# LIFTGATES

## ILM *plus* – Series

## Troubleshooting: ILM Medium Duty Railgate Lift

Table of content: Page



Tools needed:

1.) Voltmeter
2.) Test light
3.) 8” jumper cable (16ga. or smaller)
4.) Philips Screw driver
5.) 13mm (1/2”) wrench

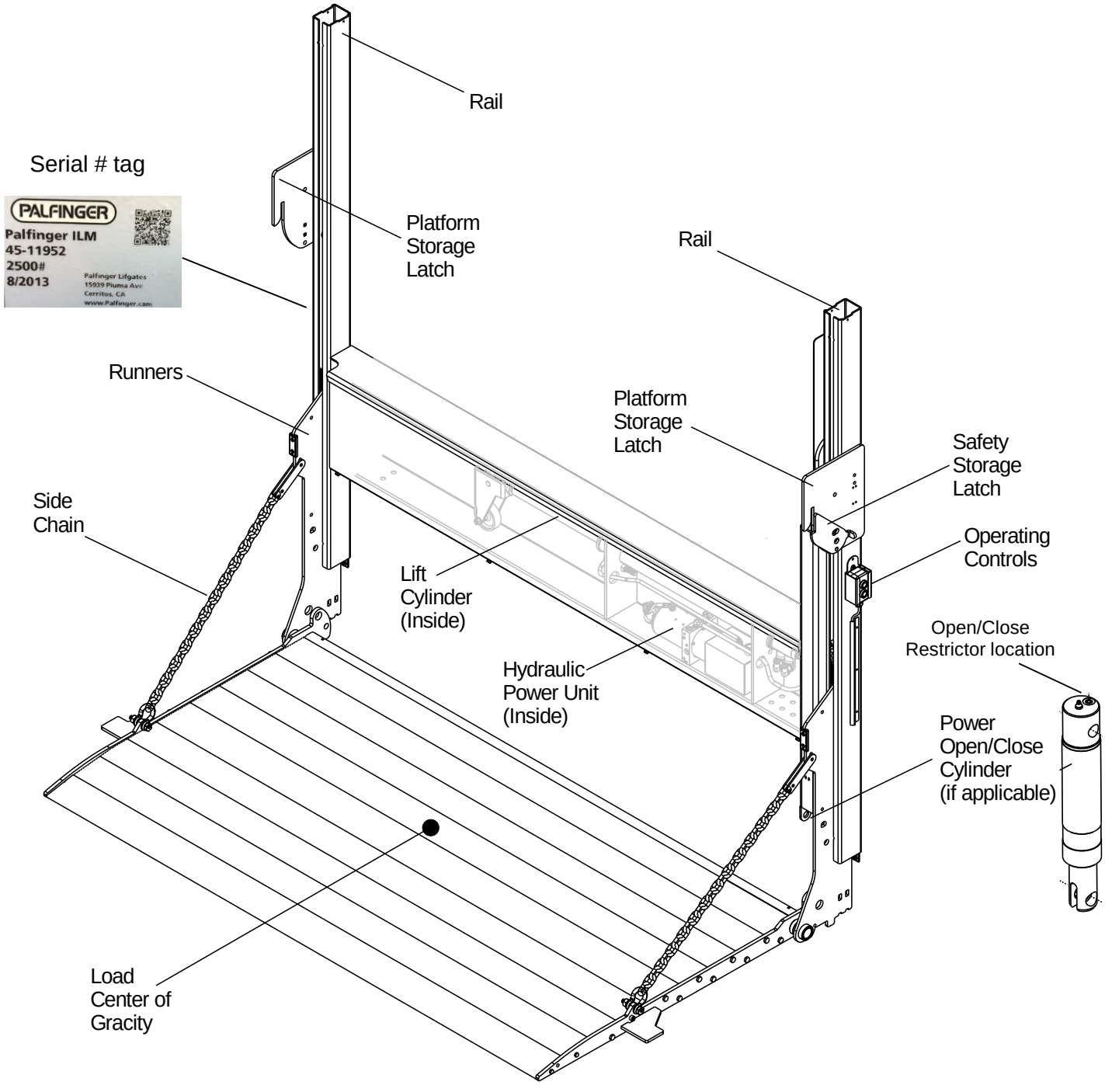
*****MAKE SURE YOUR BATTERIES ARE FULLY CHARGED AND IN GOOD CONDITION*****

**Always use CAUTION and allow SAFE distance from moving parts**

Practice SAFETY, using common sense and good judgment

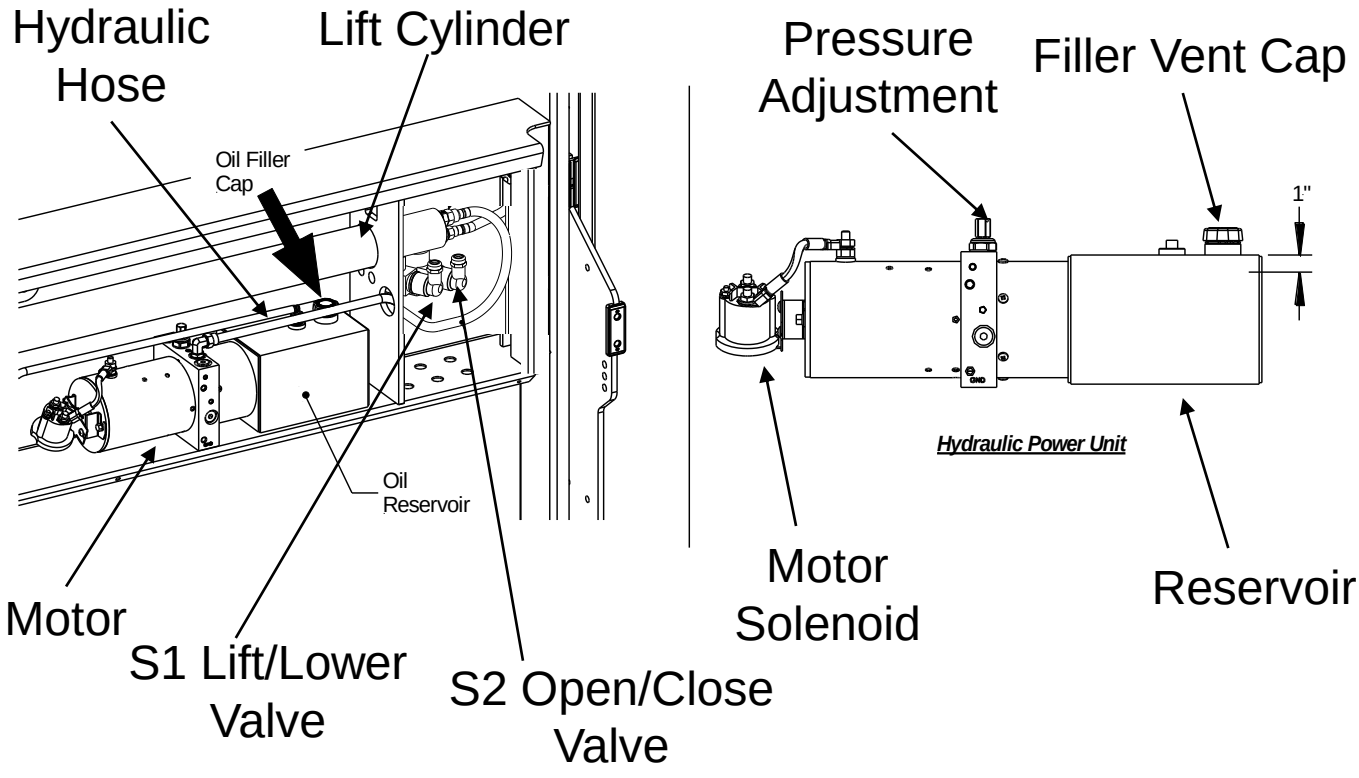
ILM *plus* Series

# Gate overview



# Pump and Motor Setup Overview

ILM *plus* Series




| Hydraulic Fluid Installed From Factory | |
|---|---|
| **Property** | **HYDREX MV ARCTIC 15** |
| *Start Up Temperature* | <50°C / -58°F |
| *Operating Temperature* | -45°C to +23°C / -49°F to 73°F |
| *Pour Point* | -57°C / -71°F |
| *Flash Point* | 128°C / 262°F |
| *Density 15°C (59°F). kg/L* | 0.834 |
| *Viscosity:* | |
| *cSt @ 40°C/SUV @ 100°F* | 13.0 / 69.7 |
| *cSt @ 100°C/SUV @ 210°F* | 4.95 / 42.5 |
| *cP @ -50°C (-58°F)* | 1,310 |

| Alternative Fluids | |
|---|---|
| **Temperature Range** | **Fluid Brand** |
| 30° TO 150°F | EXXON UNIVIS J26 |
| | MOBIL DTE 13M |
| | CHEVRON AW MV32 |
| | ROSEMEAD MV 150 (32) |
| | |
| -50° TO 150° | MOBILE DTE 11 |
| | SHELL AERO FLUID 4/41 |
| | SHELL TELLUS 15 |
| | |
| Extreme Cold Temperature | MIL H5606 (Military Spec.) |

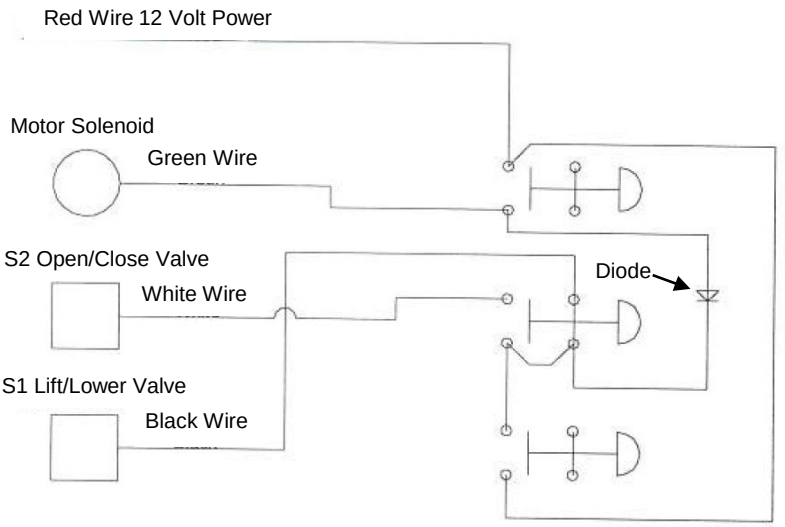
# Controller Identification & Operation Overview

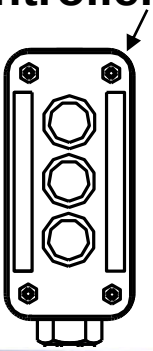
ILM *plus* Series

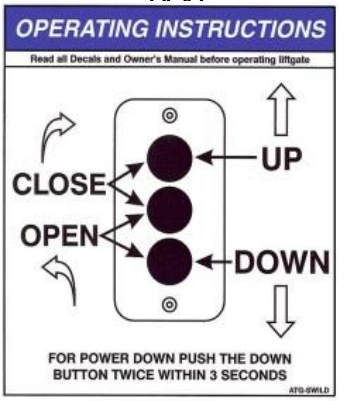
## Power Open and Close will have three button controller

Diode

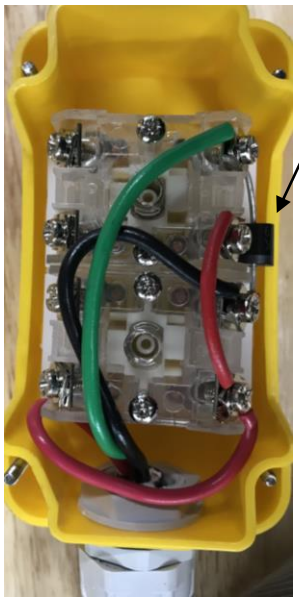
### Inside Remote Schematic



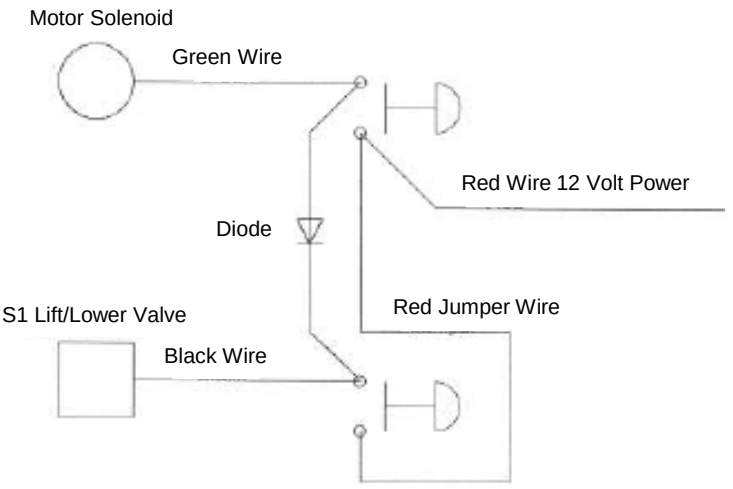


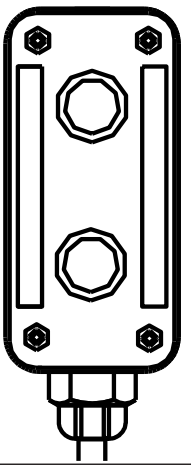

## Manual Open and Close will have two button controller

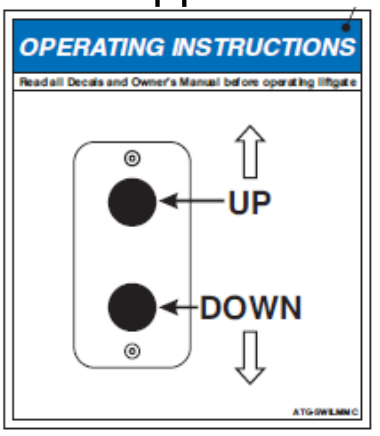


Diode

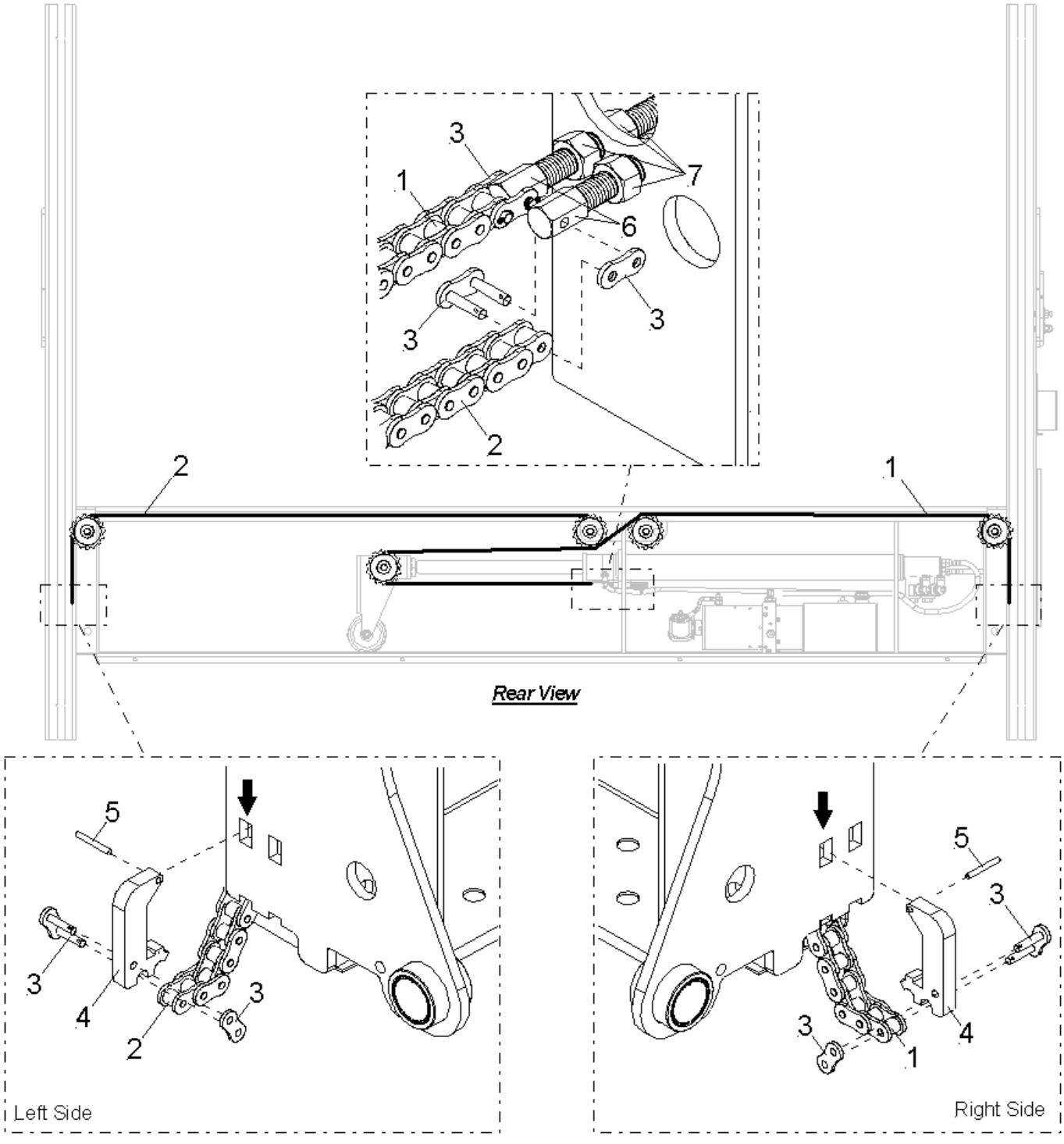
### Inside Remote Schematic



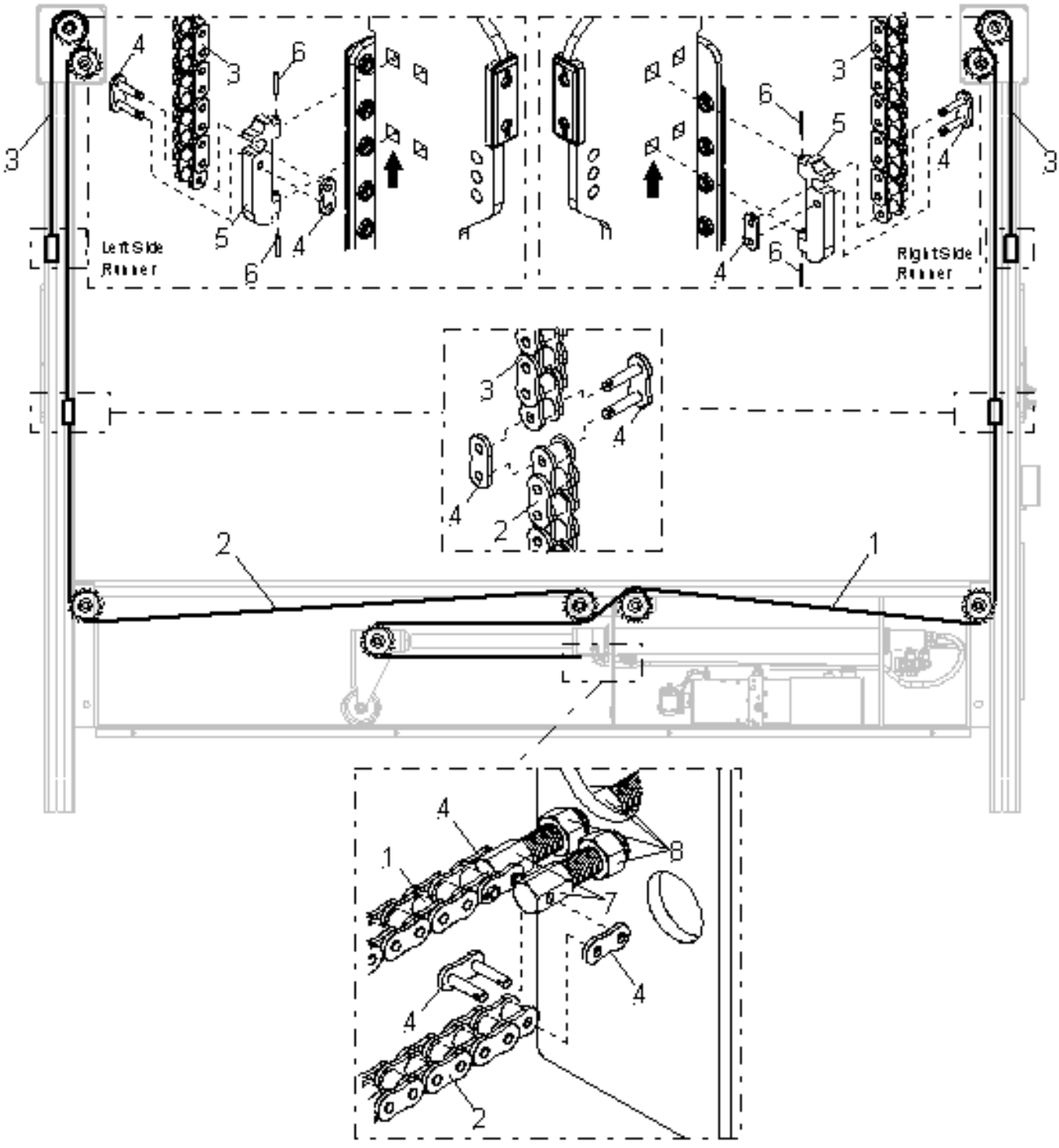


# Chain Routing – Standard ILM+

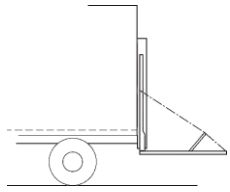


# Chain Routing – Above Floor ILM+

ILM *plus* Series



# 1) GATE DOES NOT OPEN UP



ILM *plus* Series

## a) Initial Checks

→ Check Cab Switch is "ON“ ( Optional )

→ Check that Circuit Breaker at battery box has not been tripped

→ Check that 15 amp fuse at Motor Solenoid is ok

→ Check for shorts, ground faults or open circuits, e.g., power lines connected to the ground or a broken cable or connection

→ Check batteries. Batteries should be fully charged and in good condition

→Check voltage - minimum 10 volts at motor when closing or up function is engaged for 10 sec with gate in stored position.

## b) Platform is not opening up

→ Check if both valves on cylinder are energized.

→ If not, check power supply to switches and signal line to valves while activating open function

→Valves are energized – check grounding of valves

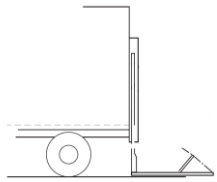
→Valves are energized, but Platform still does not open

→Check coil for damage and magnetic function

→Check Gas Shocks on side of platform for damage or seized

→Check open /close cylinder for damage or leaks

# 2) GATE IS NOT LOWERING DOWN



ILM *plus* Series

## a) Initial Checks

→ Check Cab Switch is "ON“ ( Optional )

→ Check that Circuit Breaker at battery box has not been tripped

→ Check that 15 amp fuse at Motor Solenoid is ok

→ Check for shorts, ground faults or open circuits, e.g., power lines connected to the ground or a broken cable or connection

→ Check batteries. Batteries should be fully charged and in good conditions

→Check voltage - minimum 10 volts at motor while activating the UP function with gate in upper position

## b) Platform is not lowering down

→ Raise gate up just under pump and motor mounting plate remove hydraulic line at pump and remove vent cap on reservoir and place line inside hole for vent and press down button on controller (first making sure all obstacle's are clear and operator is safely clear) If gate lowers with this test then problem is in pump assembly, remove and replace pump and motor assembly.( for this test see illustration on page 13 )

→Check if Lift/Lower valve on cylinder is energized.

→ If not, check power supply to up/down switch and signal line to Lift/Lower valve while activating lowering function (check for voltage while activating function)

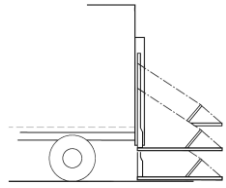
→Valve is energized – check grounding of valve and make sure, ( see pictures on page 14 ) valve is shifted over (hear click)

→ Valve is energized, but Platform still does not lower down

→Check if open/close valve is energized – it should NOT be energized.

→Check if flow control valve is contaminated and/or cylinder is damaged

# 3) GATE IS NOT RAISING UP



ILM *plus* Series

## a) Initial Checks

→ Check Cab Switch is "ON“( Optional )

→ Check that Circuit Breaker at battery box has not been tripped

→Check that 15 amp fuse at Motor Solenoid is ok

→ Check for shorts, ground faults or open circuits, e.g., power lines connected to the ground or a broken cable or connection

→ Check batteries. Batteries should be fully charged and in good condition

→Check voltage - minimum 10 volts at motor after 10 sec holding the switch for closing function. (Deadhead the gate in actual position)

## b) Motor does not run

→ Check power supply to up/down switch and for voltage at signal line to motor solenoid while activating up function

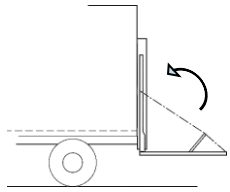
→ Check motor solenoid. If it is getting power (small connector at solenoid has voltage) but you do not hear a click, you should change the motor solenoid.

→ You hear it click - check if the motor gets power. If yes, check the motor of correct function.

## c) Motor runs but platform does not raise

→ Check lift cylinder for damage or chain for broken chain links. ( See drawings page 15 & 16 )

# 4) GATE IS NOT CLOSING



ILM *plus* Series

## a) Initial Checks

→ Check Cab Switch is "ON“( Optional )

→ Check that Circuit Breaker at battery box not been tripped

→Check that 15 amp fuse at Motor Solenoid is ok

→ Check for shorts, ground faults or open circuits, e.g., power lines connected to the ground or a broken cable or connection

→Check batteries. Batteries should be fully charged and in good condition

→ Check voltage - minimum 10 volts at motor at while holding the up function for 10 seconds (Deadhead)

## b) Motor is not running

→ Check power supply to open/close and up/down switch and for voltage at motor solenoid and open/close valve while activating up function

→ Check motor solenoid. If it is getting power but you do not hear click, you should change the motor solenoid.

→ You hear it click, check if the motor gets power. If yes, check the motor of correct function.

## d) Motor is running, but platform does not close

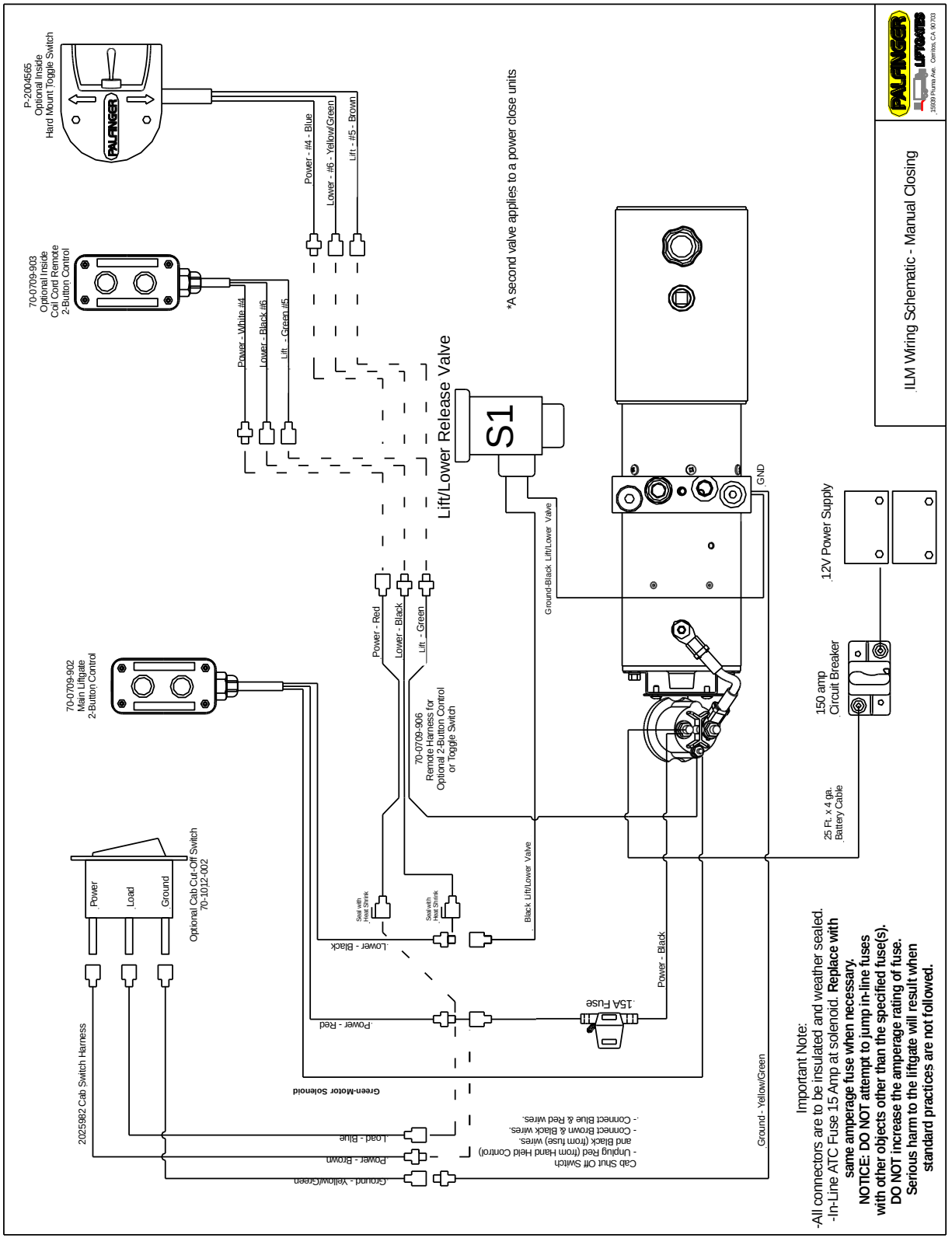
→ Check for power at open/close valve

→ Check cylinder for leaking, loose fittings or contaminated restrictor

→ Check the hydraulic oil level, low level oil in the reservoir – fill up and activate closing function

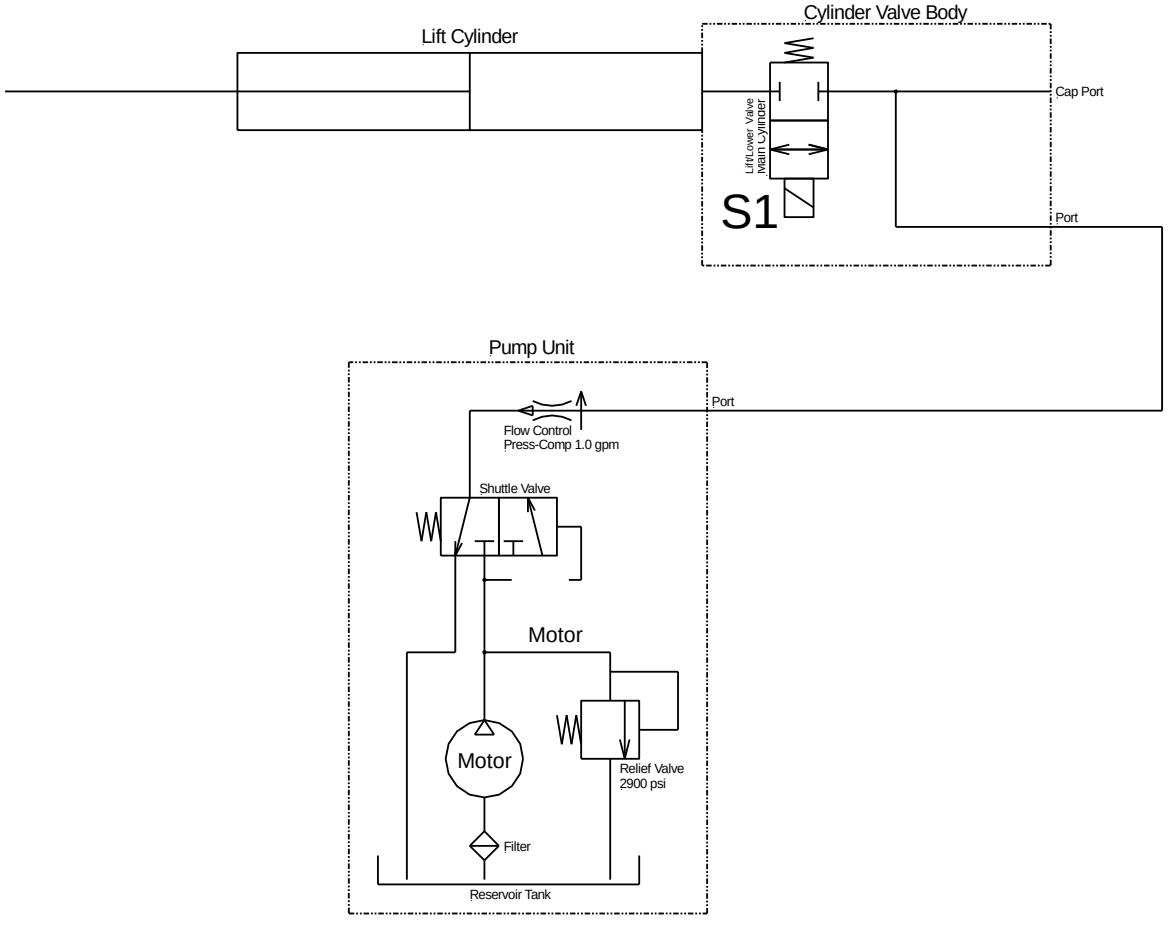
ILM *plus* Series

# Wiring Diagram (Manual Closing)



# Hydraulic Schematic (Manual Closing)

ILM *plus* Series




ILM Wiring Schematic - Manual Closing

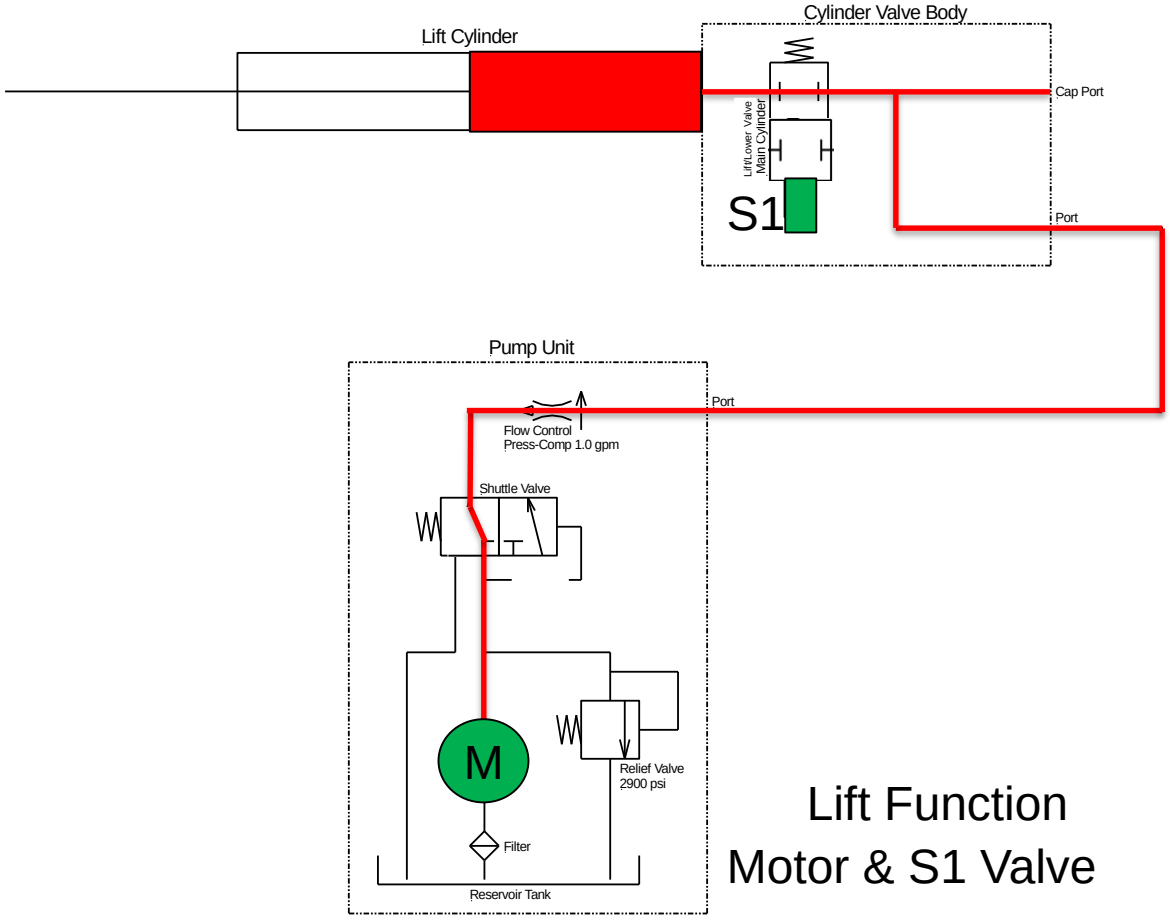
PALFINGER LIFTGATES
15939 Piuma Ave. Cerritos, CA 90703

# Hydraulic Schematic (Manual Closing)

## Lift Function

ILM *plus* Series

Green = 12 Volt Power Active
Red = High Pressure
Blue = Low Pressure



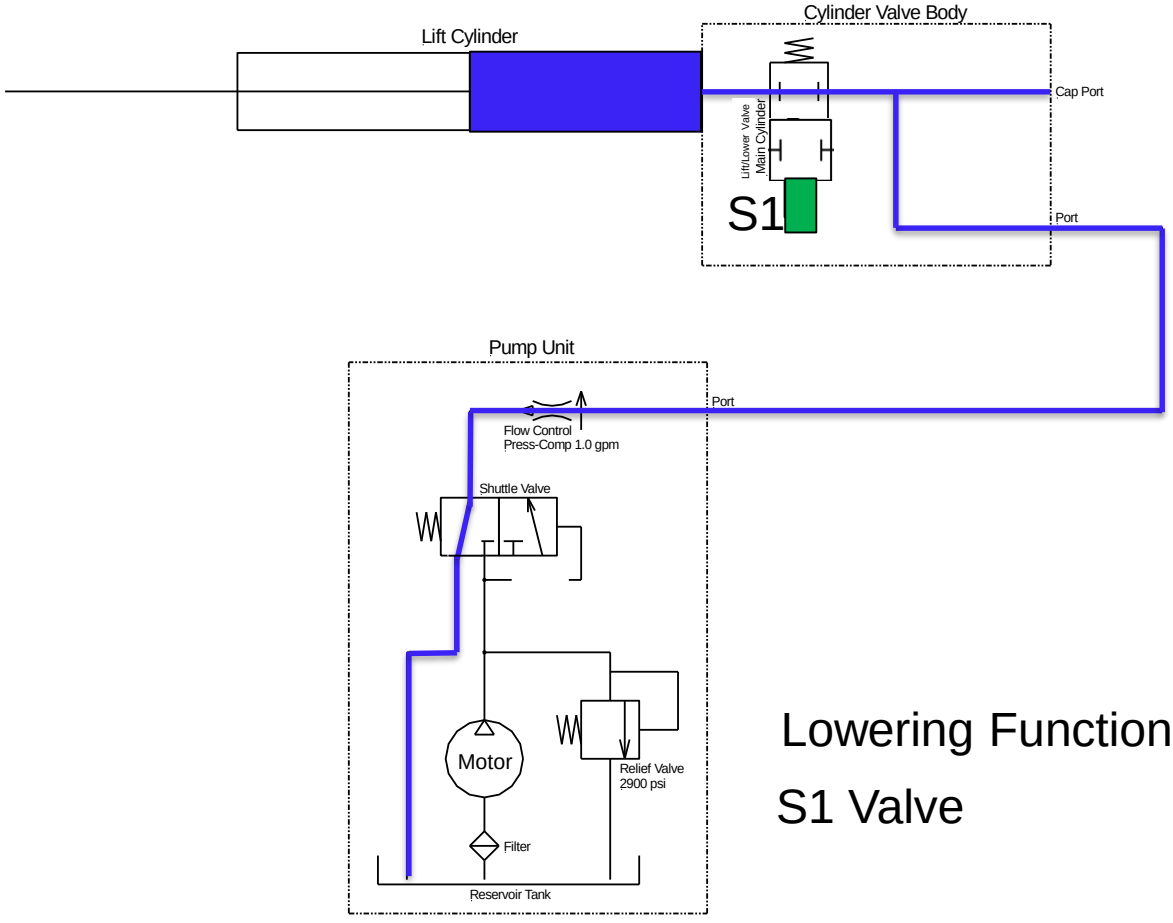

Lift Function
Motor & S1 Valve

# Hydraulic Schematic (Manual Closing)

## Lower Function

ILM *plus* Series

Green = 12 Volt Power Active
Red = High Pressure
Blue = Low Pressure

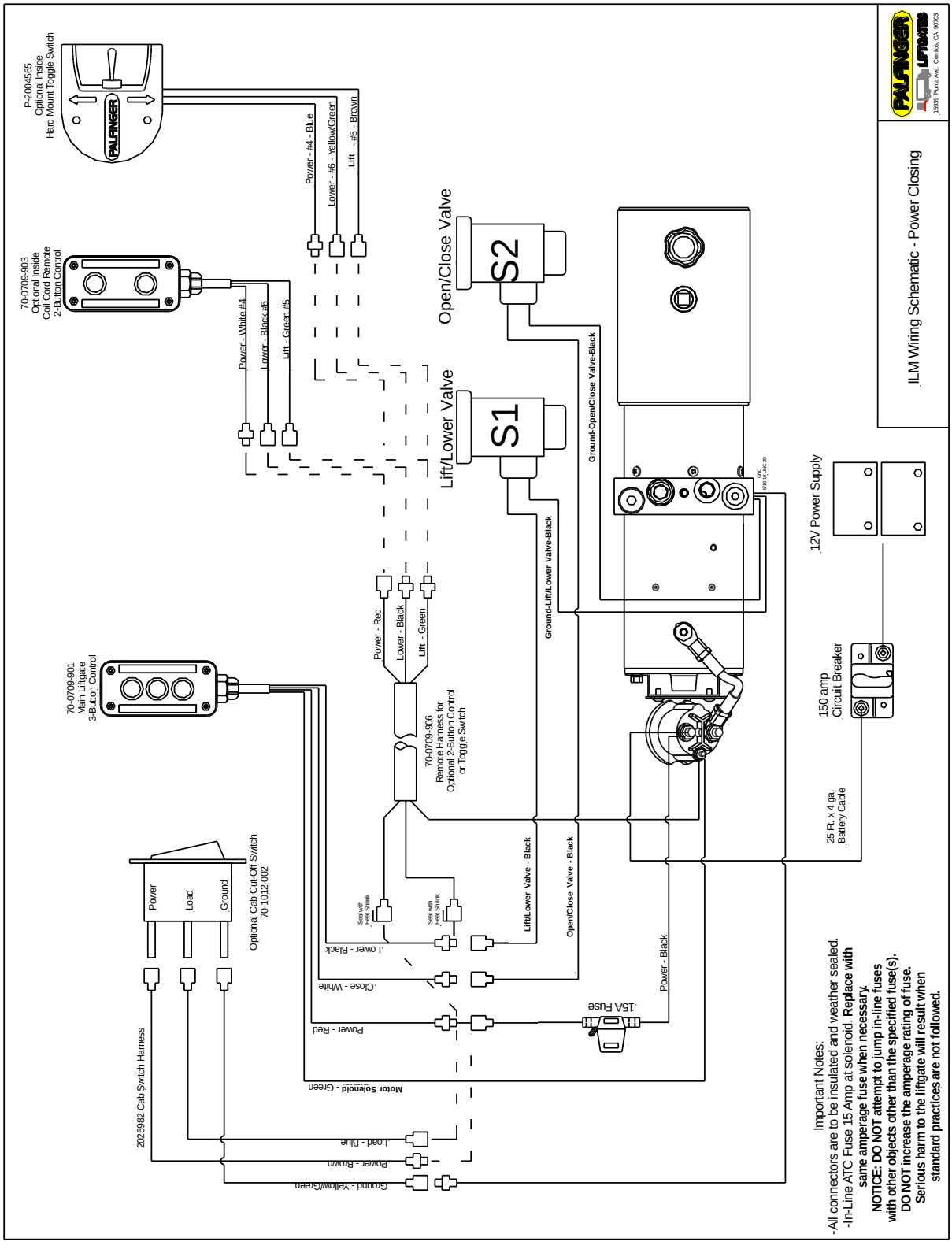



Lowering Function

S1 Valve

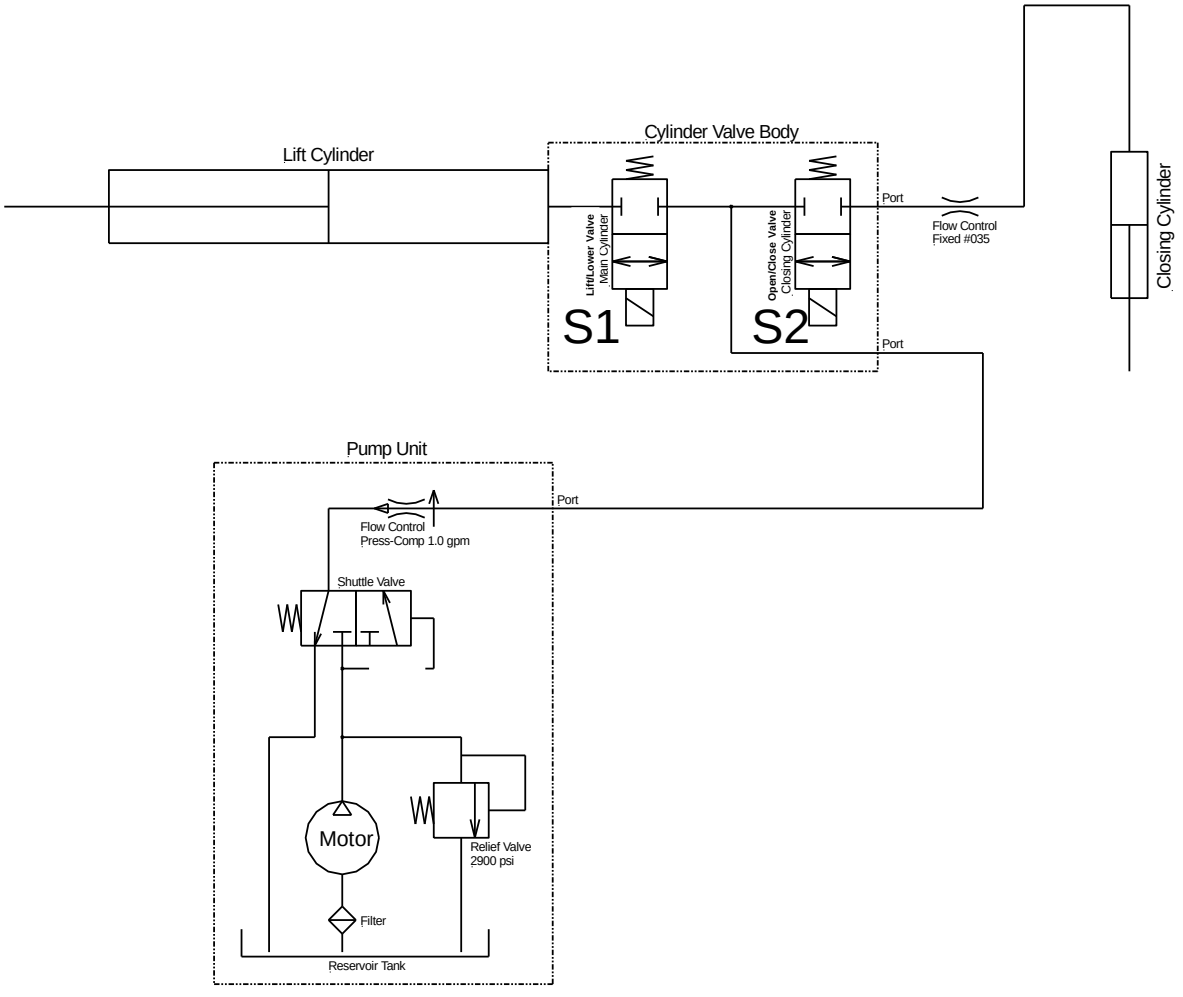
# Wiring Diagram (Power Closing )

ILM *plus* Series



# Hydraulic Schematic (Power Closing)

ILM *plus* Series




ILM Wiring Schematic - Power Closing

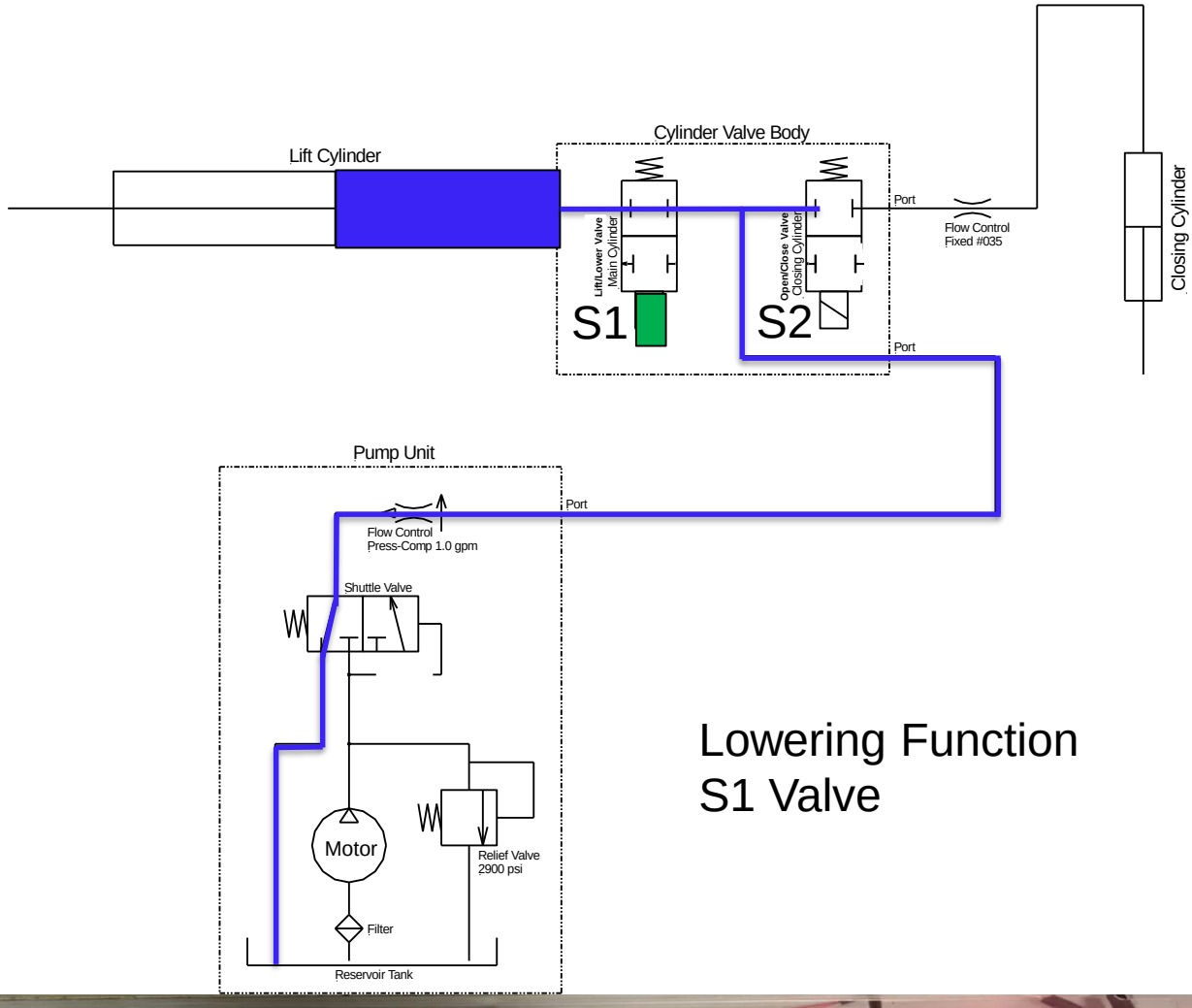
PALFINGER LIFTGATES
15939 Piuma Ave. Cerritos, CA 90703

# Hydraulic Schematic (Power Closing)

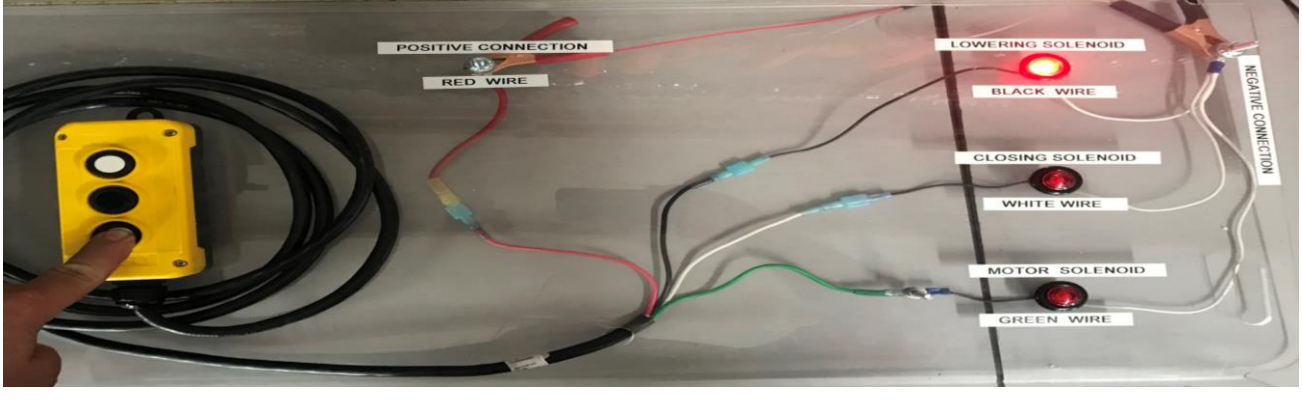
## Lower Function

ILM *plus* Series

Green = 12 Volt Selected
Red = High Pressure
Blue = Low Pressure




Lowering Function
S1 Valve

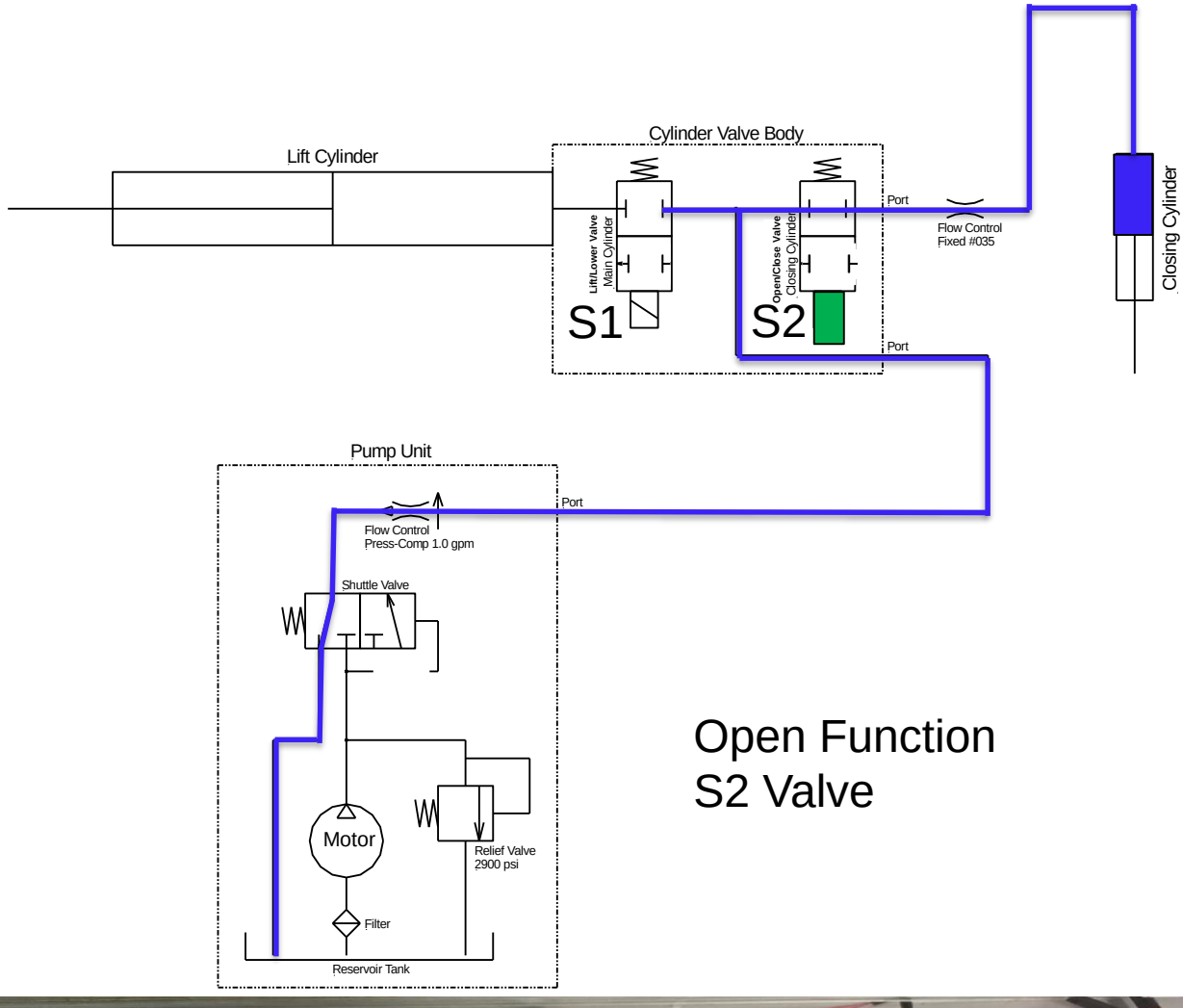


# Hydraulic Schematic (Power Closing)

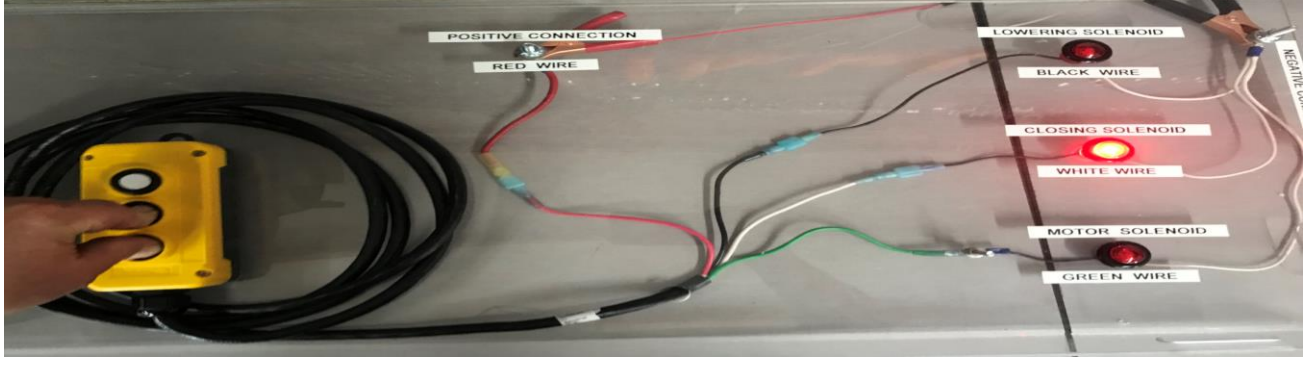
## Open Function

ILM *plus* Series

Green = 12 Volt Selected
Red = High Pressure
Blue = Low Pressure




Open Function
S2 Valve

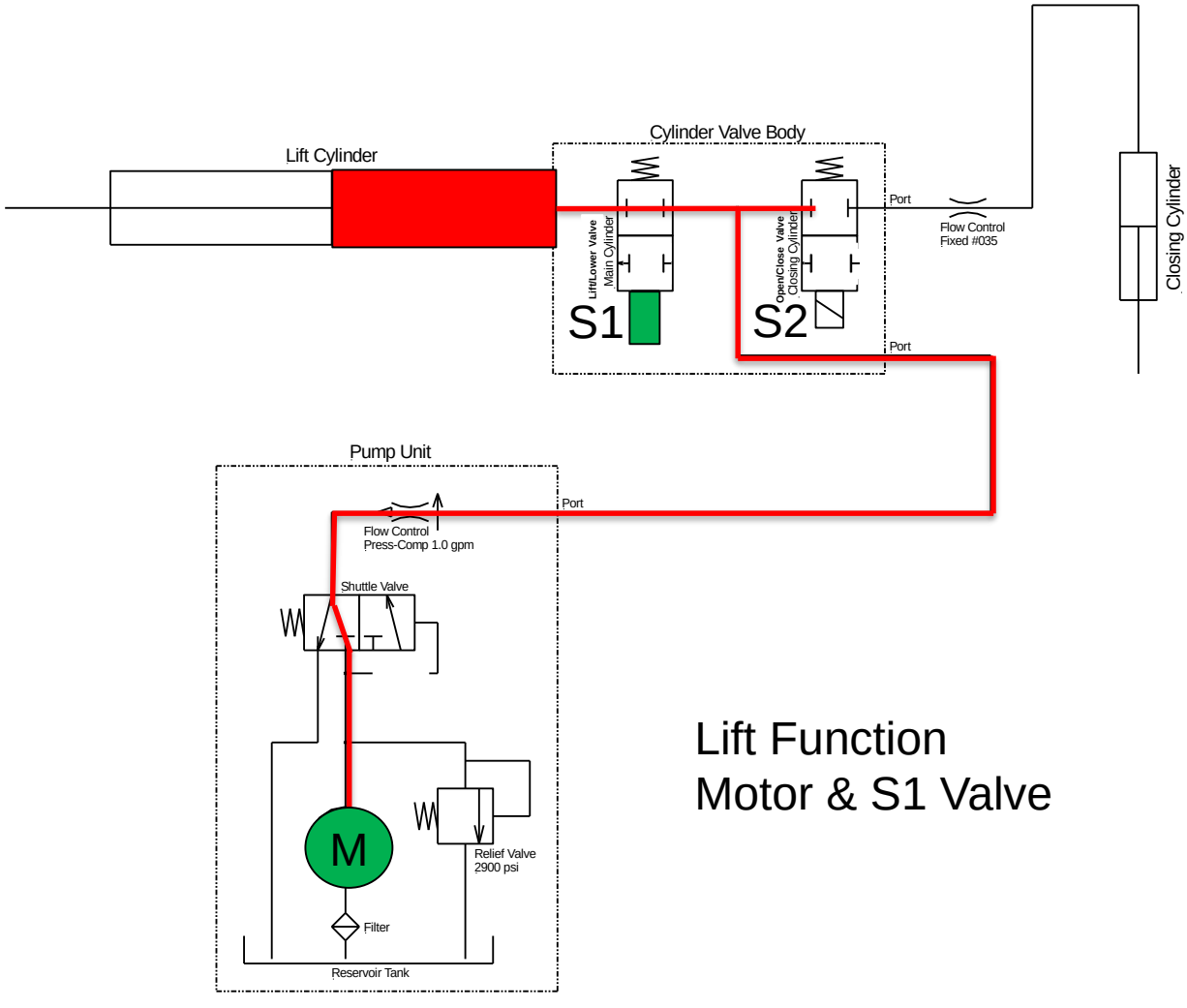


# Hydraulic Schematic (Power Closing)

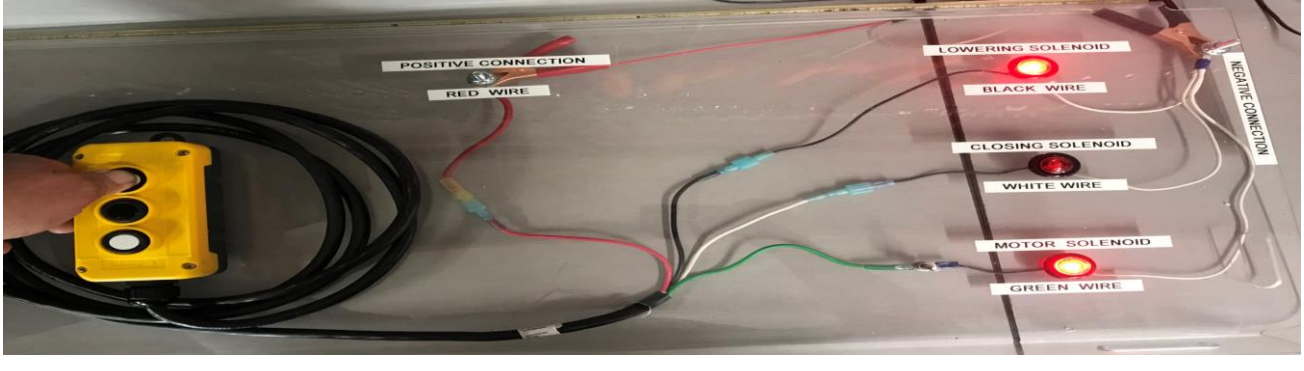
## Lift Function

ILM *plus* Series

Green = 12 Volt Selected
Red = High Pressure
Blue = Low Pressure




Lift Function
Motor & S1 Valve

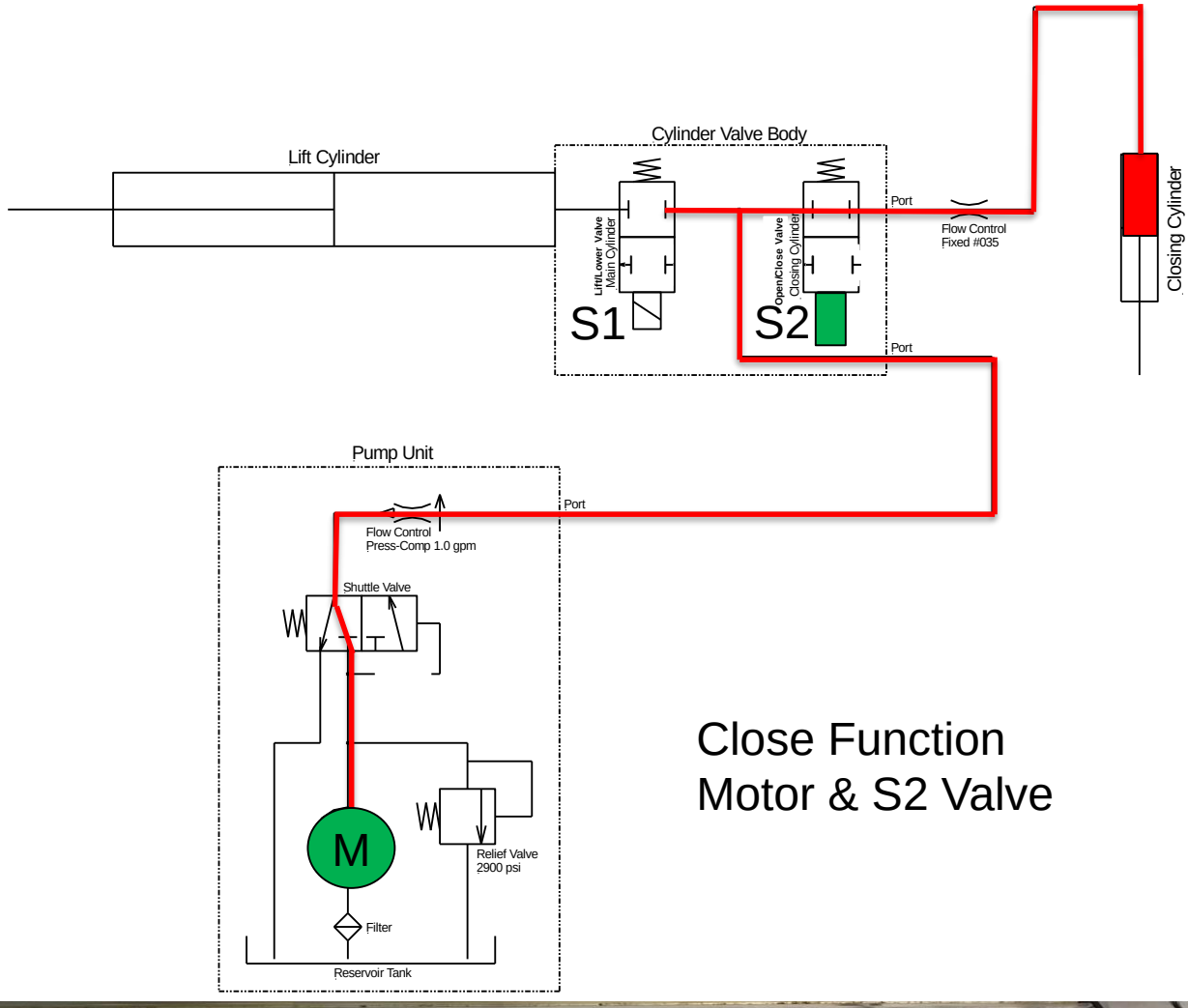


# Hydraulic Schematic (Power Closing)

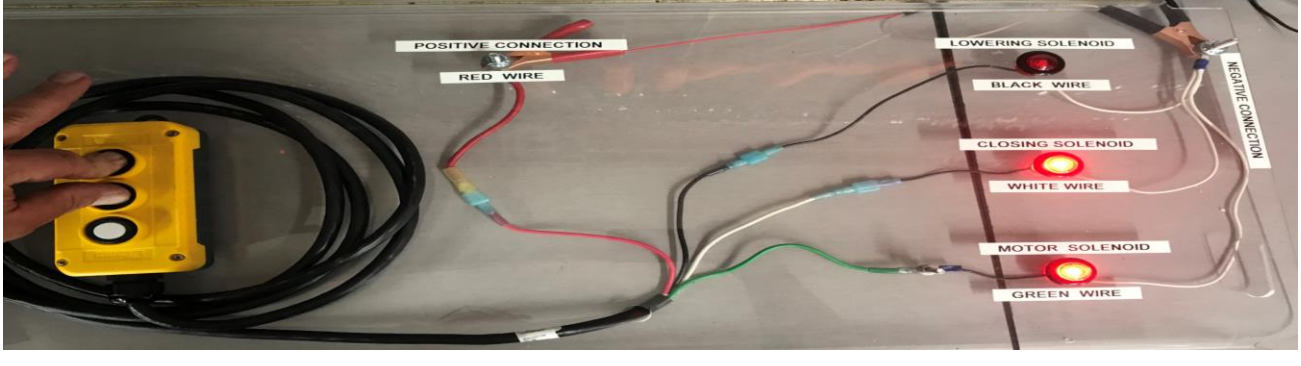
## Close Function

ILM *plus* Series

Green = 12 Volt Selected
Red = High Pressure
Blue = Low Pressure




Close Function
Motor & S2 Valve



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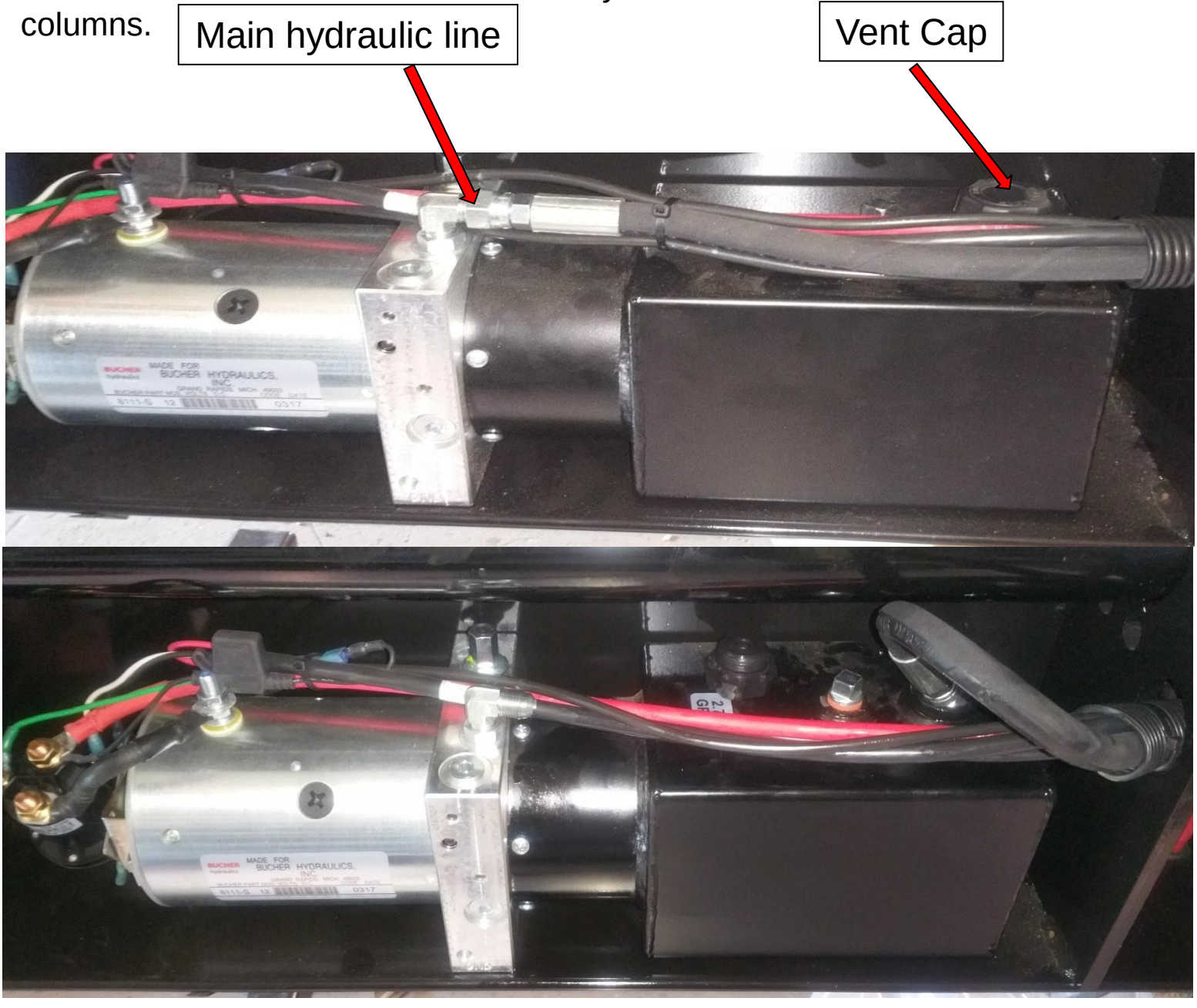
## Platform is not lowering down

Remove hydraulic line from pump and motor and remove vent cap and put the hydraulic line in the tank vent hole and push the down button on controller, if gate goes down problem is in the pump and you need to replace pump and motor, If gate still doesn't go down the problem is not in the pump or motor and other troubleshooting needs to be done to determine if the problems are in the raise and lower valve at the end of the cylinder or in the runners in the columns.

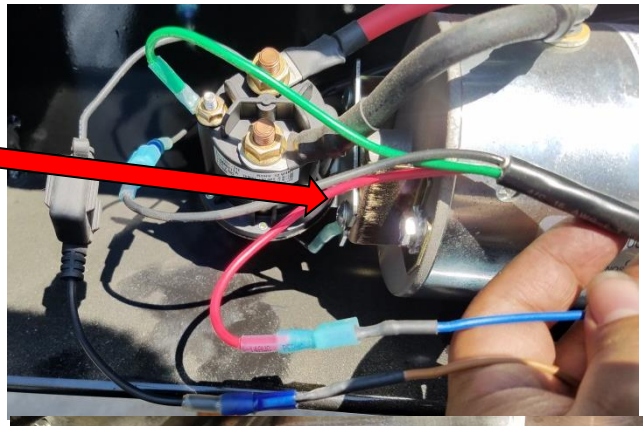


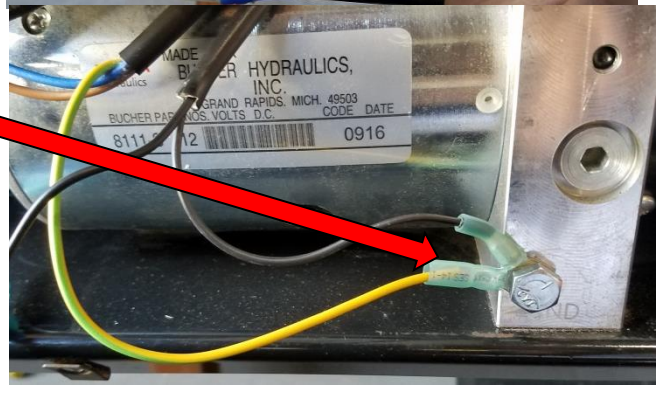
# Check grounds on valves

ILM *plus* Series

Check ground screw at solenoid bracket if lose

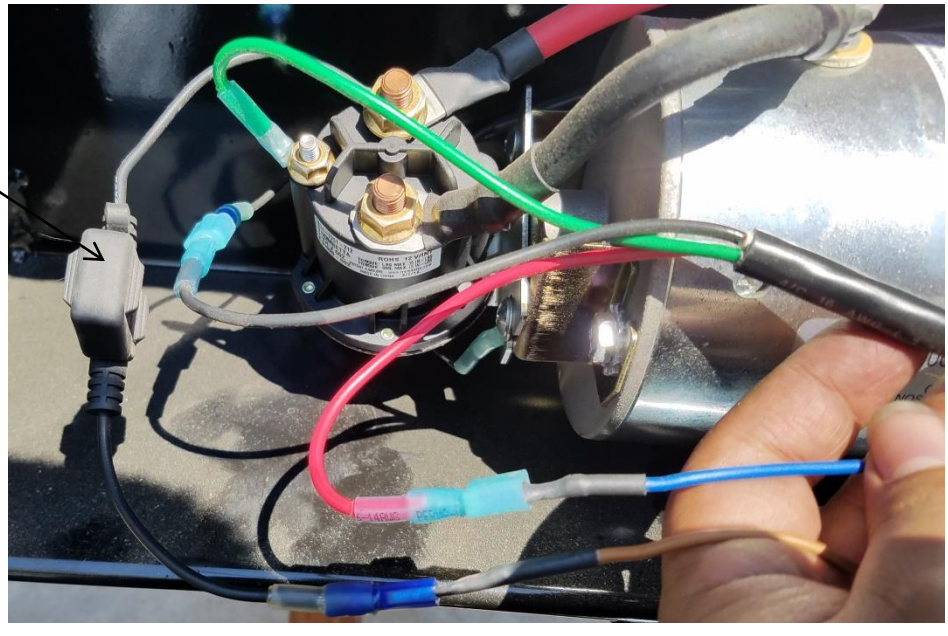
Then its recommend removing ground from solenoid bracket And install 5/16 X 1/2 course thread bolt in side of pump block marked GRD






## Controller fused connection at solenoid

15 amp fuse for controller power

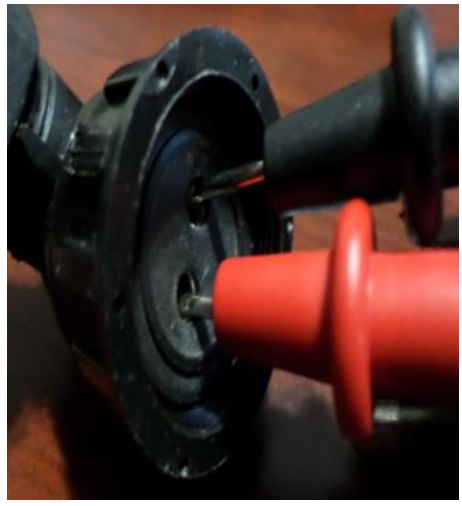


# Power Cable to Solenoid Coil Test

ILM *plus* Series

**Check for broken ***power*** wire in solenoid cable:**

- Unplug connector at valve.
- Set multimeter to read DC voltage.
- Put positive lead of multimeter in plug.
- Put negative lead of multimeter in other hole of plug.
- Activate down or close function on gate.
- Preferred reading should be 10V or higher.



# Release Valve Coil Test

If one valve on cylinders are not opening up, low voltage may be the cause. A *minimum* of 10 **V** is necessary to properly energize each of the solenoid coils.

If the minimum voltage is present at both coils, the coil may not be generating the magnetism needed to open the Release valve.

## How to check coils for resistance

Multimeter set OHM function.
Place test leads on coil nodes.

Reading shows 5.5 to7.0 Ω→ Coil is good
Reading shows 0 Ω → Coil is shorted out
Reading shows Overload → Coil is destroyed by burn or physical damage

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# Pump Pressure adjustment

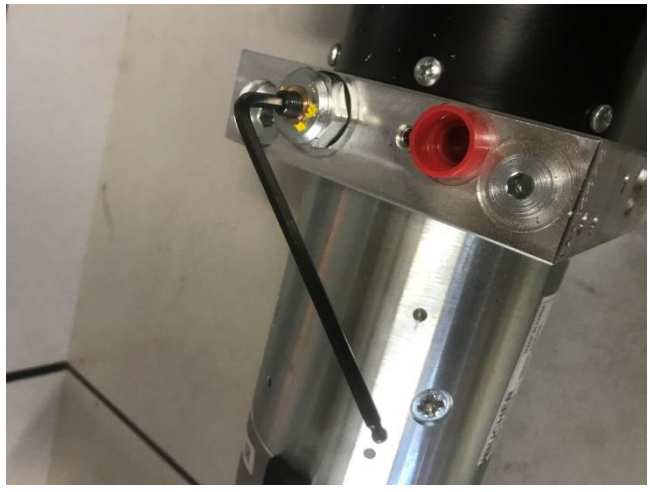
The pressure on the pump is set at the factory and normally no adjustment is needed. If you feel adjustment is necessary please contact Palfinger Field Technical support person in your area which will be listed on last page of this document before proceeding with adjustment.

Tools required for adjustment
13 mm wrench
¼ Allen wrench
5/32 Allen wrench

Palfinger Part required for gauge connections
1- HYD gauge PD-3121327
1- Adaptor fitting PD-312329
1- Elbow fitting PD-75082871

Removing adjustment cap nut with 13 mm wrench


Adjustment 5/32 Allen wrench



Raise platform until secure in stored position with safety latch down. Loosen allen wrench one turn Counter Clockwise while motor running, tighten clockwise back one turn to flush. Tighten 1/4-1/2 turn more Clockwise to increase PSI to lift load

ILM *plus* Series

# Gate chattering or sticking in columns Inspection Steps

**Step 1.**
Check rails are square and parallel in
X,Y, and Z axis.
Welded to truck correctly.
(see Installation Manual page 19).

ILM Installation Manual — Chapter 8

**8.2 Check Liftgate Dimensions**

Steps:

1. Check Dimensions: Inspect liftgate to be certain it is square and parallel. Use a 3 ft carpenters square. Verify columns are 90 degrees to sill or body.
2. Use "Dim A" and "Dim B" to verify columns are parallel.
3. Use "Dim C" and "Dim D" to verify columns are square.

**NOTICE**

**DO NOT WELD until all dimensions are checked and rechecked after each positioning adjustment.**

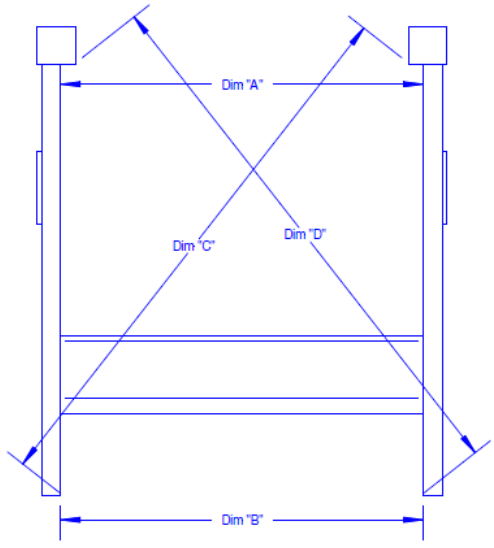



**Figure 8-2: Liftgate Dimensions**

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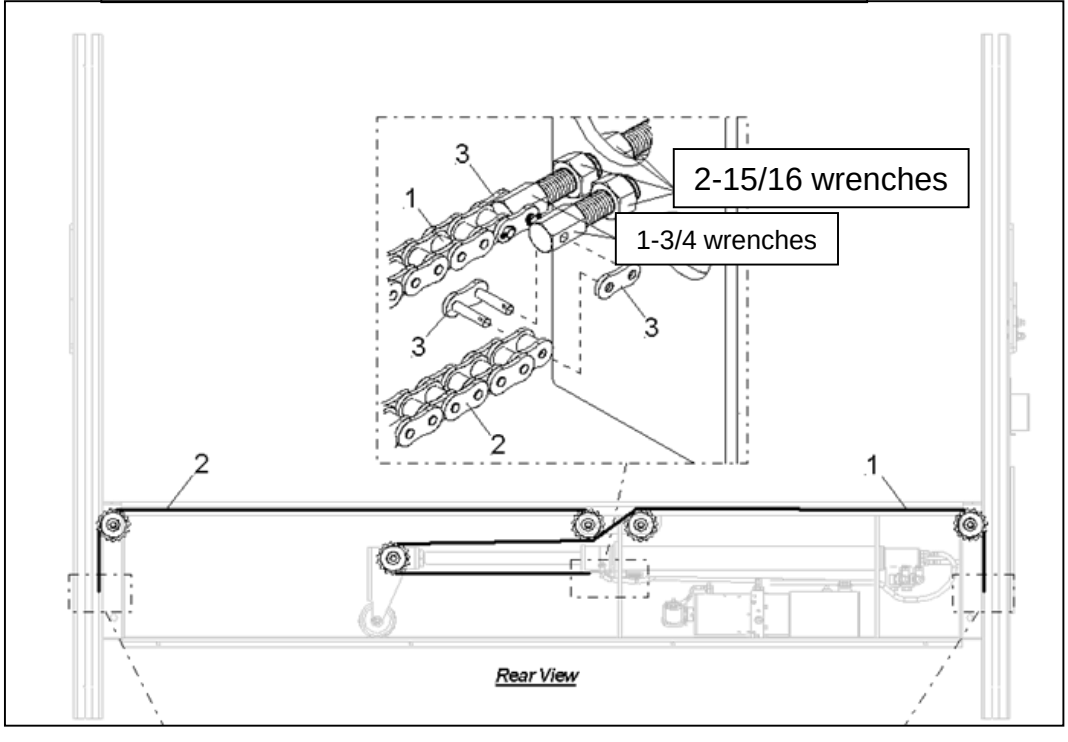
**Step 2.** Check Rails for items listed below

- Rails are not damaged, crushed, or pulled open.
- Inside of rails are clean and free of any grease or non-approved lubricants.
- Inside of rails are smooth and free of any rust, pitting, paint overspray, or weld spatter full length.
- Runners are straight, plastic pads in place, clean, not sticky, not burnt from welding during install.
- Bottoms of rails, if cut , free of slag, and burrs, and ground off smooth with 30° chamfer.

**Step 3.** Check Chains and Sprockets

- Roller chains are adjusted so deck is 1/8” above floor , left and right sides.
- Roller chains have even tension left and right while cycling unit, jam nuts are tight on adjusting anchors.
- AF sprocket boxes are square and parallel to columns.
- Deck support chains are adjusted for even tension left and right sides.
- Sprockets should show signs on break-in grease and roll freely, this includes AF sprockets.
- Sprockets and pins are checked for proper fit. (No sloppy sprockets, no broken teeth)
- Roller chains are free of binding and not seized. Check entire length.

Adjustment points for drive chains



## Step 4.
## Check that Gate is lubricated per Installation manual

When kept properly lubricated, the PALFINGER ILM liftgate will ensure long lasting usage. Therefore, the liftgate should be lubricated once every 3- months. Average ILM plus use is considered 15 cycles per day or 1200 cycles/3-months. Lubricate more frequently if the lift gate is heavily used or whenever the pivot points appear to be dry.

**CAUTION**

DO NOT GREASE the “Slider Bearings” or “Columns” or “Runners”, as this will VOID your WARRANTY on the slide bearings.

Column Lubrication: The columns are designed to run DRY and this is what Palfinger recommends first. However, in some wet or dirty environments, the columns may require periotic lubrication. The schedule will vary based on cycles, load, and environment. We recommend motor oil, 0W20, administered via a machinist style oil can. Don't over do it, a little goes a long way, two or three squirts on to slide surfaces will last months in most cases,

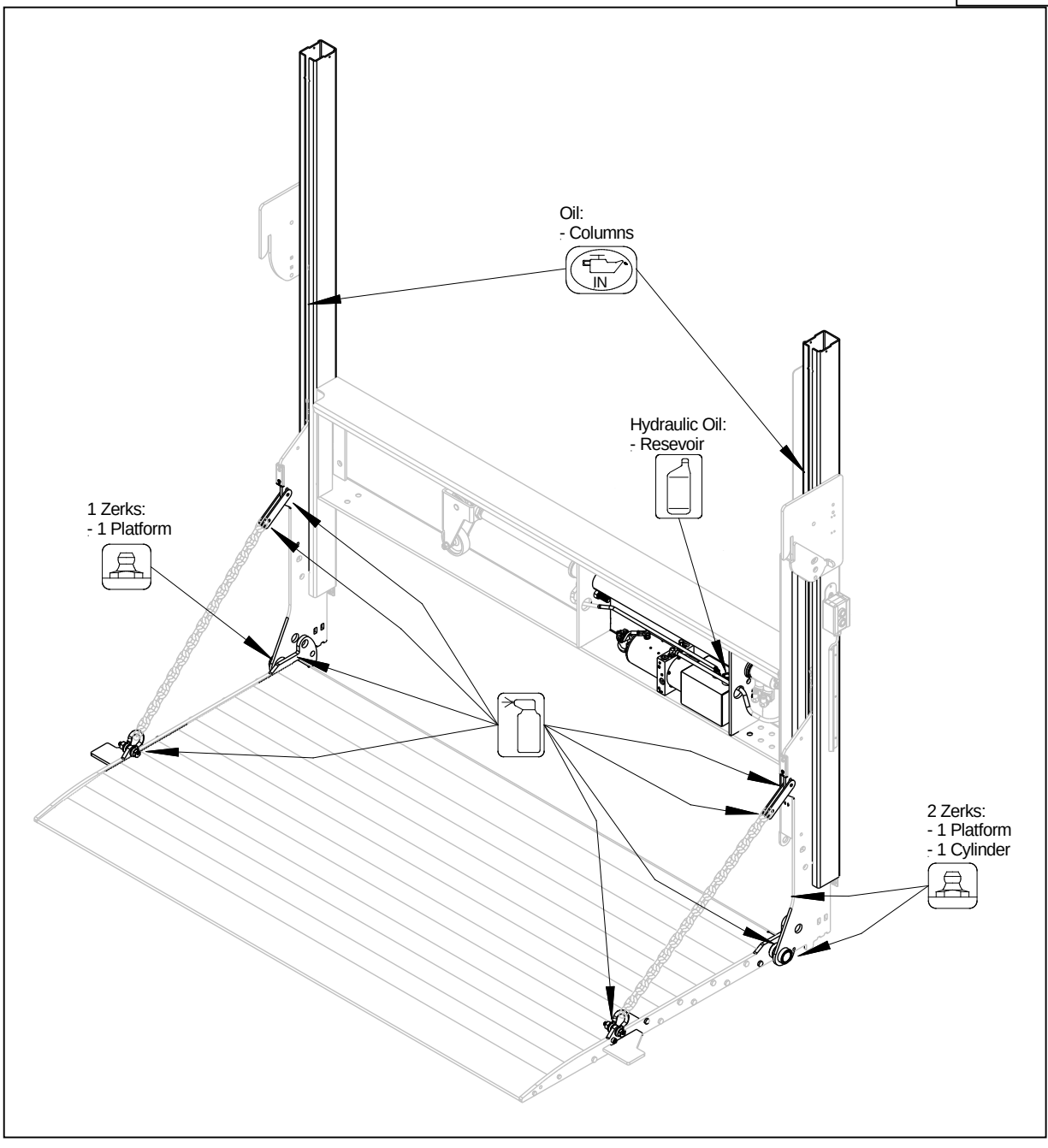
Deck: There are 2 grease fittings to maintain, left and right main pivots,

Power Closing: There are 2 grease fittings to maintain, upper & lower cylinder pivot points.

Manual Closing Gates: Use a light penetrating oil on closing aids; left & right side, upper & lower gas spring mounting points, Page 22.

Deck support chains: Use a light penetrating oil on chain anchors; left & right side,

Lift roller chain: Under normal use and conditions, the lifting roller chain will require minimal lubrication or maintenance as it is impregnated with good quality grease and only makes contact with Polymer sprockets. In extreme wet or dirty environments, should roller chain show signs of drying or rust, lubricate with a good quality motor oil or listed above for columns,




- Grease fitting, 2 for deck, 2 for power closing.

Hydraulic oil level in the power pack tank 2” to the top with deck on the ground.
(see Alternative Fluids chart for recommended Hydraulic oils on Page 3.)

- Deck support chains and optional Cart Stops (use light penetrating oil)

IN -Columns (optional) use 0W20 motor oil . (Never use GREASE of any kind.)

PALFINGER LIFTGATES

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