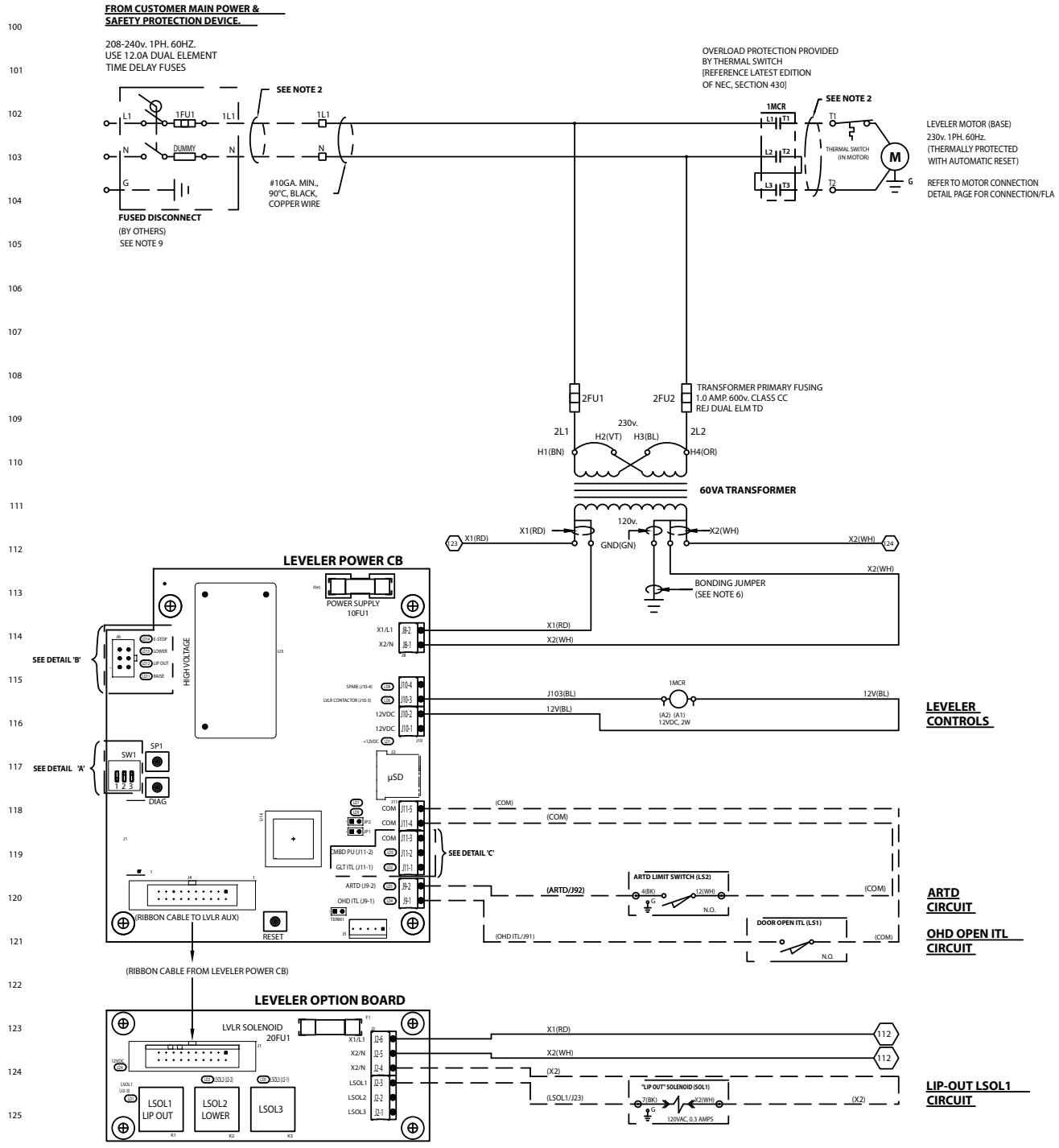
DETAIL C - RESTRAINT CONTROLS (IF EQUIPPED)



NOTE: RESTRAINT ITL/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 16B - HL-900 CONTROL BOX - 115V. SINGLE PHASE - 2 OF 2

ELECTRICAL SCHEMATIC CONT.



1. INSTALL PER LOCAL ELECTRICAL CODES. REFER ALL INSTALLATION AND SERVICE TO QUALIFIED PERSONNEL.
2. ALL INCOMING POWER (FROM DISCONNECT TO CONTROL BOX) AND MOTOR FIELD WIRING TO BE MINIMUM #14GA. 60°/75°C COPPER WIRE, INSULATED SUFFICIENTLY FOR INCOMING VOLTAGE.
3. ALL CONTROL FIELD WIRING TO BE MINIMUM #14GA. 60°/75°C COPPER WIRE ONLY, INSULATED SUFFICIENTLY FOR INCOMING VOLTAGE.
4. ALL INTERNAL WIRING TO BE #14GA. MINIMUM FOR POWER CIRCUITS AND CIRCUIT BOARD POWER, #16GA MINIMUM FOR CONTROL CIRCUITS, 90°C, RED COPPER WIRE UNLESS OTHERWISE NOTED, INSULATED SUFFICIENTLY FOR INCOMING VOLTAGE.
5. SEE OWNERS MANUAL FOR COMPLETE OPERATING INSTRUCTIONS.
6. TRANSFORMER GROUND NOTES:
   - BONDING JUMPER TO BE #14GA. MIN., GREEN, COPPER WIRE.
7. LS1 PROVIDED BY OTHER FOR OVERHEAD DOOR INTERLOCK (OPEN). LS2 PROVIDED BY RITE-HITE WITH LEVELER FOR ARTD.
8. TORQUE REQUIREMENTS:
   -PCB TERMINAL BLOCK POWER (J3/J5): 7.0 LB-IN
   -PCB TERMINAL BLOCK CONTROL (J7): 6.0 LB-IN
   -PCB TERMINAL BLOCK ALL OTHER: 4.0 LB-IN
   -INCOMING POWER TERMINAL BLOCK: 12.2-13.4 LB-IN (MIN-MAX)
   -FUSE BLOCK POWER: 14.75 LB-IN
   -CONTACTOR/OVERLOAD: 15 LB-IN
   -DISCONNECT: 7 LB-IN
   -GROUND TERMINAL: 35 LB-IN
   -SOLID STATE RELAY TERMINAL: 35 LB-IN
9. DISCONNECT NOTES:
   -FUSED DISCONNECT IS NOT PROVIDED BY RITE-HITE PRODUCTS CORPORATION. DISCONNECT MUST BE PROVIDED BY OTHERS AND INSTALLED PER LATEST EDITION OF UL508A AND NEC REQUIREMENTS.
   -A BRANCH CIRCUIT DISCONNECT SHALL BE LOCATED WITHIN A 50 FT. RADUIS AND BE VISIBLE FROM THE CONTROL BOX LOCATION. [REFERENCE LATEST EDITION OF NEC, SECTION 430]
10. CLASS 1 CONTROL CIRCUIT.

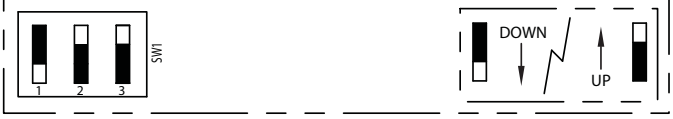
LEGEND:
- DENOTES WIRE CONNECTIONS THRU TERMINAL BLOCK.
- DENOTES FIELD WIRES.
- DENOTES WIRE NUT CONNECTION.
- DENOTES MALE/FEMALE PLUG CONNECTOR.

FIGURE 17A - HL-900 CONTROL BOX - 230V. SINGLE PHASE - 1 OF 2

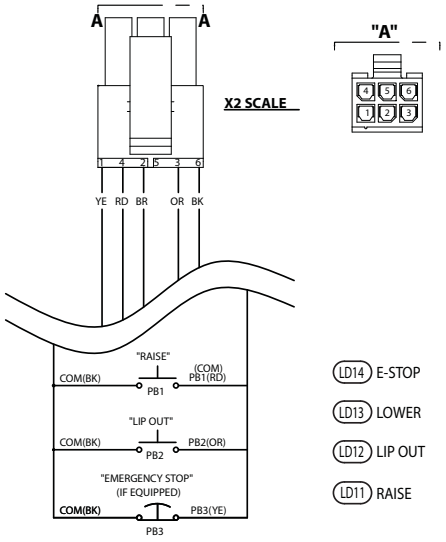
ELECTRICAL SCHEMATIC CONT.

DETAIL A - DIP SWITCH SETTINGS

FACTORY POSITION	FUNCTION CONTROLLED
1 (DOWN)	(DIP SWITCH 1 NOT USED)
2 (UP)	GREEN LIGHT ITL/ITC (DOWN - IF REQUIRED/UP TO DISABLE)
3 (UP)	OVERHEAD DOOR INTERLOCK (DOWN - IF EQUIPPED/UP TO DISABLE)



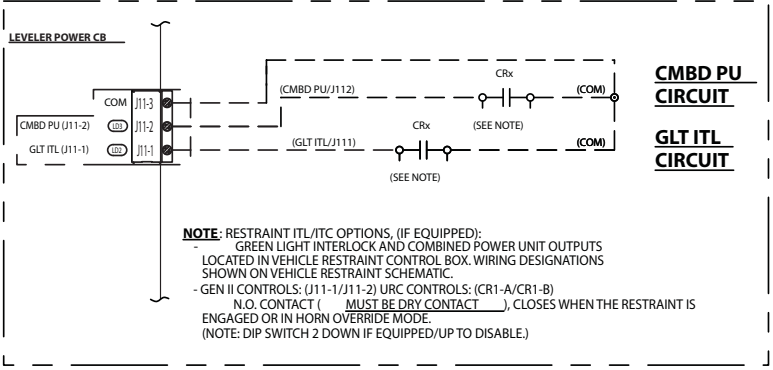
DETAIL B - DISCREET INPUTS PUSHBUTTONS



NOTE: TERMINATE UNUSED WIRES W/CRIMP CONNECTOR OR EQUIVELENT.

OPERATOR INTERFACE (DISCRETE 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

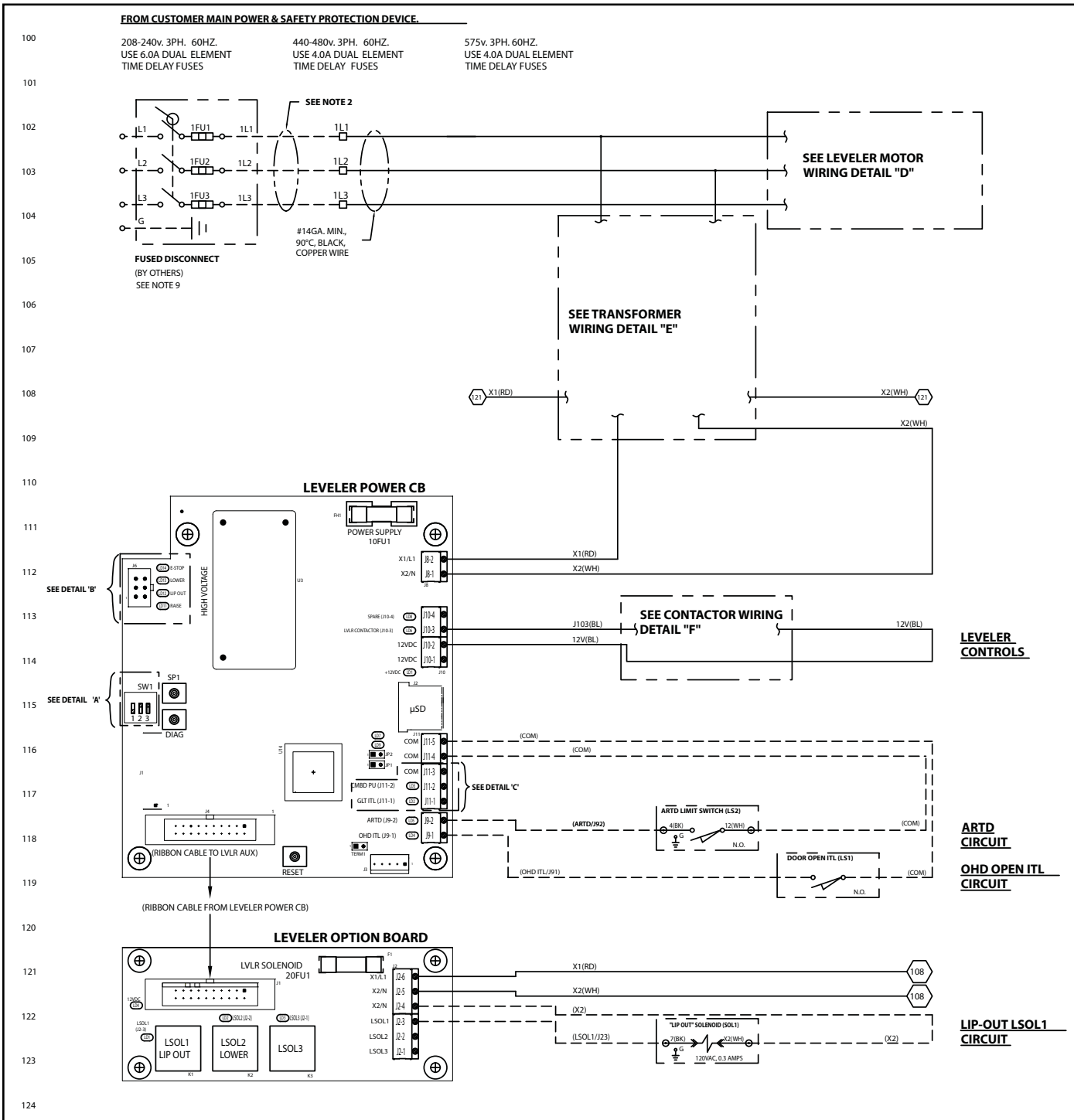
DETAIL C - RESTRAINT CONTROLS (IF EQUIPPED)



NOTE: RESTRAINT ITL/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 - HL-900 CONTROL BOX - 230V. SINGLE PHASE - 2 OF 2

ELECTRICAL SCHEMATIC CONT.



1. INSTALL PER LOCAL ELECTRICAL CODES. REFER ALL INSTALLATION AND SERVICE TO QUALIFIED PERSONNEL.
2. ALL INCOMING POWER (FROM DISCONNECT TO CONTROL BOX) AND MOTOR FIELD WIRING TO BE MINIMUM #14GA. 60°/75°C COPPER WIRE, INSULATED SUFFICIENTLY FOR INCOMING VOLTAGE.
3. ALL CONTROL FIELD WIRING TO BE MINIMUM #14GA. 60°/75°C COPPER WIRE ONLY, INSULATED SUFFICIENTLY FOR INCOMING VOLTAGE.
4. ALL INTERNAL WIRING TO BE #14GA. MINIMUM FOR POWER CIRCUITS AND CIRCUIT BOARD POWER, #16GA MINIMUM FOR CONTROL CIRCUITS, 90°C, RED COPPER WIRE UNLESS OTHERWISE NOTED, INSULATED SUFFICIENTLY FOR INCOMING VOLTAGE.
5. SEE OWNERS MANUAL FOR COMPLETE OPERATING INSTRUCTIONS.
6. TRANSFORMER GROUND NOTES:
   - BONDING JUMPER TO BE #14GA. MIN., GREEN, COPPER WIRE.
7. LS1 PROVIDED BY OTHER FOR OVERHEAD DOOR INTERLOCK (OPEN). LS2 PROVIDED BY RITE-HITE WITH LEVELER FOR ARTD.
8. TORQUE REQUIREMENTS:
   -PCB TERMINAL BLOCK POWER (J3/J5): 7.0 LB-IN
   -PCB TERMINAL BLOCK CONTROL (J7): 6.0 LB-IN
   -PCB TERMINAL BLOCK ALL OTHER: 4.0 LB-IN
   -INCOMING POWER TERMINAL BLOCK: 12.2-13.4 LB-IN (MIN-MAX)
   -FUSE BLOCK POWER: 14.75 LB-IN
   -CONTACTOR/OVERLOAD: 15 LB-IN
   -DISCONNECT: 7 LB-IN
   -GROUND TERMINAL: 35 LB-IN
   -SOLID STATE RELAY TERMINAL: 35 LB-IN
9. DISCONNECT NOTES:
   -FUSED DISCONNECT IS NOT PROVIDED BY RITE-HITE PRODUCTS CORPORATION. DISCONNECT MUST BE PROVIDED BY OTHERS AND INSTALLED PER LATEST EDITION OF UL508A AND NEC REQUIREMENTS.
   -A BRANCH CIRCUIT DISCONNECT SHALL BE LOCATED WITHIN A 50 FT. RADUIS AND BE VISIBLE FROM THE CONTROL BOX LOCATION. [REFERENCE LATEST EDITION OF NEC, SECTION 430]
10. CLASS 1 CONTROL CIRCUIT.

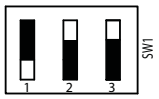
LEGEND:
- DENOTES WIRE CONNECTIONS THRU TERMINAL BLOCK.
- DENOTES FIELD WIRES.
- DENOTES WIRE NUT CONNECTION.
- DENOTES MALE/FEMALE PLUG CONNECTOR.

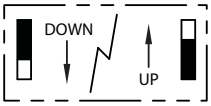
FIGURE 18A - HL-900 CONTROL BOX - THREE PHASE - 1 OF 3

ELECTRICAL SCHEMATIC CONT.

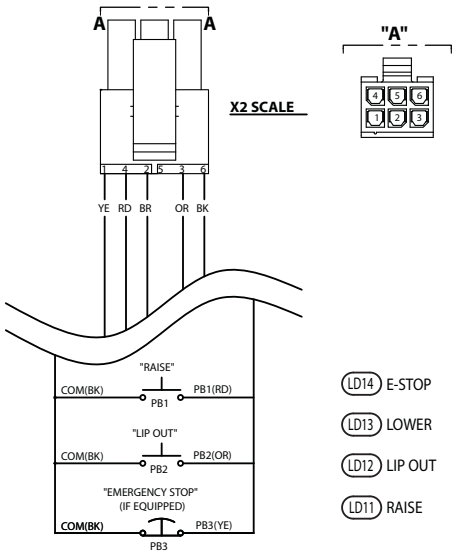
DETAIL A - DIP SWITCH SETTINGS

FACTORY POSITION	FUNCTION CONTROLLED
1 (DOWN)	(DIP SWITCH 1 NOT USED)
2 (UP)	GREEN LIGHT ITL/ITC (DOWN - IF REQUIRED/UP TO DISABLE)
3 (UP)	OVERHEAD DOOR INTERLOCK (DOWN - IF EQUIPPED/UP TO DISABLE)





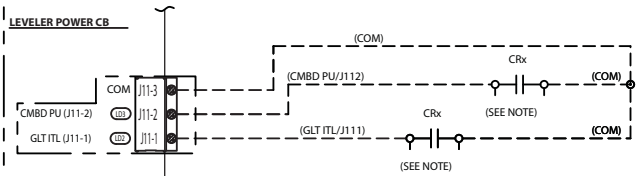
DETAIL B - DISCREET INPUTS PUSHBUTTONS



NOTE: TERMINATE UNUSED WIRES W/CRIMP CONNECTOR OR EQUIVELENT.

OPERATOR INTERFACE (DISCRETE 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 C - RESTRAINT CONTROLS (IF EQUIPPED)

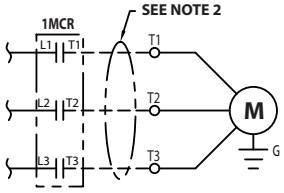


NOTE : RESTRAINT ITL/ITC OPTIONS, (IF EQUIPPED):
- GREEN LIGHT INTERLOCK AND COMBINED POWER UNIT OUTPUTS LOCATED IN VEHICLE RESTRAINT CONTROL BOX. WIRING DESIGNATIONS SHOWN ON VEHICLE RESTRAINT SCHEMATIC.
- GEN II CONTROLS: (J11-1/J11-2) URC CONTROLS: (CR1-A/CR1-B) N.O. CONTACT (MUST BE DRY CONTACT),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

DETAIL D - LEVELER MOTOR WIRING (BASE)

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

230/460V 3PH

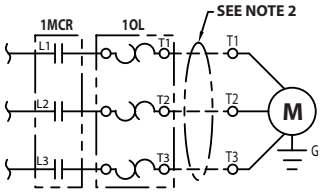


LEVELER MOTOR
208-240v. 3 PH. 60 Hz.
460v. 3 PH. 60 Hz.

REFER TO MOTOR CONNECTION DETAIL PAGE FOR CONNECTION/FLA

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

575V 3PH

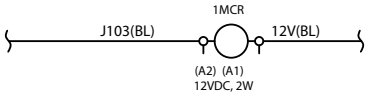


SET @ 1.5AMP

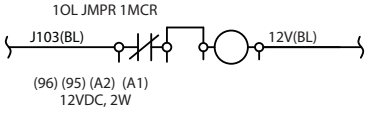
LEVELER MOTOR
575v. 3 PH. 60 Hz.

REFER TO MOTOR CONNECTION DETAIL PAGE FOR CONNECTION/FLA

DETAIL F - CONTACTOR WIRING



230/460V 3PH



575V 3PH

FIGURE 18B - HL-900 CONTROL BOX - THREE PHASE - 2 OF 3

ELECTRICAL SCHEMATIC CONT.

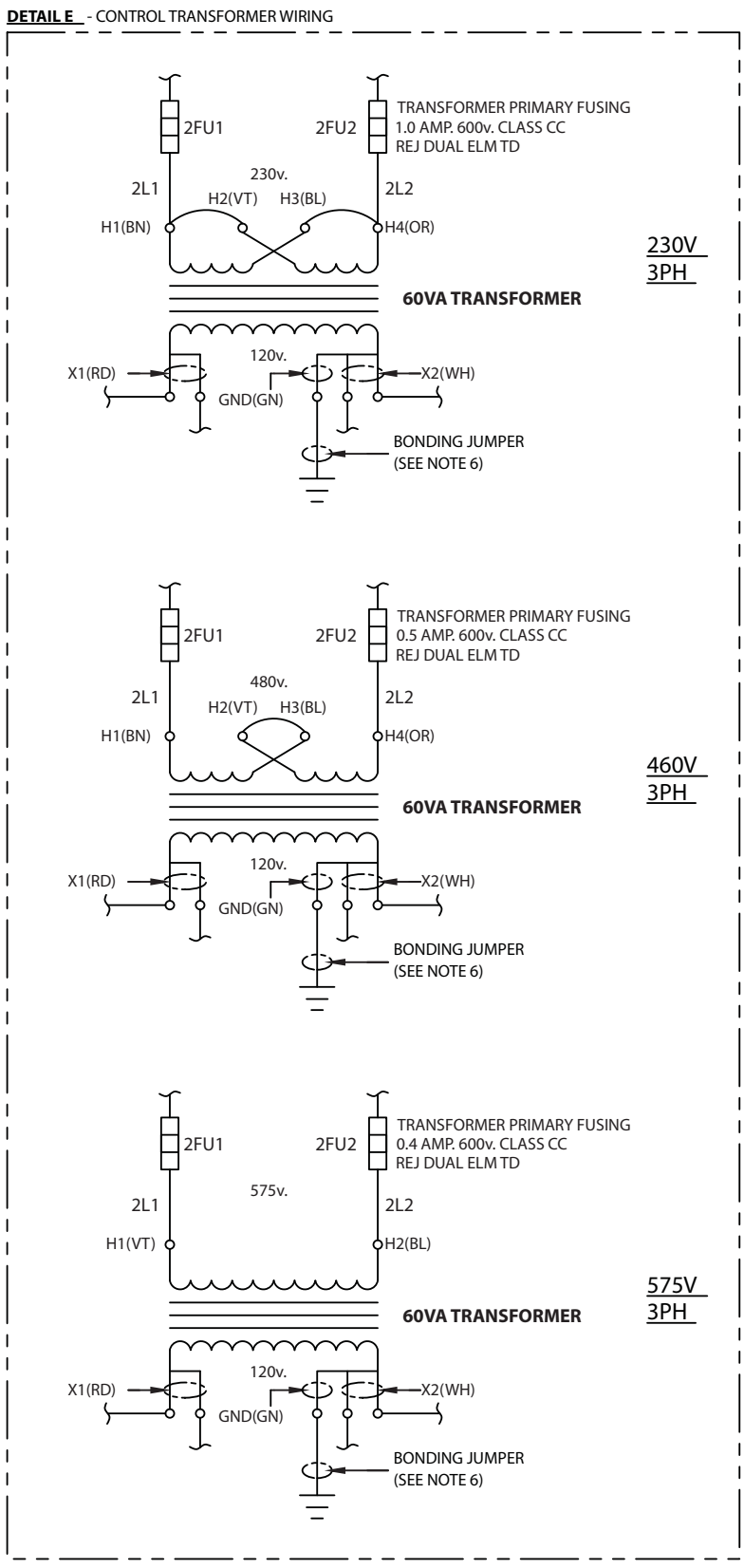
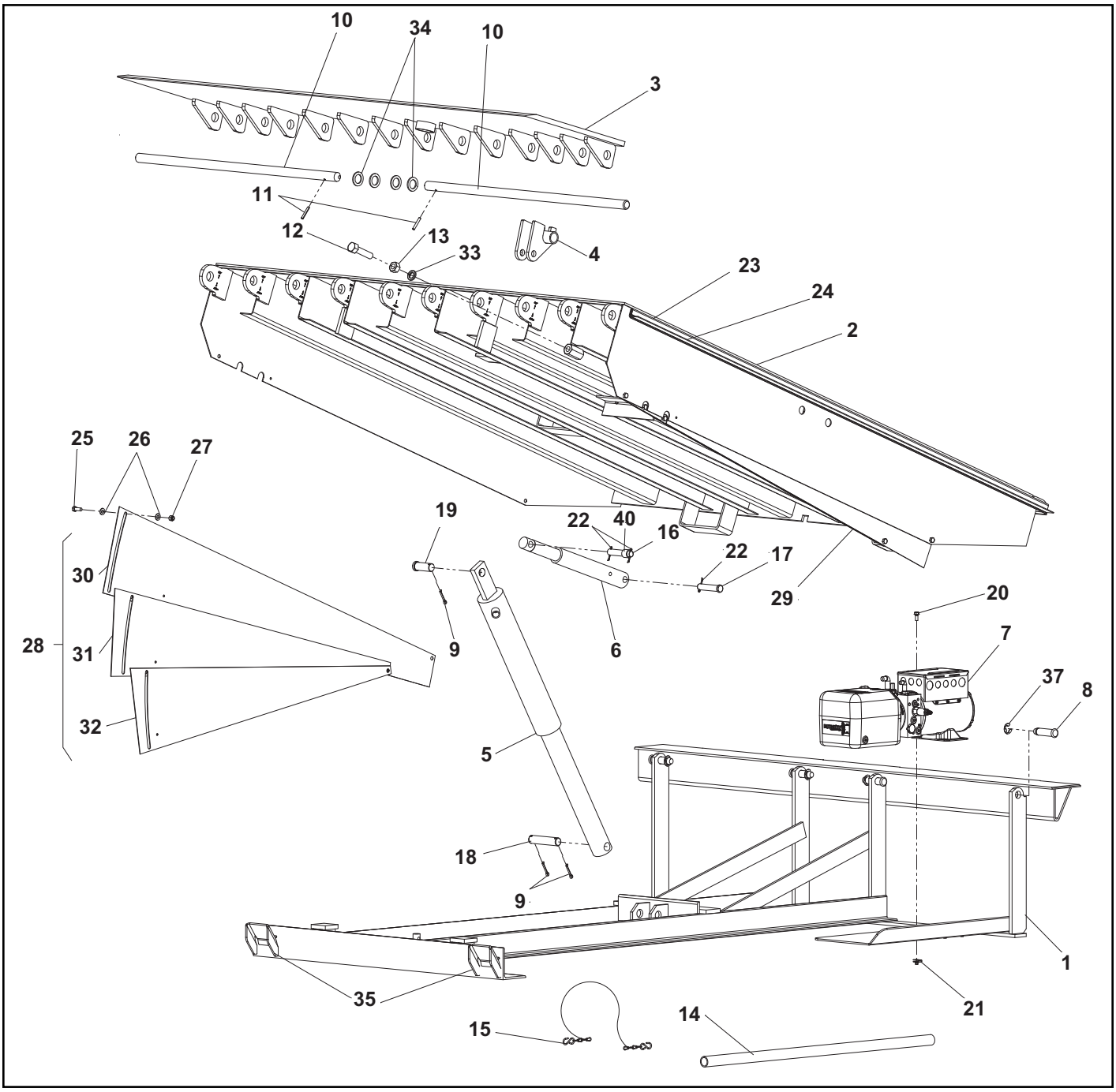


FIGURE 18C - HL-900 CONTROL BOX - THREE PHASE - 3 OF 3

REPLACEMENT PARTS



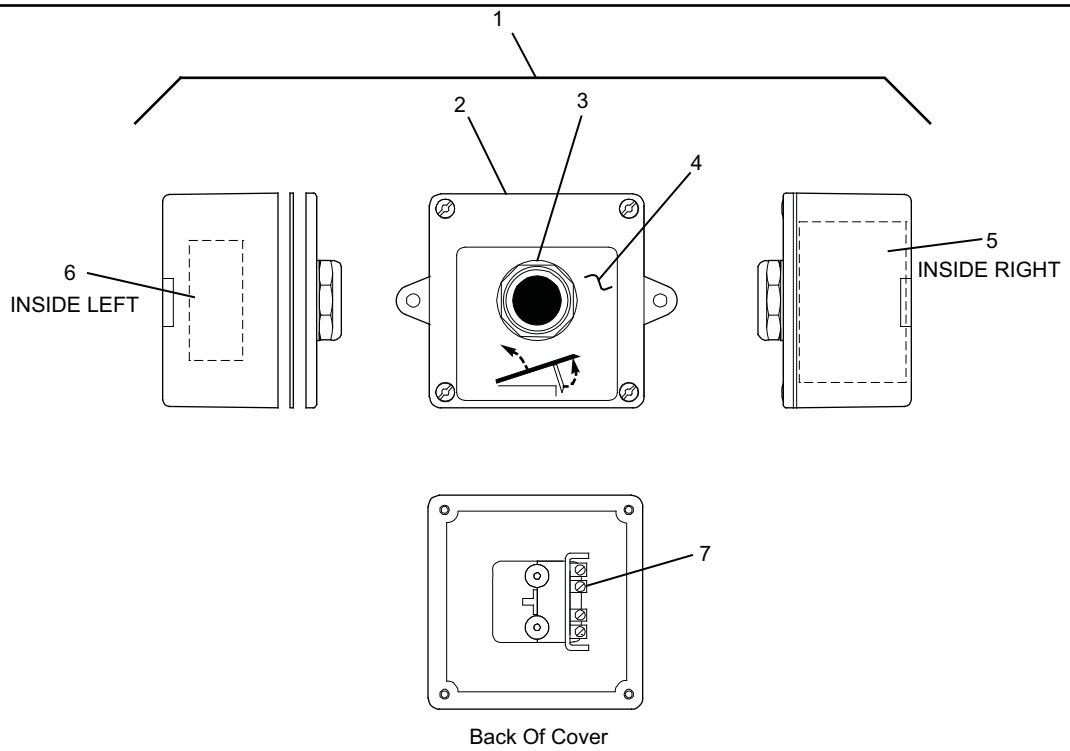
REPLACEMENT PARTS LIST

Item	Qty.	Description	Leveler Length and Capacity			
			6' Long	8' Long	10' Long	12' Long
1	1	Frame HL9/RHH40	361.___	361.___	361.___	361.___
2	1	Platform	401.___	401.___	401.___	401.___
3	1	Lip Weldment	421.___	421.___	421.___	421.___
4	1	Lip Lug 2Bar 2Hole Cam	116377	116377	116377	116377
5	1	Ramp Cyl. Hyd SA 2Port	129344	129340	129341	129341
6	1	Lip Cyl. Hyg 1.5 BR X 6 STR 1Port	102239	102239	102239	102239

REPLACEMENT PARTS LIST CONTINUED

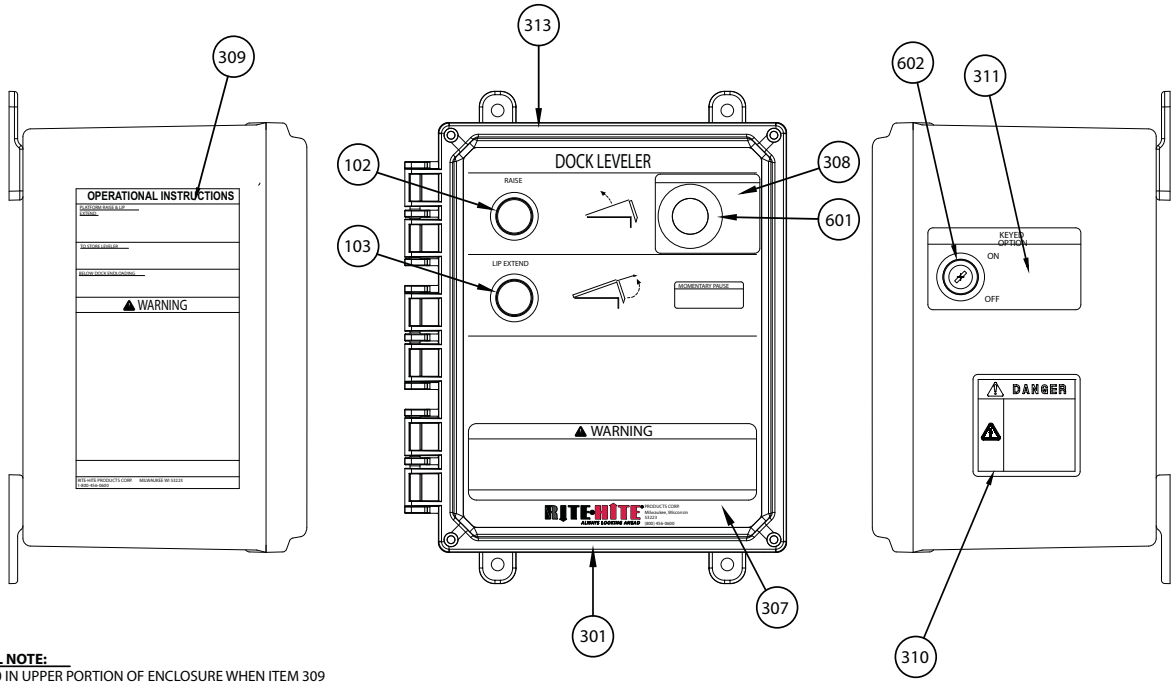
Item	Qty.	Description	Leveler Length and Capacity			
			6' Long	8' Long	10' Long	12' Long
7	1	Power Unit	See Page 38-41			
8	4	Pin Clevis HD .875 X 3.25L ZP	129307	129307	129307	129307
	4	Pin Clevis HD .875 X 3.25L ZP (Stainless Steel)	129309	129309	129309	129309
9	3	Pin Cotter .188 Dia. X 1.50L ZP	51907	51907	51907	51907
10	2	Lip Hinge Pin 6' Wide	562.112	562.112	562.112	562.112
	2	Lip Hinge Pin 6.5' Wide	562.113	562.113	562.113	562.113
	2	Lip Hinge Pin 7' Wide	562.111	562.111	562.111	562.111
	2	Lip Hinge Pin 6' Wide (Stainless Steel)	490.105	490.105	490.105	490.105
	2	Lip Hinge Pin 6.5' Wide (Stainless Steel)	490.106	490.106	490.106	490.106
	2	Lip Hinge Pin 7' Wide (Stainless Steel)	490.107	490.107	490.107	490.107
11	2	Pin Tension .25 Dia X 1.75 L	123960	123960	123960	123960
12	1	Bolt Hex .75-10 UNC X 3L ZP	51186	51186	51186	51186
13	1	Nut Hex .75-10 UNC ZP	51517	51517	51517	51517
14	1	Maintenance Strut 1"OD	413.100	413.100	413.100	413.100
	1	Maintenance Strut 1"OD (With ADS)	413.102	413.102	413.102	413.102
15	1	Maintenance Strut Chain	117378	117378	117378	117378
16	2	Pin Clevis .75 X 3.875L 2Hole CRM	129231	129231	129231	129231
17	2	Pin Clevis HD .75 DIA X 3.5L Hole(.125Dia) C-1038	130015	130015	130015	130015
18	1	Pin Clevis 1 X 6.25L 2Hole ZP	122972	122972	122972	122972
19	1	Pin Clevis HD 1 X 2.555 Hole(.203 Dia) ZP	130013	130013	130013	130013
20	4	Bolt .313-18X.75 SERR FLG	142701	142701	142701	142701
21	4	Nut .313-18 TRW Palnut ZP	56540	56540	56540	56540
22	3	Pin Cotter .12Dia X 1.5L	51903	51903	51903	51903
23	2	Channel Formed Weatherseal 12GA	489.___	489.___	489.___	489.___
24	2	Insert WSL - PT2	513.105	513.104	513.106	513.103
	2	Insert WSL - NB1 (Not Shown)	514.105	514.104	514.106	514.103
25	10	Bolt .375-16 X 1L HEX G5 ZP	51600	51600	51600	51600
26	20	Washer Flat .38 ZP	51700	51700	51700	51700
27	10	Nut .38-16 Nylk ZP	51501	51501	51501	51501
28		Full Range LH (2Fan) Units W/O ADS	417.102	417.103	417.104	417.105
		Full Range LH (3Fan) Units With ADS	-	-	419.102	419.103
29		Full Range RH (2Fan) Units W/O ADS	418.102	418.103	418.104	418.105
		Full Range RH (3Fan) Units With ADS	-	-	420.101	420.103
30	1	Toeguard Fan 14GA X 11 4Hole 1 Slot LH	411.100	411.101	563.100	563.101
	1	Toeguard Fan 14GA X 11 4Hole 1 Slot RH	411.100	411.101	564.100	564.101
31	1	Toeguard Fan 14GA X 11 3Hole 1 Slot LH	416.100	416.101	565.100	565.101
	1	Toeguard Fan 14GA X 11 3Hole 1 Slot RH	416.100	416.101	566.100	566.101
32	1	Toeguard Fan 14GA X 11 2Hole 1 Slot LH (3 Fan Only)	-	-	567.100	567.101
	1	Toeguard Fan 14GA X 11 2Hole 1 Slot RH (3 Fan Only)	-	-	568.100	568.101
33	1	Washer .75 Split LK Heavy ZP	51814	51814	51814	51814
34	4	Washer 1.125 SAE ZP	139809	139809	139809	139809
35	2	Lip Keepers	129201	129201	129201	129201
36	1	Decal Sheet Manfacturing (Not Shown)	128116	128116	128116	128116
37	4	Ring Rtng Ext(E) .875OD	129308	129308	129308	129308
38	1	Operational Sign (Not Shown)	128111	128111	128111	128111
39	1	Decal Sheet Field (Not Shown)	128121	128121	128121	128121
40	1	Tube 1 OD x 13/16 Long	129241	129241	129241	129241

TYPE 1 CONTROL BOX PARTS



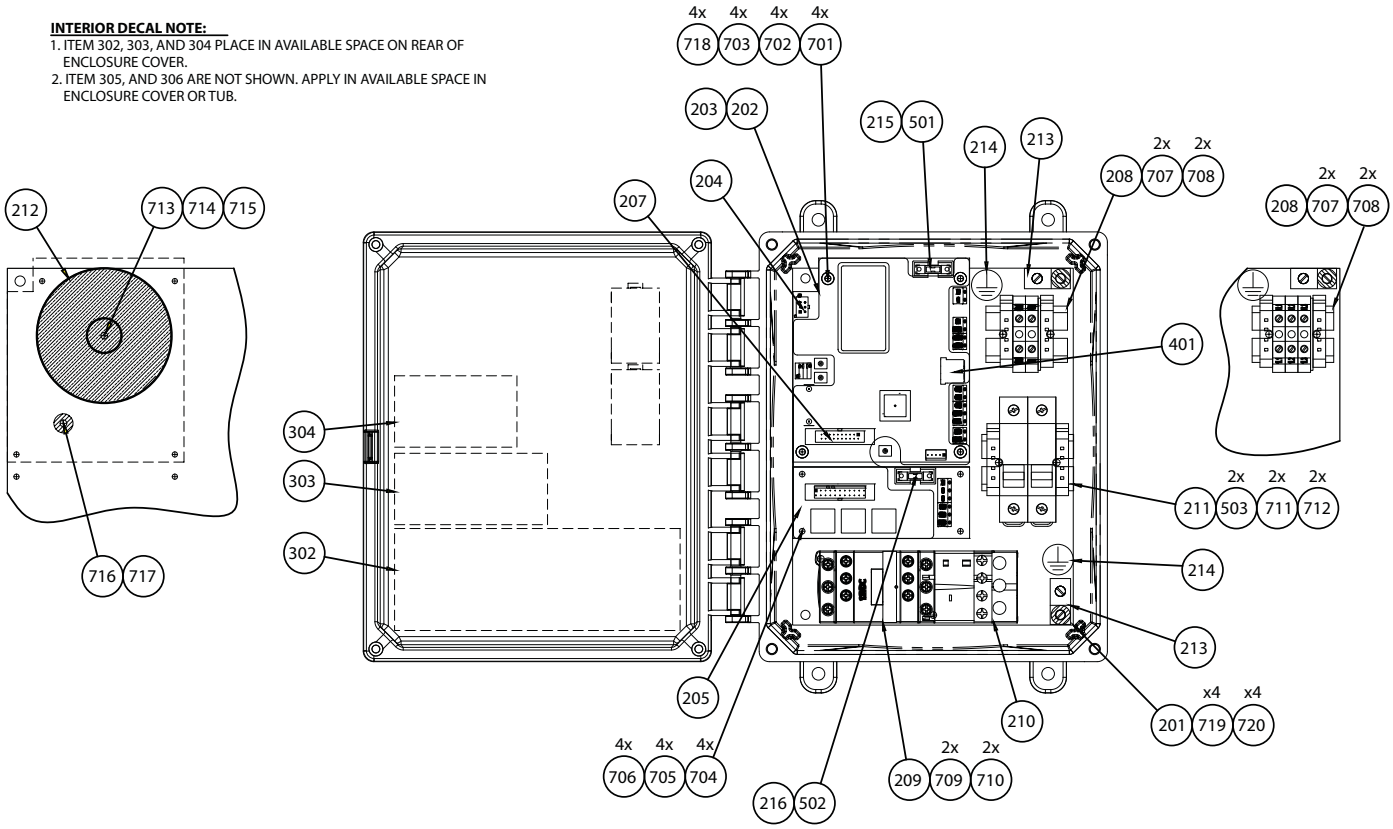
Item	Qty.	Description	Part Number
1	1	Control Box Complete	228.xxx
2	1	Control Box Enclosure, 4 x 4 x 2 N4XF	117342
3	1	Push Button N12/N4	57075
	1	Push Button N4X	118316
4	1	Control Box Cover Decal, Raise 3 x 3 Hole (30.5MM Oprtr)	117414
5	1	Decal V/PH/FLA	230.xxx
6	1	Decal UL/ULC - Consult RITE-HITE	-
7	1	Contact Block, NO 30.5MM 600V (1.5 HP)	118315

CONTROL BOX PARTS



EXTERIOR DECAL NOTE:
1. PLACE ITEM 310 IN UPPER PORTION OF ENCLOSURE WHEN ITEM 309 IS NOT PRESENT.

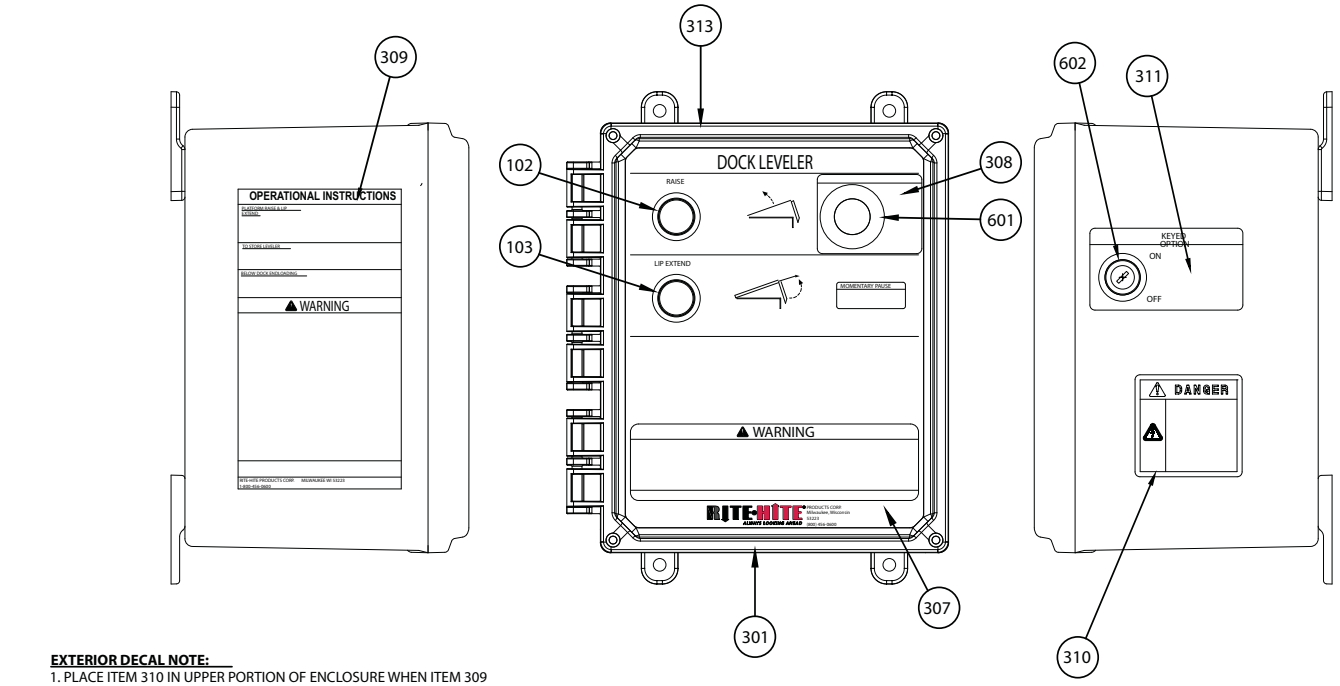
INTERIOR DECAL NOTE:
1. ITEM 302, 303, AND 304 PLACE IN AVAILABLE SPACE ON REAR OF ENCLOSURE COVER.
2. ITEM 305, AND 306 ARE NOT SHOWN. APPLY IN AVAILABLE SPACE IN ENCLOSURE COVER OR TUB.



CONTROL BOX REPLACEMENT PARTS LIST

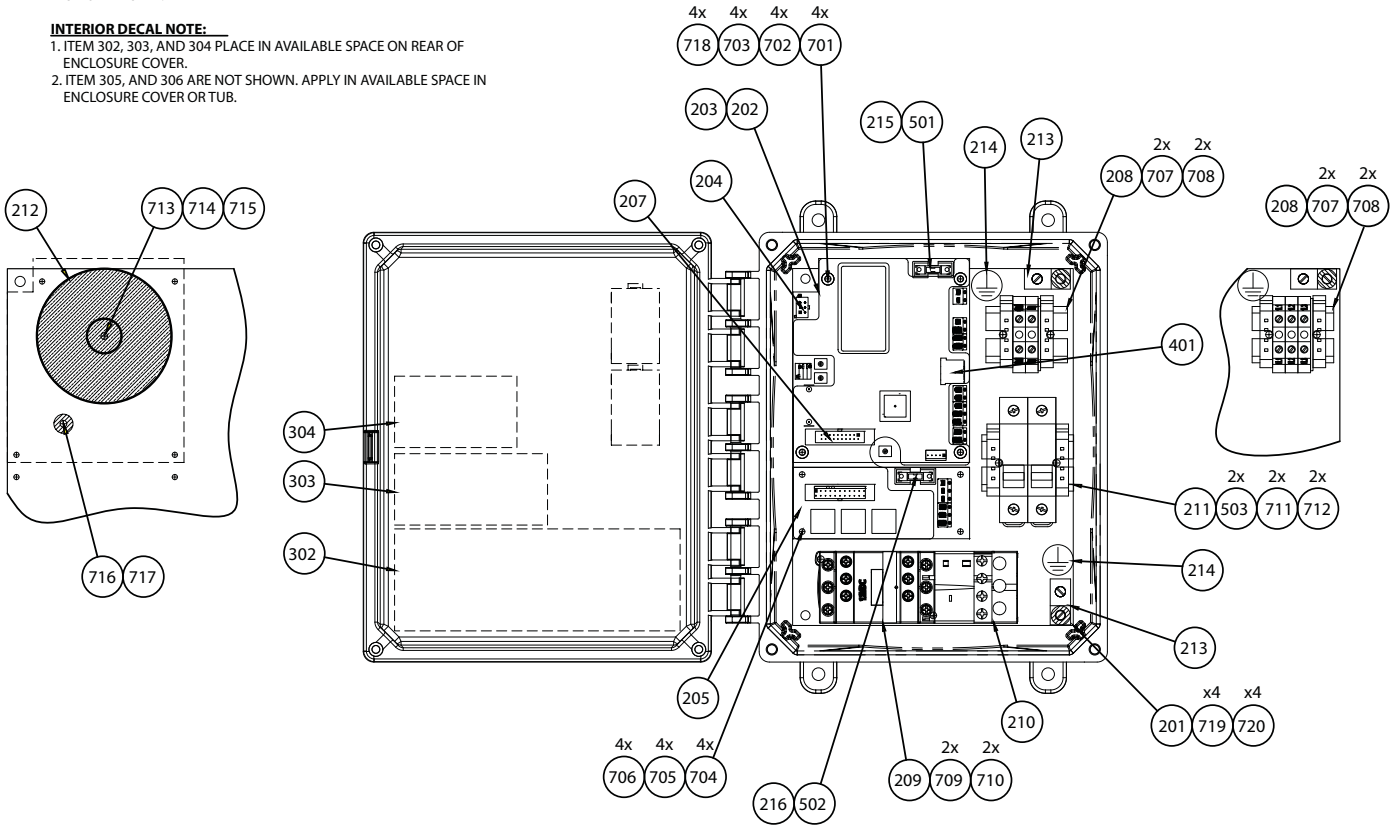
Item	Qty.	Description	Part Number
1	1	Control box assembly, Complete (Consult Rite-Hite for specific part number)	867.xxx
102	1	Push button, black	146827
103	1	Push button, red	146829
201	1	Pre-drilled control box sub panel	144763
202	1	Standard Leveler Control Board, Blank	144555-883D100
		Standard 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
		Terminal block assembly, 3PH	144884
209	1	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 amberage 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

TYPE 3 CONTROL BOX PARTS CONT.



EXTERIOR DECAL NOTE:
1. PLACE ITEM 310 IN UPPER PORTION OF ENCLOSURE WHEN ITEM 309 IS NOT PRESENT.

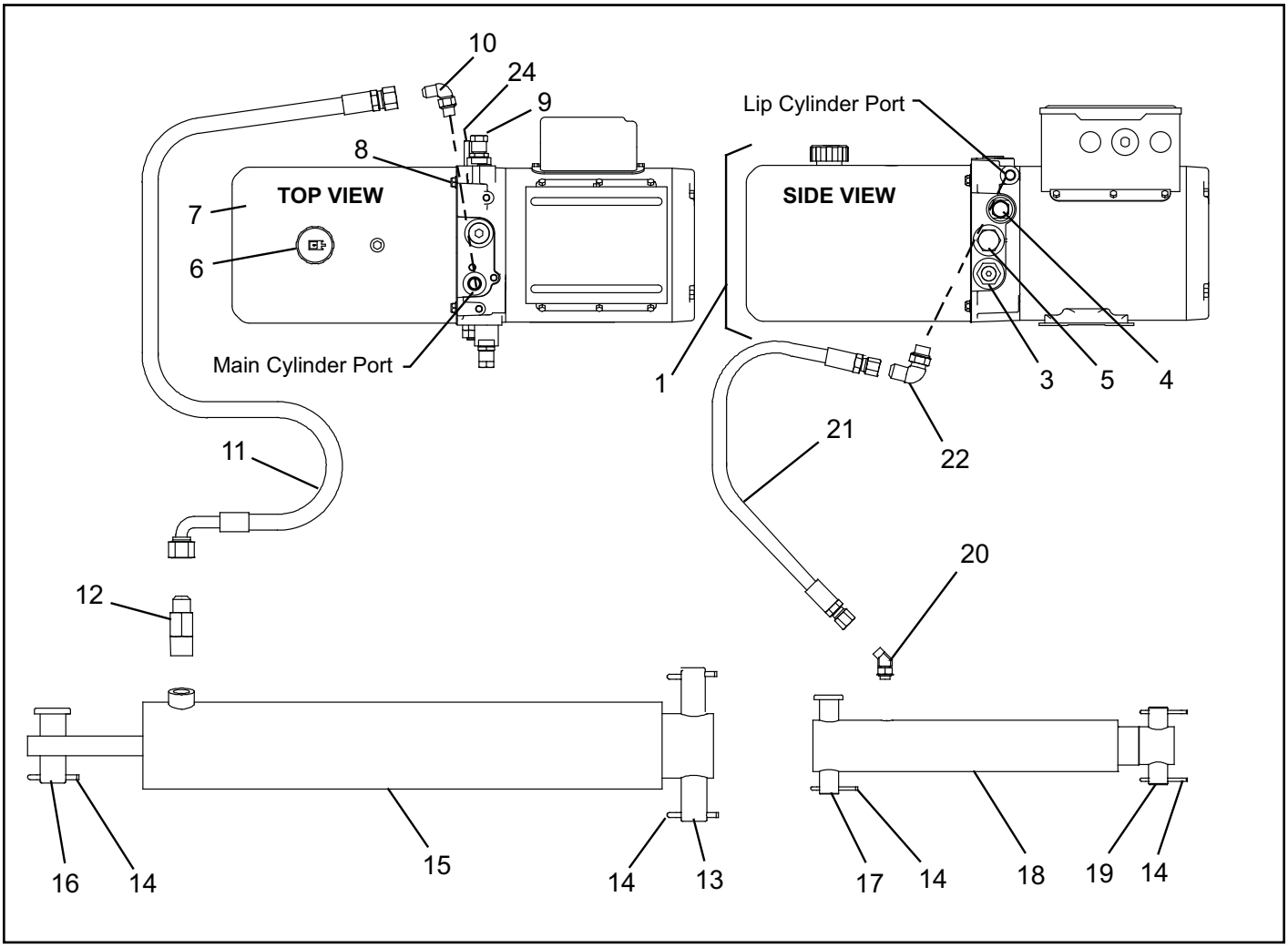
INTERIOR DECAL NOTE:
1. ITEM 302, 303, AND 304 PLACE IN AVAILABLE SPACE ON REAR OF ENCLOSURE COVER.
2. ITEM 305, AND 306 ARE NOT SHOWN. APPLY IN AVAILABLE SPACE IN ENCLOSURE COVER OR TUB.

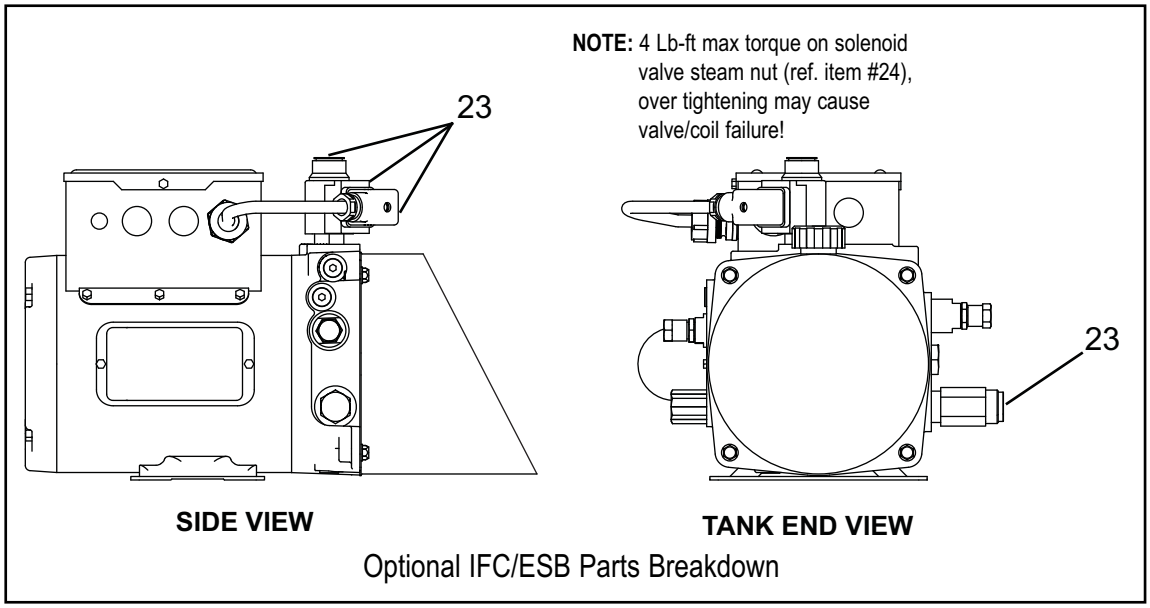


CONTROL BOX REPLACEMENT PARTS LIST CONT.

Item	Qty.	Description	Part Number
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
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

HYDRAULIC REPLACEMENT PARTS (HALDEX POWER UNIT)



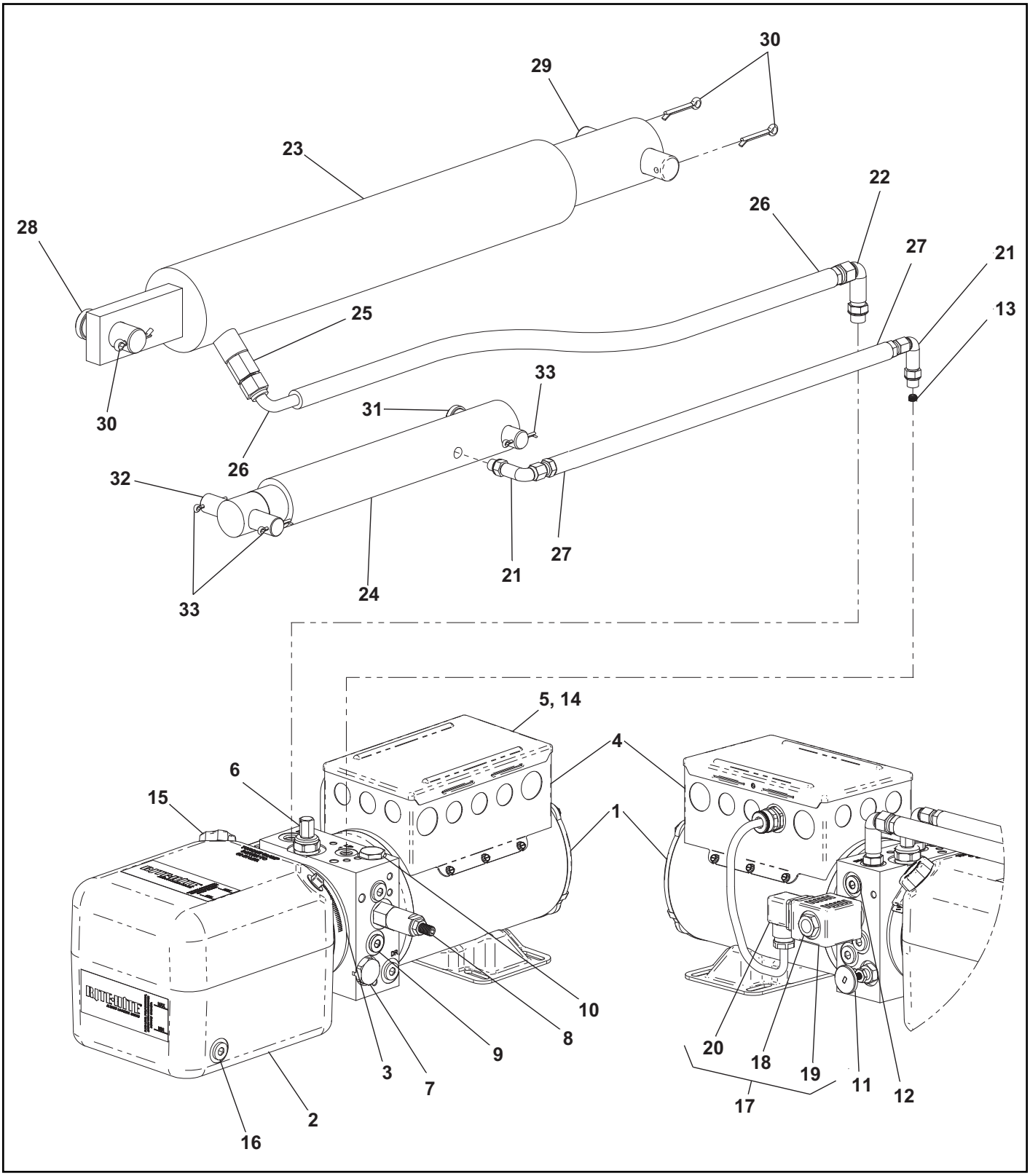


Optional IFC/ESB Parts Breakdown

HYDRAULIC REPLACEMENT PARTS LIST (HALDEX POWER UNIT)

Item	Qty.	Description	Leveler Length			
			6' Long	8' Long	10' Long	12' Long
1	1	Power Unit - 120/240 Single Phase	126498	126498	126498	126498
	1	Power Unit - 240/380 - 415/480 Three Phase	126499	126499	126499	126499
	1	Power Unit - 575 Three Phase	126500	126500	126500	126500
	1	Power Unit - 120/240 Single Phase with IFC	116679	116679	116679	116679
	1	Power Unit - 240/380 - 415/480 Three Phase with IFC	116680	116680	116680	116680
	1	Power Unit - 575 Three Phase with IFC	116681	116681	116681	116681
2	1	Tank Seal/O-Ring (Not Shown)	118824	118824	118824	118824
3	1	Pilot To Open Check Valve	118826	118826	118826	118826
4	1	Sequence Valve	123759	123759	123759	123759
5	1	Pilot To Close Check Valve	118830	118830	118830	118830
6	1	Hydraulic Oil Tank Cap	118829	118829	118829	118829
7	1	Hydraulic Oil Tank	118828	118828	118828	118828
8	4	Hydrulic Oil Tank Screws	118825	118825	118825	118825
9	1	Shuttle Valve	118823	118823	118823	118823
10	1	Ramp Cylinder Hose Fitting, Power Unit	55267	55267	55267	55267
11	1	Ramp Cylinder Hose Assembly	108961	119776	119844	117058
12	1	Velocity Fuse	129343	129342	129346	129346
13	1	Pin, Clevis 1 x 4.75L ZP	122972	122972	122972	122972
14	7	Cotter Pin	51907	51907	51907	51907
15	1	Ramp Cylinder	129344	129340	129341	129341
16	1	Pin, Clevis 1 x 2.555L ZP	130013	130013	130013	130013
17	1	Pin, Clevis .75 x 3.5L 1141 CRM	130015	130015	130015	130015
18	1	Lip Cylinder	102239	102239	102239	102239
19	1	Pin, Clevis .75 x 3.00L 1141CRM	102247	102247	102247	102247
20	1	Lip Cylinder Hose Fitting, Lip Cylinder	100363	100363	100363	100363
21	1	Lip Cylinder Hose Assembly	108964	108963	117053	117526
22	1	Lip Cylinder Hose Fitting, Power Unit	16920	16920	16920	16920
23	1	IFC Kit Haldex	122318	122318	122318	122318
	1	ESB Kit Haldex	122531	122531	122631	122631
24	1	System Relief Valve	126784	126784	126784	126784
25	-	STD - Mil 5606 Fluid (quart/red in color)	108303	108303	108303	108303
	-	OPT - RH Biodegradeable Fluid (quart/light blue in color)	119181	119181	119181	119181

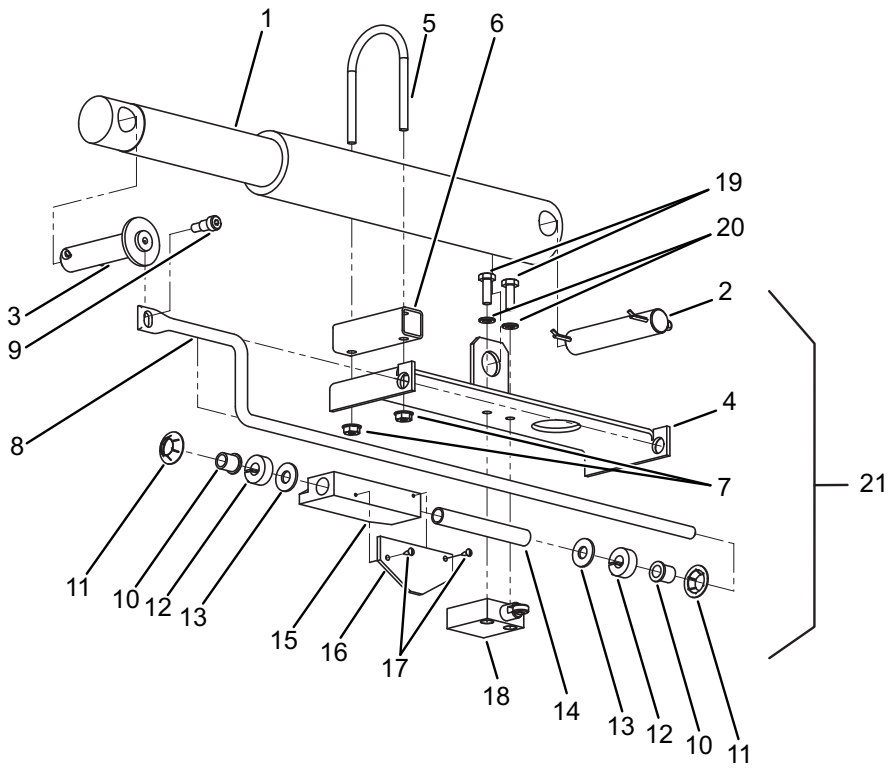
HYDRAULIC REPLACEMENT PARTS - BASE (BUCHER POWER UNIT)



HYDRAULIC REPLACEMENT PARTS LIST - BASE - (BUCHER POWER UNIT)

Item	Qty.	Description	Leveler Length			
			6' Long	8' Long	10' Long	12' Long
1	1	Power Unit 115/230v 1ph	141167	141167	141167	141167
	1	Power Unit 208-230/380-460v 3ph	141168	141168	141168	141168
	1	Power Unit 575v 3ph	141169	141169	141169	141169
2	1	Tank Assembly 10L Plastic	141177	141177	141177	141177
3	1	Hose clamp	132754	132754	132754	132754
4	1	Junction Box	132760	132760	132760	132760
5	1	Junction Box Cover	132759	132759	132759	132759
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	147785	147785	147785	147785
9	1	Check Valve PTO 3:1 (Lip)	142604	142604	142604	142604
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 8:1 (Lip)	143217	143217	143217	143217
13	1	Plug fitting	142608	142608	142608	142608
14	1	Capacitor (1ph only)	132755	132755	132755	132755
15	1	Breather cap	141470	141470	141470	141470
16	1	Plug fitting	137254	137254	137254	137254
17	1	ESB Kit 120v	128904	128904	128904	128904
	1	IFC Kit 120v	128903	128903	128903	128903
18	1	ESB valve	128906	128906	128906	128906
	1	IFC valve	128907	128907	128907	128907
19	1	ESB/IFC Coil 120v	17273	17273	17273	17273
20	1	Harness	19091	19091	19091	19091
21	2	Elbow fitting #4	16918	16918	16918	16918
22	1	Elbow fitting #6	16917	16917	16917	16917
23	1	Main Cylinder, Single Acting	129344	129340	129341	129341
24	1	Lip Cylinder, Single Acting	102239	102239	102239	102239
25	1	Velocity fuse	129343	129342	129346	129346
26	1	Hose Assembly (Ramp)	119776	119776	117058	117058
27	1	Hose Assembly (Lip)	108963	108963	117526	117526
28	1	Clevis pin, Main Cylinder (Top)	130013	130013	130013	130013
29	1	Clevis pin, Main Cylinder (Bottom)	122972	122972	122972	122972
30	3	Cotter pin, .188dia	51907	51907	51907	51907
31	1	Clevis pin, Lip Cylinder (Rear)	130015	130015	130015	130015
32	1	Clevis pin, Lip Cylinder (Front, no ARTD)	129231	129231	129231	129231
33	3	Cotter pin, .125dia	51903	51903	51903	51903
34	-	STD - Mil 5606 Fluid (quart/red in color)	108303	108303	108303	108303
	-	OPT- RH Biodegradeable Fluid (quart/light blue in color)	119181	119181	119181	119181

OPTIONAL AUTOMATIC RETURN TO DOCK PARTS (ARTD)



Item	Qty.	Description	Leveler Length			
			6' Long	8' Long	10' Long	12' Long
1	1	Lip Cylinder, Single Acting	102239	102239	102239	102239
2	1	Clevis Pin, .75Dia. x 3.75L CRM	130015	130015	130015	130015
3	1	Hd. Clevis Pin, .75Dia. W/Washer	129232	129232	129232	129232
4	1	Mtg. Bracket HD17/HL9	122182	122182	122182	122182
5	1	U-Bolt 2ID x 3.25 x .25-20 thrd	100130	100130	100130	100130
6	1	Spacer Tube 3L	100131	100131	100131	100131
7	2	Nut .25-20 UNC Hex	51552	51552	51552	51552
8	1	Guide Rod	122290	122290	122290	122290
9	1	Shoulder Bolt w/PEL .313 x .38 x .25-20 ZP	104394	104394	104394	104394
10	2	Flange Bushing .375 x .50 x .50L	68162	68162	68162	68162
11	2	Retainer Clip .50 Dia.	19650	19650	19650	19650
12	2	Collar Shaft 3/8ID x 7/8OD Blk	68163	68163	68163	68163
13	2	Flat Washer 3/8ID x 7/8OD 18-8 SS	18261	18261	18261	18261
14	1	Cam Pivot Tube 3.156L	125410	125410	125410	125410
15	1	Rotory Cam 3.125L	125408	125408	125408	125408
16	1	Counter Weight Plate 3.125L	68167	68167	68167	68167
17	2	Sht. Metal Screws #4 x .375L	68161	68161	68161	68161
18	1	Limit Switch Assembly	119557	119557	119558	119558
19	2	Bolt Hex .25-20 UNC x .75 Gr5 ZP	51648	51648	51648	51648
20	2	Washer .25 LK MED ZP	51800	51800	51800	51800
21	1	ARTD HL9/Base Field Upgrade (Includes 3-20)	122411	122411	122411	122411

NOTES

WARRANTY

Genisys Dock Leveler by Rite-Hite®
Standard Warranty Policy

Rite-Hite® warrants to and for the sole benefit of the original purchaser that Genisys by Rite-Hite® (hereinafter "Genisys") Dock Levelers shall be free from defects in material and workmanship subject to the following:

Length of Time: All products are warranted for a one year period commencing on the earlier date of approved installation or the (30th) day after the date of shipment. This warranty covers the repair or replacement of the defective product or component at Rite-Hite's sole election and expense, including reasonable labor, reasonable travel and freight.

Component Scope: The structural components protected by this warranty include the rear frame, deck, lip, front and rear hinge area and working range toe guards on all Genisys Dock Levelers.

- On HL Series dock levelers, all cylinders, pumps, hoses, fittings, electrical motors and control panels are covered.
- On ML Series mechanical levelers, springs, chains, lip extension mechanism, main counterbalance and ramp control are covered.
- On AL Series dock levelers, air tower, blower motor, hoses, lip extension mechanism, chains and control panels are covered. 5 year warranty on the air tower, blower motor, and hoses.

Repair part freight costs will be borne by Rite-Hite® via standard shipping terms. Charges for overnight or special freight requirements will be billed to the end user, General Contractor or Genisys Representative and must be approved at time of shipment.

Warranty claims will not be accepted if the parts and/or assemblies have not been installed on Genisys products or the installation has not been carried out in accordance with Genisys installation instructions.

If a part is replaced during the standard warranty period, it will be covered for the remainder of the warranty period for the dock leveler.

The above warranties are in lieu of any other warranties, either expressed or implied, including but not limited to any warranty of merchantability or implied warranty of fitness for a particular application.

In no event shall Rite-Hite® or any of its subsidiaries be responsible for or liable to anyone, including third parties, for special, indirect, punitive, incidental or consequential damages, even if Rite-Hite® Representative has been advised of the possibility of such damages. Such excluded damages include, but are not limited to, loss of goodwill, loss of profits, loss of use, interruption of business, or other similar indirect financial loss.

This limited warranty shall be void and of no effect:

- if product is altered or modified from its original condition as installed or as delivered at or from the factory
- to the extent that the product defect is the direct result of improper installation, operation beyond capacity, or other than in accordance with Genisys instructions, careless or negligent use, or failure to maintain the product as recommended by the Genisys owner's manual.
- if Rite-Hite® or the Genisys Representative is not notified of the defect and such notification failure creates additional component or product stress which compounds the cost for defect correction.
- if the product is not adjusted and lubricated on the intervals and to the extent required in the Genisys Owner's Manual.
- if the product is moved and reinstalled from its original installation point without advising Rite-Hite® or a Rite-Hite® Representative.

genisys
By Rite-Hite

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