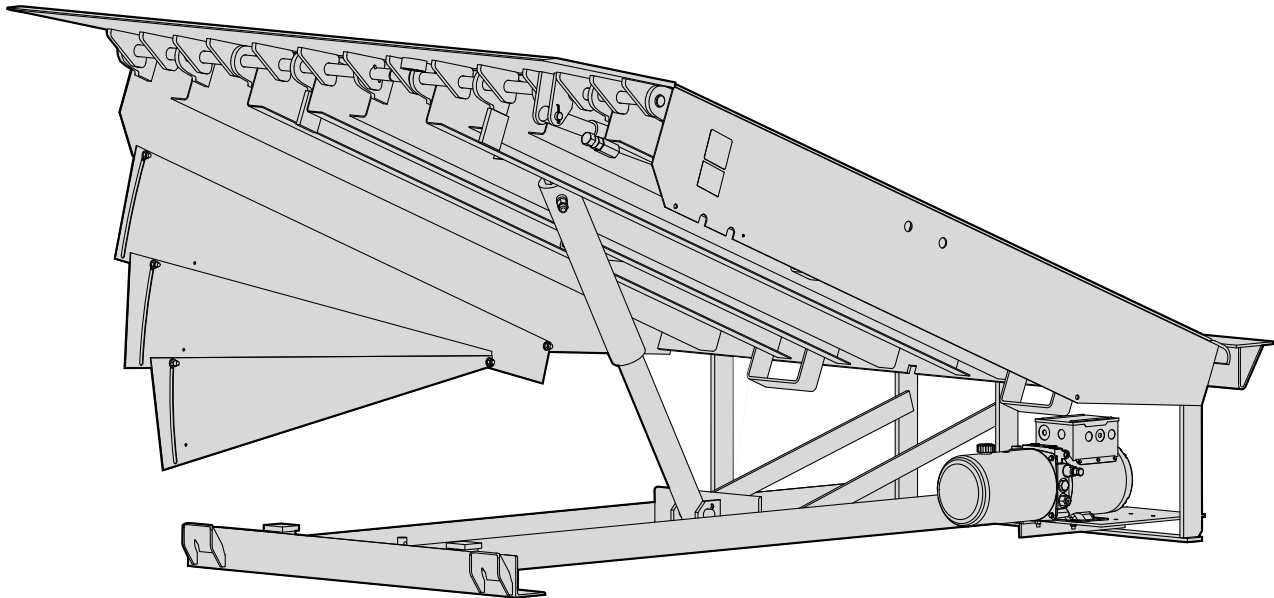

HL-900

Dock Leveler

Owners Manual



part of the SMOOTH TRANSITION DOK SYSTEM™



This Manual Covers Dock Levelers Built After Serial Numbers:
04CD120001M and up

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 the Rite-Hite at 414-355-2600.

The Rite-Hite products in this manual are covered by one or more of the following U.S. patents: 5,271,183; 5,323,503; 5,546,623; 5,553,987; 5,582,498; 5,664,930; 5,702,223; 5,762,459 (RE: 37,570); 5,882,167; 6,065,172; 6,070,283; 6,085,375; 6,092,970; 6,106,212; 6,116,839; 6,190,109; 6,220,809; 6,276,016; 6,311,352; 6,318,947; 6,322,310; 6,360,394; 6,368,043; 6,431,819; 6,488,464; 6,499,169; 6,505,713; 6,524,053; 6,634,049; 6,726,432; 6,773,221; 6,832,403; 6,880,301; 6,892,411; 7,032,267; 7,062,814; 7,134,159; 7,213,285; 7,216,391; 7,363,670; 7,380,305; 7,503,089; 7,533,431; 7,546,655; 7,584,517; 7,681,271; 7,841,823; 7,877,831; 7,823,239; 8,006,811; 8,065,770; 8,141,189 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 .

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:

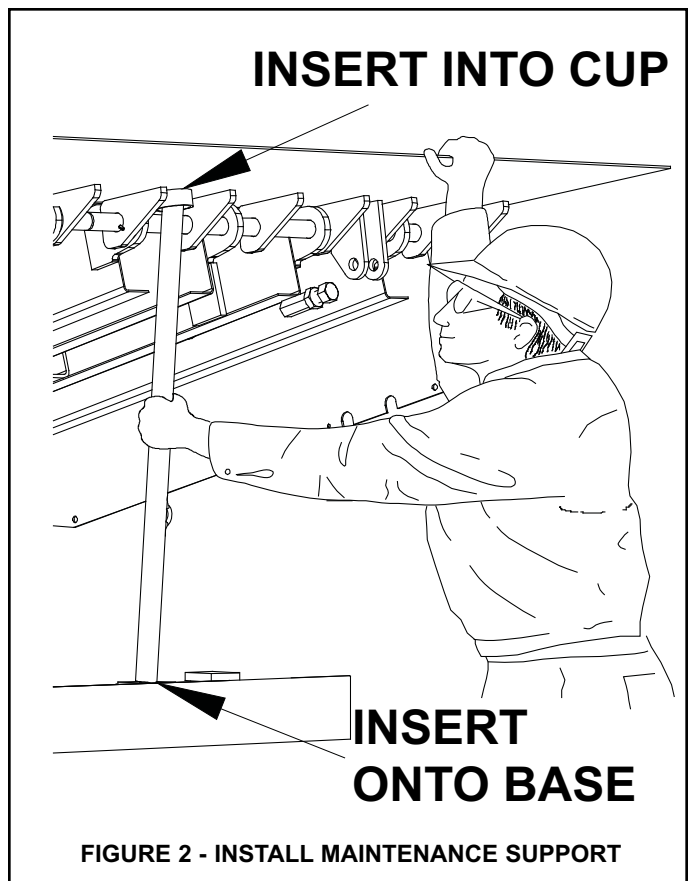
- Installing the Maintenance Support. See below right. This can be done with the assistance of another person by:
 - Raise leveler until platform reaches its highest position and lip extends. Continue to maintain this position.
 - Then have assistant insert the Maintenance Support over the base located 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 Support.

- For Maintenance Support removal, have an assistant raise the leveler to its highest position with lip fully extended. Lift the support off base. Return the Maintenance Support 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.



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 LEVELERS

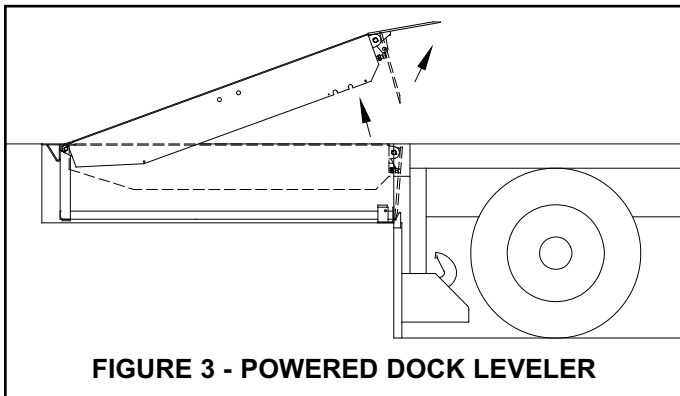
NOTE:

End loads at dock level and above can be handled with the leveler in its stored position.

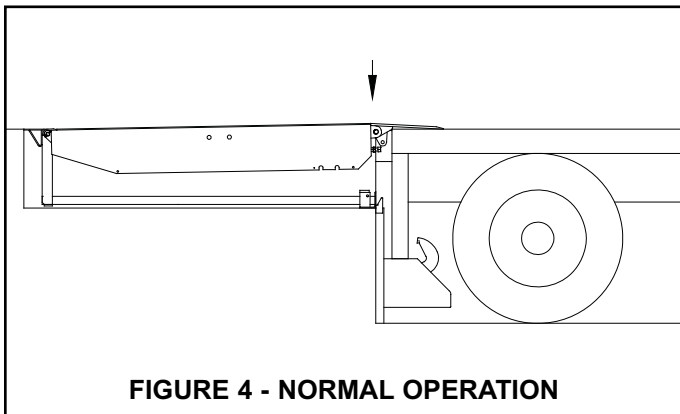
Be sure the lip is in full contact with the truck/trailer bed before loading or unloading truck/trailer.

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.



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

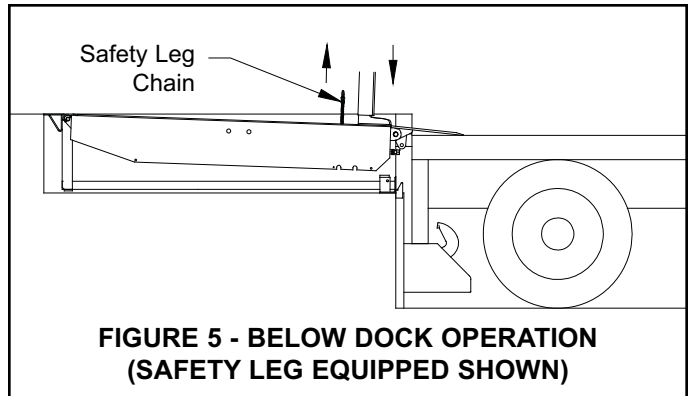


3. See *Storing Leveler*.

NOTE: 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*.

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.
2. When lip is fully extended, release RAISE button. If equipped with safety legs, pull and hold the safety leg chain as the leveler lowers automatically onto the truck/trailer bed. See figure 5.



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

OPERATION INSTRUCTIONS LEVELERS CONT.

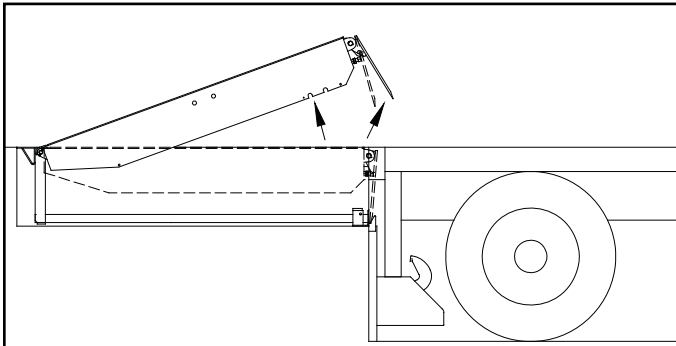


FIGURE 6 - END LOAD OPERATION - LIP POSITION

BELOW DOCK 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 6.

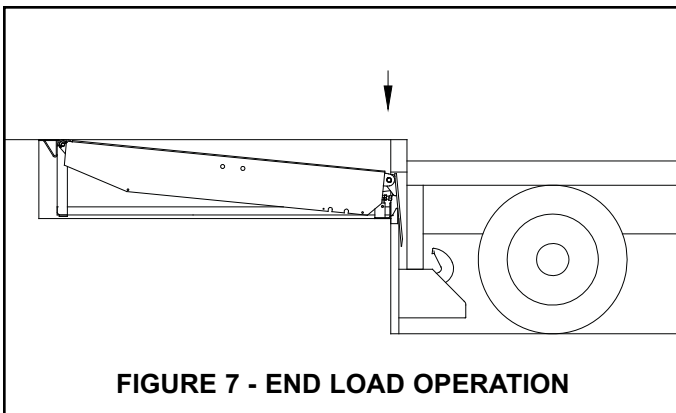


FIGURE 7 - END LOAD OPERATION

2. When lip extends about 2 inches, release RAISE button. The leveler will lower to the below dock position with the lip positioned between the face of the loading dock and the truck/trailer bed. See figure 7.
 - If equipped, pull and hold the safety leg release chain as the leveler lowers. See figure 8.
 - If the lip extended too far, quickly push and release the RAISE button to slightly retract the lip.
 - If the lip was not extended far enough and hits the lip supports, repeat this step allowing the lip to extend farther.

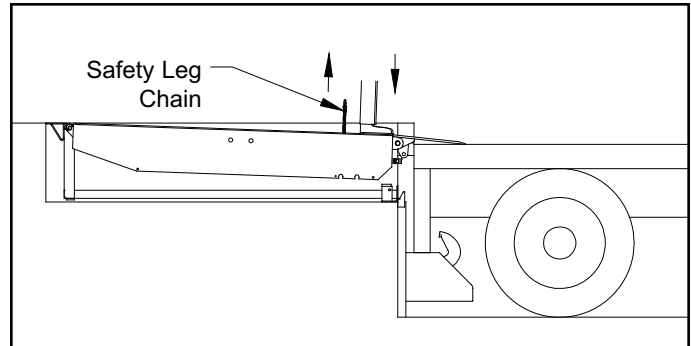


FIGURE 8 - END LOAD OPERATION (EQUIPPED WITH SAFETY LEGS)

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

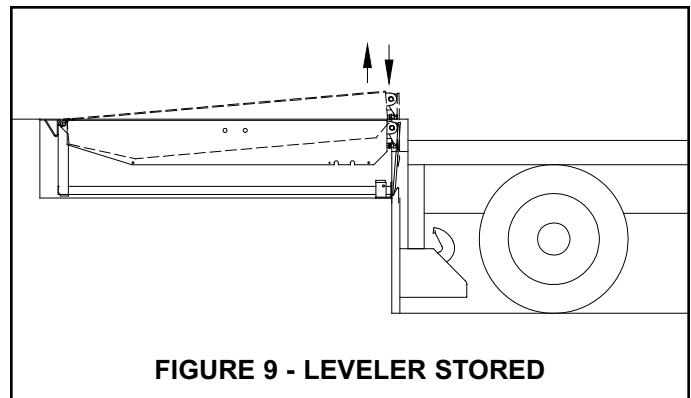


FIGURE 9 - LEVELER STORED

STORING LEVELER

1. **Without Automatic Return to Dock (ARTD):** To store the leveler, push and hold the RAISE button until leveler is about 6 inches above dock level and lip is fully pendant, then release RAISE button. Leveler will lower to dock level with lip resting in the lip supports. See figure 9.

With Automatic Return to Dock (ARTD): To store the leveler, push and hold the RAISE button until leveler is about 6 inches above dock level and lip is fully pendant, then release RAISE button. Leveler will lower to dock level with lip resting in the lip supports.

NOTE: 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.

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 crank, links, chains and shackles). Replace if worn.
4. Lubricate the leveler with the proper lubricants. See figure 10.
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.

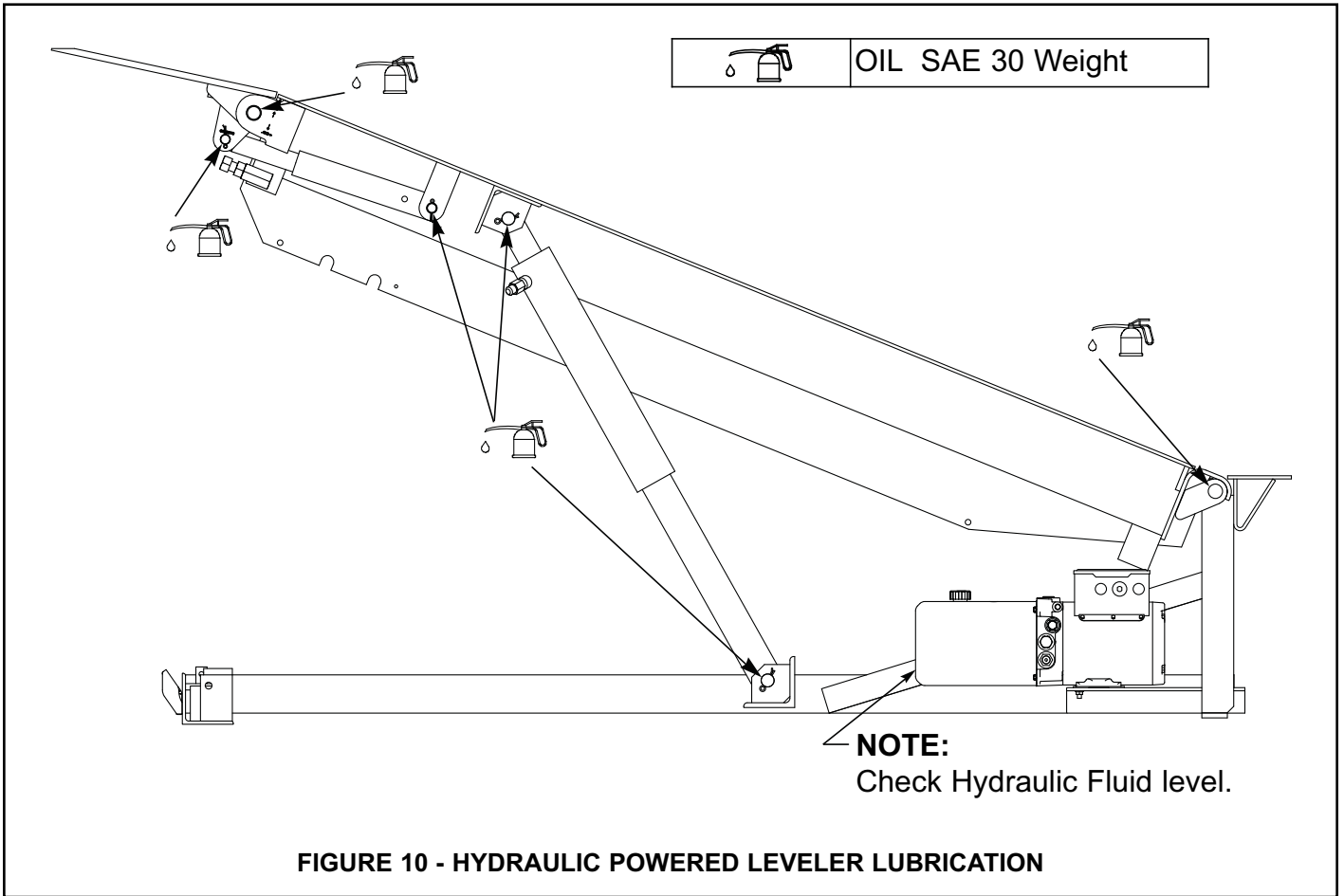
c. For non-metallic enclosures, breather vent part number 122130 may be installed. The vent is NEMA 4X and will not change the environmental rating of the control box.

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.

360 Days

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

MAINTENANCE PROCEDURES



LEVELER ADJUSTMENTS

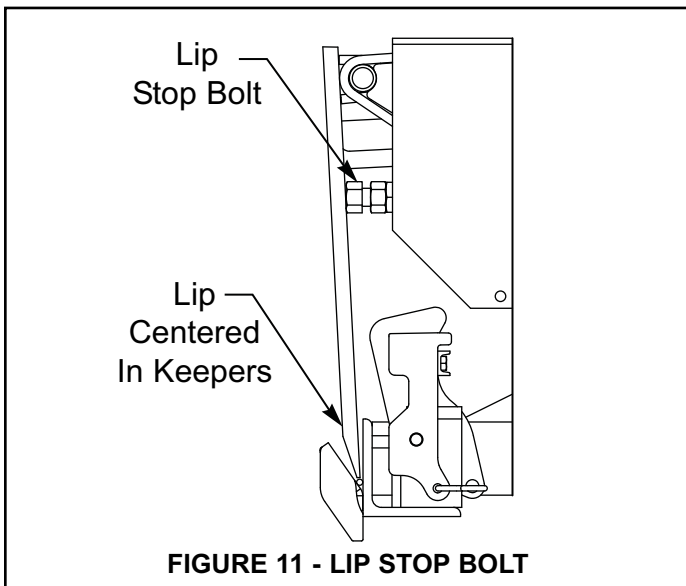
HYDRAULIC LEVELER ADJUSTMENTS

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.



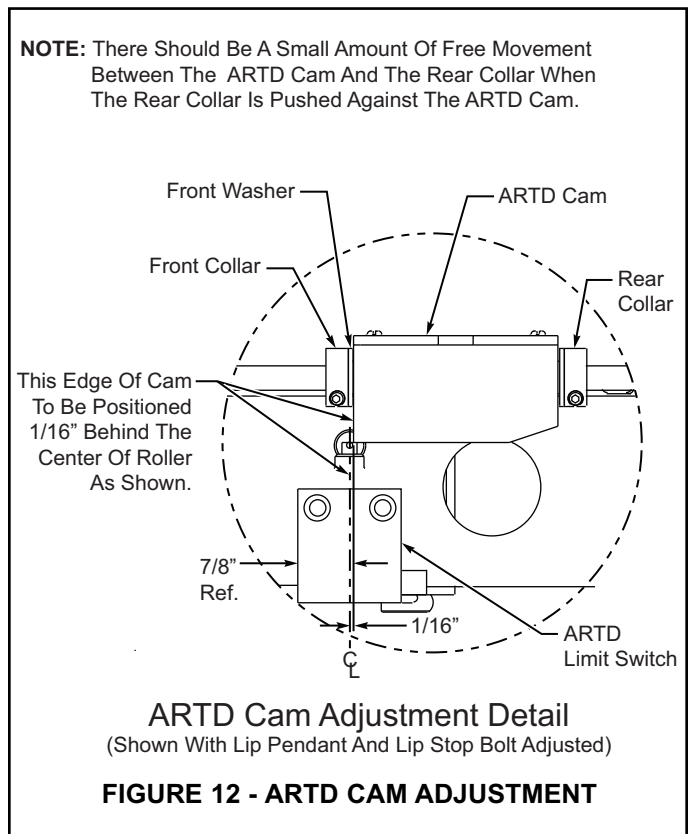
OPTIONAL ARTD ADJUSTMENTS:

ARTD Limit Switch Cam

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.



LEVELER ADJUSTMENTS CONT.

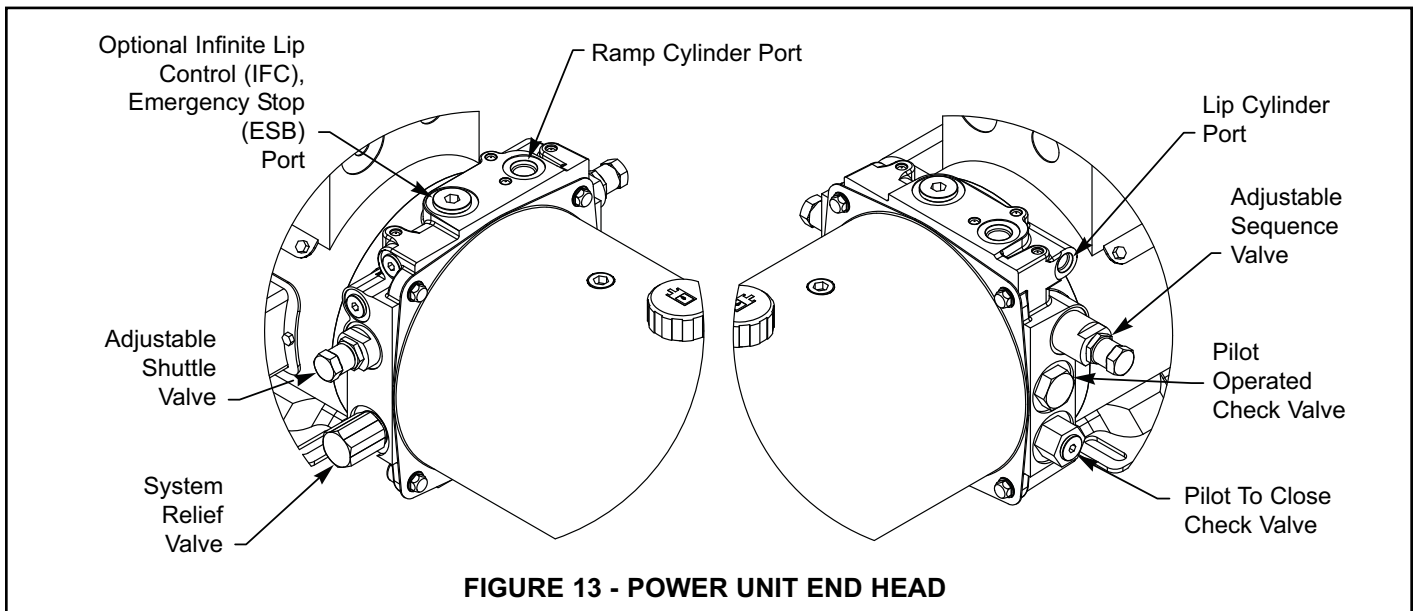


FIGURE 13 - POWER UNIT END HEAD

! 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 Support.
- 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

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 13.
 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.
- 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.

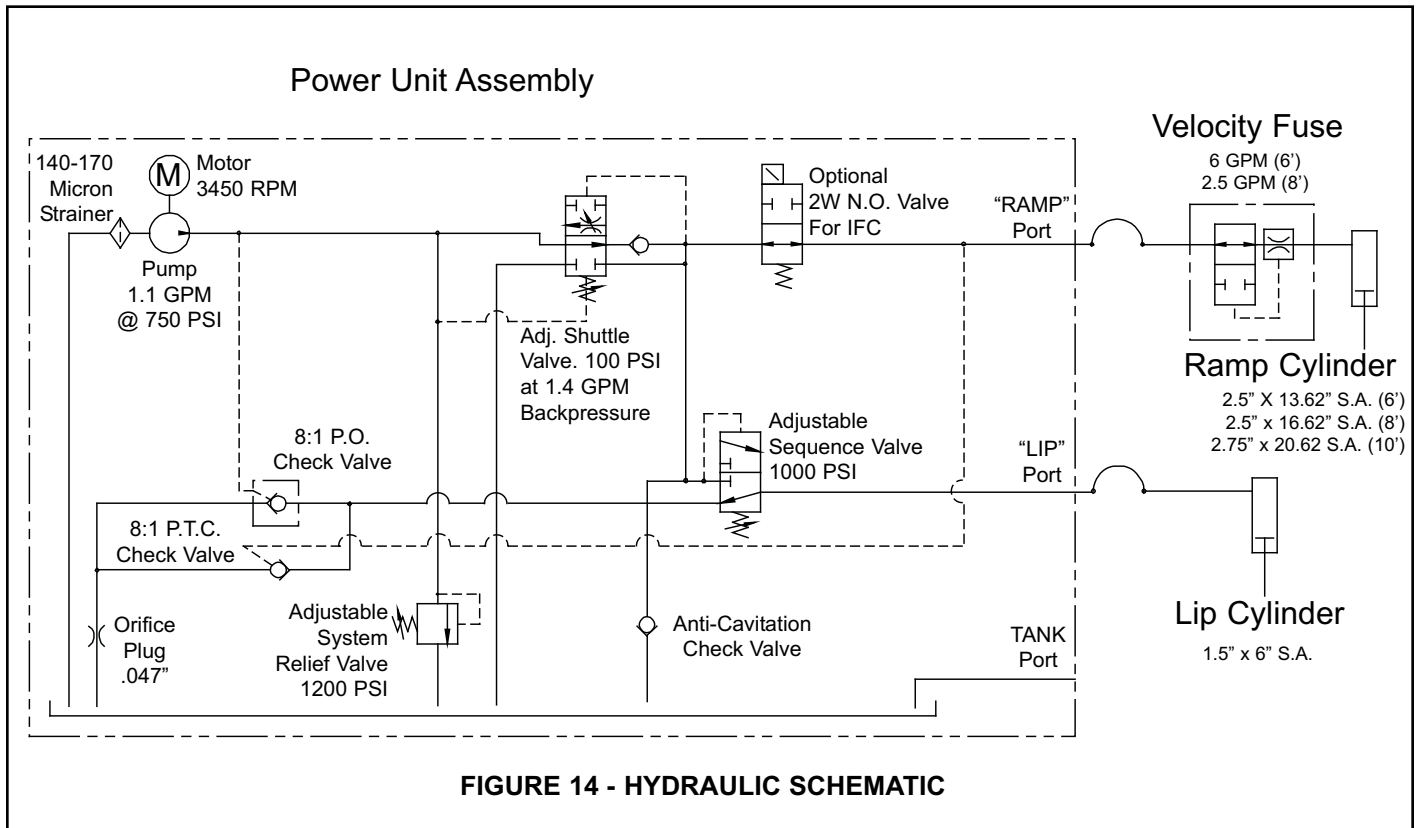
Note: Valve is factory set at 0.70".

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.
- Sequence valve is factory sealed. Adjustments to be completed by trained technician only.

LEVELER TROUBLESHOOTING

Problem	Probable Cause	Solution
1. Platform does not raise	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. See Figure 10. Refill if necessary.
2. Leveler runs continuously.	<ul style="list-style-type: none"> a. The pushbutton, contact block or motor contactor damaged. 	<ul style="list-style-type: none"> a. Repair or replace components.
3. Lip extends slowly and/or does not extend.	<ul style="list-style-type: none"> a. Debris on lip hinge. b. Lip impacted or bent. c. Hydraulic fluid level low. 	<ul style="list-style-type: none"> 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. See Figure 10. Refill if necessary.
4. Platform does not lower.	<ul style="list-style-type: none"> a. Velocity fuse has locked up. b. Debris is lodged on or around the leveler. 	<ul style="list-style-type: none"> a. Attempt to raise the unit to unlock the velocity fuse. b. Check and removed any lodged debris on or around leveler.
5. Platform raises very slowly.	<ul style="list-style-type: none"> a. Weight on top of platform. b. Hydraulic fluid level is low. c. Low voltage d. Power unit/pump/motor failure. 	<ul style="list-style-type: none"> a. Remove weight from platform. b. Check oil level when the unit is held open with the maint. support. See Figure 10. Refill if necessary. c. Verify $\pm 10\%$ nominal voltage while unit is running. d. Replace power unit assembly.
6. Lip does not store properly.	<ul style="list-style-type: none"> a. The lip stop bolt is not adjusted properly. b. Debris. c. Lip supports. 	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> a. Undersized fuse or circuit breaker. b. Low voltage. c. Short circuit in wiring. d. Wire gage is too small. Distance is too long. 	<ul style="list-style-type: none"> a. Verify 20 amp for 120VAC and 15 amp for 240VAC. 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 17.

HYDRAULIC SCHEMATIC

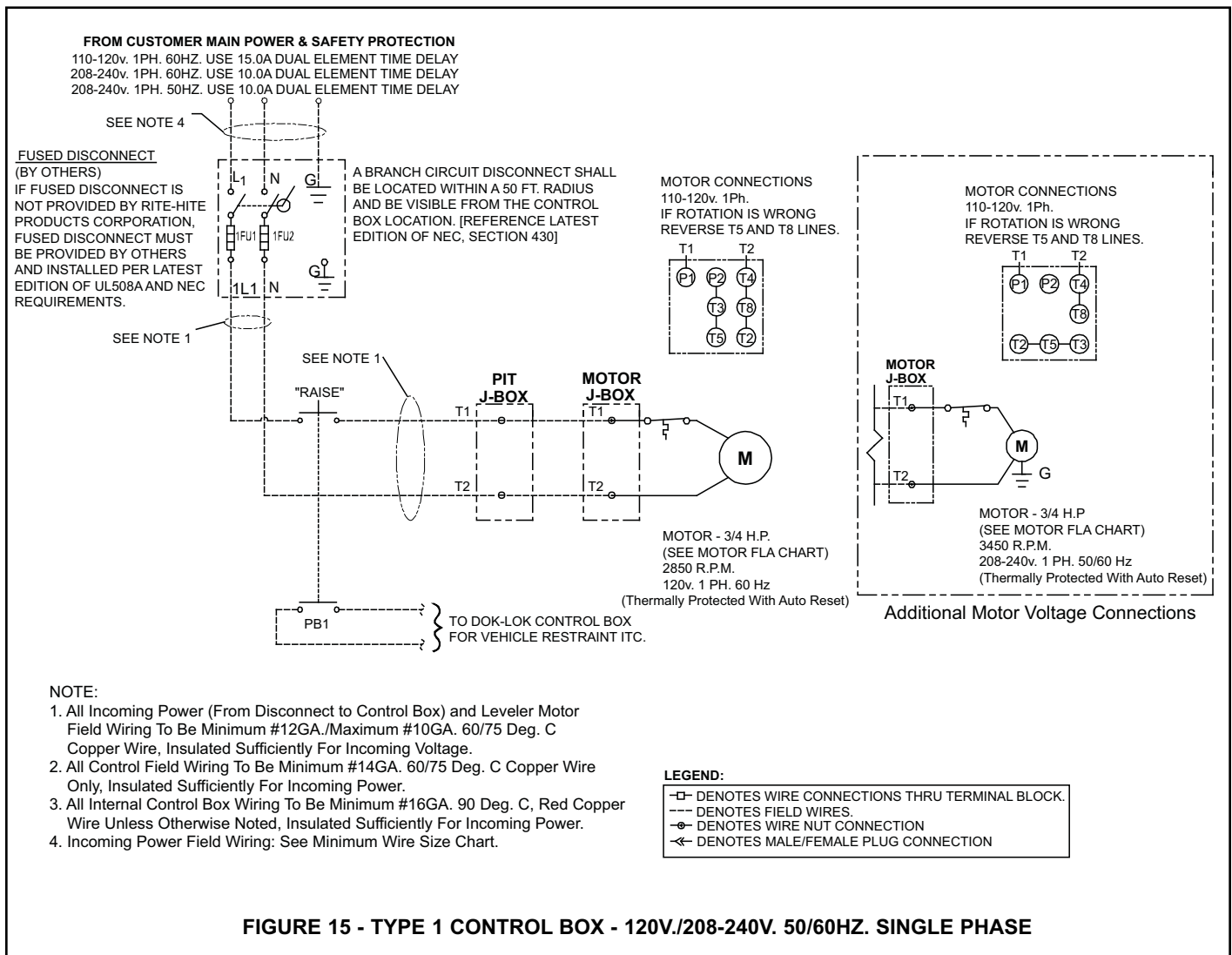


ELECTRICAL WIRING CHARTS

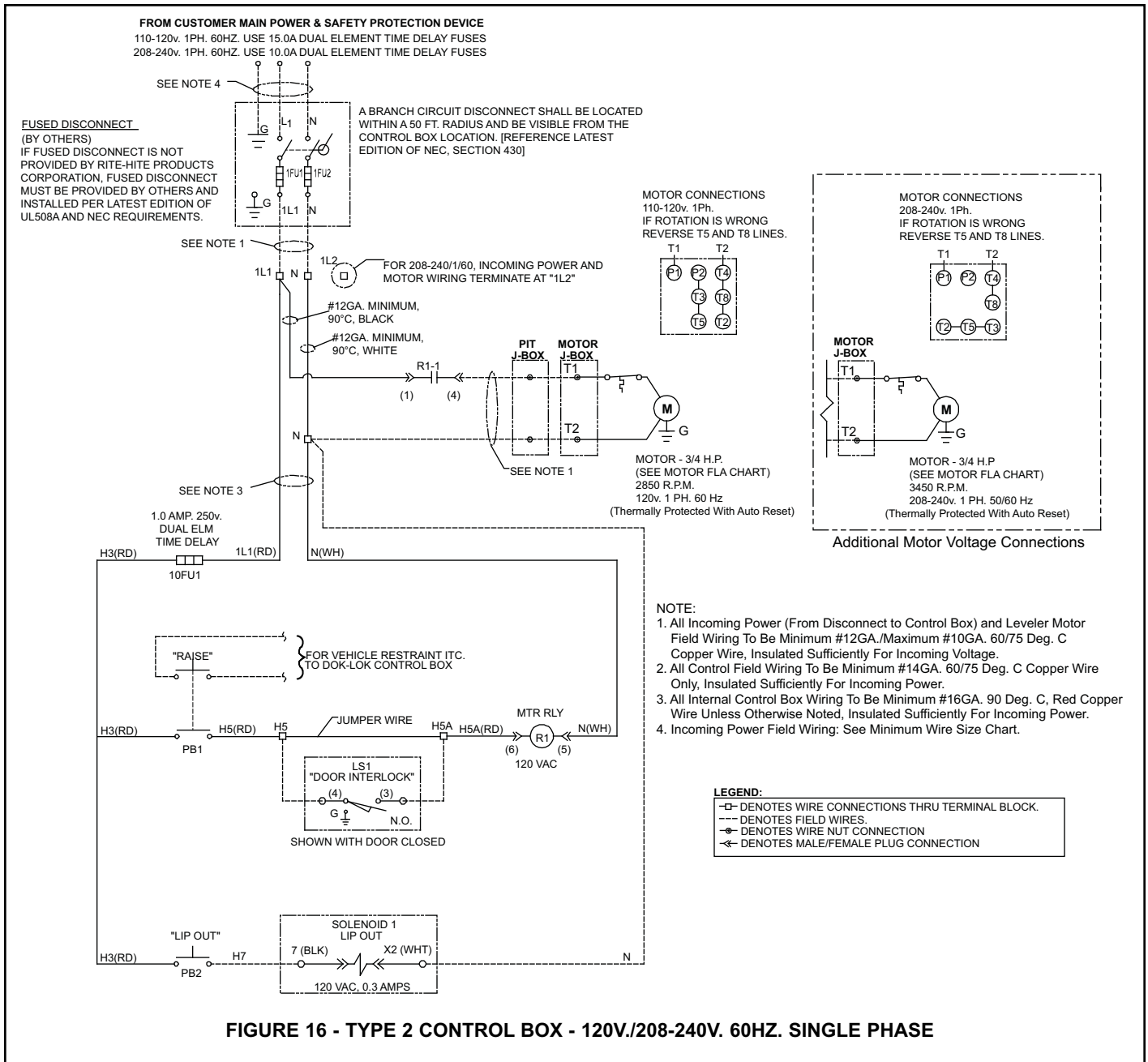
Average Motor Loads (Amps)			
	Air Levelers	Hydraulic Leveler	
		3/4 hp	1hp
110-120/1/60	12.0	10.0	N/A
208-230/1/60	7.0	5.0	N/A
208-230/3/60	N/A	N/A	3.8
380-415/3/50	N/A	N/A	2.5
440-480/3/60	N/A	N/A	1.9
575-600/3/60	N/A	N/A	1.4

Minimum Wire Size Chart for Various Line Lengths and Line Loads										
			Line Length (In Feet)							
			0-50	51-100	101-150	151-200	201-205	251-300	301-350	351-400
110-120/1	1300 watts	Air Powered Levelers	12	8	6	6	4	4	3	2
110-120/1	3/4 hp	Hydraulic Levelers	12	10	8	6	4	4	4	3
110-120/1	1 hp	Hydraulic Levelers	10	8	6	4	4	3	2	1
208-240/1	1533 watts	Air Powered Levelers	14	14	12	10	10	8	8	8
208-240/1	3/4 hp	Hydraulic Levelers	14	14	14	12	10	10	10	8
208-240/1	1 hp	Hydraulic Levelers	14	12	12	10	8	8	8	6
208-240/3	1hp	Hydraulic Levelers	14	14	12	12	10	10	10	8
380-415/3	1 hp	Hydraulic Levelers	14	14	14	14	14	14	14	14
440-480/3	1 hp	Hydraulic Levelers	14	14	14	14	14	14	14	14
575-600/3	1 hp	Hydraulic Levelers	14	14	14	14	14	14	14	14

ELECTRICAL SCHEMATIC



ELECTRICAL SCHEMATIC CONT.



ELECTRICAL SCHEMATIC CONT.

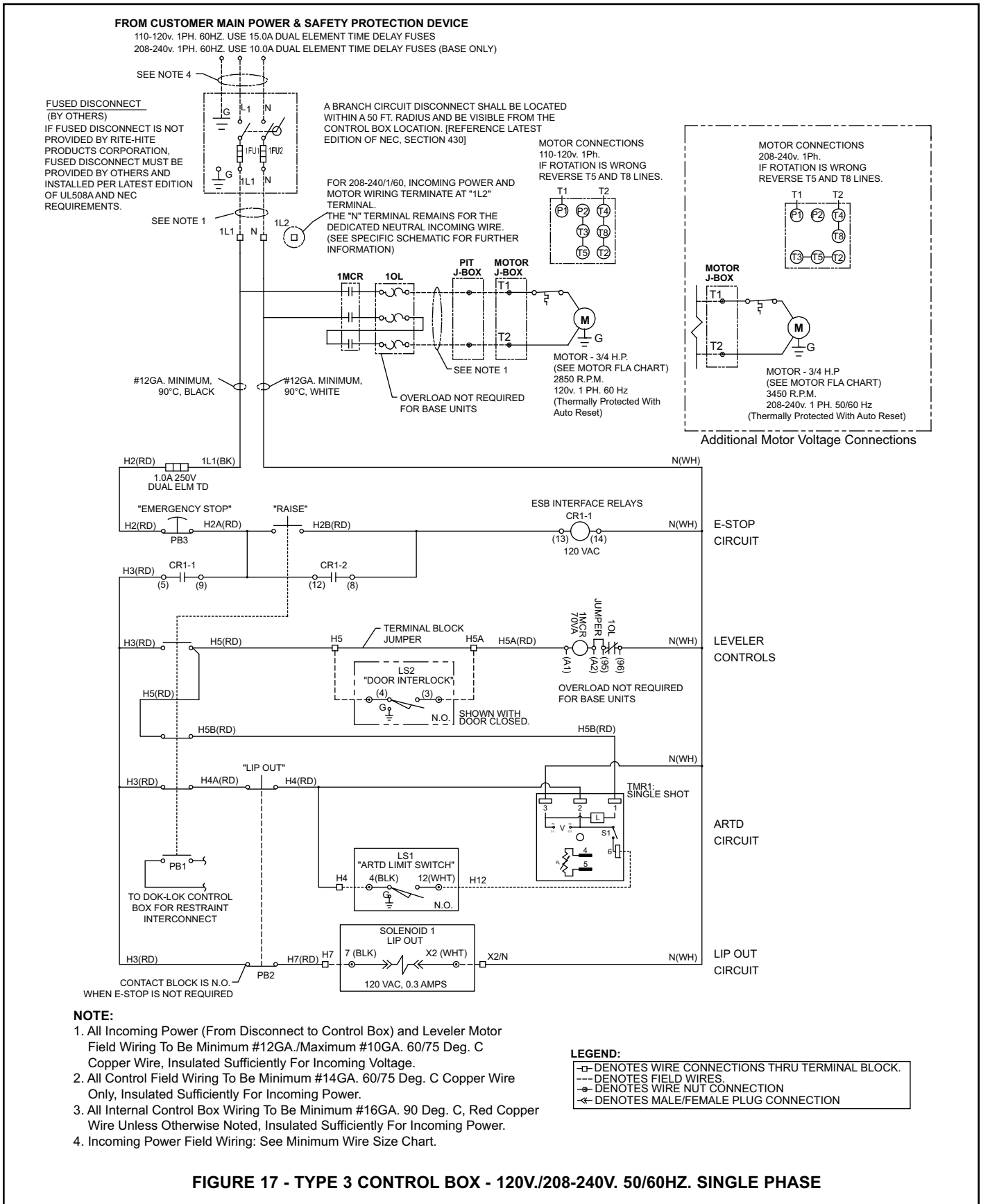


FIGURE 17 - TYPE 3 CONTROL BOX - 120V./208-240V. 50/60HZ. SINGLE PHASE

ELECTRICAL SCHEMATIC CONT.

FROM CUSTOMER MAIN POWER & SAFETY PROTECTION DEVICE

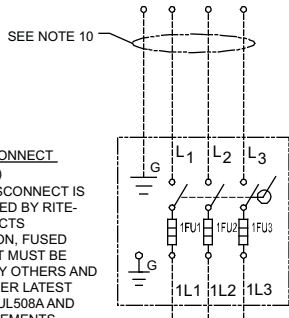
208-240v. 3PH. 60HZ. USE 6.0A DUAL ELEMENT TIME DELAY FUSES
 380-415v. 3PH. 50/60HZ. USE 4.0A DUAL ELEMENT TIME DELAY FUSES
 440-480v. 3PH. 60HZ. USE 4.0A DUAL ELEMENT TIME DELAY FUSES
 575v. 3PH. 60HZ. USE 4.0A DUAL ELEMENT TIME DELAY FUSES

LEGEND:

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

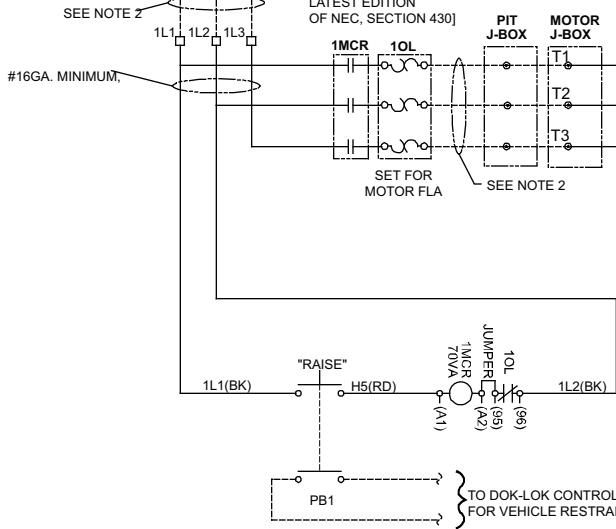
FUSED DISCONNECT

(BY OTHERS)
 IF FUSED DISCONNECT IS NOT PROVIDED BY RITE-HITE PRODUCTS CORPORATION, FUSED DISCONNECT MUST BE PROVIDED BY OTHERS AND INSTALLED PER LATEST EDITION OF UL508A AND NEC REQUIREMENTS.



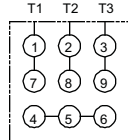
A BRANCH CIRCUIT DISCONNECT SHALL BE LOCATED WITHIN A 50 FT. RADIUS AND BE VISIBLE FROM THE CONTROL BOX LOCATION. [REFERENCE LATEST EDITION OF NEC, SECTION 430]

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



MOTOR CONNECTIONS 208-240v. 3 PH.

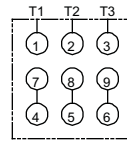
CONNECT T1, T2, T3 TO TERMINALS 1, 2, 3. IF ROTATION IS WRONG, REVERSE ANY 2 LINES.



MOTOR-1 H.P. (SEE MOTOR FLA CHART) @ 3450 R.P.M. 240v. 3 PH. 60 HZ.

MOTOR CONNECTIONS 440-480v. 3 PH.

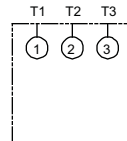
CONNECT T1, T2, T3 TO TERMINALS 1, 2, 3. IF ROTATION IS WRONG, REVERSE ANY 2 LINES.



MOTOR-1 H.P. (SEE MOTOR FLA CHART) @ 3450 R.P.M. 480v. 3 PH. 60 HZ.

MOTOR CONNECTIONS 575v. 3 PH.

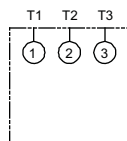
CONNECT T1, T2, T3 TO TERMINALS 1, 2, 3. IF ROTATION IS WRONG, REVERSE ANY 2 LINES.



MOTOR-1 H.P. (SEE MOTOR FLA CHART) @ 3450 R.P.M. 575v. 3 PH. 50/60 HZ.

MOTOR CONNECTIONS 380v. 3 PH.

CONNECT T1, T2, T3 TO TERMINALS 1, 2, 3. IF ROTATION IS WRONG, REVERSE ANY 2 LINES.



MOTOR-1 H.P. (SEE MOTOR FLA CHART) @ 3450 R.P.M. 380v. 3 PH. 60 HZ.

Additional Motor Voltage Connections

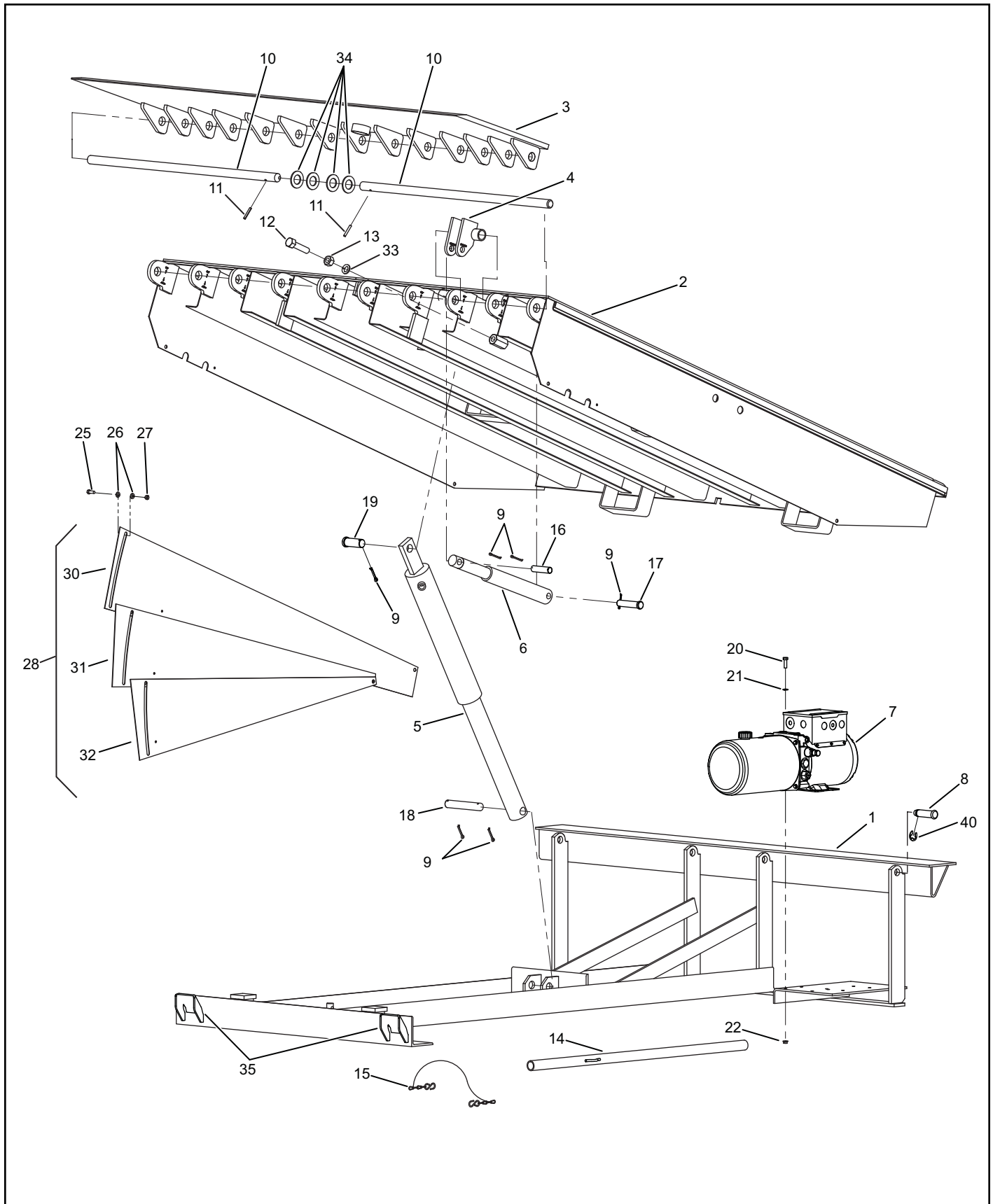
NOTE:

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.

FIGURE 19 - HL-900 TYPE 4 CONTROL BOX - 3 PHASE (SEE VOLTAGES ABOVE)

NOTES

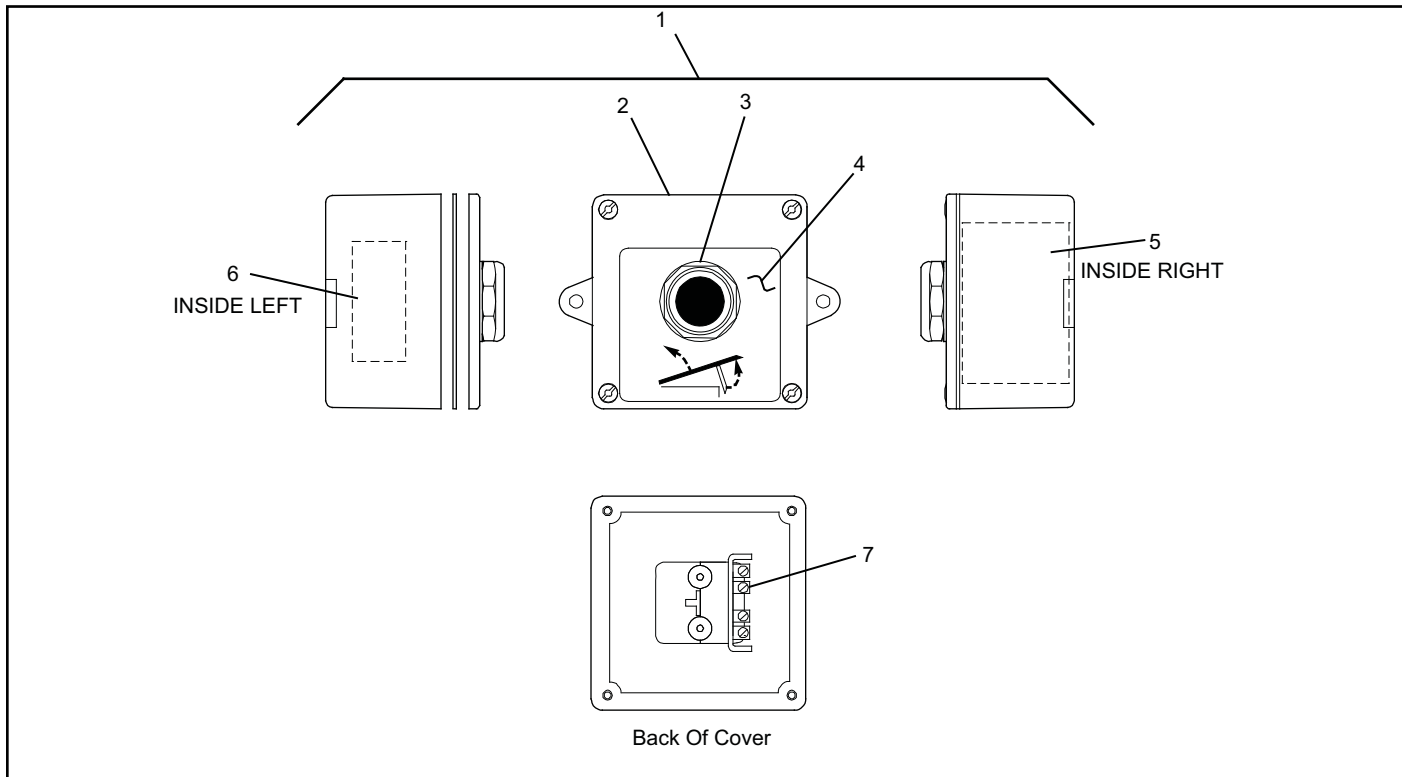
REPLACEMENT PARTS



REPLACEMENT PARTS LIST

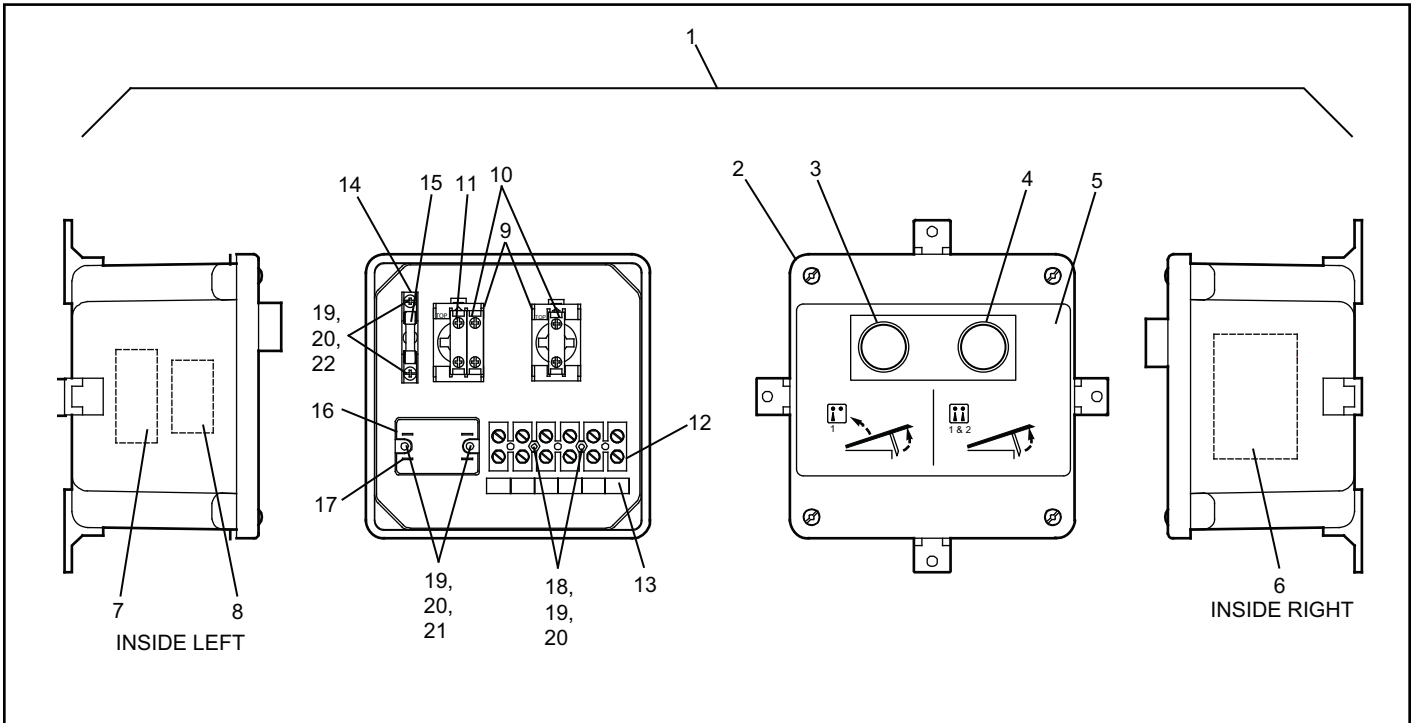
Item	Qty.	Description	Leveler Length and Capacity			
			6' Long	8' Long	10' Long	12' Long
1	1	Frame Weldment	361.xxx	361.xxx	361.xxx	361.xxx
2	1	Platform Weldment	401.xxx	401.xxx	401.xxx	401.xxx
3	1	Lip Weldment	421.xxx	421.xxx	421.xxx	421.xxx
4	1	Lip Lug 2Bar 2Hole Cam	116377	116377	116377	116377
5	1	Ramp Cylinder Hyd. SA 2PORT	129344	129340	129341	129341
6	1	Lip Cylinder Hyd. 2.5 BR x 6 STR 1PORT	102239	102239	102239	102239
7	1	Power Unit	See Page 32			
8	4	Clevis Pin, Headed, .875 x 3.25L Groove ZP	129307	129307	129307	129307
	4	Clevis Pin, Headed, .875 x 3.25L Gr (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	562.101	562.101	562.101	562.101
	2	Lip Hinge Pin 6.5' Wide	562.102	562.102	562.102	562.102
	2	Lip Hinge Pin 7' Wide	562.100	562.100	562.100	562.100
	2	Lip Hinge Pin 6' Wide (Stainless Steel)	490.101	490.101	490.101	490.101
	2	Lip Hinge Pin 6.5' Wide (Stainless Steel)	490.102	490.102	490.102	490.102
	2	Lip Hinge Pin 7' Wide (Stainless Steel)	490.103	490.103	490.103	490.103
11	2	Pin, Tension .25 Dia. x 1.75L	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 Support 1" OD	413.100	413.100	413.100	413.100
	1	Maintenance Support 1" OD (With ADS)	413.102	413.102	413.102	413.102
15	1	Maintenance Support Chain	117378	117378	117378	117378
16	2	Pin, Clevis .75 x 3.00L 1141 CRM	102247	102247	102247	102247
17	2	Pin, Clevis .75 x 3.75L 1141 CRM	130015	130015	130015	130015
18	1	Pin, Clevis 1 x 6.25L ZP	122972	122972	122972	122972
19	1	Pin, Clevis 1x 2.875 ZP	130013	130013	130013	130013
20	4	Bolt .313-18 x 1 Hex GR5 ZP	51627	51627	51627	51627
21	4	Washer, Flat .312 ZP	51769	51769	51769	51769
22	4	Nut .313-18 Flange Srted ZP	51535	51535	51535	51535
23	2	Channel, Weatherseal 12GA (Not Shown)	489.xxx	489.xxx	489.xxx	489.xxx
24	2	Weatherseal Insert PT2-1 (Not Shown)	513.105	513.104	513.106	513.103
	2	Weatherseal Insert NB1-1 (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 Nylock ZP	51501	51501	51501	51501
28	1	Full Range LH (2 Fan) Units (Not Shown)	417.102	417.103	417.104	417.105
	1	Full Range LH (3 Fan) Units	-	-	419.102	419.103
29	1	Full Range RH (2 Fan) Units (Not Shown)	418.102	418.103	418.104	418.105
	1	Full Range RH (3 Fan) Units (Not Shown)	-	-	420.101	420.103
30	1	Toeguard Fan 14GA x 11 4Hole LH	411.100	411.101	563.100	563.101
	1	Toeguard Fan 14GA x 11 4Hole RH (Not Shown)	411.100	411.101	564.100	564.101
31	1	Toeguard Fan 14GA x 11 3Hole LH	416.100	416.101	565.109	565.110
	1	Toeguard Fan 14GA x 11 3Hole RH (Not Shown)	416.100	416.101	566.109	566.110
32	1	Toeguard Fan 14GA x 11 2Hole LH (3 Fan Only)	-	-	567.106	567.107
	1	Toeguard Fan 14GA x 11 2Hole LH (3 Fan Only)	-	-	568.106	568.107
33	1	Washer .75 Split LK HVY ZP	51814	51814	51814	51814
34	4	Washer 1.125 SAE ZP	116704	116704	116704	116704
35	2	Lip Keepers	129201	129201	129201	129201
36	1	Decal Sheet Manufacturing (Not Shown)	128116	128116	128116	128116
37	2	Hook,Shipping 18/20" Lips Formed (Not Shown)	60902	60902	60902	60902
38	1	Operational Sign (Not Shown)	128111	128111	128111	128111
39	1	Decal Sheet Field (Not Shown)	128121	128121	128121	128121
40	4	Ring, Ext. Retaining, .875OD	129308	129308	129308	129308

TYPE 1 CONTROL BOX PARTS



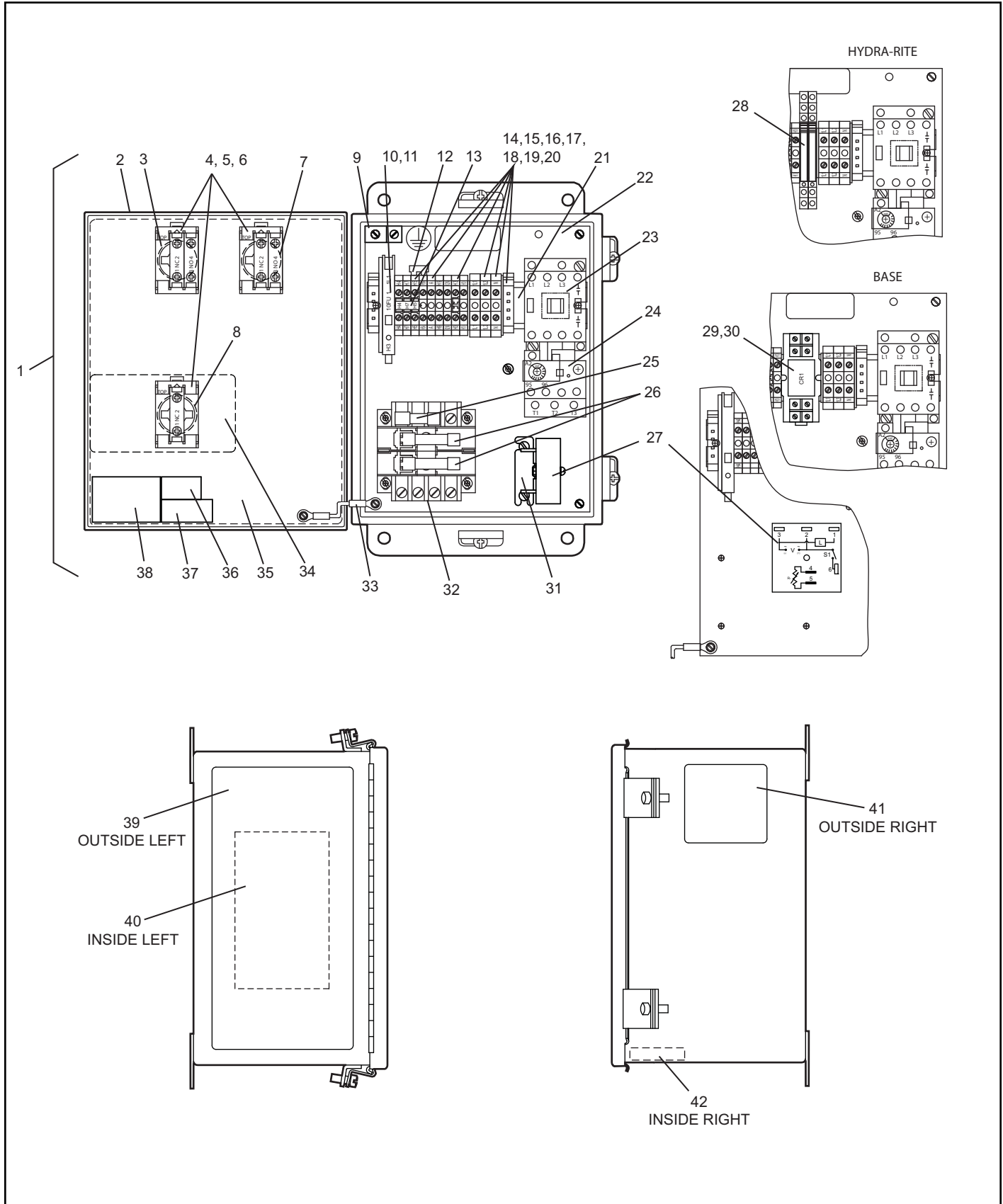
Item	Qty.	Description	Part Number
1	1	Control Box Complete	228.xxx
2	1	Control Box Enclosure, 4 x 4 x 2 N4XF	117342
3	1	Push Button N12/N4	57075
	1	Push Button N4X	118316
4	1	Control Box Cover Decal, Raise 3 x 3 Hole (30.5MM Oprtr)	117414
5	1	Decal V/PH/FLA	230.xxx
6	1	Decal UL/ULC - Consult RITE-HITE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

TYPE 2 CONTROL BOX PARTS



Item	Qty.	Description	Part Number
1	1	Control Box Complete	219.xxx
2	1	Control Box Enclosure, 6 x 6 x 4 N4XF	117346
3	1	Push Button Operator (22.5MM) Black, N12/N4	124898
4	1	Push Button Operator (22.5MM) Black, N4X	124899
5	1	Push Button Operator (22.5MM) Red, N12/N4	124901
5	1	Push Button Operator (22.5MM) Red, N4X	124902
6	1	Control Box Cover Decal, Raise, 4 x 6, 1 Hole (22.5MM Oprtr)	117405
6	1	Control Box Cover Decal, Raise & Lip Out, 4 x 6, 2 Hole (22.5MM Oprtr)	117406
7	1	Decal V/PH/FLA	226.xxx
8	1	Decal UL/UCL - Consult RITE-HITE	-
8	1	Decal, Fuse Replacement	114307
9	2	Mounting Latch, 3 Across	65889
10	2	Contact Block, 1 N.O. (22.5MM)	124885
11	1	Contact Block, 1 N.C. (22.5MM)	124881
12	1	Terminal Strip Assm., 6PT, 8-14AWG	117349
13	1	Decal Terminal Strip, 6PT 115/1PH	117353
13	1	Decal Terminal Strip, 6PT 230/1PH	117360
14	1	Fuse Holder, 1 Pole	65161
15	1	Fuse 1A 250V 3AG	57428
16	1	Relay, 1P INP (120VAC)	117350
16	1	Relay, 1P INP (240VAC)	117351
17	1	10-12AWG Female Terminal Insulating Wire Crimp	117750
18	2	Screw #6-32 x 1, Cap Flat CTSK SLTD ZP	117354
19	6	Nut #6-32, Hex ZP	117361
20	6	Lock Washer #6 Lock Washer, Ext. Tooth ZP	103218
21	2	Screw #6-32 x .6, Cap Flat CTSK SLTD ZP	117355
22	2	Screw #6-32 x .4375, Cap Flat CTSK SLTD ZP	117344

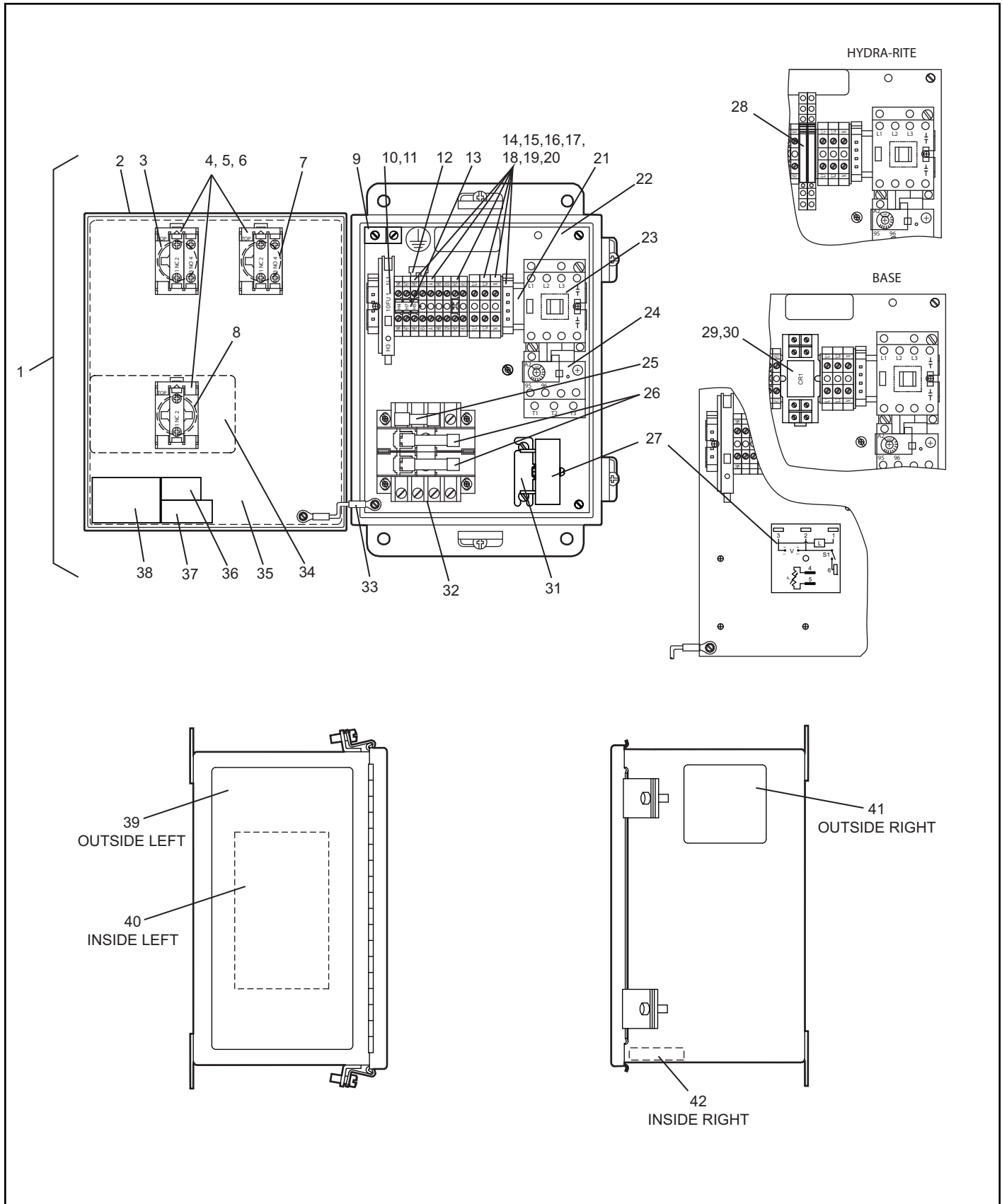
TYPE 3 CONTROL BOX PARTS



TYPE 3 CONTROL BOX REPLACEMENT PARTS LIST

Item	Qty.	Description	Part Number
1	1	Control Box Complete - HYDRA-RITE™	178.xxx
	1	Control Box Complete - BASE	219.xxx
2	1	Control Box Enclosure, 10 x 8 x 6 N12	187.107
	1	Control Box Enclosure, 10 x 8 x 6 N4	187.110
3	1	Push Button Operator (22.5MM) Red, N12/N4	124901
	1	Push Button Operator (22.5MM) Red, N4X	124902
4	3	Contact Block Mounting Latch	124889
5	2	Contact Block, Black, NO	124885
6	3	Contact Block, Black, NC	124881
7	1	Push Button Operator (22.5MM) Black, N12/N4	124898
	1	Push Button Operator (22.5MM) Black, N4X	124899
8	1	Emergency Stop Operator (22.5MM), N12/N4	124905
	1	Emergency Stop Operator (22.5MM), N4X	124908
9	1	Ground Lug	55902
10	1	Fuse Holder	57275
11	1	1A Fuse, 250V Slo-Blow (Installed Without Transformer)	57428
12	1	Terminal Jumper	65769
13	1	Disconnect Plug Assembly	100277
14	4	Red Terminal Block - Control Circuit	65606
15	3	Red Terminal Block With Plug - Control Circuit	66054
16	2	Black Terminal Block, 600V, 50A (1L1/ 1L2) - Incoming Power	65666
17	1	Black Terminal Block - Control Circuit	65610
18	1	White Terminal Block, 600V, 50A (N) - Incoming Power	114446
19	1	White Terminal Block - Control Circuit	66051
20	2	End Anchor Terminal Block	66067
21	1	Mounting Din Rail	109341
22	1	Back Panel, Drilled, 10 x 8	114363
23	1	Leveler Motor Contactor, 3Ph, 9A 120VAC Coil, W/ XFMR	65911
	1	Leveler Motor Contactor, 3Ph, 9A 240VAC Coil, 240/3 W/O XFMR	117356
	1	Leveler Motor Contactor, 3Ph, 9A 480VAC Coil, 480/3 W/O XFMR	114918
	1	Leveler Motor Contactor, 3Ph, 9A 575VAC Coil, 575/3 W/O XFMR	117357
	1	Leveler Motor Contactor, 3Ph, 9A 380VAC Coil, 380/3/60 W/O XFMR	117358
	1	Leveler Motor Contactor, 3Ph, 9A 380-400VAC Coil, 380/3/50 W/O XFMR	117359
	1	Leveler Motor Contactor, 3Ph, 9A 120VAC Coil, 1PH - BASE	65910
	1	Leveler Motor Contactor, 3Ph, 9A 120VAC Coil, 1PH - HYDRA-RITE™	102484
24	1	Leveler Overload Relay, 3PH - BASE, 380/460/575/3PH - HYDRA-RITE™	65912
	1	Leveler Overload Relay, 230/1/60 - HYDRA-RITE™	65913
	1	Leveler Overload Relay, 230/1/50 - HYDRA-RITE™	119520
	1	Leveler Overload Relay, 230/3 - HYDRA-RITE™	119472
25	1	Leveler Control Fuse, 1A 250V Dual Elm., 230/1/50	115479
26	2	Transformer Primary Fuse, 1A CC Rej. Dual Elm., 230/1/50	66003
27	1	Single Shot Time, ARTD	117752
28	1	E-Stop Relay - HYDRA-RITE™	119176
29	1	E-Stop Relay - BASE	57055
30	1	E-Stop Relay Base - BASE	55945
31	1	Timer Mounting Bracket	115270
32	1	Transformer, 50VA 240/480V	18736
	1	Transformer, 50VA 380V	18737
	1	Transformer, 50VA 575V	18738
33	1	Ground Harness	114338
34	1	Decal E-Stop Overlay	103352
35	1	Decal Control Box - (2PB)	100590
36	1	Decal Fuse Replacement, 115/230/1/60	114307
	1	Decal Fuse Replacement, 230/1/50	114308

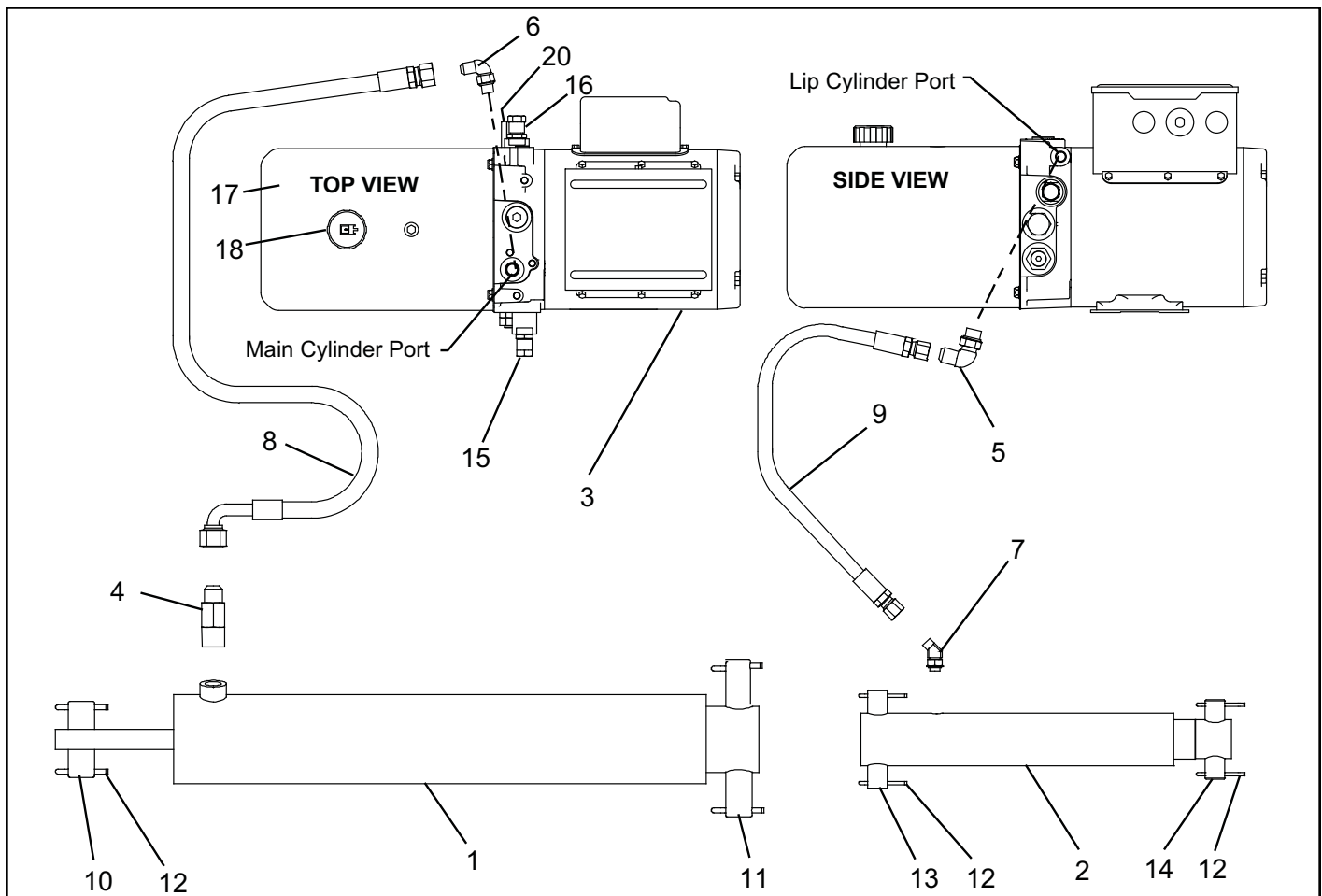
TYPE 3 CONTROL BOX PARTS CONT.



TYPE 3 CONTROL BOX REPLACEMENT PARTS LIST CONT.

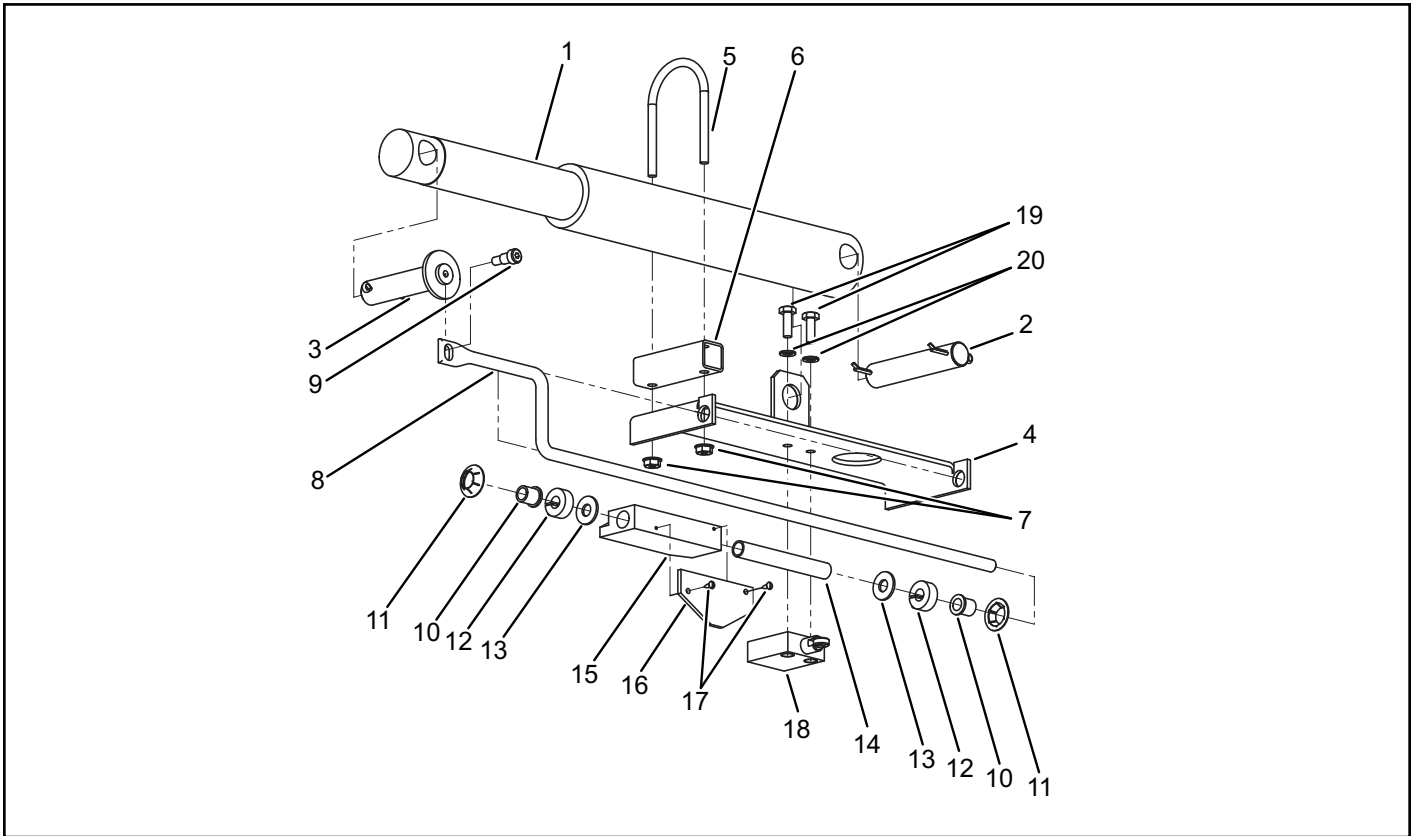
Item	Qty.	Description	Part Number
37	1	Decal UL/ULC - Consult Rite-Hite	-
38	1	Decal Voltage/Phase/FLA - BASE	226.xxx
	1	Decal Voltage/Phase/FLA - HYDRA-RITE™	188.xxx
39	1	Decal Operation W/O IFC	102233
	1	Decal Operation W/ IFC	117316
40	1	Decal Electrical Schematic	-
41	1	Decal Lockout/Tagout	114331
42	1	Corrosion Pad	55561

HYDRAULIC REPLACEMENT PARTS



Item	Qty.	Description	Part Number			
			6' Long	8' Long	10' Long	12' Long
1	1	Ramp Cylinder, Single Acting	129344	129340	129341	129341
2	1	Lip Cylinder, Single Acting	102239	102239	102239	102239
3	1	Power Unit, 115v/230v 1ph	126498	126498	126498	126498
	1	Power Unit, 480v/240v 3ph	126499	126499	126499	126499
	1	Power Unit, 575v 3ph	126500	126500	126500	126500
4	1	Velocity Fuse	129343	129342	129346	129346
5	1	Lip Cylinder Hose Fitting, Power Unit	100363	100363	100363	100363
6	1	Ramp Cylinder Hose Fitting, Power Unit	55267	55267	55267	55267
7	1	Lip Cylinder Hose Fitting, Lip Cylinder	16920	16920	16920	16920
8	1	Ramp Cylinder Hose Assembly	108961	119776	119844	117058
9	1	Lip Cylinder Hose Assembly	108964	108963	117053	117526
10	1	Clevis Pin, 1"Dia. x 2.875L 2Hole	52620	52620	52620	52620
11	1	Clevis Pin, 1"Dia. x 6.25L 2Hole	122972	122972	122972	122972
12	16	Cotter Pin	51907	51907	51907	51907
13	1	Clevis Pin, .75Dia. x 3.75L	102312	102312	102312	102312
14	1	Clevis Pin, .75Dia. x 3.00L	102247	102247	102247	102247
15	1	Sequence Valve	123759	123759	123759	123759
16	1	Shuttle Valve	118823	118823	118823	118823
17	1	Hydraulic Oil Tank	118828	118828	118828	118828
18	1	Fill Cap	118829	118829	118829	118829
19	1	Tank Seal/O-Ring (Not Shown)	118824	118824	118824	118824
20	1	System Relief Valve	126784	126784	126784	126784

OPTIONAL AUTOMATIC RETURN TO DOCK PARTS (ARTD)



Item	Qty.	Description	Leveler Length and Capacity			
			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	102312	102312	102312	102312
3	1	Hd. Clevis Pin, .75Dia. x 3.32L CRM	102311	102311	102311	102311
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	Rotary 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	119557	119557
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

NOTES

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.



**8900 N. Arbon Dr.
Milwaukee, Wisconsin
53223 USA
(414)355-2600**