

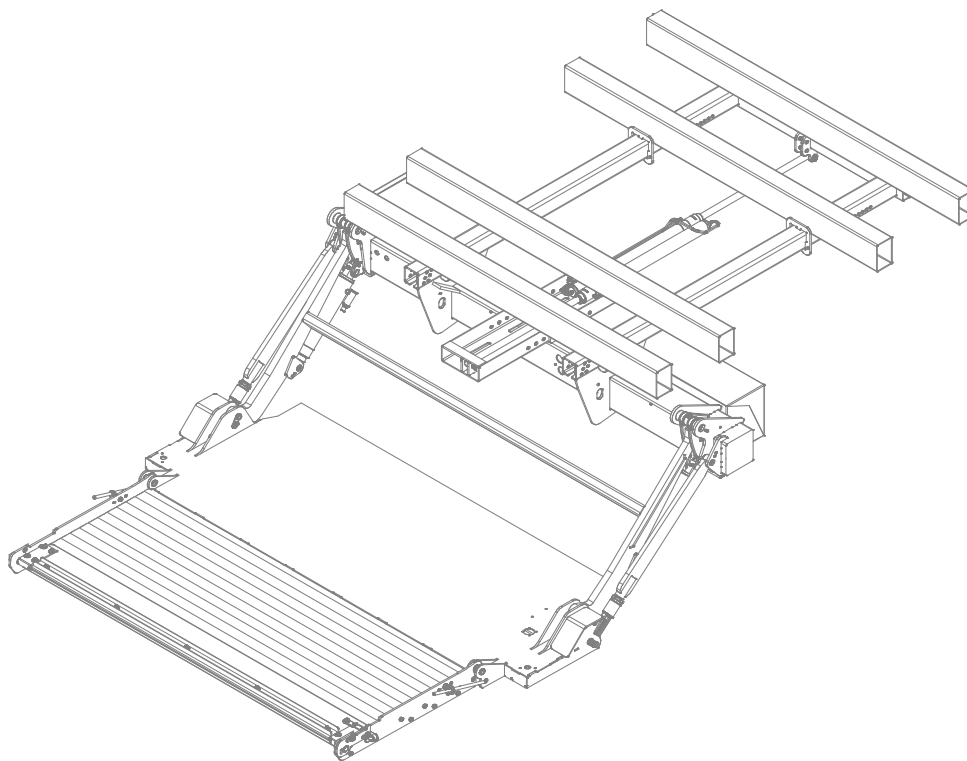


LIFTGATES

INSTALLATION MANUAL & CHECK OFF SHEET

ILSL 33, 3300 lbs. Capacity

ILSL 44, 4400 lbs. Capacity



ILSL 33/44 Installation Manual

Document Part Number: 90-1614-001; 14-686_90-00_00-01

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Company Information:

Company Name: _____

Advisor Name: _____

Trailer Year Make & Model: _____

Liftgate Information:

Liftgate Serial Number: _____

Liftgate Model Number: _____

Date of Purchase: _____

Date of Installation: _____

1 Safety Information

This manual follows the Guidelines set forth in “ANSI Z535.4-2007” for alerting you to possible hazards and their potential severity.

DANGER

! **DANGER** indicates an imminently hazardous situation which, if not avoided, **will result** in death or serious injury.

WARNING

! **WARNING** indicates potentially hazardous situation which, if not avoided, **could result** in death or serious injury.

CAUTION

! **CAUTION** indicates a potentially hazardous situation which, if not avoided, **may result** in minor or moderate injury.

CAUTION

CAUTION without the safety alert symbol is used to address practices not related to personal injury.

(In this manual it is used to alert the user to potentially hazardous situation which, if not avoided, may result in property damage.)

NOTICE

NOTICE without the safety alert symbol is used to address practices not related to personal injury. *(In this manual it is to alert you to special instructions, steps, or procedures.)*

2 Important Information

Before Getting Started

“READ FIRST”

NOTICE

The ILSL liftgate is a heavy duty industrial hydraulic lifting device. Performance and reliability are closely related to proper installation, battery cable connections, and grounding. All grounding surfaces **MUST** be cleaned, prepped, and sealed per this manual. “Cut to size” cables **MUST** be properly crimped and sealed as factory supplied. All connections **MUST** be dressed with dielectric grease or equivalent sealer.

- Review lift gate invoice, packing slip, and installation drawing to assure delivery of correct gate and complete delivery of accessories and optional equipment.
- Read and understand the “Installation Manual” and “Owner’s Manual” in their entirety before starting your Installation.
- This manual is for installing an ILSL gate on a trailer with steel cross-members.
- Refer to your truck manufacturer’s instructions before adding any auxiliary equipment. Installer is responsible for compliance with this manual, OEM and FMVSS requirements.
- All welding should be performed by qualified personnel per AWS standards.
- Always Ground closest to your welding point to prevent arcing through moving parts or electrical parts.
- Contact PALFINGER Liftgates for Special Installations not covered in this Installation Manual.
- Do not paint cylinder shafts or nylon bearings (Use non-chlorinated brake cleaner to remove over spray)
- Final Check-Off-Sheet at rear of this manual **MUST** be filled out and kept in your records for future reference.
- Refer to owner’s manual for Operation and Maintenance information.
- Check the battery voltage before installation. Flooded lead acid batteries should measure 12.6V and AGM batteries should measure 12.8V. If batteries are not at these voltages, fully charge before installation

WARNING

Improper operation of this liftgate may result in severe personal injury or death. **DO NOT** operate unless you have been properly instructed, have read and are familiar with the procedures in this manual. This manual has been designed to illustrate the steps needed for the basic installation of the ILSL liftgate. It also provides safety information and simple preventive maintenance tips.

NOTICE

This manual is not intended for use as a repair or troubleshooting guide. Repairs should be performed by a Palfinger Liftgates Authorized Service Center.

This manual has been designed for use in conjunction with the ISLS series liftgates only which is designed for different capacities. There are four options to determine the model and serial number of the installed liftgate:

- 1) Refer to the serial number tag on the liftgate (Top of Mount Frame).
- 2) Ask your employer or lessor;
- 3) Call your PALFINGER Liftgates Authorized Service Center for assistance.
- 4) Call PALFINGER Liftgates for assistance in the USA at 888-774-5844. You can also contact PALFINGER Liftgates by fax (562) 924-8318 or on the internet at www.palfinger.com

For technical support, contact PALFINGER Liftgates or an authorized PALFINGER service center. www.palfinger.com

NOTICE

2.1 Important Dimensions

Minimum Bed Height dimensions are ALWAYS MAXIMUM LOADED TRUCK.

Maximum Bed Height dimensions are ALWAYS DRY UNLOADED TRUCK.

- Installing a gate at or close to minimum bed height normally results in a gate that will NOT open and close from stored position if the minimum floor height is exceeded when truck is loaded.
- Ensure trailer body does not interfere with installation or operation of the ILSL liftgate series.
- It is not recommended to cut, torch, or remove support materials from trailer. Removing gussets, stiffeners, light rings, or other such support structures may VOID your trailer warranty.
- Call technical support before starting the installation if any questions or concerns arise on mounting dimensions or procedures.

2.2 Mounting Notes:



Read and clearly understand manual BEFORE beginning ANY work.

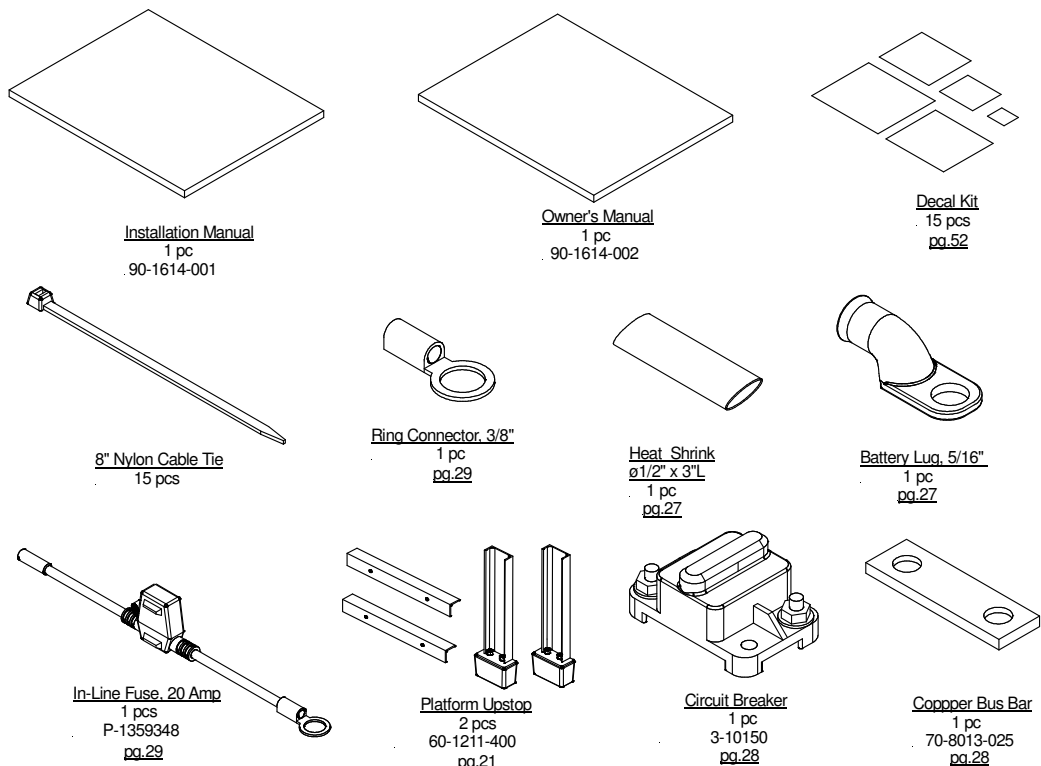
The basic rule of PALFINGER Liftgates's ILF installation is to lift mount frame to achieve **MAXIMUM** ground clearance **WITHOUT** exceeding Min "F" dimension.

2.3 Recommended Tools for Installation

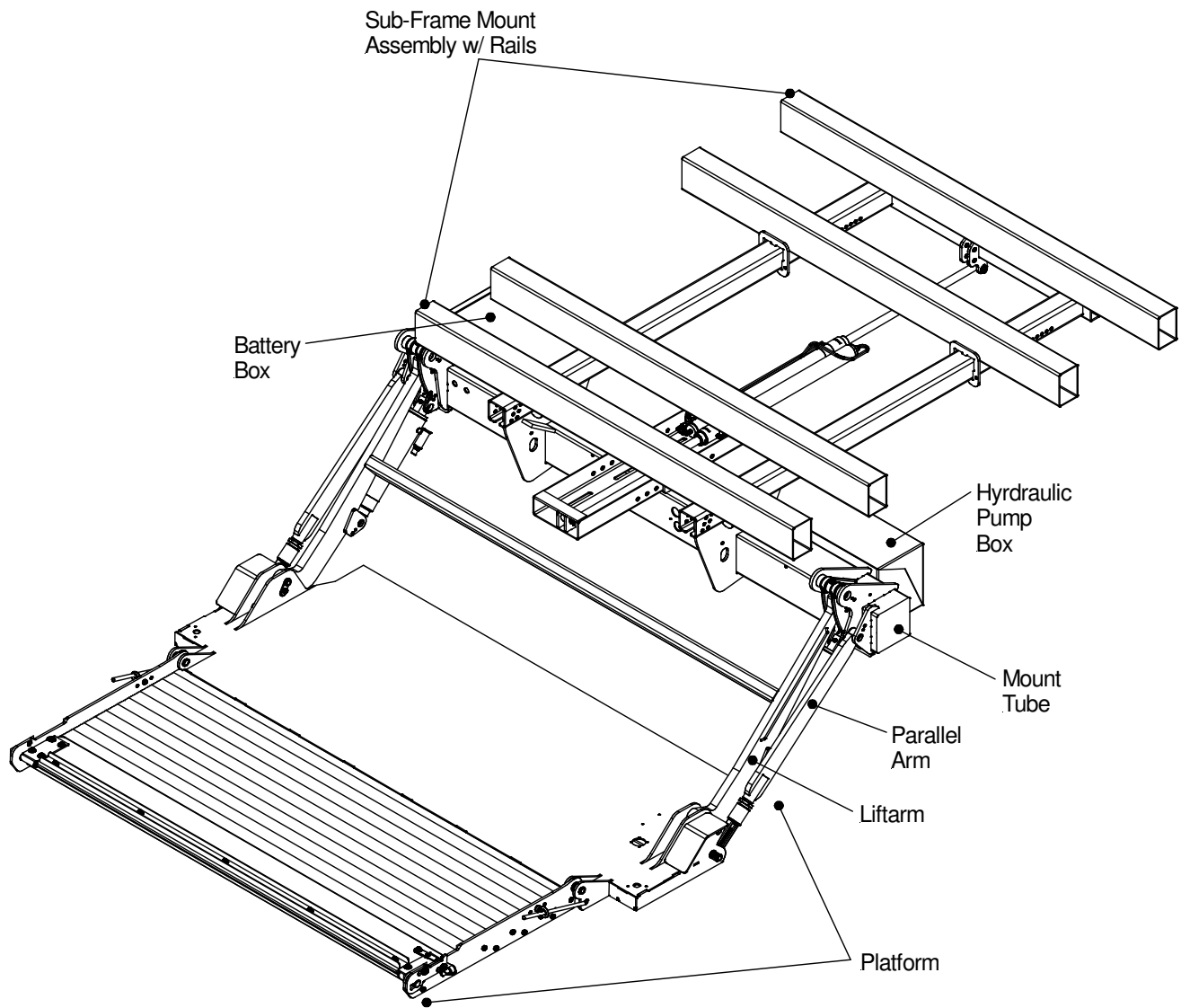
Metric Wrench Set	Basic Screwdrivers	Pliers	Wire Crimp Pliers
Digital Multimeter	Snap Ring Pliers	Hammer	Metric Allen Set 1.5mm-10mm
½" Impact & Sockets	Sm. Metric Socket Set	Assorted Drill Bits	Floor Jack or Equiv.
Sm. To Med. Bottle Jack	Forklift or O/H Crane	Hand Held Grinder	Paint Gun
Pry Bar	3/8 Drill Motor	Grease Gun	Heat Gun or Equiv.
Min. 250 Amp Welder	Cutting Torch or Equiv.	Measuring Tape	

2.4 Components for Installation

Installation for each item can be found throughout this installation manual.



2.5 General Overview of ILSL Liftgate



ILSL Liftgate Overview

3 Chassis Dimension Sheets



Trailer Chassis Dimension Sheet Side Loader 90-9813-005_B

Contact Information

Quote#/SO#: _____
 Name: _____
 Company: _____
 Phone: (____) _____ - _____ Fax: (____) _____ - _____
 Email: _____
 VIN#: _____ Trailer Make: _____ GVWR: _____ Length: _____
 Liftgate Model: _____ Liftgate Capacity: _____ Liftgate Platform Dimensions/Material: _____ / _____

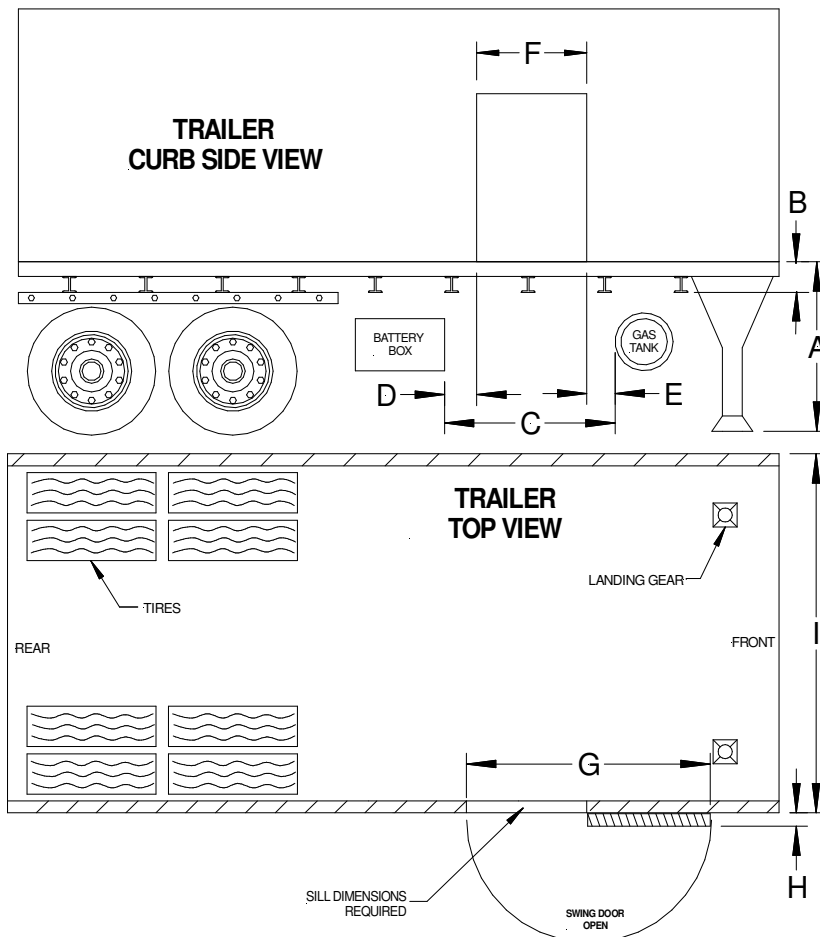
Chassis Information

Type of Body (check one)	
Van	<input type="checkbox"/>
Flatbed	<input type="checkbox"/>
Reefer	<input type="checkbox"/>
Type of Door (check one)	
Roll-up	<input type="checkbox"/>
Swing	<input type="checkbox"/>
Flip-up	<input type="checkbox"/>

A = Bedheight: Top of trailer floor to level ground (with air bags up).....
 B = Top of floor to bottom of trailer cross member.....
 C = Clearance area required (90" Minimum).....
 D = Door to battery box (if equipped).....
 E = Door to gas tank (if equipped).....
 F = Door opening width.....
 G = Door opening to end of open door.....
 H = Door thickness measured from outside of trailer body.....
 I = Trailer width.....

Sill Dimensions

		J.....
		K.....
		L.....
		M.....
		N.....
		O.....



Note: If trailer is equipped with additional equipment, between the front of the trailer and the tires, other than what is pictured here, provide a description and dimension(s) between each component.

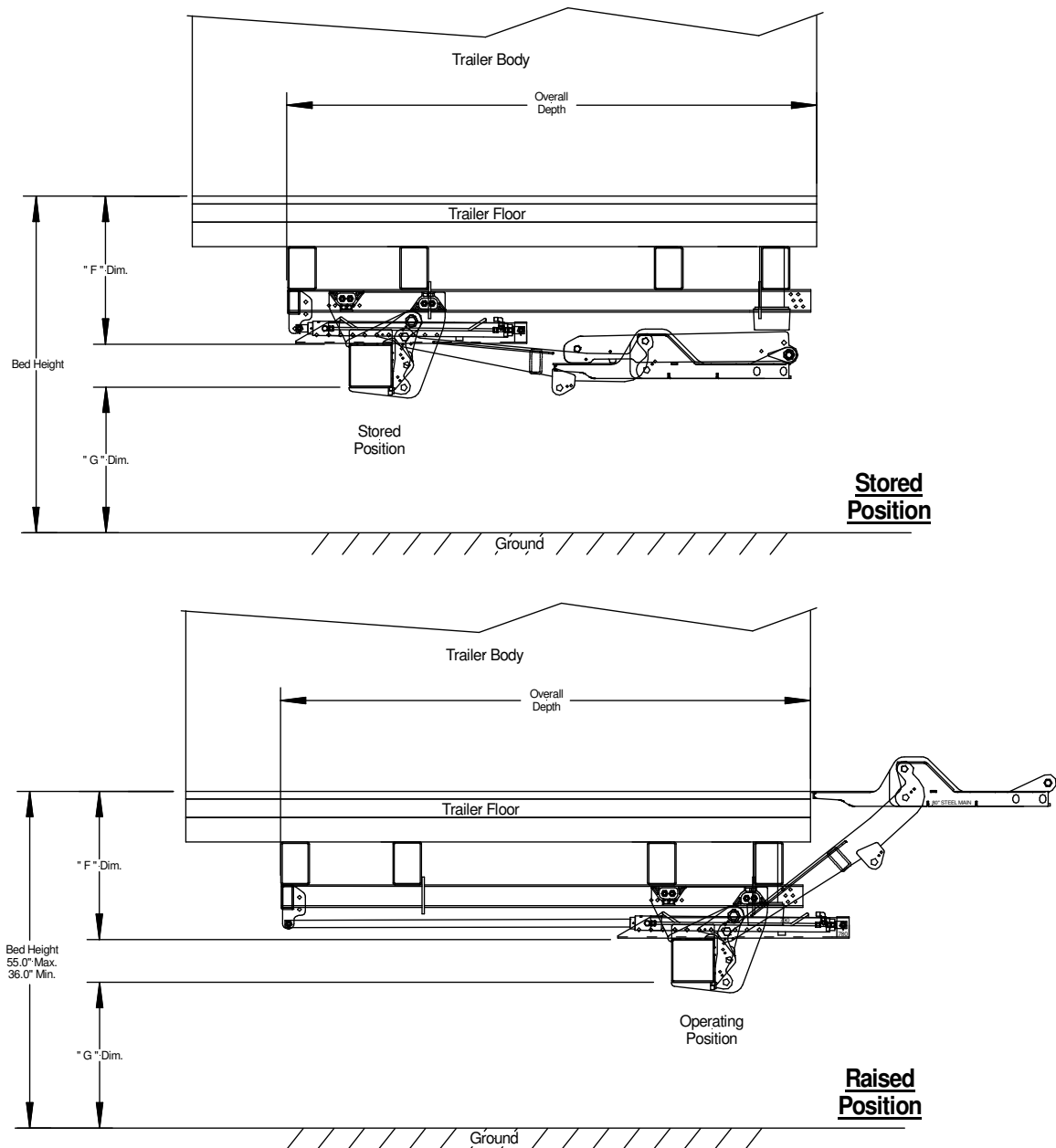
4 Reference Documentation

4.1 Installation Drawing

Installation Dimension sheets are provided with each ILSL liftgate, as there are too many different setup combinations for a generic installation drawing. When ordering a liftgate, Palfinger Liftgates provides an installation drawing based upon the trailer dimension sheet provided by the installation company.

IMPORTANT:

Prior to beginning the installation, review the installation drawing provided with your liftgate. Verify that the subject chassis matches all dimensions shown on the installation drawing prior to installing the gate. If liftgate and/or trailer do not match the dimensions on the drawing notify Palfinger Liftgates before attempting to install the gate.

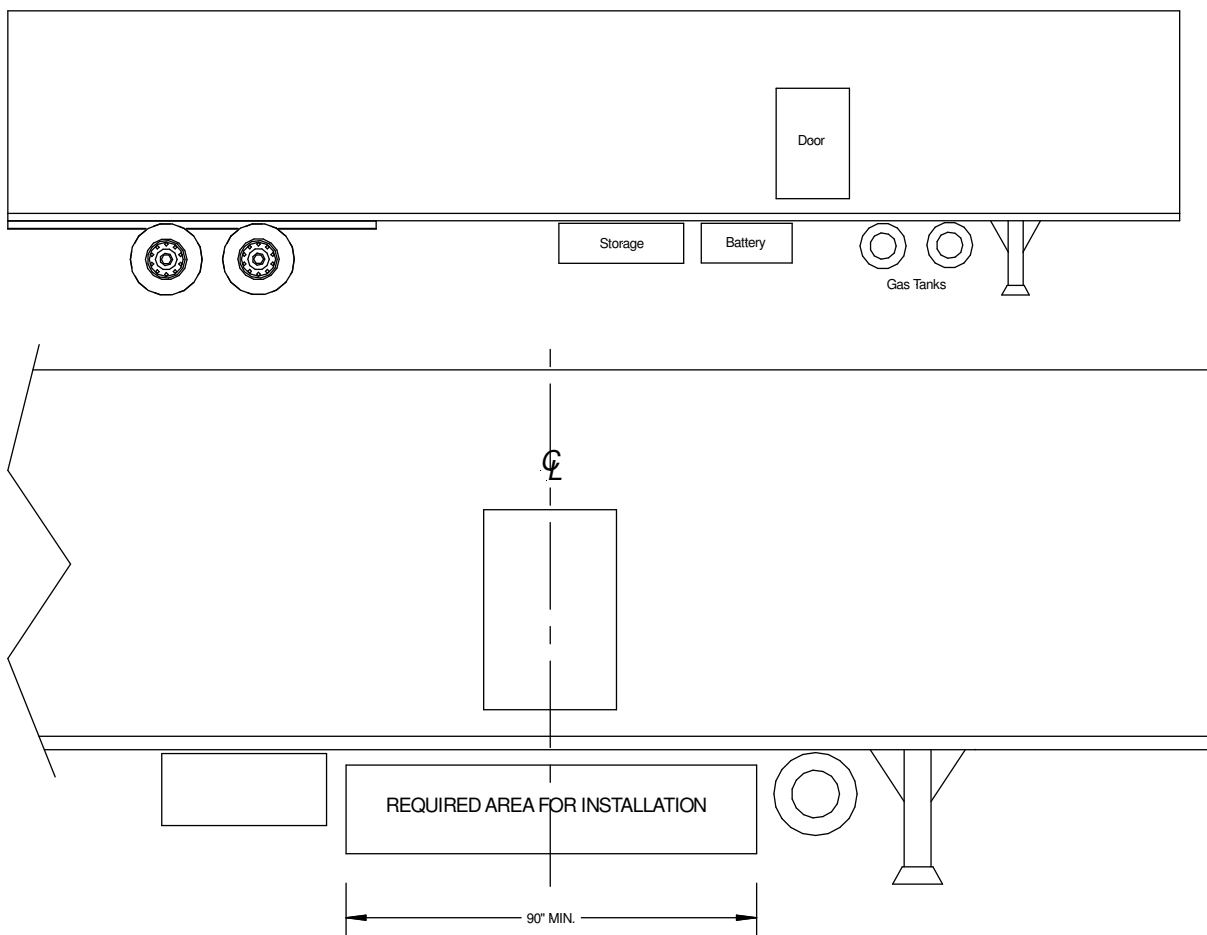


Sample Installation Drawing by Palfinger Liftgates

4.2 Trailer and Body Preparation

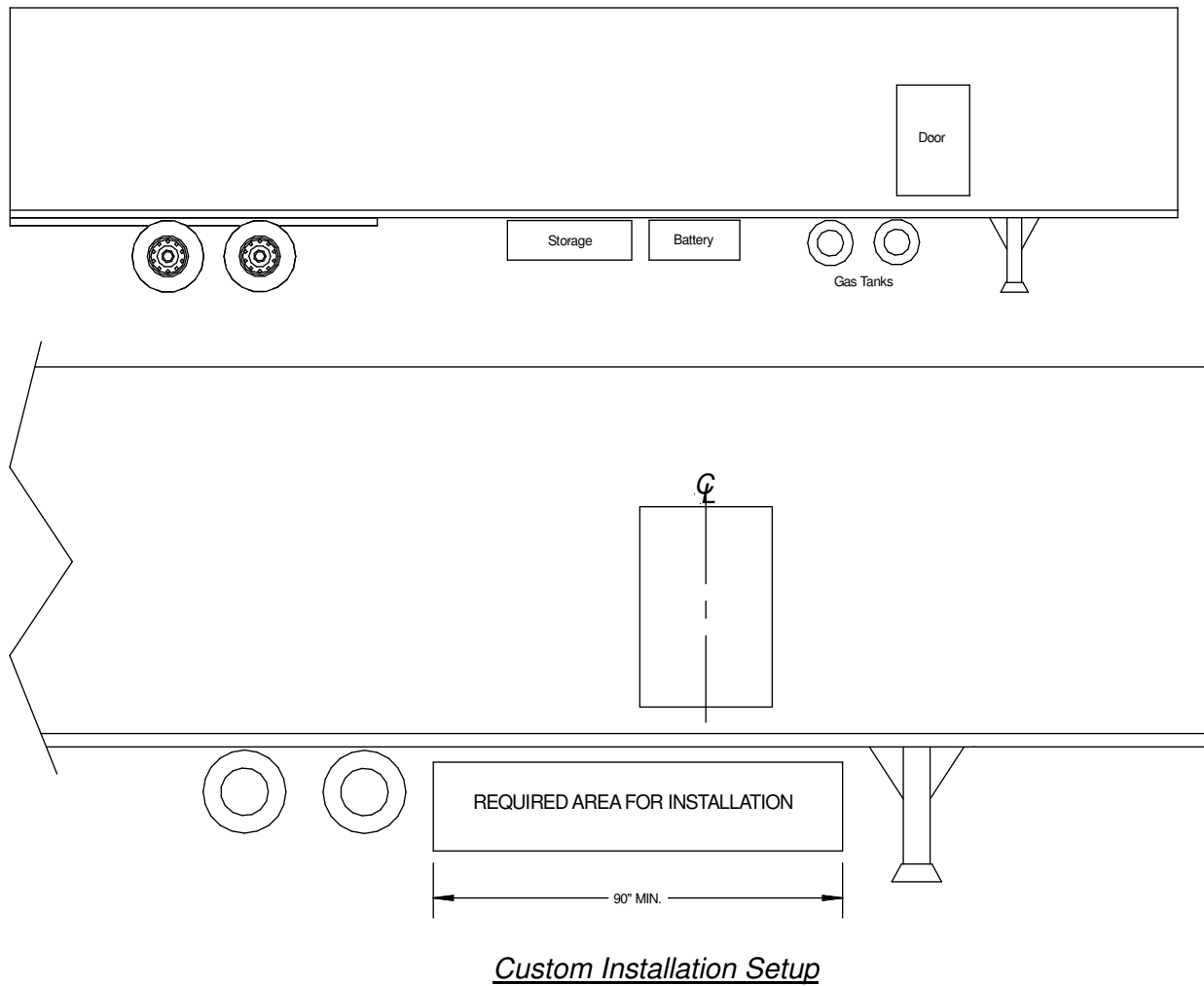
In order to install the ILSL liftgate a minimum space is required to be clear of any interference with the trailers OEM equipment. Most of this equipment can be relocated to a different area of the trailer. In some cases equipment is fixed and cannot be relocated due to regulatory requirements. When instances of fixed equipment arise, the installation will vary in terms of positioning of the liftgates platform and minor adjustments to the platform could be required.

1. The ILSL liftgate is designed to be installed in a position centered to the door opening. Prepare the trailer chassis for installation by clearing a minimum of 90" (7.5 ft.) centered to the door opening. If the trailer is equipped with gas tanks, battery boxes, storage boxes, etc., make sure to relocate any interfering equipment to a different area on the trailer. Modifications must be in accordance with the chassis manufactures recommendations.

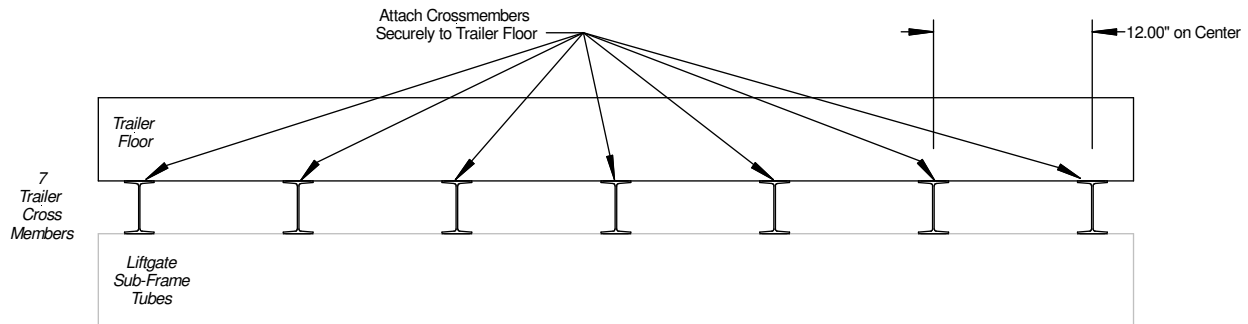


Standard Installation Setup

2. When the trailer is equipped with equipment that cannot be relocated, the required area for installation can no longer be centered to the door and will need to be “shifted” to one side of the door as shown below. Minor adjustments to the platform could be required in this case.

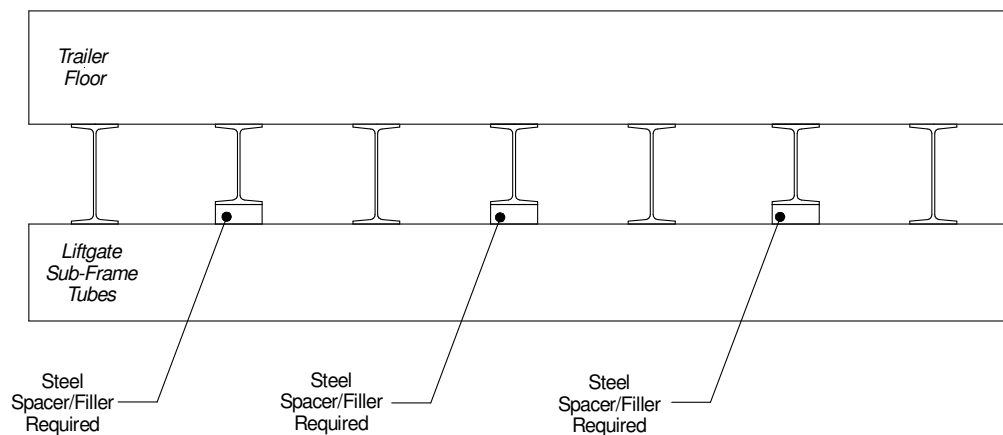


- Recommended trailer construction is 12", on center, steel cross members secured to the trailer floor and side rails. This allows the liftgates sub-frame to intersect a minimum of seven (7) cross members for welding



Side View of Trailer

Some trailer designs have cross members which are not equal in height. Steel spacers/fillers will be required to be added to have a surface for the liftgates sub-frame tubes to weld on.



Side View of Trailer

- Proceed to the Gate Installation (Section 5, pg 15.) after the trailer has been prepared for a standard or custom installation.

5 Gate Installation

5.1 Installation

IMPORTANT!!!

- A proper preparation of the trailer is essential for a safe, effective and efficient installation process and assures proper function of the liftgate without damage to the trailer or liftgate.

WARNING

Never work under mount frame or platform without safety supports.

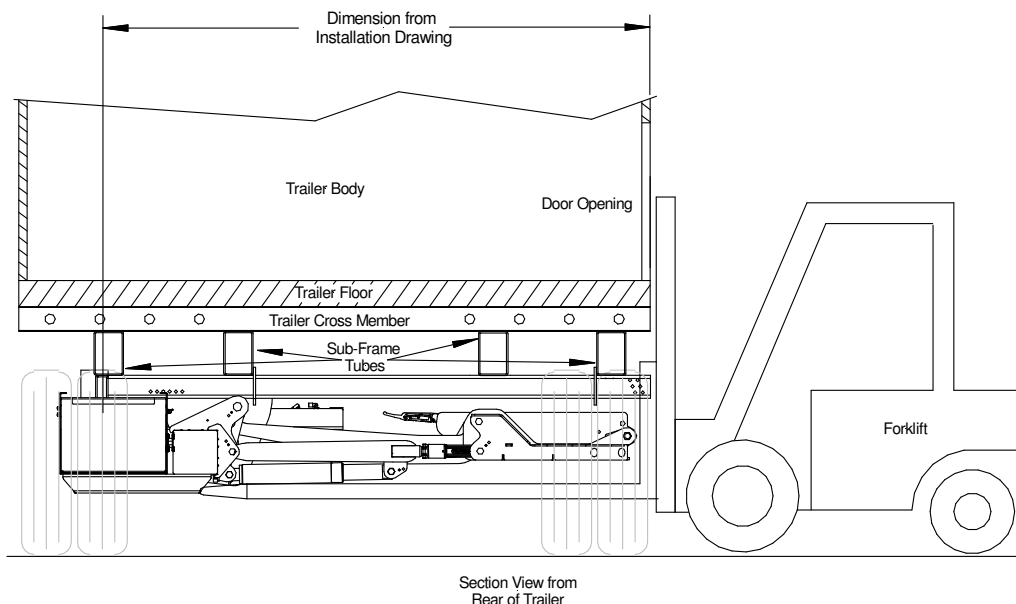
NOTICE

It is recommended to park the trailer on a flat leveled ground prior to beginning installation.

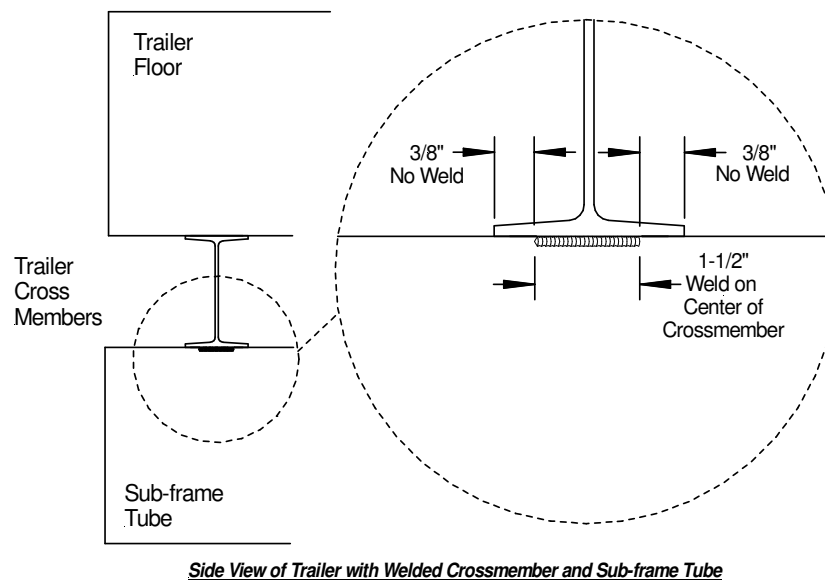
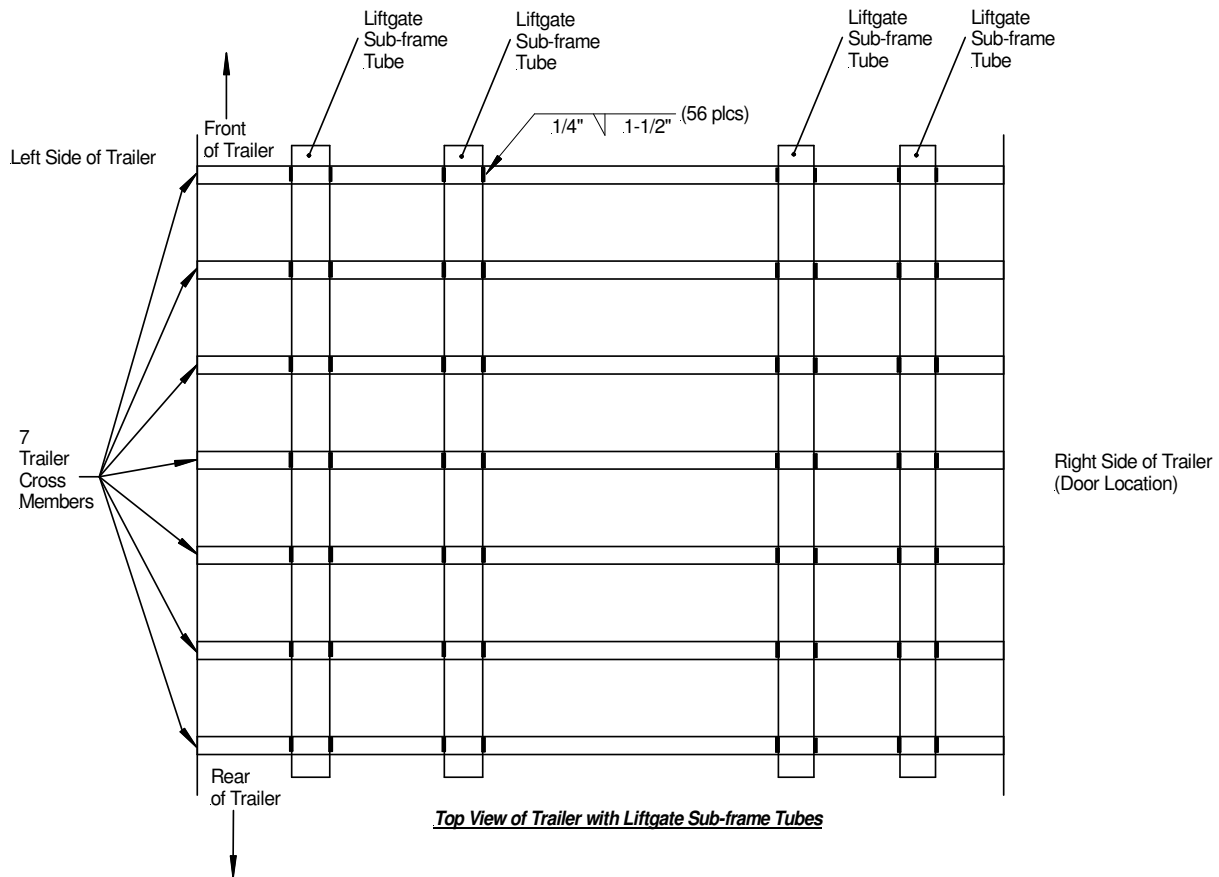
CAUTION

While lifting the gate into the mounting position make sure it does not contact chassis components such as frame cross members, wiring, fluid or air lines. Chassis component such as cross members may have to be modified or removed to accommodate the push-pull cylinders and bracket. Any modifications must be done in accordance with chassis manufacturer's recommendations.

1. Using the Installation Drawing provided by Palfinger Liftgates, refer to the drawing for critical dimensions. Use the dimensions from the Installation Drawing to position the gate. **NOTE: All dimensions shall be taken from the door side of the trailer.**
2. After confirming dimensions, use a forklift or similar equipment to position the liftgate assembly underneath the trailer. Raise the forklift arms carefully until the sub-frame tubes of the liftgate meet the trailer cross members. Make sure no hoses or cables are wedged between the sub-frame tubes and cross members.

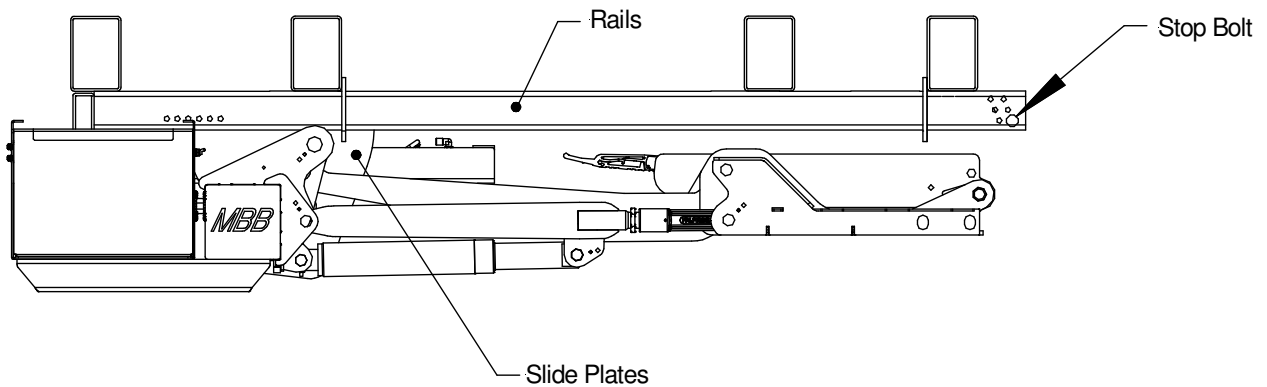


- The four cross tubes on the liftgates sub-frame will be the welding points to weld the liftgates sub-frame to the trailers cross members. A minimum of 56 welds are required with 1-1/2" welds as shown below.

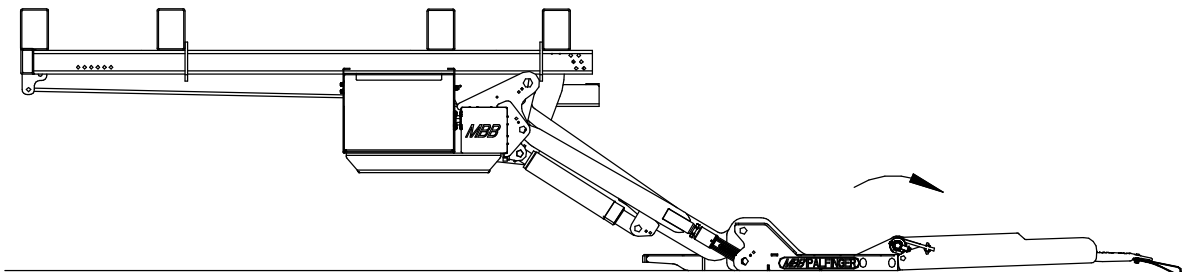
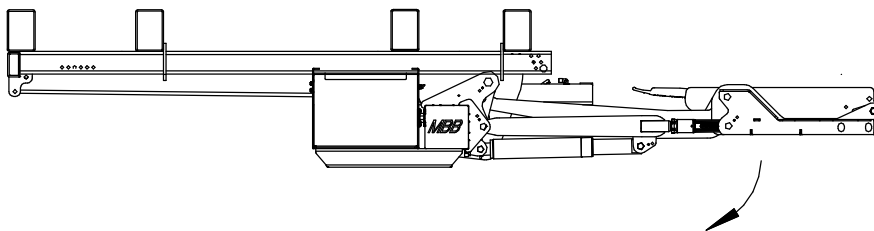


- Continue to installing the Electrical Section of this installation manual. See Section 6, pg. 26.

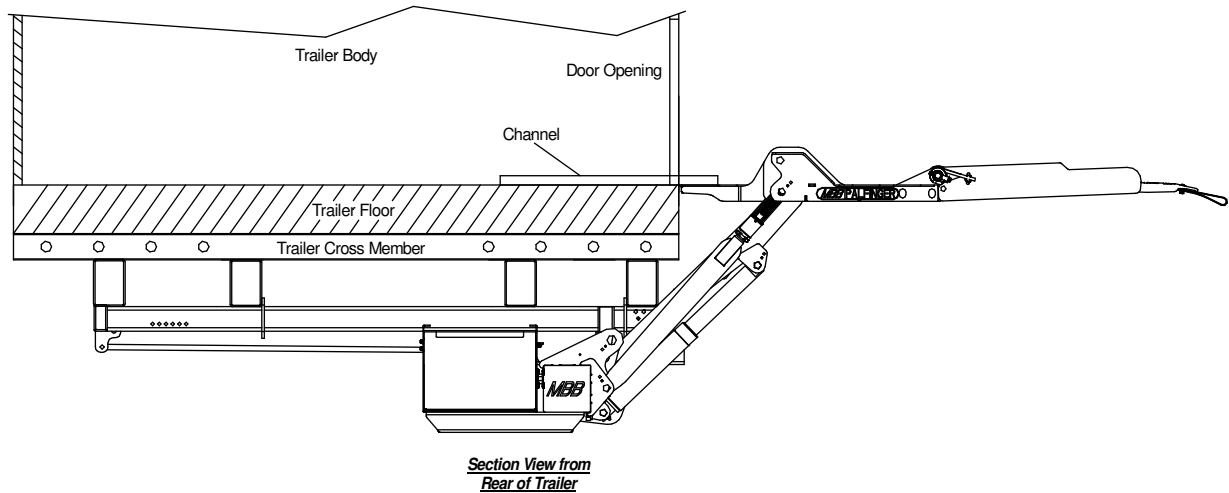
5. After all electrical requirements have been installed, continue with the installation.
6. From stored position use the Slide Out switch on the control box. A stop bolt has been positioned in the front of the rail as a safety precaution to prevent the sliding plates from exiting the rails. The stop bolt will be adjusted later in the installation.



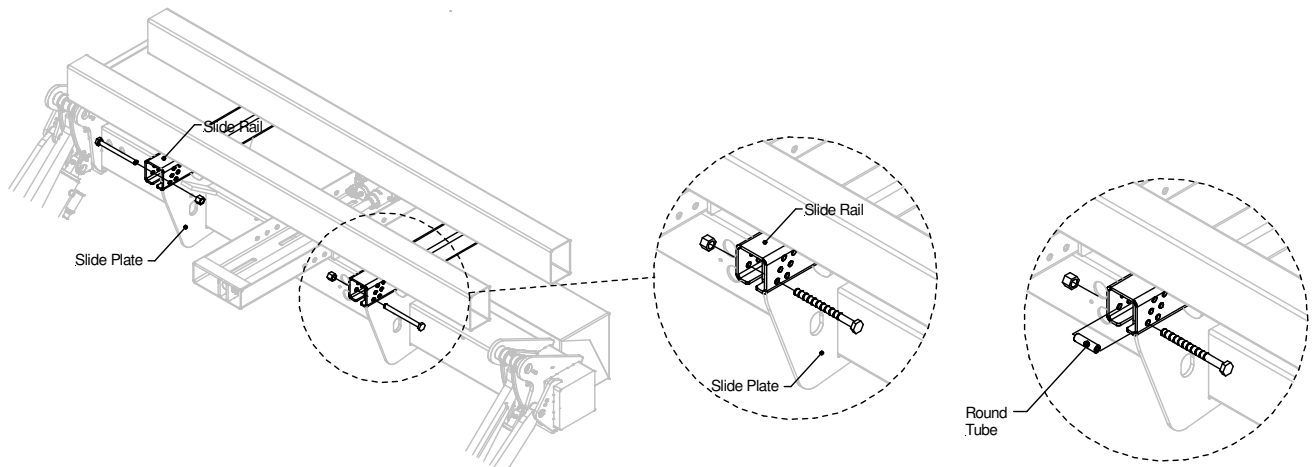
7. Slide out the entire gate until the sliding plates meet the stop bolt. Use the Lift Down turn knob on the control box to lower the platform to the ground. Unfold the platform tip manually. **Do not apply a load to the platform during installation.**



8. Place a piece of channel flush on the floor that extends out the door and serves as a guide for the platform. Use the Lift Up turn switch on the control box until the platform meets the side of the trailers door opening. If initially, the platform does not align with the floor, use the Slide turn knob to slide the mount tube back slowly until the platform is flush with the vehicles floor. Make sure there is no interference with the vehicle body, hoses, cables, lift arm, or other components. **Never use the slide knob on a loaded platform.**



9. With liftgate in the raised position and the platform flushed with the channel, remove the stop bolt and choose the hole that is closest to the sliding mount plate inside the slider rail. Install the bolt into one of the six holes and tie down. Both rails shall have the bolt in the same hole so the sliding plates stop at the same point. NOTE: If finer tuning is required, add a piece of round tube inside the rail to tighten the distance between the screw and slide plate.

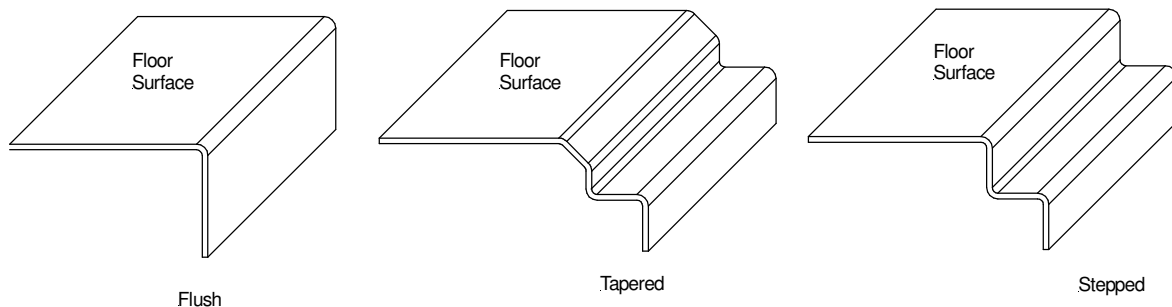


10. Cycle the gate a few times from storage to lift position and verifying the gate is operating without any issues or interference.
11. Finally, verify all bolts are fastened and all welds are 100%.

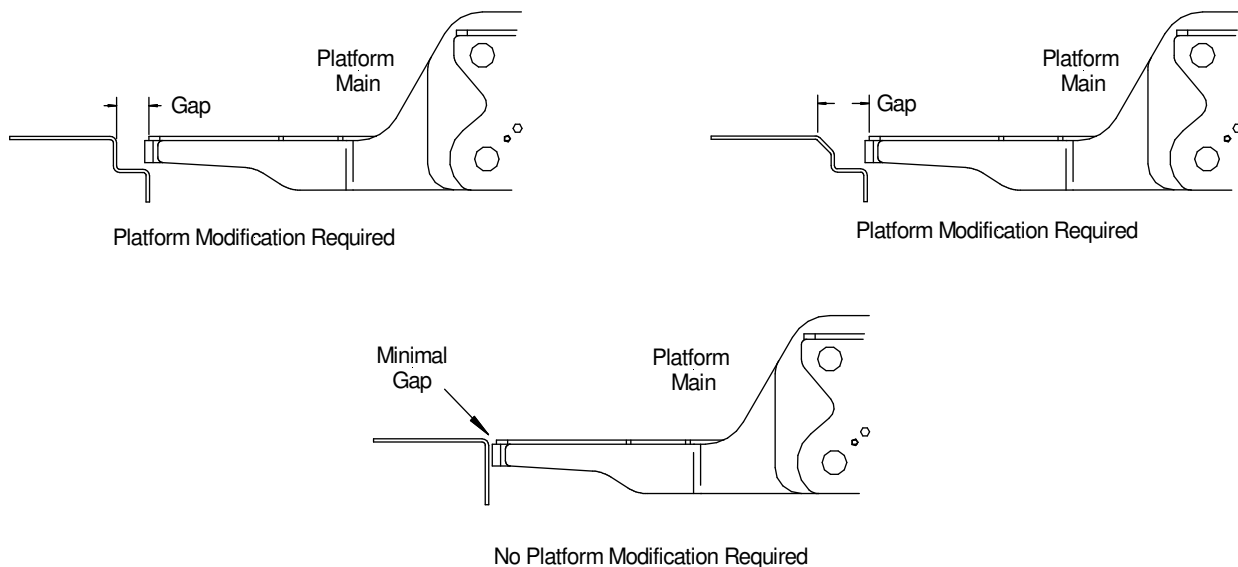
5.2 Installation (Custom)

A custom installation is when the liftgate needs to be “customized” to fit the design of the trailer. A few different factors contribute to a custom ILSL installation. OEM equipment, sill design, and door design are some of the main factors that contribute to a custom installation. Dimensions of these factors are to be recorded on the *Side Loader Dimension Sheet* seen in page 9 in this manual and provided to Palfinger Liftgates for better understanding of the trailer design. In return, Palfinger Liftgates utilizes this information to develop an installation drawing based on the recorded dimensions. The drawing shall be reviewed carefully and understood prior to beginning installation. Any issues or concerns should be addressed with Palfinger’s Technical Support Team.

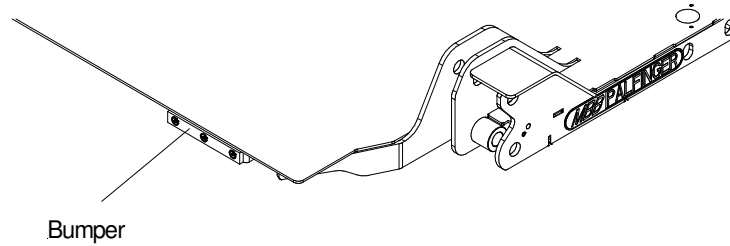
1. Verify the sill design. The sill design will be based on the type of trailer. Vans, reefers, and flatbeds will all have different sill designs. A ‘stepped’, ‘tapered’ and ‘flat’ are some of the more common sills in the industry, but other sill designs exist.



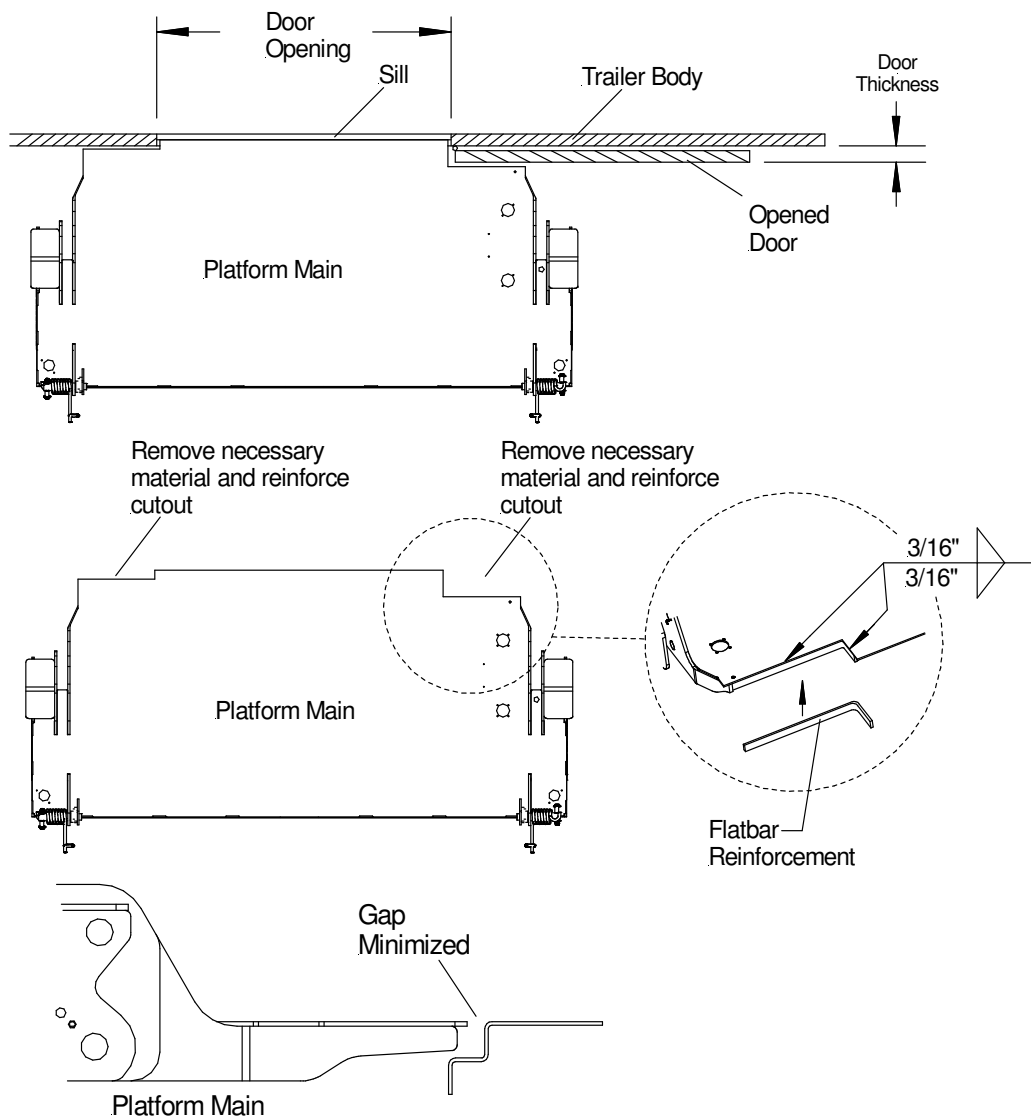
2. The liftgates platform is intended to provide a smooth ‘bridge’ between the sill (floor) and platform main without any large gaps that may cause rolling equipment to stop in the transition. Stepped and tapered sills tend to leave a gap between the standard platform and floor. In many occasions the gap can be completely closed if not minimized.



3. Uninstall the bumpers if necessary to make adjustments to the platform main.



4. To achieve gap minimization, either trimming or adding of material to the main section of the platform will be required. The sill and door designs will also dictate how much material will be trimmed in order to close the gap between the sill and the platform main. Measure the door thickness from the outside of the trailer to the outside of the open door, this amount measured must be trimmed off the platform in order to have the platform minimize the gap between the sill and platform. The opposite side (opposite to the door side) may also require to be trimmed. Each trim must be reinforced for strength.

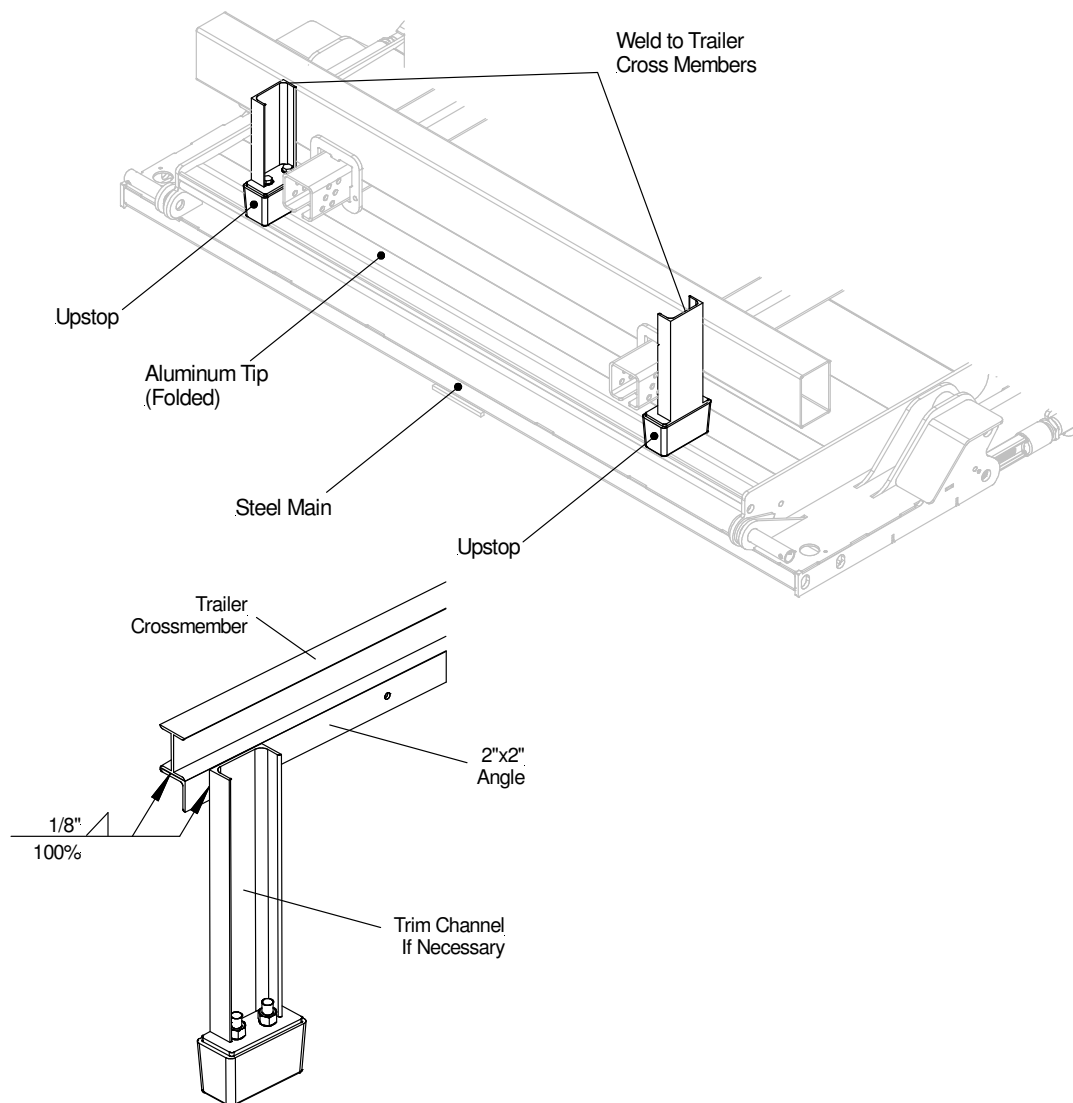


Top View of Platform Main with Cutouts

5.3 Platform Storage Up-Stops

NOTICE

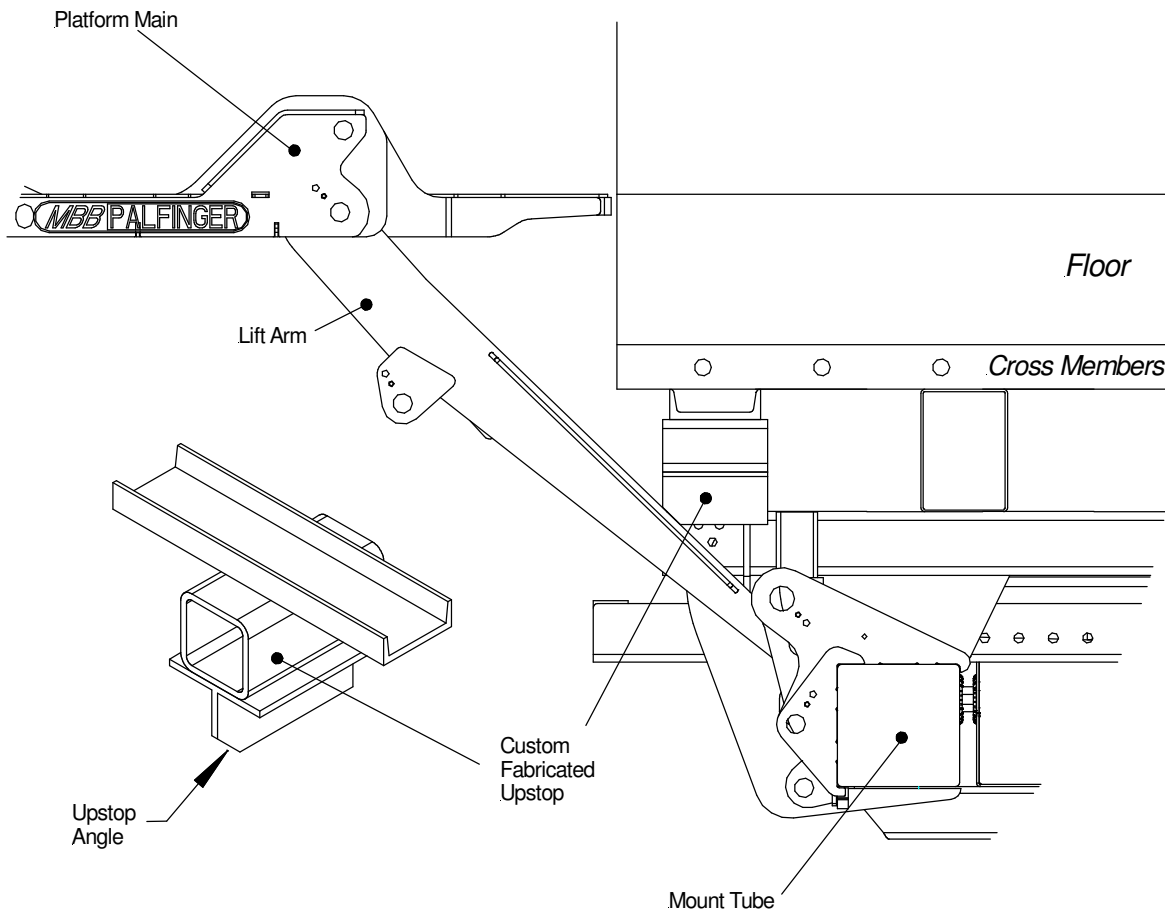
- Platform Storage Up-Stops **MUST** be installed to avoid damage to the platform when the vehicle is traveling.
- The up-stops must be mounted high enough and welded to the trailer cross members so that they do not interfere with the mainframe tube.
- Rubber bumper should make contact with the Aluminum Tip section 1-1/2" below steel slide rails.
- The up-stops must not be causing any inference with any parts of the liftgates.
- The main pin and lift cylinder hoses must clear the up stop when the gate slides out.



5.4 Liftarm Up-Stops

NOTICE

- Lift arm up-stops are highly recommended to prevent damage to the vehicles body and the platform over time.
- The up stop must be mounted high enough so that they do not make contact with the mainframe tube but must stop the lift arm at the point where the platform will meet the floor.
- **Due to a large variation between each liftgate installation, up stops will vary in design and will need to be fabricated to the liftgates requirements. Below is an example of a custom fabricated up stop with a piece of square tube and two pieces of flat bar with a C-channel. The C-Channel must be welded to a minimum of three trailer cross members for best support.**



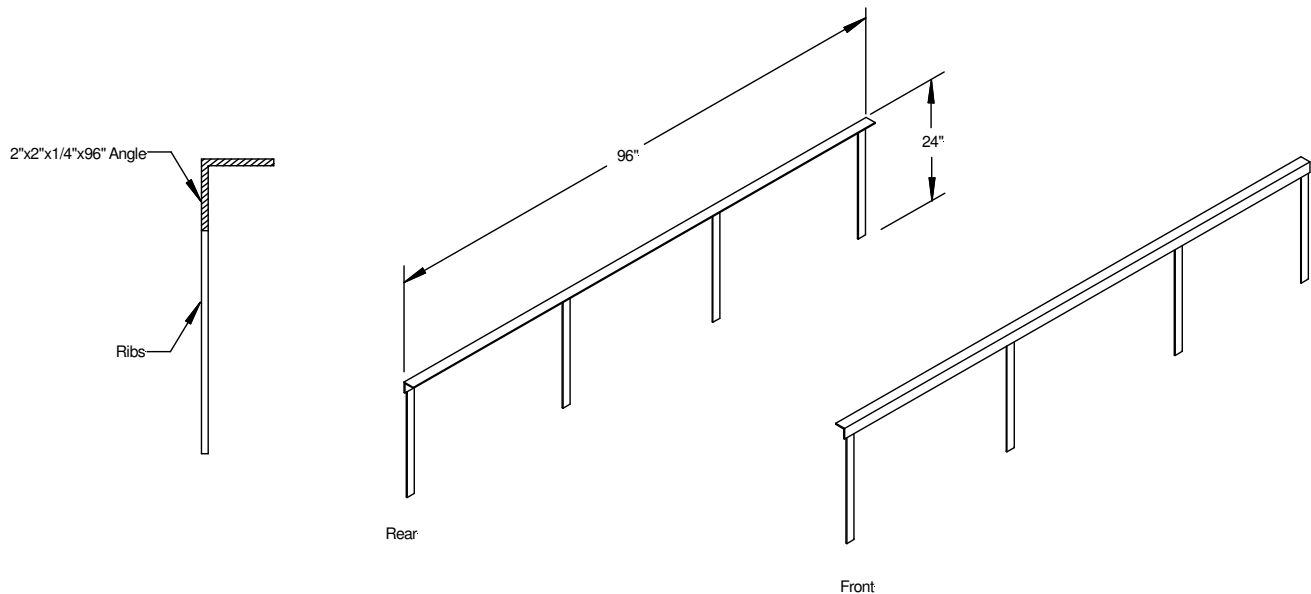
Front View from Tractor Side

NOTES

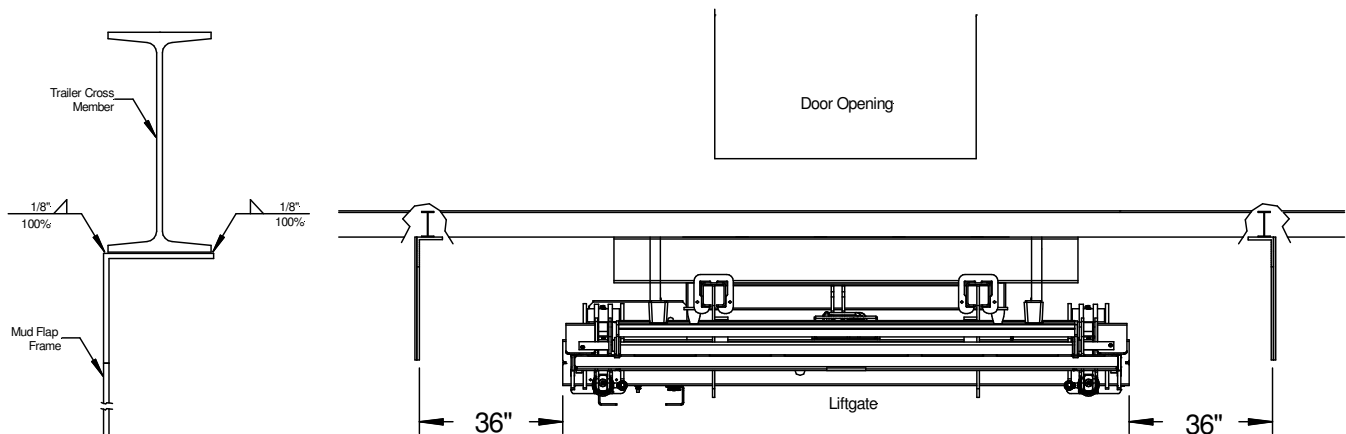
5.5 Mud Guards (Optional)

Mud flaps are highly recommended to help protect the liftgate from debris and shall be installed on both sides of the liftgate. Mud flaps will require assembly and installation.

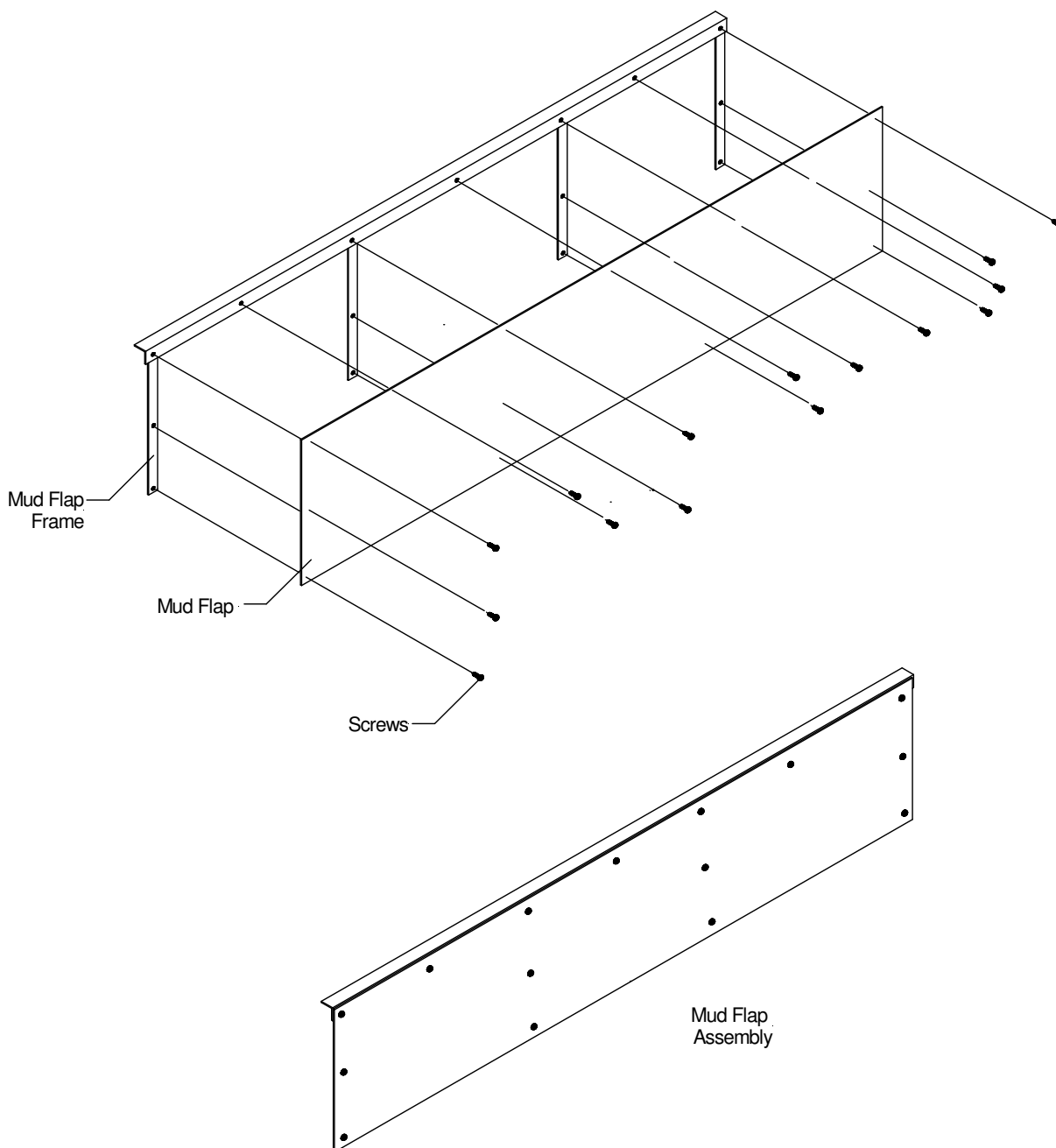
1. Assemble a 96" x 24" mud guard frame for both sides of the gate. Weld all components as shown.



2. Position the mud guard frame approximately 36" away from the end of the mount tube or to the next available cross member making sure the gate covers the battery box is located in the vicinity. Weld the mud guard frame to the cross members of the trailer. After welding the frames, drill pilot holes on the 2"x2" angles and the ribs for securing the mud flap material on the frame.



3. Install the mud flap material after welding the frames to the cross members. Drill holes on the top and bottom angles and also the vertical ribs for securing the mud flap material.



6 Electrical Installation

⚠ WARNING

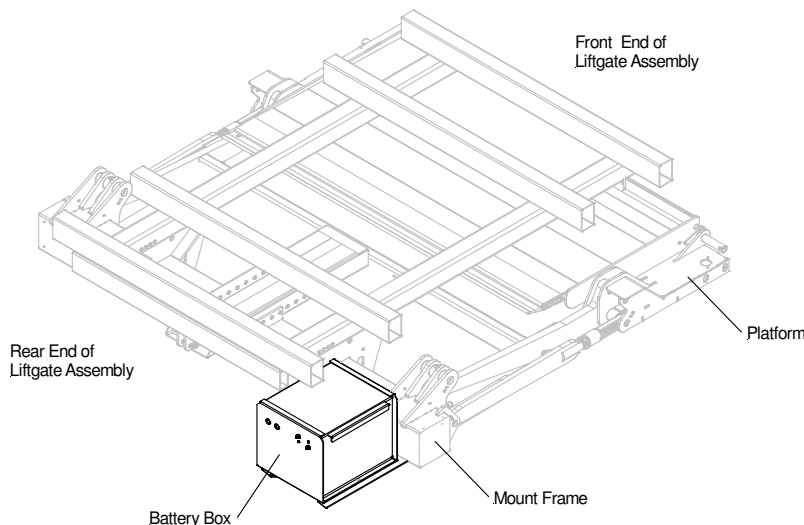
- Any deviation from PALFINGER Liftgates's recommended power setup **will void warranty and product liability** unless you have a written confirmation by PALFINGER Liftgates that allows you to do specific changes.

NOTICE

- Prior to starting electrical installation insure that the liftgate batteries are fully charged. 12.6V for Flooded Acid Batteries, and 12.8V for AGM Batteries. Charge batteries if necessary.
- Never exceed rating of existing fuses located at the battery, control board and/or the pump and motor which may result in serious damage to the equipment.
- Never jump the 150 Amp circuit breaker at the batteries unless otherwise instructed by the PALFINGER Liftgates technical support team.
- All connections should be heat shrink protected and all open ended terminals must be replaced with closed end terminals or the open ends must be protected with heat shrink tubing.
- Never secure a cable in a way where it can make contact with other wiring, brake-, fuel- or air-lines, or get pinched against other objects.
- It is highly recommended to use 2 gauge wire throughout the electrical system when connecting to batteries.
- Do not splice battery cables unless otherwise instructed by the Palfinger Liftgates technical support team.

6.1 Battery Box/Boxes

- Battery box/boxes are typically pre-installed on the rear portion of the mount tube for space saving purposes. Boxes can be relocated to a desired location if necessary by removing the bolts that secure the box to the mount tube. Additional hardware will be required to relocate box/boxes and must be per the vehicles manufacture recommendations.
- Battery boxes vary in design depending on the specifications for each liftgate.



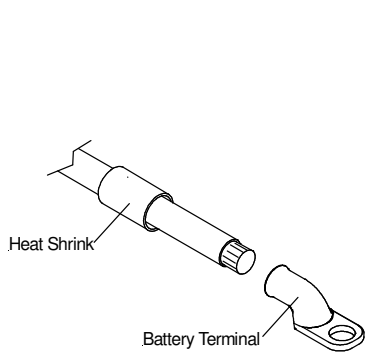
6.2 Wire Crimping



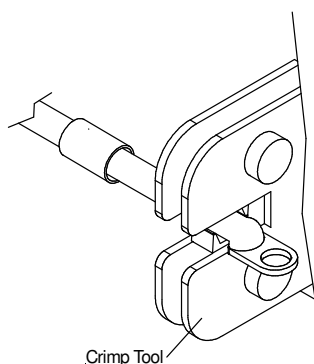
All grounding surfaces *MUST* be cleaned, prepped, and sealed per this manual. “Cut to size” cables *MUST* be properly crimped and sealed as factory supplied. All connections *MUST* be dressed with dielectric grease or equivalent sealer.

Battery Cable Crimping

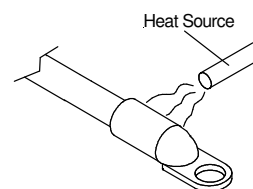
1. Prepare the wire to be crimped. Straighten out the exposed copper wire and insert into the battery terminal. Slide the provided heat shrink over the battery cable.
2. Use a crimping tool designed for crimping battery terminals for best results. The use of other tools to crimp terminals could possibly damage the battery terminal and make poor connections between the wire and terminals.
3. Slide the provided heat shrink over the battery terminal and cable to seal the connection.



Prepare



Crimp



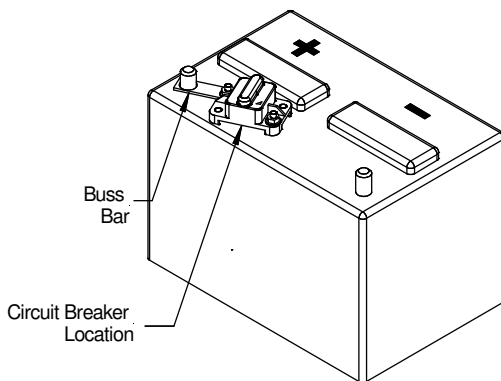
Seal

6.3 Circuit Breaker Installation

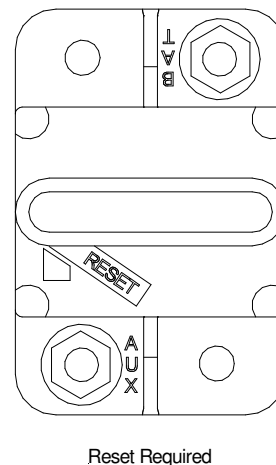
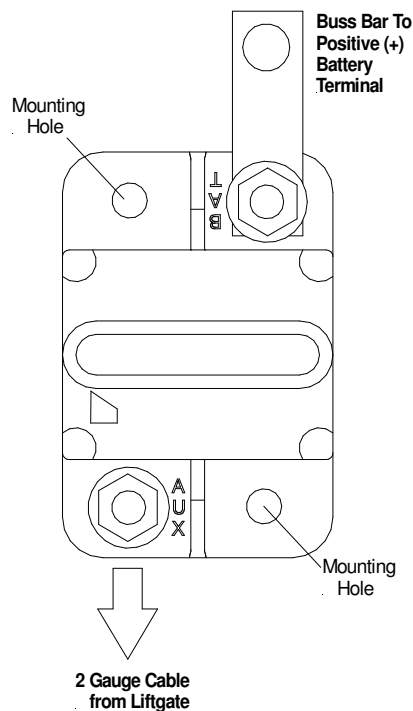
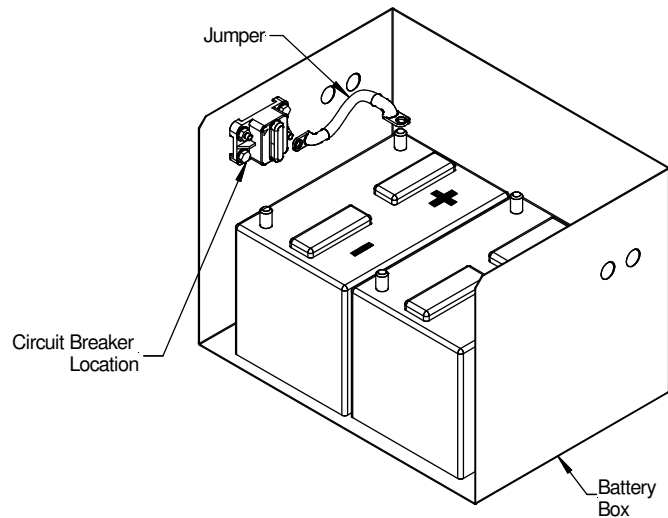
1. Mount the circuit breaker securely in battery box or at positive battery terminal using the buss bar.
2. Connect the liftgate 2 Gauge cable to AUX stud on the circuit breaker.
3. Connect a 2 Gauge jumper from BAT stud on breaker to positive battery post if circuit breaker is not mounted on battery. When circuit breaker is mounted on battery use the provided buss bar on the BAT stud.

Note: 150 amp minimum circuit breaker required.

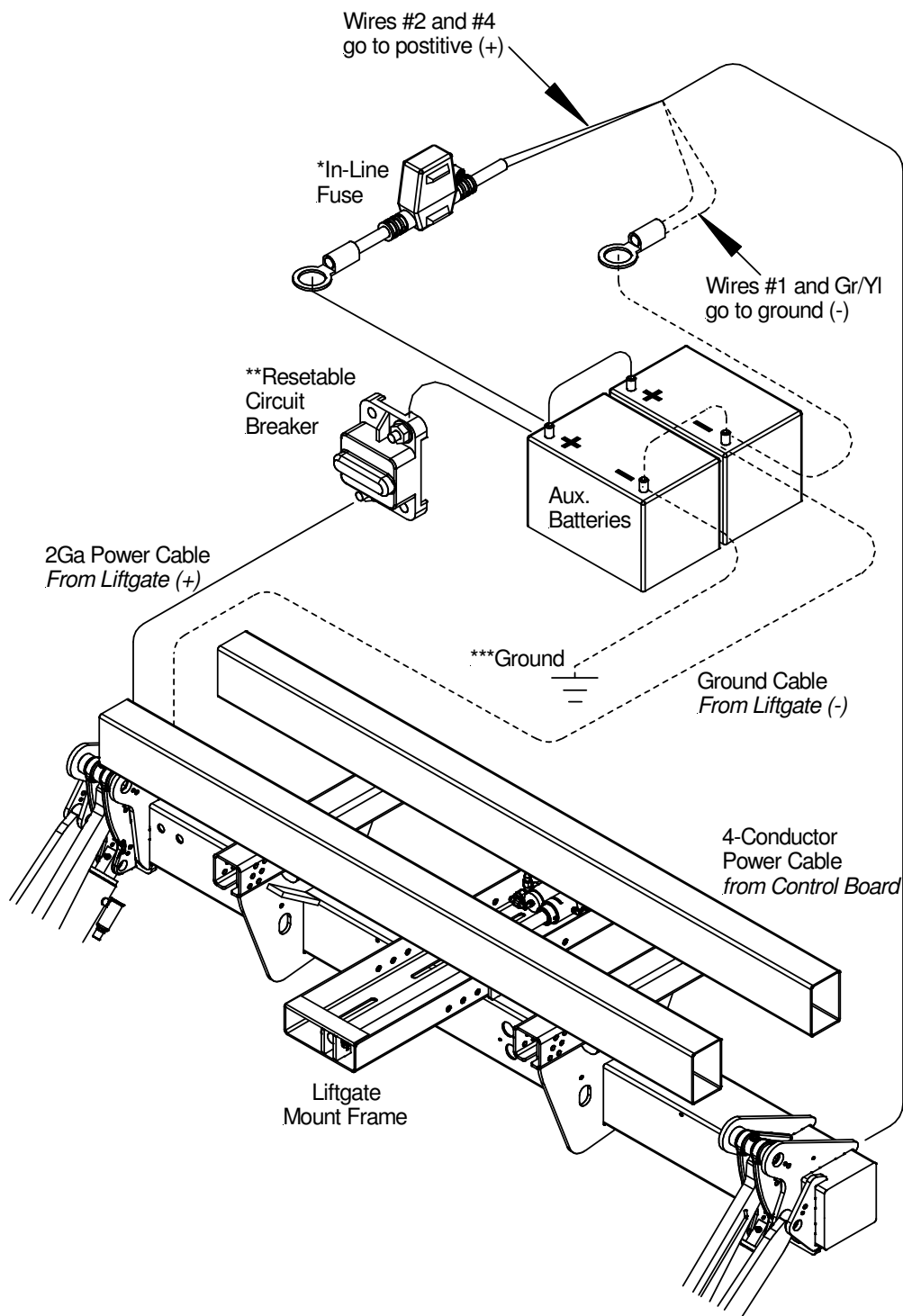
Battery Mount



Battery Box Mount



6.4 Wiring Diagram for Main Auxiliary Battery Power



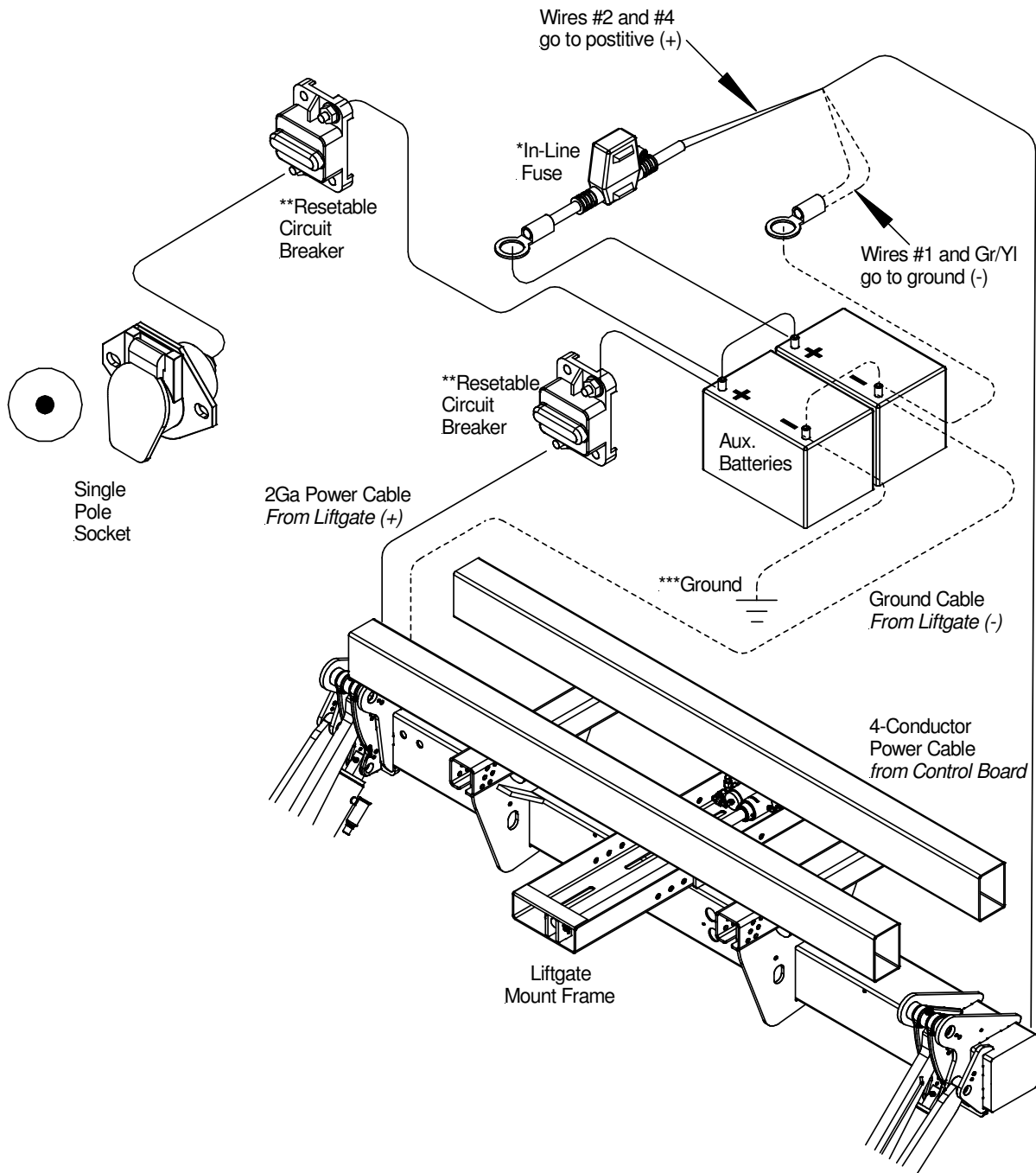
*In-Line ATC Fuse: 20 Amp. **Replace with same amperage fuse when necessary.**

Resettable Circuit Breaker: 150 Amp Min. **Replace with same amperage breaker when necessary.

***Ground: For optimal grounding, ground all batteries and power units to the body side rails of the vehicle.

NOTICE: DO NOT attempt to jump in-line fuses with other objects other than the specified fuse. Do not increase the amperage rating of fuse. Serious harm to the liftgate will result when standard practices are not followed.

6.5 Single and Dual Pole Plug Charging System



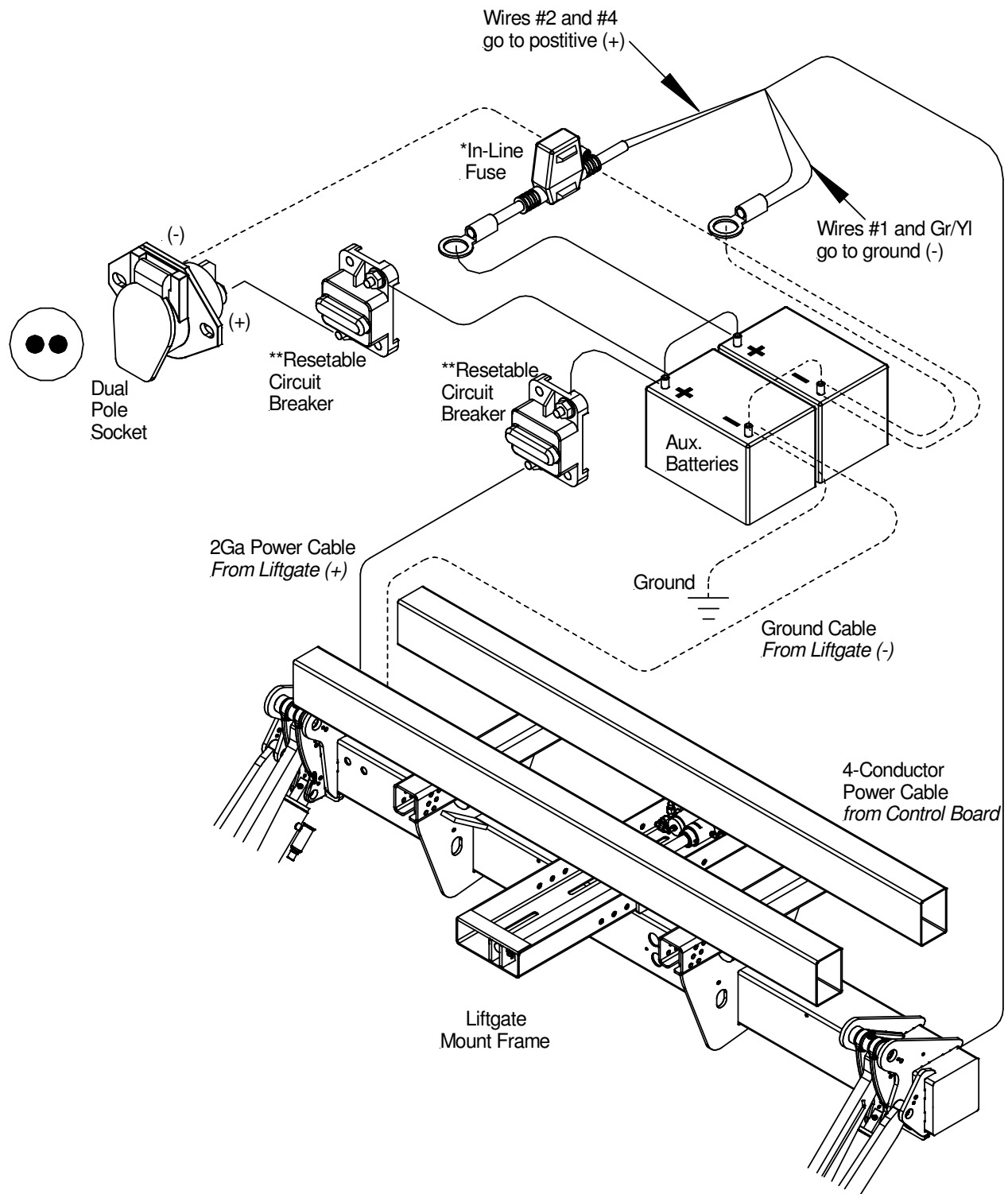
*In-Line ATC Fuse: 20 Amp. **Replace with same amperage fuse when necessary.**

Resettable Circuit Breaker: 150 Amp Min. **Replace with same amperage breaker when necessary.

***Ground: For optimal grounding, ground all batteries and power units to the body side rails of the vehicle.

NOTICE: DO NOT attempt to jump in-line fuses with other objects other than the specified fuse. DO NOT increase the amperage rating of fuse. Serious harm to the liftgate will result when standard practices are not followed.

Trailer Setup – Single Pole Charging System



*In-Line ATC Fuse: 20 Amp. Replace with same amperage fuse when necessary.

**Resettable Circuit Breaker: 150 Amp Min. Replace with same amperage breaker when necessary.

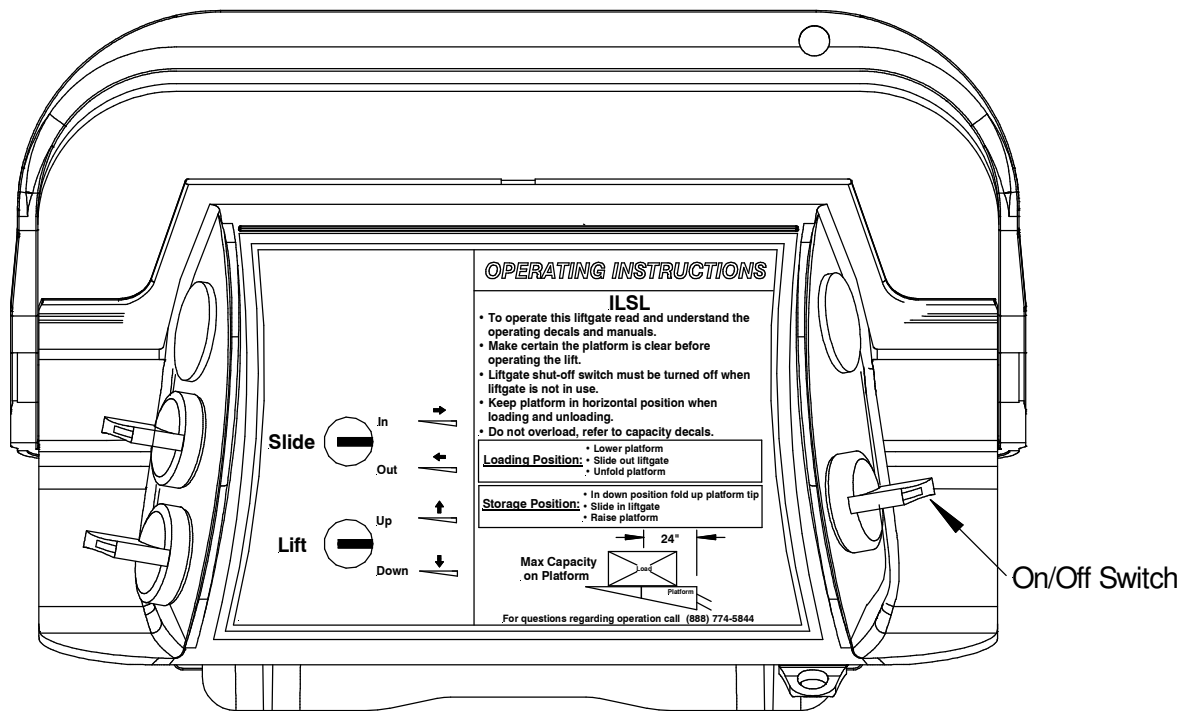
NOTICE: DO NOT attempt to jump in-line fuses with other objects other than the specified fuse. DO NOT increase the amperage rating of fuse. Serious harm to the liftgate will result when standard practices are not followed.

Trailer Setup – Dual Pole Charging System

6.6 ON/OFF Switch

The on-off switch is integrated into the control box and can be found on the right hand side in the control box. The switch is prewired and does not require any additional work.

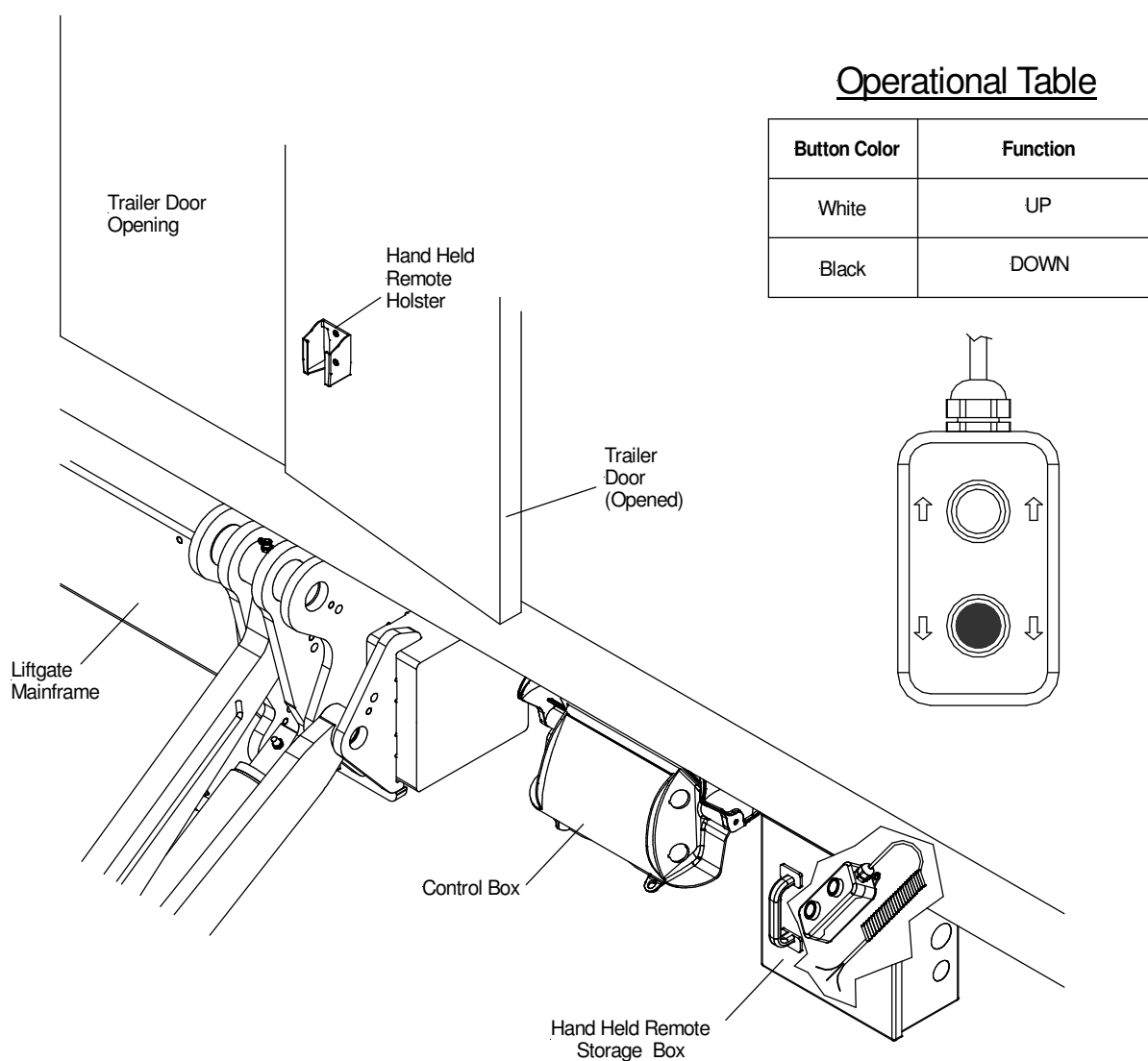
Main power is taken from J-11 #2 and returns to the board through J-30 #4. All #4 terminals are internally hardwired on the board and provide 12V DC the moment the switch gets turned to “ON” position.



6.7 Hand-Held Remote Control (Optional)

The hand held remote control is integrated to the storage box. Location of the box may differ from installation to installation but it will be in the vicinity of the operations control box. Maintain the hand held remote control in the storage box after use to prevent any damage. **NOTE: Do not store the hand held remote inside refrigerated vehicles.**

1. The 2-button hand held remote will be installed in the hand held remote storage box as shown. Remote will be pre-wired and no wiring is required.
2. Install the holster for the 2-button hand held remote on the inside part of the door.
3. The 2-button remote can only raise and lower the platform. No other liftgate functions are operational with this remote.
4. Follow the operational table to operate the remote.



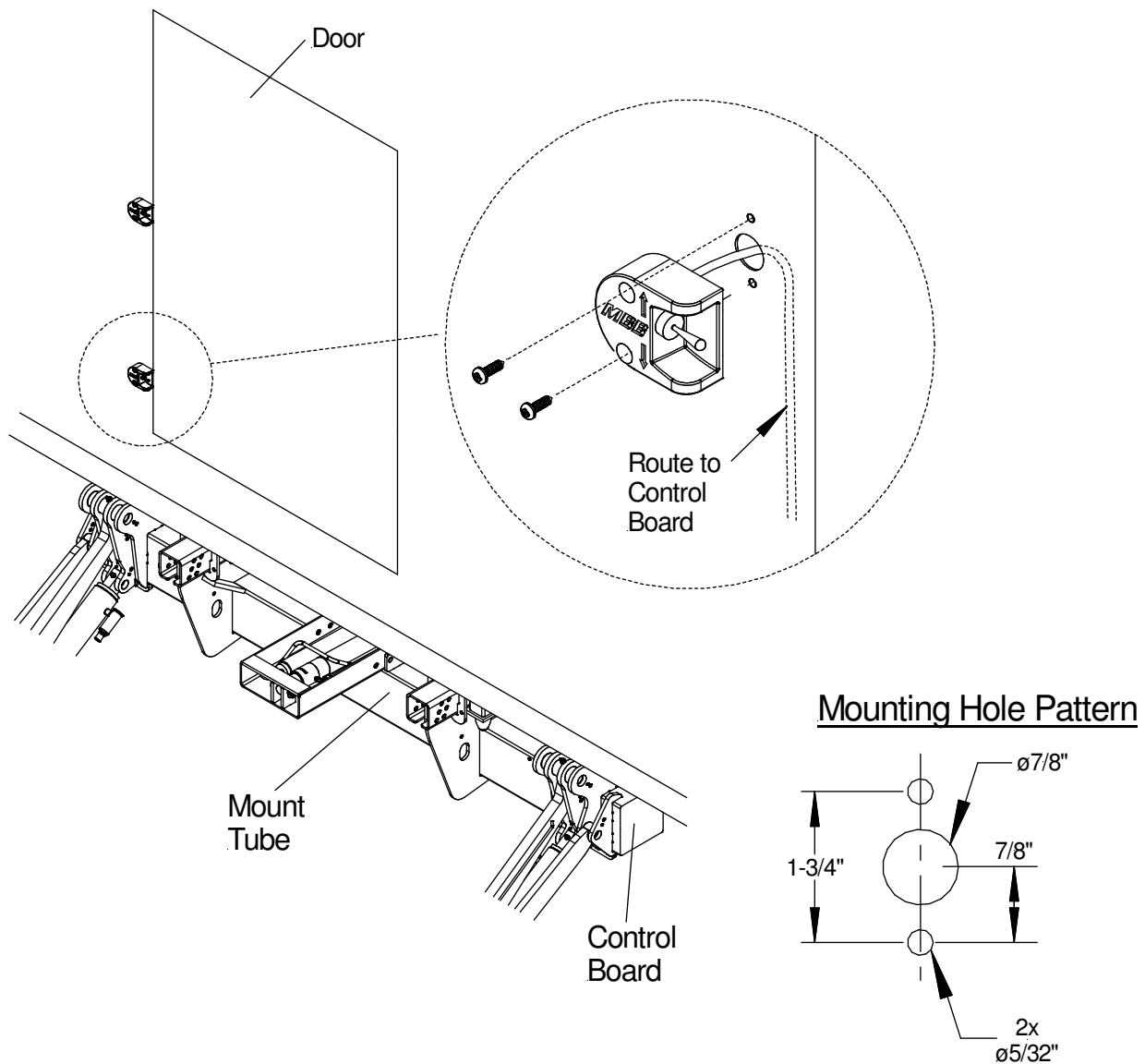
NOTES

6.8 Toggle Switch (Optional)

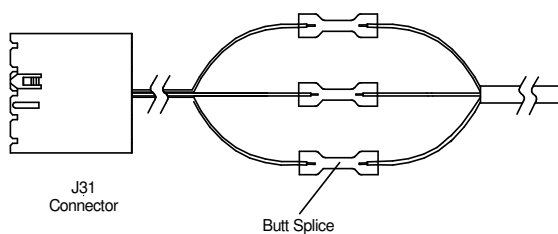
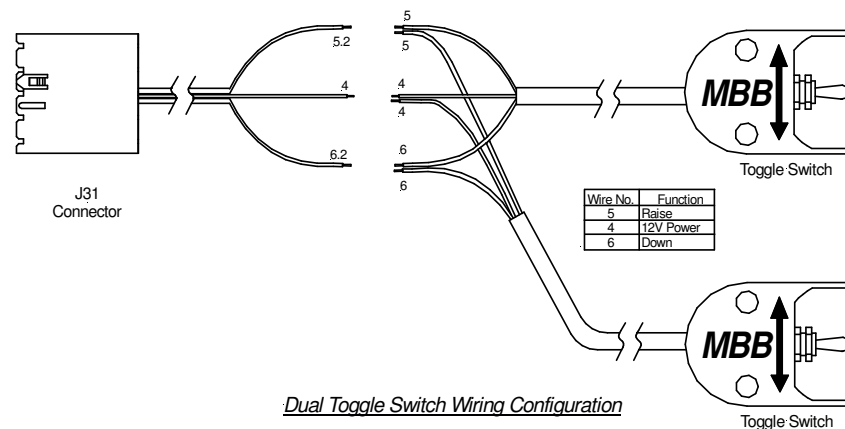
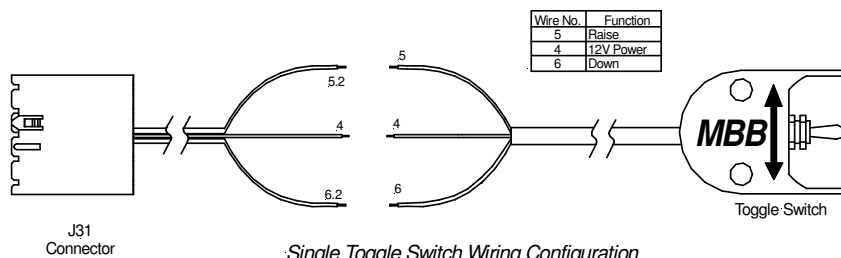
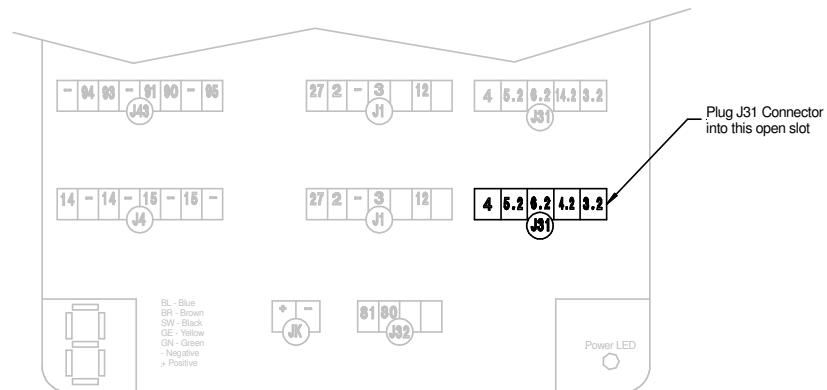
NOTICE

Reminder: The toggle switch only raises and lowers the gates platform.

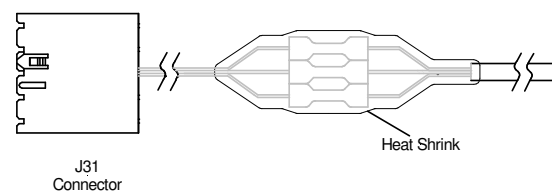
1. Determine the location of the toggle switch. The switch shall be installed on a location that is easily accessible to the operator, and should not interfere with the door.
2. Pre-drill two mounting holes and a third hole to route the cable
3. Feed the cable thru the hole and route to the control box located at the end of the mount tube.
4. Secure the switch to the surface using two sheet metals screw and route the toggle switch cable down to the control board.



- To wire the toggle switch/switches follow the wiring diagram below. Use heat shrink on all wire splices.



Join wires with butt splice

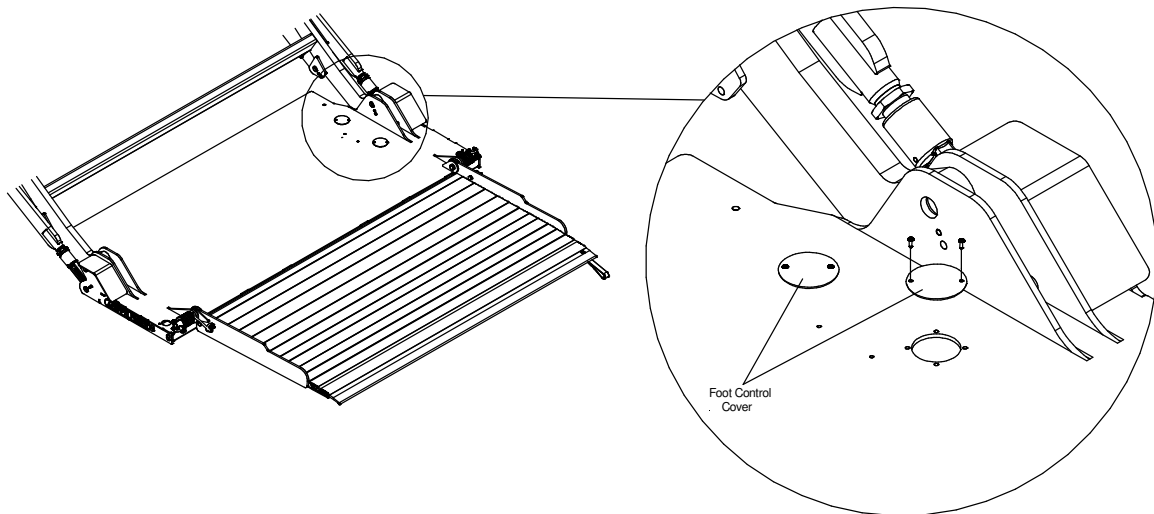


Use heat shrink to seal splice

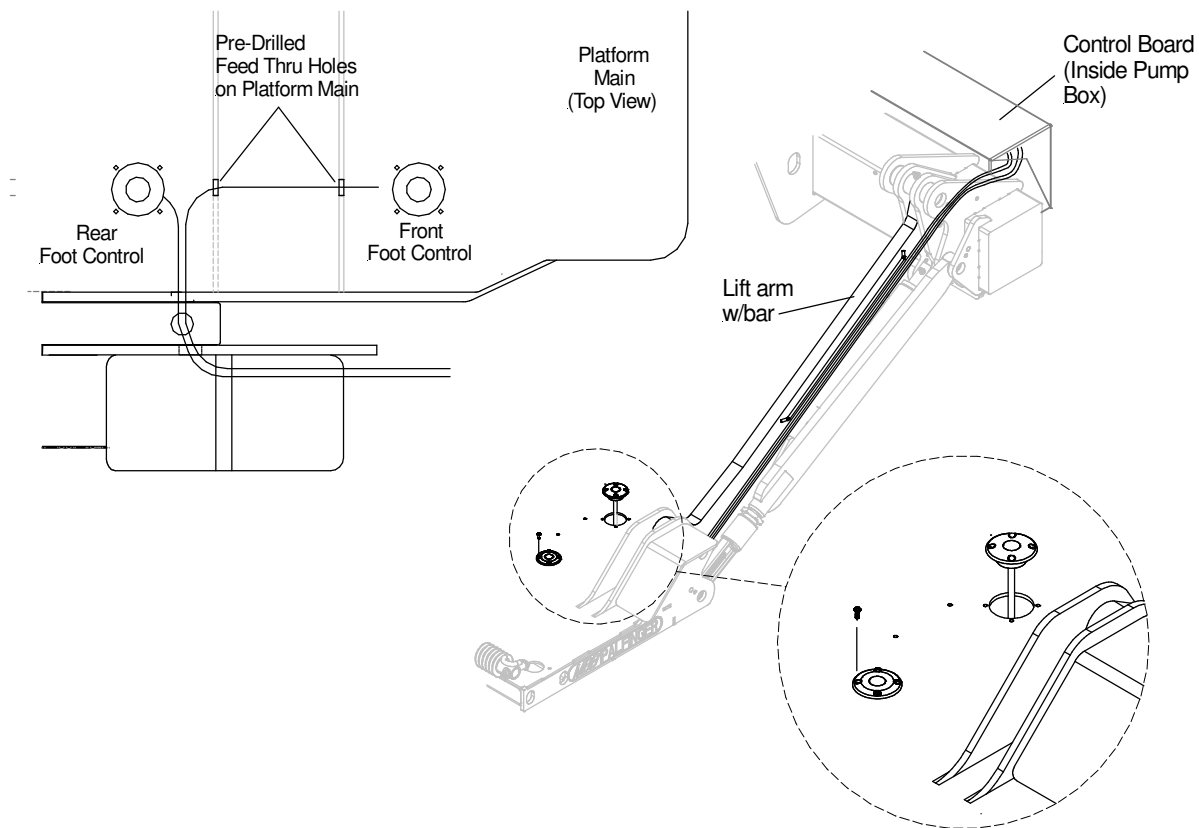
- If a second switch is required, repeat steps 1 thru 5.

6.9 Foot Controls (Optional)

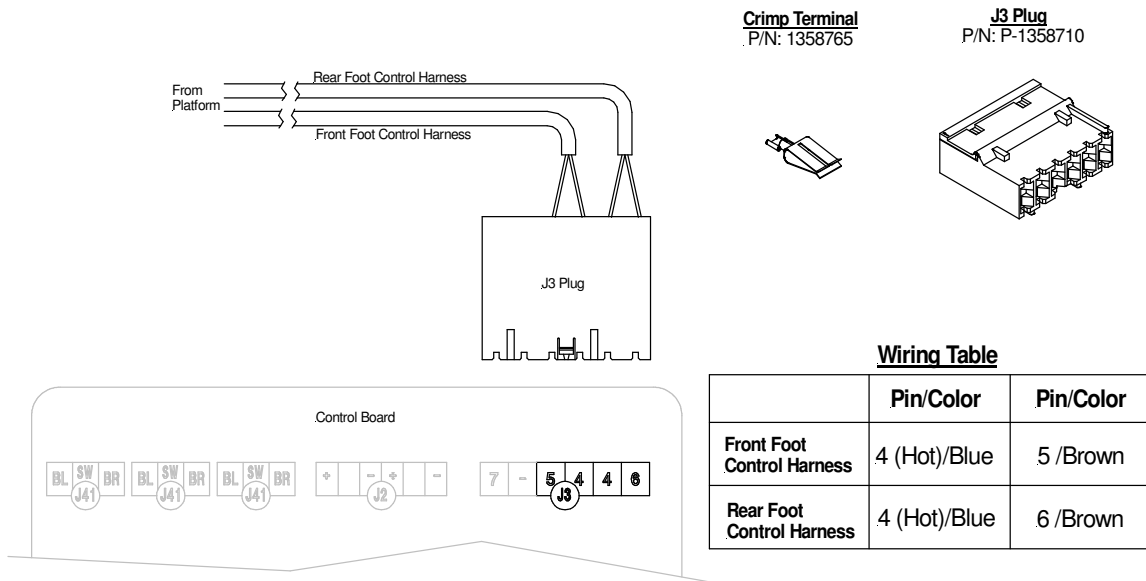
1. Unscrew the covers to expose the slots for each foot control module.



2. Mark or label each foot control harness to avoid confusion after the harnesses have been routed. The platform main is designed with pre-drilled holes underneath for routing each harness. Feed each cable harness through each foot control slot on the main section of the platform and route each harness as shown below. Once the cable is out of the platform, the lift arm is equipped with a bar that serves as a guide for the harnesses to be routed along and secured to. Next, secure each foot control module with the provided screws on the platform



3. Connect the Front Foot Control Harness to pins 5, 4 on J3. Connect Rear Foot Control Harness to pins 4, 6 on J3.



4. Test functionality of each foot control. Follow the steps below:

DOWN

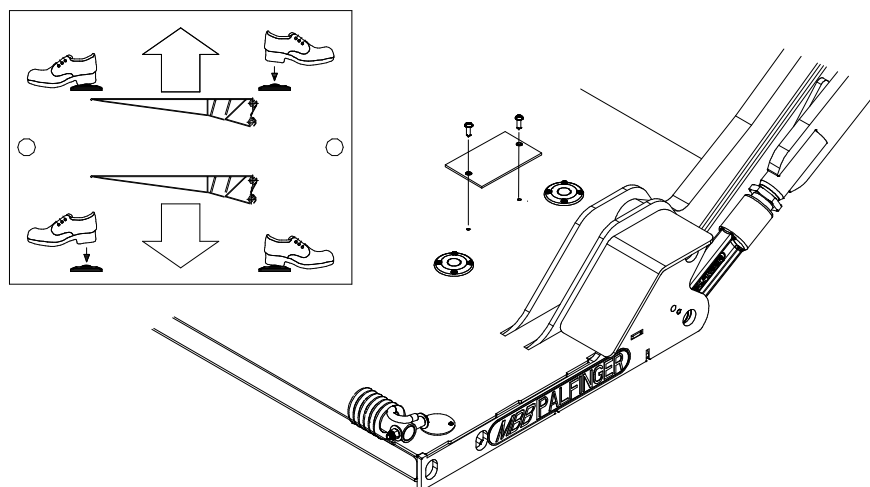
Step on the front foot control and hold – wait between one and three seconds before you step on the rear foot control.

UP:

Step on the rear foot control and hold – wait between one and three seconds before you step on the front foot control.

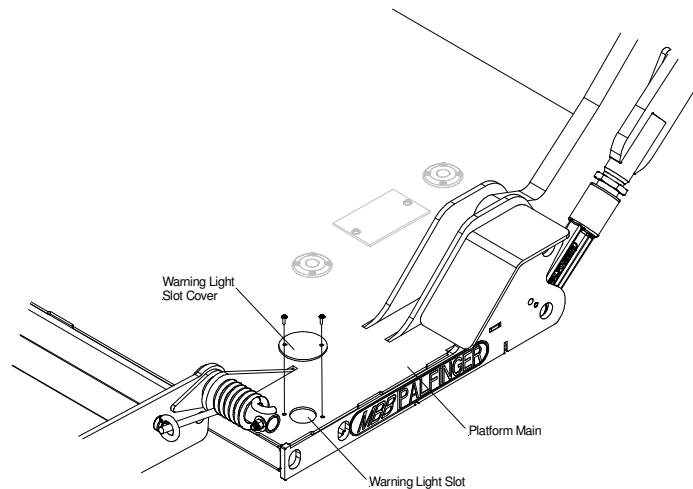
IF BOTH SWITCHES ARE NOT ACTIVATED BETWEEN ONE TO THREE SECONDS, START OVER.

5. Once operation has been verified, check all connections and verify that all screws are properly fastened. Finally, install the operation plate and make sure the arrows on the plate match the foot control operations.

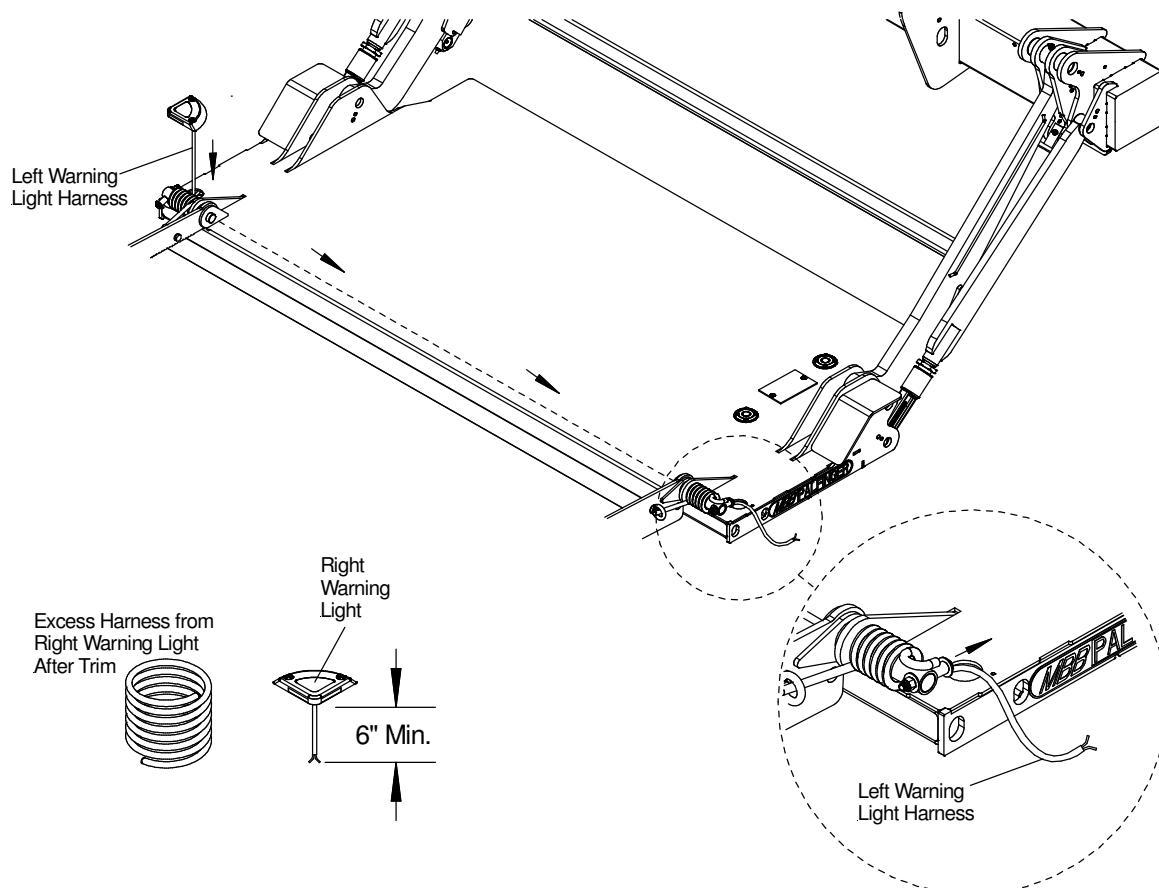


6.9.1 Warning Lights (Optional)

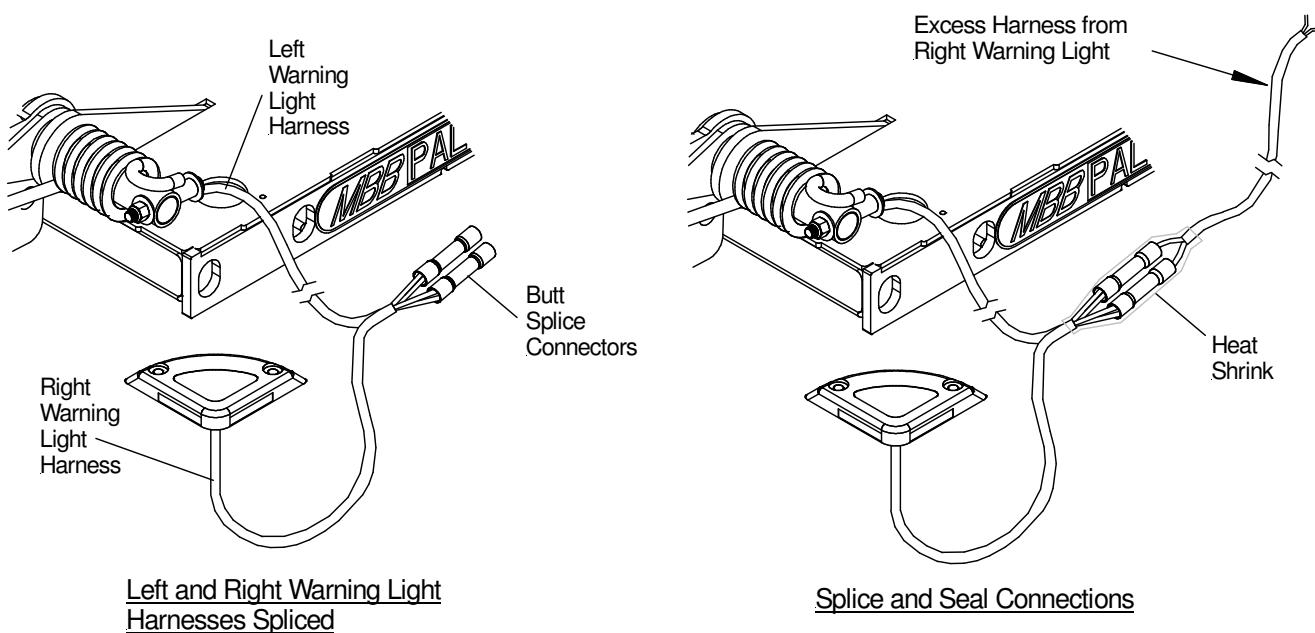
1. The warning light slots are located on the corners of the platform main and have covers over them. Unscrew the covers to expose the slots for each warning light on the platform main.



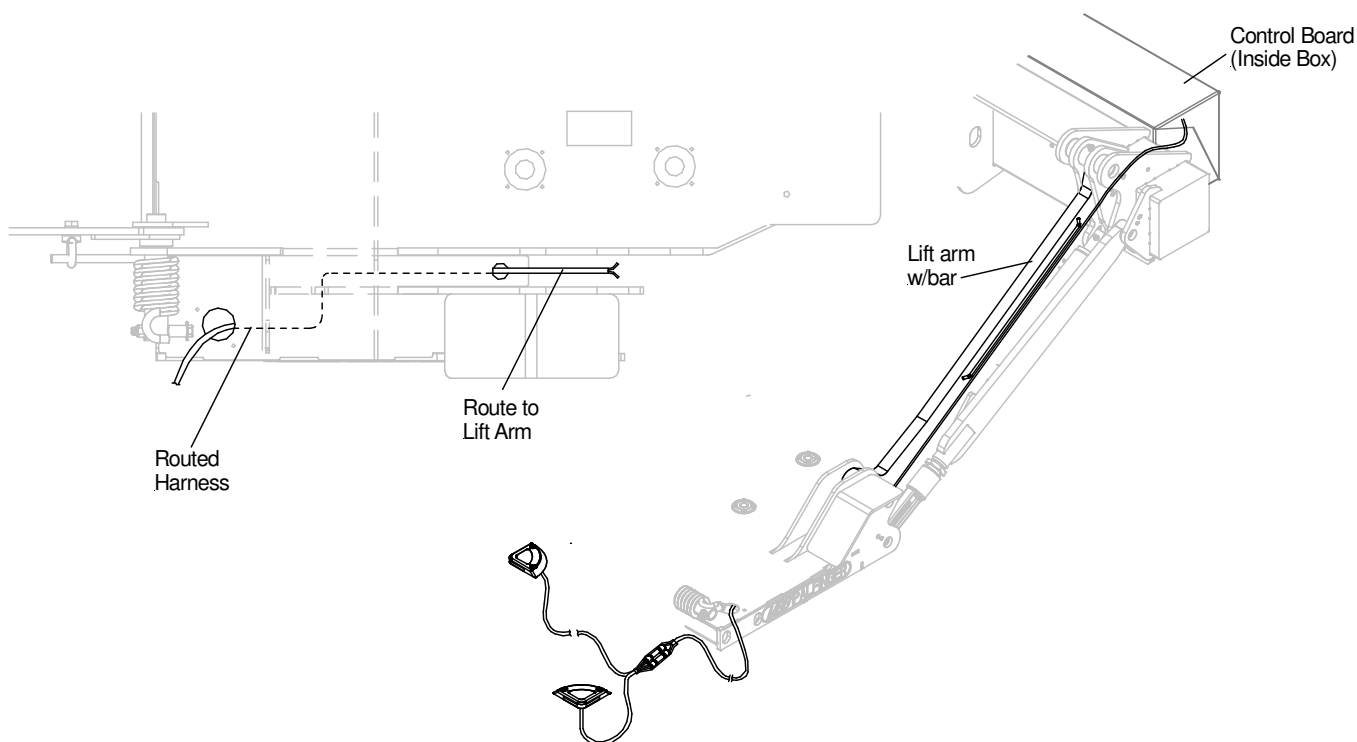
2. Feed the left warning light harness into the slot and route the harness through the inside of the platform and out on the right side. For the right warning light, trim and leave a minimum of 6" or harness attached to the right warning light. Do not discard the excess harness from the right warning light, it will be required to finish the installation.



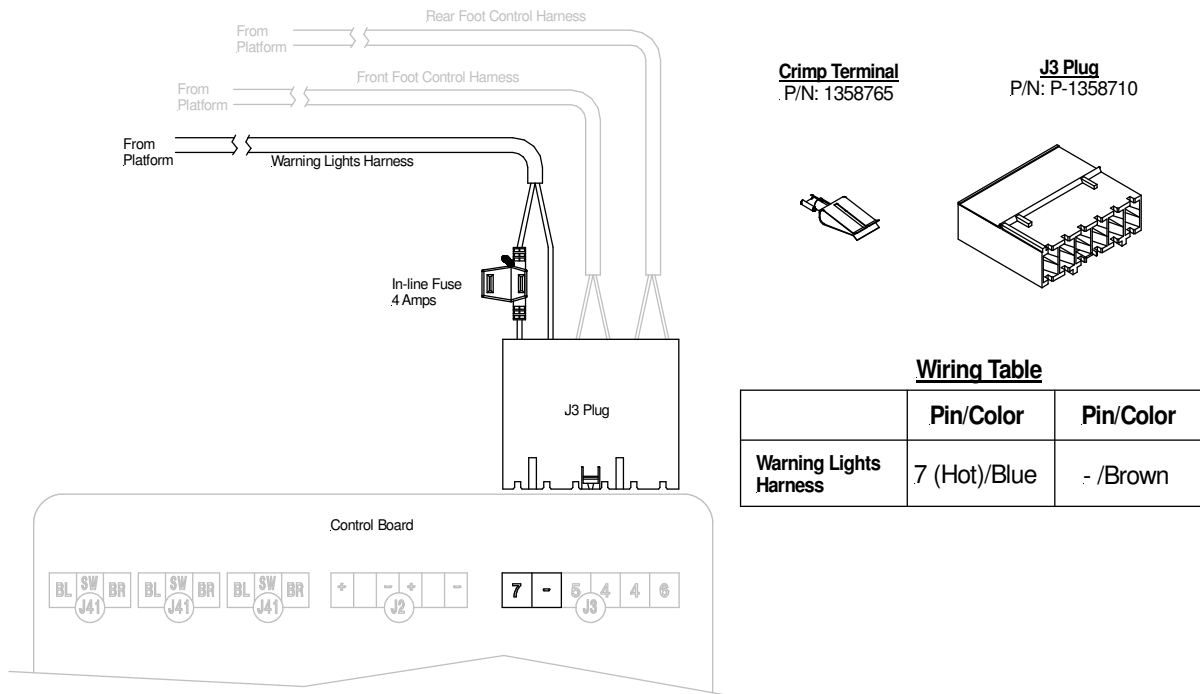
- Next, use butt splice connectors to join the left and the right wires together, make sure the same color wires are joined together from each harness and crimp the butt splice. On the other end of the butt splice connector, slide a piece of heat shrink over the excess harness prior to feeding the wires into the open end of the butt splice. Crimp butt splice connector and seal.



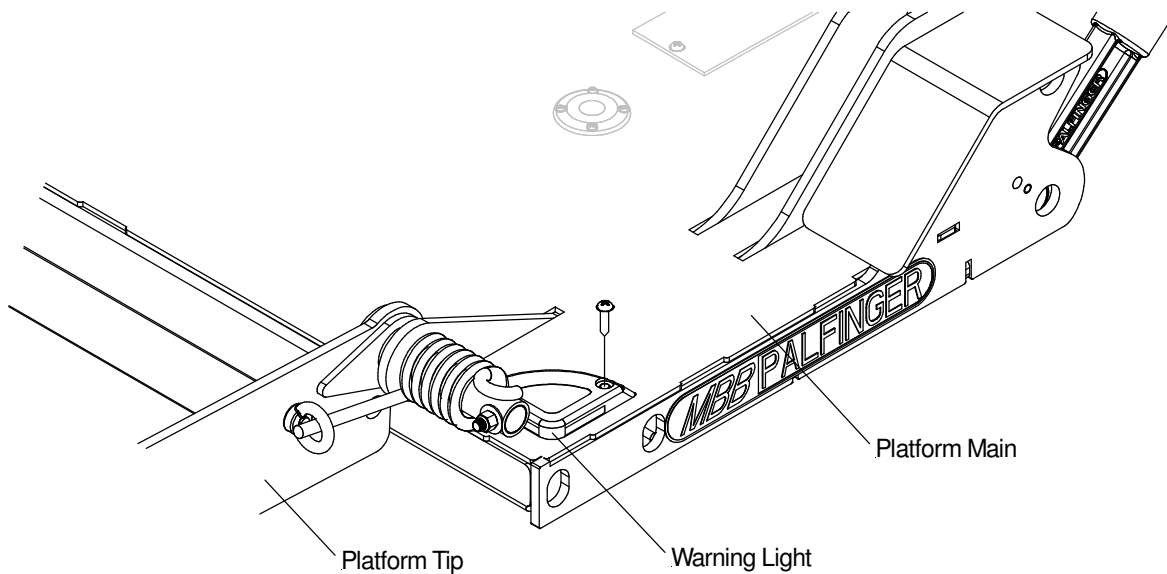
- Route the other end of the excess harness through the inside of the main platform and up the lift arm to the control board in the pump and motor box.



- Use crimp terminals on each wire. Insert the crimped terminals into the corresponding ports on the J3 plug; make sure the orientation of the plug matches the control board. Add a 4 amp fuse in line with pin 7. Connect the harness to pins 7 and (-) on the Control Board. *NOTE: If Foot Control Switches have been pre-installed, use the two remaining slots on the J3 plug to connect the Warning Lights.*

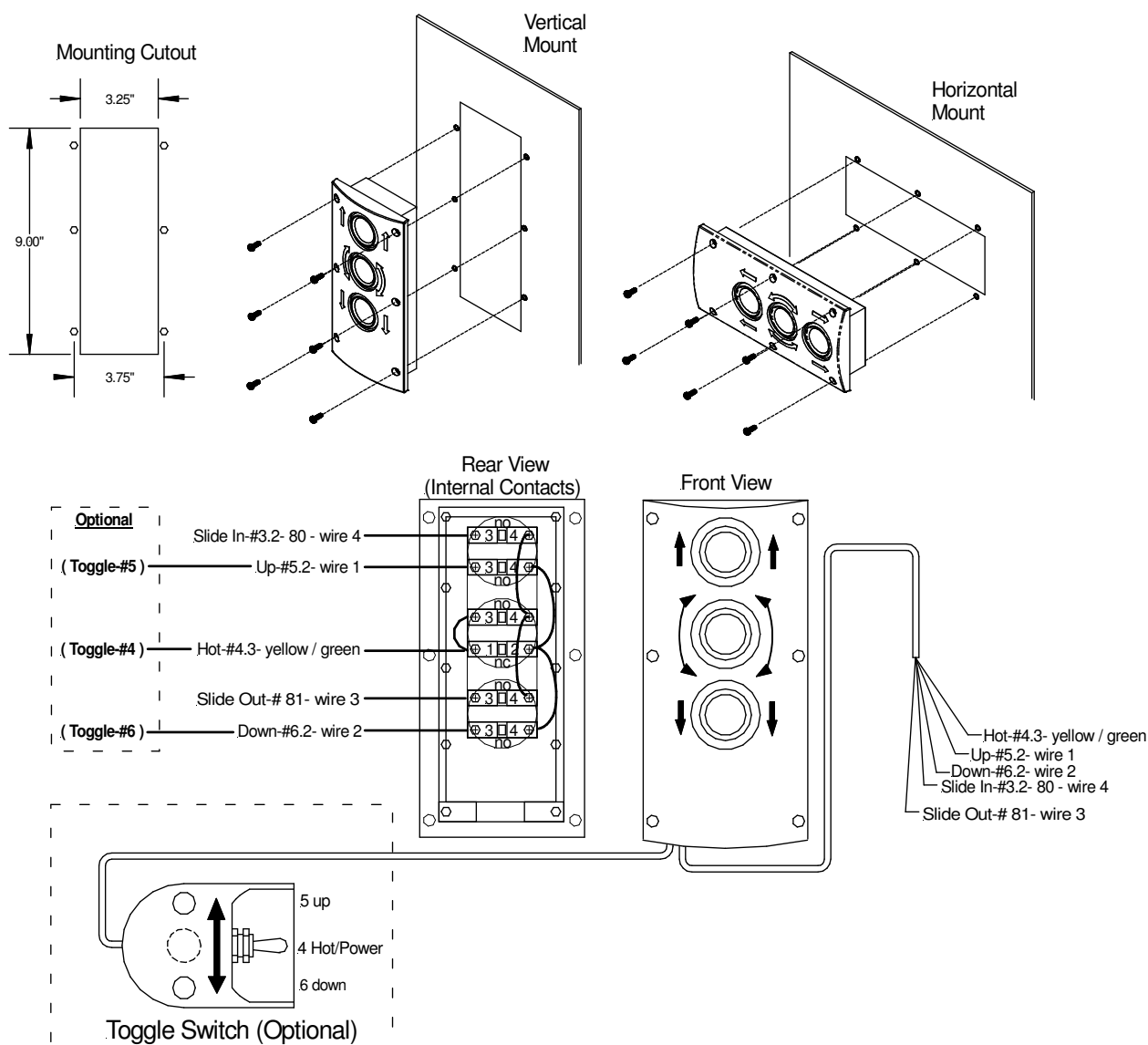


- Verify both lights are operating as intended. Check all connections and fit all wires inside the platform main. Fasten both warning lights to the platform.



6.10 3-Button Flush Mount Control (Optional)

1. Determine the location for the control. Make sure the control is placed in a location that's easily accessible to the operator.
2. Make a rectangular cut out (vertically or horizontally) of 3.25"W x 9.00"H on the surface. Fit the control into the cutout and use the remote as a template to mark the mounting holes on the surface. Drill pilot holes.
3. Route the cable back to the control board and secure the remote to the surface with the provided screws.
4. Wire the flush mount control as indicated below. The control can 'piggy back' the toggle switch as an option. Make wires connections as shown below if adding a toggle switch to the system also. Assure all jumpers inside the control are set and cables are tight at the contact blocks.





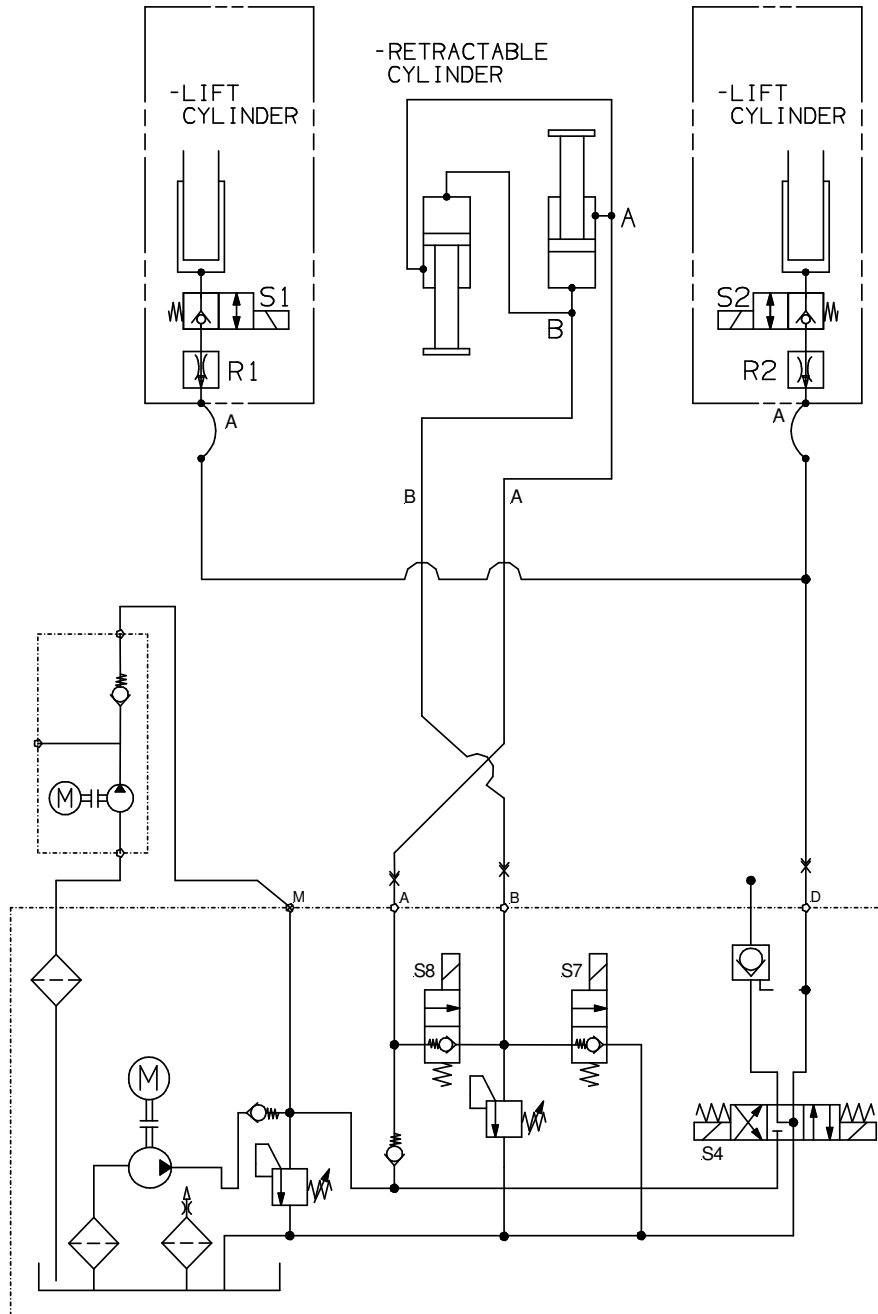


Code	Description	Reset
0	System ok / ON/OFF switch off, (or missing bridge J11/2<->4)	
1	System ok / ON/OFF switch on, (or bridge J11/2<->4)	
2	Low Voltage	Cab switch: off/on (or disconnect bridge J11/2<->4)
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A
6	Warning lights shorted	ON/OFF switch (or disconnect bridge J11/2<->4) or close tail lift
7	Short in on-off switch or aux port	Cab switch: off/on (or disconnect bridge J11/2<->4) or close tail lift
8	General short in electrical wiring	Cab switch: off/on (or disconnect bridge J11/2<->4) or voltage interruption MBB control
9	Defect at motor solenoid detected during lifting	Automatically when the valves are back to normal
A	Voltage V02 (J1 pin 2) is missing, defective fuse	Replace the fuse
B	Defect at opening, valve (S3/S4) or motor relay detected during opening	Automatically when the valves are back to normal
C	S5 valve detected during closing or motor solenoid defective	Automatically when the valves are back to normal
D	S5 valve detected or defect at lowering valve (S1/S2)	Automatically when the valves are back to normal
E	Emergency program (all sensors are bypassed). Activation by: Press Open+Lower>10 seconds	Cab switch: off/on (or disconnect bridge J11/2<->4)
F	Diagnosis mode activated	Removing service connector

Rev. 1.2

7 Hydraulic Schematics

7.1 Hydraulic Schematic



Functions:

Lift:	S4 + Motor
Lower:	S1 + S2
Slide Out:	S8 + Motor
Slide In:	S7 + Motor

Functional Description of Hydraulics Schematic

7.1.1 Slide Out Function

- As soon as the Motor starts to run, valve S8 is energized.
- Oil pressure exits pump and motor under pressure to A + B ports on push pull cylinder.
- The surface at the end of the piston rod on input “B” is larger than on the shaft at input “A”.
- This creates a stronger force at the piston rod (“B”) than at the shaft (“A”).
- This factor forces the cylinder to extend.
- The lift gate will slide out to the end of the rails.

7.1.2 Lower Down

- The solenoid release valves S1 and S2 at the cylinders get energized.
- The gate is designed to lower down by gravity. It will push the hydraulic oil out of the lift cylinder into the reservoir. The oil passes the solenoid release valves S1 and S2.

7.1.3 Lift Up Function

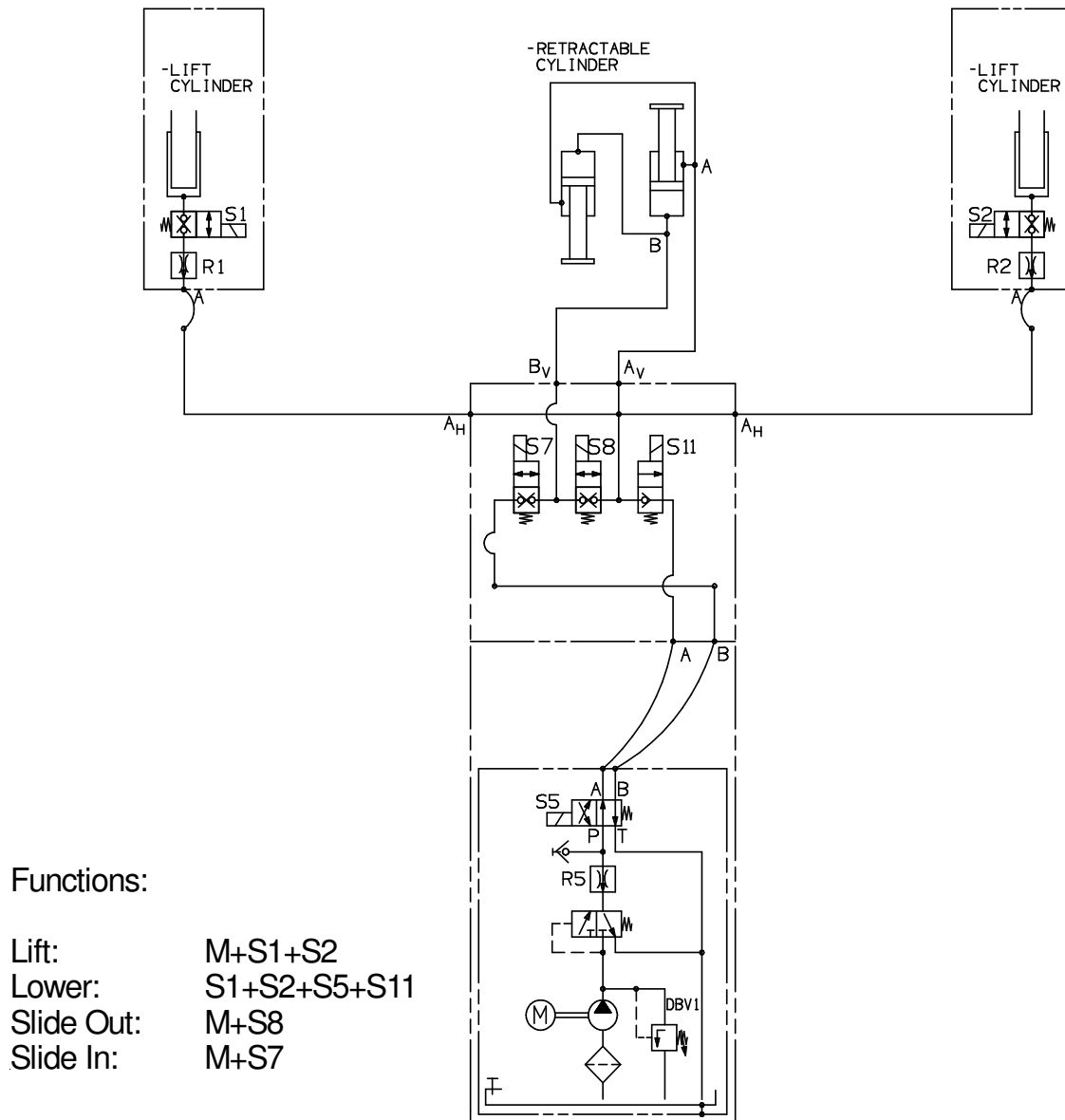
- Motor starts running oil pressure exits pump and motor to the release valves S1 and S2 are forces the fluid to push the lift cylinders to extend. The platform raises up.

7.1.4 Slide In Function

- Motor starts running and S7 valve is energized.
- The Oil pressure exits pump and motor under pressure to input “A” at the cylinder.
- The energized valve S7 is allowing the oil at the bottom of the piston rod to get back through the S5 into the reservoir.
- The pressure on the end of the shaft will force the piston rod to retract. The liftgate will slide in under the body.

7.2 Hydraulic Schematic (Discontinued)

ILSL Pump/Motor Hydraulic Schematic (Discontinued)



S1, S2 on lift cylinder and S7, S8 on push pull valve block are double acting release valves:
They have to be activated for fluid to go through them in either direction

To slide out S8 is activated to allow fluid to both sides of retractable cylinders

To slide in S7 is activated to allow fluid to piston rod side of retractable cylinders

Functional Description of Hydraulics Schematic (Discontinued)**7.2.1 Slide Out Function**

- As soon as the Motor starts to run, valve S8 is energized.
- Oil pressure on input “A” sets exits “Av” and Bv” at the valve block under pressure.
- The surface at the end of the piston rod on input “B” is larger than on the shaft at input “A”.
- This creates a stronger force at the piston rod (“B”) than at the shaft (“A”).
- This factor forces the cylinder to extend.
- The lift gate will slide out to the end of the rails.

7.2.2 Lower Down

- The shift valve S5 at the pump and the solenoid release valves S1 and S2 at the cylinders will get energized. In addition the leaking down stop valve S11 in the back of the mount frame is also energized.
- The gate is designed to lower down by gravity. It will push the hydraulic oil out of the lift cylinder into the reservoir. The oil passes the solenoid release valves S1 and S2. It also has to pass the energized S11 valve in the back of the mount frame and the shift valve S5 at the pump.

7.2.3 Lift Up Function

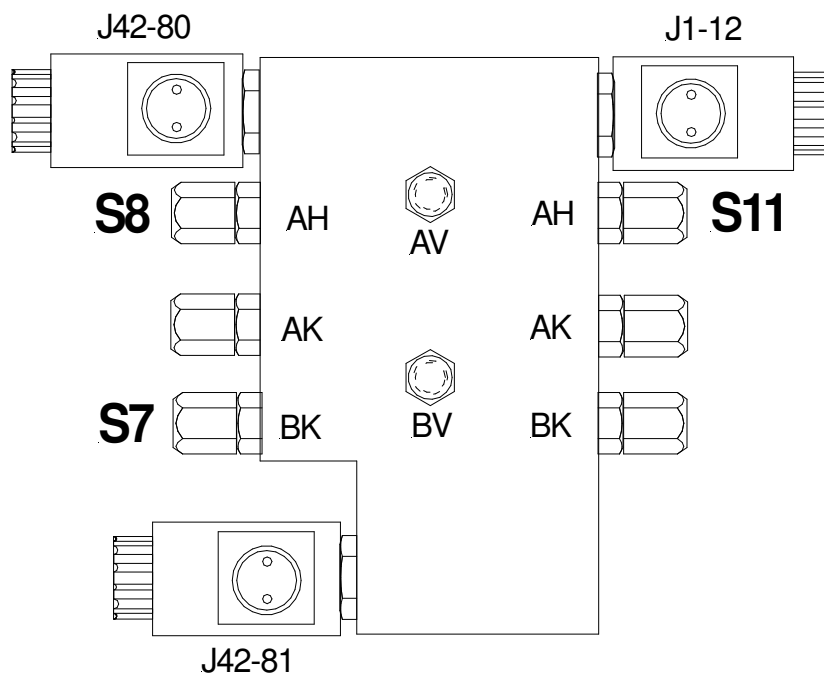
- Motor starts running and double locking release valves S1 and S2 are energized.
- The pressure is on input “A” at the valve block. The oil passes the S11 valve and sets pressure on exit “AH”.
- The energized double locking release valves S1 and S2 forces the fluid to push the lift cylinders to extend. The platform raises up.

7.2.4 Slide In Function

- Motor starts running and S7 valve is energized.
- Oil pressure on input “A” sets pressure on exits “Av” at the valve block.
- The Oil pressure on exit “Av” at the valve block sets pressure on input “A” at the cylinder.
- The energized valve S7 is allowing the oil at the bottom of the piston rod to get back through the S5 into the reservoir.
- The pressure on the end of the shaft will force the piston rod to retract. The liftgate will slide in under the body.

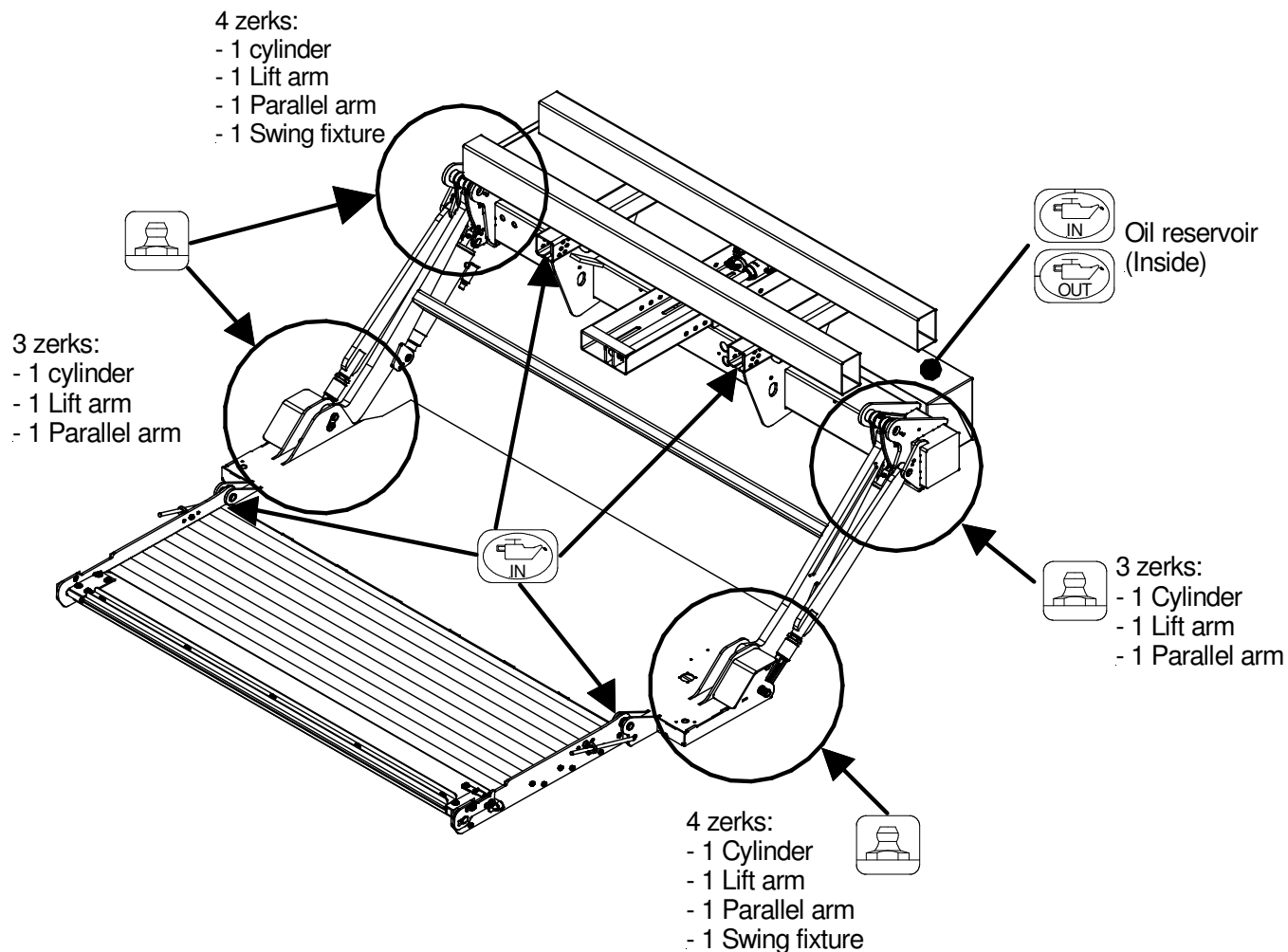
7.2.5 Push-Pull Valving (Discontinued)

- S-8 energizes open and S7 closes to slide out
- S-7 energizes open and S8 closes to slide in.



7.3 Lubrication

1. Lower the platform to the ground.
2. Remove red protector caps from each component. Lubricate, grease, and oil per diagram below.
3. Cycle platform up and down several times. Lubricate and grease all points again.
4. Wipe any excess grease and replace all red protector caps on zerks.



Grease: Location of Grease Zerks (7 on each side, 14 total)



Oil: Oil level in the power pack tank (see marking inside of power pack reservoir)

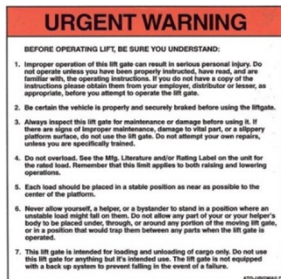
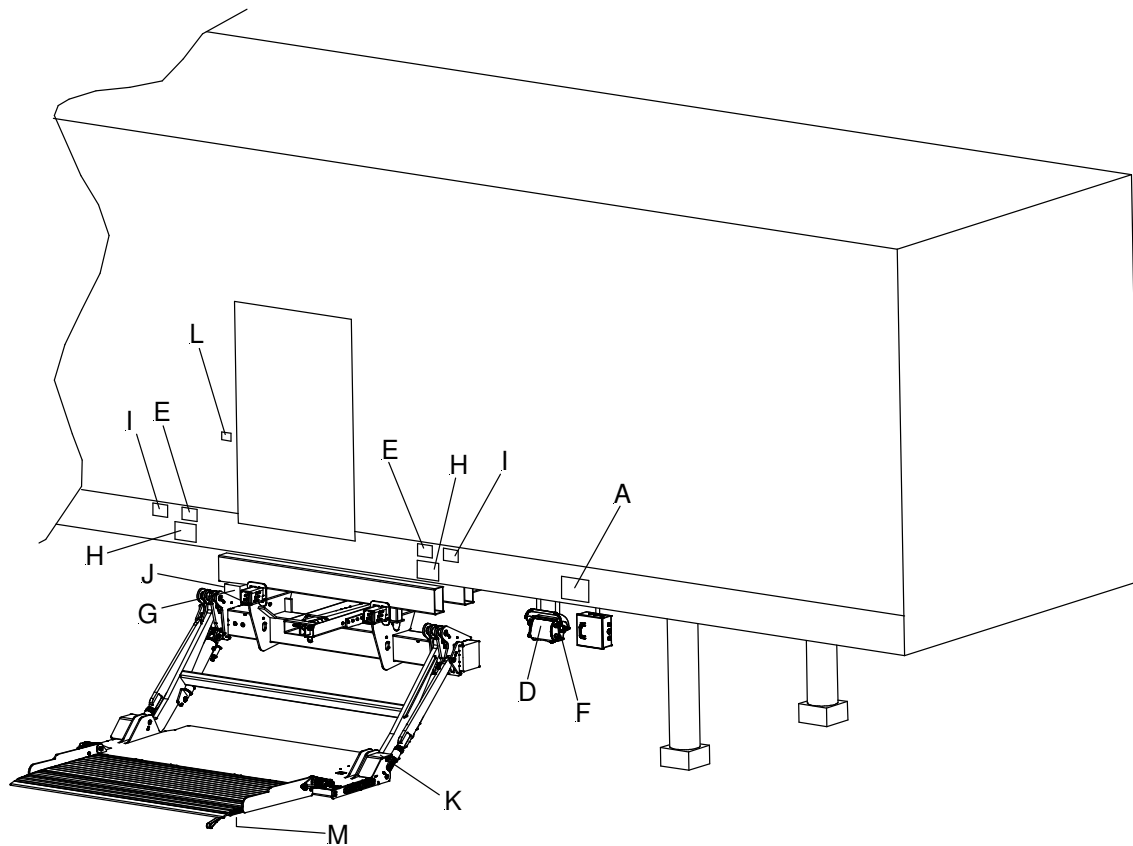


Lubricate: Platform hinges, Slide Rails and optional Cart Stops (use WD-40 spray for lubrication)

7.4 Decal Placement and Inspection

For operator's safety, all decals appearing in "Decal Kit" must be in a conspicuous place on control side of liftgate to be read by operator. This is typically a combination of decals on the liftgate and truck body. Please make sure to place the maximum capacity decal on both sides of the door.

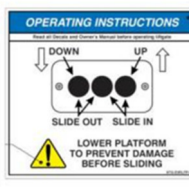
Decal Kit			
Decal	Qty.	Part No.	Description
A	1	ATG-URGWA	Urgent Warning: Elevating gate instructions
B	1	85-1614-000	Operating Instructions (Control Box)
C	1	ATG-SWILFP-V	3-Button Remote Control Vertical Mount (if applicable, must be located directly above control)
D	1	ATG-SWILFP-H	3-Button Remote Control Horizontal Mount (if applicable, must be located directly above control)
E	2	ATG-XXXX	Capacity (please check the serial number plate to find out your specific capacity)
F	1	ATG-CAB	Liftgate Shut-Off (located next to shut-off switch)
G	1	ATG-BKR	Max. Circuit Breaker Reset (must be located at the circuit breaker)
H	2	ATG-WLH	Warning: Liftgate can crush
I	2	ATG-CTN	Caution: Always stand clear of platform area
J	1	ATG-RESET	Circuit Breaker Protection
K	1	ATG-FT	Notice for Foot Control (if applicable)
L	1	ATG-UD	Toggle Decal (next to the toggle switch, if applicable)
M	1	ATG-WNG	Warning: Use handle to open (must be located underneath handle (main section))



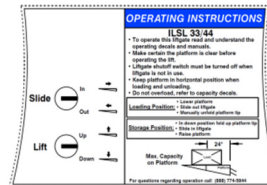
Decal- A



Decal - B



Decal - C



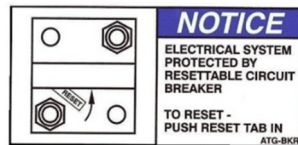
Decal - D



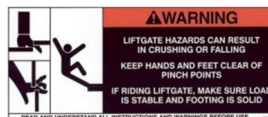
Decal - E



Decal - F



Decal - G



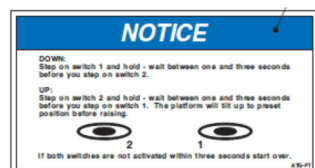
Decal - H



Decal - I



Decal - J



Decal - K



Decal - L



Decal - M

8 Final Inspection Check List

WARNING

Liftgate failure or malfunction could result in property damage, personal injury or death if you fail to check each of the following items listed. **DO NOT USE** the liftgate if any of the following points are **NOT** verified and checked.

NOTICE

Installation is **NOT** complete and all **WARRANTIES** are **VOID** if you have not checked and verified all items listed on this inspection sheet. Inspection sheet is to be filed at the facility where liftgate was installed.

Structural Inspection

- ☐ All welds are 100% complete per this manual.
- ☐ All nuts, bolts, mounting hardware, pins, chain anchors are tight.
- ☐ All mounting dimensions are correct and liftgate is square and parallel per this manual.
- ☐ Capped cutout with flat bar or angle.

Hydraulic Inspection

- ☐ Pump reservoir is filled to 1.5" from top when cylinders are completely compressed (platform is resting on the ground).
- ☐ Hydraulic components and connections do not leak.
(Should be checked after unit is hydraulically locked for five (5) minutes.)
- ☐ All hydraulic lines are secured with cable ties, hoses clamps, or other fasteners. No hoses or components rub on the frame, platform, or any other components while unit is in operation or in storage. No hoses are kinked or bent.

Electrical Inspection

- ☐ Battery cable(s) attached are clamped tight and dielectric grease is used to seal all connections.
- ☐ All electrical lines are secured with cable ties, hoses clamps, or other fasteners and are properly protected.
- ☐ Circuit Breakers installed and wired per instructions.
- ☐ Battery voltages: Flooded Batteries = 12.6V; AGM Batteries = 12.8V
- ☐ Lights wired properly and operate per DOT, State, and Federal requirements.

Operational Inspection

- ☐ All decals are in place and legible per instructions.
- ☐ All pivot points are lubricated per instructions, and Zerk fittings have been capped.
- ☐ Up stops are in place. Wheel is set for proper opening when lowering. Coil springs at platform are adjusted. Platform torsion rod is adjusted. Snubber pads are tight against platform.
- ☐ Platform travels up and down smoothly and freely, without any hesitation or unusual noises.
- ☐ Platform is flush with the sill/floor when raised completely.
- ☐ Platform rests on the ground evenly when lowered completely.
- ☐ Platform raises and lowers properly and at correct speed. (2 to 4 inches per second)
- ☐ Gate is painted, body is clean around gate. Cylinders are clean and rubber & plastic caps are in place.
- ☐ The liftgate serial number and model number are documented on the inside of the front cover of the Owners Manual, as well as the installation manual in the space provided.
- ☐ Owners Manual is in the vehicle's glove box.
- ☐ Supervisor has demonstrated the instructions in the Owners Manual to the customer/driver upon delivery.

Inspection Information:

Name (please print): _____

Completed by (signature): _____

Title: _____ Date: _____

