

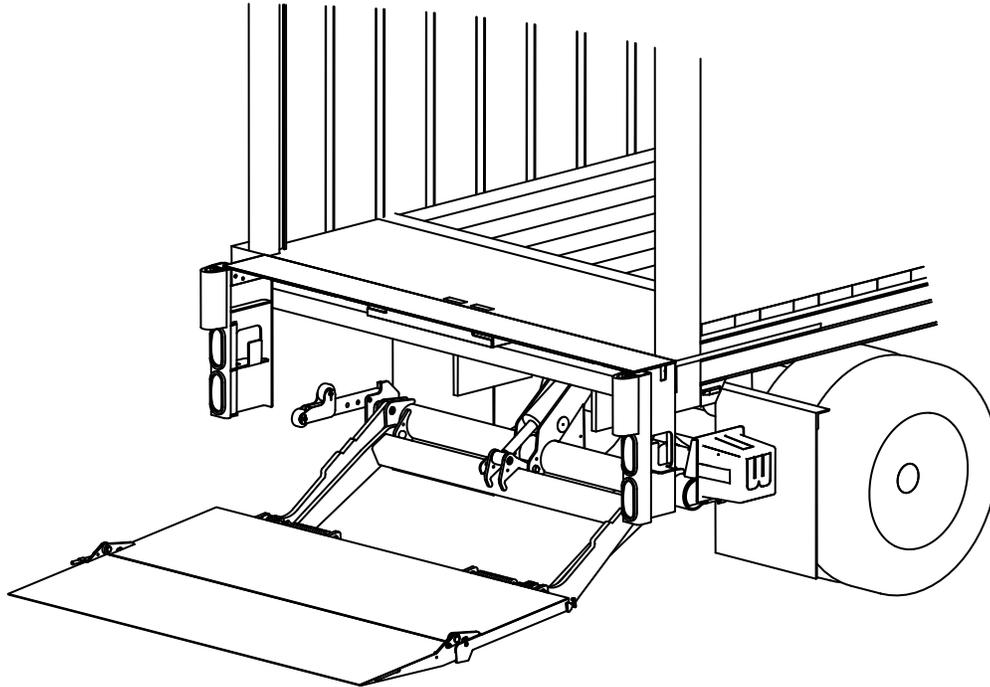
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# Tech Manual

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## EM25, EM33

### 2500, 3300 lb. Capacity



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**Corporate Office United State**  
285 Northeast Ave.  
Tallmadge, OH 44278  
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Etobicoke, ON M8Z 2C5  
P: 888.343.4550

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Improper operation and maintenance of this liftgate could result in severe personal injury or death.

Read and understand the contents of the owner's manual and all warning and operation decals before operating and/or performing maintenance on this liftgate.

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# Introduction

Each Waltco liftgate is manufactured to stringent quality standards for years of reliable service. To ensure maximum performance of your Waltco liftgate, always specify and use “OEM Parts” from Waltco.

Service and repair should only be performed by an authorized Waltco distributor. For information on the nearest authorized Waltco distributor contact:

**Waltco Lift Corp.**

285 Northeast Avenue

Tallmadge, OH 44278

Phone: 800.411.5685

Fax: 800.411.5684

E-mail: [parts@waltco.com](mailto:parts@waltco.com)



**This is the safety alert symbol. This manual uses this symbol to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid personal injury or death.**



**The use of non-standard or makeshift parts can be extremely hazardous and result in serious injury or death.**

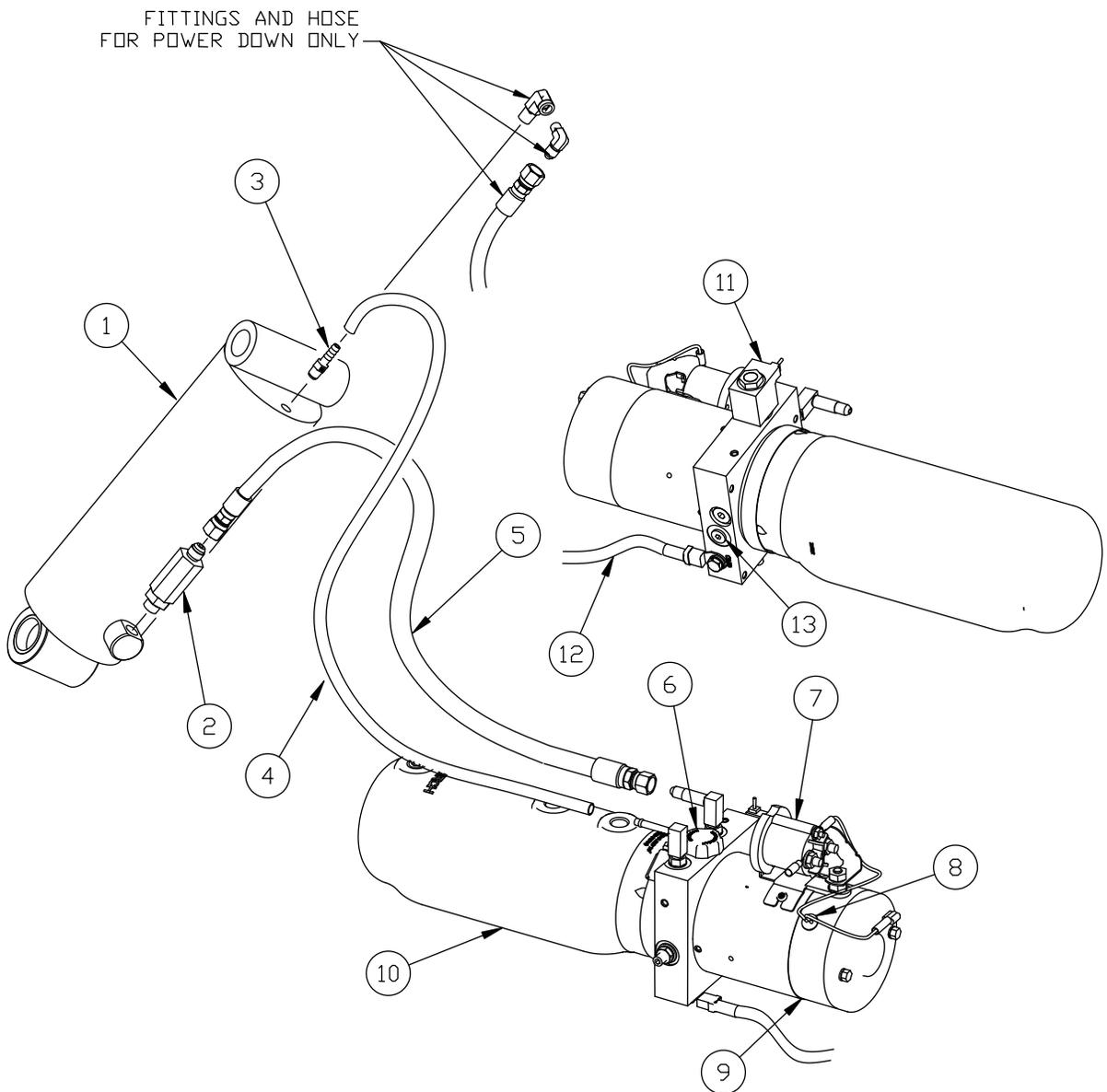


**Every vehicle that has a WALTCO Liftgate must have legible WARNING AND OPERATION DECALS clearly posted on the vehicle and an OWNER'S MANUAL in the vehicle at all times as a guide for proper operation and maintenance.**

# EM Single Cylinder Liftgate Terminology

1. Hydraulic Cylinder
2. Flow Control Valve
3. Return Line Barbed Fitting (Gravity Down)
4. Return Line (Gravity Down)
5. Raise Hose Assembly
6. Breather Cap
7. Pump Unit Starter Solenoid

8. Thermal Switch (inside Motor)
9. Pump Unit Motor
10. Reservoir
11. Lowering Valve Coil
12. Ground Cable
13. Drain Plug

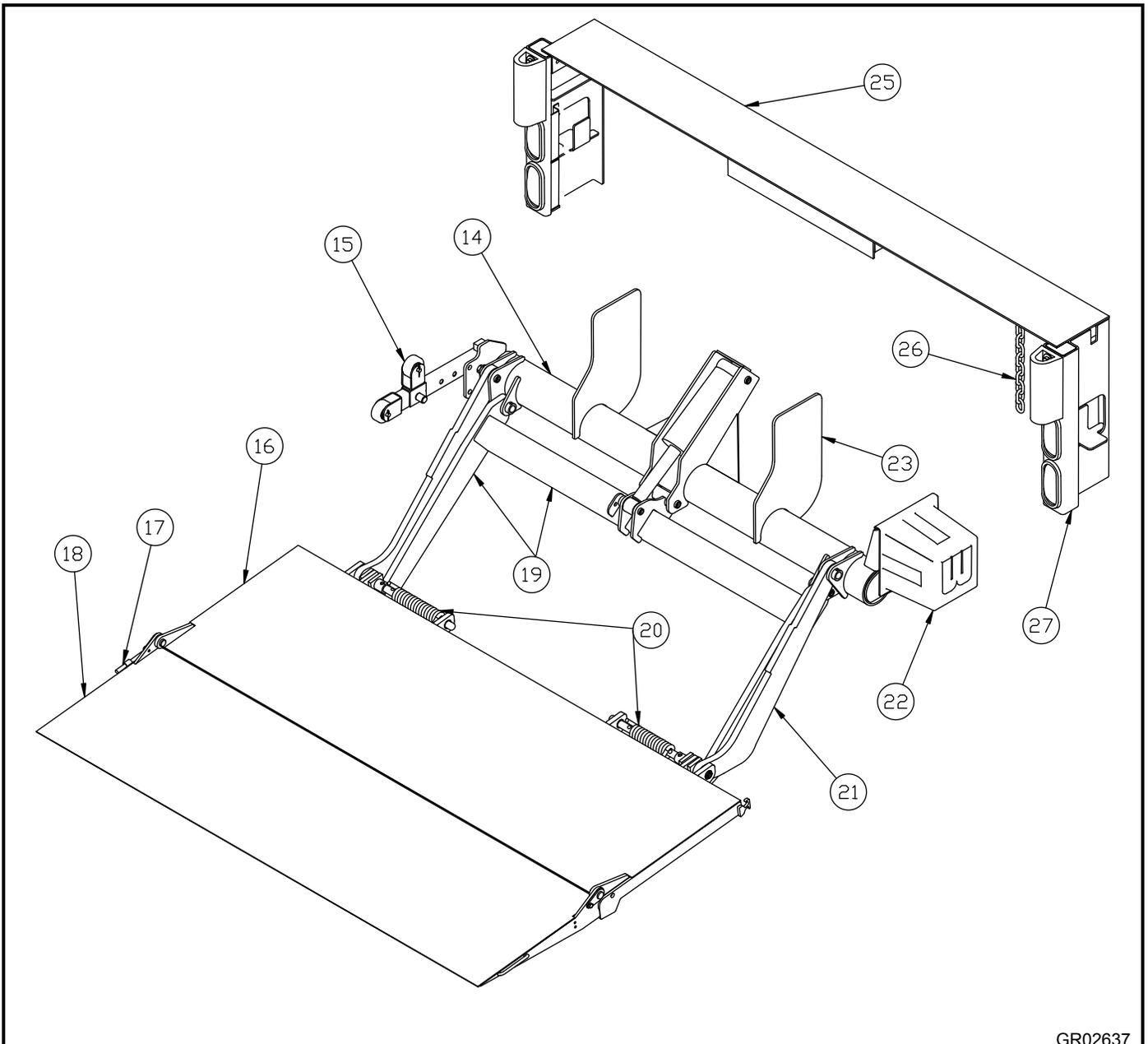


GR02636

# EM Single Cylinder Liftgate Terminology

- 14. Mount Tube Assembly
- 15. Parting Bar Assembly
- 16. Deck Assembly
- 17. Torsion Bar
- 18. Deck Extension Assembly
- 19. Lift Arm Assembly

- 20. Folding Assist Springs
- 21. Parallel Arm
- 22. Pump Cover
- 23. Mount Plate
- 24. Spec Tag (see following page)
- 25. Bed Extension
- 26. Transit Chain
- 27. Dock Bumper



GR02637

# EM Single Cylinder Liftgate Terminology

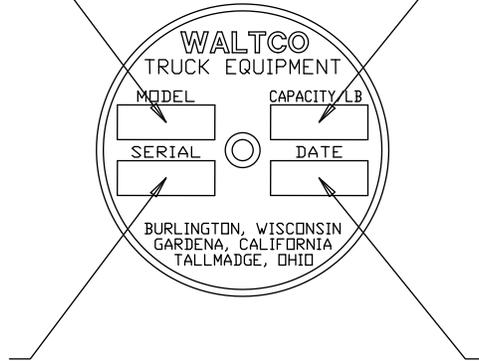
## Explanation of Specification Tag

Model Name	Description	Capacity
EM	Single Cylinder	2500 lb.
EM	Single Cylinder	3300 lb.

### MODEL NAME

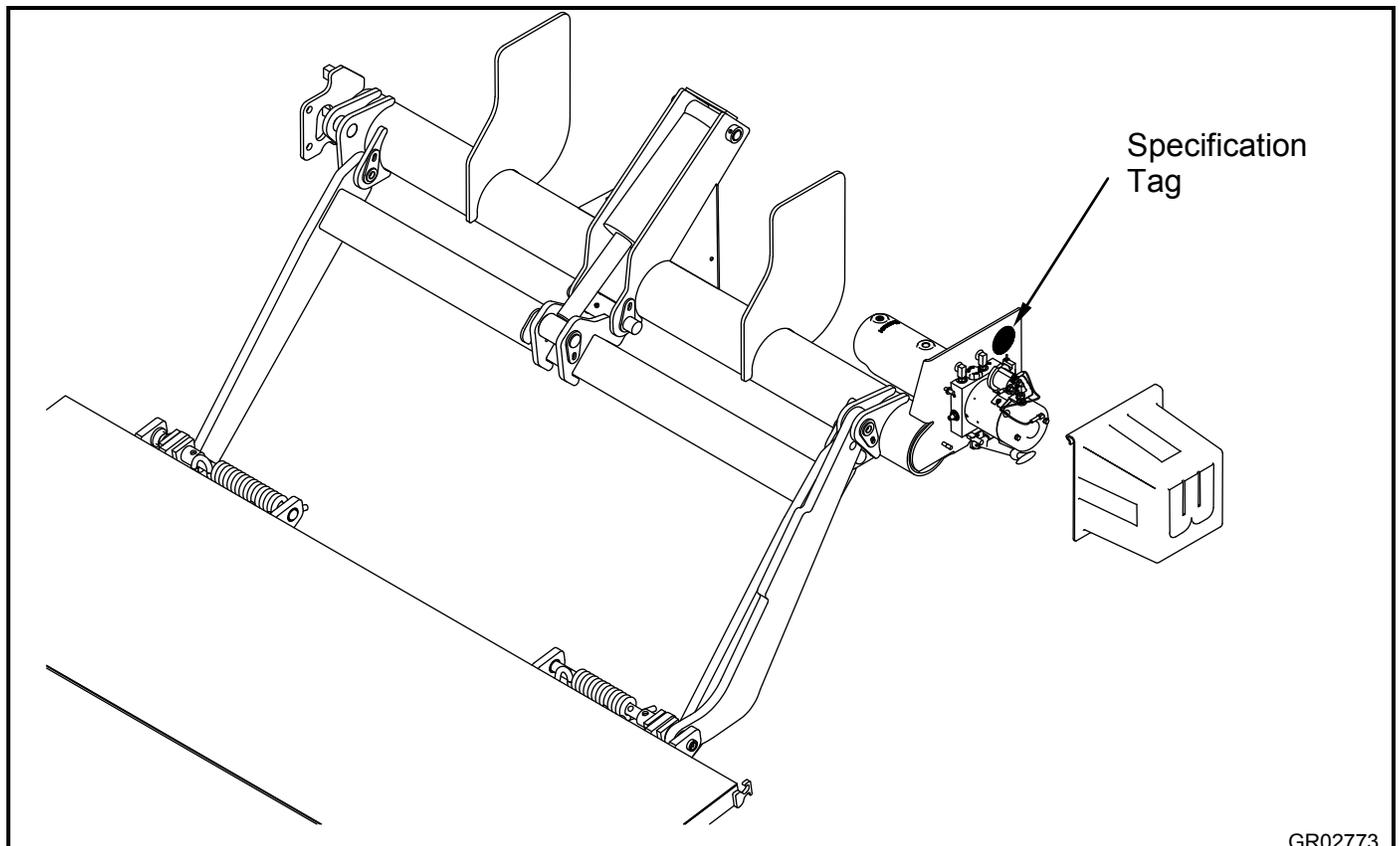
**RATED CAPACITY**  
Based on an evenly distributed load on the platform flat surface.

**SERIAL NUMBER**  
of liftgate. To be used when ordering parts or when contacting Waltco for service or warranty questions



**DATE OF MANUFACTURE**  
Month / Year

GR00241

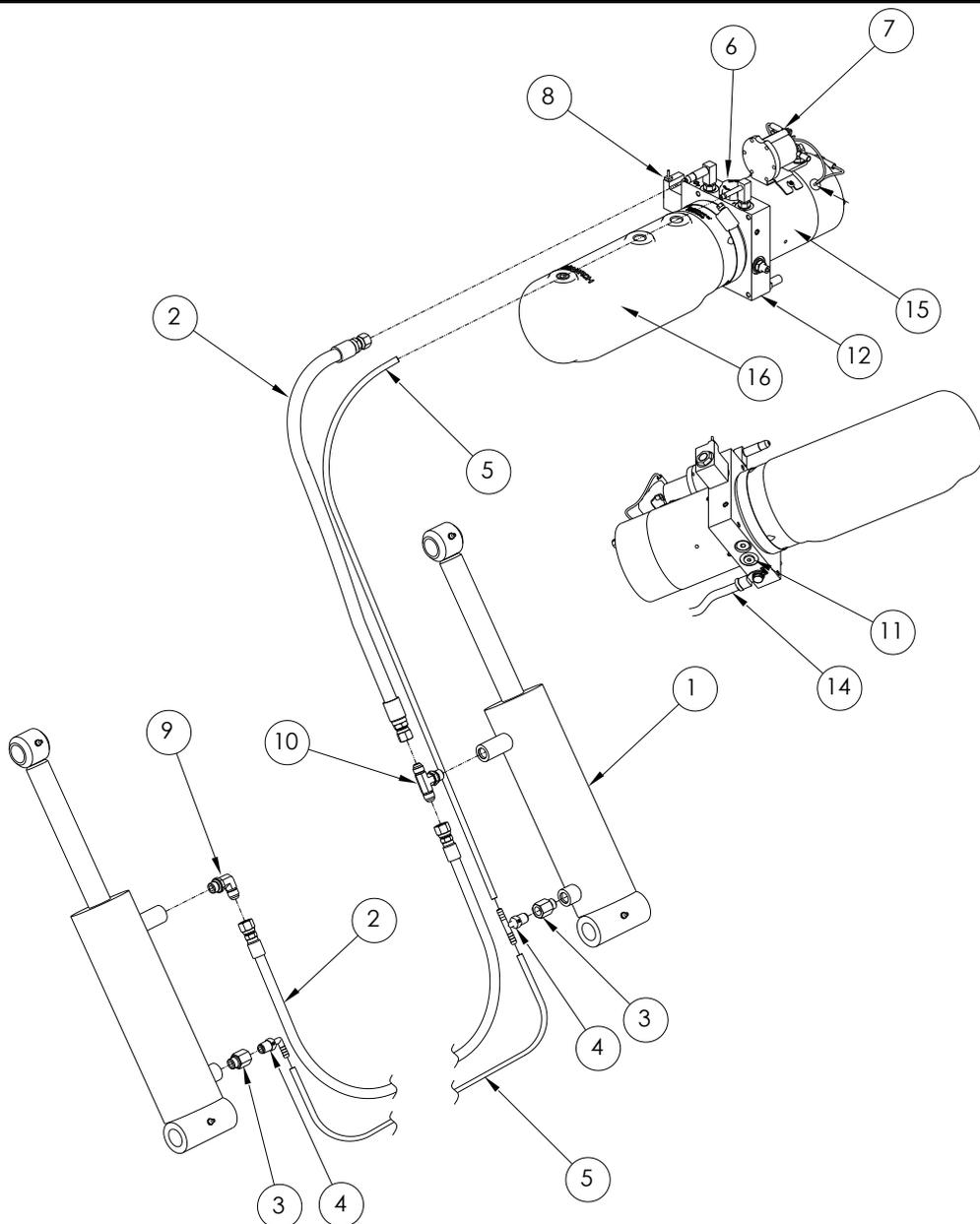


GR02773

# EM Twin Cylinder Liftgate Terminology

1. Hydraulic Cylinder
2. Hose Assembly
3. Male-Female Adapter
4. Return Line Barbed Fitting
5. Return Line
6. Breather Cap
7. Pump Unit Starter Solenoid
8. Lowering Valve Coil

9. 90 Deg. Hose Fitting
10. Tee, Hose Fitting
11. Drain Plug
12. Pump
- 13.
14. Ground Cable
15. Pump Unit Motor
16. Pump Unit Reservoir

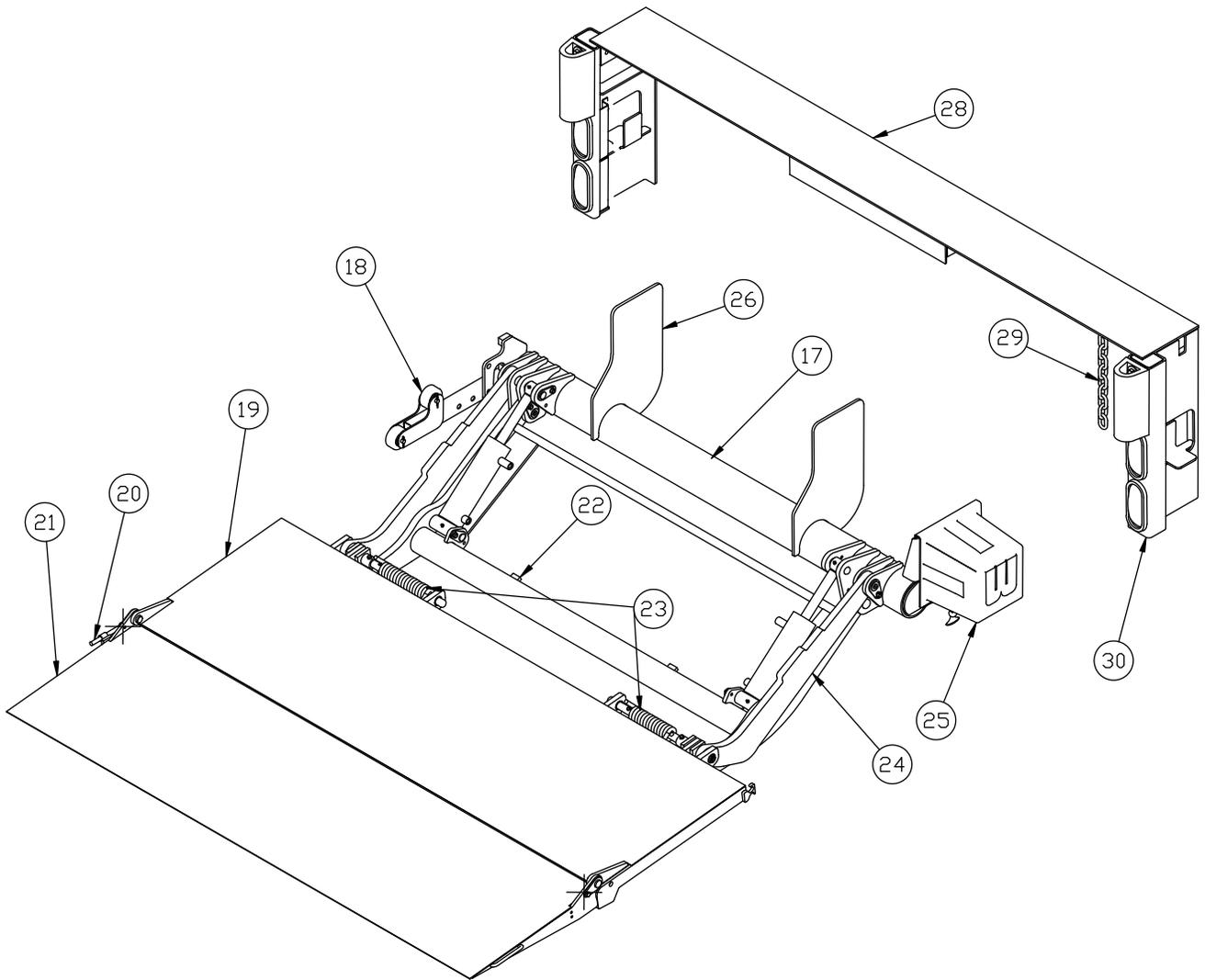


GR02641

# EM Twin Cylinder Liftgate Terminology

- 17. Mount Tube Assembly
- 18. Parting Bar Assembly
- 19. Deck Assembly
- 20. Torsion Bar
- 21. Deck Extension Assembly
- 22. Lift Arm Assembly
- 23. Folding Assist Springs
- 24. Parallel Arm

- 25. Pump Cover
- 26. Mount Plate
- 27. Spec Tag (inside pump cover)
- 28. Bed Extension
- 29. Transit Chain
- 30. Dock Bumper

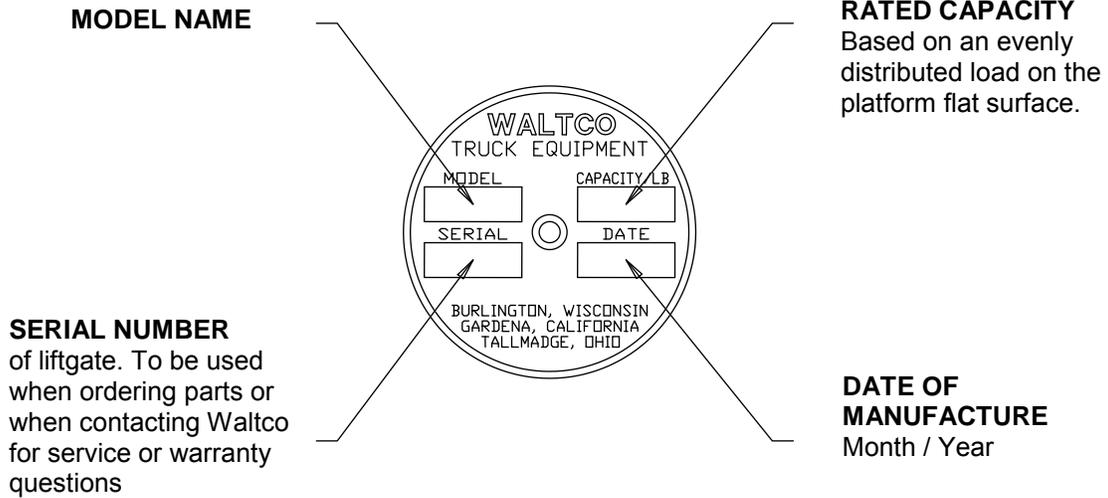


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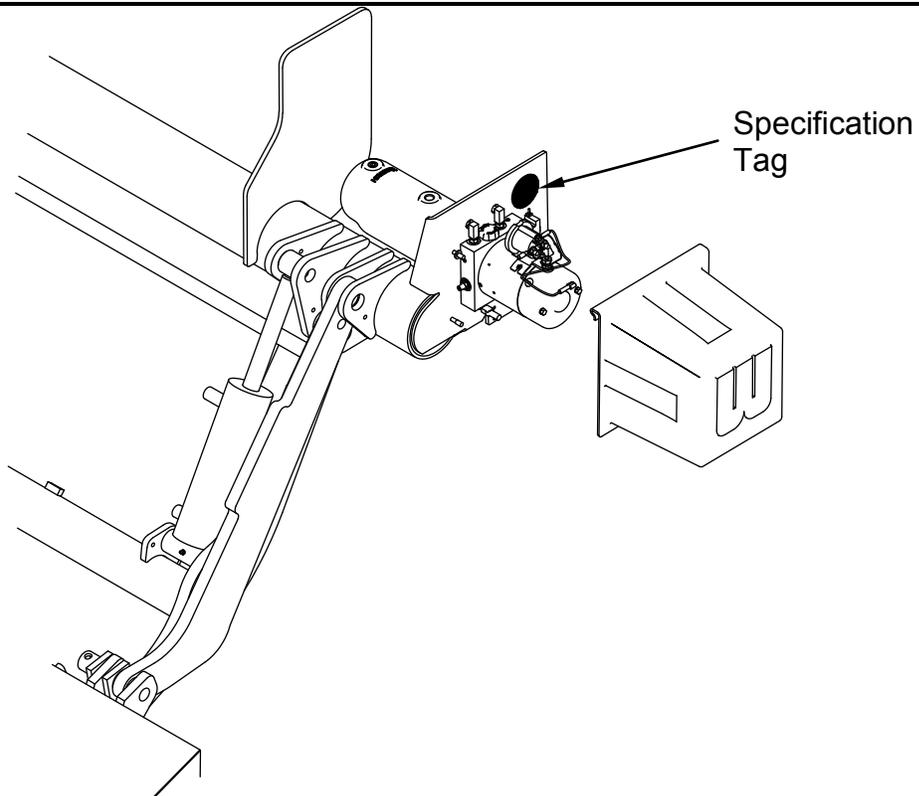
# EM Twin Cylinder Liftgate Terminology

## Explanation of Specification Tag

Model Name	Description	Capacity
EMTC	Twin Cylinder	2500 lb.
EMTC	Twin Cylinder	3300 lb.

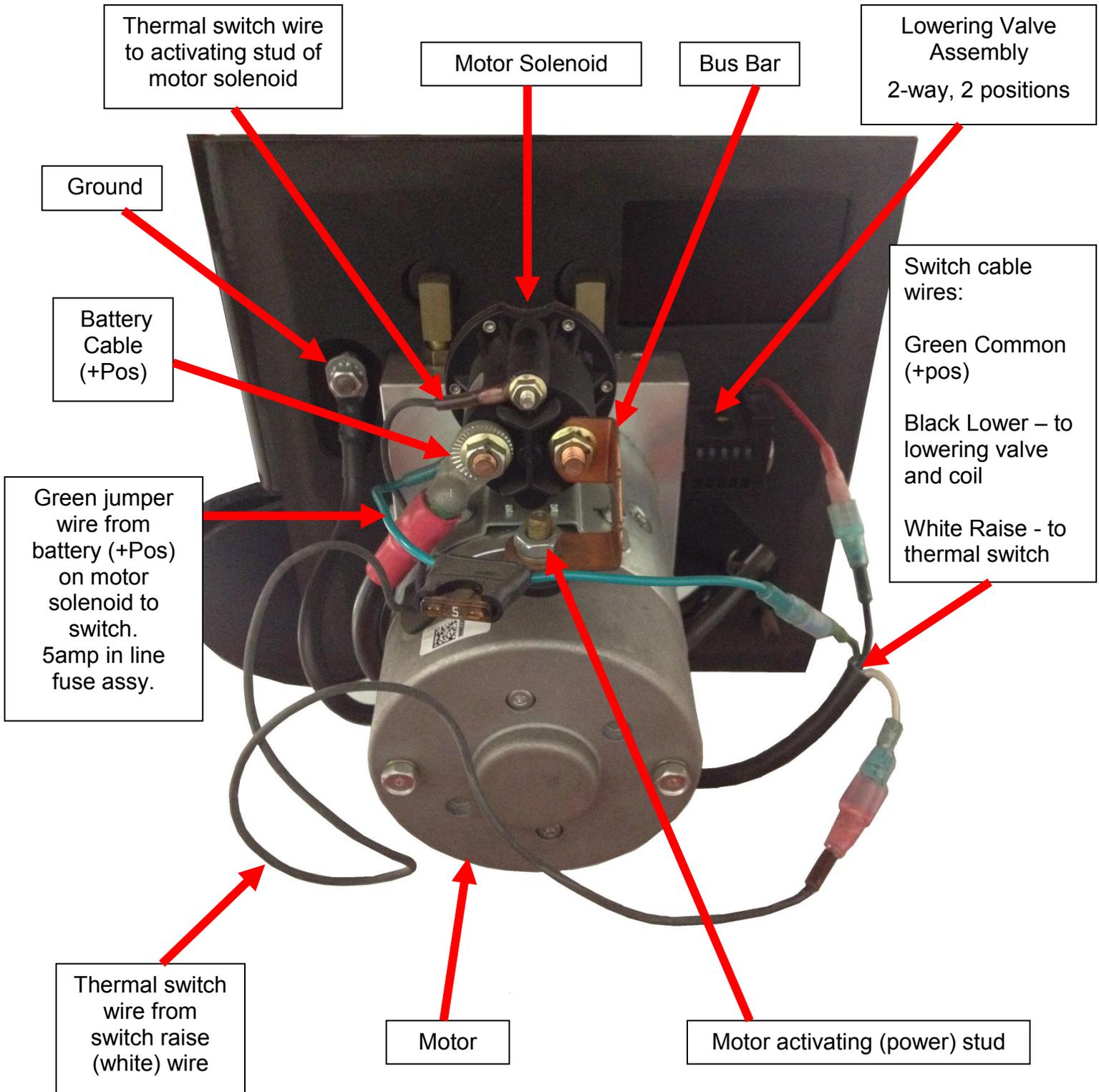


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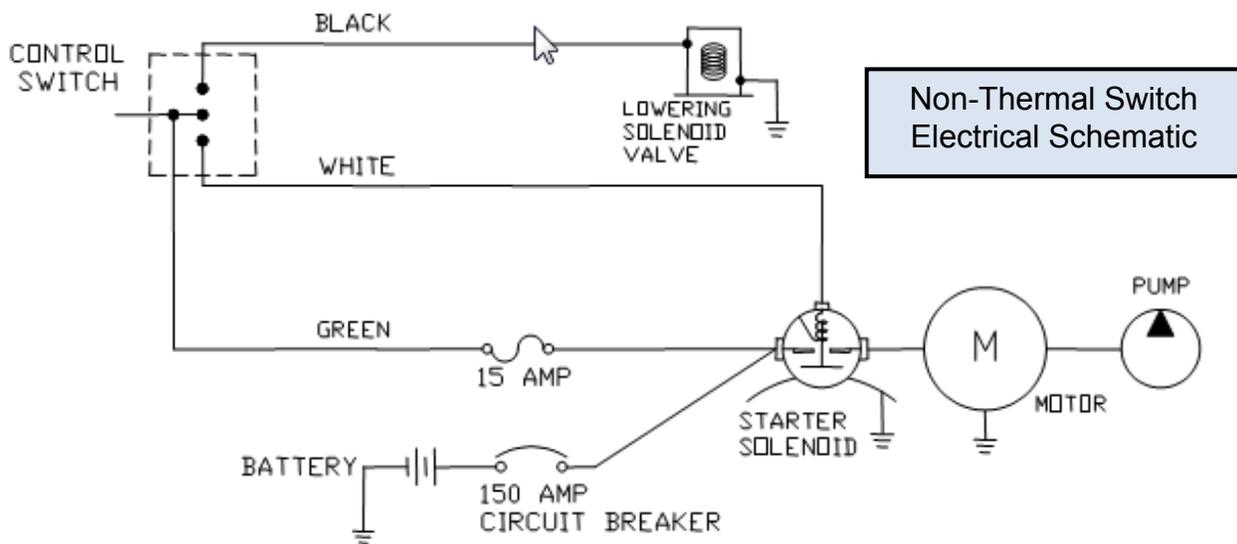


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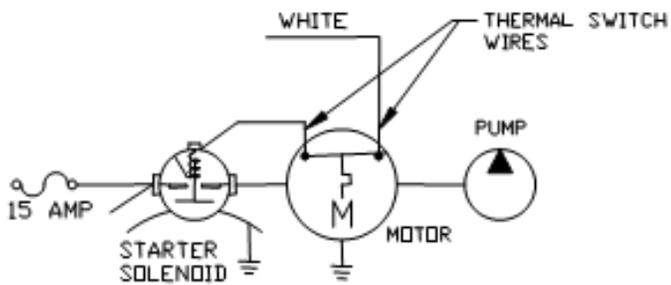
# Gravity Down Power Unit



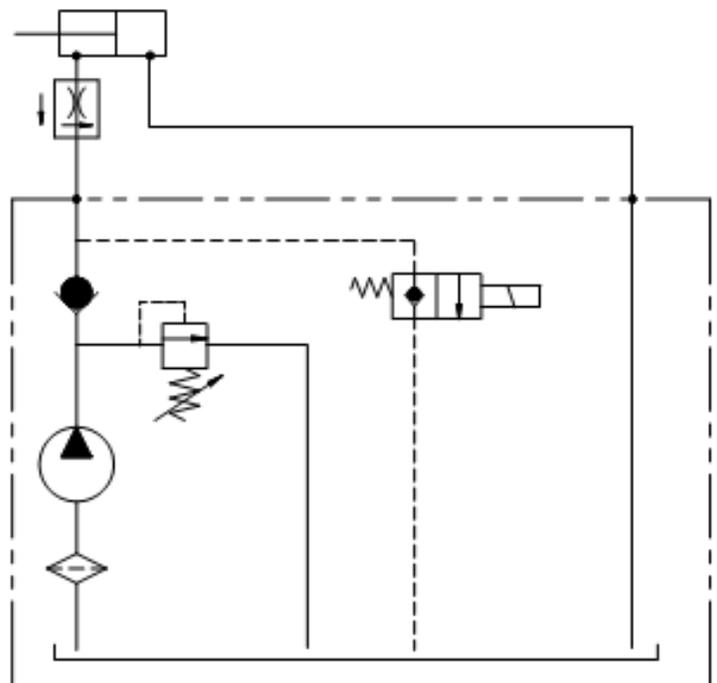
# Gravity Down Pump - Schematics



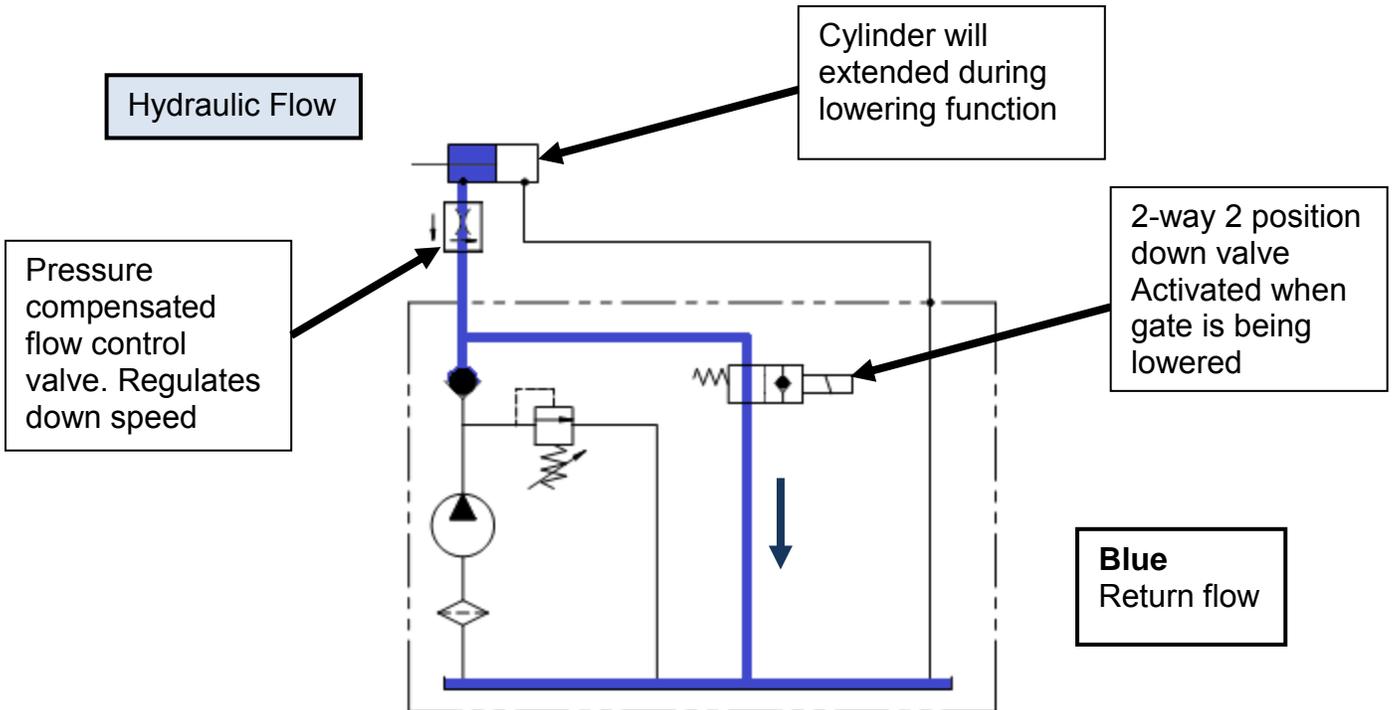
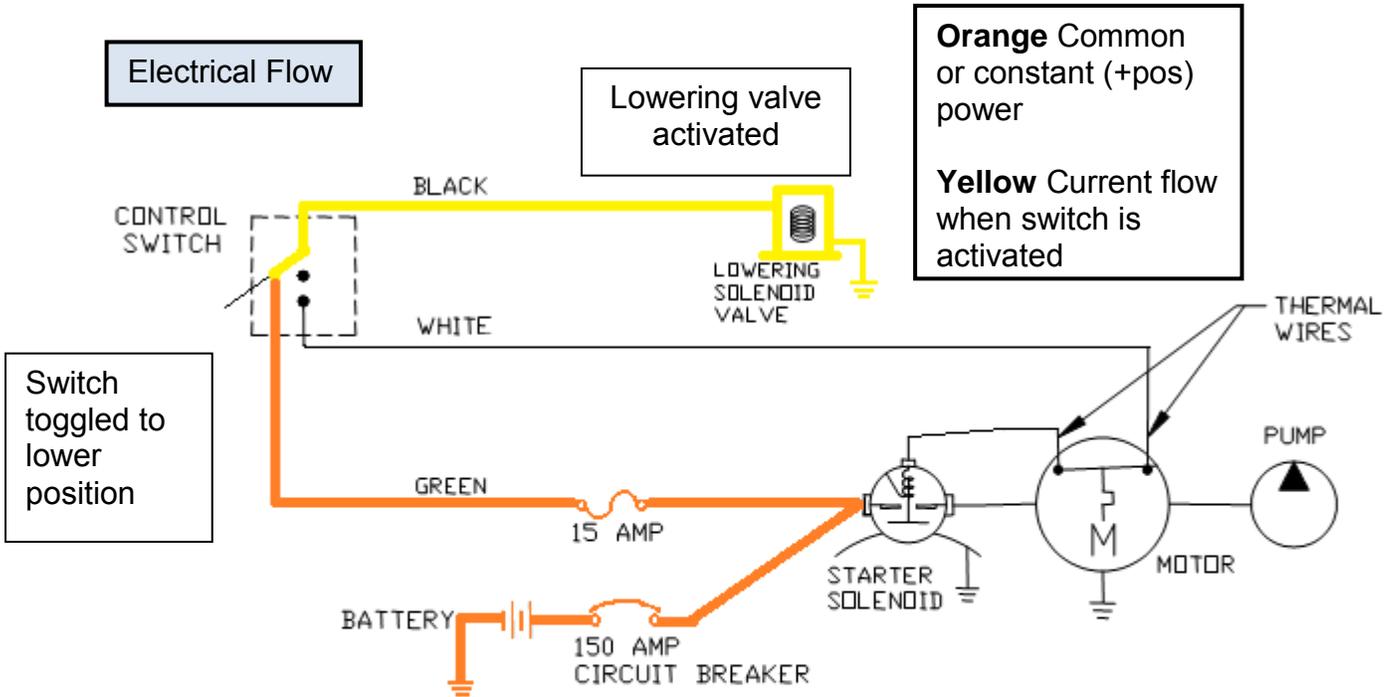
Thermal Switch Electrical Schematic



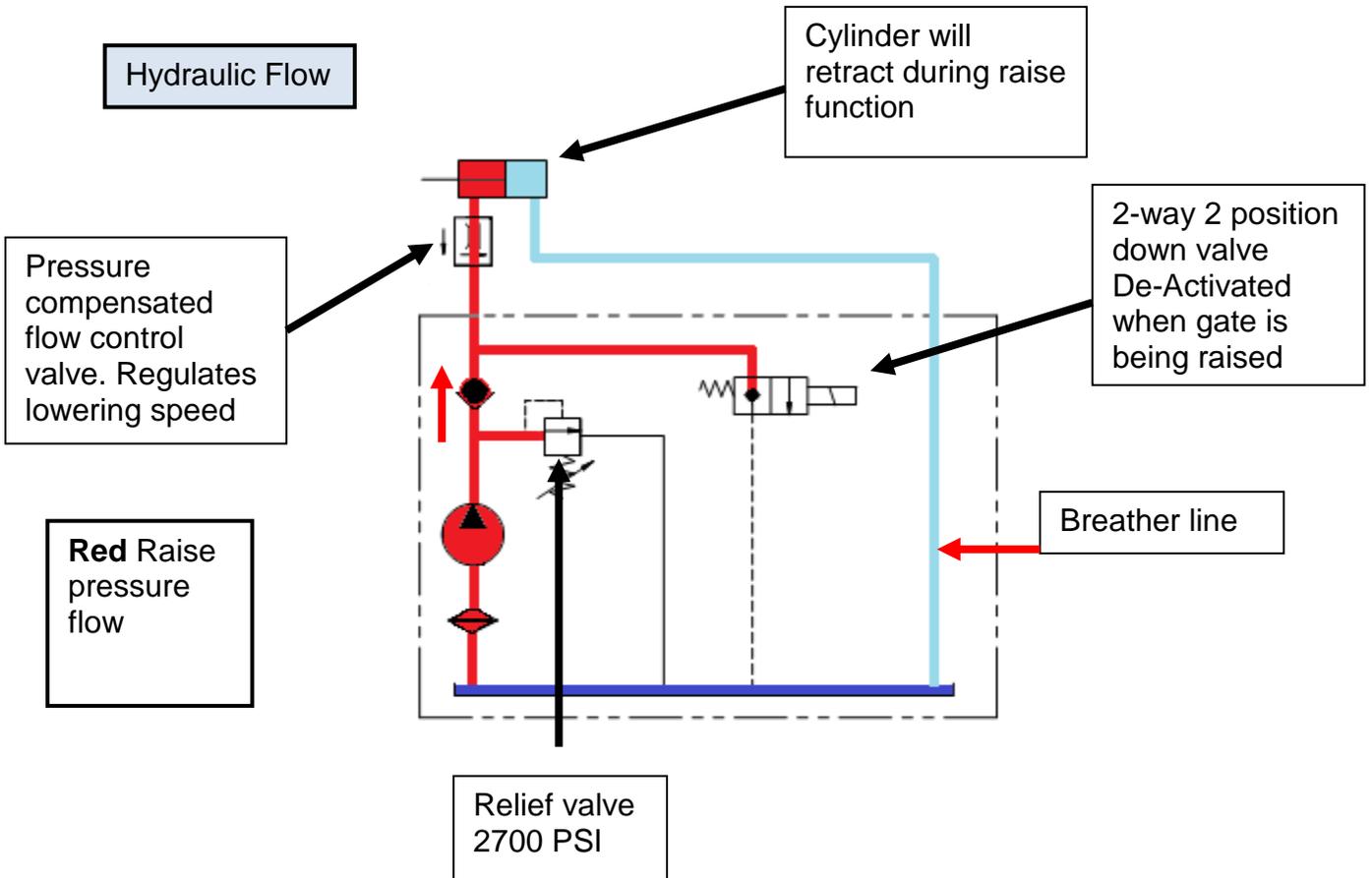
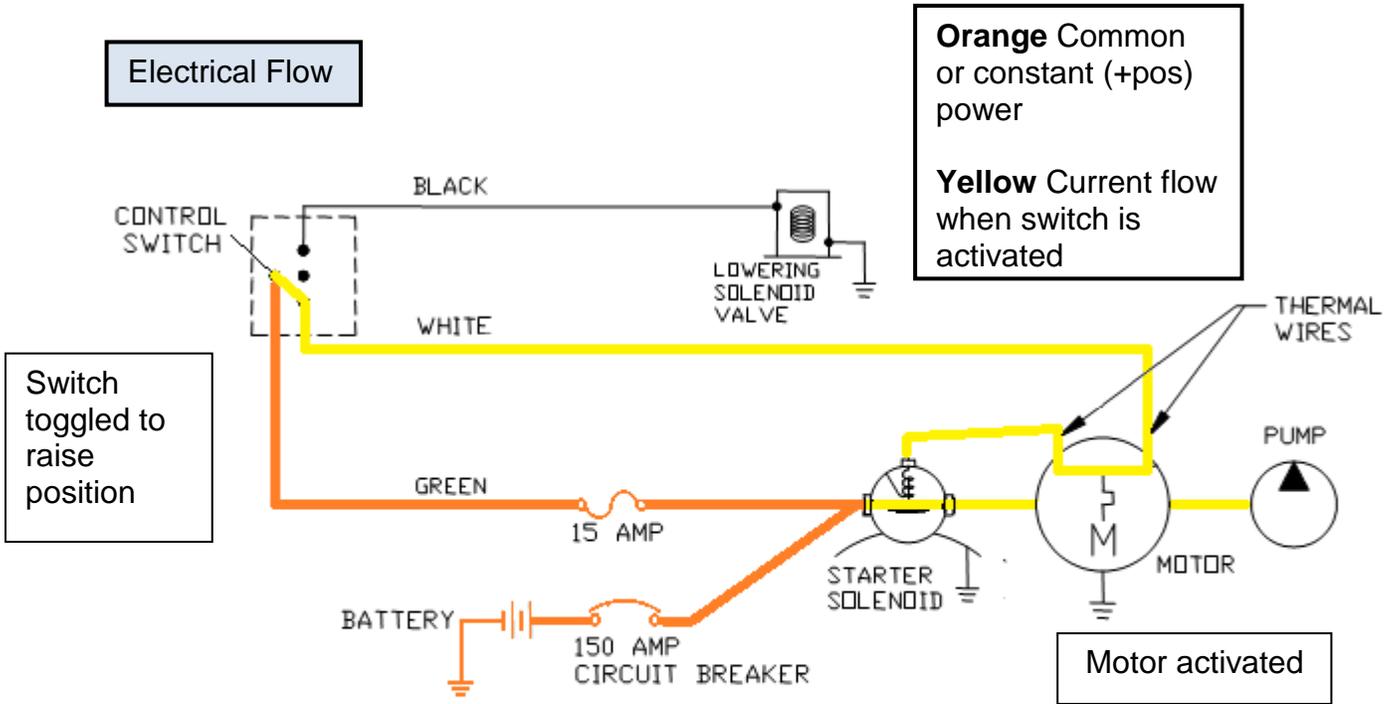
Hydraulic Schematic



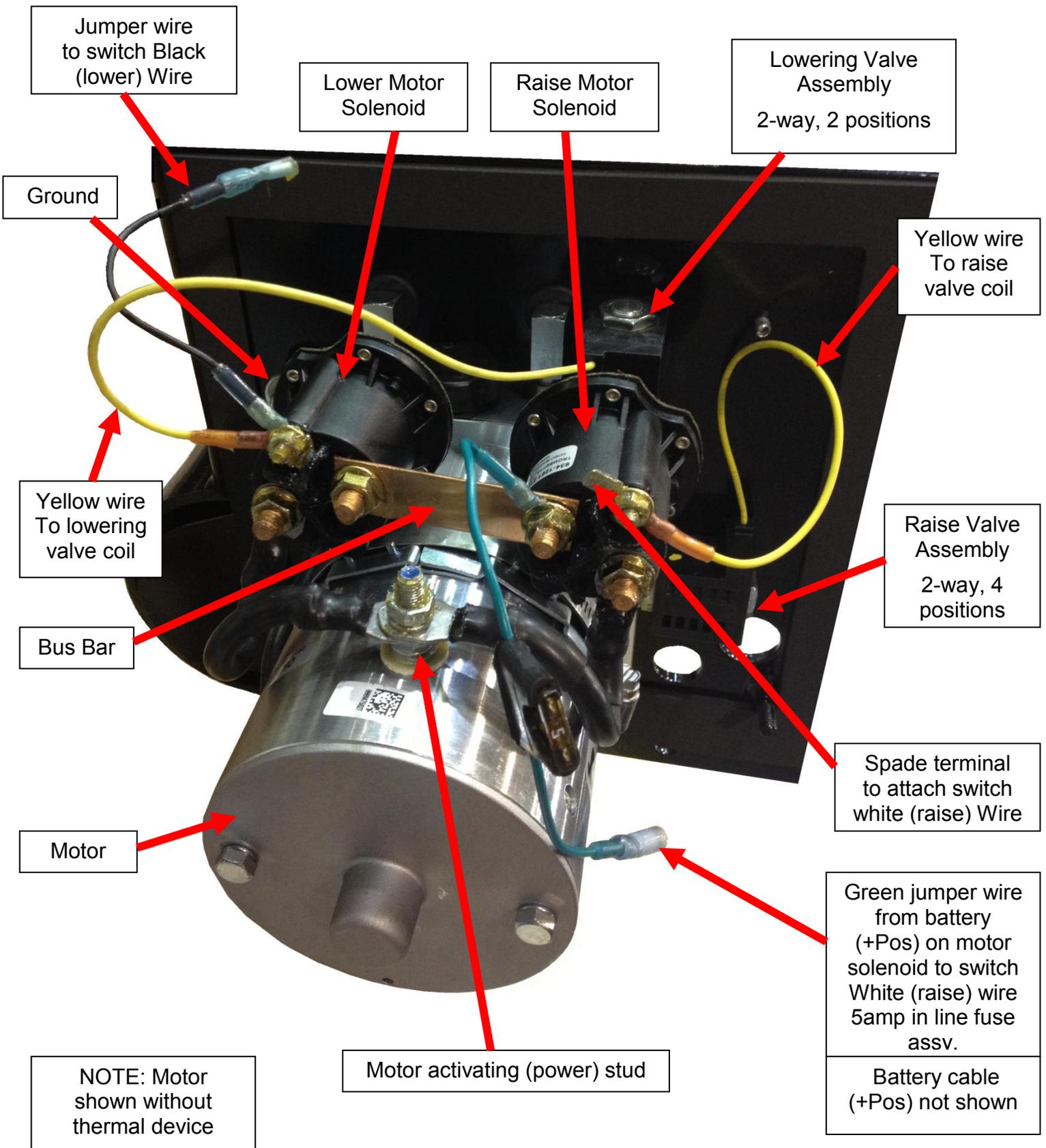
# Gravity Down Pump - Lower Flow Schematics



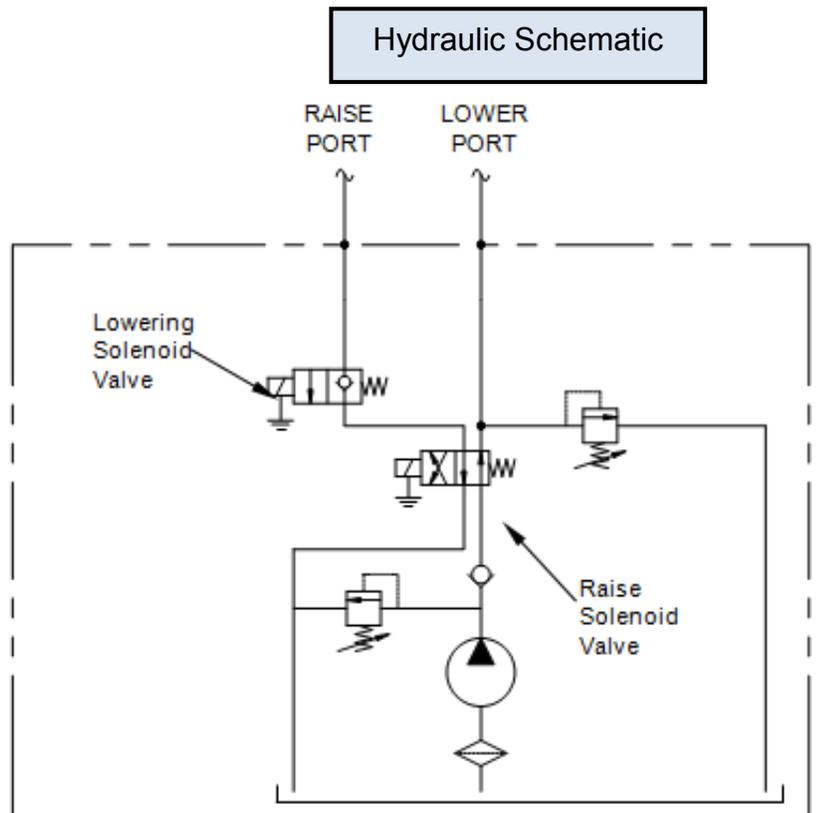
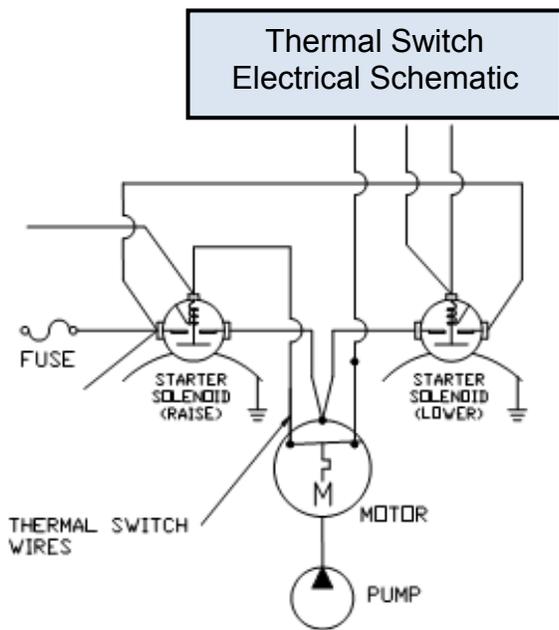
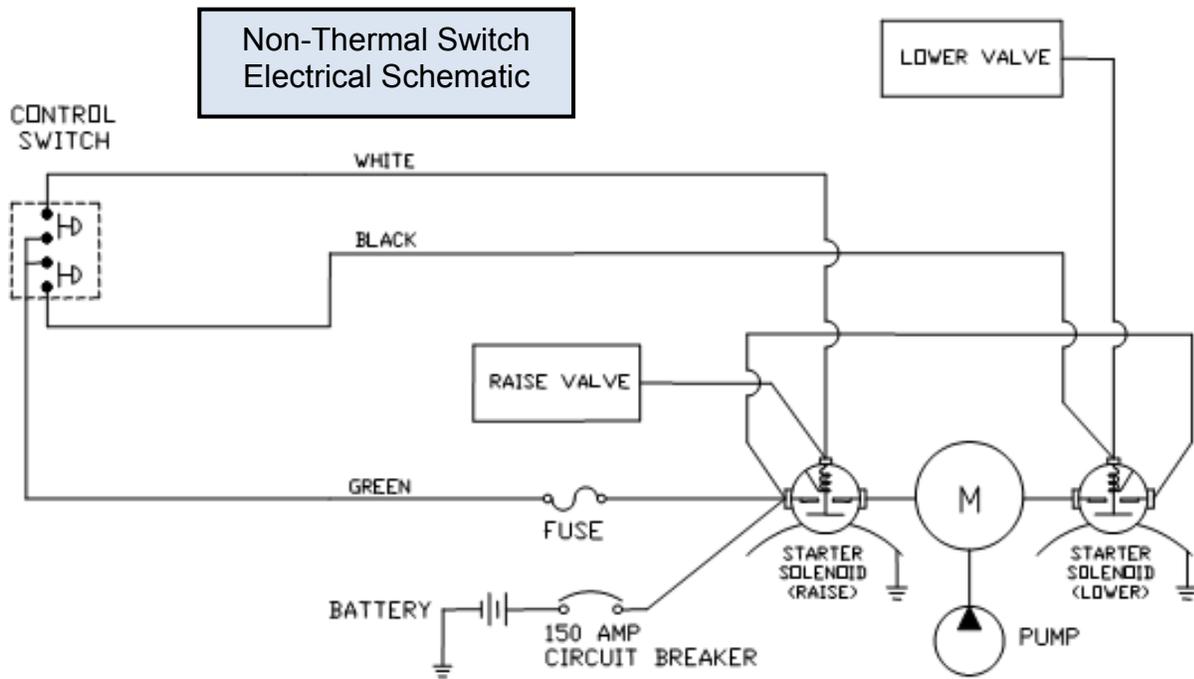
# Gravity Down Pump - Raise Flow Schematics



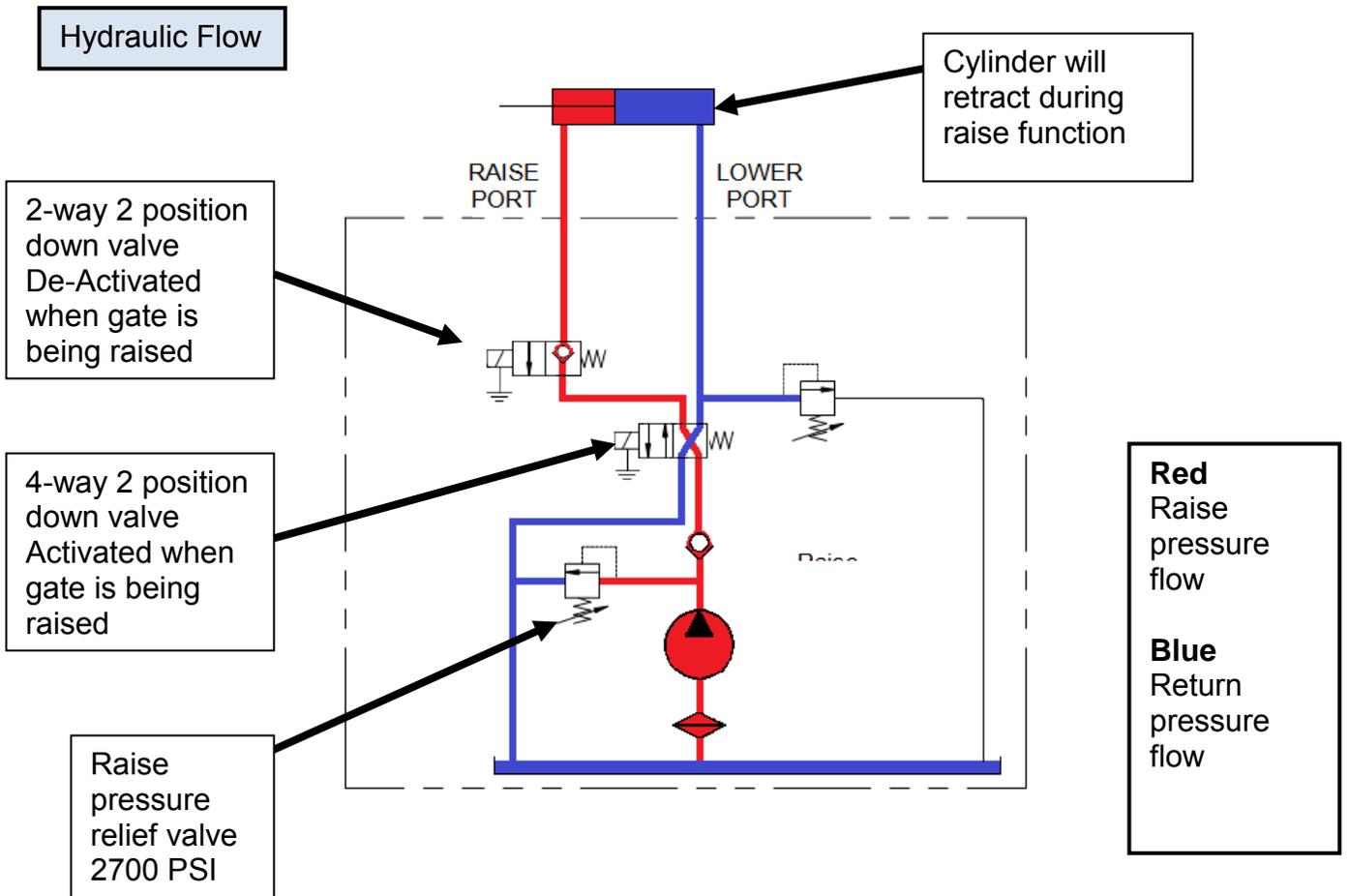
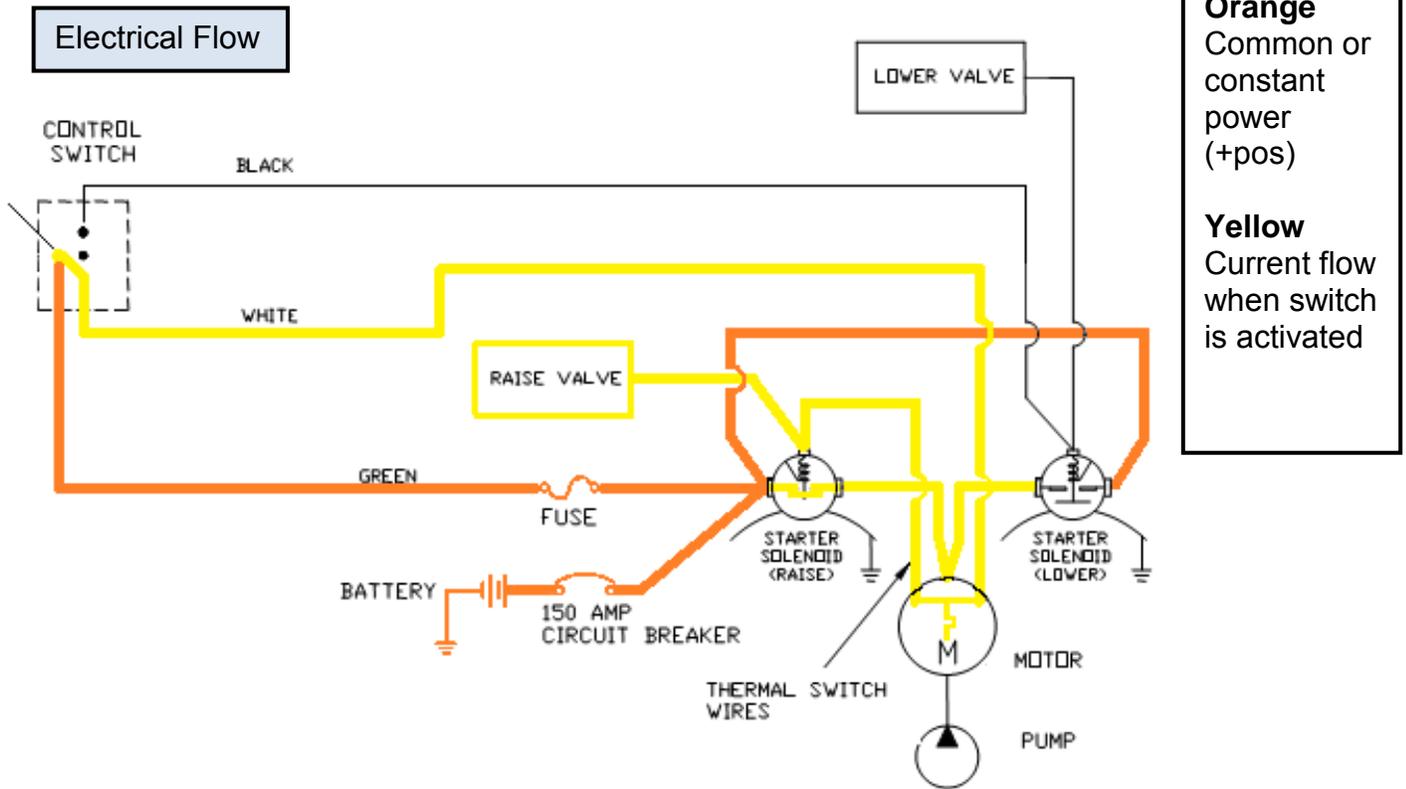
# Power Down Power Unit



# Power Down Pump - Schematics

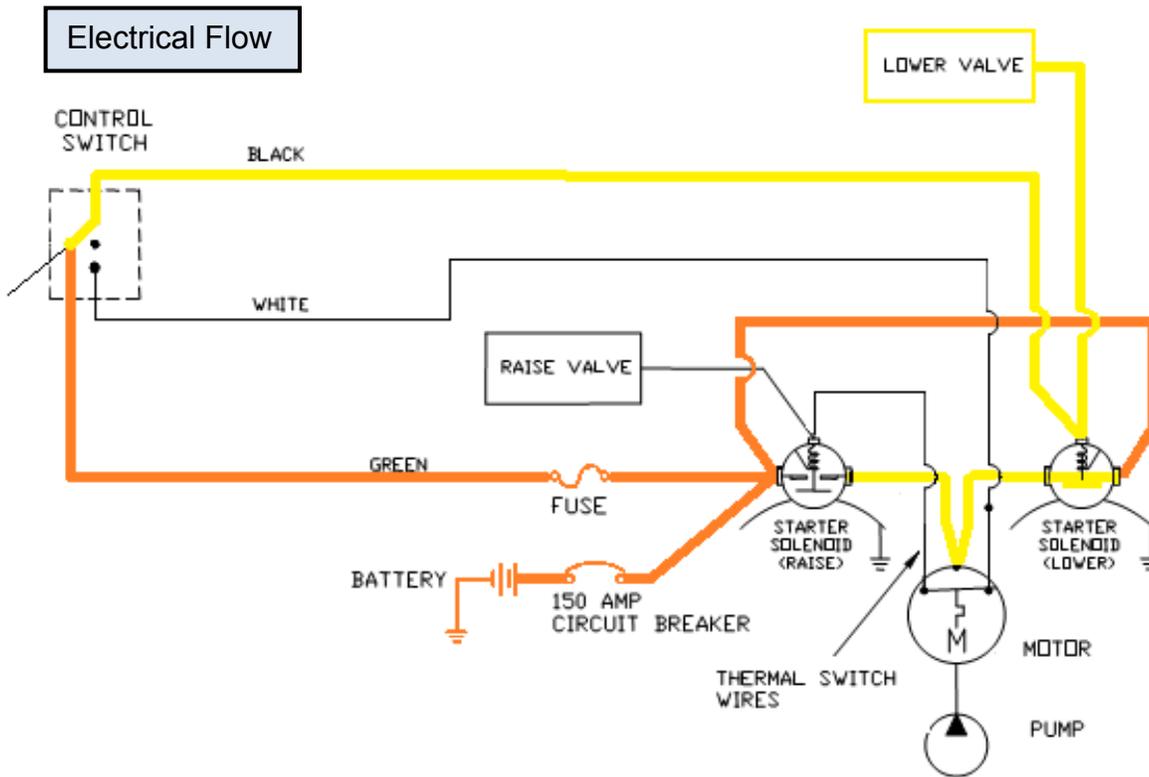


# Power Down Pump - Raise Flow Schematics



# Power Down Pump – Lower Flow Schematics

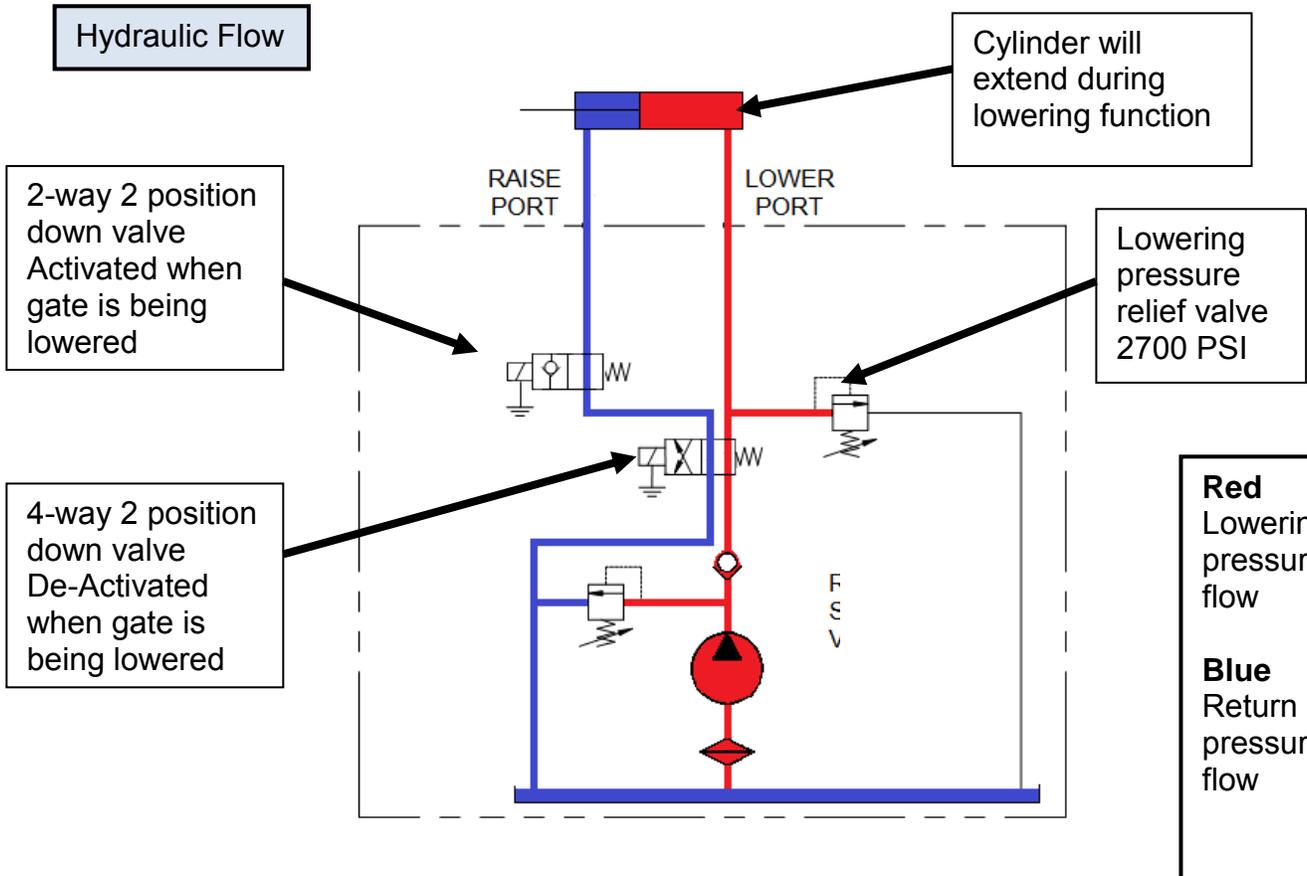
## Electrical Flow



**Orange**  
Common or constant power (+pos)

**Yellow**  
Current flow when switch is activated

## Hydraulic Flow



# EM Trouble Shooting Guide

## CHECKING THE OIL LEVEL IN THE RESERVOIR

The liftgate is shipped with Shell Tellus 15. Check the owner's manual for additional recommended oils. Fill as required with the specified fluid in the owner's manual. Do not overfill the reservoir.

If the liftgate has Gravity **down Pump**: Check the oil with the platform fully lowered on the ground. Oil should be within "½" below the top of the reservoir.

If the liftgate has a **Power down Pump**: Check the oil with the platform raised at bed level. Oil should be within "½" below the top of the reservoir.

## RECOMMENDED LIFTGATE BATTERY(S)

The **battery specification is Group 31, 650-750 cold cranking amps and at least 180 minutes of reserve capacity.** Batteries should be load tested before being replaced. When replacing the liftgate battery(s) inspect the cables and wires for corrosion. If the batteries are in need of replacement the charging system should be tested before releasing the trailer.

## MOTOR DOES NOT RUN

The pump motor has built in thermal protection. The thermal switch will shut the motor down if the unit exceeds 240 degrees. Once the motor cools down the switch will reset automatically.

- Check the cab shut off switch confirm that the switch is "ON" and functional. Check for voltage on both terminals of the cab switch. This voltage should be the same as the battery voltage. If you do not find battery voltage check all of the cables and wires for damage and poor connections. Clean any dirty connections and tighten any loose connections.
- Check the Circuit breaker; this is located directly on the liftgate battery(s). Check for voltage on both sides of the circuit breaker. This should also reflect battery voltage.
- Inspect the 15 amp switch fuse located in the switch wiring harness.
- Check the battery(s) for a full state of charge. Load test the lift gate battery(s). Replace any batteries that cannot be fully charged.
- Check all cables and wires for shorts and poor connections; this includes grounds and the gauge of the wire for ground. Check the cables for damages clean any dirty connections and tighten any loose connections.
- Check for voltage at the motor solenoid. Listen for a clicking noise at the motor solenoid when the raise switch is activated. If you have at least **10.5 volts** at the solenoid when the raise switch is activated and you have no voltage to the motor, and then replace the motor solenoid. If the motor does not run after confirming battery voltage at the terminal on the motor, replace the defective motor.

# EM Trouble Shooting Guide

## PLATFORM DOES NOT RAISE OR RAISES SLOW- MOTOR RUNS

*If the motor is not running see the section titled “MOTOR DOES NOT RUN” before proceeding.*

- Check for any mechanical obstructions or any mechanical damage. Look for any broken, bent or worn parts that could interfere with normal operation.
- Check and inspect the oil level in the reservoir. Inspect for any contamination or water in fluid. Check the fluid viscosity. **See Checking the oil level in the reservoir**
- **Power down Pump:** Check the **Raise Coil Valve**. Check and confirm voltage to coil when the “**Raise**” switch is activated. Check for **10.5 volts** at the coil. Test the coil for resistance (**4.5ohms**). Confirm that the valve is magnetizing. If the coil is working the valve may need to be replaced. If the valve is not getting voltage, check all cables and wires for shorts and poor connections. Check and test the control switch.
- If your voltage is under **10.5 volts** with the “**Raise**” switch activated, check the battery(s) for a full state of charge. Load test the lift gate battery(s). Replace any batteries that cannot be fully charged.
- Check pumps pressure from the lift port. It should be **2700 psi**.
- If the pump pressure is within specifications but the liftgate will not raise: Check and inspect for a blocked or closed flow control valve. \*Located on the cylinder on single cylinder and inside the cylinder on the rod end on a twin cylinder unit.

## PLATFORM WILL NOT LIFT TO FULL CAPACITY

- Check and inspect the oil level in the reservoir. Inspect for any contamination or water in fluid. Check the fluid viscosity. **See checking the oil level in the reservoir**.
- Check the battery(s) for a full state of charge. Load test the lift gate battery(s). Replace any batteries that cannot be fully charged
- Check for any mechanical obstructions or any mechanical damage. Look for any broken, bent or worn parts that could interfere with normal operation.
- Check for leaking hoses and lines. Replace any leaking lines or hoses.
- Check for air in the hydraulic system; bleed any air from the lift gate at the cylinder.
- Check the voltage at the pump motor with the “**Raise**” switch activated. The voltage should be **10.5 volts**.
- Check the pump pressure from the lift port. It should be **2700 psi**.

# EM Trouble Shooting Guide

## PLATFORM DOES NOT LOWER OR LOWERS SLOW

Determine first if the pump is Gravity **down Pump** or **Power down Pump**. If the pump is Power Down, the motor should run in order to lower the unit. If the pump is gravity down, the platform will lower using gravity.

**If the motor is not running see the section titled “MOTOR DOES NOT RUN” before proceeding.**

- Check for any mechanical obstructions or any mechanical damage. Look for any broken, bent or worn parts that could interfere with normal operation.
- Check and inspect the oil level in the reservoir. Inspect for any contamination or water in fluid. Check the fluid viscosity. **See Checking the oil level in the reservoir.**
- Check voltage on the **Lowering Valve** while the “**Lower**” switch is being activated. The voltage should be at least **10.5 volts**. Feel for a pulse on the valve. Test the coil (**4.5ohms**). Confirm that the valve is magnetizing. If the coil is good the valve may need to be replaced. If the coils are not getting power, check all cables and wires for shorts and poor connections.
- Remove the Lowering Valve and check for contamination. Clean the valve with brake cleaner and operate the plunger. Check the plunger to ensure that it moves freely back and forth “3/16”.
- Check and inspect for a blocked or closed flow control valve. \*Located on the cylinder on single cylinder and inside the cylinder on the rod end on a twin cylinder unit.

## PLATFORM LOWERS ON ITS OWN

- Confirm that the **Lowering coil** is not receiving voltage without the control switch being activated. If the lowering valve is receiving unwanted voltage, check the wiring for damages, check the switch contacts, clean dirty connections and tighten any loose connections.
- Remove the Lowering Valve and check for contamination. Clean the valve with brake cleaner and operate the plunger. Check the plunger to ensure that it moves freely back and forth “**3/16**”.
- The cylinder may have an internal leak. Raise the platform to bed height. Inspect the clear return line for any fluid that may be returning back to the reservoir.

*(Note: If the lift has dual cylinders the driver side cylinder has an internal leak only that side of the gate may drift down. If the curb side cylinder has an internal leak the gate can drift down evenly)*

# EM Trouble Shooting Guide

## THE CIRCUIT BREAKER RESETS

- Check for a direct short in power cable. Inspect for damaged or cut cable. Also check for improperly size battery cable.
- A defective motor may draw to much current. Check amperage draw from lift gate motor. At **700 psi** the motor should draw **80-100 amps**.
- Defective circuit breaker. If the breaker is suspected it should be replaced.

## CONTROL SWITCH FUSE BLOWN

- Check the wiring for damages, clean dirty connections and tighten any loose connections
- Check and inspect for a short in switch control wire or switch contacts
- .Check for defective coils on valves Test the coils (4.5ohms)
- Check and inspect the motor solenoid. Confirm you have at least 10.5 volts at the motor solenoid when the switch is activated.

## PUMP MOTOR IS GETTING HOT

- This condition may be normal if the liftgate motor experiences high cycles of operation in a short period of time without cooling. The Thermal switch will reset after the motor cools down.
- Check for low voltage. The voltage should be at least **10.5 volts** at the motor.
- Check batteries are fully charged, load test batteries. Check the cables for damages, clean dirty connections and tighten any loose connections.
- Check and confirm that the ground is adequate.
- Thermal switch maybe defective or bypassed. The Thermal sensor is set to activate at **240 F** degrees.

# How To Order Parts

**Repairs should be made only by authorized mechanics using WALTCO Replacement parts.**

**When ordering repair or replacement parts, please include all the information asked for below. If this information is not available, a complete written description or sketch of the required part will help WALTCO identify and deliver the needed part to you.**

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## **THE FOLLOWING INFORMATION MUST BE INCLUDED:**

1. SERIAL NUMBER - [WALTCO liftgate serial numbers can be found on the Specification Tag attached to the mount frame.]
2. MODEL NUMBER
3. CAPACITY
4. PLATFORM SIZE

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## **THEN INCLUDE THE FOLLOWING INFORMATION:**

5. PART NUMBERS
6. DESCRIPTION
7. QUANTITY REQUIRED

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## **MAIL, E-MAIL OR PHONE YOUR REQUEST TO:**

**Waltco Lift Corp**  
285 Northeast Avenue  
Tallmadge, OH 44278  
1-800-411-5685  
FAX: 1-800-411-5684  
E-MAIL: [parts@waltco.com](mailto:parts@waltco.com)

**ALL PARTS ARE F.O.B. FROM THE SHIPPING FACTORY**

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## **PLEASE NOTE:**

**To assure you of continuing and effective quality control, our warranty policy permits replacement of hydraulic cylinders, valves and motor pump units when their factory seals are intact. Parts under warranty will be exchanged promptly after careful inspection of the returned assemblies.**

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# Notes