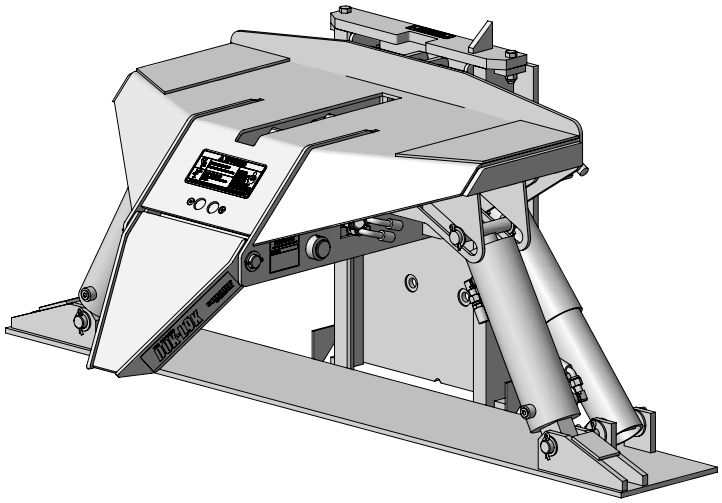
RITE-HITE®
ALWAYS LOOKING AHEAD

STR-4200™ Dok-Lok®

Stabilizing Trailer Restraint

Owner's Manual

This manual covers units: built after serial numbers: 4537070001 and up



Language: **English**

The English version of this manual shall prevail over any error in, or conflicting interpretation of, any translations.

Model: **STR-4200**

Publication: **AMEN00097 2017-06-28**

NOTICE TO USER

Thank you for purchasing a STR-4200™ Dok-Lok.

STR 4200 Dok-Lok vehicle restraint is an electro-mechanical restraint device that, when properly installed and operated, retains a secure connection between truck and dock. Signal lights, warning horn and signs provide instructions to truck driver and Dok-Lok vehicle restraint operator that a safe condition exists. The Dok-Lok vehicle restraint is operated by pressing push buttons on an interior control panel.

Read and understand this manual prior to installation or operation of this equipment.

Rite-Hite reserves the right to substitute and/or modify parts and drawings (electrical & architectural). If separate prints are included with the unit, they supersede the manual.

Contact Rite-Hite Customer Support for installation help not covered in this manual: (U.S.) 800-456-0600.

A Planned Maintenance Program (P.M.P.), customized to your specific operation is available and recommended. For a P.M.P., contact your local Rite-Hite representative or Rite-Hite technical support at (U.S.) 414-355-2600.

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 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 two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesirable operation.

NOTICE TO USER

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. It is recommended that an adequate stabilizing device or devices be employed at the front of the trailer in all cases where a trailer is being loaded or unloaded with the trailer resting on its support legs (landing gear) rather than a tractor fifth wheel or a converter dolly.
13. In selecting dock equipment, it is important to consider not only present requirements but also future plans or adverse environments.

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NOTICE TO USER

Definition and Function

The STR-4200 Dok-Lok vehicle restraint is a hydraulic, self-aligning 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. In addition this device, when engaged, limits the vertical motion of the trailer when loading and/or unloading. This is achieved by securing the R.I.G. with a hydraulically positioned steel hook, while support cylinders extend under the carriage to limit vertical motion. 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 activation of the barrier and the locking mechanism is monitored by:

- Visual Control

  1 set of flashing green or red lights located at the inside of the building for the forklift operator, and 1 set located outside of the building for the truck driver. In addition to the lights, there are 3 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 4in [102mm] (trade standard) thick dock bumper. The activation/deactivation is solely controlled from inside of the building by pressing the Lock (raise) button or the Unlock (lower) button.

The normal mode of the hook is in the lower STORED position, with support cylinders retracted 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 hook to engage the R.I.G. and simultaneously extend the support cylinders to support the carriage. As soon as the R.I.G. is properly locked with carriage supported, there will be a simultaneous light change - the inside will change from red to green flashing (trailer secured and supported) 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 hook and support cylinders to their STORED position.

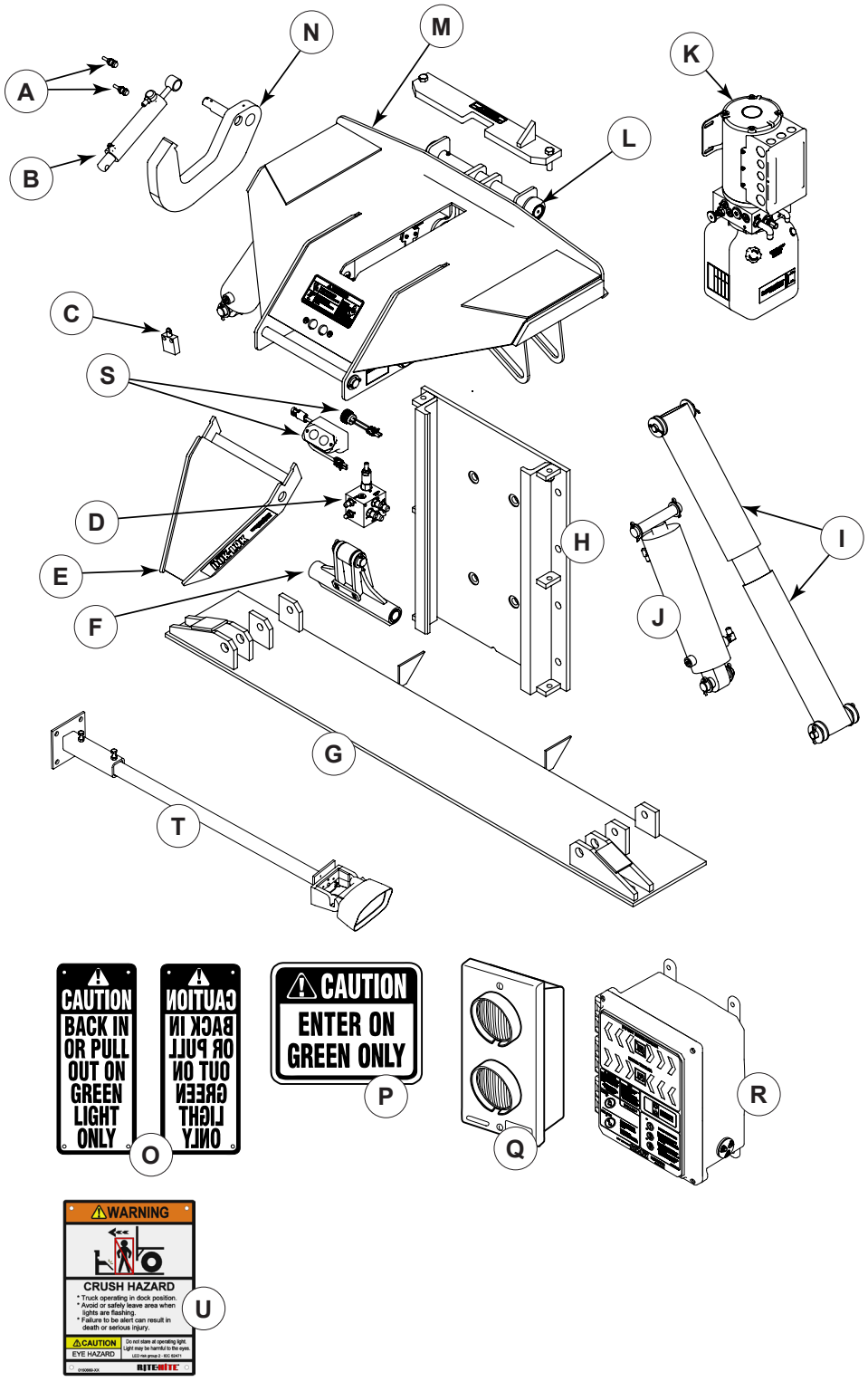
A proper hook engagement is achieved when the hook raises unobstructed to fully trap the horizontal cross member of the R.I.G. Assembly. An improper hook engagement is if the horizontal cross member of the R.I.G. is missing, obstructed or it is bent or located too far from rear of trailer that it will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

⚠ CAUTION

The support cylinders will not be engaged without proper hook engagement. If trailer can not be secured, expect normal vertical motion of the trailer.

NOTICE TO USER

Features



A. Hook Sensors
B. Hook Cylinder
C. Support Limit Switch
D. Auxiliary Manifold
E. Slope Extension
F. Hook Support
G. Base Plate Assembly
H. Roller Track Assembly
I. Return Springs and Tubes
J. Support Cylinders
K. Power Unit
L. Carriage Roller Assembly
M. Carriage Assembly
N. Hook
O. Outside Signs
P. Inside Sign
Q. Outside Lights
R. Control Box

Approach-Vu™ (Optional):

S. Light and Alarm
T. Truck Sensor
U. Approach-Vu Sign

Figure 1

SAFETY

Safety Identifications

DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a hazardous situation which, if not avoided, *could result in death or serious injury*.

CAUTION

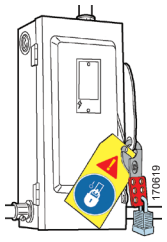
Indicates a hazardous situation which, if not avoided, *could result in minor or moderate injury*.

NOTICE

Indicates a situation which can cause damage to the equipment, personal property and/or the environment, or cause the equipment to operate improperly.

NOTE: A note is used to inform you of important installation, operation, or maintenance information.

Lockout Procedure



Barricade work area and post safety warnings.

Power supply/control must:

- Be disconnected or locked in OFF position using a lockout device approved by local codes.
- Have signage that:
  - Clearly states repairs are being made.
  - Identifies person responsible for lockout condition.

    NOTE: Only this person should be able to remove warnings and lockout device.
  - Withstands environmental conditions (weather, wet, and damp, etc.) and remains readable.

General

DANGER

A qualified electrician should install wiring in accordance with local electrical codes.

Use lockout procedures to prevent death or severe personal injury.

OPERATION

⚠ WARNING

Before loading or unloading a vehicle at your loading dock while using a Dok-Lok vehicle restraint, always visually confirm barrier blocks R.I.G. assembly. Secure trailer by other means, if a condition occurs that cannot be fixed by backing trailer firmly against dock bumpers.

Area around R.I.G. assembly must be free of plates or other obstructions.

Always operate Dok-Lok vehicle restraint from top of dock.

Dok-Lok vehicle restraints should be operated by authorized personnel who have read and understand Owner's Manual.

Contact your local Rite-Hite representative or Rite-Hite (U.S.) 800-456-0600 with any questions.

Failure to follow these procedures could allow unexpected trailer / loading dock separation, resulting in death or serious injury.

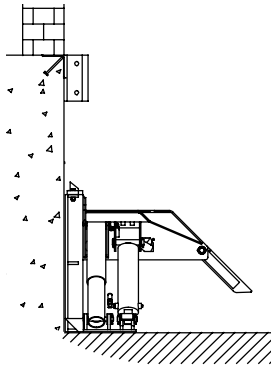
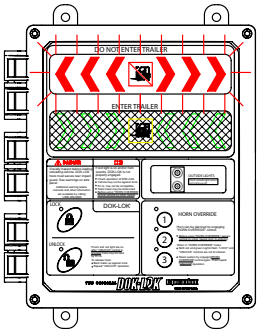
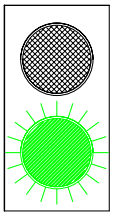
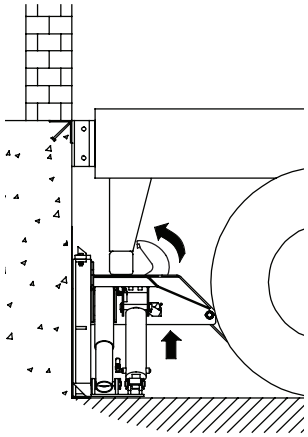
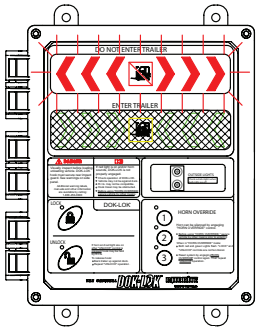
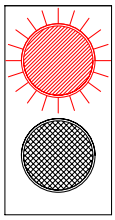
⚠ WARNING

Power moving components. Serious injury could occur.

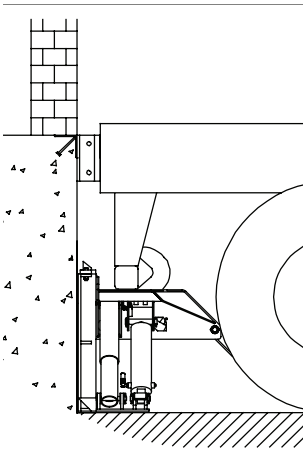
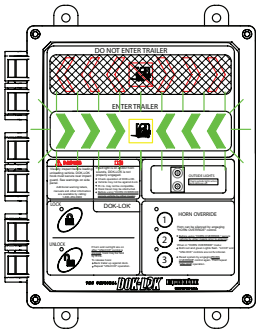
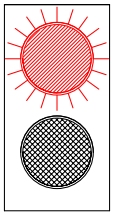
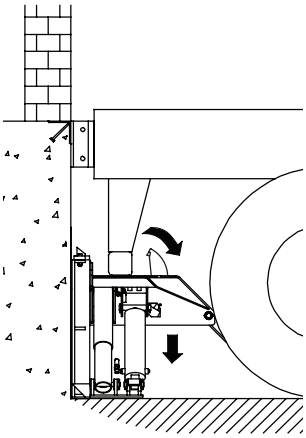
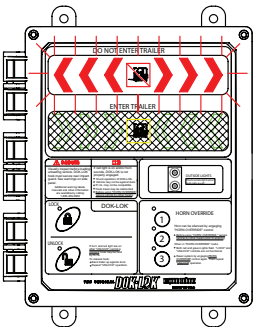
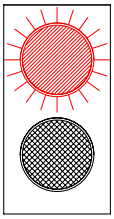
Slip hazard: Do not use equipment as a step.

Pinch hazard: Keep all extremities away.

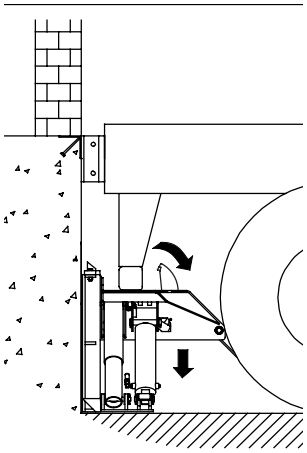
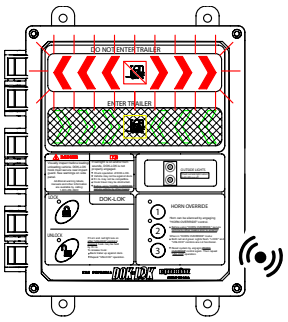
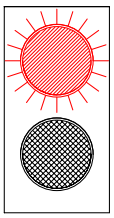
OPERATION

RESTRAINT		DEFAULT STATUS	
STATE	POSITION	CONTROL BOX: INSIDE LIGHTS, SOUND	OUTSIDE LIGHTS
Restraint UNLOCKED/ STORED position. Hook is in STORED position.		 Red (flashing) Loading or unloading is not permitted, since R.I.G. is not locked.	 Green (flashing) A vehicle may pull into or out of loading bay.
Restraint LOCKING (LOCK button pressed) • Trailer has backed into loading dock and is parked firmly against dock bumpers. • Hook rotates from STORED position to entrap R.I.G. while support cylinders extend to support carriage. If horn sounds, go to FAULT State from LOCKING State if not, go to Restraint LOCKED. **⚠ CAUTION** **If trailer can not be restrained due to a lift gate or other obstruction that could become damaged, go to HORN OVERRIDE State.**		 Red (steady) Alerts operator that an unsafe condition exists while hook and support cylinders are in transit.	 Red (flashing) Alerts truck driver not to move.

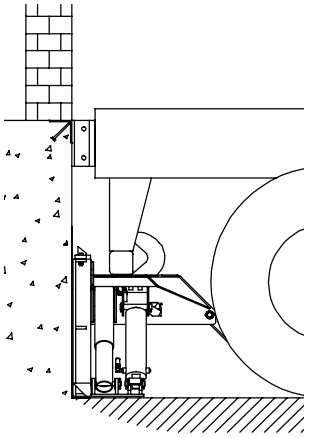
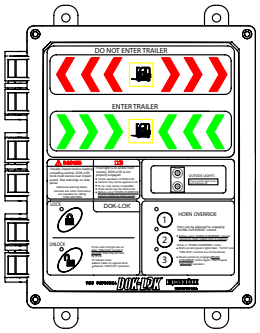
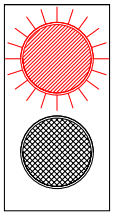
OPERATION

RESTRAINT		DEFAULT STATUS	
STATE	POSITION	CONTROL BOX: INSIDE LIGHTS, SOUND	OUTSIDE LIGHTS
Restraint LOCKED When R.I.G. is entrapped by hook and carriage is supported by support cylinders, a LOCKED condition exists. If during loading/unloading inside light turns red and horn sounds, press LOCK button to secure R.I.G. **⚠ WARNING** **Visually confirm DOK-LOK barrier obstructs R.I.G. of trailer being serviced, before operating dock leveler.**		 Green (flashing) Alerts operator a safe condition exists.	 Red (flashing) Alerts truck driver not to move.
Restraint UNLOCKING (UNLOCK button pressed) Hook travels from LOCKED position to STORED position while support cylinders retract to a STORED position. If horn sounds go to FAULT State from UNLOCKING State.		 Red (steady) Alerts operator that an unsafe condition exists while hook and support cylinders are in transit.	 Red (flashing) Alerts truck driver not to move.

OPERATION

RESTRAINT		DEFAULT STATUS	
STATE	**POSITION**	**CONTROL BOX: INSIDE LIGHTS, SOUND**	**OUTSIDE LIGHTS**
FAULT State from LOCKING State Hook cannot entrap R.I.G. – R.I.G. could be located too far from rear of trailer, bent, obstructed or missing. Unit will store itself. If trailer is parked firmly against dock bumpers go to HORN OVERRIDE state. If not, press UNLOCK to clear fault, have trailer back up and repeat Restraint LOCKING.		 Red (flashing) Horn (pulsing) Alerts operator that trailer is not locked.	 Red (flashing) Alerts truck driver not to move.
FAULT State from UNLOCKING State Hook cannot rotate to STORED position. – Hook could be caught on R.I.G. or another part of trailer. Verify trailer is parked firmly against dock bumpers. If not, press LOCK to entrap R.I.G., have trailer back up and repeat Restraint UNLOCKING.			

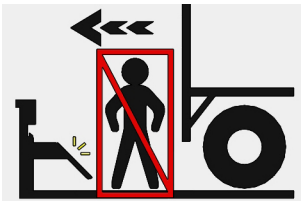
OPERATION

RESTRAINT		DEFAULT STATUS	
STATE	POSITION	CONTROL BOX: INSIDE LIGHTS, SOUND	OUTSIDE LIGHTS
HORN OVERRIDE State **(HORN OVERRIDE code entered after securing trailer by alternate means)** An alternate means of securing truck must be used if hook can not capture R.I.G. (i.e. wheel chocks). To return to STORED: 1. Enter HORN OVERRIDE code ***NOTE:*** Factory preset = 1223 2. Press UNLOCK button. ***NOTE:*** Unit will continue to store itself (≈ 20 seconds) after horn has been silenced from FAULT state. **⚠ DANGER** **Before operating HORN OVERRIDE, secure trailer by other means.** **⚠ CAUTION** **Support cylinders will not be engaged in HORN OVERRIDE state. Expect vertical motion of trailer.**		 Red (flashing) Green (flashing) Alerts operator trailer is secured by other means.	 Red (flashing) Alerts truck driver not to move.

OPERATION

Approach-Vu™ (OPTIONAL)

⚠ WARNING



CRUSH HAZARD

- Truck operating in dock position.
- Avoid or safely leave area when lights are flashing.
- Failure to be alert can result in death or serious injury.

⚠ CAUTION

Do not stare at operating light. Light may be harmful to the eyes.

Truck Detection Zone

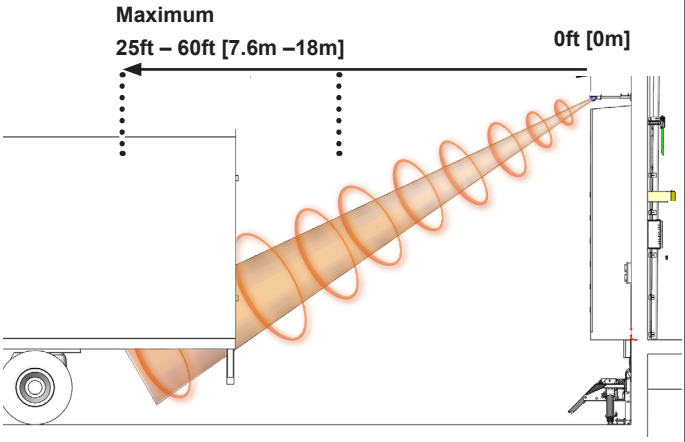


Figure 2

Hazard Notification on Restraint

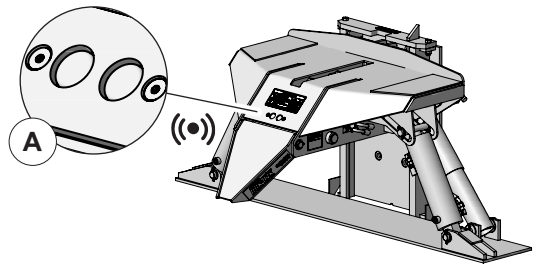
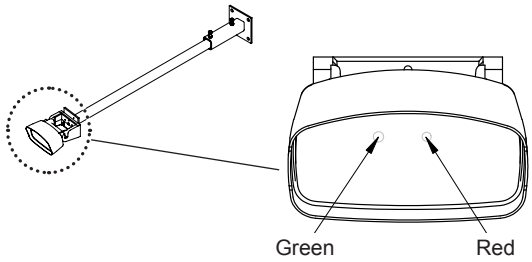


Figure 3

When a truck is detected:

- Lights will flash (A).
- Alarm located in the restraint will sound.

Truck Sensor LEDs



STATE	LEDS
Start-Up	Red/Green (Flashing)
Ready	Green (Steady)
Detects Truck	Red (Flashing)
False Detection	Green or Red/Green (Flashing)

Figure 4

MAINTENANCE

DANGER

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

Post safety warnings and barricade work area, at dock level and approach level, to prevent unauthorized use of dock position.

WARNING

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

CAUTION

When lifting unit use a proper lifting device (crane, jack). Lifting by hand may cause back injury.

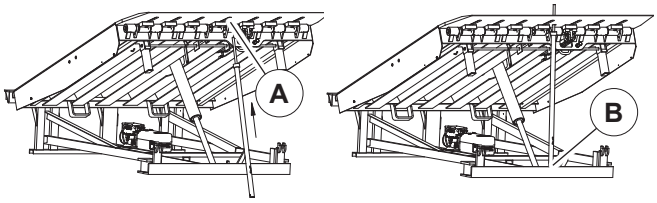
NOTICE

Contact Rite-Hite if loading docks are exposed to harsh environments (extreme climates, corrosive chemicals, high usage, etc.). More frequent maintenance may be required.

A Planned Maintenance Program (P.M.P.), customized to your specific operation is available and recommended. For a P.M.P., contact your local Rite-Hite representative.

NOTE: If a leveler is installed at Dok-Lok vehicle restraint location, it may be necessary to raise leveler before performing maintenance.

DANGER



When working under dock leveler platform or lip:

1. **Install Safe-T-Strut™ with the assistance of another person.**
   - Raise leveler until platform reaches its highest position and lip extends. Maintain this position.
   - (A) Have assistant insert the smaller end of the Safe-T-Strut™ through hole in the middle of leveler lip and place strut's wider open end over the base located on leveler's front frame (B).
   - Align the holes on the base and Safe-T-Strut™ so leveler may be secured with retaining pin and safety clip.
   - Release the pushbutton on powered levelers allowing the Safe-T-Strut™ to rest on the underside of lip.

   NOTE: If you are unable to install the maintenance support, contact your Rite-Hite Service Representative or Rite-Hite Customer Service at 1-414-355-2600.
2. **Lockout and tag power supply.**
   - Turn off power to control box.
   - Lock out and tag the main power source
   - Barricade leveler at dock and approach levels to prevent unauthorized use.

Safe-T-Strut™ removal:

- Have an assistant raise leveler to its highest position with lip fully extended.
- Release safety clip and remove retaining pin.
- Lift the support off base.
- Return Safe-T-Strut™ to it's storage position.

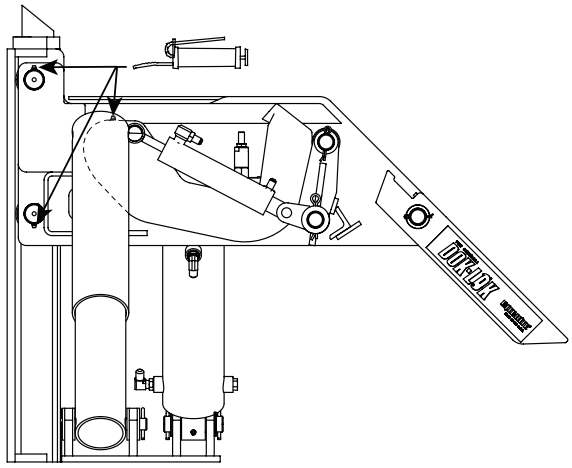
MAINTENANCE

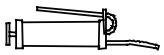
Planned Maintenance

#	P.M. IN DAYS 1	180	360	INSPECT AND PERFORM:
1	✓	✓	✓	Remove debris around Dok-Lok vehicle restraint
2	✓	✓	✓	Verify horns, 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. 4in [102mm] of protection is required. Worn, torn, loose or missing bumpers must be replaced.
6	–	✓	✓	See **"Figure 5".** Grease rollers at fittings located on top and bottom axle. Grease hook and support cylinders at fittings. Use Mobilith SHC220 No. 2 grease (or equivalent temperature range lithium based grease). 1st 180 days: 7–8 pumps 180 Day intervals (after first 180): 2–3 pumps ***Note:*** Items that use SAE 30 weight oil lubricant only require lubrication every 360 Days.
7	–	✓	✓	Check that all concrete anchor bolts are torqued to 60 ft-lbs..
8	–	✓	✓	Inspect hydraulic hoses and power unit for signs of leakage. Check oil fluid level, and fill with appropriate fluid as needed.
9	–	✓	✓	Inspect outside junction and light box. They should be securely mounted. If loose or damaged, inspect all wires and wire connections.
10	–	✓	✓	Inspect switch wires from Dok-Lok vehicle restraint to junction box. Look for kinks, crushed areas, etc.
11	–	✓	✓	Inspect all conduit boxes, control boxes and electrical connections for damage. Repair or replace if worn or damaged.. If control box has evidence of condensation: a. Inspect conduit. Conduit should be routed to enter through bottom or side of enclosure. A drip leg may be needed if conduit is filling with water. b. Inspect seal on cover of enclosure. Seal should be securely adhered to 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. Vent is NEMA 4X and will not change environmental rating of control box.
12	–	✓	✓	Perform operational test after all maintenance repairs and adjustments are complete.
13	–	–	✓	Check and tighten control box mounting hardware

MAINTENANCE

Lubrication



	SAE 30 Weight Oil
	Grease: Use Mobilith SHC220 No. 2 grease (or equivalent temperature range lithium based grease)
	Dry Spray Lubricate: Use in slots and on outside of lower spring tubes, as shown.

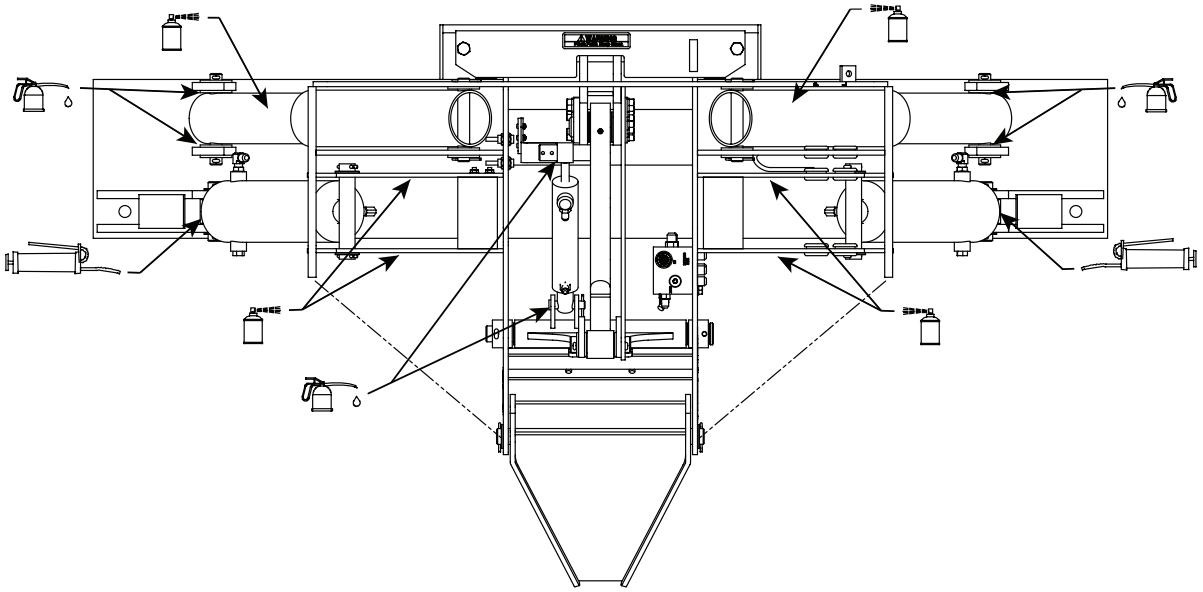


Figure 5

Troubleshooting

Normal Restraint Function in Fault State

If STR faults immediately, LOCKED State was never achieved:

- All cylinders retract (unit stores) and inside RED light and HORN.
- Outside RED light, inside RED light and HORN.

If STR faults after being in LOCKED State:

- All cylinders remain extended, hook stays up, but support cylinders do not function.
- Outside RED light, inside RED light and HORN

MAINTENANCE

Troubleshooting *Continued*

PROBLEM	PROBABLE CAUSE	REMEDY
1. Unit faults after LOCK button is pressed, never gets an inside GREEN light.	Damage or missing rear impact guard.	Restrain trailer by alternate means, place system in HORN-OVERRIDE state.
	Truck not backed in straight or tight against bumpers.	Re-position trailer.
	Hydraulic system malfunction.	Verify power unit runs for ~25sec. and cylinders fully extend. If not, contact Rite-Hite.
	Sensor issue.	Verify sensor operation and adjustment; see sensor testing and adjustment procedure.
2. Unit locks (gets inside GREEN light) then faults when a forklift enters or leaves trailer.	Trailer is not tight against bumpers.	Re-position trailer.
	Damaged rear impact guard.	Verify condition of rear impact guard, if damaged, restrain trailer by alternate means and place system in HORN-OVERRIDE state.
	Sensor(s) out of adjustment.	Verify sensor adjustment; see sensor testing and adjustment procedure.
3. Hook does not raise and lights do not flash.	Power source malfunction.	Check power source including building circuit breaker, 1.5A and 15A fuses on power module.
	Power module failure.	Verify appropriate motor output LED (M1), and SOL LED is lit when LOCK button or UNLOCK button is pressed.
	Incorrect wiring.	Verify wiring per electrical schematic.
4. Lights are flashing, but hook does not raise/lower.	Hook needs to be lubricated.	Lubricate hook shaft.
	Severed hose.	Replace damaged hose as required.
	Sensor(s) out of adjustment.	Verify appropriate LED is lit when LOCK button or UNLOCK button is pressed.
		Check for defective push button board or ribbon cable.
		Disconnect cylinder and check extension / retraction without hook attached.
		Verify wiring per electrical schematic.
5. Is operational but hook drops causing lights to change and/or horn to sound while trailer is being serviced.	Hook cylinder defective.	Disconnect cylinder and check extension / retraction without hook attached.
6. Hook is operational but all lights are out.	Bulbs burnt out, loose or missing.	Check all bulbs and replace as required.
	Damaged circuit board.	If ISG and OSR LEDs are not flashing while in locked position or ISR and OSG LEDs are not flashing while in UNLOCKED position, replace circuit board.
	Incorrect wiring.	Verify wiring per electrical schematic.
7. Control box horn does not sound, but lights and hook are operational.	Horn defective.	Power horn using 12V DC power. If horn does not sound, replace as required.
8. Hook is in stored position with and inside green light.	Incorrect wiring.	Verify wiring of SW1 and SW2 at control box and outside junction box.
9. Carriage does not return to a full up position.	Carriage binding in track.	Check to see if roller track plate is clean and rollers are clean, free of debris and lubricated. Use only approved grease.
	Damaged roller track plate.	Verify that roller track plate is straight and not damaged.
	Broken or weak springs.	Replace as required.
	Improperly shimmed Base Plate.	Shim and adjust as required.

MAINTENANCE

Troubleshooting *Continued*

Sensor Adjustments

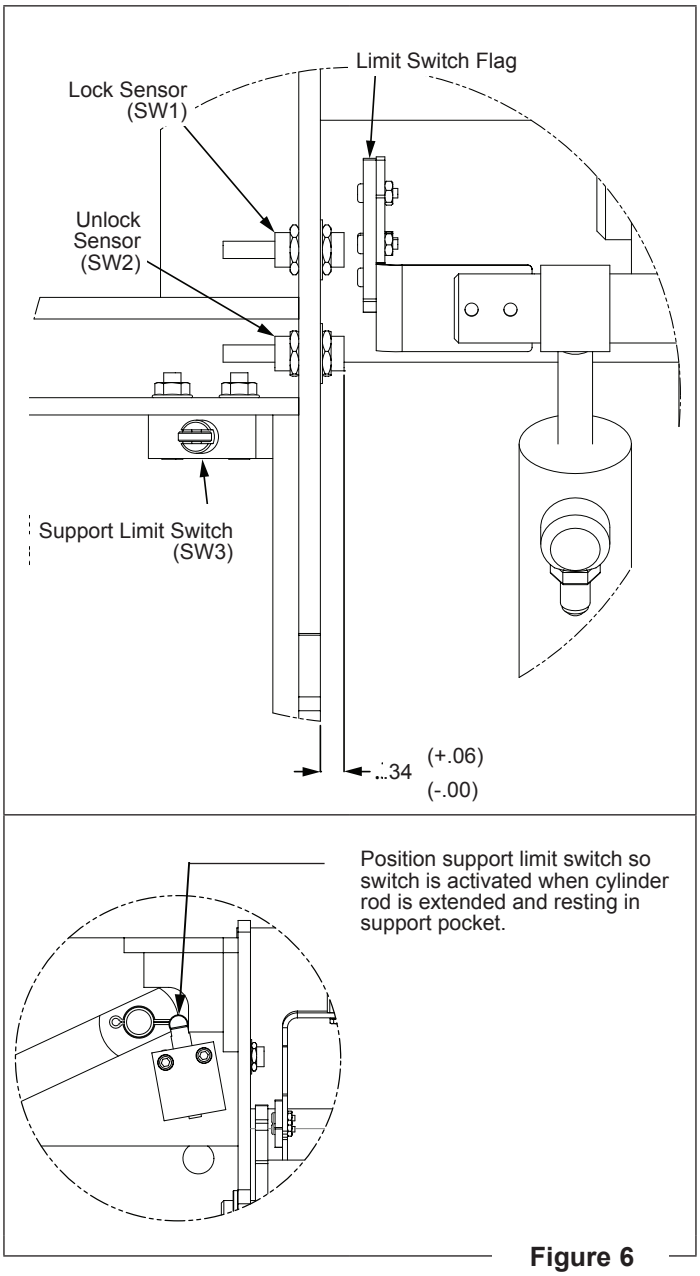


Figure 6

Use a spacer (e.g. 3/4in deep well socket or section of 1in [25mm] OD round) to test location of cylinder rod when it is engaged.

Adjusting switch too high could result in damage to switch.

MAINTENANCE

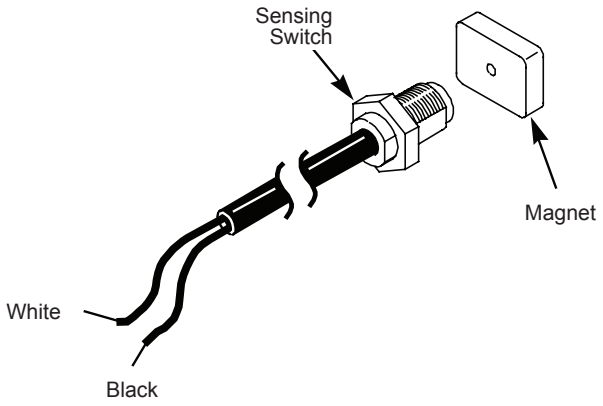
Troubleshooting *Continued*

Component Testing – Switches/Sensors

1. Set multimeter to “RX1” scale for “Continuity Test”.
2. Attach multimeter leads to white and black wires of switch connector:

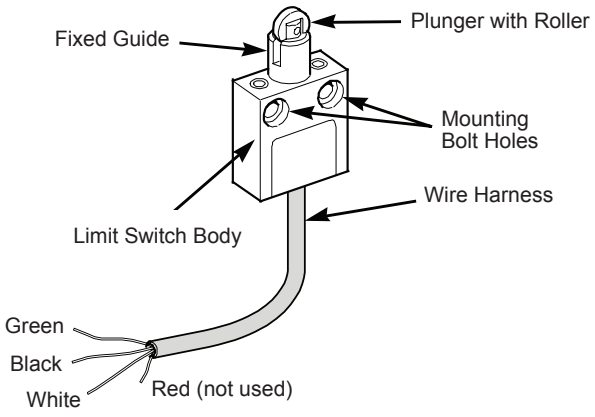
Magnetic Sensor (SW1,SW2)

No magnet present = No meter reading
Magnet present = a "Full Scale" meter reading



Mechanical Limit Switch (SW3)

Plunger released = No meter reading
Plunger depressed = a "Full Scale" meter reading



- Green (ground) wire of limit switch does not have to be tested. A continuity test lamp may be used instead of a multimeter.
- Sensor 1 (SW1) and Limit Switch 3 (SW3) are wired in series into SW1 input on micro control board.

Figure 7

Limit Switch and Hook Positions

HOOK POSITION	LOCK SENSOR (SW1)	UNLOCK SENSOR (SW2)	SUPPORT LIMIT SWITCH (SW3)	INSIDE LIGHT	OUTSIDE LIGHT	CONTROL BOX HORN
1. Stored	Off	On	Open / Released	Red	Green	Off
2. No Hook (No Support)	Off	Off	Open / Released	Red	Red	On
3. Hooked (90° Support On)	On	Off	Closed / Depressed	Green	Red	Off
4. No Hook (Support On)	Off	Off	Closed / Depressed	Red	Red	On

MAINTENANCE

Troubleshooting *Continued*

Component Testing – Vehicle Restraint Motor

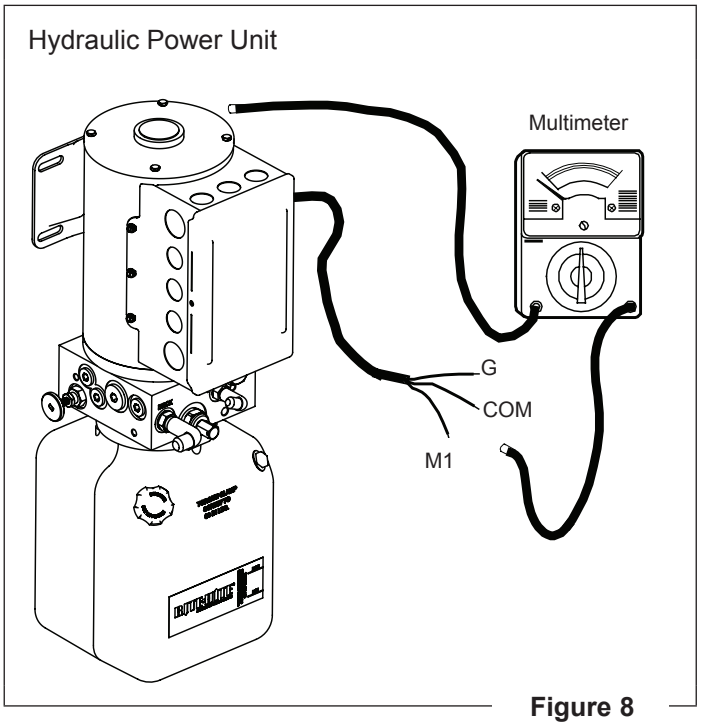


Figure 8

1. Shorted: Set multimeter to ohms.
   - Take readings between leads M1 to ground/motor casing and COM to ground/motor casing.
   - Reading should be Infinite (0) ohms (no needle movement).
   - Any reading indicates bad motor windings.
2. Mechanical Binding:
   - Motor hums.
   - Motor leads show continuity between all windings.
   - Shaft does not move.

MAINTENANCE

Troubleshooting *Continued*

LED Status Chart

? = Varies (per operation)
A = Alternating
D = Double fast pulsing / flashing
F = Off
ITL = Interlock input on
K = Continuous slow chirp
M = Lights when button pressed
P = Pulsing / Flashing (set to steady using DIP switches)
T = Steady On

		MICRO CONTROL BOARD																		POWER BOARD		
		INPUTS				PUSH BUTTONS			OUTPUTS									RELAY		115/230VAC		
		FIELD							12VDC													
		Dok-Lok Limit Switch 1 [SW1]	Dok-Lok Limit Switch 2 [SW2]	Unlock Interlock [UNLK ITL]	Lock	Unlock	Horn Silenlence (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/RAISE)	Solenoid #2 (RSOL2/DIVERT) [Combined Power Unit Only]	12VDC Power Supply OK
TERMINAL BLOCK NO.		J13.1	J13.2	J14.3	Membrane			J7.16	J7.17	J12.1	J12.2	J12.3	J12.4	J11.2	J11.1	J7.19	J15.1	N/A	J9.3	J10.3	J10.3	J5.4	J7.3	J7.2	J2.1-6
POWER BOARD LEDS		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	LD2	LD10	LD9	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	–
ON	01.01.00	T	F	?	–	–	–	F	P	F	P	F	P	P	F	F	F	F	T	T	F	F	T	F	T
	01.01.01	T	F	?	M	–	–	T	F	P	F	P	F	P	F	T	F	F	F	T	T	T	T	T	T
	01.02.00	F	T	?	–	–	–	P	F	P	F	P	F	P	F	F	F	F	F	T	F	F	F	F	T
	01.02.01	F	F	ITL	–	M	–	T	F	P	F	P	F	P	F	T	F	F	F	T	T	T	F	T	T
	01.04.00	?	?	?	–	–	–	P	F	P	F	P	F	P	F	P	F	F	F	F	F	F	F	F	T
	01.04.01	?	?	?	–	–	M	A		A		A		P	F	F	F	F	T	T	F	F	F	F	T
	01.11.00	?	?	?	–	–	–	P	F	P	F	P	F	P	F	K	F	T	F	F	F	F	F	F	T

RESET PROCEDURE:

Motor Overload Fault State (Amber LED LD50 is illuminated and the Dok-Lok horn is slowly chirping.)

1. Press and hold Horn Silence Button (3-Button System)/Horn Silence #2 Button (5-Button System) until Horn Chirps (≈ 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 does not run after resetting the overload, check Motor Fuse 10FU1.

MAINTENANCE

Troubleshooting *Continued*

Setting Horn Override Code

To create a new or replace a forgotten code:

1. Press and hold DIAGNOSTIC button until horn chirps (≈ 5 seconds).

   or

   Without opening control box cover, press and hold #1 and #3 buttons on cover until horn chirps.
2. Enter factory preset HORN OVERRIDE code: 1223. (horn will chirp)
3. Enter new HORN OVERRIDE code. It can be 1 to 4 numbers in length.
4. Press LOCK button. New HORN OVERRIDE code is enabled.

Enter Hydraulic Fill Mode

1. Press and hold DIAGNOSTIC button inside control box until horn chirps (≈ 5 seconds).

   or

   Without opening control box cover, press and hold #1 and #3 buttons on cover until horn chirps.
2. Press HORN OVERRIDE #2 button (horn will chirp).
3. System is now in FILL MODE. Press and hold LOCK and UNLOCK buttons to run unit up or down, respectively.
4. Cycle Dok-Lok up and down to remove air from system. Add remaining hydraulic fluid. Stop cycling once Dok-Lok barrier travels up and down without hesitation.
5. To exit FILL MODE:
   - Press DIAGNOSTIC button, or
   - Press no buttons for 5 minutes, or
   - Cycle power

Fill Mode Input/Outputs Chart

C = Chirp on State Entry
F = Off
P = Pulsing / Flashing
T = Steady On

				MICRO CONTROL BOARD												POWER BOARD				
				INPUTS			OUTPUTS													
				PUSH BUTTONS			12VDC									115/230VAC				
				Lock	Unlock	Horn Silence	Inside Red light	Inside Green light	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]	Motor Ouptut #1 [M1/LOCK]	Solenoid #1 (RSOL1 / RAISE)	Solenoid #2 (RSOL2 / DIVERT) [COMBINED POWER UNIT ONLY]	12VDC power supply ok
TERMINAL BLOCK NO.				Membrane			J7.16	J7.17	J12.1	J12.2	J12.3	J12.4	J11.2	J11.1	J7.19	J15.1	J1.4	J7.3	J7.2	J2.1-6
POWER BOARD LEDS				–	–	–	–	–	–	–	–	–	–	–	–	–	LD2	LD10	LD9	LD7
MICRO CONTROL BOARD LEDS				LD52			LD17	LD19	LD11	LD13	LD18	LD12	LD49	LD48	LD15	LD42	LD1	LD8	LD6	–
NO.	01.15.14	State/Sequence No.	Fill Mode Sequence	–	–	–	T	F	T	F	T	F	P	F	C	F	F	F	F	T
	01.15.15		Service Motor Up	M	–	–	T	F	T	F	T	F	P	F	C	T	T	T	T	T
	01.15.16		Service Motor Down	–	M	–	T	F	T	F	T	F	P	F	C	T	F	F	T	T

MAINTENANCE

Troubleshooting *Continued*

Diagnostics Mode

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

1. Press and hold DIAGNOSTIC button until horn chirps (≈ 5 seconds).
2. Press LOCK button.
3. Press UNLOCK button.
4. Horn chirps and outside light is flashing RED. Controls are in first step of diagnostic mode.

   NOTE: Outside red light will remain flashing at all times except Step 10 (Diagnostic Sequence).
5. Start at Step 1 (Diagnostic Sequence).

If no buttons are pressed within a 5 minute period, controls will automatically exit to power up. To exit diagnostic mode at any time, press DIAGNOSTIC button.

Diagnostic Sequence

Press lock to advance, unlock to reverse.

C = Horn Chirp
F = Off
P = Pulsing / Flashing
T = Steady On

			OUTPUTS*																				
			BASE MICRO CONTROLLER BOARD																POWER BOARD				
			12VDC														RELAY		115/230VAC				
			Inside red light [ISR]	Inside red light [ISR]	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 light [PVU LT]	Approach-Vu light [AVU LT]	Outside red light [OSR]	Outside green light [OSG]	Dok-lok horn [HORN]	MWL actuator [MWLACTR]	Outside alarm [MWL ALM]	Unidox ITC [UD ITC OUT]	Green light interlock [GLT ITL]	Green light interlock [GLT ITL]	K2 - security system interface or combined power unit [if equipped]	Motor ouptut #1 [M1/LOCK]	Motor ouptut #2 [M2/UNLOCK]	12VDC power supply ok
TERMINAL BLOCK NO.			J7.16	J7.17	J12.1	J12.2	J12.3	J12.4	J12.6	J12.5	J11.2	J11.1	J7.19	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	-
STEP	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 light	F	F	F	F	F	F	T	F	P	F	F	F	F	F	F	F	F	F	F	T
	9	Check Approach-Vu light	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, 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 = end of sequence	F	F	F	F	F	F	F	F	P	F	C	F	F	F	F	F	F	F	F	T
	***IF OUTPUT DOESN'T MATCH:**																					
	2-3, 12	Check Control harness connection at chevron and micro controller boards	Power supply LED and power supply fuse on power circuit board																			
	3-11	Check Light bulb, wiring and terminal block connections																				
	13-15	Check Terminal block connections																				

MAINTENANCE

Hydraulic

Hose Routing

NOTICE

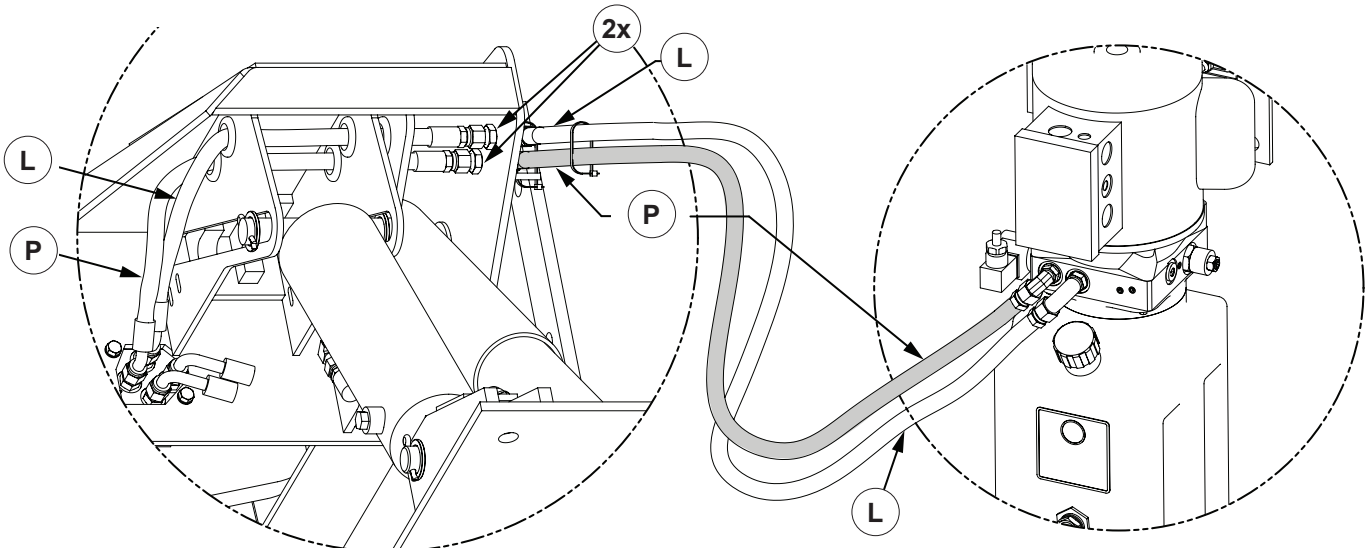
DO NOT over-tighten hose fittings.

4 Lb-ft Max torque on valve stem nut, over tightening may cause valve/coil failure.

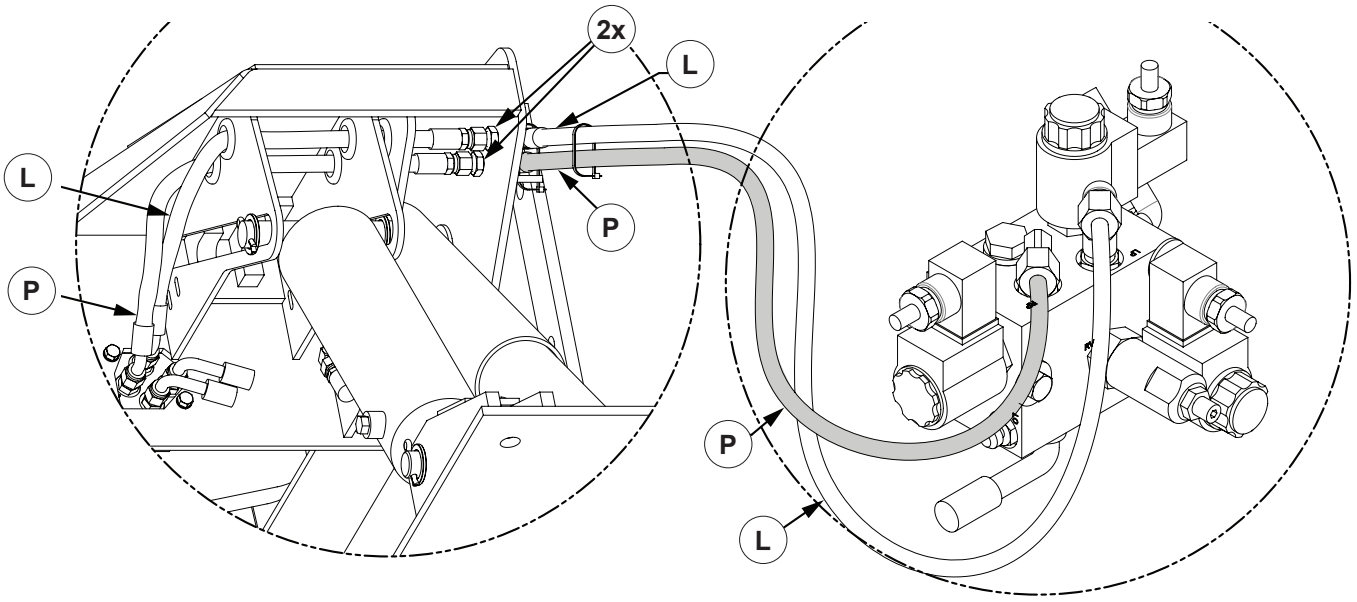
Stand Alone hoses are not trimmable

Remote power hoses are trimmable

Stand Alone Power Unit



Combination Power Unit



(2x) = 2x Bulkhead Fittings (P) = P Port Hose (L) = L Port Hose

Figure 9

MAINTENANCE

Hydraulic *Continued*

Valve Block Assemblies

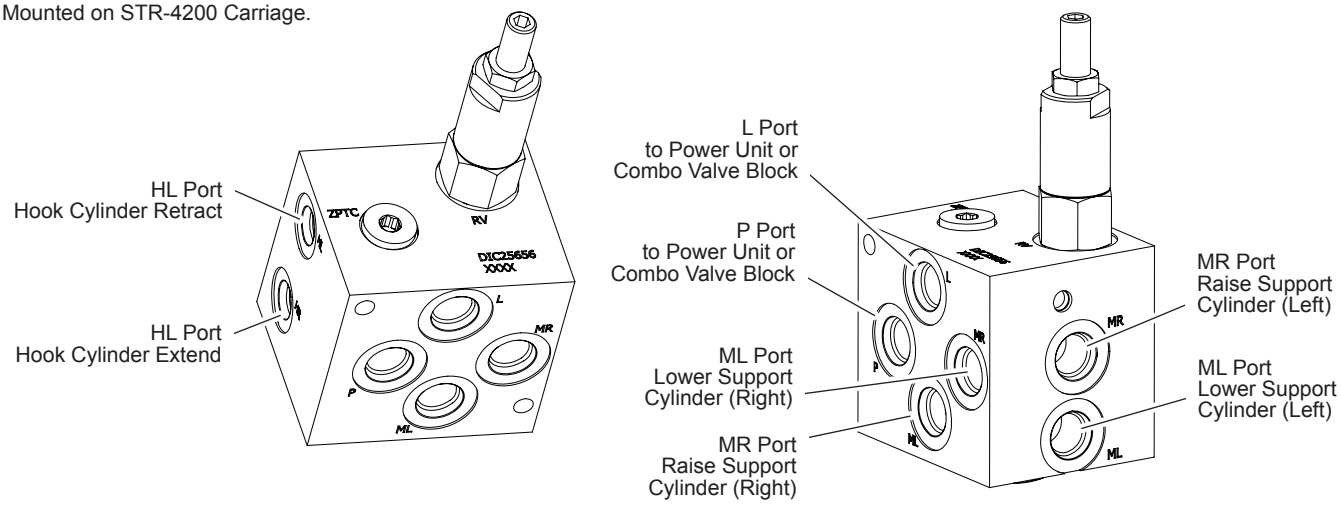
NOTICE

DO NOT over-tighten hose fittings, may cause valve/ coil failure.

4 Lb-ft Max torque on valve stem nut

Auxiliary Manifold

Mounted on STR-4200 Carriage.



Combination Power Unit

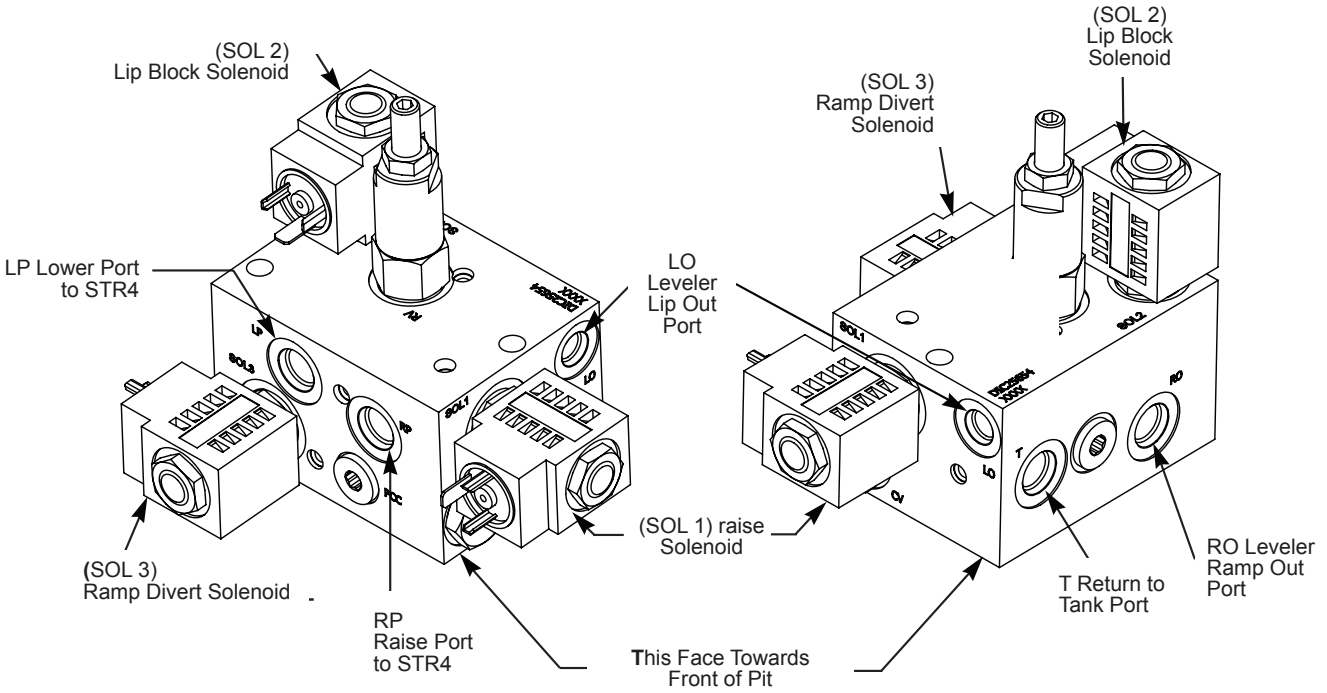
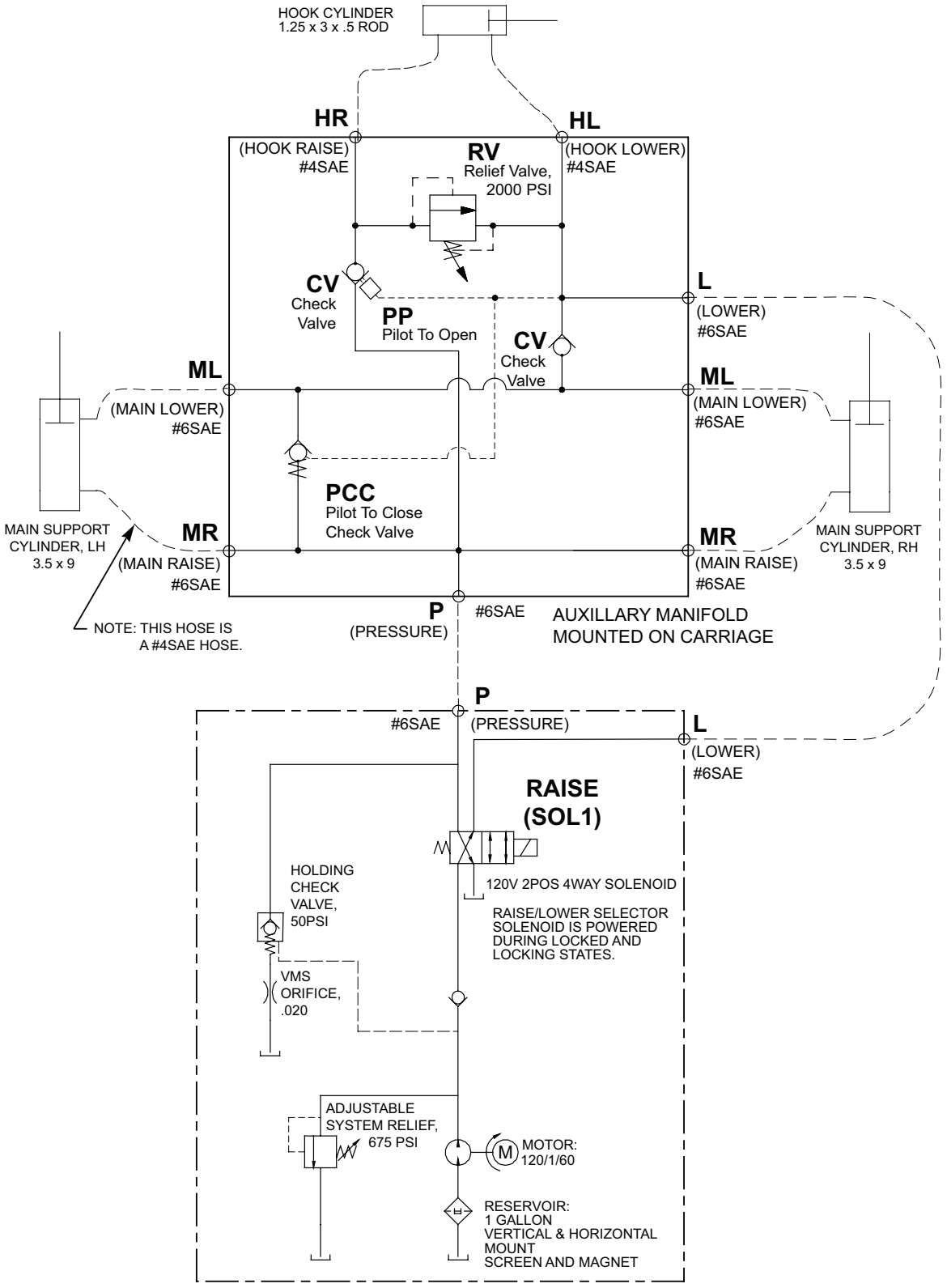


Figure 10

MAINTENANCE

Hydraulic *Continued*

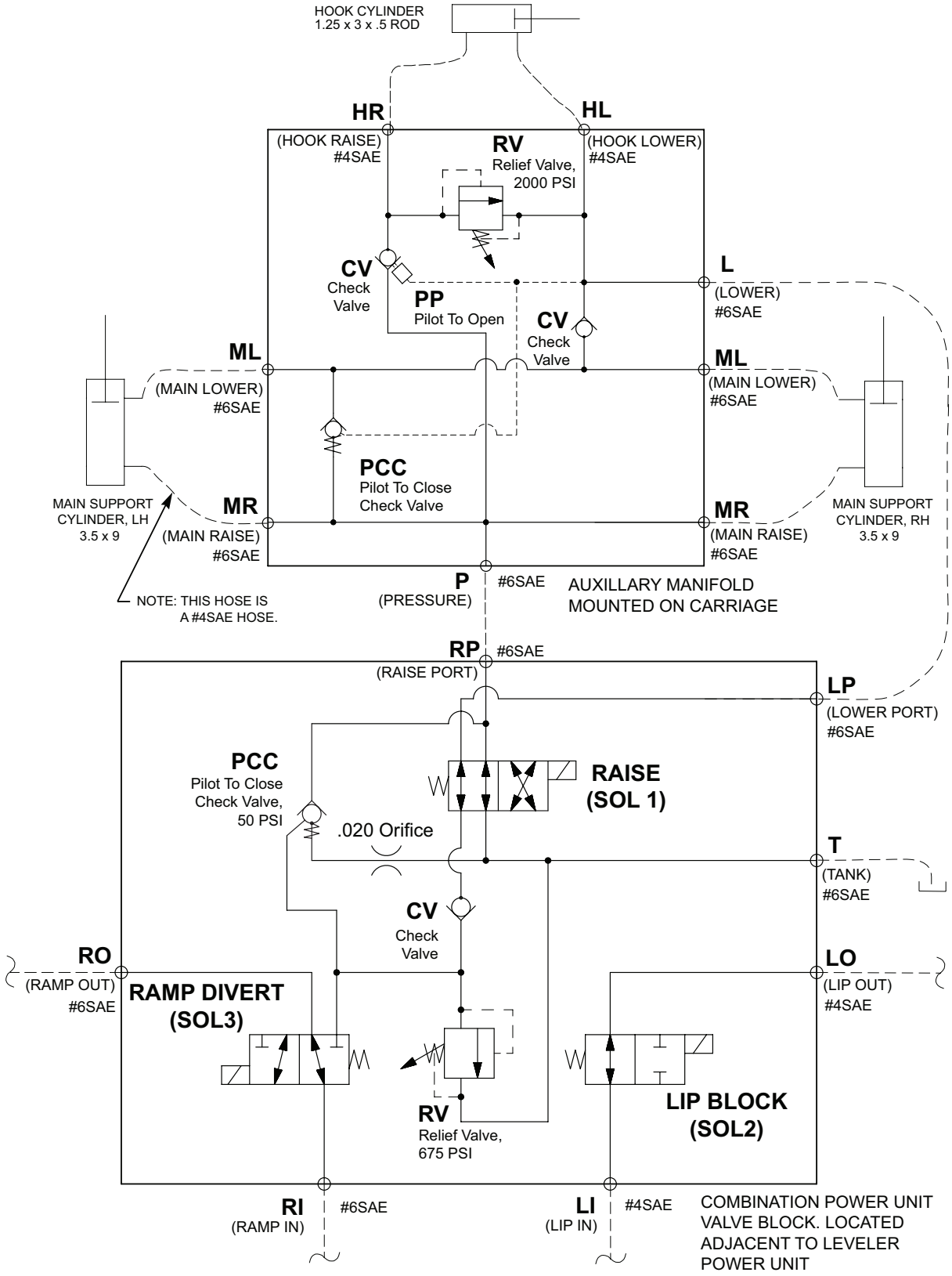
Schematic – Stand Alone Power Unit



MAINTENANCE

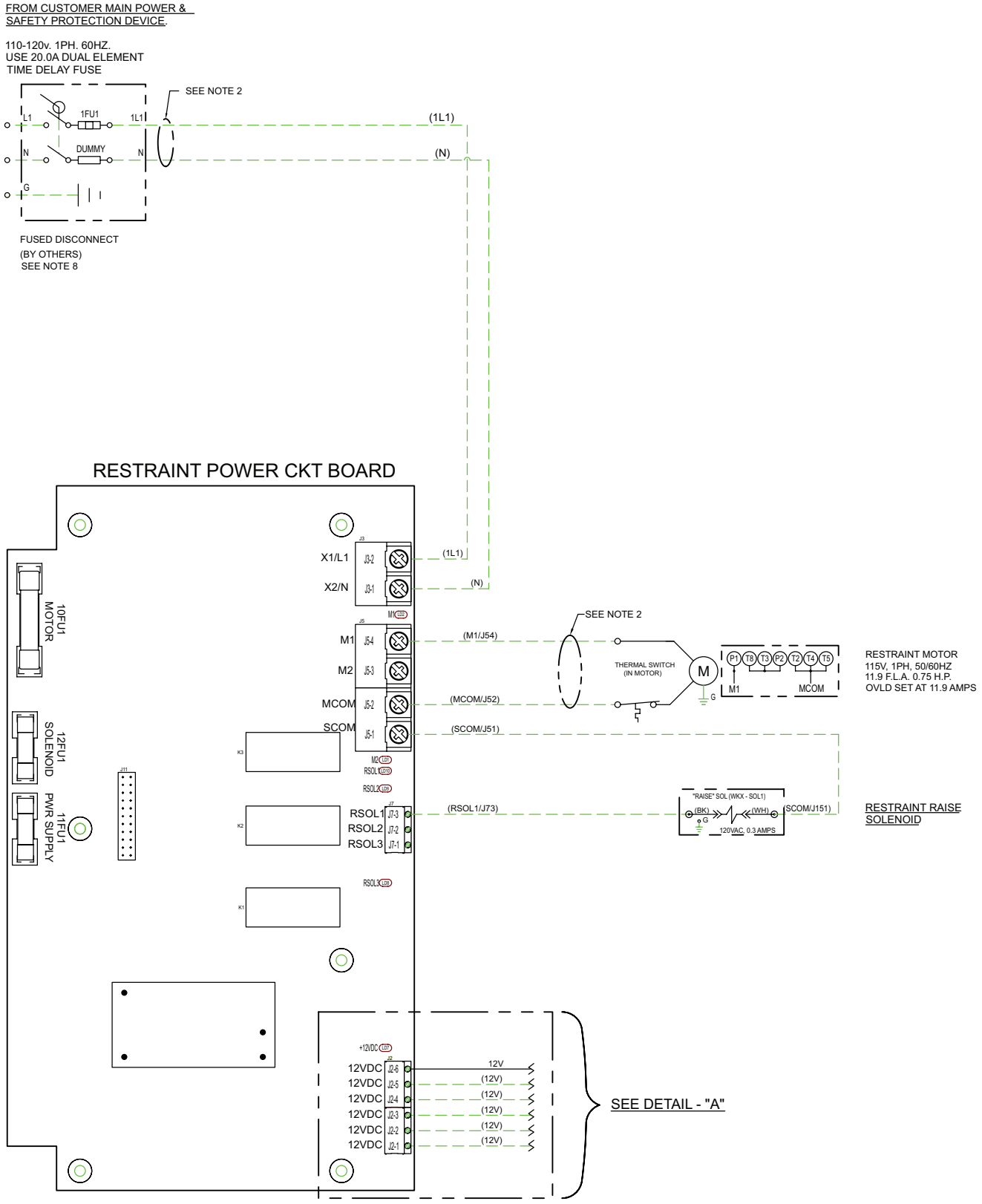
Hydraulic *Continued*

Schematic – Combo Power Unit



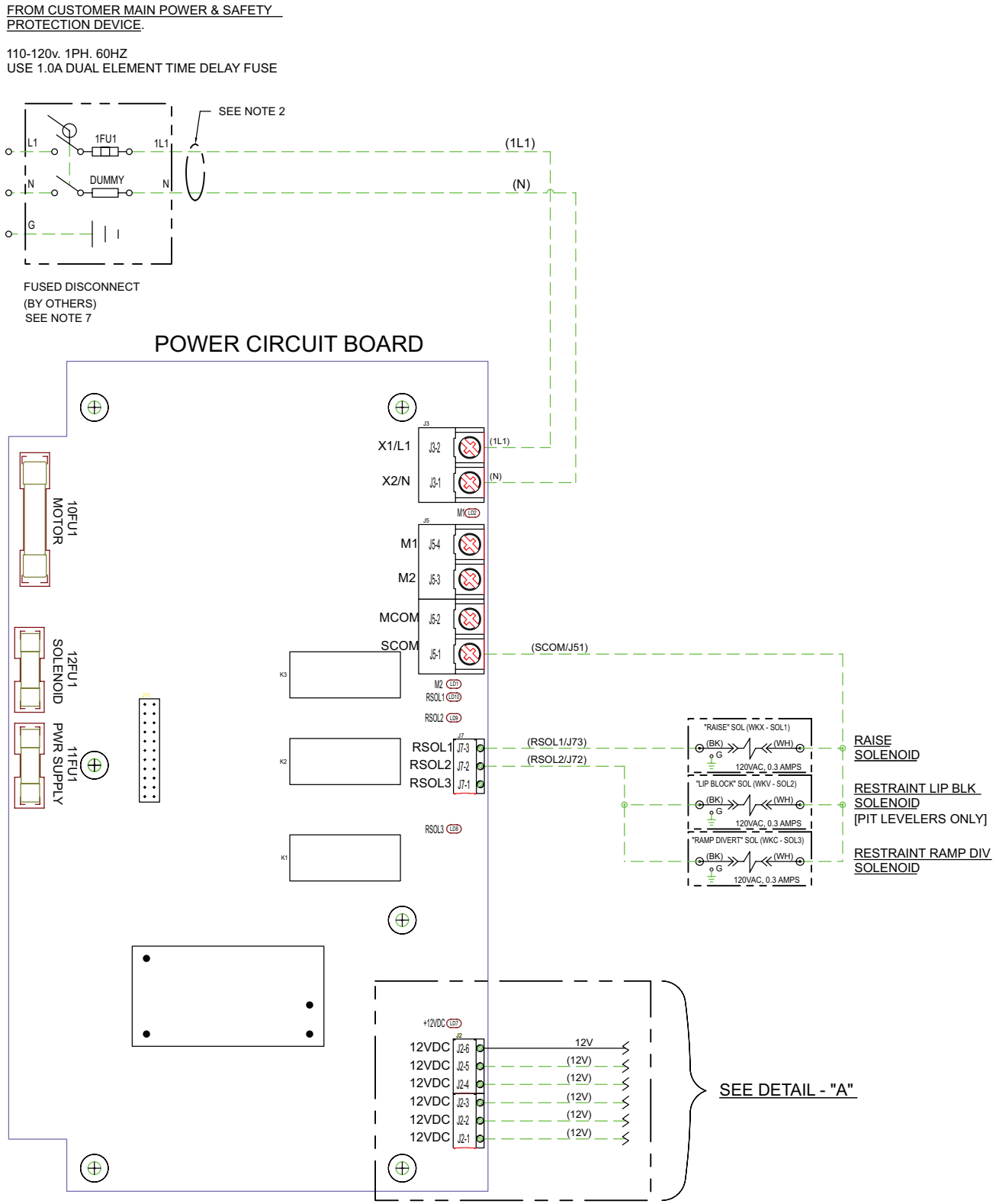
ELECTRICAL

Power Board Stand Alone



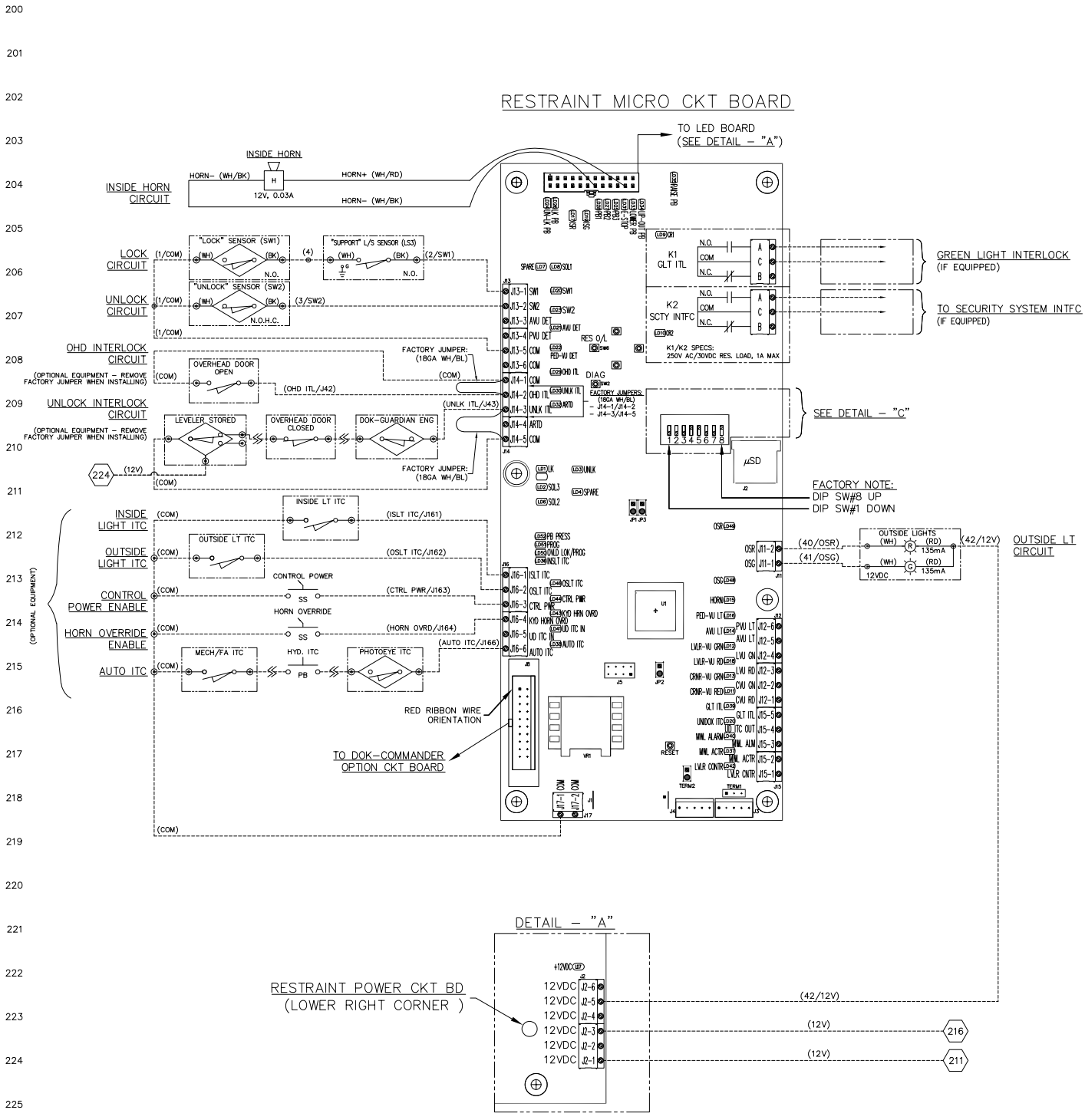
ELECTRICAL

Combo Power Unit – Power Board



ELECTRICAL

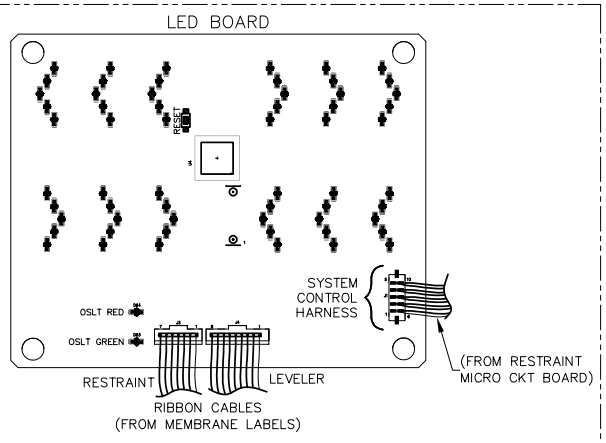
Restraint Micro Board



ELECTRICAL

Restraint Micro Board *Continued*

DETAIL – "B" – BACK OF COVER

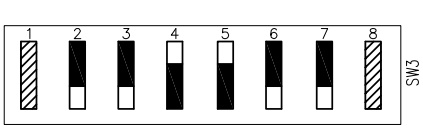


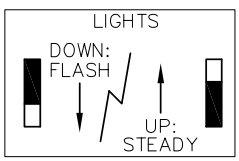
System Control Harness - MEMBRANE

uControl Board		LED Board		WIRE COLOR
J7	Description	J1	Description	
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 SW	FACTORY DEFAULT SETTING	OPTION FUNCTION
1	XXXX	LEVELER STRD FUNC: SEE NOTE PG 1 (DOWN-DEFAULT, UP-CLOSE OHD ITL)
2	DOWN	INSIDE RED LIGHT
3	DOWN	INSIDE GREEN LIGHT
4	UP	CORNER AND LEVELER-VU - RED
5	UP	CORNER AND LEVELER-VU - GREEN
6	DOWN	OUTSIDE LIGHTS - RED/GREEN
7	DOWN	PEDESTRIAN-VU
8	XXXX	CODED HORN SILENCE - SEE NOTE PG 1 (IF EQUIPPED)





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

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

ELECTRICAL

Wiring: Pedestrian-Vu

Leveler Stored to Unlock Restraint

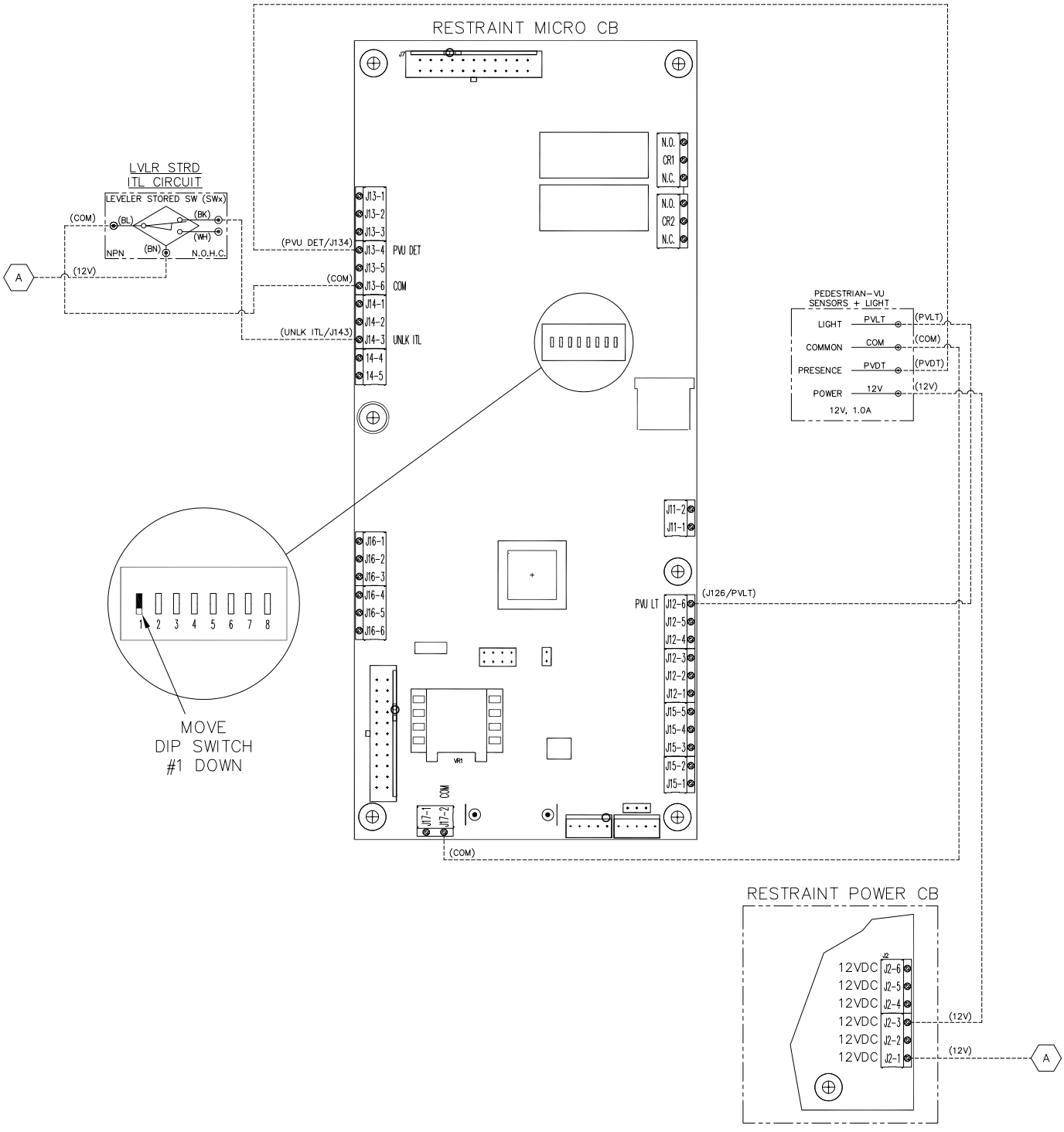


Figure 11

ELECTRICAL

Wiring: Pedestrian-Vu *Continued*

Leveler Stored to Close Overhead Door

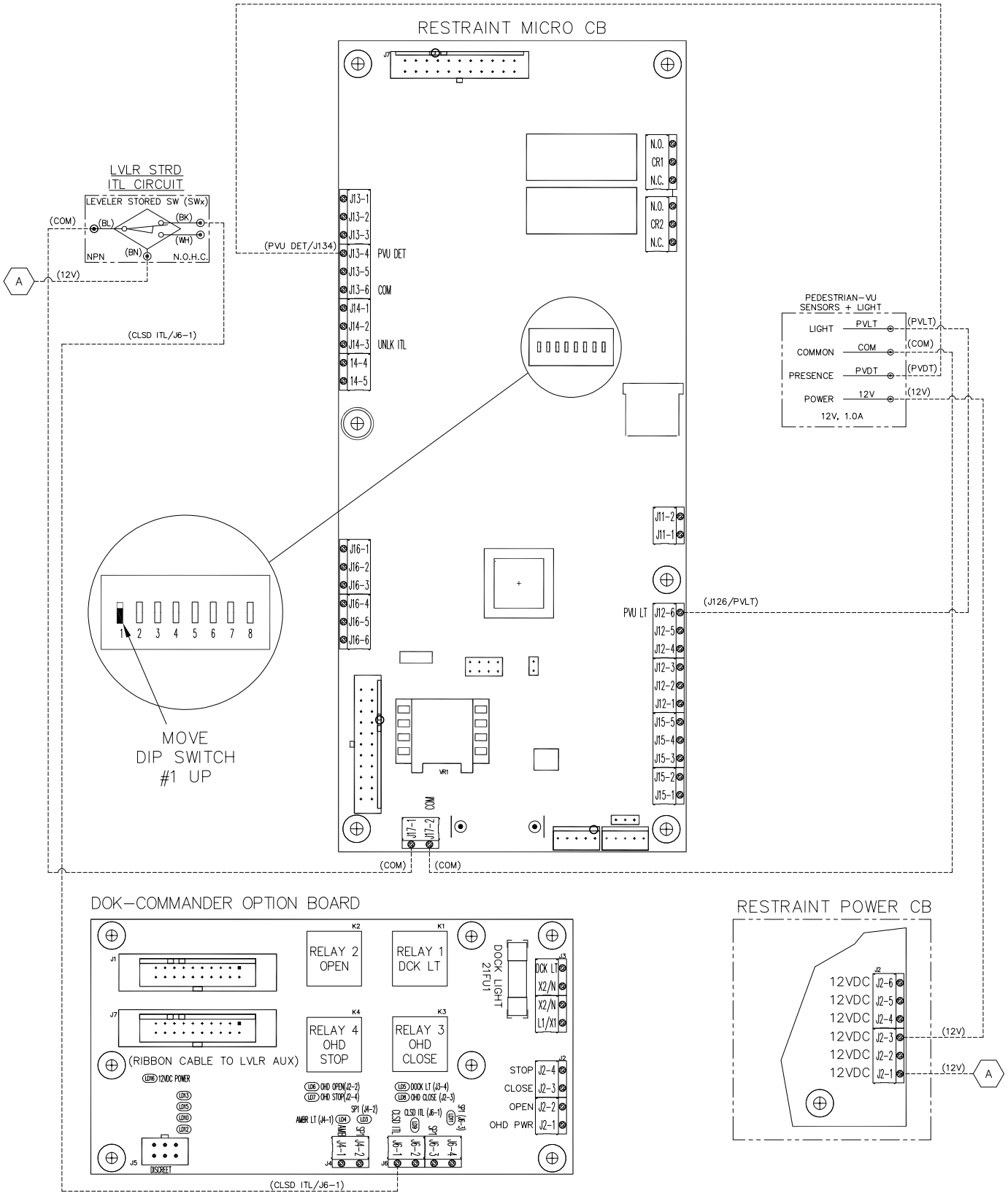
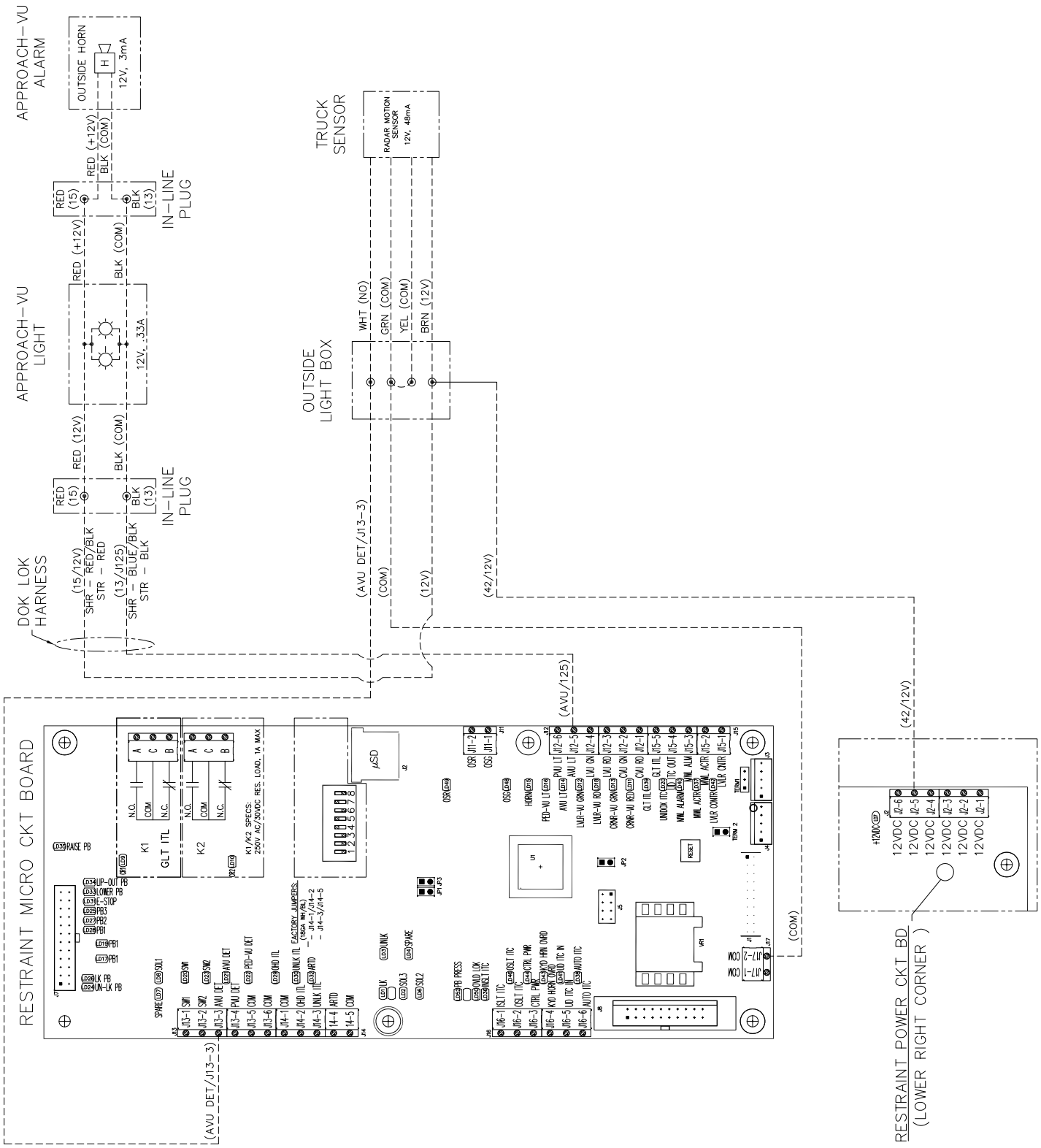


Figure 12

ELECTRICAL

Wiring: Approach-Vu™



ELECTRICAL

Wiring: Outside Light Box

NOTE: Must use LED outside bulbs.

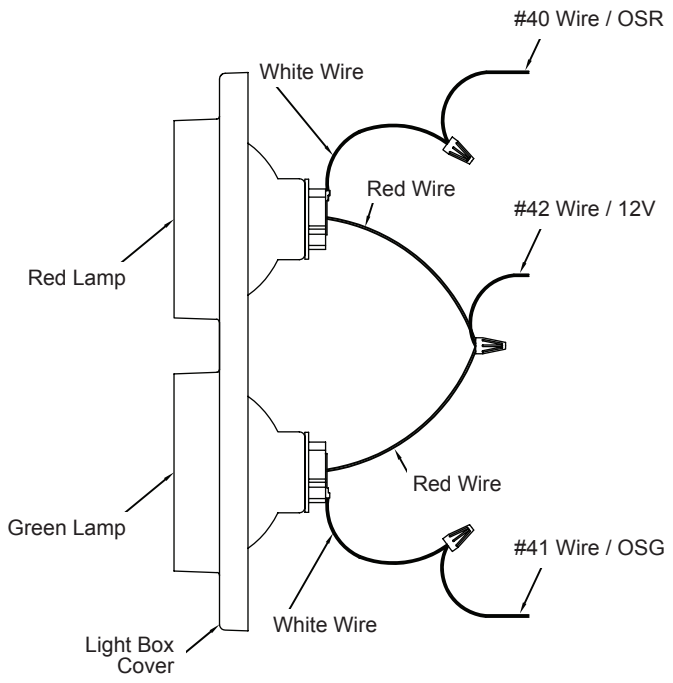
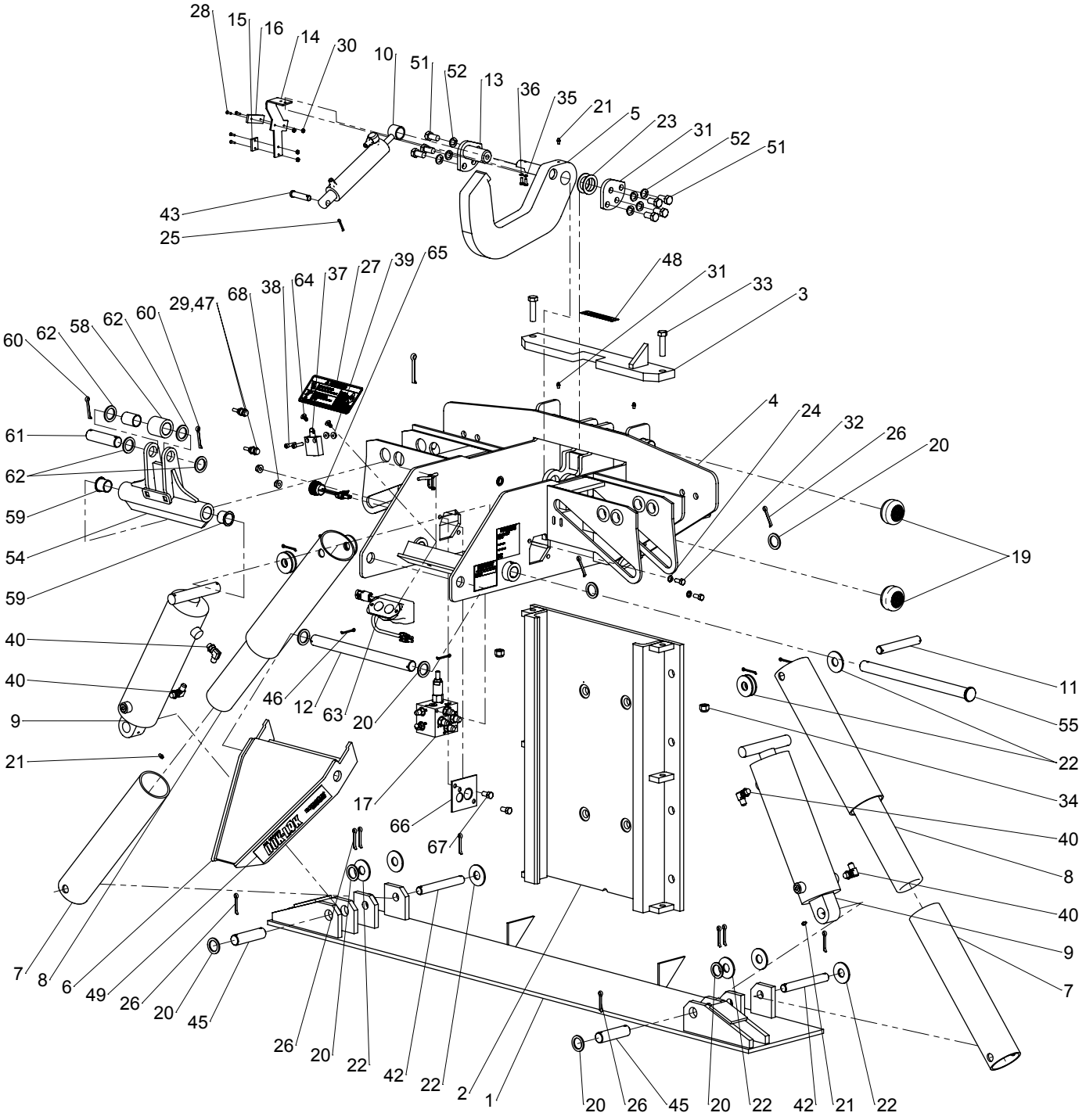


Figure 13

PARTS

Carriage and Track



NOTE: Deck of carriage weldment removed for clarity.

PARTS

Carriage and Track *Continued*

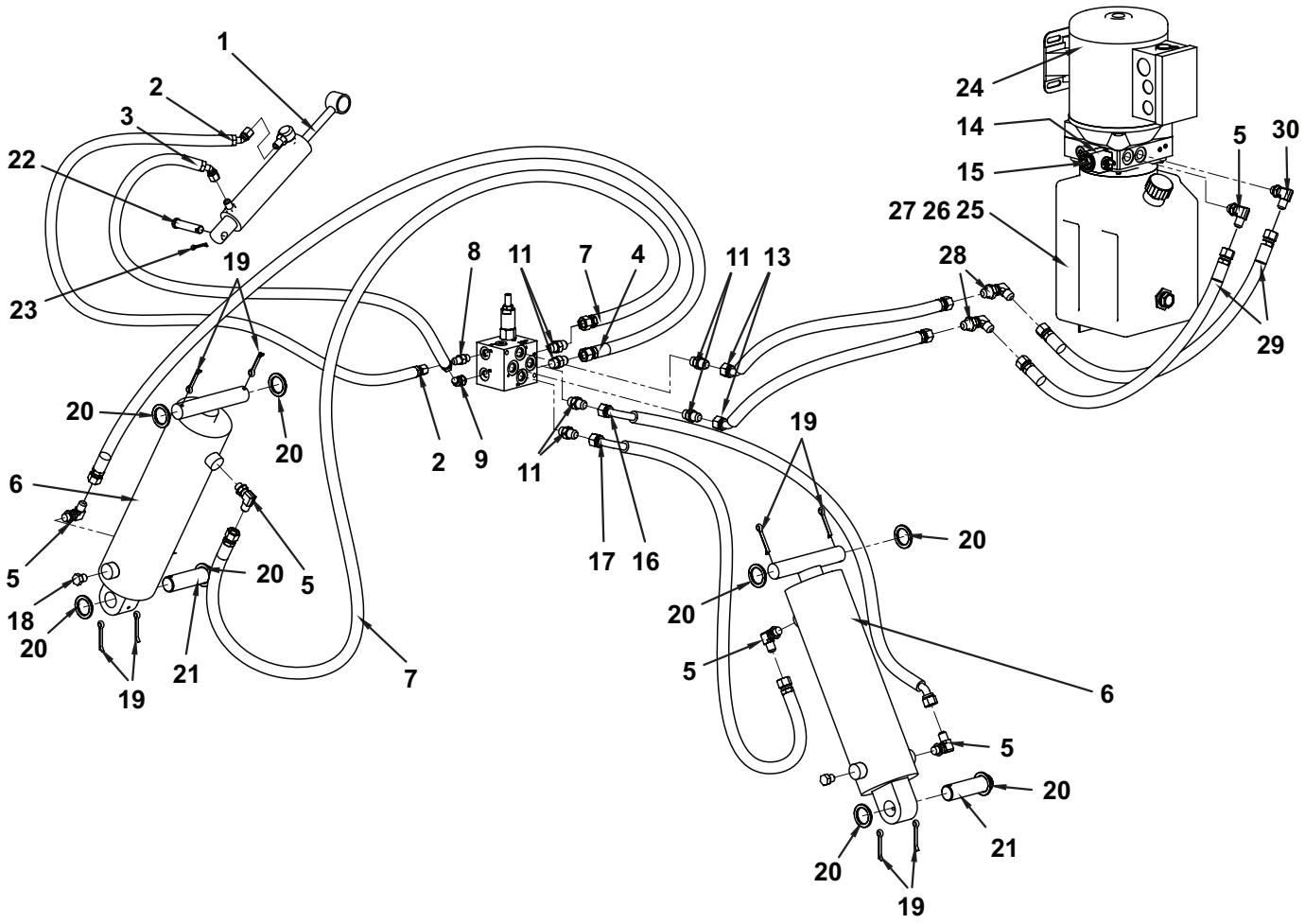
#	QTY	DESCRIPTION	PART #
1	1	Base Plate	141510
2	1	Track Weldment	141507
3	1	Track Cover Weldment	141508
4	1	Carriage	150788
5	1	Hook Weldment	143078
6	1	Nose Weldment	117274
7	2	Spring Tubes (Set, 1 Per Side)	137833
8	2	Compression Spring - W/ Mounting Height >= 25"	117282
	2	Compression Spring - W/ Mounting Height >= 23" AND <25"	120543
	2	Compression Spring - W/ Mounting Height >= 21" AND < 23"	120544
9	2	Support Cylinder	117284
10	1	Hook Cylinder	128631
11	2	Clevis Pin - Upper Spring Tube	117287
12	1	Clevis Pin - Nose Weldment	117288
13	1	Clevis Pin - Hook Weldment	142282
14	1	Mag. Res Switch Sensor Bracket	128264
15	1	Magnet High Energy Rubber - Lower	117298
16	1	Magnet High Energy Rubber - Upper	128263
17	1	Auxiliary Manifold - Complete	139415
18	1	Patent Decal	18391
19	4	Carriage Roller	119584
20	10	Washer 1.5OD 1.063ID	120560
21	7	Grease Fitting - Drive Type	51169
22	14	Washer .75 Flat	51718
23	4	Washer 1.25ID 1.88OD	122765
24	2	Washer .31 Lock	51803
25	1	Cotter Pin 125 X 1L	51901
26	12	Cotter Pin .188 DIA. X 1.50L	51907
27	1	Warning Decal - Pinch Point & No Step	141990
28	4	Screw #6-32 X .500 Pan Head	109552
29	2	Magnetic Sensor	134087
30	4	Nut #6-32 Nylock	58814
31	1	Plate 4 Hole, Pin Retension	142285
32	2	Bolt Hex .31-18 X .75	51670
33	2	Bolt Hex .50-13 X 2.00	117076
34	2	Nut .50-13 Nylock	51507
35	2	Bolt Hex #10-24 X .50	118149
36	2	Washer #10 Lock	51770
37	1	Mechanical Limit Switch	117531
38	2	Screw .25-20 X 1L Soc Hd.	58151
39	2	NUT .25-20 HEX FLG ZP	51552
40	4	Fitting Elbow 90º #6 SAE(M) #6 JIC(M)	55267
41	1	Serial & Model Decal STR4	117780
42	2	Pin Clevis .75 X 5.75L	119887
43	1	Pin Clevis .50 X 2.125L	129913

#	QTY	DESCRIPTION	PART #
44	2	Plug Male 6MORB	118308
45	2	Pin Clevis 10.00 X 3.75L	119587
46	6	Pin Cotter .12DIA X 1.5L	51903
47	2	Washer .50 Internal Tooth Lock	51808
48	1	Decal Warning Pinch Point	109703
49	2	Decal Logo Dok-Lok	141902
50	1	Decal Made In the USA	120750
51	7	Bolt .50-13 X 1.00 Hex Hd	125347
52	7	Washer .50 Lock	51831
53	6	Grommet Nitrile 1.38OD 1ID .75THK GRV(.38)	142592
54	1	Hook Support Assembly	143065
55	1	Pin Clevis 1 X 14.344L Headed	143052
56	1	Pin Cotter .25 X 2L	51911
57	1	Hook Support Weldment	143068
58	1	Hook Support Roller	143067
59	2	Bushing Flanged 1.125OD 1ID 1L Poly	143066
60	2	Pin Cotter .188 X 1.75L	51908
61	1	Pin Clevis 1 X 3.81L Stainless Steel	143053
62	4	Bushing 1.50OD 1.06ID .13THK	51730
Approach-Vu			
63	1	Light Assembly Yellow/White	150665
	1	Hole Plug, 2 Hole Black (W/O Approach-Vu)	150676
64	2	Screw 1/4-20 Flat Head Stainless	150717
*	1	Kit Replacement Approach-Vu Lens	152353
65	1	Alarm Assembly	150687
66	1	Alarm Mounting Plate	150794
67	2	Screw 3/8-16 x .75 Hex Head ZP	133975
68	2	Nut 3/8-16 Flanged ZP	51564
*	1	Harness	150795

*Not Shown

PARTS

Hydraulic



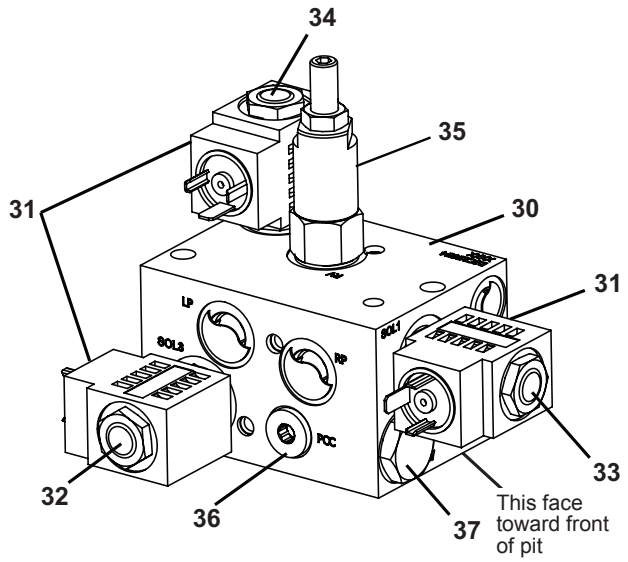
#	QTY	DESCRIPTION	PART #
1	1	Hook Cylinder	128631
2	1	Hose Assy - Hook Cylinder - HL (Hook Lower)	143120
3	1	Hose Assy - Hook Cylinde - HR (Hook Raise)	143120
4	1	Hose Assy - Left Side Support Cylinder - MR (Main Raise)	128109
5	5	Hydraulic Fitting - ELB 90 #6 SAE(M) #6 JIC(M)	55267
6	2	Support Cylinder	117284
7	1	Hose Assy - Left Side Support Cylinder - ML (Main Lower)	117718
8	1	Hydrualic Fitting - #4 MORB #4 MJ	55155
9	1	Hydrualic Fitting - ELB 45 4MJ 4MSAE	100363
10	1	System Relief Valve	139412
11	6	Hydrualic Fitting - #6 MORB #6 MJ	55386
12	1	Auxillary Manifold	139415
13	2	Hose Assy - Aux Manifold To BHD Fitting	142570
14	1	Solenoid Coil	130499
15	1	Solenoid Valve	130498

#	QTY	DESCRIPTION	PART #
16	1	Hose Assy - Right Side Support Cylinder - MR (Main Raise)	142757
17	1	Hose Assy - Right Left Side Support Cylinder - ML (Main Lower)	117715
18	2	Hydraulic Plug 6MORB	118308
19	8	Cotter Pin .188 DIA. X 1.50L ZP	51907
20	8	Machine Bushing 1.50 OD X 1.00 ID X .134 THK ZP	51730
21	2	Clevis Pin - Support Cylinder - Lower Pin	119587
22	1	Clevis Pin - Hook Cylinder - Lower Pin	129913
23	1	Cotter Pin .125 X 1L ZP	51901
24	1	Power Unit SPX(AB7437) 115/230/1/60 3/4HP	130493
25	1	Hydraulic Tank	130496
26	1	Seal O-Ring - Tank .19THK 4.75OD	103713
27	1	Cap Tank Breather PU(SPX) STR40/41	130494
28	2	Bulkhead Fitting 90DEG #4MJ-#4MJ Steel	119060
29	2	Hose Assy .38ID 160L 6-6FJS	142597
30	1	Hydraulic Fitting - ELB 90 #6 SAE(M) #6 JIC(M)	16917

PARTS

Hydraulic *Continued*

Combination Power Unit Valve Block

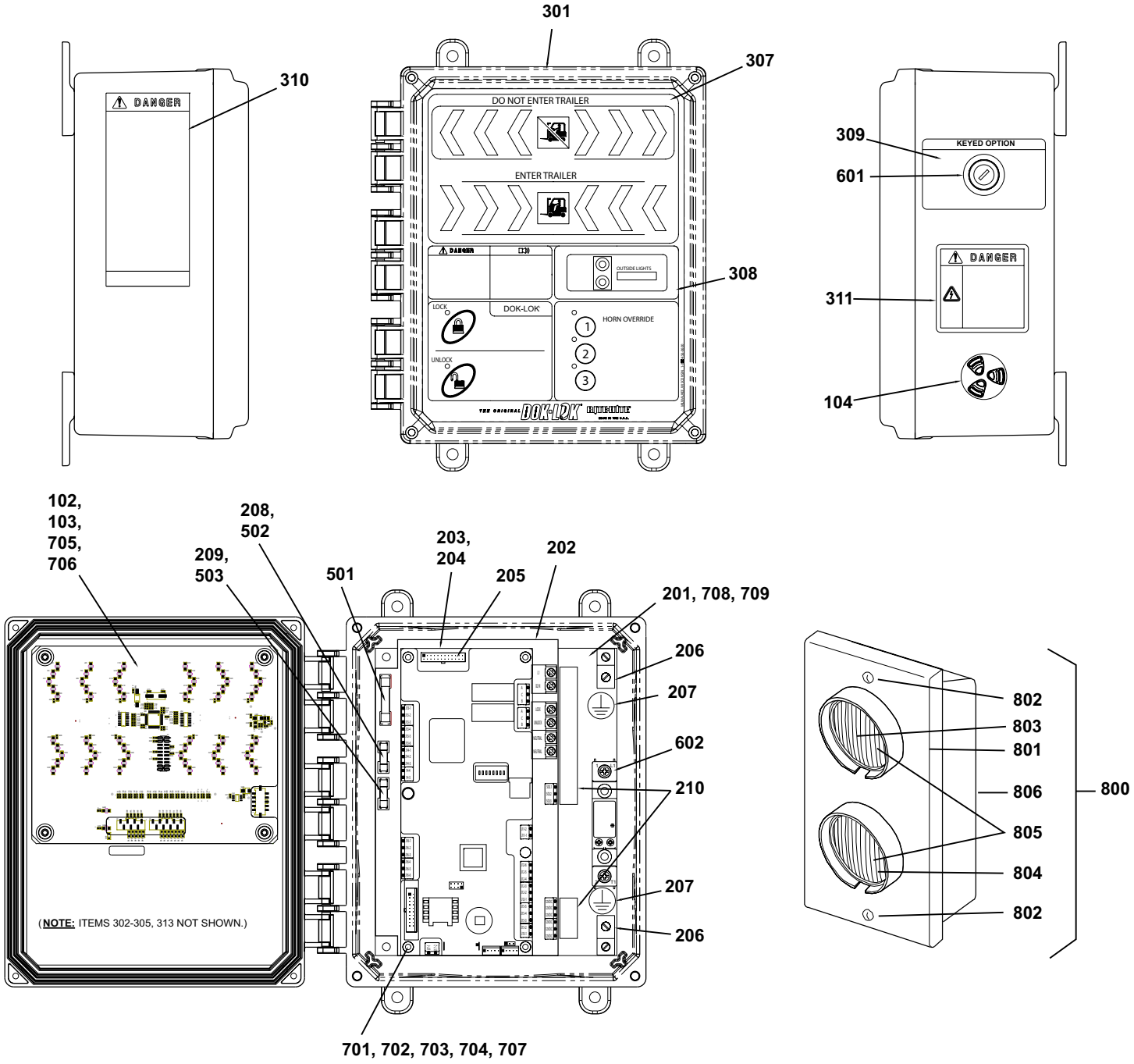


#	QTY	DESCRIPTION	PART #
31*	1	Hirschmann Plug Rect. & Harn. Assy. - Stand Alone Power Unit	117888
32	1	Combination Valve Block Assembly Complete	139410
33	3	Solenoid Coil	142975
34	1	Hydraulic Valve - WKC - SOL3	139355
35	1	Hydraulic Valve - WKX - SOL1	139406
36	1	Hydraulic Valve - WKV - SOL2	139356
37	1	Hydraulic Relief Valve	139397
38	1	Hydraulic Check Valve	139405
39	1	Hydraulic Check Valve	139407
40*	3	Hirschmann Plug Rect. & Harn. Assy.	117575

*Not Shown

PARTS

Electrical



PARTS

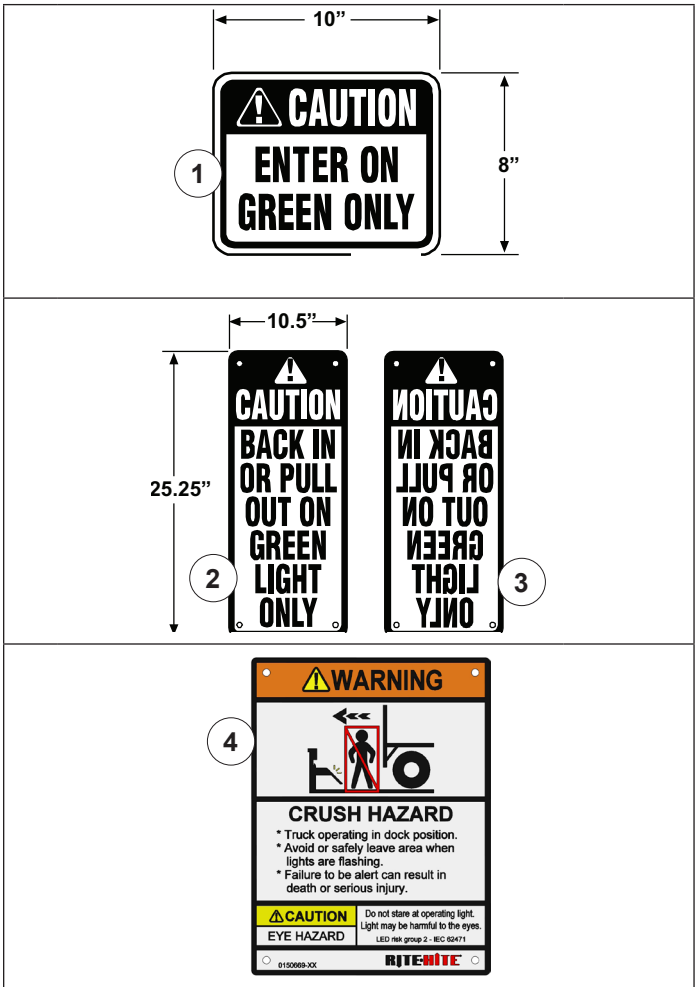
Electrical *Continued*

#	QTY	DESCRIPTION	PART #
1	1	Control box assembly, Complete	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)	142126-02
203	1	Standard Micro Control Board, Including Advanced Controls	141578-861D105
	1	Micro Control Board with Program Options	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	Enclosure with decals other than above	865.xxx**
302	1	Electrical schematic decal	870.xxx**
303	1	Fuse replacement decal	144849
304	1	Full load amperage and voltage/phase decal	872.xxx**
305	1	Program configuration decal	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
310	1	Danger/warning decal	144774
311	1	Lockout/tagout/multiple disconnect warning decal	114331
313	1	Circuit board UL rating decal	144859
501	1	15A fuse, 0.25" x 1.25" Motor Fuse (115V control box)	57864
502	1	1A fuse, 5mm x 20mm Solenoid Fuse (115V control box)	142092
503	1	1.5A fuse, 5mm x 20 mm Power Board Fuse (115V control box)	150984
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	51629
709	4	Lock Washer, #10	51762
800	1	LED Outside Light Assembly, Complete	115798
801	1	LED Outside 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

*Not Shown
**Consult Rite-Hite for part number.

PARTS

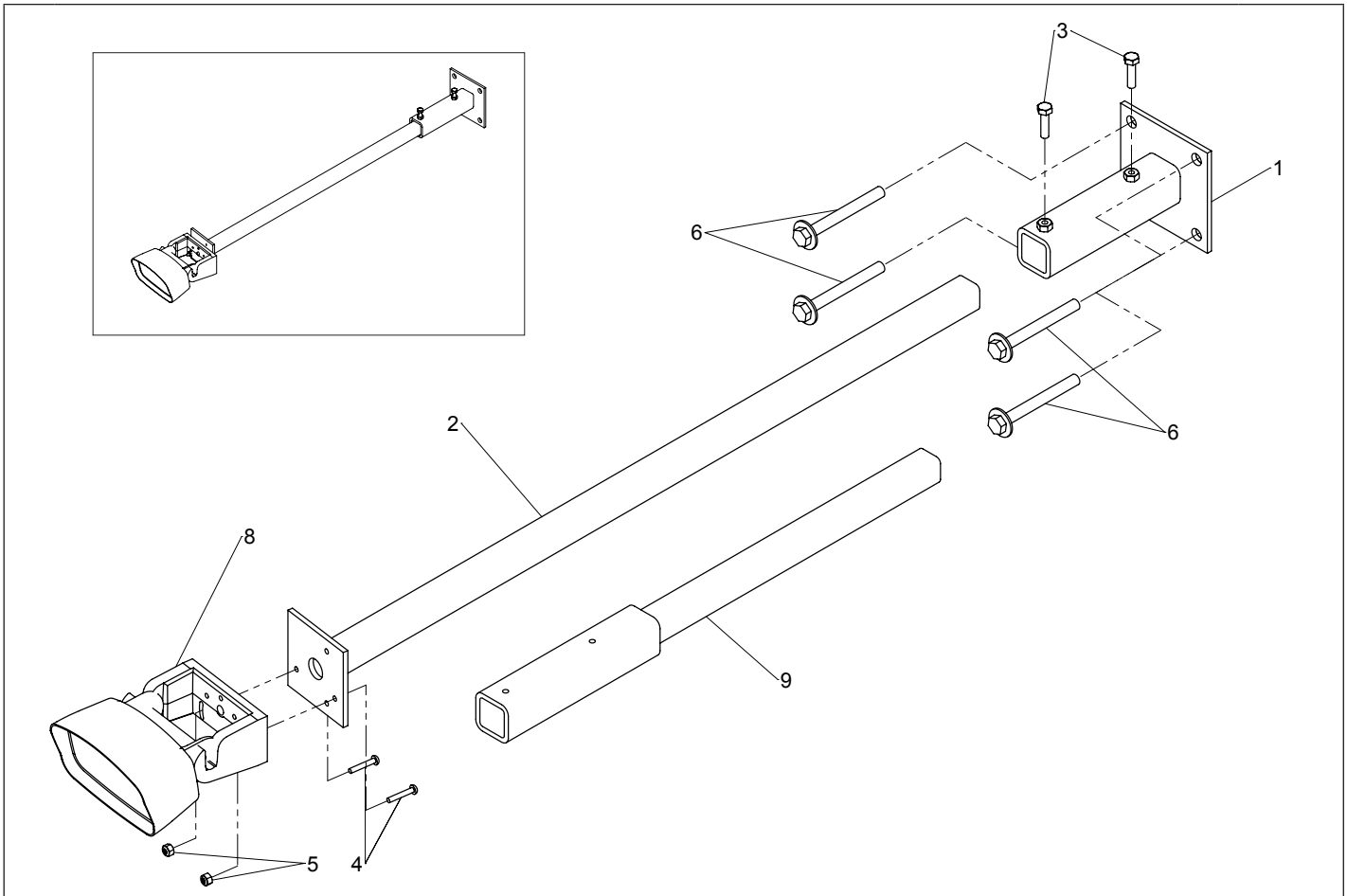
Signs



#	QTY	DESCRIPTION	PART #
1	1	Interior Warning Sign	56095
2	1	Narrow Sign (normal letters)	56112
3	1	Narrow Sign (mirror letters)	56113
4	1	Approach-Vu Sign	150669

PARTS

Approach-Vu™ Truck Sensor



#	QTY	DESCRIPTION	PART #
1	1	Mounting Weldment - Base	150695
2	1	Mounting Weldment - Extension	150691
3	2	Bolt .25-20 x 1"	136880
4	2	Screw #8-32X1.00 Phillips Head, ZP	51689
5	2	Nut #8-32 Nylock, ZP	141611
6	4	Anchor Concrete .375 dia X 3.5L Hex Head, ZP	105046
7*	1	Installation Instructions, Truck Sensor	150697
8	1	Truck Sensor	150688
9	1	Extension Weldment (for shelters over 36" deep)	151306

*Not Shown

Rite-Hite Company, LLC and its affiliates (collectively "Rite-Hite") warrant that the Product sold to the Owner will be free of defects in design, materials and workmanship (ordinary wear and tear excepted) for the periods set forth below ("Limited Warranty").

Five (5) Years on all mechanical and electrical parts.
Five (5) Years labor, based on approved travel and labor repair times.

REMEDIES
Parts: RITE-HITE's obligations under this Limited Warranty are limited to repairing or replacing, at Rite-Hite's option, any part which is determined by Rite-Hite to be defective during the applicable warranty period. Such repair or replacement shall be Rite-Hite's sole obligation and the Owner's exclusive remedy under this Limited Warranty.
Labor: Rite-Hite will provide warranty service without charge for labor per the specified warranty period. Thereafter, a charge will apply to any repair or replacement under this Limited Warranty.

CLAIMS Claims under this Limited Warranty must be made (i) within 30 (thirty) days after discovery and (ii) prior to expiration of the applicable warranty period. Warranty period commences on the date of shipment. Claims shall be made in writing or by contacting the representative from whom the Product was purchased directly. Owner must allow Rite-Hite or its agent, a reasonable opportunity to inspect any Product claimed to be defective and shall, at Rite-Hite's option, either (x) grant Rite-Hite or its agent access to Owner's premises for the purpose of repairing or replacing the Product or (y) return of the Product to the Rite-Hite, F.O.B. Rite-Hite's factory.

NOT WARRANTED Rite-Hite does not warrant against and is not responsible for wear items such as fuses, batteries, bulbs, vision and seals. No implied warranty shall be deemed to cover damages that result directly or indirectly from: (i) the unauthorized modification or repair of the Product, (ii) damage due to misuse, neglect, accident, failure to provide necessary maintenance, or normal wear and tear of the Product, (iii) failure to follow Rite-Hite's instructions for installation, failure to operate the Product within the Product's rated capacities and/or specified design parameters, or failure to properly maintain the Product, (iv) use of the Product in a manner that is inconsistent with Rite-Hite's guidelines or local building codes, (v) movement, settling, distortion, or collapse of the ground, or of improvements to which the Products are affixed, (vi) fire, flood, earthquake, elements of nature or acts of God, riots, civil disorder, war, or any other cause beyond the reasonable control of Rite-Hite, (vii) improper handling, storage, abuse, or neglect of the Product by Owner or by any third party.

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170419

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