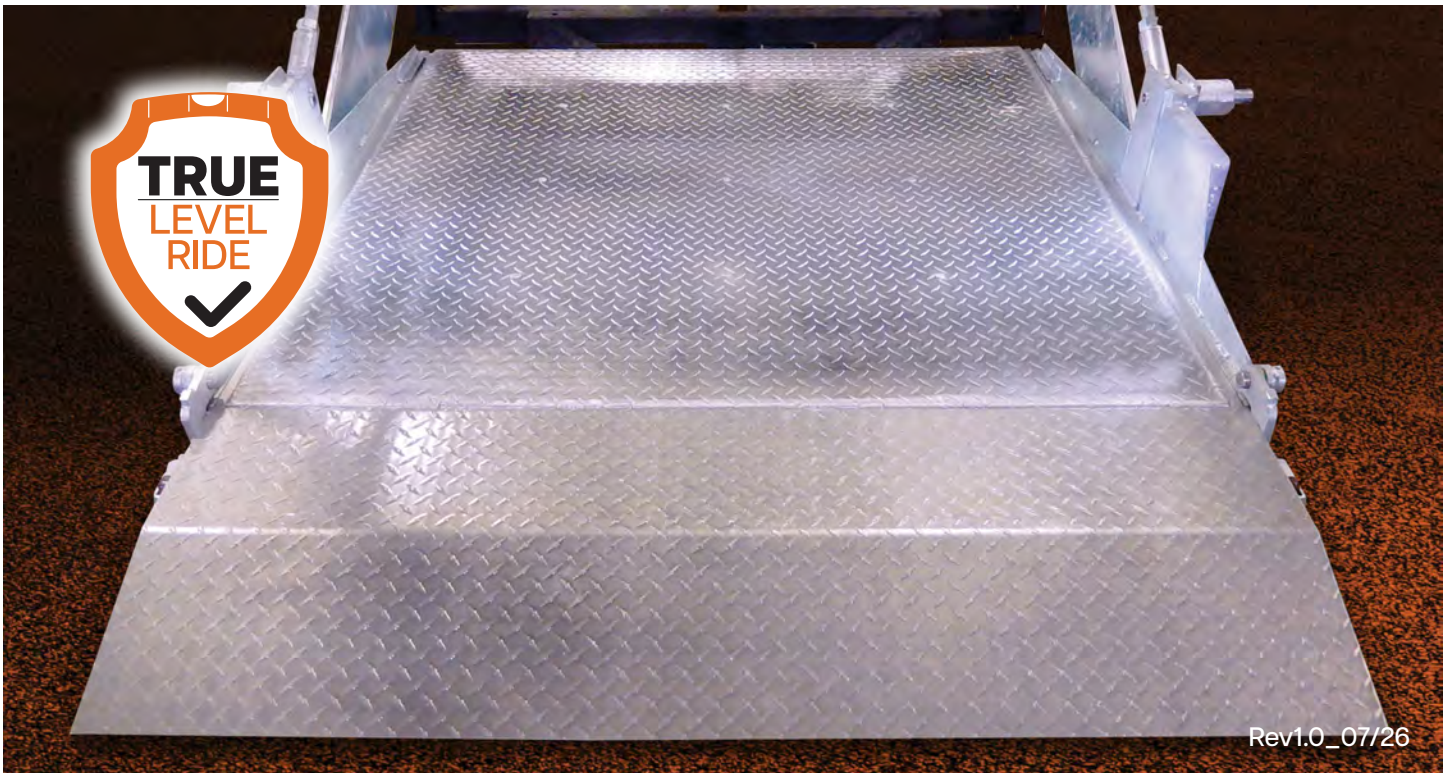
LEYMAN
LIFT GATES

# INSTALLATION MANUAL

## Legend™ TLS®

**TLS3510RL**
**TLS4500RL**
**TLS4510RL**

Hide-A-Way® Trailer Side Gates




Rev1.0_07/26

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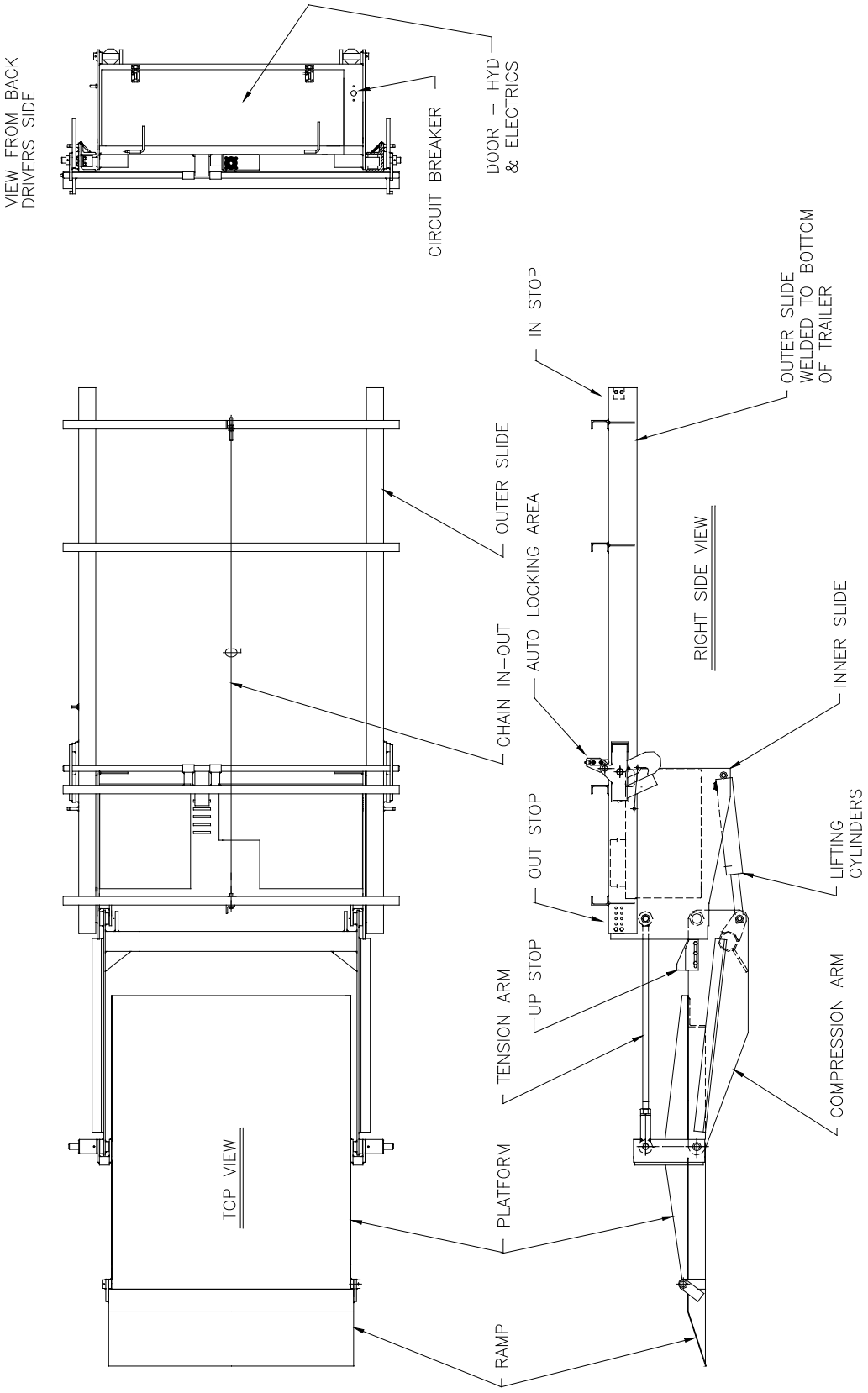
LIFT GATES

# SPECIFICATIONS

# GENERAL TERMINOLOGY



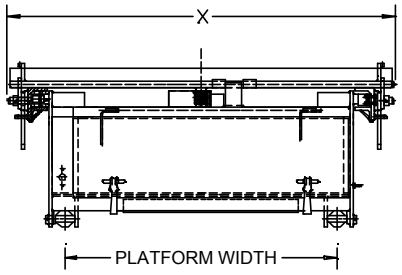
# GENERAL SPECIFICATIONS

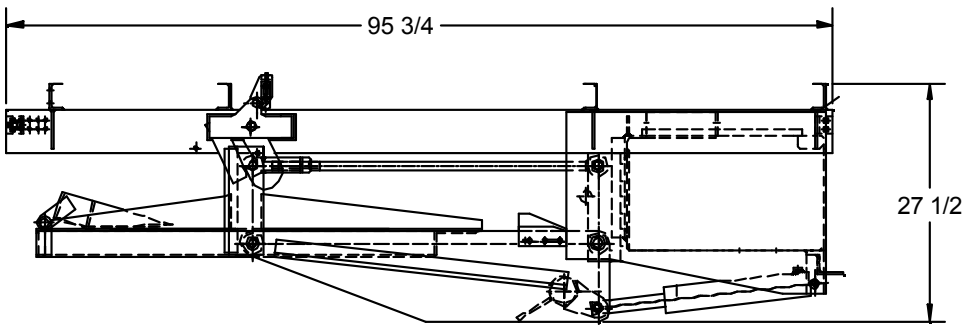
CUSTOMER: _____
MODEL: TLS_____
SERIAL #:
CAPACITY: 4500 lbs.
TYPE: Trailer Side Door Lift Gate
OPERATION: Power up/Gravity down
Power in/out
HYDRAULIC PRESSURE: 2500PSI – Up Function
800PSI – In/Out Function

| Model Number | Lifting Capacity | Platform Size | Main Platform | Secondary Platform | Rigid Ramp | Approx. Weight |
|---|---|---|---|---|---|---|
| TLS 3510 | 3,500 lbs. | 42" W x 55" D | 51" D | 4" D | 10" Taper | TLS 3510 1,200 lbs. |
| | | 48" W x 55" D | | | | TLS 3510 1,300 lbs. |
| | | 60" W x 55" D | | | | TLS 3510 1,450 lbs. |
| | | 72" W x 55" D | | | | TLS 3510 1,600 lbs. |
| TLS 3510 | 3,500 lbs. | 80" W x 48" D | 48" Flat | No Secondary | 5" Taper | TLS 3510 1,800 lbs. |
| TLS 4510 | 4,500 lbs. | 42" W x 55" D | 51" D | 4" D | 10" Taper | TLS 4510 1,250 lbs. |
| | | 48" W x 55" D | | | | TLS 4510 1,350 lbs. |
| | | 60" W x 55" D | | | | TLS 4510 1,500 lbs. |
| | | 72" W x 55" D | | | | TLS 4510 1,660 lbs. |

# MINIMUM MOUNTING SPACE REQUIREMENTS

| PLATFORM WIDTH | DIMENSION "X" |
|---|---|
| 42" | 60" |
| 48" | 66" |
| 60" | 78" |
| 72" | 90" |



# RECOMMENDED HYDRAULIC OILS/LUBRICATION

| HYDRAULIC OILS | MANUFACTURER | TYPE | TEMP RANGE |
|---|---|---|---|
| **Level 1** Normal Conditions | Mobil | DTE 11 | -15° F to + 150° F |
| | Shell | TELLUS-T15 | -15° F to + 150° F |
| | Exxon | UNIVIS-N15 | -15° F to + 150° F |
| **Level 2** Cold Conditions | Mobil | AERO-HFA | -50° F to + 80° F |
| | Shell | AERO FLUID #4 | -50° F to + 80° F |
| | Exxon | UNIVIS-HVI13 | -50° F to + 80° F |
| | Mil | H-5606 | -50° F to + 80° F |

| HYDRAULIC TANK CAPACITY |
|---|
| 2 ½ gallons |

| LUBRICATION - GREASE | |
|---|---|
| Cam Rollers, Idler Sprockets, Auto-Lock shaft, cylinder pins, if grease fittings provided | **Level 1** Normal Conditions NLGI #2 Lithium base grease<br>**Level 2** Cold Conditions NLGI #1 Lithium base grease<br>**DO NOT USE CHASSIS or 5th WHEEL GREASE** |

| BATTERIES |
|---|
| Two (2) 12-Volt DC Group 31 Heavy-Duty Dual Purpose or AGM |
| **ELECTRICAL COMPONENTS CONNECTIONS** |
| Use Fluid Film Rust & Corrosion Protection by Eureka, except on Start Solenoid.<br>On Start Solenoid, use Color Guard by Loctite, or Liquid Electrical Tape |
| **AMPERAGE DRAW OF MOTOR** |
| When raising platform (empty) approximately 115 AMPS @ 13.5 volts. At bypass approximately 235 AMPS @ 13.5 volts |
| **LIFTING PRESSURE SETTING** |
| With platform at floor level and pump in bypass 2500PSI |
| **IN-OUT PRESSURE SETTING** |
| When sliding gate in-out and pump in bypass 800PSI |
| **MINIMUM VEHICLE FLOOR HEIGHT LADEN** |
| With any size of platform – vehicle floor height 48" |
| **MAXIMUM VEHICLE FLOOR HEIGHT UNLADEN** |
| With any size of platform – vehicle floor height 58" |
| **APPROXIMATE TIMES EMPTY AT 80° F WITH 2 GROUP 31 BATTERIES** |
| Time up: 14 – 18 seconds, Time down(gravity down): 12 –16 seconds |

**WARNING**

The use of a battery charger as the sole power source to operate the lift gate is unauthorized and will prevent the lift gate from working properly. The lift gate must always be operated in conjunction with at least one (1) 12 volt heavy duty lift gate battery. A minimum of 9.5 volts must be maintained in order for the DOWN valve and 10.5 volts for the IN / OUT valves to operate.

LEYMAN

LIFT GATES

# INSTALLATION

# BEFORE YOU INSTALL THE LIFT GATE

**1.** Check the lift gate for shipping damage.

**2.** Remove the shipping bands, etc. if the gate was shipped vertically, set the gate on the ground.

**WARNING**

**DO NOT INSERT FORKLIFT FORKS AT BOTTOM OF GATE NEAR DOOR.**
Remove the shipping bands, etc. To set lift gate horizontal, chain or lash top cross tube near chain anchor

**3.** Remove the box, open and read the installation manual. Check that all major parts have arrived, such as the electrical box, optional mud flap (if ordered), etc.

**4.** Inspect the area under the trailer where the lift gate is to be mounted. Be sure the area is clear of obstructions where the lift gate will be installed. Check the cross member material. If the cross members are made of aluminum, the aluminum conversion kit (Option #133TLS) must be ordered and used to mount the lift gate.

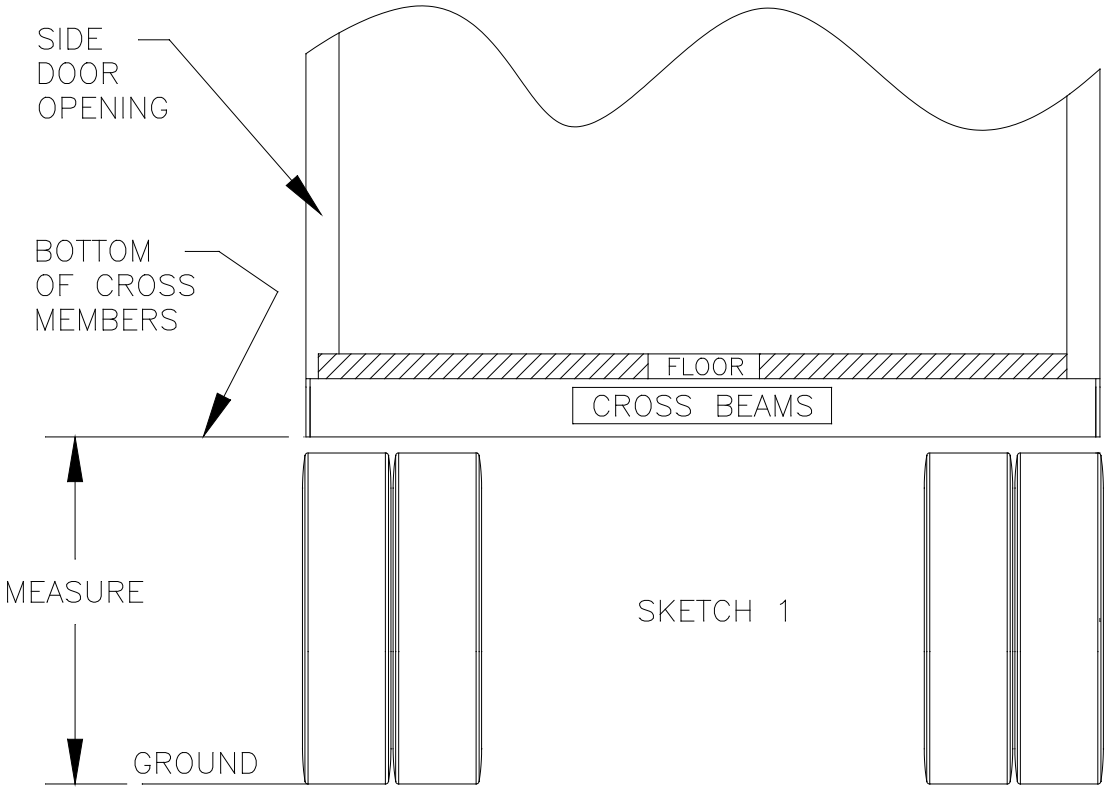
**5.** The use of a battery charger as the sole power source to operate the lift gate is unauthorized and will prevent the lift gate from working properly. The lift gate must always be operated in conjunction with at least one (1) 12 volt heavy duty lift gate battery. A minimum of 9.5 volts must be maintained in order for the DOWN valve and 10.5 volts for the IN/OUT valves to operate.

**6.** Read the following pages prior to beginning the installation.

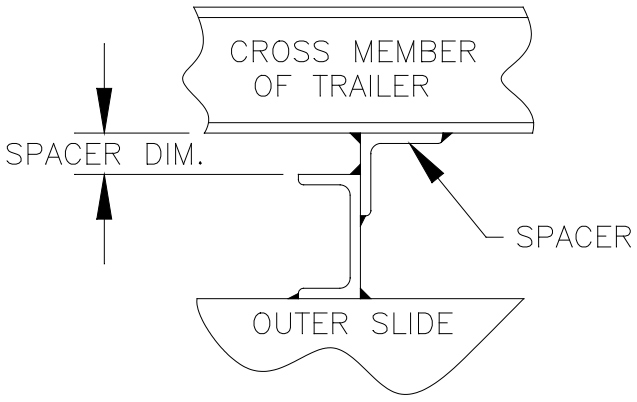
- **A.** Minimum mounting space requirements
- **B.** Pre-installation of the lift gate.
- **C.** Side door mounting information.
- **D.** Installation of the lift gate.
- **E.** Installation adjustments.

# PRE-INSTALLATION OF THE LIFT GATE

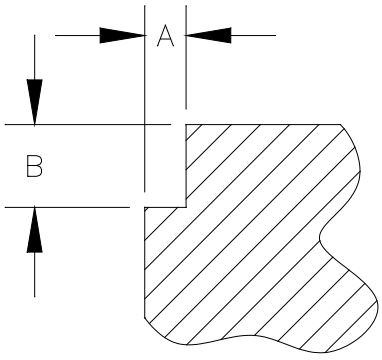
1. Measure from the bottom of the cross members to the ground. If this measurement is less than 47 inches, spacers will not be required. This measurement must be 41.5 inches minimum in order to yield 14 inches ground clearance for the gate. If the measurement is more than 47 inches, the amount in excess of 47 inches is the height of the spacer that must be added to the four channels at the top of the Outer Slide. See Sketches 1 and 2.
2. Check the side door threshold. See Sketch 3. For the platform to properly enter the opening, dimension "B" must be at least 1.5 times dimension "A".




SKETCH 1




SKETCH 2




SKETCH 3

SIDE DOOR THRESHOLD

# SIDE DOOR MOUNTING INFORMATION

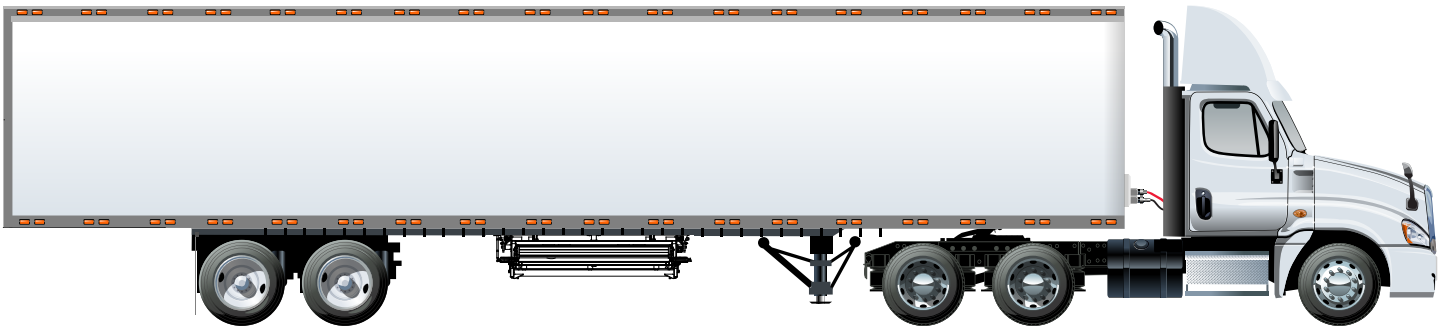
For installation of Leyman side gates that are wider than the door opening, we recommend the gate be offset to the rear of the trailer, so when the door is opened, the platform will not hit the bottom edge of the door when in the full UP position.

Depending on the side door threshold, the platform may not fill the gap between the floor and the platform. The preferred method to correct this is to **ADD MATERIAL** at the tip of the platform. Some **Premier**™ LPS® gates may ship with a 1" wide extension strip already on the platform tread plate. If so, trim the length of that extension strip already on the platform so that it fits inside the door width. Repair trimmed edges with galvanize zinc spray. Shake spray can vigorously before using.

If the **Premier**™ LPS® platform does not have a 1" extension strip built into the tread plate, then a 1/4" x 1" x 47" long stainless steel strip was included in the shipment. Add this to the platform edge as a gap-filler at the door threshold. Trim length to fit inside the threshold, remove the galvanize coating on the edge of the platform where welds will be made, and weld the extension strip in place. Use stainless steel welding wire for best results. Repair weld areas with galvanize zinc spray after welding. Shake spray can vigorously before using.

**NOTE**

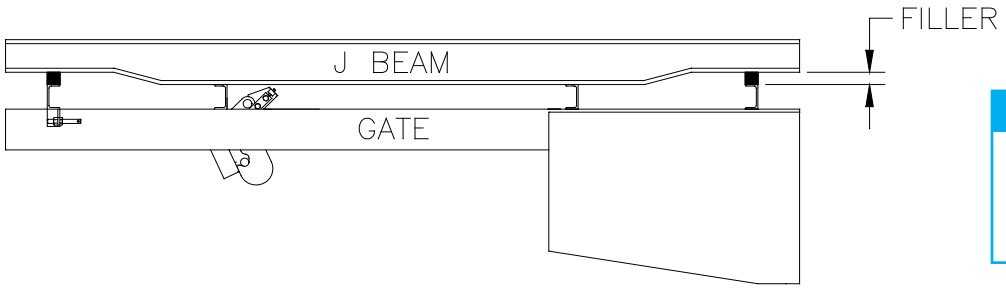
End user option, material is not provided by Leyman.



MOUNTING ON "J" CHANNELS

**NOTE**

FILLER MATERIAL NOT SUPPLIED BY LEYMAN




**NOTE**

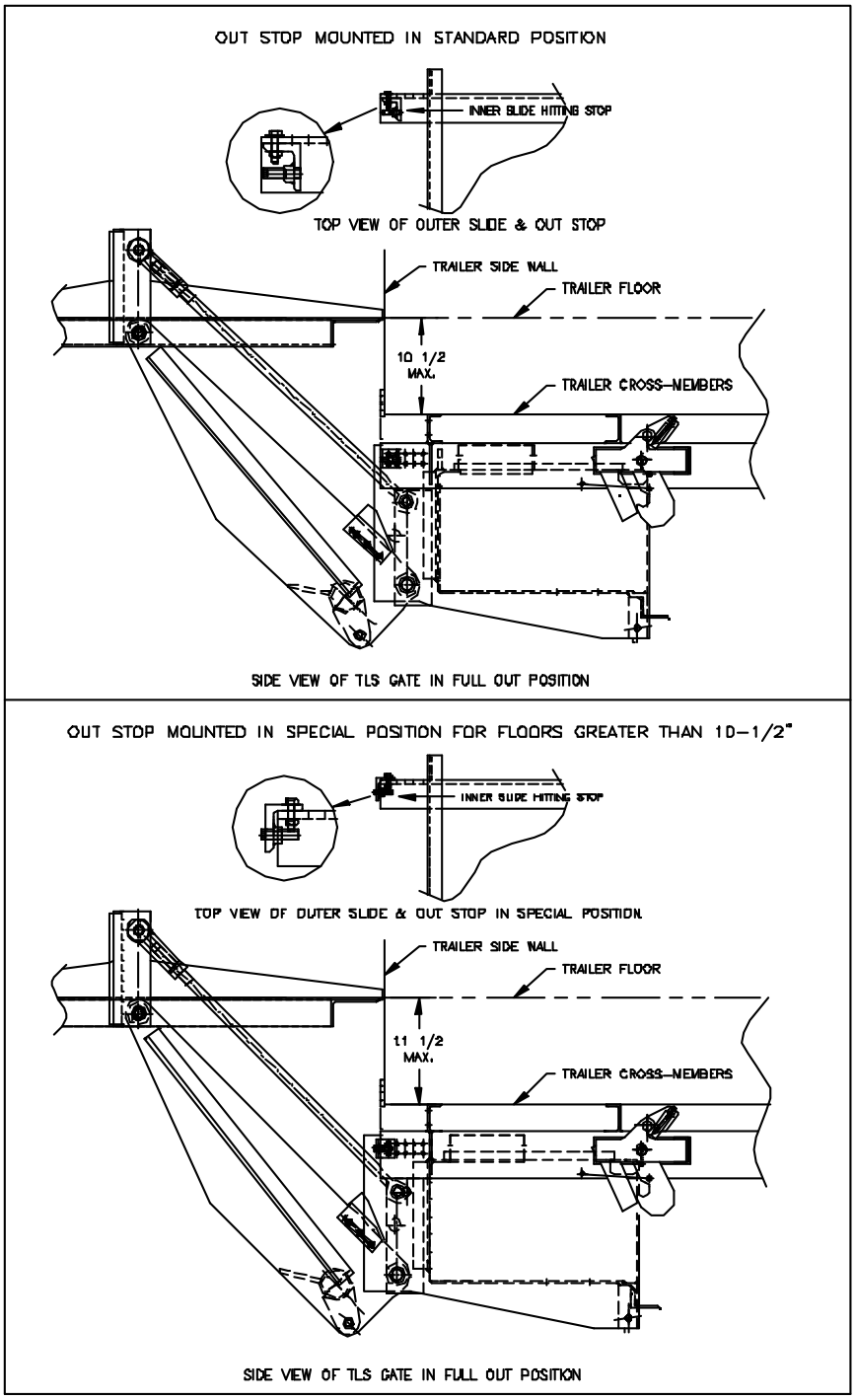
Mounting to aluminum cross members will require the use of kit #133TLS

# OUT STOP MOUNTING AND FLOOR THICKNESS

Determine the total floor thickness (vertical distance between the bottom of the cross-members and the top of the floor inside the trailer). If that dimension is 10-1/2" or less, leave the Out Stops mounted in the standard position. Mount Outer Slide rail face (fixed rail) flush with the rub rail. If the total floor thickness dimension is larger than 10-1/2", the Out Stops must be flipped around as shown in the bottom half of the sketch below. In this case, the set screws in the Out Stops are reversed as well.

**CAUTION**

Out Stops must be adjusted so that Front Chain Anchor does not strike Chain Cover Box.



# INSTALLATION OF THE LIFT GATE

**1.** Offset gate relative to the side door as shown on page 6, assuming a curb side mounting arrangement.

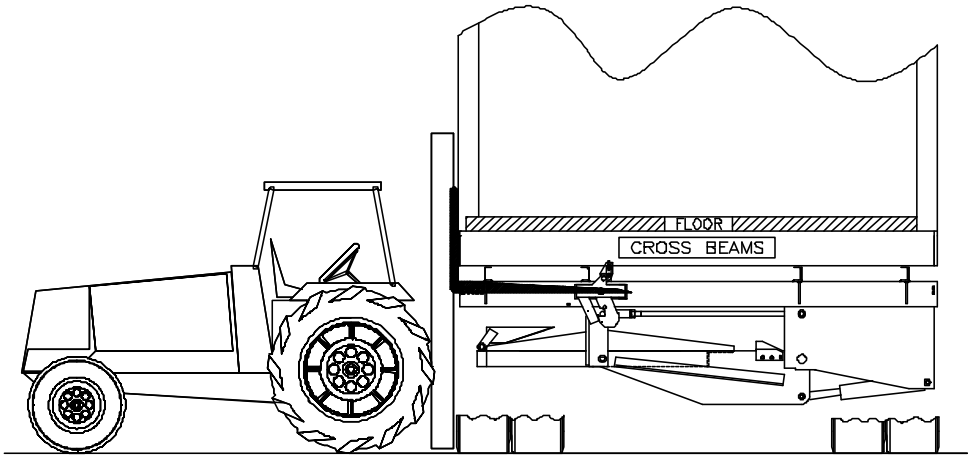
**NOTE**

The side edge of the platform, which must clear the door in the opened position, is 3-3/8 inches from the outside face of the Outer Slide (fixed rail).

**2.** Raise the lift gate, using a lift truck. **See the sketch below.** Position the forks under the spreaders (the four (4) three inch channels). Spread the forks as wide as possible.

**CAUTION**

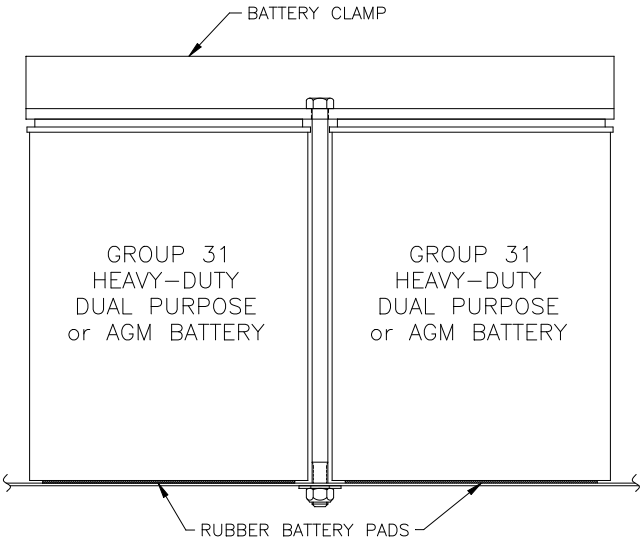
Do not hit anything with the forks. “C” clamp the unit to the forks. Use two (2) “C” clamps.




**3.** Pick the unit up, position it under the trailer. Line up the marks, which you put on the gate and the rub rail. The front edge of the gate’s Outer Slide should be flush to the outside of the rub rail. Weld the four (4) corners to the cross members.

**4.** Mount the electrical box. See the wiring drawings for location information. Drawings are labeled “Toggle Switch Electrics or Walk-Around Electrics”. Finish wiring.

**5.** Install at least two (2) heavy-duty Dual Purpose or AGM batteries. Place rubber battery pads under batteries. See sketch



# INSTALLATION OF THE LIFT GATE – cont.

**6.** Fill oil tank using a recommended hydraulic oil, and install breather cap. Oil level should be 1" from top of tank with platform on ground.

**7.** With switches, lift the gate upward, lift up on the auto lock handle. Drop the platform down six inches. Run the gate outward. Lift the platform up to the door threshold. Check for the fit to the door opening. Alter or adjust as needed. See the Installation Adjustments page for correct order and steps.

**CAUTION**

Do not ride on the gate yet, when only partially welded.

**8.** Complete welding. Weld all channels along both sides to all trailer cross members.

**9.** Install charge line.

**10.** Install any other options.

**11.** Make any final adjustments if needed.

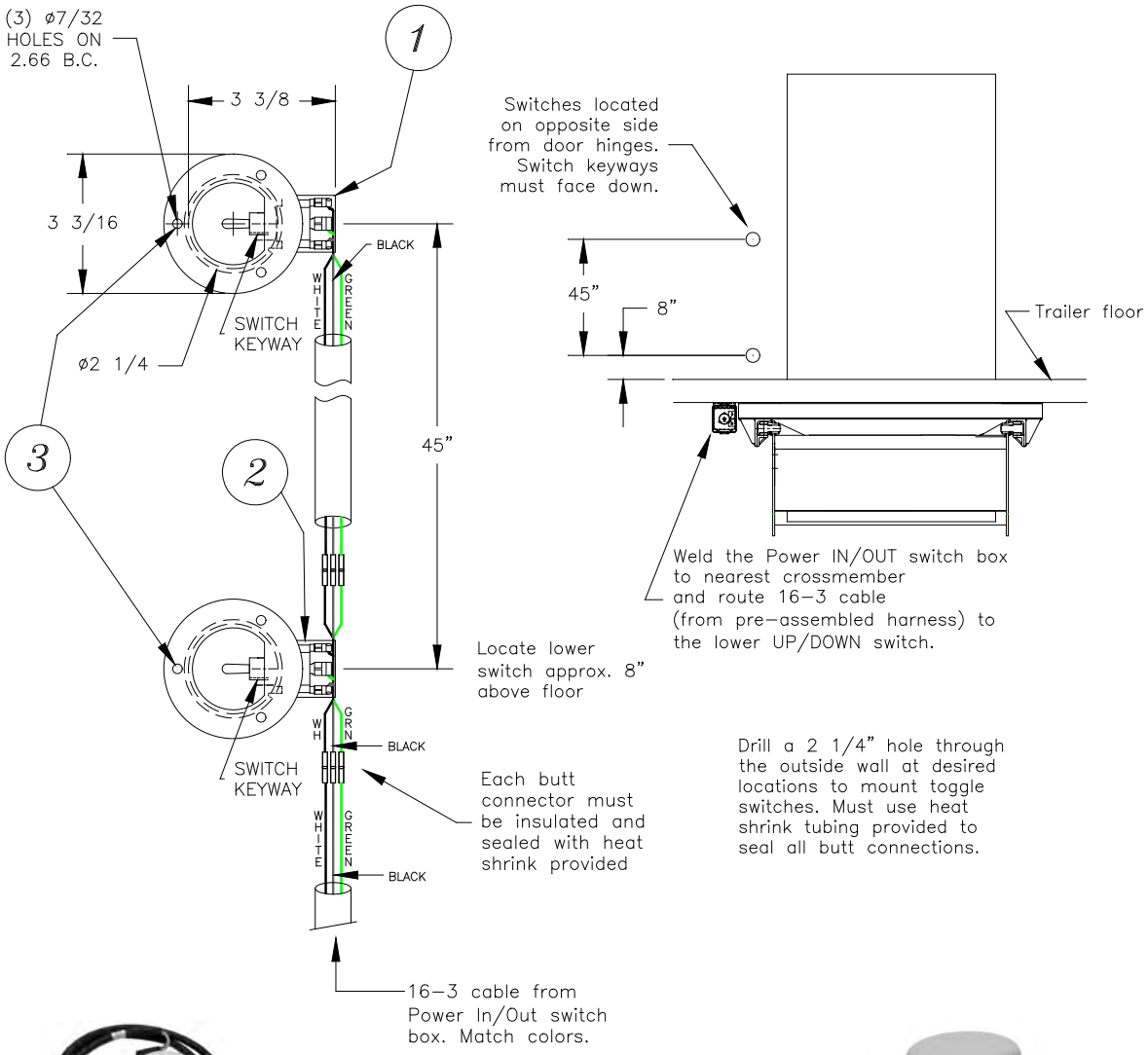
**12.** Touch-up any paint wherever necessary. Follow instructions on Extreme Shield Touch-Up paint kit. All paint in the heat affected zone (weld area) must be removed and re-painted.

**13.** Install the safety decals. Reference page 2.14 for general placement.

**14.** Perform a Final Installation Inspection. Reference page 2.15.

# TOGGLE SWITCH ELECTRICS - INSTALLATION

option #182TLS




Top Up/Down Switch Assembly
**AA-551-538**

Small Ring Terminal
**P46729**

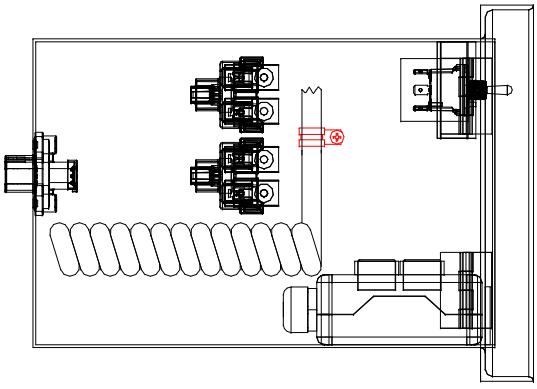
Recessed Switch Plate
**P46292**

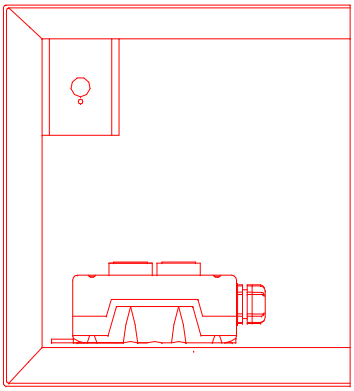
Rubber Half Boot
**P46291**

| INDEX # | QTY | PART # | DESCRIPTION | COMMENTS |
|---|---|---|---|---|
| 1 | 1 | AA-551-538 | Top Up/Down Switch Assembly | Including Recess Switch Plate |
| 2 | 1 | P46729 | Lower Up/Down Switch | Including Recess Switch Plate |
| 3 | 6 | P17536 | Sheet Metal Screw | |
| 4 | 4 | P46250 | Loom Clamp | Not Shown |
| 5 | 4 | P17518 | Self Tapping Screw | Not Shown |
| | 2 | P46292 | Recessed Switch Plate | Reference Items 1 & 2 |
| | 2 | P46291 | Rubber Half Boot | Reference Items 1 & 2 |

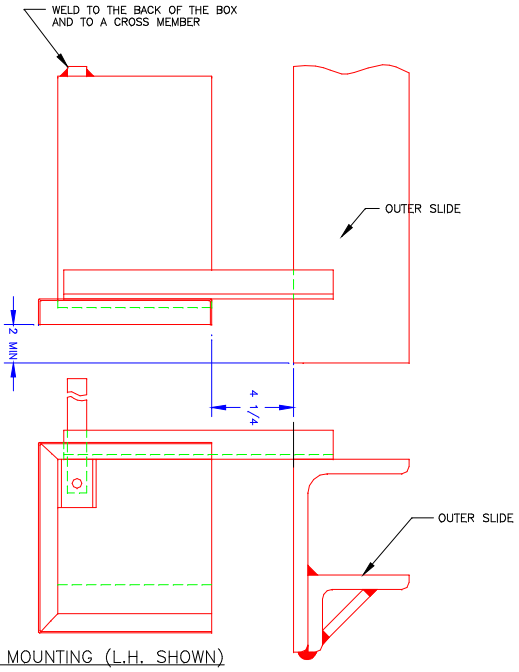
# WALK AROUND ELECTRICS - INSTALLATION

## OPTION #183TLS-DEUTSCH





| QUALITY ASSURANCE TESTING PERFORMED FROM 6 CAVITIES RECEPTACLE | |
|---|---|
| UP | BLACK WIRE CONNECTS TO GREEN WIRE |
| DOWN | WHITE WIRE CONNECTS TO GREEN WIRE |
| IN | BLACK AND ORANGE WIRES CONNECT TO GREEN WIRE |
| OUT | BLACK AND RED WIRES CONNECT TO GREEN WIRE |

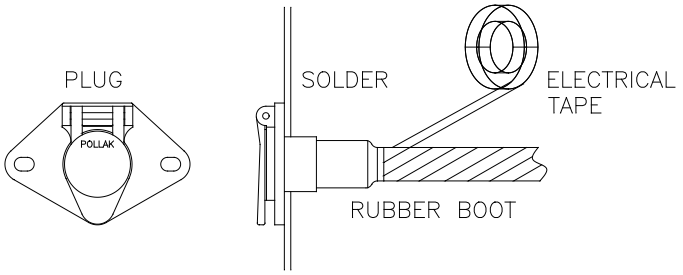



TYPICAL MOUNTING (L.H. SHOWN)

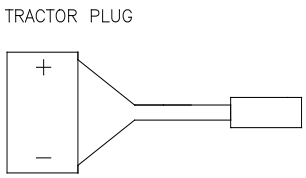
# CHARGE LINE

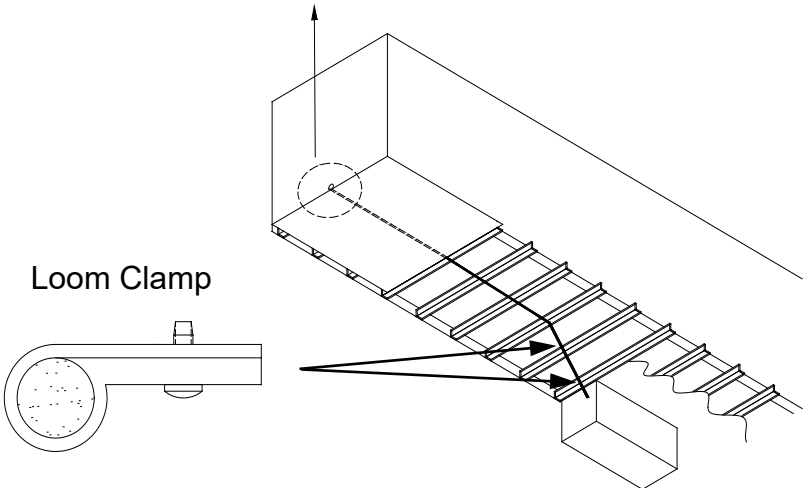
When installing the charge line, be sure the cable goes through three (3) "I" beams at the very least, past the fifth wheel plate and the clear vinyl loom. Mount the remaining cable with loom clamps and self tapping screws to the "I" beams.

USE "2" GAUGE CABLE AT MINIMUM




WE RECOMMEND THAT YOU USE AT LEAST A 90 AMP ALTERNATOR ON THE TRACTOR TO RECHARGE THE BATTERIES ON THE LPS®.




Run the power line wire with wiring harness on lift gate.
The plug that is on the tractor must have a hot wire and ground wire to the lug that plugs into the trailer.

**WARNING**

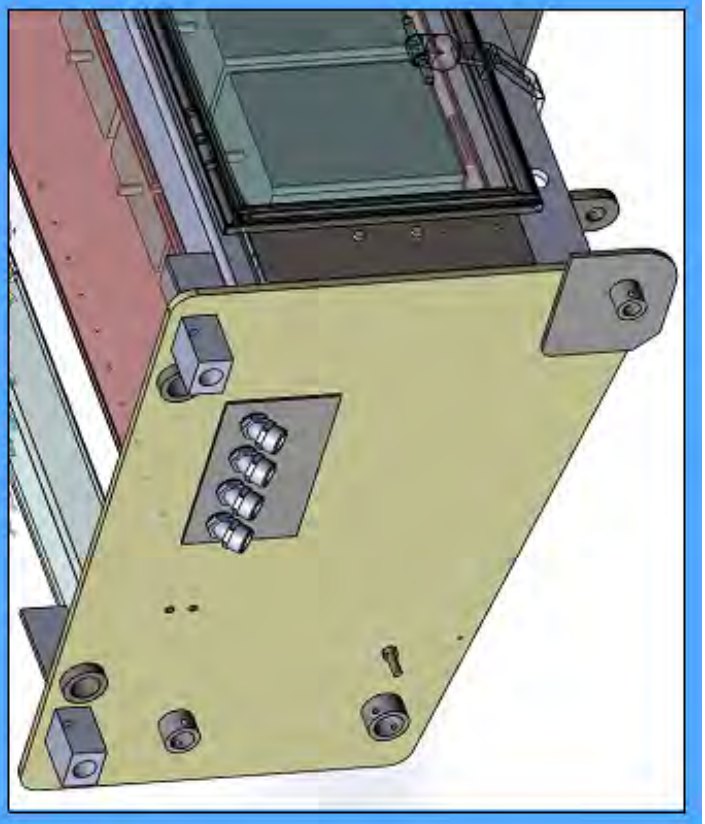
**DO NOT ATTACH ANY OTHER CABLES TO THE SWITCH CABLE AND GROUND WIRE LOOP. THE CHARGE LINE MUST BE CLAMPED AND SECURED SEPARATELY TO THE INNER AND OUTER SLIDE.**

Restricted movement of the switch cable can cause the individual wires inside the cable to break, resulting in the loss of some or all functions.

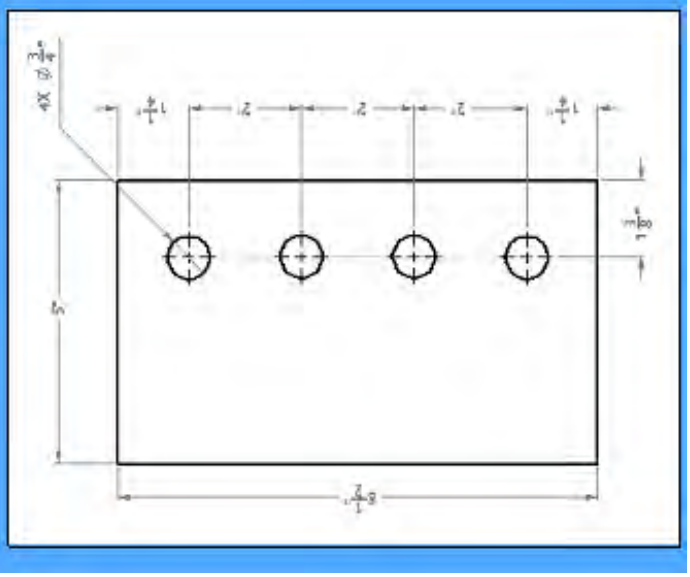
Leyman Manufacturing will not warranty any damage to the switch cable assembly resulting from additional cables that are attached to the switch cable and ground wire loop.

# CHARGE LINE

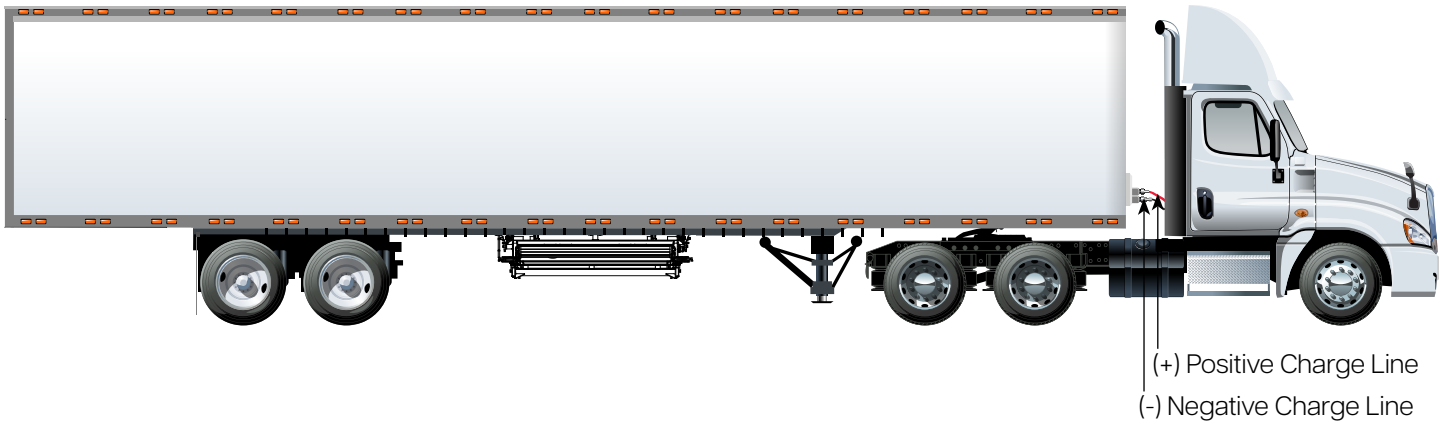
ADD FOUR 45 DEG. CORD GRIPS, GASKETS AND LOCK NUTS AS SHOWN (P46920, P46925, P46926)



*SUGGESTED INSTALLATION:-*
DRILL 4 HOLES ON LEFT HAND SIDE "WINDOW" CLOSER WHERE THE BATTERIES ARE PER BELOW



# GROUNDING RECOMMENDATION FOR TRACTOR/TRAILER




The Maintenance Minder 2® Controller requires a minimum of 10 volts to start and 8 volts to continue running the Legend™ TLS® lift gate. Power unit solenoid valves will require 10.5 volts to operate the coils. Utilization of a single positive cable often does not provide a sufficient ground for the charging circuit. Therefore, our recommendation for grounding tractor/trailers with the Legend™ TLS® gate is as follows:

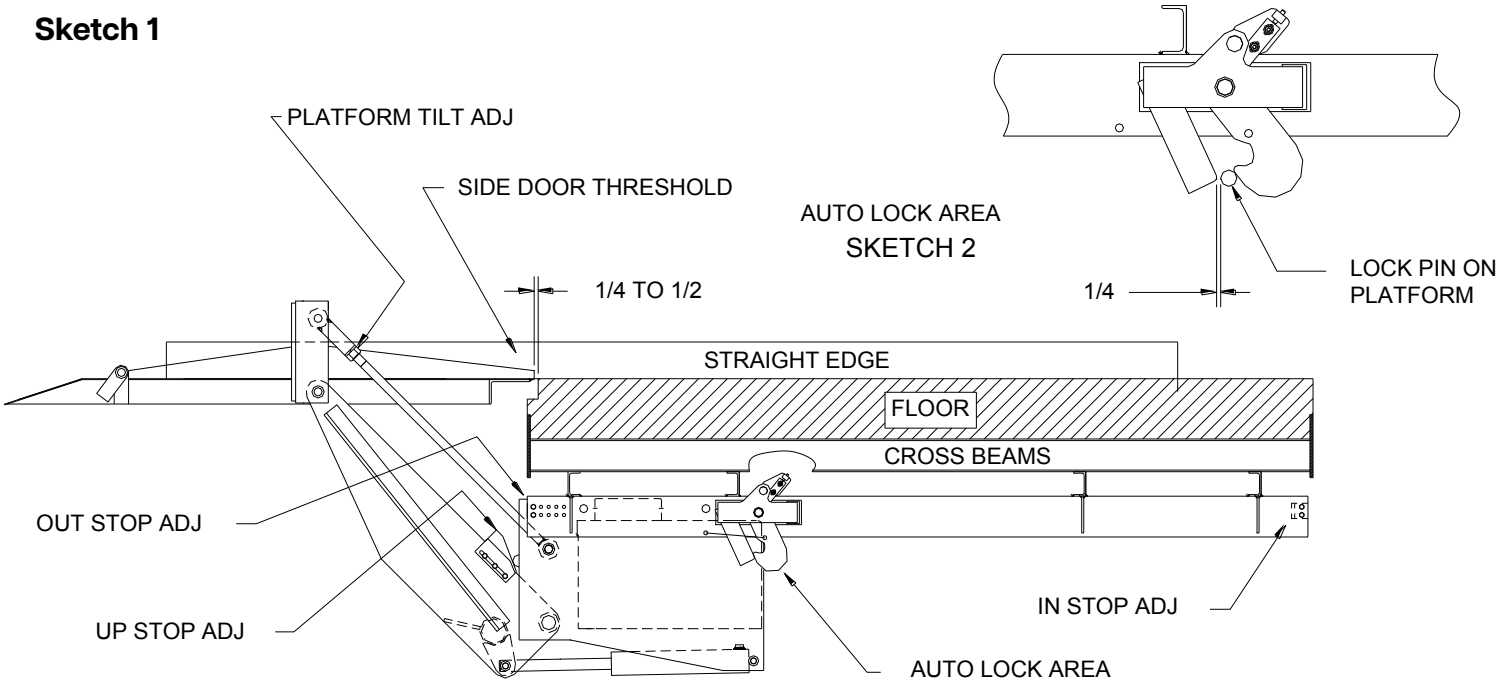
Two (2) cables: one (1) positive and one (1) negative, both running to the tractor batteries.

**NOTE**

The use of a battery charger as the sole power source to operate a Legend™ TLS® is unauthorized and will prevent the Legend™ TLS® from working properly. The lift gate must always be operated in conjunction with at least one (1) 12 volt heavy-duty dual purpose or AGM lift gate battery. A minimum of 10.5 volts must be maintained in order for the valves to operate.

# INSTALLATION ADJUSTMENTS

**Sketch 1**




**1.** The platform was preset at the factory to be level to the floor of the trailer within ¼". With a straight edge, check this. If it is okay, proceed to step 2. If not, let the platform down to the ground. Remove the two (2) roll pins and the top tension arm pivot pins (one on each side).

**NOTE**

One full turn moves the tip of the platform ¼" (turn the end in, this moves the tip of the platform up, unscrewing moves the tip of the platform down.) Make necessary adjustments. Replace pins, raise the platform up and check. Repeat if necessary. Replace roll pins.

**NOTE**

Each side must be adjusted the same amount

**CAUTION**

If this adjustment has been made, the in-stop must be adjusted to provide the ¼" clearance with the auto locking pin (see sketch 2).

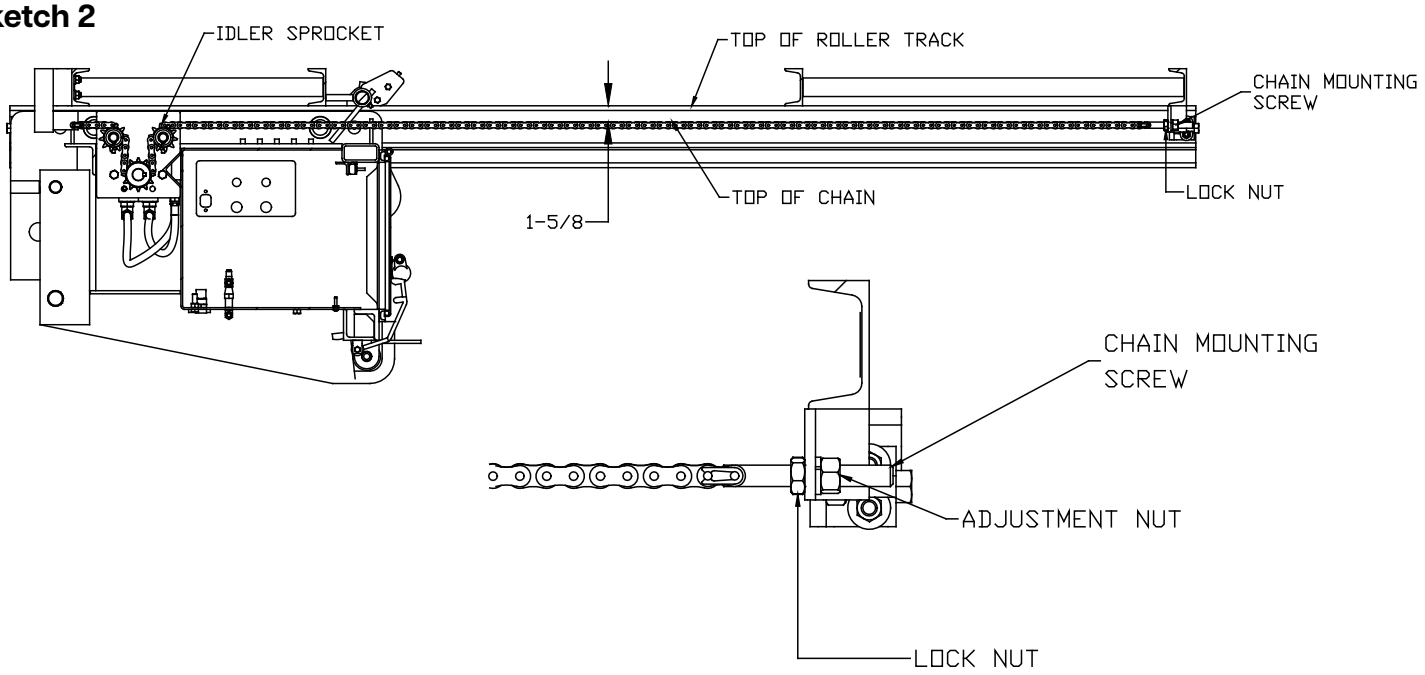
**2.** Adjust the up stops. Platform should be even with the floor of the trailer. After adjusting, tack weld the stops in place.

**3.** Adjust the out stops. The tip of the platform should be ¼" to ½" from the edge of the threshold.

**4.** Adjust the in stops. See sketch 2 and adjust for the ¼" dimension.

# INSTALLATION ADJUSTMENTS – cont.

**Sketch 2**




**5.** Ensure the platform is fully out before taking chain measurements or adjusting. Measurements should be taken at the halfway distance from the chain mounting screw to the idler sprocket (approximately where the measurement is in the top picture). The chain should have 1/8" to 1/4" of sag. Another way to measure is from the top of the roller track to the top of the chain, which is between 1-5/8" and 1-3/4".

**6.** Adjust the chain tension via the Chain Mounting Screw. Loosen both nuts at the same time. Unscrew the lock nut with a few extra threads for tightening. Use the adjustment nut to make the adjustment. To add tension to the chain, rotate the nut clockwise. To loosen chain tension, rotate the nut counterclockwise. To lock the tension adjustment, tighten the lock nut while maintaining the position of the adjustment nut.

**NOTE**

Ensure the chain is not twisted to ensure sprocket engagement.

**NOTE**

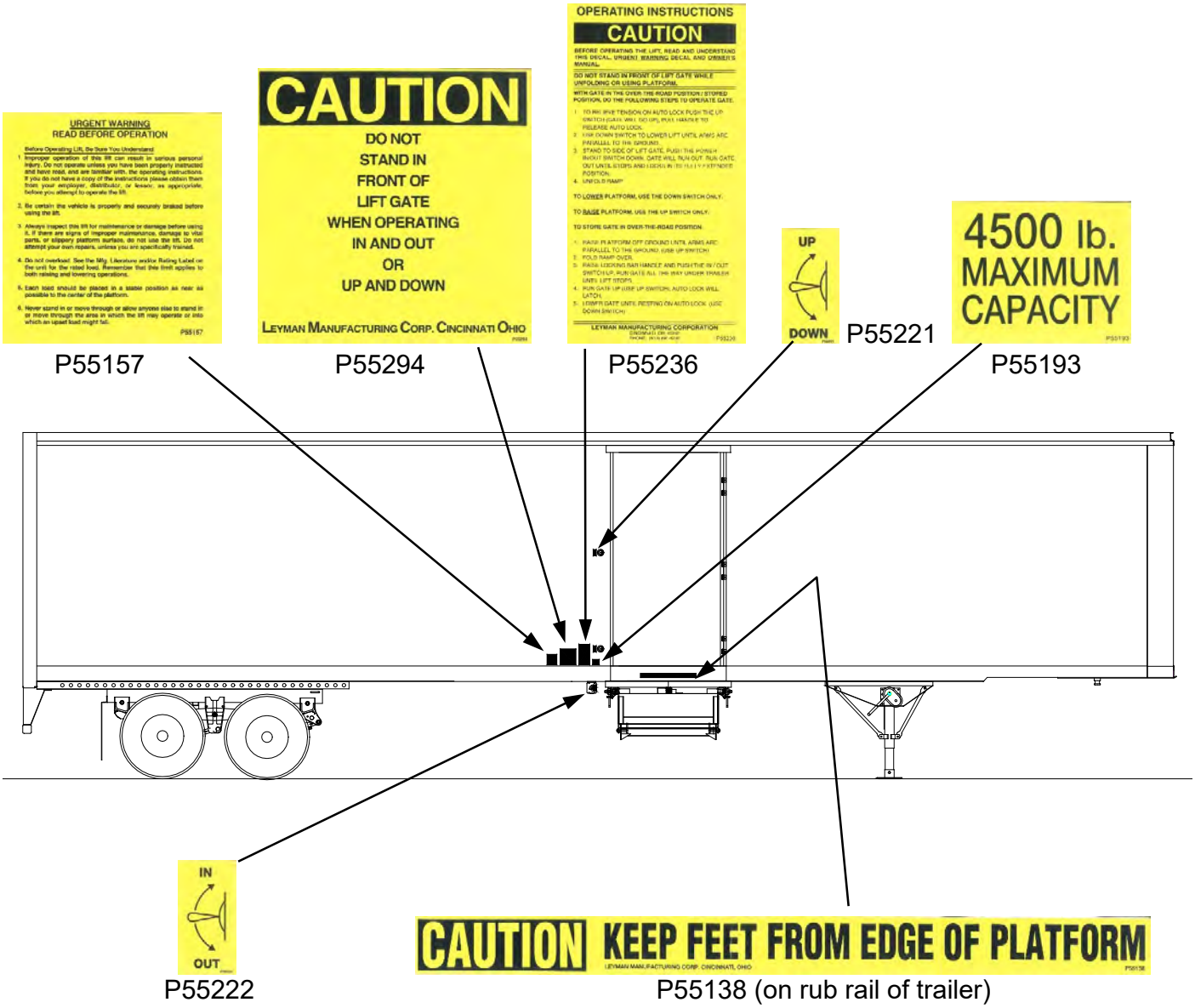
Chains will stretch a small amount over time. Chain tension should be adjusted as a part of regular maintenance if necessary.

**CAUTION**

Overtightening the chains will result in the gate seizing during in and out operations, which will prohibit movement.

# INSTALLATION OF SAFETY DECALS

Apply decals in a prominent and easy-to-read location.




P55157 P55294 P55236 P55221 P55193

P55222

P55138 (on rub rail of trailer)

Leyman Manufacturing will replace safety stickers at any time **FREE OF CHARGE**.

# FINAL INSTALLATION INSPECTION

| | | | |
|---|---|---|---|
| Customer | | Gate Model # | |
| Location | | Gate Serial # | |
| Vehicle # | | Installed By | |

√ = OK N = Not Applicable

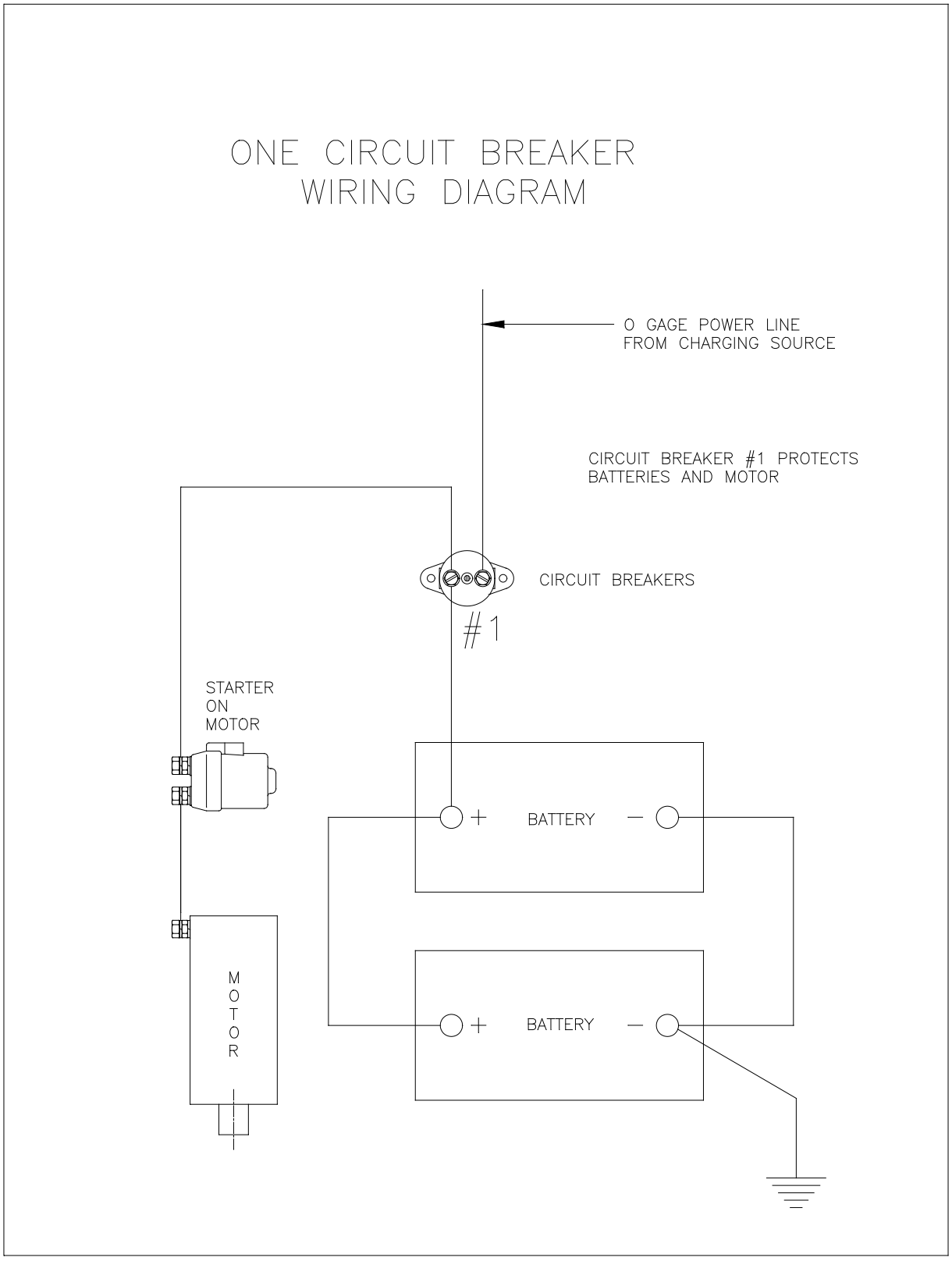
| | |
|---|---|
| | **WELDING/ADJUSTMENTS** |
| | Gate is welded secure to bottom of cross members |
| | Up stops are adjusted (to set platform flush with floor of trailer) and tack welded to compression arm |
| | Out stops adjusted (the platform should be ¼" to ½" from the edge of the threshold) |
| | In stops adjusted (the auto lock pin should be ¼" gap from hook) |
| | **ELECTRICS** |
| | Check that battery holds downs are anchored secure |
| | Check batteries for proper charge level. |
| | Check all wiring connections for tightness (batteries, switches, etc.) and sealer has been applied. |
| | Inspect and check all circuit breakers |
| | Charge line/power line (through cross members with rubber grommets if this is the preferred method) |
| | Charge line/power line (clamped to bottom of cross members with loom clamps) |
| | Control wiring has been properly routed and secured |
| | Check operation of toggle switches (or walk around if equipped) |
| | Check operation of optional lights if equipped |
| | **HYDRAULIC/GREASE** |
| | Check reservoir for correct amount of fluid. Fluid level should be within 1" of the top of the tank.<br>Platform should be down on the ground when checking fluid level.<br>Refer to the Recommended hydraulic oil / lubrication page for type of oil and capacity. |
| | Check hydraulic hoses and fittings for leaks |
| | Check hydraulic cylinders for leaks |
| | **OPERATION OF GATE** |
| | Raise and lower lift gate. Observe for correct operation |
| | Operate lift gate in-out. Observe for correct operation |
| | **PAINTING AND SAFETY STICKERS** |
| | Repaint where needed. Use Leyman Extreme Shield® touch-up kit provided. |
| | Check hydraulic cylinder rods for over spray |
| | Install all safety and operation stickers |

**Serviced By:** _____ **Date:** _____

LEYMAN
LIFT GATES

# DIAGRAMS

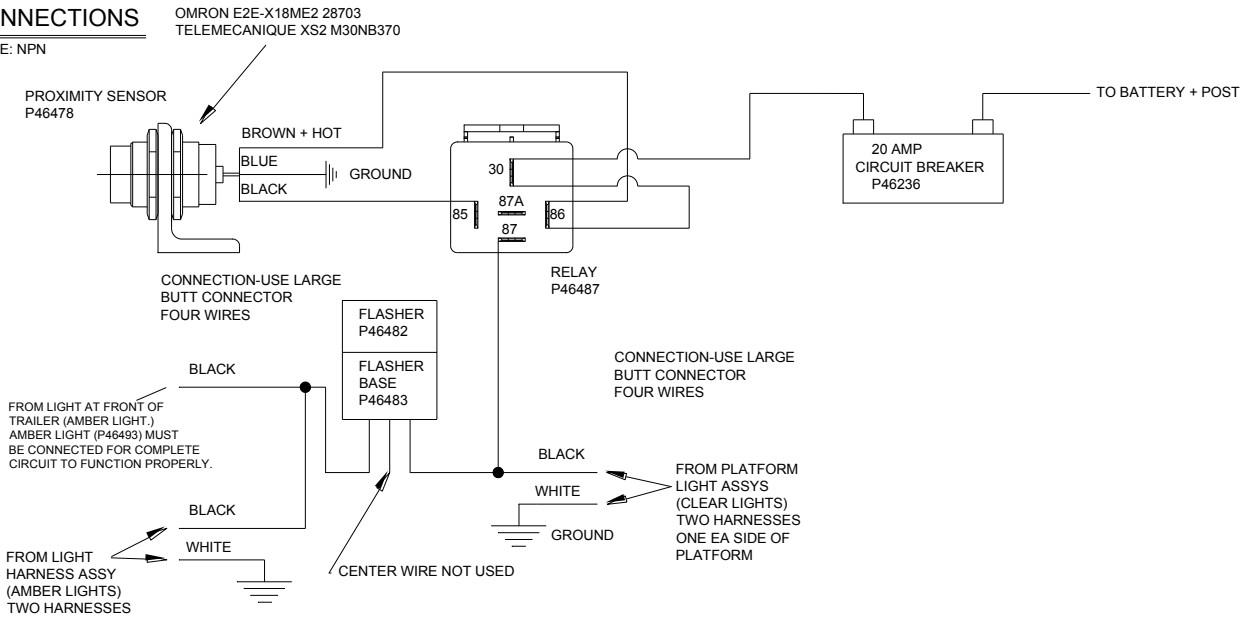
# CIRCUIT BREAKER WIRING DIAGRAM



# OPTION #155TLS LIGHTS AND SENSOR ELECTRICAL CONNECTIONS

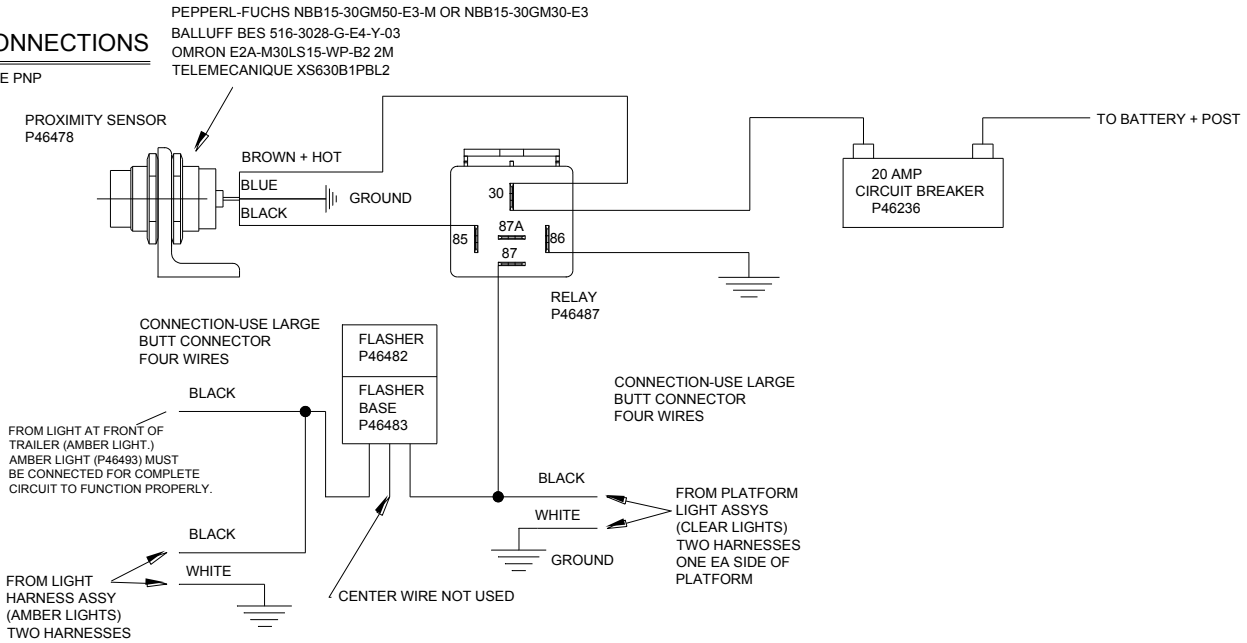
## ELECTRICAL CONNECTIONS

SENSOR OUTPUT TYPE: NPN




## ELECTRICAL CONNECTIONS

SENSOR OUTPUT TYPE PNP
(PREFERRED)



LEYMAN

LIFT GATES

# INSTALLATION

# RELEASING AUTO LOCK/LOWER PLATFORM

**WARNING**

**Do not stand in front of the lift gate while unfolding or using the platform**

Before operating the lift gate, read and understand Urgent Warning decal and Owner's Manual.

With the gate in the over-the-road / stored position, follow these steps to operate the gate:

**URGENT WARNING**
**READ BEFORE OPERATION**

Before Operating Lift, Be Sure You Understand

1. Improper operation of this lift can result in serious personal injury. Do not operate unless you have been properly instructed and have read, and are familiar with, the operating instructions. If you do not have a copy of the instructions please obtain them from your employer, distributor, or lessor, as appropriate, before you attempt to operate the lift.
2. Be certain the vehicle is properly and securely braked before using the lift.
3. Always inspect this lift for maintenance or damage before using it. If there are signs of improper maintenance, damage to vital parts, or slippery platform surface, do not use the lift. Do not attempt your own repairs, unless you are specifically trained.
4. Do not overload. See the Mfg. Literature and/or Rating Label on the unit for the rated load. Remember that this limit applies to both raising and lowering operations.
5. Each load should be placed in a stable position as near as possible to the center of the platform.
6. Never stand in or move through or allow anyone else to stand in or move through the area in which the lift may operate or into which an upset load might fall.

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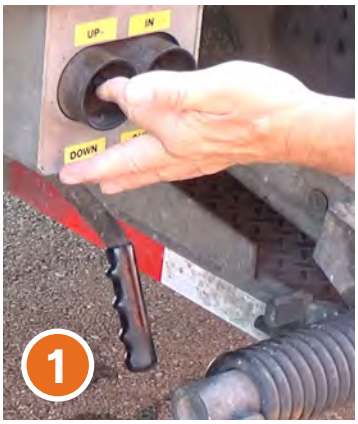
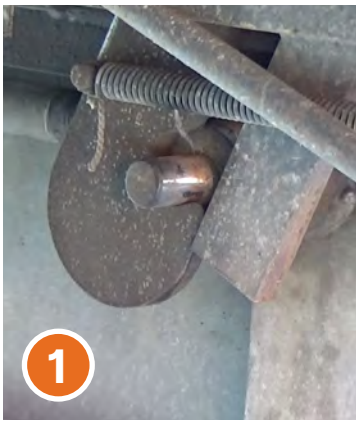
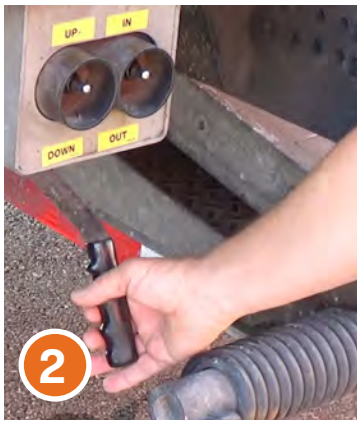
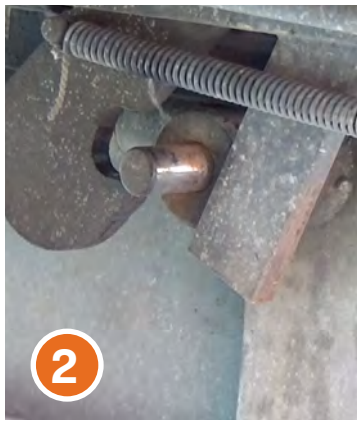



**1.** Using the **UP** toggle switch, raise the gate **UP** and release the auto safety lock.
**2.** Lift the handle to release the auto safety lock.

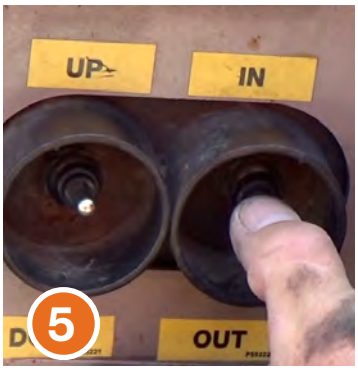

**3.** Use the down switch to lower lift until arms are 1 to 2 feet off the ground.

# UNFOLDING PLATFORM AND LOADING

**WARNING**

**Do not stand in front of the lift gate while unfolding or using the platform**

**4.** Stand to the side of the lift gate.
**5.** Press and hold the Power In/Out toggle switch DOWN to extend the gate.






**6.** Continue extending the gate until it stops and locks into the fully extended position.



**7.** Raise the gate up about 1 foot (optional) and unfold the platform.
**8.** Use the Down toggle switch to lower the gate to the ground.
**9.** To raise the platform, use the UP switch to raise the platform to be level with the floor of trailer.

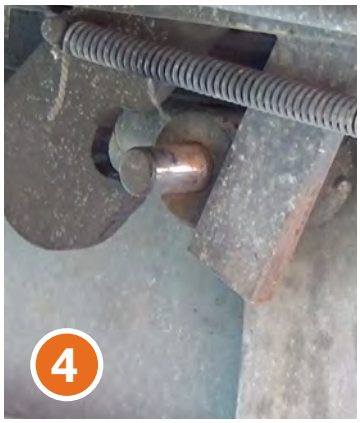
# SAFELY STOWING GATE

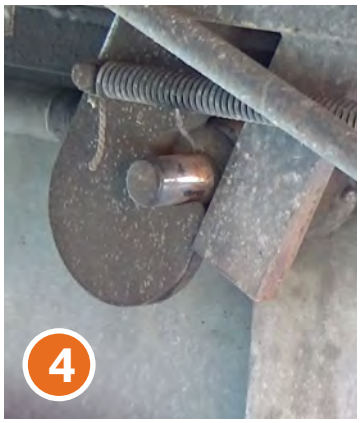
**1.** When ready to safely stow gate for travel to next stop, raise and fold the ramp over.


**2.** Raise locking bar handle and push the IN/OUT switch upward. Run the gate all the way under the trailer until lift stops.

**3.** Run gate up (use the UP switch), auto lock will latch.






**4.** Lower the gate until resting on the auto lock. (Use DOWN switch).

# EMERGENCY HAND PUMP OPERATION

If an emergency hand pump was supplied with this lift gate, its intended use is to restore the gate to the transit position.

**WARNING**

***Do not*** try to operate the power unit when using the hand pump.

**Steps to secure the gate, so the trailer can be moved:**

1. Remove the pump handle from the holder and insert into the hand pump socket.
2. Raise the platform off the ground about 6", pump up/down.
3. To retract the gate, disconnect the **IN/OUT** chain and manually push the gate under the trailer all the way until it stops.
4. Pump the gate until fully up. Gate must latch into the Auto-Lock hooks.
5. With the handle unscrew the valve on the bottom of the hand pump. This will let the gate rest down in the Auto-Lock hooks.

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# NOTES