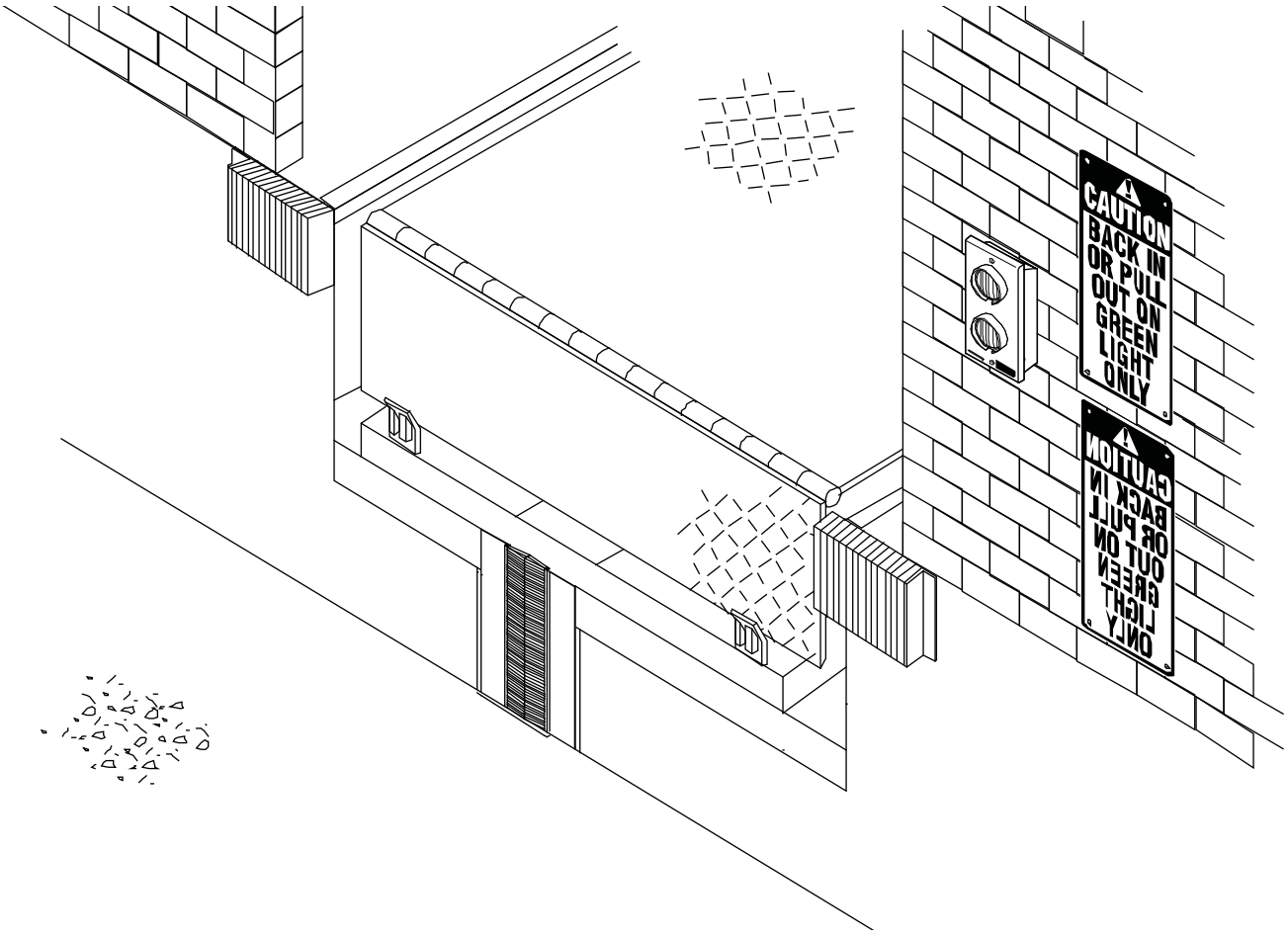
THE ORIGINAL DOK-LOK VEHICLE RESTRAINT BY RITE-HITE

VBR-600 *Dok-Lok*®

Vehicle Restraint
Owner's Manual



RITE-HITE®
ALWAYS LOOKING AHEAD

MADE IN U.S.A.

This Manual Covers Restraints Built After Serial Numbers:
4634330001 and up

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

PUBLICATION NO. 1328
JANUARY 2016

TABLE OF CONTENTS

PRODUCT SPECIFIC WARRANTY

Rite-Hite® warrants the VBR-600 DOK-LOK vehicle restraint for two-years parts and labor from date of shipment in accordance with Rite-Hite's Standard Warranty Policy.

INTRODUCTION

Read and understand this manual before attempting to install or operate any DOK-LOK vehicle restraint. For best results, have this product serviced by your authorized Rite-Hite® representative. The VBR-600 DOK-LOK vehicle restraint by Rite-Hite® is intended to provide a safer workplace for workers in shipping and receiving dock areas. The VBR-600 DOK-LOK vehicle restraint is a hydraulic restraint device that, when properly installed and operated, retains a secure connection between the truck and dock. Signal lights and signs provide instructions to the truck driver and DOK-LOK vehicle restraint operator that a safe condition exists. The DOK-LOK vehicle restriant is operated by pressing push buttons on an inside control panel.

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 WARNINGS

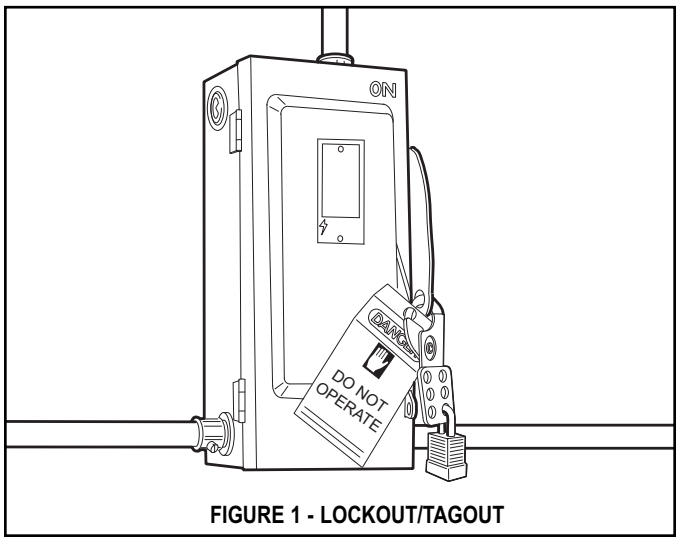


FIGURE 1 - LOCKOUT/TAGOUT

⚠ WARNING

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

LOCKOUT/TAGOUT PROCEDURES

The Occupational Safety and Health Administration requires that, in addition to posting safety warnings and barricading the work area, 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 Corporation does not recommend any particular lockout device, but recommends the utilization of an OSHA approved device (refer to OSHA regulation 1910.147). Rite-Hite Corporation 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 or property damage.

FCC COMPLIANCE

FCC COMPLIANCE

NOTE:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses , and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

NOTE:
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following to conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

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.

DEFINITION AND FUNCTION

The VBR-600 DOK-LOK vehicle restraint is a hydraulic, pit stored restraint device used to secure trucks and semi-trailers with an intact Rear Impact Guard (R.I.G.) to the face of a loading dock. This is achieved by securing the R.I.G. with a steel barrier. This prevents forward movement of the truck/trailer that may create an unsafe void between the face of the dock and the rear end of the truck/trailer as a forklift travels from the loading dock onto the trailer; or to create an obstruction noticeable to the truck driver, should the driver accidentally try to pull the truck/trailer away while it is being serviced.

The proper or improper activation of the barrier is monitored by:

• VISUAL CONTROL

— One set of flashing green or red lights located at the inside of the building for the forklift operator, and one set located outside of the building for the truck driver. In addition to the lights, there are three instruction signs.

• AUDIO CONTROL

— A horn will sound at the inside of the building, warning the forklift operator if there is not R.I.G. present, or if the engagement is improper. In this case, the trailer must be secured by other means (wheel chokes, etc.) prior to servicing trailer.

Prerequisite for proper barrier engagement is that the trailer is parked firmly against a 4" (trade standard) thick dock bumper. The activation/deactivation is solely controlled from inside of the building by momentarily depressing either the Lock (raise) button or the Unlock (lower) button.

The normal mode of the barrier is in the lower STORED position, showing a flashing red light (trailer not secured) at the inside of the building and a flashing green light (trailer free to move to or away from the loading dock) at the outside of the building.

Once the trailer is parked, the dock attendant will depress the Lock button. This will raise the barrier to engage the R.I.G. As soon as the R.I.G. is properly locked, there will be a simultaneous light change - the inside will change from red to green flashing (trailer secured) and the outside will change from green to red flashing (do not move trailer). After the service is complete, the dock attendant will have to depress the Unlock button which then will return the barrier to its STORED position.

A proper barrier engagement is achieved when the barrier raises unobstructed to secure the horizontal cross member of the R.I.G. Assembly. An improper barrier engagement is if the horizontal cross member of the R.I.G. is missing, obstructed or it is bent or located so far toward the rear axle of the trailer that it will prevent the free passage of the barrier. At this point, the trailer must be secured by other means (example: wheel chocks) in order to become serviceable.

FEATURES

Refer to Figure 2, page 8 for the locations of the following features:

R.I.G.
Acronym used for the Federally mandated rear impact guard located on the rear of over the road trailers to prevent accidental underride by automobiles.

POSITIONING CYLINDER/LIFTING SPRING
Positioning Cylinder extends to lower main cylinder/barrier assembly to stored state. Lifting Spring, raises locking cylinder/barrier assembly to capture R.I.G. and keep in constant contact.

MAIN CYLINDER / RETURN SPRINGS
Main Cylinder extends to position barrier outside of pit. Return springs retract the main cylinder, keeping the vertical barrier face in contact with the R.I.G.

R.I.G. SENSOR / LOCK LIMIT SWITCH
Detects when the barrier is secured to the R.I.G.

BARRIER ASSEMBLY
Secures R.I.G. to prevent trailer from separating from the dock.

STORED LIMIT SWITCH
Senses the barrier assembly is in the proper stored position.

HYDRAULIC VALVE BLOCK
Allows restraint to operate using the leveler power unit.

PIT COVER/BRUSH SEAL
Protects the barrier assembly, float mechanism, hydraulic hoses and cylinders from debris.

CONTROL BOX, OUTSIDE LIGHT BOX AND SIGNAGE
Combination of these components is used to control the VBR-600 DOK-LOK vehicle restraint and provide audio/visual communications to the dock attendant and trailer driver.

MOUNTING INSERT
VBR6 is assembled to this and installed into mounting pan. May ship together with mounting pan or seperately.

MOUNTING PAN
Forms VBR6 pit. Placed in leveler pit and building wall. Prior to pouring concrete pit floor, VBR6 is installed in mounting pan by way of the mounting insert. May ship together with mounting insert or earlier. To be poured in to building prior to VBR6 shipment.

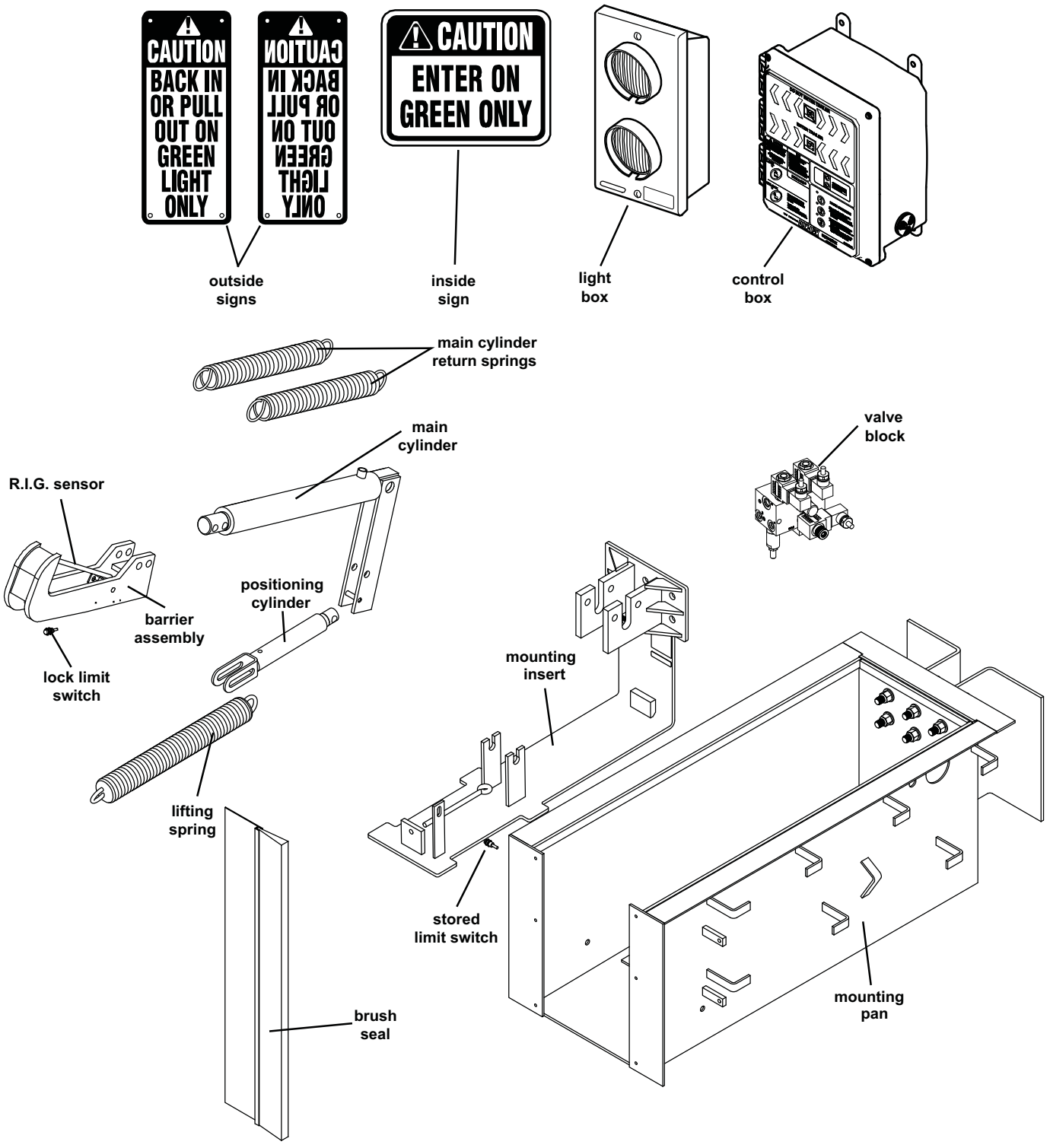


FIGURE 2 - VBR-600 DOK-LOK VEHICLE RESTRAINT FEATURES

OPERATING PROCEDURE

⚠ WARNING

- Before loading or unloading a vehicle at your loading dock while using a DOK-LOK vehicle restraint, always visually inspect to be sure that the barrier blocks the R.I.G. assembly. If a condition occurs that cannot be remedied by backing the trailer firmly against the dock bumpers, secure the trailer by other means.
- Be sure that the area around the R.I.G. assembly is free of plates or other obstructions.
- Always operate the DOK-LOK vehicle restraint from the top of the dock.
- Inspect all restraint lights daily to make certain they work properly.
- Perform maintenance on restraints in accordance with Maintenance on page 19 of this manual.
- DOK-LOK vehicle restraints should be operated only by authorized personnel who have read and understand the Owner's Manual.
- Call your local representative or Rite-Hite at (800) 456-0600 with any questions.

FAILURE TO FOLLOW THESE PROCEDURES COULD ALLOW UNEXPECTED TRAILER / LOADING DOCK SEPERATION RESULTING IN DEATH OR SERIOUS INJURY!

Stored Position / Restraint UNLOCKED

Barrier is in the STORED position. Inside light is flashing red alerting forklift operator unsafe condition exists. Outside light is flashing green alerting truck driver it is safe to back in.

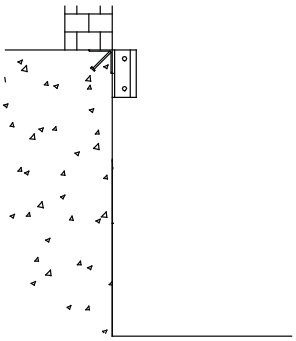
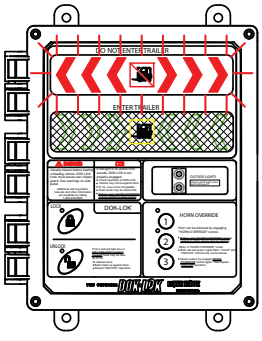
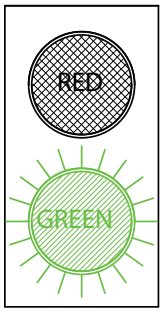
RESTRAINT POSITION	CONTROL BOX STATUS	OUTSIDE LIGHT STATUS
		
	INSIDE LIGHTS	OUTSIDE LIGHTS

FIGURE 3 - STORED POSITION

Restraint Locking, LOCK Button Pressed

Trailer has backed into loading dock and is parked firmly against dock bumpers. Barrier extends out of the pit from stored position and moves up to obstruct R.I.G. Inside light is steady red alerting the operator that an unsafe condition exists and barrier is in transit. Outside light is flashing red alerting truck driver not to move.

If horn sounds, go to FAULT state, otherwise go to Restraint LOCKED.

⚠ CAUTION

If trailer can not be restrainted due to a lift gate or other obstruction that could become damaged, go to OVERRIDE state.

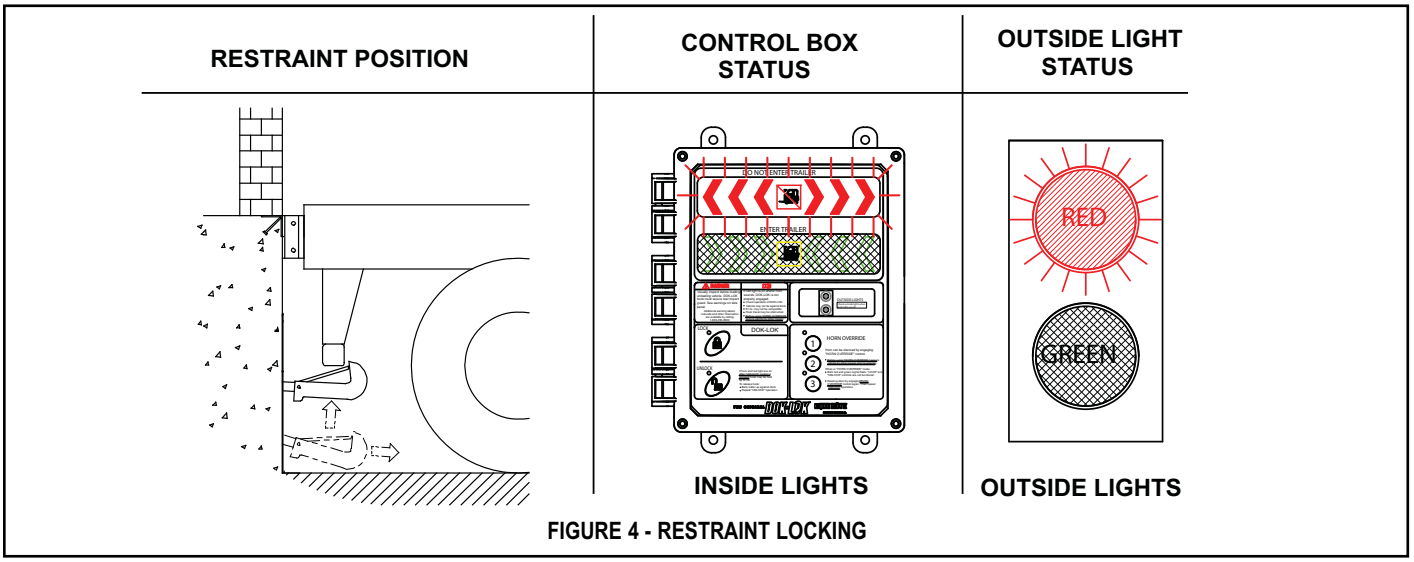


FIGURE 4 - RESTRAINT LOCKING

Restraint LOCKED

Once the R.I.G. is obstructed by the barrier, a LOCKED condition exists. Inside light is flashing green alerting the forklift operator a safe condition exists. Outside light is flashing red alerting truck driver not to move.

⚠ WARNING

Visually inspect to ensure that the DOK-LOK barrier obstructs the R.I.G. of the trailer being serviced before operating the dock leveler.

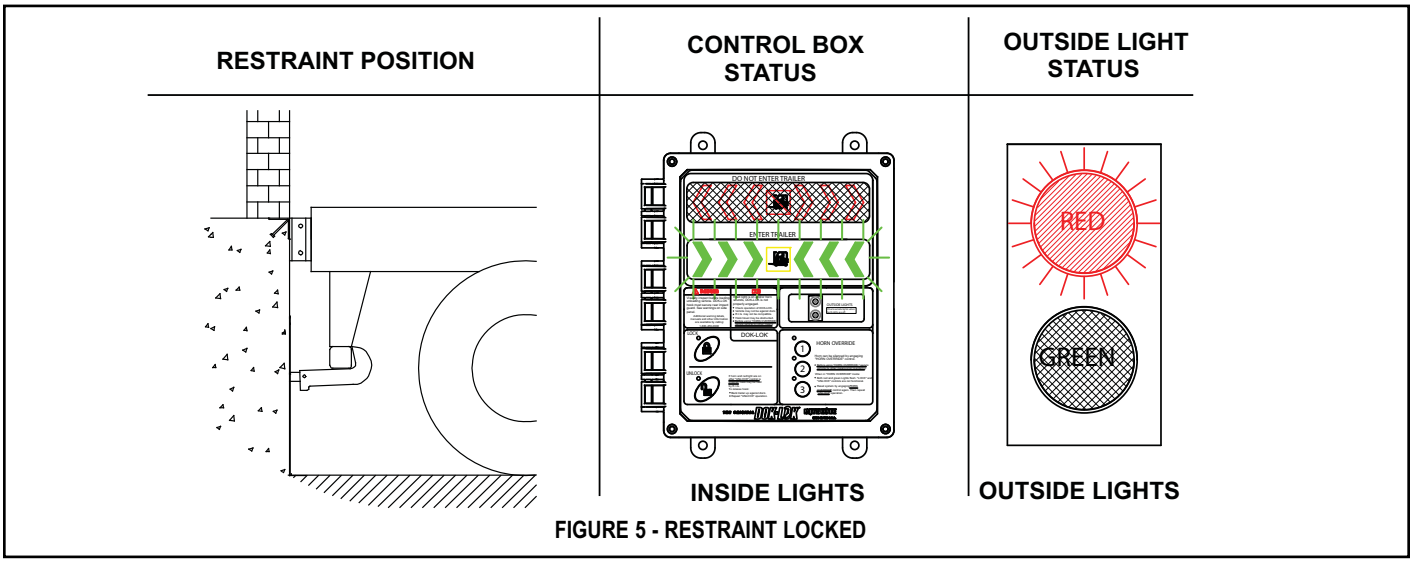


FIGURE 5 - RESTRAINT LOCKED

Restraint UNLOCKING, UNLOCK Button Pressed

Barrier extends and moves down from the LOCKED position. Once down the barrier retracts to the STORED position under the leveler. Inside light is steady red alerting the operator that an unsafe condition exists and barrier is in transit. Outside light is flashing red alerting truck driver not to move.

If horn sounds go to FAULT state, otherwise go to STORED.

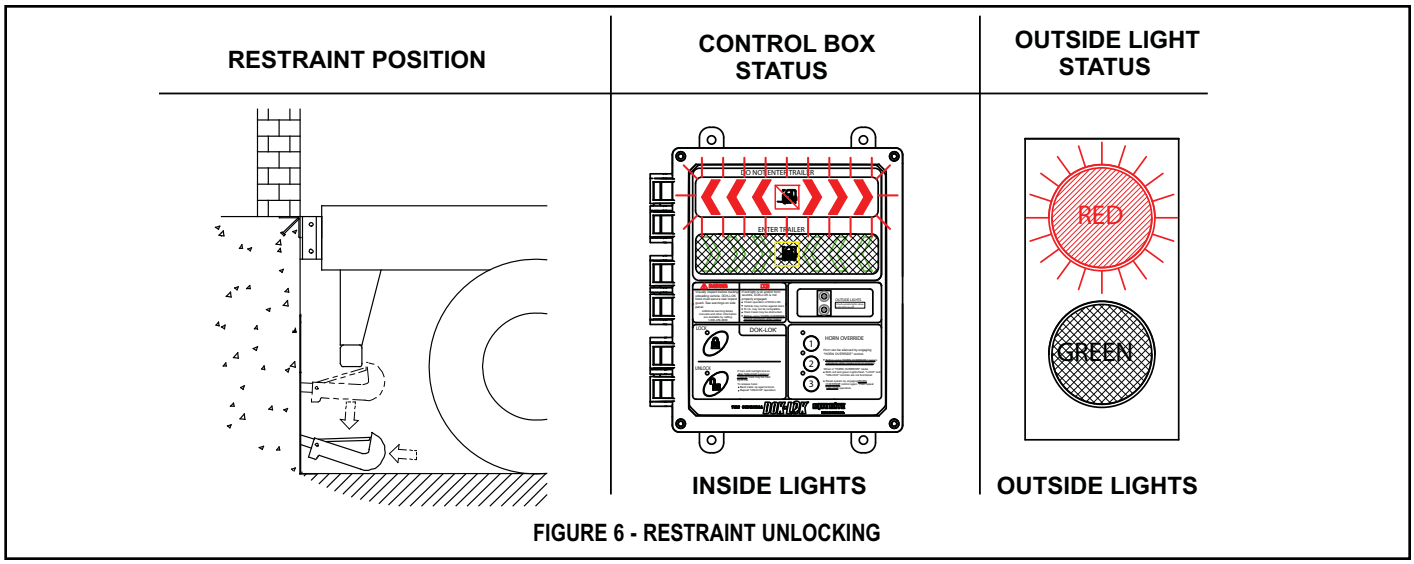


FIGURE 6 - RESTRAINT UNLOCKING

FAULT State From LOCKING State

Barrier cannot obstruct the R.I.G. Barrier will auto-retract to its stored position. This could be due to a R.I.G. that is located too far toward the rear axle, bent, obstructed or missing. Inside light is flashing red and horn is pulsing, alerting the forklift operator that the trailer is not locked. Outside light is flashing red alerting the truck driver not to move.

If the trailer is parked firmly against the dock bumpers go to OVERRIDE state. If not, press UNLOCK to clear the fault, have trailer back up and repeat Restraint LOCKING.

FAULT State From UNLOCKING State

Barrier cannot retract to the STORED position. The barrier could be caught on the R.I.G. or another part of the trailer. Inside light is flashing red and horn is pulsing, alerting the forklift operator that the trailer is not locked. Outside light is flashing red alerting the truck driver not to move.

Make sure trailer is parked firmly against the dock bumpers. If not, press LOCK to entrap R.I.G., have trailer back up and repeat Restraint UNLOCKING.

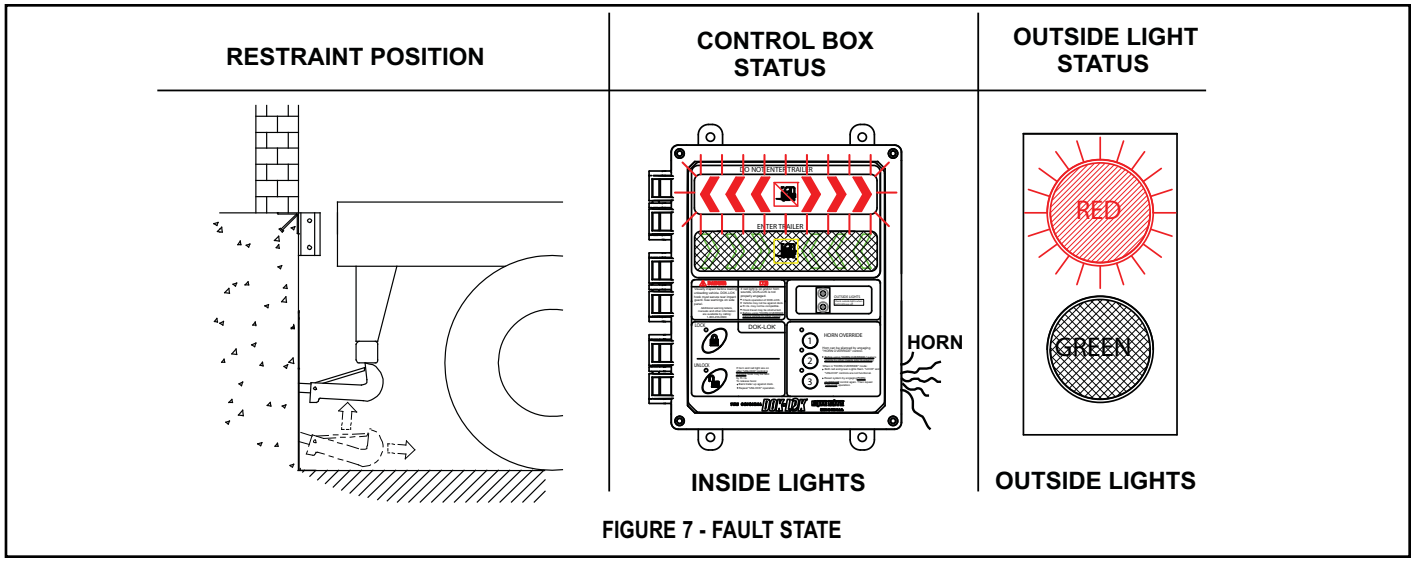


FIGURE 7 - FAULT STATE

OVERRIDE State, OVERRIDE Code Entered after Securing Trailer by Alternate Means

An alternate means of securing the truck must be used if the barrier can not capture the rear impact guard. (i.e. wheel chocks). Inside lights are flashing red and green alerting the forklift operator the trailer is secured by other means. Outside light is flashing red alerting the truck driver not to move.

To return to STORED, press the HORN OVERRIDE button followed by the UNLOCK button.

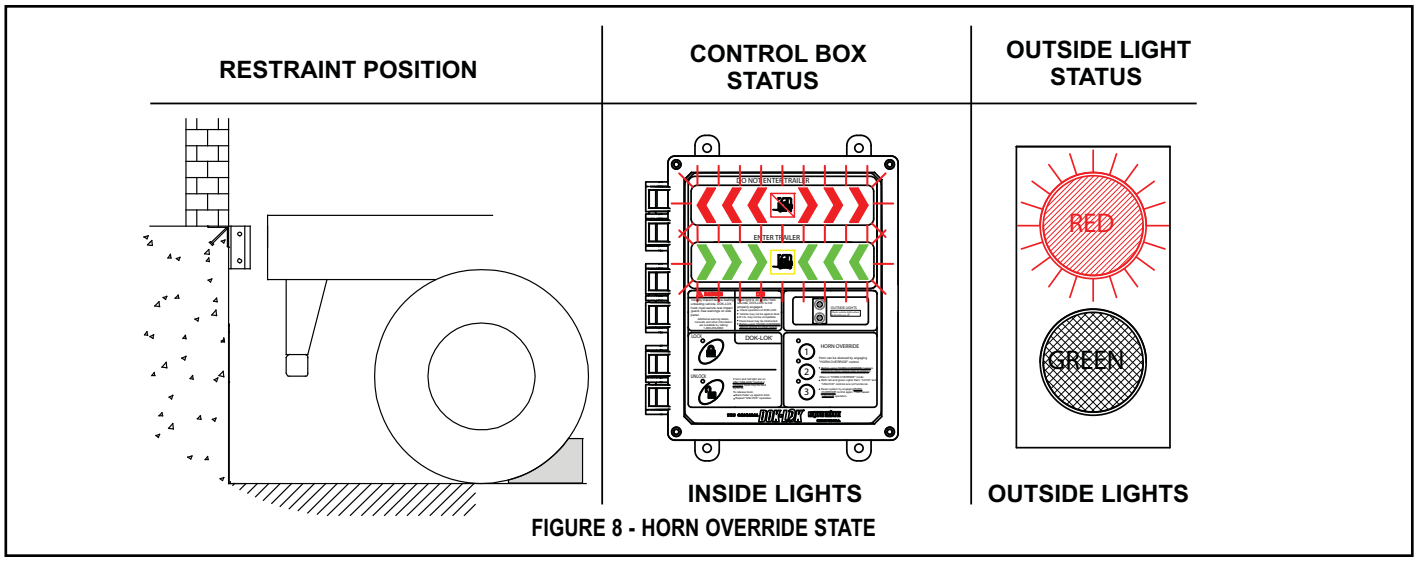


FIGURE 8 - HORN OVERRIDE STATE

MAINTENANCE

⚠ DANGER

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

⚠ DANGER

Post safety warnings and barricade work area, at dock level and at ground level, to prevent unauthorized use of the dock pition.

⚠ WARNING

A safe work place requires all lights and the horn to be working properly. DO NOT use DOK-LOK vehicle restraint if parts are broken or missing.

IMPORTANT

Maintenance may be required more frequently at loading docks exposed to harsh environments (extreme climates, corrosive chemicals, frequency of usage, etc.). Consult Rite-Hite if these conditions exist for accelerated maintenance requirements.

NOTE: If a leveler is installed at the VBR-600 DOK-LOK vehicle restraint location, it may be necessary to raise the leveler before performing maintenance. Raise the leveler, insert and secure the SAFE-T-STRUT, and LOCKOUT/TAGOUT the power source.

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 around the VBR-600 DOK-LOK vehicle restraint pit and from loading dock face.
2. Verify inside and outside lights are working.
3. Replace damaged or missing light bulbs and lenses.
4. Repair, remount, or replace outside and inside signs as required.
5. Inspect dock bumpers. Missing bumpers must be replaced.

180 DAYS

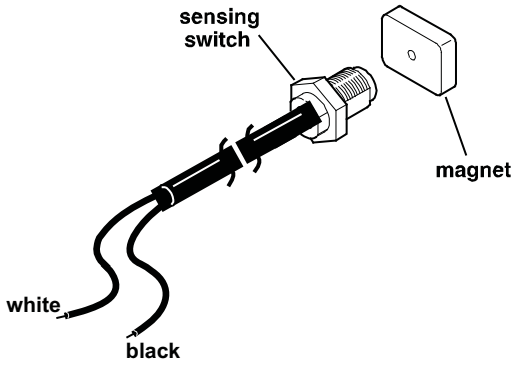
1. Perform all Daily maintenance.
2. Inspect hydraulic hoses and power unit.
3 Check oil fluid level.
4. Inspect pit junction and light box. They should be rigidly mounted. If loose or damaged, inspect all wires and wire connections.
5. Inspect switch wires from VBR-600 DOK-LOK vehicle restraint to junction box. Look for kinks, crushed areas, etc.
6. Perform operational test after all maintenance repairs and adjustments are complete.
7. Inspect dock bumpers. Four inches (4") of protection is required. Worn, torn, loose or missing bumpers must be replaced.

TROUBLESHOOTING

GENERAL DIAGNOSTIC INFORMATION

Problem	Probable Cause	Solution
1 DOK-LOK barrier does not raise and lights do not flash.	Power source malfunction.	Check power source including building circuit breaker, 1A fuse and 15A fuse on power board.
2 DOK-LOK lights are flashing, but barrier does not raise/lower, to full extent.	Blown fuse.	Check 15A fuse on power board. Replace as required.
	Low incoming voltage.	Verify incoming voltage at L1 and L2 is a minimum of 110V.
	Power module failure.	Verify the appropriate LED is lit when the LOCK button or UNLOCK button is pressed.
	No push button inputs.	Check for failed push button board or disconnect ribbon cable.
	Hydraulic power unit	Check hydraulic power unit. Repair or replace as required.
3 DOK-LOK barrier is operational but all lights are out.	Bulbs burnt out, loose or missing.	Check all bulbs and replace as required.
	Damaged CPU module.	If the ISG and OSR LEDs are not flashing while in the LOCKED position or the ISR and OSG LEDs are not flashing while in the UNLOCKED position, replace the CPU module as required.
	Incorrect or damaged field wiring.	Verify wiring per Electrical Schematic.
4 DOK-LOK horn does not sound, but lights and barrier are operational.	Horn failure.	Power horn using 12V DC power. If horn does not sound, replace as required.
	Damaged CPU module.	LED labeled HORN should be flashing while in FAULT state. If not, replace CPU module as required.
	Incorrect or damaged field wiring.	Verify wiring per Electrical Schematic.

SWITCH TESTING



Barrier Position	SW1 Position	SW2 Position	Inside Light	Outside Light	Horn
1. Stored	Open No Mag	Closed Mag	Red	Green	Off
2. Fault	Open No Mag	Open No Mag	Red	Red	On
3. Locked	Closed Mag	Open No Mag	Green	Red	Off

DL0068-0

FIGURE 9 - SENSING SWITCH TEST AND SWITCH/BARRIER POSITION CHART

Sensing Switch Test Procedure

1. Set multimeter to "RX1" scale for "Continuity Test".
2. Attach multimeter leads to white and black wires of mag. reed switch connector. You should have:

   — no magnet present — no meter reading. — magent present — a "Full Scale" meter reading.

LED STATUS CHART

VBR-600 VERTICAL BARRIER RESTRAINT	MICRO CONTROL BOARD																				POWER BOARD							
	INPUTS							OUTPUTS													OUTPUTS							
	FIELD			PUSH BUTTONS				12VDC													RELAY				115/230VAC			
	DOK-LOK LIMIT SWITCH 1 [SW1]	DOK-LOK LIMIT SWITCH 2 [SW2]	UNLOCK INTERLOCK [UNLK ITL]	LOCK PUSH BUTTON	UNLOCK PUSH BUTTON	HORN SILENCE PUSH BUTTONS (1/2/3)	INSIDE RED LIGHT [ISR]	INSIDE GREEN LIGHT [ISG]	CORNER-VU RED LIGHT [CVU RD]	CORNER-VU GREEN LIGHT [CVU GRN]	LEVELER-VU RED LIGHT [LVU RD]	LEVELER-VU GREEN LIGHT [L-VU GRN]	OUTSIDE RED LIGHT [OSR]	OUTSIDE GREEN LIGHT [OSG]	DOK-LOK HORN [HORN]	LEVELER MOTOR CONTACTOR [COMBINED POWER UNIT ONLY]	RESTRAINT OVERLOAD LED [YELLOW]	K1 - GREEN LIGHT INTERLOCK	K2 - SECURITY SYSTEM INTERFACE [IF EQUIPPED]	K2 - COMBINED POWER UNIT [IF EQUIPPED]	MOTOR OUPTUT #1 [M1/RUN]	SOLENOID #1 (RSOL1 / EXTEND)	SOLENOID #2 (RSOL2 / FLOAT)	SOLENOID #3 (RSOL3 / DIVERT) [COMBINED POWER UNIT ONLY]	12VDC POWER SUPPLY OK
TERMINAL BLOCK NO.	J13.1	J13.2	J14.2	MEMBRANE			J7.15	J7.16	J12.1	J12.2	J12.3	J12.4	J11.2	J11.1	J7.18	J15.1	N/A	J9.3	J10.3	J10.3	J5.4	J7.3	J7.2	J7.1	J2.1-6
POWER BOARD LEDs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LD2	LD10	LD9	LD8	LD7
MICRO CONTROL BOARD LEDs	LD20	LD23	LD30	LD52			LD17	LD19	LD11	LD13	LD18	LD12	LD49	LD48	LD15	LD42	LD50	LD9	LD10	LD10	LD1	LD8	LD6	LD2	-
01.01.00 LOCKED STATE	T	F	?	-	-	-	F	P	F	P	F	P	P	F	F	F	F	T	T	F	F	F	T	F	T
01.01.01 LOCKING SEQUENCE EXTEND	F	F	?	M	-	-	T	F	P	F	P	F	P	F	F	T	F	F	T	T	T	F	F	T	T
01.01.05 LOCKING SEQUENCE RAISE	F	F	?	-	-	-	T	F	P	F	P	F	P	F	F	T	F	F	T	T	T	F	T	T	T
01.01.06 LOCKING SEQUENCE RETRACT	F	F	?	-	-	-	T	F	P	F	P	F	P	F	F	F	F	F	T	F	F	F	T	T	T
01.02.00 UNLOCKED STATE	F	T	?	-	-	-	P	F	P	F	P	F	P	P	F	F	F	F	T	F	F	F	F	F	T
01.02.01 UNLOCKING SEQUENCE EXTEND	T	F	ITL	-	M	-	T	F	P	F	P	F	P	F	F	T	F	F	T	T	T	F	F	T	T
01.02.06 UNLOCKING SEQUENCE LOWER	F	F	ITL	-	-	-	T	F	P	F	P	F	P	F	F	T	F	F	T	T	T	T	F	T	T
01.02.07 UNLOCKING SEQUENCE RETRACT	F	F	ITL	-	-	-	T	F	P	F	P	F	P	F	F	F	F	F	T	F	F	F	F	F	T
01.04.00 FAULT STATE	?	?	?	-	-	-	P	F	P	F	P	F	P	F	P	F	F	F	F	F	F	F	F	F	T
01.04.01 FAULT SILENCED STATE	?	?	?	-	-	M	A			A			P	F	F	F	F	T	T	F	F	F	F	F	T
01.11.00 OVERLOAD FAULT STATE	?	?	?	-	-	-	P	F	P	F	P	F	P	F	K	F	T	F	F	F	F	F	F	F	T
NO.	STATE / SEQUENCE NO.																								

KEY

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

MOTOR OVERLOAD RESET PROCEDURE

If Yellow LED LD50 is illuminated and the Dok-Lok Horn is Chirping, system is in an Overload Fault State.

To reset the motor overload:

1) Press and Horn Silence #2 Button until Horn Chirps (Approximately 5 Seconds). OR

2) Press and Release Restraint O/L Button on Micro Controller Board.

When the motor overload has been reset, the Yellow LD50 LED will turn off and normal operation resumes.

If Dok-Lok motor still does not run after resettting the overload, check Motor Fuse 10FU1.

HORN OVERRIDE CODE

SETTING HORN OVERRIDE CODE

1. *Press and hold DIAGNOSTIC button until the horn chirps (approximately five seconds).
2. Enter the factory preset HORN OVERRIDE code: 1223. (horn will chirp)
3. Enter the new HORN OVERRIDE code. The code can be one to four numbers in length.
4. Once the new code has been entered, press the LOCK button.
5. Controls reset with new HORN OVERRIDE code enabled.

   If code has been forgotten, follow the above procedure and enter a new code.

***NOTE:** To change code or enter diagnostic modes without opening the control box cover, press and hold the "1" and "3" buttons on the cover until the horn chirps.

ENTER HYDRAULIC FILL MODE

1. *Press and hold DIAGNOSTIC button until the horn chirps (approximately 5 seconds).
2. *Press the HORN OVERRIDE #2 button (horn will chirp).
3. *System is now in FILL MODE. Press and hold the LOCK and UNLOCK buttons to run the unit Up or Down, respectively.
4. *Cycle the Dok-Lok up and down to remove air from the system. Add remaining hydraulic fluid. Stop cycling once the Dok-Lok barrier travels up and down without hesitation.
5. Exit FILL MODE using one of the following steps:
   a. Press DIAGNOSTIC button.
   b. Press no buttons for 5 minutes.
   c. Cycle Power.

***NOTE:** To enter FILL MODE without opening the control box cover, press and hold the "1" and "3" buttons on the cover until the horn chirps.

VBR-600 VERTICAL BARRIER RESTRATIN FILL MODE		MICRO CONTROL BOARD INPUTS PUSH BUTTONS			OUTPUTS 12VDC											POWER BOARD OUTPUTS 115/230VAC				
		LOCK PUSH BUTTON	UNLOCK PUSH BUTTON	HORN SILENCE PUSH BUTTONS (1/2/3)	INSIDE RED	INSIDE GREEN	CORNER-VU RED	CORNER-VU GREEN	LEVELER-VU RED	LEVELER-VU GREEN	OUTSIDE RED	OUTSIDE GREEN	RESTRAINT ALARM	LEVELER MOTOR CONTACTOR [COMBINED POWER UNIT ONLY]	MOTOR OUPTUT #1 [M1/RUN]	SOLENOID #1 (RSOL1 / EXTEND)	SOLENOID #2 (RSOL2 / FLOAT)	SOLENOID #3 (RSOL3 / DIVERT) [COMBINED POWER UNIT ONLY]	12VDC POWER SUPPLY OK
	TERMINAL BLOCK NO.	MEMBRANE			J7.15	J7.16	J12.1	J12.2	J12.3	J12.4	J11.2	J11.1	J7.18	J15.1	J5.4	J7.3	J7.2	J7.1	J2.1-6
	POWER BOARD LEDs	-	-	-	-	-	-	-	-	-	-	-	-	-	LD2	LD10	LD9	LD8	LD7
	MICRO CONTROL BOARD LEDs	LD52			LD17	LD19	LD11	LD13	LD18	LD12	LD49	LD48	LD15	LD42	LD1	LD8	LD6	LD2	-
01.15.14	FILL MODE SEQUENCE	-	-	-	T	F	T	F	T	F	P	F	C	F	F	F	F	F	T
01.15.15	SERVICE MOTOR UP	M	-	-	T	F	T	F	T	F	P	F	C	T	T	F	F	T	T
01.15.16	SERVICE MOTOR DOWN	-	M	-	T	F	T	F	T	F	P	F	C	T	T	T	F	T	T
NO.	STATE / SEQUENCE NO.																		

KEY	
C - CHIRP ON STATE ENTRY	P - PULSING / FLASHING
F - OFF	T - STEADY ON

DIAGNOSTICS

Diagnostic mode may be entered while the restraint is in any state.
To enter diagnostic mode:

1. *Press and hold DIAGNOSTIC button until the horn chirps (approximately five seconds).
2. Press LOCK button.
3. Press UNLOCK button.
4. The horn chirps and the outside light is flashing RED. The controls are in the first step of diagnostic mode.

   NOTE: The outside red light will remain flashing at all times except Step 10.
5. Start at Step 1 in the Diagnostic Table. If the equipment Outputs do not match the table, use the Troubleshooting section.

   If no buttons are pressed within a five minute period, the controls will automatically exit to power up. To exit the diagnostic mode at any time, press the DIAGNOSTIC button.

VBR-600 VERTICAL BARRIER RESTRAINT DIAGNOSTIC WALK THRU SEQUENCE		BASE MICRO CONTROLLER BOARD																	POWER BOARD		
		OUTPUTS																	OUTPUTS		
		12VDC															RELAY		115/230VAC		
		INSIDE RED LIGHT [ISR]	INSIDE GREEN LIGHT [ISG]	CORNER-VU RED LIGHT [CVU RD]	CORNER-VU GREEN LIGHT [CVU GRN]	LEVELER-VU RED LIGHT [LVU RD]	LEVELER-VU GREEN LIGHT [L-VU GRN]	PEDESTRIAN-VU AMBER [PVU LT]	PEDESTRIAN-VU ALARM [PVU ALM]	OUTSIDE RED LIGHT [OSR]	OUTSIDE GREEN LIGHT [OSG]	DOK-LOK HORN [HORN]	MWL ACTUATOR [MWL ACTR]	OUTSIDE ALARM [MWL ALM]	UNIDOX ITC [UD ITC OUT]	GREEN LIGH INTERLOCK [GLT ITL]	K1 - GREEN LIGHT INTERLOCK	K2 - SECURITY SYSTEM INTERFACE OR COMBINED POWER UNIT (IF EQUIPPED)	MOTOR OUPTUT #1 [M1/LOCK]	MOTOR OUPTUT #2 (M2/UNLOCK)	12VDC POWER SUPPLY OK
STEP	TERMINAL BLOCK NO.	J7.15	J7.16	J12.1	J12.2	J12.3	J12.4	J12.6	J12.5	J11.2	J11.1	J7.18	J15.2	J15.3	J15.4	J15.5	J9.3	J10.3	J5.4	J5.3	J2.1-6
	POWER BOARD LEDs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LD2	LD1	LD7
	MICRO CONTROL BOARD LEDs	LD17	LD19	LD11	LD13	LD18	LD12	LD16	LD14	LD49	LD48	LD15	LD37	LD40	LD20	LD39	LD9	LD10	LD1	LD3	-
1	DIAGNOSTICS ENTERED	F	F	F	F	F	F	F	F	P	F	C	F	F	F	F	F	F	F	F	T
2	CHECK INSIDE RED	T	F	F	F	F	F	F	F	P	F	F	F	F	F	F	F	F	F	F	T
3	CHECK INSIDE GREEN	F	T	F	F	F	F	F	F	P	F	F	F	F	F	F	F	F	F	F	T
4	CHECK CORNER-VU RED	F	F	T	F	F	F	F	F	P	F	F	F	F	F	F	F	F	F	F	T
5	CHECK CORNER-VU GREEN	F	F	F	T	F	F	F	F	P	F	F	F	F	F	F	F	F	F	F	T
6	CHECK LEVELER-VU RED	F	F	F	F	T	F	F	F	P	F	F	F	F	F	F	F	F	F	F	T
7	CHECK LEVELER-VU GREEN	F	F	F	F	F	T	F	F	P	F	F	F	F	F	F	F	F	F	F	T
8	CHECK PEDESTRIAN-VU AMBER	F	F	F	F	F	F	T	F	P	F	F	F	F	F	F	F	F	F	F	T
9	CHECK PEDESTRIAN-VU ALARM	F	F	F	F	F	F	F	T	P	F	F	F	F	F	F	F	F	F	F	T
10	CHECK OUTSIDE RED LIGHT	F	F	F	F	F	F	F	F	T	F	F	F	F	F	F	F	F	F	F	T
11	CHECK OUTSIDE GREEN LIGHT	F	F	F	F	F	F	F	F	P	T	F	F	F	F	F	F	F	F	F	T
12	CHECK DOK-LOK HORN	F	F	F	F	F	F	F	F	P	F	T	F	T	F	F	F	F	F	F	T
13	CHECK MWL ACTUATOR AND UNIDOX OUTPUTS	F	F	F	F	F	F	F	F	P	F	F	T	F	T	F	F	F	F	F	T
14	CHECK GREEN LIGHT INTERLOCK OUTPUTS	F	F	F	F	F	F	F	F	P	F	F	F	F	F	T	T	F	F	F	T
15	CHECK K2 RELAY	F	F	F	F	F	F	F	F	P	F	F	F	F	F	F	F	T	F	F	T
16	HORN CHIRPS SIGNALING END OF SEQUENCE	F	F	F	F	F	F	F	F	P	F	C	F	F	F	F	F	F	F	F	T
PRESS LOCK TO ADVANCE, UNLOCK TO REVERSE (REFER TO TROUBLESHOOTING GUIDE IF OUTPUT DOESN'T MATCH)																					

TROUBLESHOOTING GUIDE	
STEPS	ACTIONS
2-3, 12	CHECK POWER SUPPLY LED & POWER SUPPLY FUSE ON POWER CIRCUIT BOARD
	CHECK CONTROL HARNESS CONNECTION AT CHEVRON AND MICRO CONTROLLER BOARDS
4-11	CHECK POWER SUPPLY LED & POWER SUPPLY FUSE ON POWER CIRCUIT BOARD
	CHECK LIGHT BULB, WIRING AND TERMINAL BLOCK CONNECTIONS
13-15	CHECK POWER SUPPLY LED & POWER SUPPLY FUSE ON POWER CIRCUIT BOARD
	CHECK TERMINAL BLOCK CONNECTIONS

KEY
C - HORN CHIRP
F - OFF
P - PULSING / FLASHING
T - STEADY ON

ELECTRICAL SCHEMATIC - Standalone Power Unit

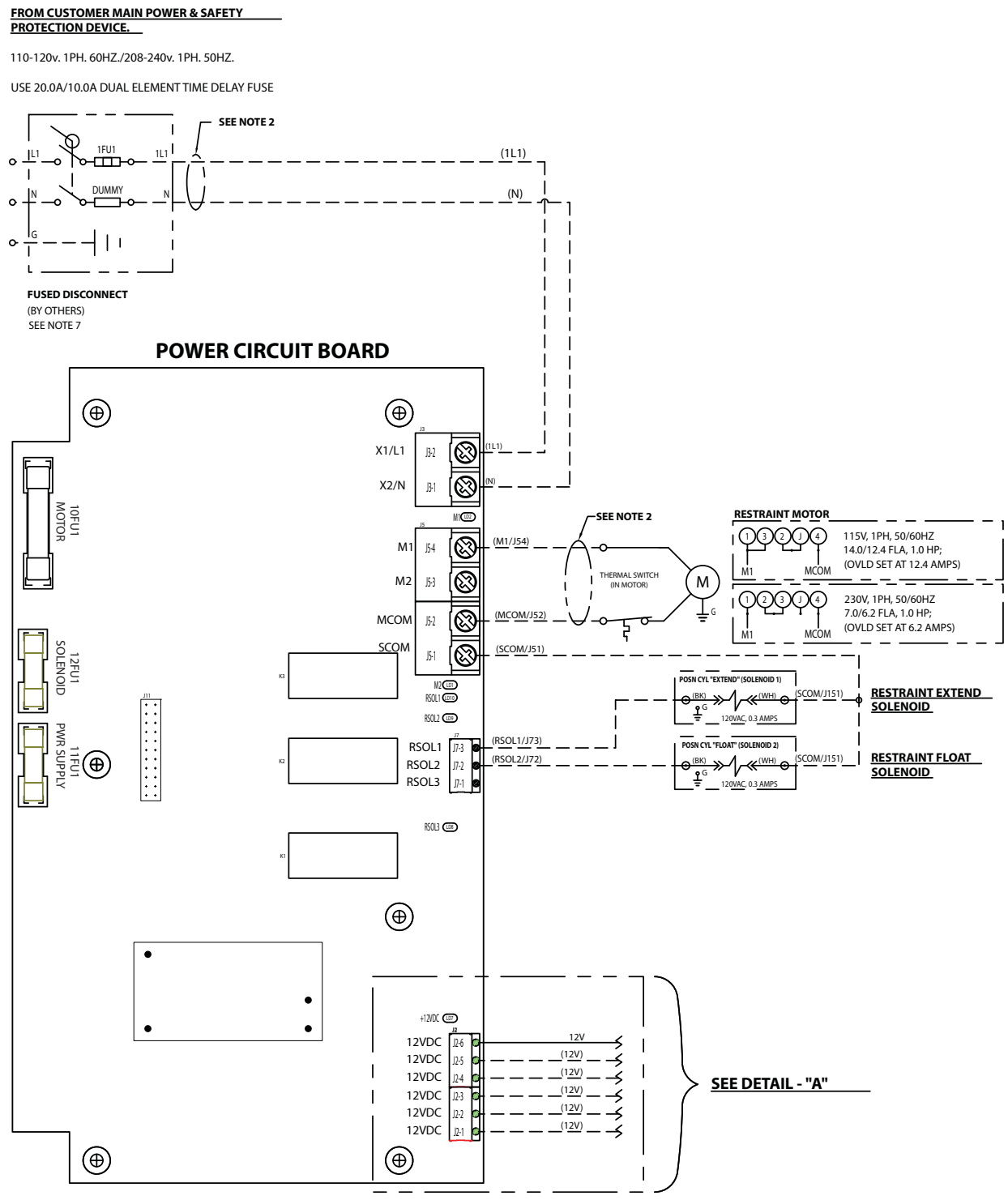


FIGURE 11A - STAND ALONE ELECTRICAL SCHEMATIC - PAGE 1 OF 3

ELECTRICAL SCHEMATIC - Standalone Power Unit - Continued

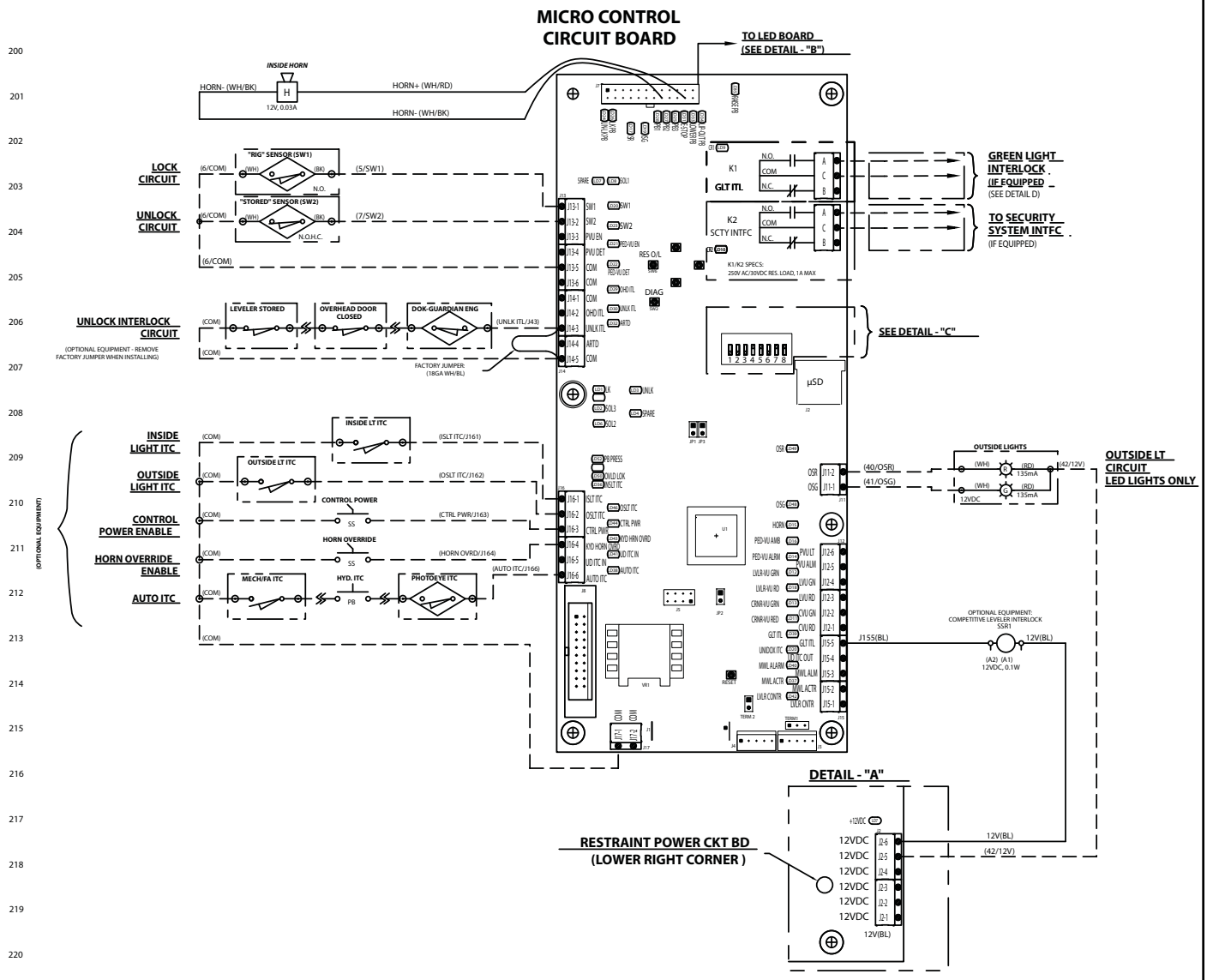
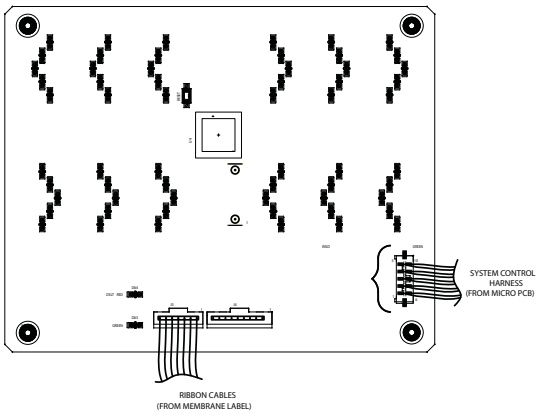


FIGURE 11B - STAND ALONE ELECTRICAL SCHEMATIC - PAGE 2 OF 3

ELECTRICAL SCHEMATIC - Standalone Power Unit - Continued

DETAIL B - BACK OF COVER



System Control Harness - MEMBRANE

uControl Board		LED Board		
J7	Description	J1	Description	Wire Color
1	USART2_RX	1	MICROPCB_RX	BLUE
2	USART2_TX	2	MICROPCB_TX	GRAY
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13	12V [Vext]	5	12V [Vext]	RED
14	OSG INDICATOR	9	OSG INDICATOR	WHITE/GREEN
15	OSR INDICATOR	10	OSR INDICATOR	WHITE/ORANGE
16	ISR	8	ISR	ORANGE
17	ISG	7	ISG	GREEN
18				
19	HORN [-]			WHITE/BLACK
20	GND	4	DIGITAL GND	WHITE/BLUE
21	RESERVED	6	RESERVED	BLACK
22	USART2_RTS	3	MICROPCB_RTS	WHITE
23	12V [HORN +]			WHITE/RED
24				

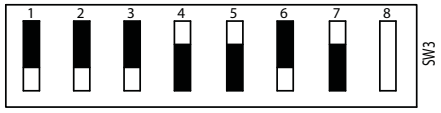
INFORMATION REQ'D FOR V/PH/FLA DECAL

RITE-HITE® PRODUCTS CORP

LINE VOLTS:	PH: 115	1
TOTAL FLA:	HZ: 10.95	60
LARGEST MOTOR VOLTS:	115	
LARGEST MOTOR PH:	1	
LARGEST MOTOR FLA:	10.0	
LARGEST MOTOR HP:	0.75	
SHORT CIRCUIT CURRENT RATING:		5KA

DETAIL - "C" RESTRAINT MICRO CB DIP SWITCH SETTINGS

FACTORY POSITION		FUNCTION CONTROLLED
1	(DOWN)	FACTORY USE
2	(DOWN)	INSIDE RED
3	(DOWN)	INSIDE GREEN
4	(UP)	CORNER & LEVELER-VU RED
5	(UP)	CORNER & LEVELER-VU GREEN
6	(DOWN)	OUTSIDE LIGHTS
7	(UP)	PEDESTRIAN-VU
8	(XXXX)	SEE NOTE ON PAGE 1



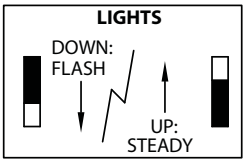
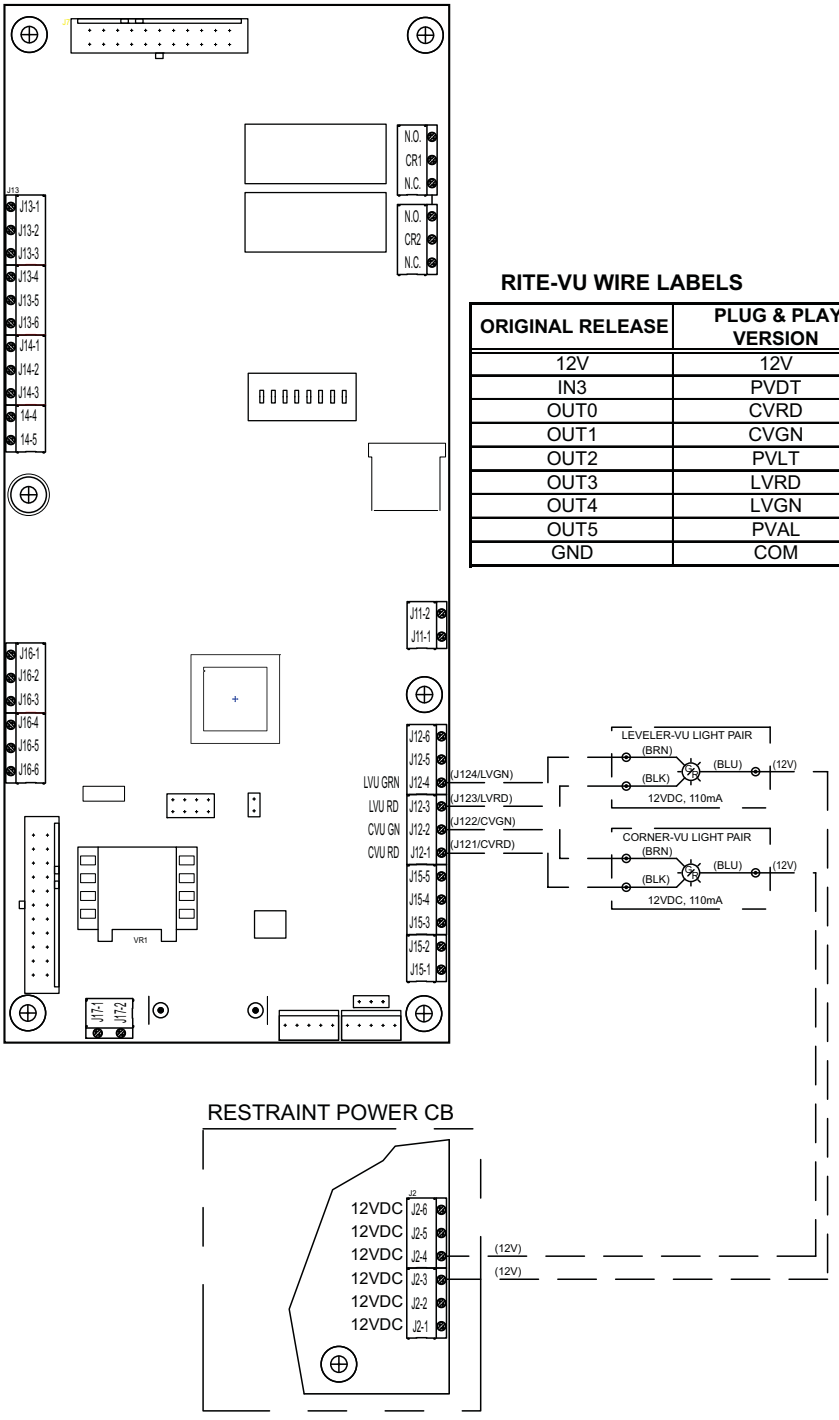


FIGURE 11C - STAND ALONE ELECTRICAL SCHEMATIC - PAGE 3 OF 3

ELECTRICAL SCHEMATIC - Corner/Leveler-Vu Wiring

CORNER/LEVELER-VU WIRING

MICRO CONTROL CIRCUIT BOARD



RITE-VU WIRE LABELS

ORIGINAL RELEASE	PLUG & PLAY VERSION
12V	12V
IN3	PVDT
OUT0	CVRD
OUT1	CVGN
OUT2	PVLT
OUT3	LVRD
OUT4	LVGN
OUT5	PVAL
GND	COM

FIGURE 12 - CORNER/LEVELER-VU ELECTRICAL SCHEMATIC

ELECTRICAL SCHEMATIC - Combination Power Unit

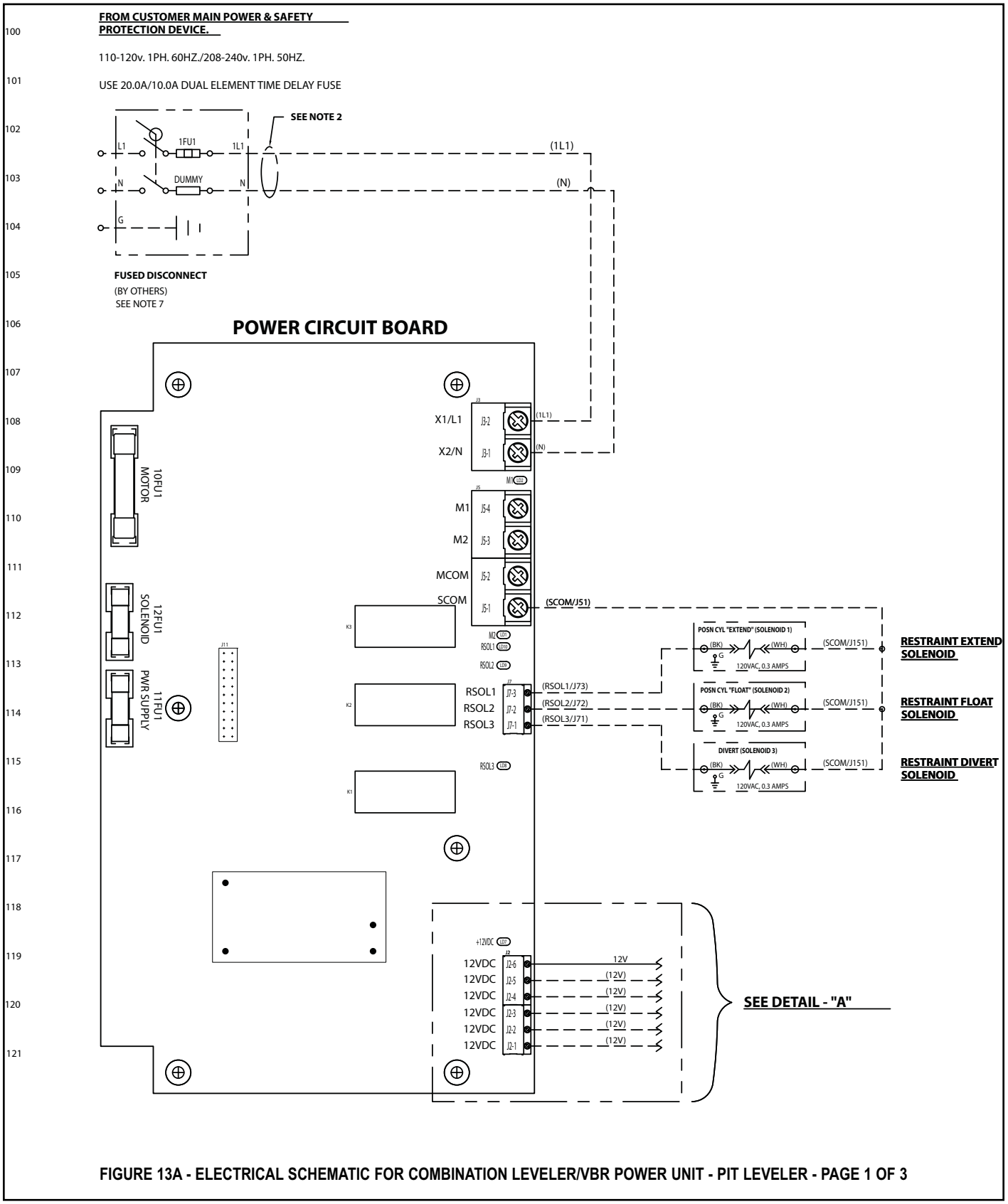


FIGURE 13A - ELECTRICAL SCHEMATIC FOR COMBINATION LEVELER/VBR POWER UNIT - PIT LEVELER - PAGE 1 OF 3

ELECTRICAL SCHEMATIC - Combination Power Unit - Continued

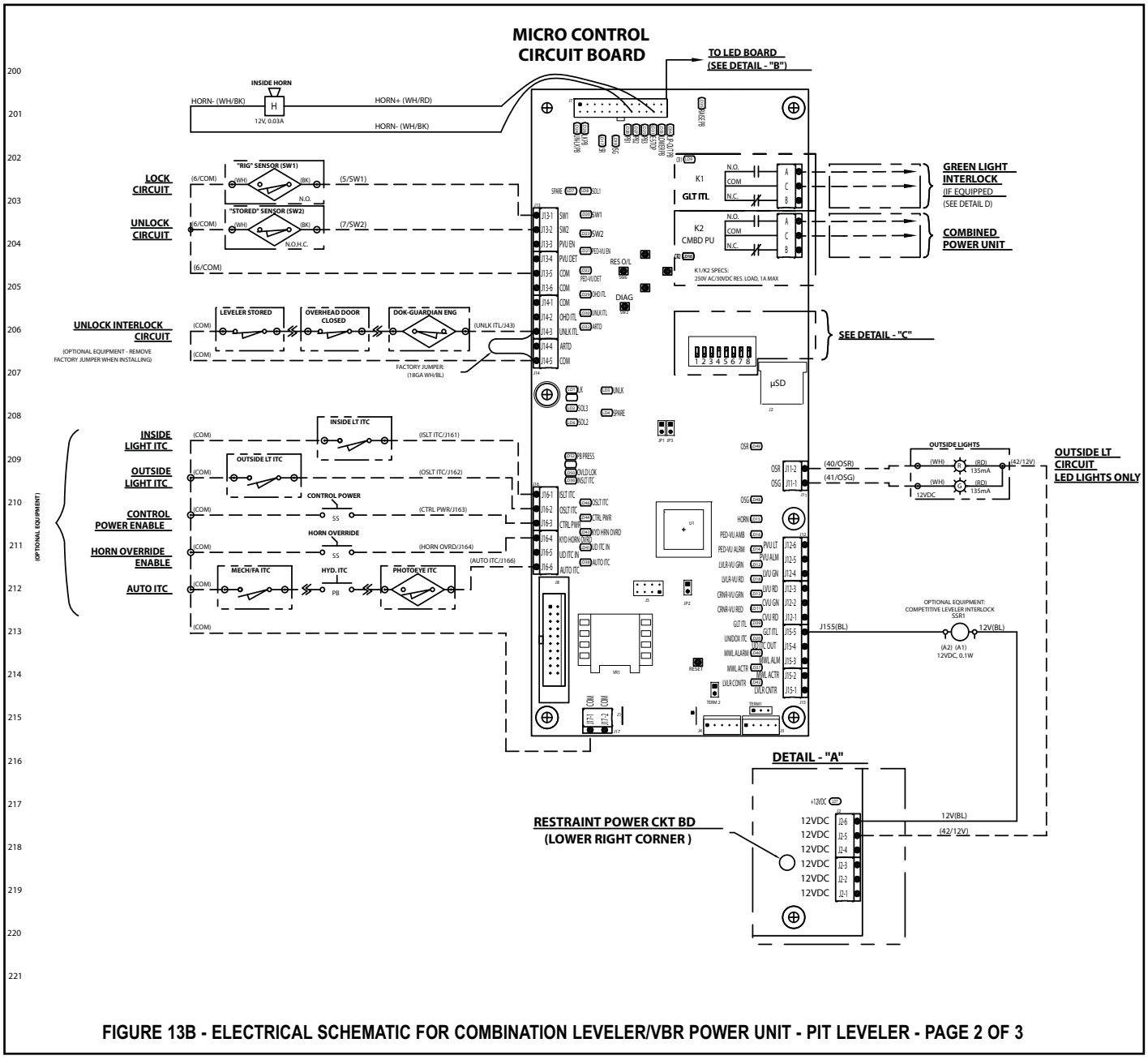


FIGURE 13B - ELECTRICAL SCHEMATIC FOR COMBINATION LEVELER/VBR POWER UNIT - PIT LEVELER - PAGE 2 OF 3

ELECTRICAL SCHEMATIC - Combination Power Unit - Continued

INFORMATION REQ'D FOR V/PH/FLA DECAL

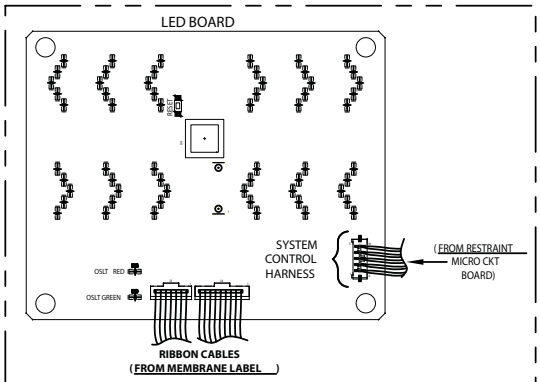
RITE-HITE® PRODUCTS CORP

LINE VOLTS:	PH: 460	3
TOTAL FLA:	HZ: 3.29	60
LARGEST MOTOR VOLTS:	460	
LARGEST MOTOR PH:	3	
LARGEST MOTOR FLA:	2.2	
LARGEST MOTOR HP:	1.0	
SHORT CIRCUIT CURRENT RATING:	5KA	

INFORMATION REQUIRED FOR FUSE REPLACEMENT / OVERLOAD DECAL

FUSE REPLACEMENT / OVERLOAD SETTING CHART				
FUSES	**DESIGNATOR**	**QTY**	**RATING(A)**	**TYPE**
BRANCH CKT	1FU			
XFMR PRIM	2FU	2	2.5	600V CC REJ DUAL ELM TD
LVLR MOTOR	3FU	3	6.0	600V CC REJ CUR LMTR DUAL ELM TD
OHD POWER	4FU			
VR MOTOR	10FU	1	15.0	250V 3AB .25 x 1.25 TD
CKT BD PWR SUP	11FU	1	0.5	250V 5MM x 20MM TD ROHS
VR SOLENOID	12FU	1	1.0	250V 5MM x 20MM TD ROHS
LVLR SOLENOID	20FU			
DOCK LIGHT	21FU			
DX RECPTACLE	30CB			
INFL SEAL MOTOR	31FU			
INFL SEAL CNTRL	32FU			
OVERLOAD(S)	DESIGNATOR	QTY	RATING(A)	TYPE
LVLR MOTOR	1OL			
RESTRAINT MOTOR	2OL			
INFL SEAL MOTOR	3OL			

DETAIL - "B " - BACK OF COVER

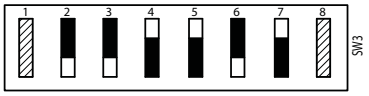


System Control Harness - MEMBRANE

uControl Board		LED Board		
J7	**Description**	**J1**	**Description**	**Wire Color**
1	USART2_RX	1	MICROPCB_RX	BLUE
2	USART2_TX	2	MICROPCB_TX	GRAY
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13	12V [Vext]	5	12V [Vext]	RED
14	OSG INDICATOR	9	OSG INDICATOR	WHITE/GREEN
15	OSR INDICATOR	10	OSR INDICATOR	WHITE/ORANGE
16	ISR	8	ISR	ORANGE
17	ISG	7	ISG	GREEN
18				
19	HORN [-]			WHITE/BLACK
20	GND	4	DIGITAL GND	WHITE/BLUE
21	RESERVED	6	RESERVED	BLACK
22	USART2_RTS	3	MICROPCB_RTS	WHITE
23	12V [HORN +]			WHITE/RED
24				

DETAIL - "C " RESTRAINT MICRO CB DIP SWITCH SETTINGS

DIP SWITCH	FACTORY SETTING	OPTION/FUNCTION
1	DOWN	FACTORY USE
2	DOWN	INSIDE RED LIGHT
3	DOWN	INSIDE GREEN LIGHT
4	UP	CORNER & LEVELER-VU RED
5	UP	CORNER & LEVELER-VU GREEN
6	DOWN	OUTSIDE LIGHTS - RED/GREEN
7	UP	PEDESTRIAN-VU
8	UP	CODED HORN OVERRIDE
	DOWN	STANDARD HORN OVERRIDE



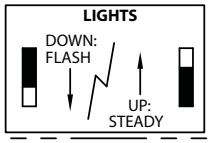


FIGURE 13C - ELECTRICAL SCHEMATIC FOR COMBINATION LEVELER/VBR POWER UNIT - PIT LEVELER - PAGE 3 OF 3

NOTES

HYDRAULIC SCHEMATIC - Standalone Power Unit

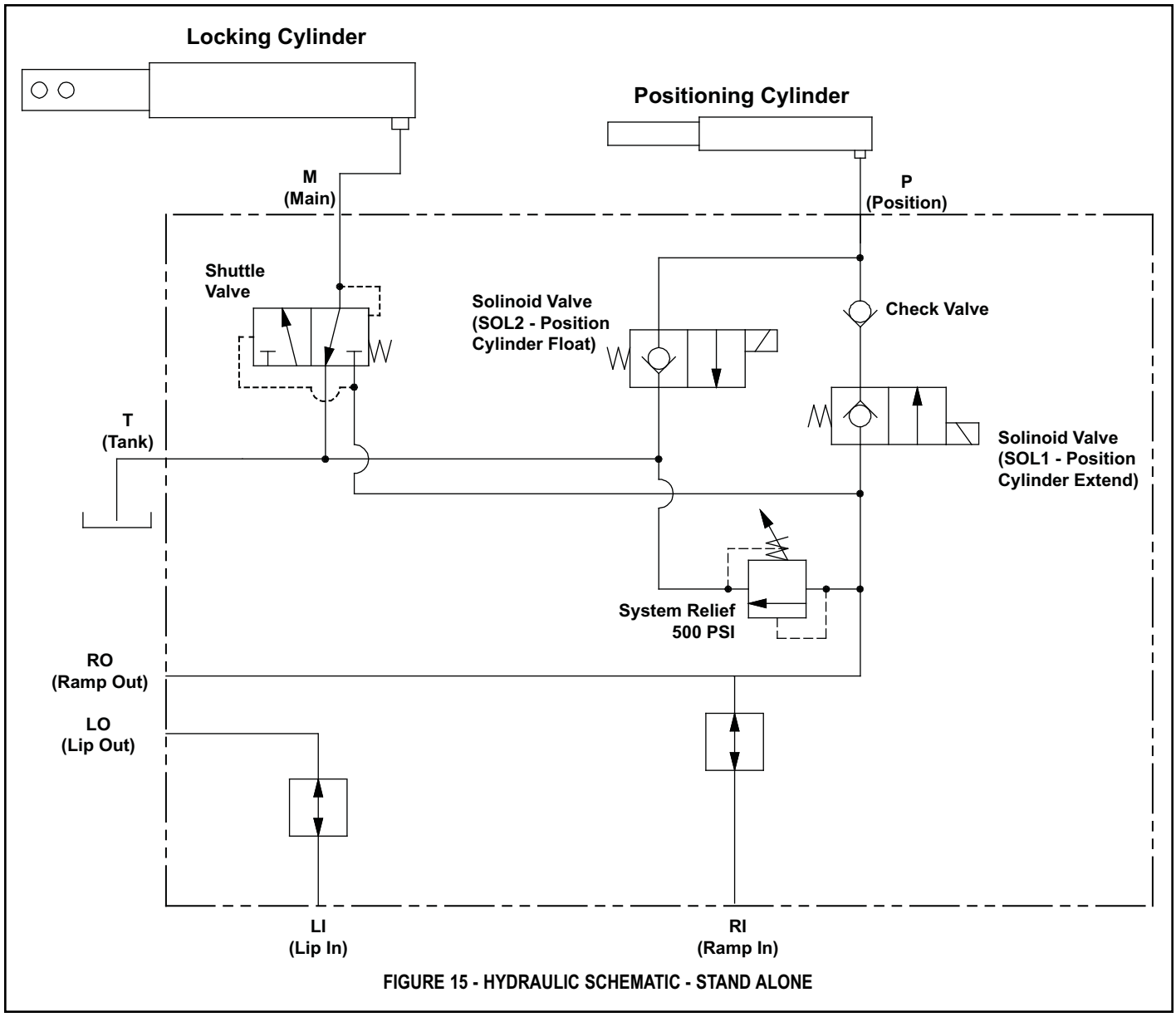


FIGURE 15 - HYDRAULIC SCHEMATIC - STAND ALONE

HYDRAULIC SCHEMATIC - Combination Power Unit
Pit Style Leveler

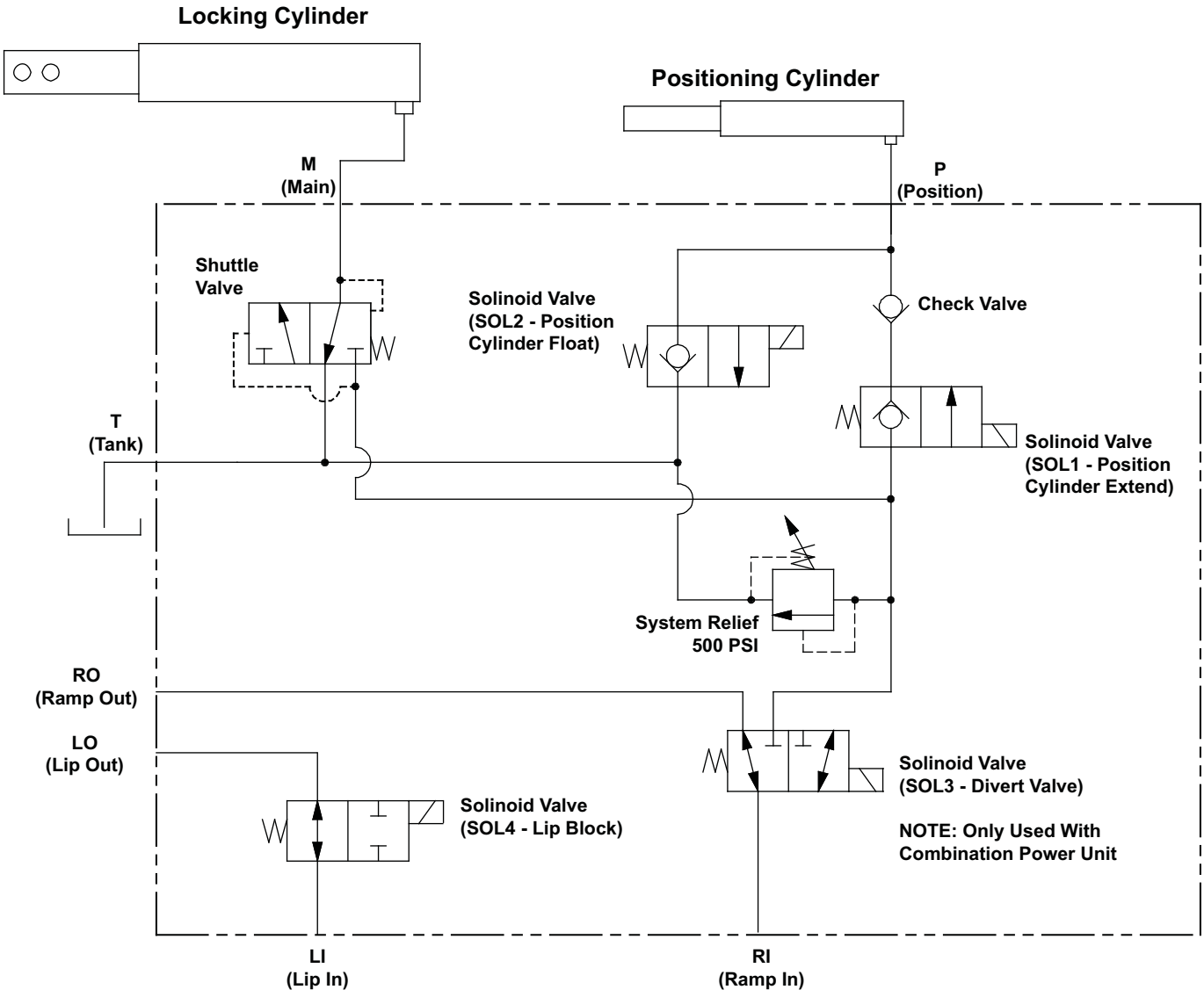


FIGURE 16 - HYDRAULIC SCHEMATIC - PIT LEVELER

HYDRAULIC SCHEMATIC - Combination Power Unit Vertical Leveler

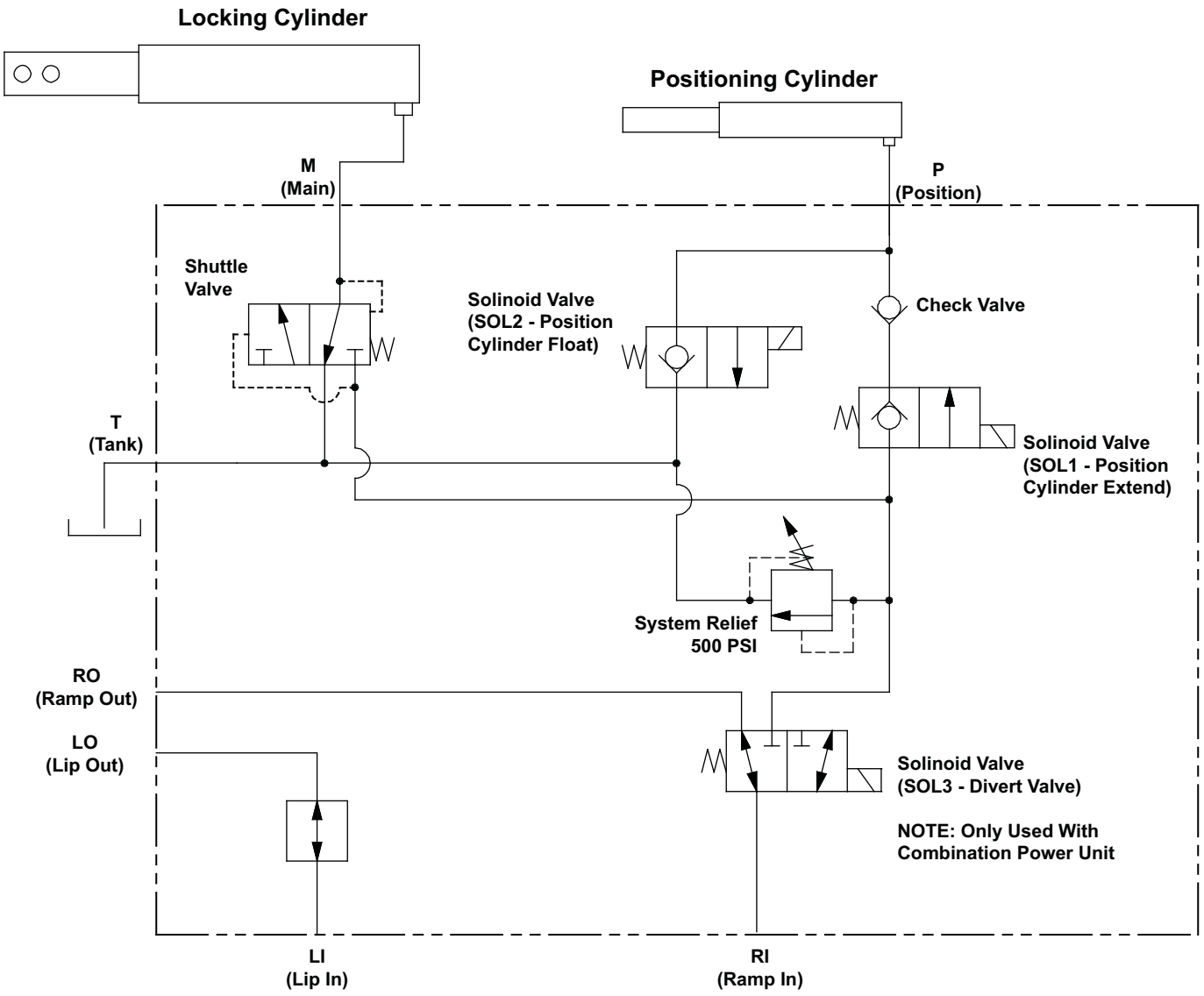


FIGURE 17 - HYDRAULIC SCHEMATIC - VERTICAL LEVELER

OUTSIDE LIGHT BOX WIRING

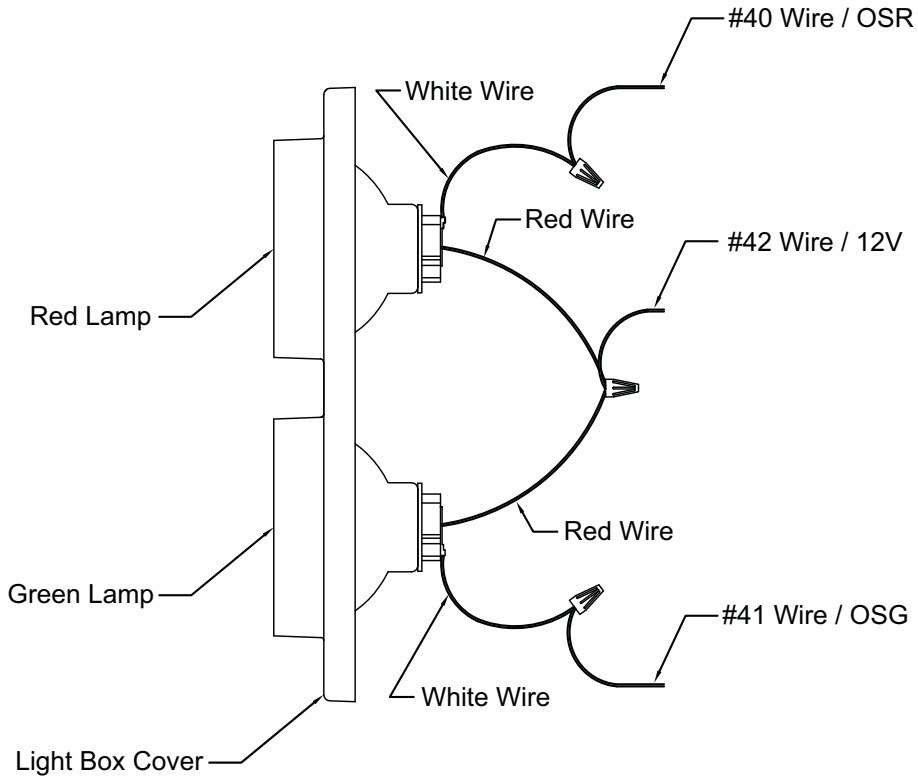
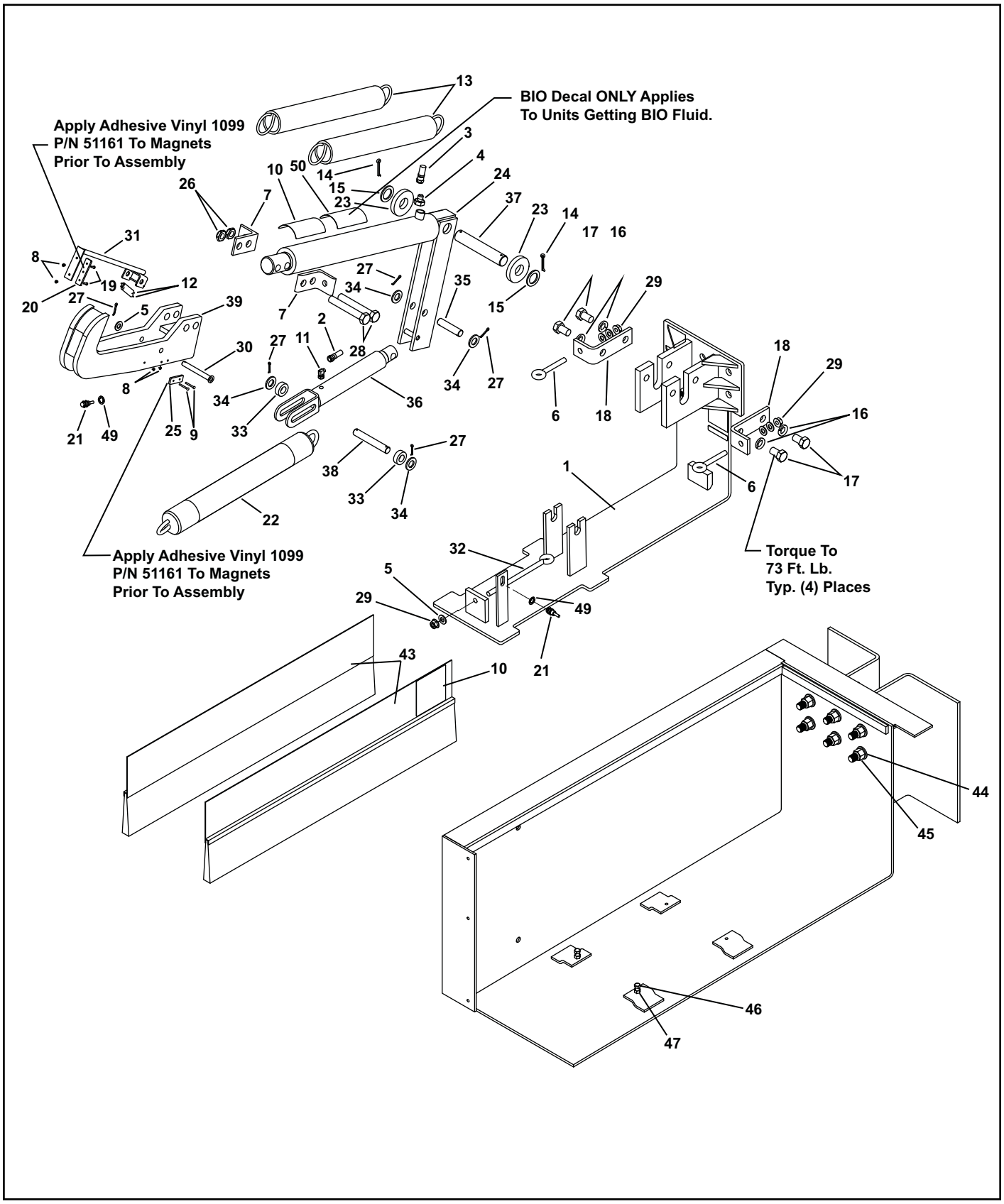


FIGURE 18 - OUTSIDE LIGHT BOX WIRING

NOTE: Must use LED Outside Lights.

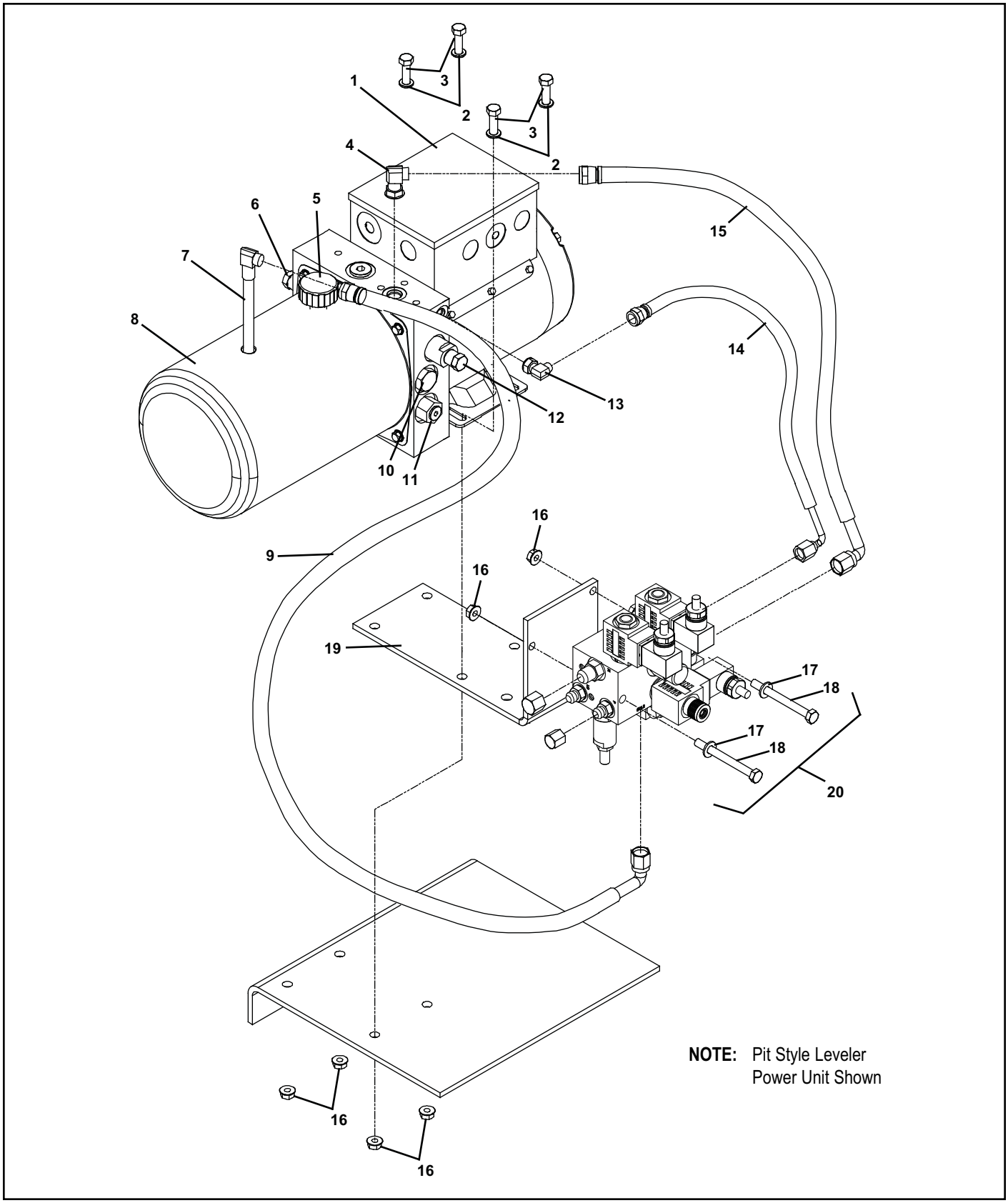
REPLACEMENT PARTS



REPLACEMENT PARTS LIST

Item	Qty	Description	Part Number
1	1	Base Weldment Insert	137366
2	1	Hose Assembly .25ID 4FJS 160L	117921
	1	Hose Assembly .25ID 4FJS 60L	119131
3	1	Hose Assembly .38ID 6FJ 140L	119130
	1	Hose Assembly .38ID 6FJ 40L	119130
4	1	Fitting Strt 8MORB 6MJ	117516
5	6	Washer, .5 Flat SAE ZP	51706
6	2	Bolt .5-13 x 4 Eye(Trnd)	117900
7	2	Mounting Angle, 3.5 x 2.5 x .38 x 2L	117849
8	4	Nut 36-32 Nylk SST	58814
9	2	Screw #6-32 x 1.250L Cap Pan Phlp SST	116738
10	2	Pinch Warning Decal PT Trained Pers.	117534
11	1	Fitting, Elbow 90 #4 SAE(M) #4 JIC(M)	16920
12	2	Extension Spring .375OD x .055 Wire x 2L	107120
13	2	Extension Spring 3OD Wire 18L	117204
14	2	Cotter Pin .188Dia. x 1.75L Zp	51908
15	2	Washer	51745
16	4	Split Lock Washer	51814
17	4	Cap Hex Screw Grade 5 ZP	117186
18	2	Formed Angle 3 Hole	117161
19	2	Screw #6-32 x .5 Cap Pan Phlp SST	109552
20	1	High Energy Magnet	107121
21	2	Mag. Res. Switch	134627
22	1	Extension Spring 2.905OD Wire 21.25L	137309
23	2	Tube Round 3.0OD x .875W x .5L UHMW	116736
24	1	Hydraulic Cylinder 2.5 x 18.625	137377
25	1	High Energy Magnet	117680
26	2	Nut /750-10 Nylk Thin ZP	118847
27	5	Cotter Pin .125 x 1L ZP	51901
28	2	Screw .75-10 x 5 Cap Hex Gd5 ZP	116733
29	3	Nut .5-13 Hex Serr Flg ZP	51569
30	1	Clevis Pin .5 x 4.25L	116731
31	1	RIG Sensor Weldment	116723
32	1	Bolt .5-13 x 9 Eye	120767
33	2	Tube Round 1.5OD .813ID .5L UHMW	117906
34	4	Washer .75 SAE ZP Low	51716
35	1	Clevis Pin .75 x 3.25L 2Hole ZP	116729
36	1	Hydraulic Cylinder 1.5 x 6	117482
37	1	Clevis Pin 1.25 x 7L	116727
38	1	Clevis Pin .75 x 5L	116728
39	1	Barrier Weldment	137399
40	1	Decal - Made In USA (Not Shown)	120750
41	1	Patent Decal (Not Shown)	18391
42	1	Serial Number Decal (Not Shown)	117631
43	2	Brush Seal Assembly	137434
44	6	Nut .75-10 Hex Gr8 Nylok ZP	136904
45	6	Washer .75 SAE ZP	51716
46	2	Screw .25-20 x 1 Cap Flat Ctsk Hex	106852
47	2	Nut .25-20 Hex Flg ZP	51552
48	1	Instr. Pkg. Instl. Mech. VBR6	139478
49	2	Washer, Internal Tooth Lock .5"	51808
50	1	Decal, Oil Hydraulic Bio Fluid	119530M

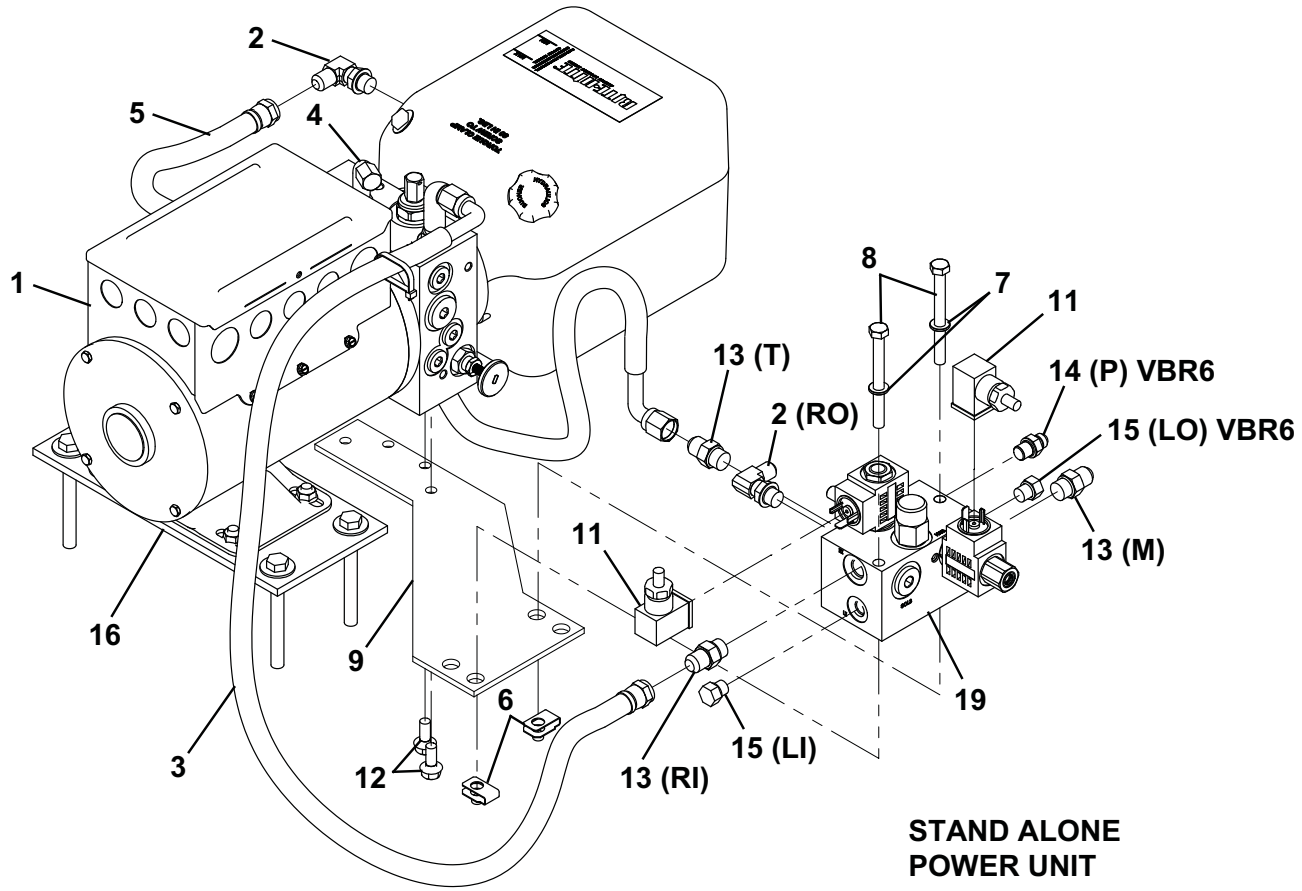
HYDRAULIC REPLACEMENT PARTS (Haldex - Before 11/21/13)



HYDRAULIC REPLACEMENT PARTS LIST
(Haldex - Before 11/21/13)

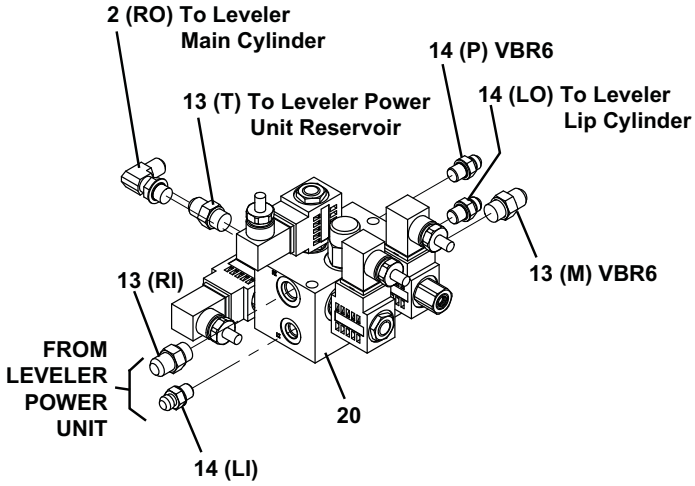
Item	Qty	Description	Part Number
1	1	Power Unit - Standalone Dok-Lok, 120V 1PH	116679
		(Ref. To Leveler Parts Manual For Combo Dock Leveler/Dok-Lok Power Unit)	
2	4	Split Lock Washer, .31	51769
3	4	Hex Head Bolt, .313-18 x 1, GR5	51627
4	2	90Deg. Hydraulic Fitting, #4 SAE(M) #6 JIC(M)	55267
5	1	Hydraulic Tank Cap	*
6	1	Shuttle Valve	*
7	1	90Deg. Hydraulic Fitting W/Internal Nyl. Tube	117517
8	1	Hydraulic Tank	*
9	1	Hose Assembly, .38ID 18L	117527
10	1	Check Valve	*
11	1	System Relief Valve	*
12	1	Sequence Valve	*
13	1	90Deg. Hydraulic Fitting, #4 SAE(M) #4 JIC(M)	16920
14	1	Hose Assembly, .25ID 10L	117523
15	1	Hose Assembly, .38ID 14L	117524
16	6	Nut, .313-18	51535
17	2	Flat Washer, .312	51728
18	2	Hex Head Bolt, .313-18 x 3.25L	117518
19	1	Mounting Angle, 10 x 5.38 x .25	117493
20	1	Dok-Lok Manifold Complete, Standalone Unit (Incl. valves & solenoids)	139659
	1	Dok-Lok Manifold Complete, Combo Unit - Pit Leveler (Incl. valves & sol.)	139395
	1	Dok-Lok Manifold Complete, Combo Unit - Vert. Leveler (Incl. valves & sol.)	139656

HYDRAULIC REPLACEMENT PARTS (Bucher - After 11/21/13)

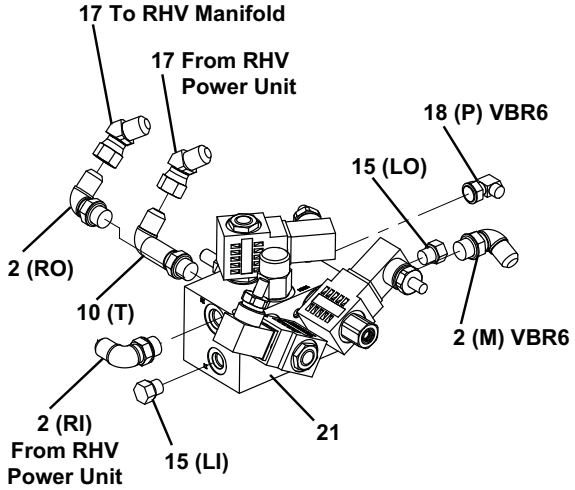


STAND ALONE POWER UNIT

PIT STYLE COMBINED POWER UNIT



VERTICAL STYLE COMBINED POWER UNIT

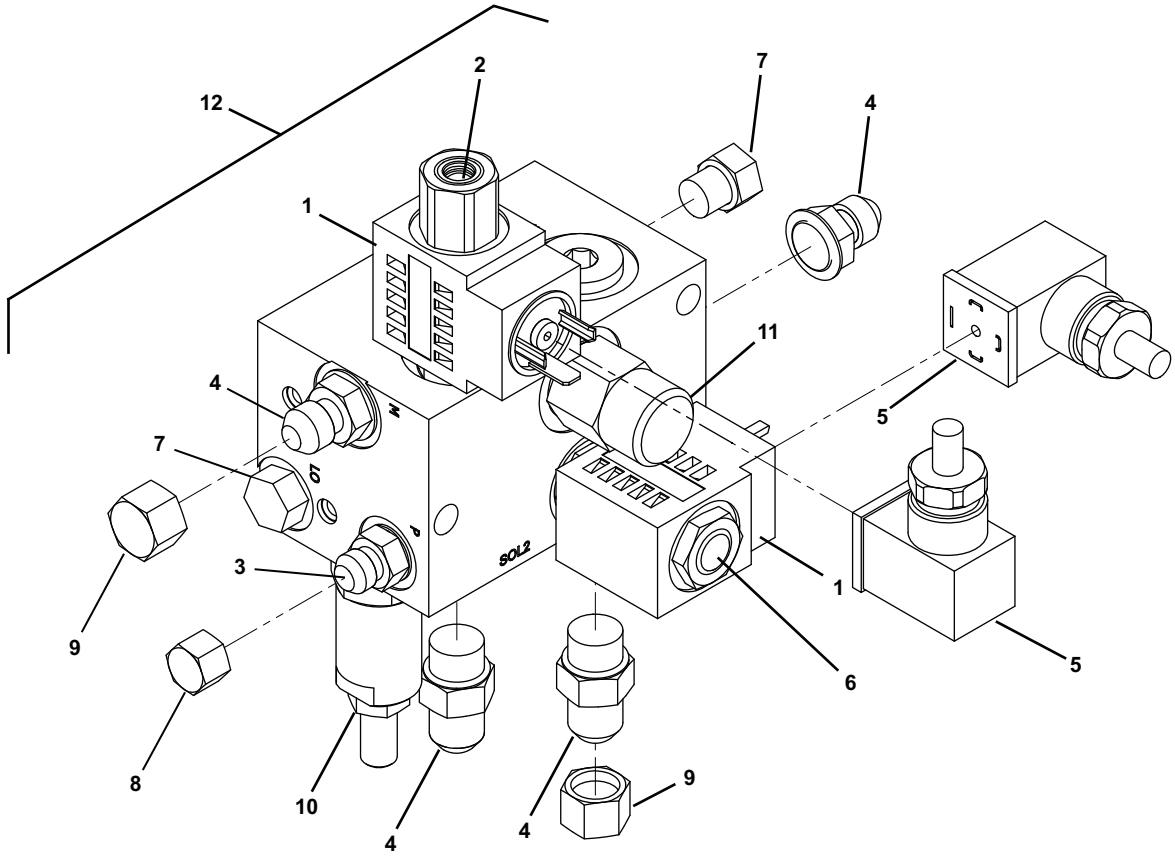


HYDRAULIC REPLACEMENT PARTS LIST
(Bucher - After 11/21/13)

Item	Qty	Description	Part Number
1	*1	Power Unit - Standalone Dok-Lok, 120V 1PH	114167
		(Ref. To Leveler Parts Manual For Combo Dock Leveler/Dok-Lok Power Unit)	
2	*3	90Deg. Hydraulic Fitting, #4 SAE(M) #6 JIC(M)	55267
3	*1	Hose Assembly, .38ID 18L	117527
4	*1	90Deg. Hydraulic Fitting, #4 SAE(M) #4 JIC(M)	16918
5	*1	Hose Assembly, .38ID 18L	142598
6	*4	Palnut .31-18	56540
7	2	Flat Washer, .31	51803
8	2	Hex Head Bolt, .31-18 x 3.25L	117518
9	*1	Mounting Plate 12 x 7.25 x .19	147195
10	*1	90Deg Hydraulic Fitting #6 MAORB #6 MJ	16917
11	*4	Hirschmann Plug	117575
12	*2	Flange Bolt .31-18 x .75L	142701
13	*3	Fitting Straight #6 MORB #6 MJ	55386
14	*3	Fitting Straight #4 MORB #4 MJ	117513
15	*2	Plug #4 MORB	118307
16	*1	Mounting Bracket	133051
17	*4	45Deg Hydraulic Fitting #6 MJ #6 FLS	55364
18	*1	90Deg Hydraulic Fitting #4 SAE(M) #4 JIC(M)	16920
19	*1	Dok-Lok Manifold Complete, Standalone Unit (Incl. valves & solenoids)	139659
20	*1	Dok-Lok Manifold Complete, Combo Unit - Pit Leveler (Incl. valves & sol.)	139395
21	*1	Dok-Lok Manifold Complete, Combo Unit - Vert. Leveler (Incl. valves & sol.)	139656

NOTE: * Indicates the quantity shown changes depending on configuration (Stand Alone, Pit or Vertical Style). Refer to illustration.

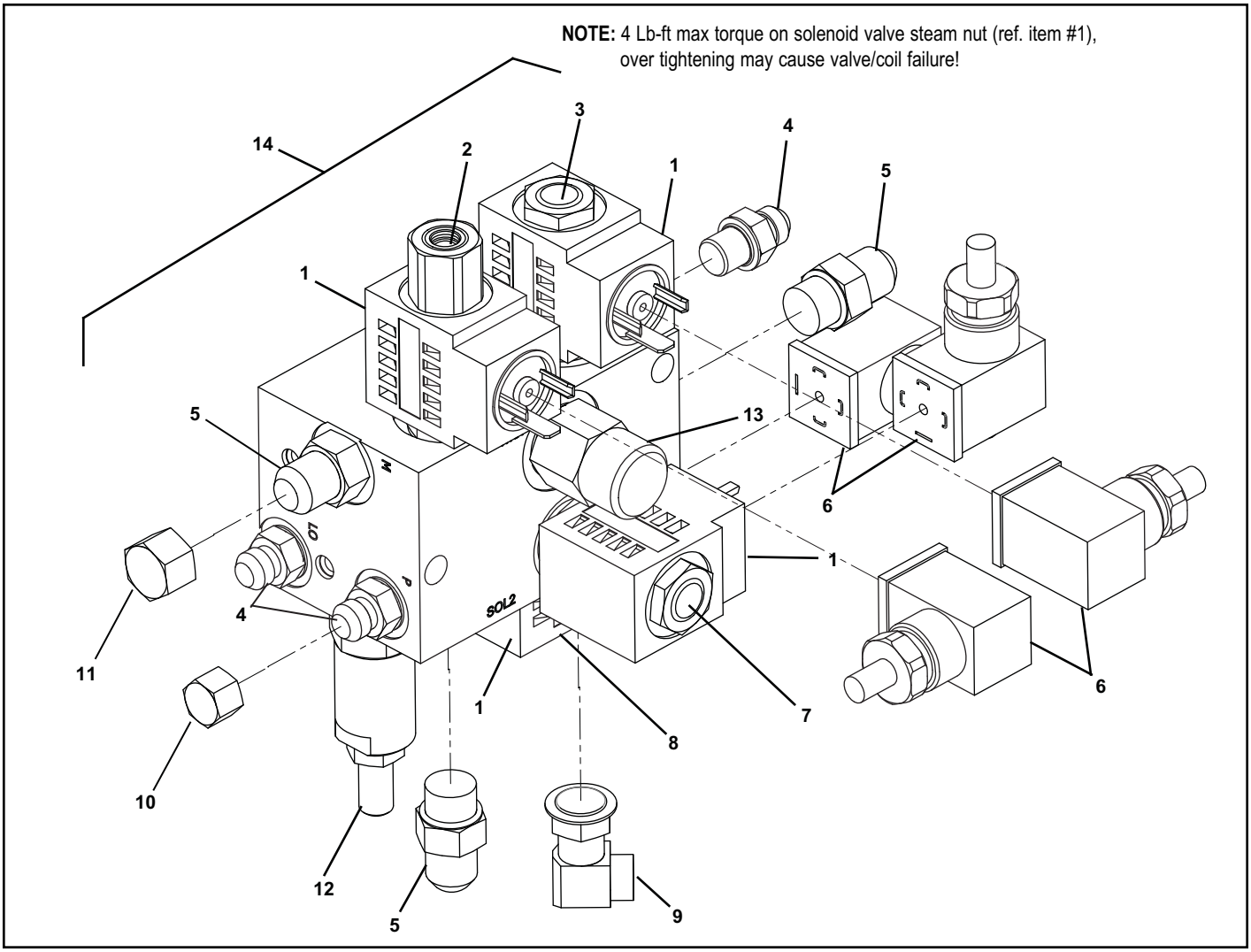
HYDRAULIC MANIFOLD REPLACEMENT PARTS - Standalone Power Unit



NOTE: 4 Lb-ft max torque on solenoid valve steam nut (ref. item #1), over tightening may cause valve/coil failure!

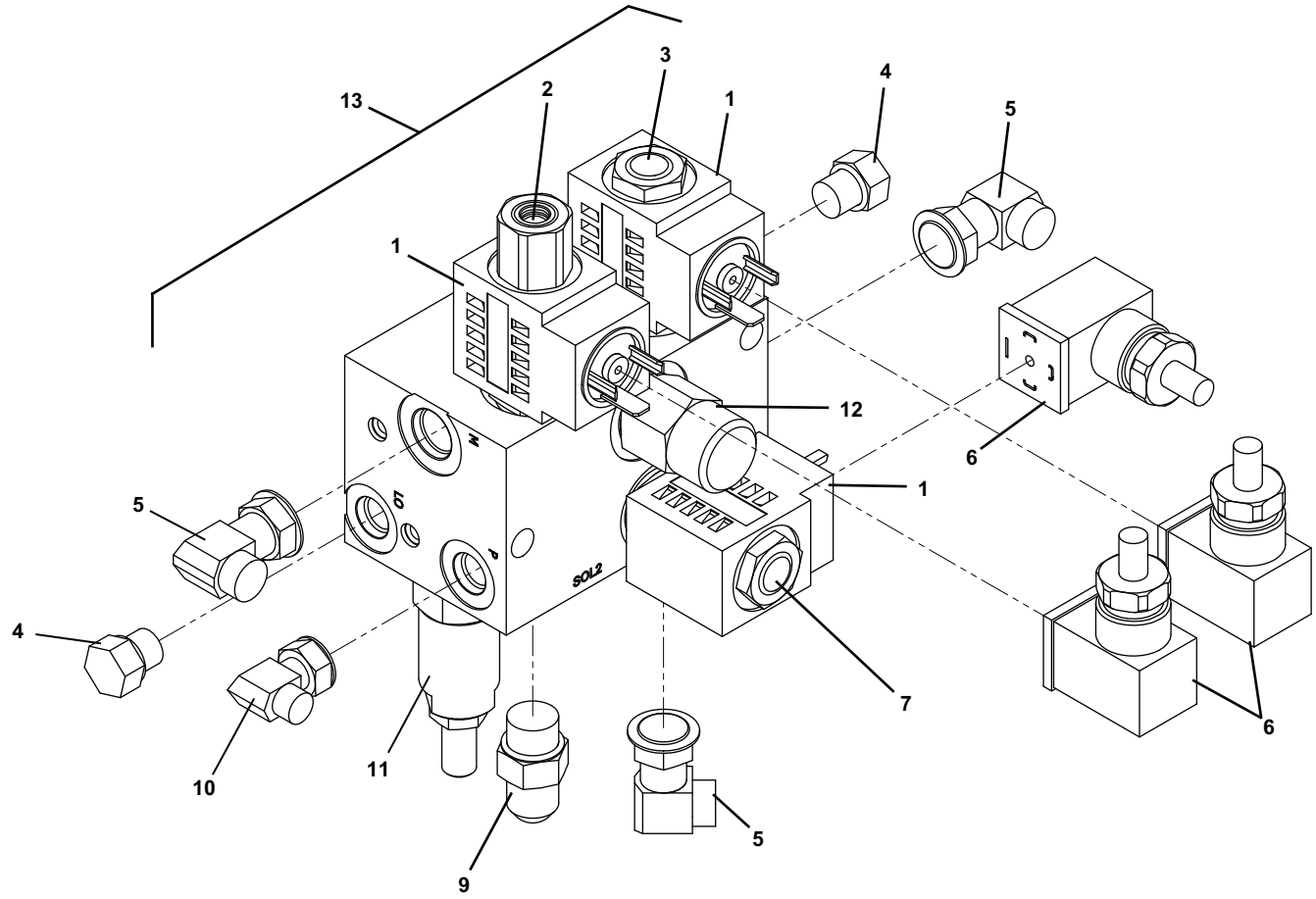
Item	Qty	Description	Part Number
1	2	Solenoid Coil	142975
2	1	Valve - Solenoid 1	139358
3	1	Straight Hydraulic Fitting #4 (P)	117513
4	4	Straight Hydraulic Fitting #6 (M)	55386
5	2	Hirschmann Plug Rect. & Harn. Assy.	117575
6	1	Valve - Solenoid 2	139351
7	2	Plug #4 MORB (LO & LI)	118307
8	1	#4 JIC Female Cap	55392
9	2	#6 JIC Female Cap	103321
10	1	Valve - Relief 500 PSI (DB)	139351
11	1	Valve - Sequence 3 Way (WKH)	139359
12	1	Dok-Lok Manifold Complete, Stand Alone Unit (Includes valves & solenoids)	139659

HYDRAULIC MANIFOLD REPLACEMENT PARTS - Pit Style Leveler



Item	Qty	Description	Part Number
1	4	Solenoid Coil	142975
2	1	Valve - Solenoid 1	139358
3	1	Valve - Solenoid 3	139355
4	3	Straight Hydraulic Fitting #4 (LO, LI, & P)	117513
5	3	Straight Hydraulic Fitting #6 (M, RI, & T)	55386
6	4	Hirschmann Plug Rect. & Harn. Assy.	117575
7	1	Valve - Solenoid 2	139351
8	1	Valve - Solenoid 4	139356
9	2	90Deg. Hydraulic Fitting, #4 SAE(M) #6 JIC(M) (RO)	55267
10	1	#4 JIC Female Cap	55392
11	1	#6 JIC Female Cap	103321
12	1	Valve - Relief 500 PSI (DB)	139357
13	1	Valve - Sequence 3 Way (WKH)	139359
14	1	Dok-Lok Manifold Complete, Combo Unit - Pit Leveler (Incl. valves & sol.)	139395

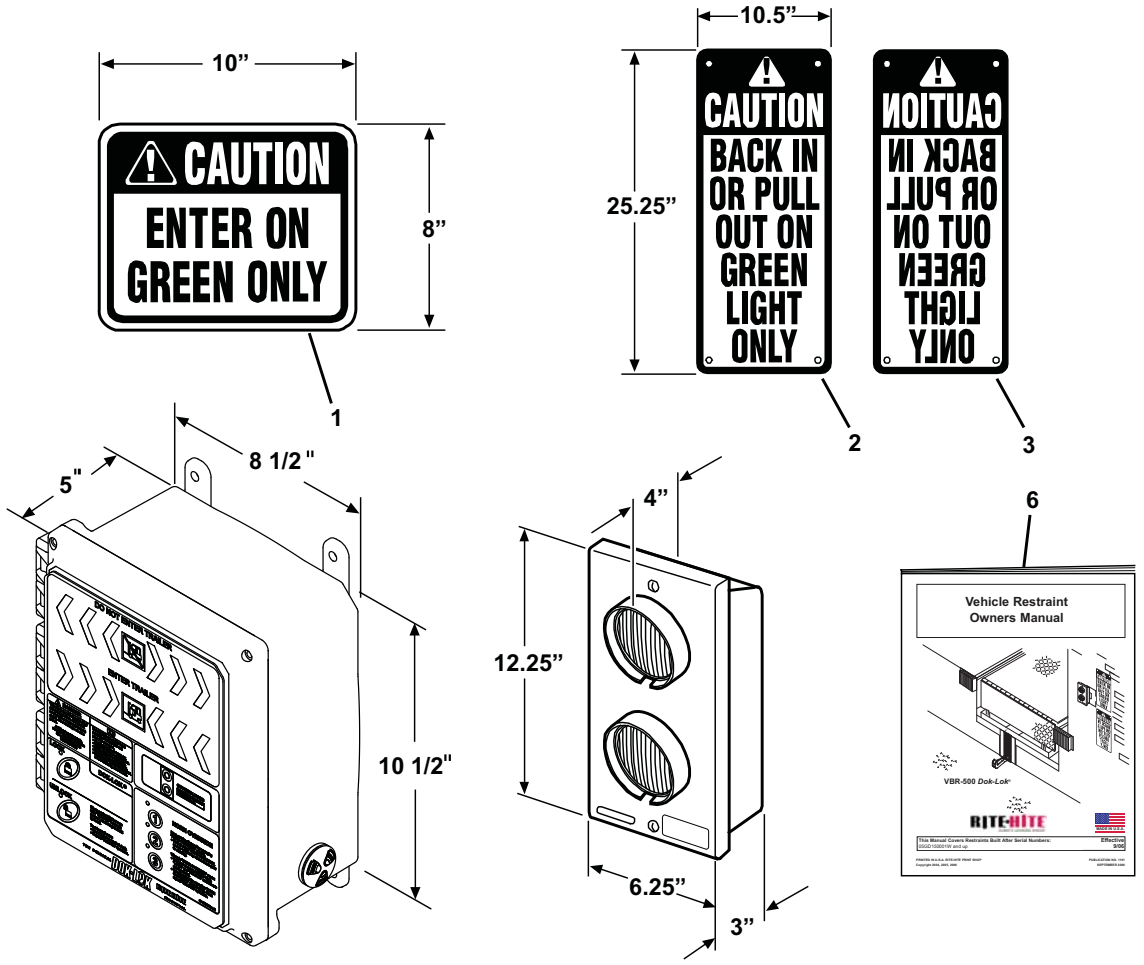
HYDRAULIC MANIFOLD REPLACEMENT PARTS - Vertical Leveler



NOTE: 4 Lb-ft max torque on solenoid valve steam nut (ref. item #1), over tightening may cause valve/coil failure!

Item	Qty	Description	Part Number
1	3	Solenoid Coil	142975
2	1	Valve - Solenoid 1	139358
3	1	Valve - Solenoid 3	139355
4	2	Fitting Plug 4 MORB (LO, LI)	118307
5	3	90 Deg. Hydraulic Fitting, #6 SAE(M) #6 JIC(M) (RI)	55267
6	3	Hirschmann Plug Rect. & Harn. Assy. 117575	
7	1	Valve - Solenoid 2	139351
9	1	Fitting, #6 MORB #6 MJ (T)	55386
10	1	90 Deg. Hydraulic Fitting, #4 SAE(M) #4 JIC(M) (P)	16920
11	1	Valve - Relief 500 PSI (D8)	139357
12	1	Valve - Sequence 3 way (WKH)	139359
13	1	Dok-Lok Manifold Complete, Combo Unit - Vertical Leveler (Incl. valves & sol.)	139656

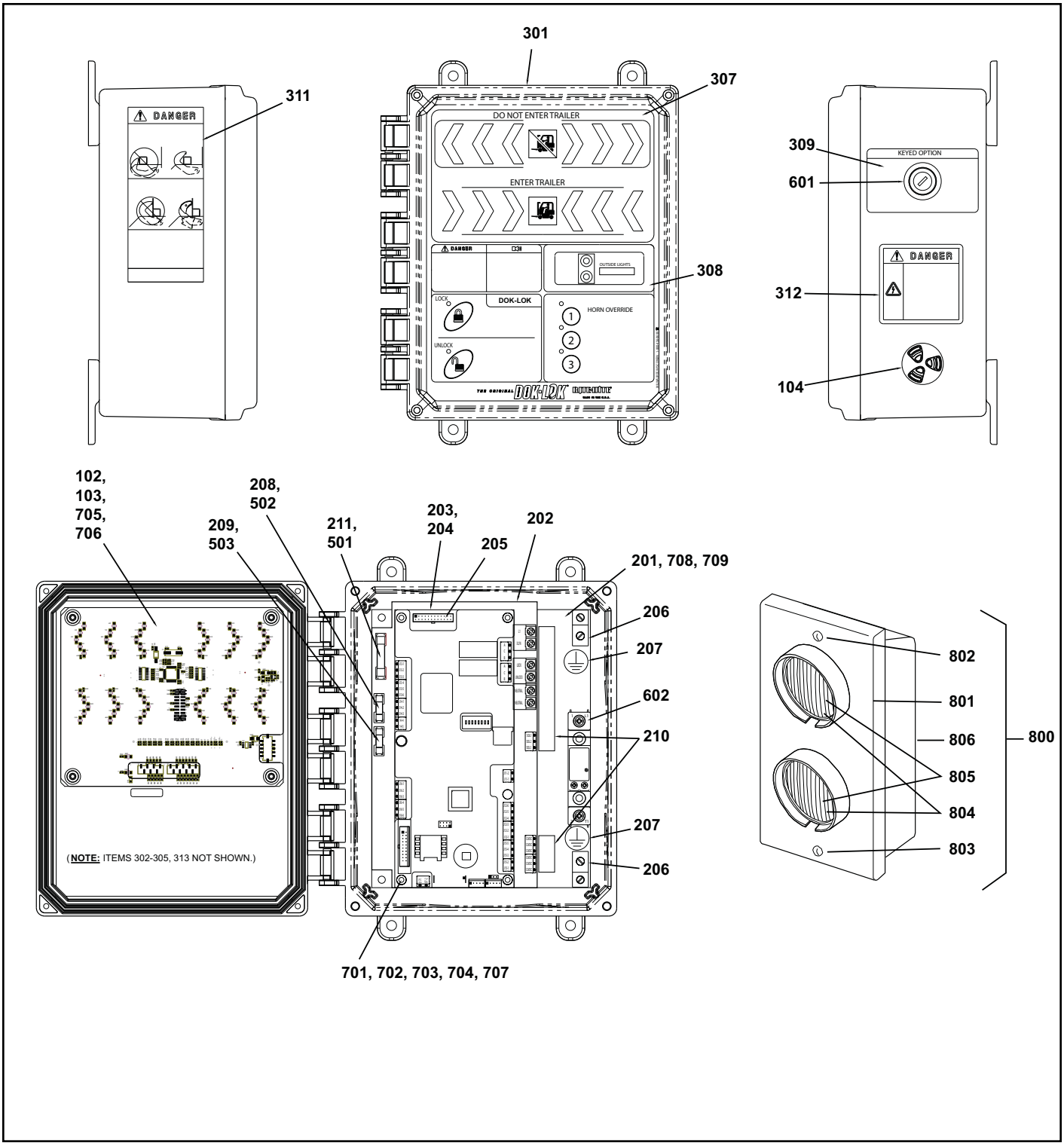
MISC. PARTS



MISCELLANEOUS REPLACEMENT PARTS LIST

Item	Qty	Description	Part Number
1	1	Interior Warning sign	56095
2	1	Narrow sign (normal letters)	56112
3	1	Narrow sign (reverse letters)	56113
4	1	Warning Decal	140722
5	1	Lockout/tagout warning decal	105430
6	1	VBR-600 Owner's manual (Publication No. 1328)	Pub. No. 1328

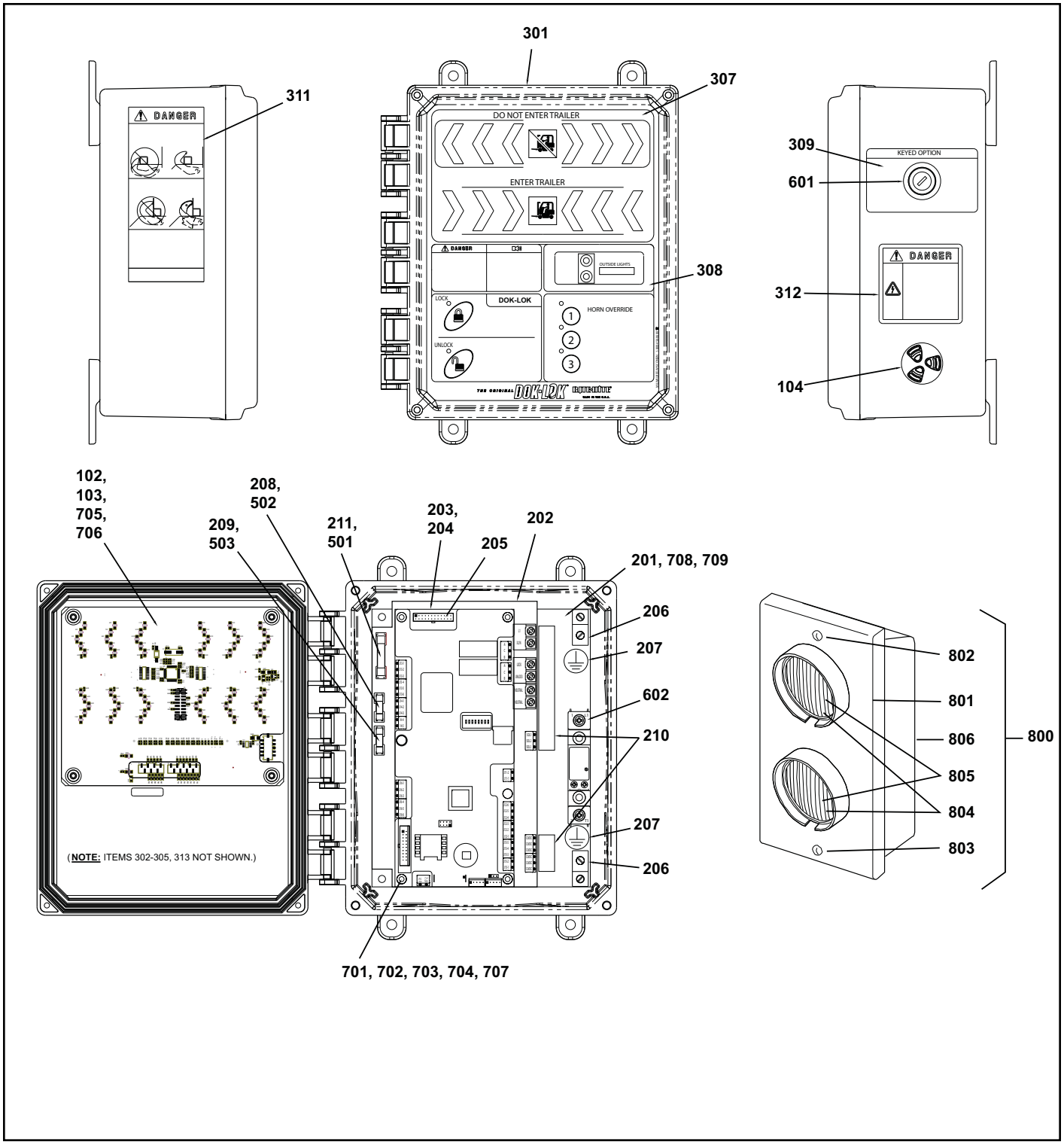
ELECTRICAL REPLACEMENT PARTS



ELECTRICAL REPLACEMENT PARTS LIST

Item	Qty	Description	Part Number
1	1	Control box assembly, Complete (Consult Rite-Hite for specific part number)	863.xxx
102	1	LED chevron/outside light monitor circuit board	141579
103	1	LED chevron/outside light monitor circuit board cover	144835
104	1	Horn, 12VDC, N4X	141573
201	1	Pre-drilled control box sub panel	144757
202	1	Power circuit board, Blank	141580
	1	Power circuit board, Including Fuses (115 Volt Power)	142126-04
203	1	Standard Micro Control Board, Including Advanced Controls	141578-861D108
	1	Micro Control Board with Program Options (Consult Rite-Hite for specific part number)	141578-xxx
204	1	Micro circuit board cover	144802
205	1	Control wiring harness	144864-01
206	2	Ground lug	55902
207	2	Ground lug decal	105454
208	1	Fuse cover, 5mm x 20mm	144544
209	1	Fuse cover, 5mm x 20mm	144544
210	1	Panel decals	146324
301	1	Standard Enclosure with decals, English, Including Advanced Controls	865.107
	1	Enclosure with decals other than above (Consult Rite-Hite for specific part number)	865.xxx
302	1	Electrical schematic decal (Consult Rite-Hite for specific part number)	870.xxx
303	1	Fuse replacement decal	144849
304	1	Full load amperage and voltage/phase decal (Consult Rite-Hite for specific part number)	872.xxx
305	1	Program configuration decal (Consult Rite-Hite for specific part number)	862.xxx
307	1	Cover decal with membrane push buttons	141499
308	1	DOK-LOK inlay decal, 5 button coded horn override (Advanced Control Package)	141502
309	1	Horn override enable decal (If equipped)	144831
	1	Control power ON/OFF decal (If equipped)	144829
	1	Unlock enable decal (If equipped)	144830
311	1	Danger/warning decal	144842
312	1	Lockout/tagout/multiple disconnect warning decal	114331
313	1	Circuit board UL rating decal	144859
501	1	5A fuse, 0.25" x 1.25" (115V control box)	57419
		2.5A fuse, 0.25" x 1.25" (230V control box)	126964
502	1	1A fuse, 5mm x 20mm (115V control box)	142092
		0.5A fuse, 5mm x 20mm (230V control box)	145216
503	1	0.5A fuse, 5mm x 20mm	145216
601	1	Selector switch, keyed (If equipped)	125194
602	1	Solid state relay, 12VDC, 75A, with hardware (If equipped)	144877
701	6	Standoff, Male/Female, #6-32, 0.75" length	142100
702	6	Standoff, Male/Female, #6-32, 1.625" length	142101
703	6	Screw, round head, #6-32, 0.25" length	133366
704	6	Lock washer, #6	51826
705	4	Rubber grommet	142102
706	4	Screw, black trim washer, #8-32, 0.5" length	146031
707	4	Standoff, Male/Female, #6-32, 0.875" length	115871
708	4	Screw, Round Head, #10-32, 0.5" length	51628
709	4	Lock Washer, #10	51762

ELECTRICAL REPLACEMENT PARTS - Continued



ELECTRICAL REPLACEMENT PARTS LIST

Item	Qty	Description	Part Number
800	1	LED Outside Light Assembly, Complete	115798
801	1	LED Oustide Light Assembly, Doesn't Include Base	128458
802	2	Screw, round head #6-32, 0.75" length	18364
803	1	LED Outside Light Bulb, Red	128448
804	1	LED Outside Light Bulb, Green	128449
805	2	LED Light Socket	116894
806	1	Outside Light Enclosure Base	18277

NOTES

NOTES

RITE-HITE STANDARD WARRANTY

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

In the event of any defects covered by this warranty, Rite-Hite will remedy such defects by repairing or replacing any defective equipment or parts, bearing all the costs for parts, labor, and transportation. This shall be the exclusive remedy for all claims whether based on contract, negligence, or strict liability.

LIMITATION OF LIABILITY

RITE-HITE SHALL NOT IN ANY EVENT BE LIABLE FOR ANY LOSS OF USE OF ANY EQUIPMENT OR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, WHETHER FOR BREACH OF WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

RITE-HITE®
ALWAYS LOOKING AHEAD

Global Sales & Service Office:

RITE-HITE
8900 N. Arbon Drive
P.O. Box 245020
Milwaukee, Wisconsin 53224

Phone: 414-355-2600
1-800-456-0600
www.ritehite.com

Representatives in all Major Cities