ILD plus

INSTALLATION MANUAL & CHECK-OFF SHEET
# Table of Contents

1 Manual Updates ......................................................................................................................... - 4 -
2 Safety Information ...................................................................................................................... - 5 -
3 Important Information .................................................................................................................. 6
4 Tools For Installation .................................................................................................................... 8
5 Parts List (all small parts can be found inside the Hydraulic Enclosure) ............................... 8
6 General View of Liftgate .............................................................................................................. 9
7 Installation Dimensions .............................................................................................................. 11
   7.1 Important Dimensions ........................................................................................................... 11
   7.2 Installation Dimensions ......................................................................................................... 14
   7.3 Width Requirements ............................................................................................................ 15
   7.4 Strength Requirements ........................................................................................................ 16
8 Body Preparation ....................................................................................................................... 17
   8.1 Rear Bumper ...................................................................................................................... 17
   8.2 Tow Hitch/Auxiliary Equipment ......................................................................................... 18
   8.3 Flush the Sill (Sub-Framing) ............................................................................................. 19
   8.4 Support Body ..................................................................................................................... 22
9 Liftgate Preparation .................................................................................................................. 23
   9.1 Liftgate Preparation ........................................................................................................... 23
   9.2 Alignment Plates ............................................................................................................... 25
10 Standard Gate Mounting ......................................................................................................... 26
   10.1 Mounting the Liftgate (Standard Installation) ................................................................. 26
   10.2 Welding Liftgate ............................................................................................................. 32
11 Hydraulic Installation .............................................................................................................. 37
   11.1 Hydraulic Enclosure ........................................................................................................... 37
   11.2 Hydraulic Connections ....................................................................................................... 39
   11.3 Hydraulic Schematic ........................................................................................................ 49
      11.3.1 Prior March 2018 ...................................................................................................... 49
      11.3.2 After March 2018 .................................................................................................... 50
   11.4 Hydraulic Pump/Motor Overview ..................................................................................... 51
   11.5 Hydraulic Fluid ................................................................................................................. 52
12 Electrical Installation ................................................................................................................. 53
   12.1 Auxiliary Battery Kit ......................................................................................................... 53
12.2 Connecting Power to Control Board ................................................................. 54
12.4 Battery Wiring – Truck and Trailer ................................................................. 55
12.5 Cable Routing ................................................................................................. 55
12.6 Wiring Crimping ............................................................................................. 56
12.7 Circuit Breaker at Truck Batteries ................................................................. 56
12.8 Battery Wiring – Truck Kit ............................................................................ 57
12.9 Battery Wiring – Trailer Kit ........................................................................... 59
12.10 Electrical Schematic ................................................................................... 61
   12.10.1 Schematic (Prior to March 2018) ......................................................... 61
   12.10.2 Schematic (After to March 2018) ......................................................... 62
12.11 Control Board System Codes .................................................................... 63
12.12 Trailer to Tractor Ground Test ..................................................................... 64
12.13 Tail Light Harnesses .................................................................................... 65
12.14 Dock Bumper Installation .......................................................................... 65

13 Above Floor Liftgate Installation (Optional) ...................................................... 66
   13.1 Mounting the Liftgate .................................................................................. 66
   13.2 Check Liftgate Dimensions ....................................................................... 69
   13.3 Welding Liftgate ......................................................................................... 70

14 Lubrication ........................................................................................................ 74
   14.1 Standard Unit Lubrication Points ............................................................... 75
   14.2 Bottle Gas Unit Lubrication Points ............................................................. 76

15 Decal Placement ............................................................................................... 77

16 Cycle Test and Bleed the System .................................................................... 80
   16.1 Cycle Test and Bleed the hydraulic system, Standard Units .................... 80
   16.2 Operating Instructions (Standard Units) ..................................................... 80
   16.3 Operating Instructions (Bottle Gas Units) .................................................. 85

17 Final Inspection Check List ............................................................................. 91
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 Manual Updates

<table>
<thead>
<tr>
<th>Revision</th>
<th>Description</th>
</tr>
</thead>
</table>
| v1.9     | • Added Manual Updates Section.  
           • Revised/updated Sections 5, 6, 7, 9, 10, 11, 12. |
| v1.10    | • Updated Section 7.1: Dimension Sheets.  
           • Updated Section 11: Update entire section to show new pump and motor.  
           • Updated Section 12.8-12.9: Added control box (PCB) wiring  
           • Added Schematic to Section 12.10 |
2  Safety Information

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

⚠️ This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

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

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

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

CAUTION without the safety alert symbol is used to address practices not related to personal injury. (In this manual we use it to alert you to potentially hazardous situation which, if not avoided, may result in property damage.)

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

**Before Getting Started**

"READ FIRST"

---

**NOTICE**

The ILD Plus is an 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.

- Read and understand the “Installation Manual” and “Owner’s Manual” in their entirety before starting your Installation.
- Refer to your truck manufacturer’s instructions before adding any auxiliary equipment. Installer is responsible for compliance with this manual, OEM and FMVSS requirements.
- The installer should never place any portion of him/herself or any other person underneath the liftgate at any point during the installation, unless the liftgate is fully welded AND all moving components are safely secured.
- 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.
**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 ILD 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 ILD series liftgate only which is designed for different capacities. There are four options available to determine the model and serial number of the installed liftgate:

1) Refer to the serial number tag on the liftgate (Located on Driver Side Column - shown below)

![Location of serial number tag]

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 - [www.palfinger.com](http://www.palfinger.com)

For technical support, contact PALFINGER Liftgates or an authorized PALFINGER service center. [www.palfinger.com](http://www.palfinger.com)

Replacement manuals are available at no charge by contacting Customer service at 888-774-5844
4 Tools For Installation

<table>
<thead>
<tr>
<th>SAE &amp; Metric Wrench Set</th>
<th>Basic Screwdrivers</th>
<th>Assorted Pliers</th>
<th>Wire Crimp Pliers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Multi-Meter</td>
<td>Snap Ring Pliers</td>
<td>Hammer</td>
<td>SAE &amp; Metric Allen key Set</td>
</tr>
<tr>
<td>½” Impact &amp; Sockets</td>
<td>SAE &amp; Metric Socket Set</td>
<td>Assorted Drill Bits</td>
<td>Floor Jack or Equiv.</td>
</tr>
<tr>
<td>Sm. To Med. Bottle Jack</td>
<td>Forklift or O/H Crane</td>
<td>Hand Held Grinder</td>
<td>Paint Gun &amp; Accessories</td>
</tr>
<tr>
<td>Pry Bar</td>
<td>3/8 Drill Motor</td>
<td>Grease Gun</td>
<td>Heat Gun or Equiv.</td>
</tr>
<tr>
<td>Min.250A Welder</td>
<td>Cutting Torch or Equiv.</td>
<td>Framing Square</td>
<td>Measuring Tape</td>
</tr>
</tbody>
</table>

5 Parts List (all small parts can be found inside the Hydraulic Enclosure)

- Owner's Manual 1 pc
- Installation Manual 1 pc
- Decal Kit 15 pcs
- Battery Hold Down Kit 1 Kit
- Nylon Dock Bumper 2 pcs
- Battery Bus Bars (Qty based on number of batteries)
- 3-Button Hand Held Remote w/Holster 1 pc
- Hydraulic Fittings 1/4", 90° Elbow, Male-Female - 2 pcs
- 9 ft. Hose Kit, w/Hat Section (Standard)
General View of Liftgate
Hydraulic Enclosure
Single Pump Configuration

Hydraulic Enclosure
Dual Pump Configuration
7 **Installation Dimensions**

7.1 **Important Dimensions**

**NOTICE**

Minimum Bed Height dimensions are ALWAYS MAXIMUM LOADED TRUCK.
Maximum Bed Height dimensions are ALWAYS DRY UNLOADED TRUCK.

Ensure truck body or trailer rear door does not interfere with installation or operation of ILD plus series liftgate. The ILD plus series cannot be installed with "barn" or "swing" type doors without extensive modification. It is not recommended to cut, torch, or remove support materials from rear sill of truck or trailer. Installers are advised to sub-frame or flush sills as required. Removing gussets, stiffeners, light rings, or other such support structures may VOID your truck/trailer warranty.

Call tech support before starting the installation if you have any questions or concerns on mounting dimensions or procedures 888-774-5844
# Trailer Chassis Dimension Sheet

## Customer Information

<table>
<thead>
<tr>
<th>Quote/SO#</th>
<th>Company</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
</table>

## Liftgates Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Platform Size</th>
<th>Platform Material</th>
</tr>
</thead>
</table>

## Trailer Information

### Trailer Specifications:

- **Manufacturer**: (ex. Utility)
- **GVWR**: (ex. 68,000 lbs)
- **Length**: (ex. 53ft)
- **Width**: (96", 102")

### Type of Body (check applicable)

- Van
- Flatbed
- Reefer
- Other (specify)______________

### Type of Rear Door (check applicable)

- Flip-Up
- Roll-Up
- Swing
- Other (specify)______________

## Trailer Dimensions

- **A**: Bed height: Top of trailer floor to level ground (with airbags up)
- **B**: Top of floor to bottom of trailer cross member
- **C**: Rear sill height (Top of floor to bottom of buck plate): If Stepped sill complete M, N; If Tapered sill complete O, P.
- **D**: Crossmember height
- **E**: Tire to end of vehicle body
- **F**: Bogie to end of vehicle body Sliding Suspension? Yes________ No________
- **G**: Inside horizontal width of sliding suspension angles
- **H**: Diameter of sliding suspension holes
- **I**: Hole spacing
- **J**: Bottom of crossmembers to bottom of sliding ramp box, if applicable
- **K**: Rear sill face to first slider hole
- **L**: Top of floor, where liftgate platform will meet floor, to the center of the trailer slider holes
- **X**: Eyebrow depth
- **Z**: Top of floor, where the liftgate platform will meet the top of the eyebrow

## Notes:

- C = __________

---

Revised 1.10
**Truck Chassis Dimension Sheet**

**Customer Information**
Quote#/SO#: ________________________________
Company: __________________________________
Phone: ____________________________________
Email: ____________________________________

**Truck Information**

<table>
<thead>
<tr>
<th>Manufacturer: (ex. Hino)</th>
<th>Type of Body (check applicable)</th>
<th>Type of Rear Door (check applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van</td>
<td>Flatbed</td>
<td>Flip-Up</td>
</tr>
<tr>
<td>Flatbed</td>
<td>Reefer</td>
<td>Roll-Up</td>
</tr>
<tr>
<td>Other (specify)</td>
<td>Other (specify)</td>
<td>Swing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GVWR: (ex. 68,000 lbs)</th>
<th>Length: (ex. 53ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width: (96&quot;, 102&quot;)</td>
</tr>
</tbody>
</table>

**Truck Dimensions**

- A = Bedheight:___________
- B = Top of floor to bottom of frame:_________
- C = Rear sill height:_________
- D = Spring hanger to end of body (if applicable):_________
- E = Air bag suspension to end of body (if applicable):_________
- F = Tire to end of vehicle body:_________
- G = Gas tank to end of body (if applicable):_________
- H = Fuel filler hole to end of body (if applicable):_________
- I = Bottom of frame to bottom of gas tank (if applicable):_________
- J = Top of floor to bottom of sliding walk ramp (if applicable):_________
- K = Frame Width: Width of chassis frame:_________
- L = Frame Height: Height of chassis frame:_________

**Notes:**

**Side View of Truck**

**Rear View of Truck**

---

**Customer Information**

Quote#/SO#: ________________________________
Company: __________________________________
Phone: ____________________________________
Email: _________________________@______________________________
7.2 Installation Dimensions

1. **Measure Floor Height**: Measure the floor height of your truck and determine clearance requirements for your liftgate platform size.

2. **Verify Compatibility**: Reference the compatibility table below to ensure your gate is compatible with your vehicle's bed height.

<table>
<thead>
<tr>
<th>Liftgate Model</th>
<th>Platform Depth</th>
<th>Dock Loading Bed Height Range</th>
<th>NO Dock Loading Bed Height Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILD+ BG</td>
<td>42&quot;+16&quot; ARR</td>
<td>46&quot; - 56&quot;</td>
<td>34&quot; - 56&quot;</td>
</tr>
<tr>
<td>ILD+</td>
<td>60&quot;+12&quot; Fixed Ramp</td>
<td>32&quot; - 56&quot;</td>
<td>34&quot; - 56&quot;</td>
</tr>
<tr>
<td>ILD+</td>
<td>60&quot;+16&quot; ARR</td>
<td>32&quot; - 56&quot;</td>
<td>34&quot; - 56&quot;</td>
</tr>
<tr>
<td>ILD+</td>
<td>72&quot;+12&quot; Fixed Ramp</td>
<td>38&quot; - 56&quot;</td>
<td>34&quot; - 56&quot;</td>
</tr>
<tr>
<td>ILD+</td>
<td>72&quot;+16&quot; ARR</td>
<td>38&quot; - 56&quot;</td>
<td>34&quot; - 56&quot;</td>
</tr>
<tr>
<td>ILD+</td>
<td>84&quot;+12&quot; Fixed Ramp</td>
<td>44&quot; - 56&quot;</td>
<td>34&quot; - 56&quot;</td>
</tr>
<tr>
<td>ILD+</td>
<td>84&quot;+16&quot; ARR</td>
<td>44&quot; - 56&quot;</td>
<td>34&quot; - 56&quot;</td>
</tr>
</tbody>
</table>

ARR = Aluminum Retention Ramp; BG = Bottle Gas

All platforms are 80" wide..
7.3 Width Requirements

Reference the chart below to determine liftgate width dimensions. Ensure that your vehicle meets these requirements. The ILD plus series liftgate is offered in two widths for most 96" and 102" wide bodies.

<table>
<thead>
<tr>
<th>Nominal Truck or Trailer Width</th>
<th>Outside Column Dim.</th>
<th>Inside Column Dim.</th>
<th>Inside Platform Chain Plate</th>
<th>Overall Outside Dim.</th>
<th>Overall Liftgate Dim. H&quot;xW&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>96&quot; Wide Body</td>
<td>94-3/16&quot;</td>
<td>84-7/16&quot;</td>
<td>78-7/16&quot;</td>
<td>95-3/16&quot;</td>
<td>90-3/8&quot; x 95-3/16&quot;</td>
</tr>
<tr>
<td>102&quot; Wide Body</td>
<td>100-3/16&quot;</td>
<td>90-7/16&quot;</td>
<td>84-7/16&quot;</td>
<td>101-3/16&quot;</td>
<td>90-3/8&quot; x 101-3/16&quot;</td>
</tr>
</tbody>
</table>
7.4 Strength Requirements

Reference the chart below for side wall requirements. Ensure that the body side wall, corner post, and rear sill strength requirements are met for your liftgate.

**WARNING**

Truck body or trailer must be capable of supporting minimum forces and loads shown below.

<table>
<thead>
<tr>
<th>Side Wall Requirements</th>
<th>ILD 35</th>
<th>ILD 44</th>
<th>ILD 55</th>
<th>ILD 66</th>
</tr>
</thead>
<tbody>
<tr>
<td>X = Side Wall Tension</td>
<td>1900 lbs.</td>
<td>2400 lbs.</td>
<td>2950 lbs.</td>
<td>3500 lbs.</td>
</tr>
<tr>
<td>Y = Side Wall Compression</td>
<td>1900 lbs.</td>
<td>2400 lbs.</td>
<td>2950 lbs.</td>
<td>3500 lbs.</td>
</tr>
<tr>
<td>Z = Side Wall Shear</td>
<td>2700 lbs.</td>
<td>3100 lbs.</td>
<td>3800 lbs.</td>
<td>4300 lbs.</td>
</tr>
</tbody>
</table>
8  **Body Preparation**

In order to install your ILD series liftgate, some body preparation may be required. Truck and trailer applications with flush corner post and sill and NO protruding gussets or stiffeners are the most straight forward of all ILD installations. Rear of body should be 90° to ground.

8.1  **Rear Bumper**

Steps:

1. Prep rear sill: Remove any sill or corner post mounted lights, grab handles, or bumpers, **Fig 1**. Your goal is to have a flat and flush mounting surface for the liftgate.

   **NOTICE**

   It is not recommended to cut, torch, or remove support materials from rear sill of truck or trailer. Installers are advised to sub-frame or flush sills as required. Removing gussets, stiffeners, light rings, or other such support structures may VOID your truck body or trailer warranty.

2. Remove Rear Protrusions: Be certain that under ride bumpers, trailer hitches, or other auxiliary equipment do not extend rearward of rear sill. Use the following illustrations as a guide. A more detailed explanation can be found in the following sections, **Fig. 2**.

**Fig. 1**

**Fig. 2**
8.2 Tow Hitch/Auxiliary Equipment

Steps:
1. **Relocate Hitch (If applicable):** Trailer Hitches are common truck or trailer equipment and are compatible with the ILD plus series; however they **must not stick out** further than the rear sill. Relocate or remove tow hitch or other auxiliary equipment (If necessary), **Fig. 3.**

**NOTICE**

If the tow hitch or other auxiliary equipment must be removed or adjusted, ensure that work is done by a qualified professional. Removing or relocating tow hitches or other equipment may void the warranty.

---

**Fig. 3**
8.3 **Flush the Sill (Sub-Framing)**

**Steps:**
1. **Flush the sill:** Some trucks or trailers may have configurations with irregular shaped sills, **Fig.4.** Liftgate mounting surface may NOT be flush with corner post. Some sills may be inset or have door gutters. All these situations are remedied with a process called sub-framing and/or flushing the sill.

Sub-framing is done one of two ways; Sub-frame can be built up using correct size 3/16” or greater wall tubing before liftgate is mounted. Or, the liftgate can be mounted into position and sub-frame can be built as liftgate is installed with 3/16” or greater flat bar, **Fig.5.** In either case, liftgate installation weld procedure does not change.

These examples are show below:
Flushing floor or filling gap between Sill and liftgate can be done up to 6” without cross supports. Use ¼” or greater flat bar or diamond plate to span gap. Original width of the truck frame should be matched as close as possible.

![Diagram of flush sill](image)

**Fig. 4**
Fig. 5
**Flat Bar Posts (if necessary):** Corner stiffeners are common and should NOT be removed. It is recommended to “flat bar” with same thickness as stiffeners, typically $\frac{1}{4}''$ to $\frac{3}{8}''$ thick x 3'' wide. Liftgate installation weld procedure is the same.
8.4 Support Body

Side supports can be used to strengthen body.

Steps:
1. Add body supports (If necessary): If extra support is required, add support bars.
   Flatbed installation may use similar arrangement with 3/16" x 4" x 4" min. rectangular tubing for corner post and 3" channels for support bar.
9 Liftgate Preparation

**WARNING**

The installer should never position any portion of him/herself, or any other person directly under the liftgate at any point during gate mounting.

9.1 Liftgate Preparation

The ILD liftgate comes with multiple assemblies and components attached that need to be removed prior to installation. Prepare the liftgate for installation by removing the following components and assemblies.

1. **Remove Shipping Ties**: Remove steel wraps. Cut wraps from the front of the liftgate and the rear.

2. **Remove Pump/Battery Box**: Remove the Hydraulic Enclosure from the liftgate. It is recommended to use a forklift to remove hydraulic enclosure. Set the enclosure aside until it is required to be installed. **Attention**: Be certain NOT to damage the hydraulic fittings located underneath the enclosure.
3. **Liftgate Ready for Installation:** After removal of the shipping ties and battery box the liftgate is prepared for installation as shown below.

![Diagram of Liftgate](image)

**WARNING**

DO NOT remove any braces before or during installation until instructed to do so.
9.2 Alignment Plates

For the convenience of the installer, alignment plates are included with all ILD+ liftgates and are pre-installed. The purpose of these plates is to aid in alignment of the traverse with the sill of the truck or trailer.

If the body of the truck is narrower than the inside of the column, it is recommended to use an alternative method for aligning the liftgate to the vehicle's sill. Please contact Palfinger Liftgates technical support for special instructions.
10 Standard Gate Mounting

**CAUTION**

This manual features installation procedures for “Standard” ILD and “Above Floor” ILD liftgates models. Before continuing with the installation, identify what ILD model is to be installed.

10.1 Mounting the Liftgate (Standard Installation)

**NOTICE**

Before positioning the liftgate; consider when measuring and centering the liftgate that the truck or trailer may NOT be square or parallel. Special care must be taken to ensure that the liftgate is square and parallel before welding.

**Steps:**

1. **Level Vehicle:** Vehicle must be on level and even ground. Uneven ground will give misleading measurements and can cause body twist or racking.
2. Make sure the liftgate is properly secured: Check that the liftgate is attached safely to the lifting device. If using a forklift to hoist the liftgate, use 4" x 4" x 24" wood spacers to keep the unit from sliding back when lifting, **Fig. 6.** This will help force the top of the liftgate tight against the body for welding.

**Fig. 6**

3. Remove Shipping Stand: Hoist the liftgate approximately 8" from the ground and remove the two bolts and nuts located on the outside of the shipping stand for the street and curb side columns.
NOTICE
Before positioning the liftgate against the vehicle, open the vehicles rollup doors.
4. Fit Liftgate Against Truck: Use a forklift (recommended) to position the liftgate flush against the vehicles corner posts and sill.

NOTICE
The full weight of the liftgate should be supported by the lifting device, and not the alignment plates/ channels, Fig 7. Do not remove the lifting device.

Fig. 7
5. Centering the Liftgate to Vehicle: After positioning the gate against the vehicle, measure the distance from the end of the columns to the end of the vehicle with a measuring tape. Measure the top of the columns and the bottom, both measurements must measure the same distance, repeat measurement on other column, Fig. 8. If both sides don’t measure equally, shift the liftgate to the side necessary.
6. **Check Dimensions:** Inspect liftgate to be certain it is squared and parallel. Use a framing square to verify columns are square at 90° to the vehicles sill and body. Measurements should reflect dimensions below when measured from the indicated points.

**NOTE:** Be aware that dimensions below are from 96” wide and 102” wide vehicles.

* = 102” Wide Vehicle Body
** = 96” Wide Vehicle Body
7. Clamping Liftgate: After centering the gate, use four (4) "F" style clamps, two on top and two at bottom, to secure the liftgate flush against the vehicle, Fig. 9. Confirm all mounting dimensions are correct, double check the floor and traverse is flush, and the columns are flush to the vehicle.

![Diagram of Liftgate Clamping](image)

**NOTICE**

DO NOT begin welding until dimensions are checked, liftgates is squared, clamped tightly and rechecked after each positioning adjustment.

**WARNING**

Do not remove lifting device until instructed.
10.2 Welding Liftgate

**NOTICE**

Optional: Take precautionary measures to ensure that columns do not toe-out during welding. Flat bar or round stock can be added in the corner to minimize pull from the weld. Maintain tension with come along from one bumper over to the other one as work is performed, Fig. 10.

**Steps:**

1. STOP and recheck all mounting dimensions.
2. **Inside Column Welds:** Weld inside of columns $\frac{1}{4}'' \times 2'' \times 5$ places evenly spaced top to bottom. Curb side column shown below, repeat welding procedure on street side column.
3. **Traverse Welds:** Weld traverse $\frac{1}{4}''$ x 2'' x 5 places evenly spaced left to right. Do not weld the alignment plates.
4. **Column Welds (Outside):** Weld the outside of columns to the vehicle using ¼" x 100% on dock bumpers and ¼" x 3" welds, 5 places evenly spaced on columns top to bottom. Do not weld on the control area, Fig.11. Repeat welding procedure on the street side column.

5. **Remove Alignment Plates:** Using a 9/16" socket, remove the hardware securing the alignment plates.
6. **Remove Forklift Forks, Bracings and Clamps:** Remove the top and bottom horizontal braces by unbolting each brace. Forklift can now be removed along with all the clamps and hat section.

7. **Gate Mounting Complete:** Standard lifegate mounting is now complete, proceed to hydraulic installation.
11 **Hydraulic Installation**

11.1 **Hydraulic Enclosure**

**NOTICE**

When possible, position the hydraulic enclosure so it can be accessed from the curb side of the vehicle. Place the enclosure such that the access door is 6” in from the side of the body. It is recommended to position the hydraulic enclosure centered in the wheelbase and forward of the rear wheels when permitted.

- A. Standard Hose Kit: (shipped standard with liftgate) places the front of the enclosure a maximum of 9 feet forward from the rear of the vehicle body.
- B. Relocation Hose Kit #1: (one additional 9 ft. hose) places the front of the enclosure a maximum of 18 feet forward from the rear of the vehicle body. (Recommended for 28 ft. to 35 ft. trailers).
- C. Relocation Hose Kit #2: (two additional 9 ft. hoses) places the front of the enclosure a maximum of 27 feet forward from the rear of the vehicle body. (Recommended for 48 ft. to 53 ft. Trailers).
**CAUTION**

High heat from welding can damage components. Make sure all components are clear of heat and weld splatter caused by welding. Steel crossmembers are required for welding.

Steps:

1. **Weld Enclosure**: Weld the enclosure to body cross members with ¼” x 2” welds. Weld to a minimum of four (4) crossmembers. Weld front, rear, and sides of angles at each crossmember. **Fig. 12.**

**NOTICE**

Applications with Aluminum cross members will need to be bolted. Contact Palfinger Liftgates Tech Support for instructions.

**Fig. 12**

2. **Remove Shipping Braces**: Unbolt the four bolts that secure the shipping braces to the enclosure.
11.2 Hydraulic Connections

Pump and Motor Hydraulic Enclosure
Prior to March 2018

-To open the lid of the box remove the security bolt below the lid handle.
-Hydraulic fittings are located under the enclosure box
-Secondary pump is optional.

Hat Section

Secondary Pump (Optional)

9 ft. Hose Kit

108”

114”

Pump and Motor Hydraulic Enclosure
After to March 2018

-To open the lid of the box remove the security bolt below the lid handle.
-Hydraulic fittings are located on the left side of the enclosure box
-Secondary pump is optional.

Hat Section

Secondary Pump (Optional)

9 ft. Hose Kit

108”

114”
**NOTICE**

To prevent leaks during shipping and storage, hydraulic connections at liftgate are plugged by connecting hydraulic lines together. **DO NOT** disconnect any plugs until you are ready to connect hoses to liftgate and hydraulic enclosure. Aluminum cross members will need to bebolted. Contact Palfinger Lifegates Tech Support team.

Steps:

1. **Hat Section (Bolt-On):** Position the hat section on the curbside of the vehicle centered between the vehicle wheels. Clamp the hat section in place. Drill holes diagonally through the hat section flange and the cross member. Secure with thread cutting flange screws.
**CAUTION**

**DO NOT weld hat section with hydraulic hoses or electrical wires installed.**

Hat Section (Welded): Position the hat section as described in the bolt on section. Secure the hat section to the cross member by welding 1/8” x 1” welds every 12” minimum on both sides.

---

**CAUTION**

Do not route hoses, wires, harnesses, and cables near, around, or in contact with sharp edges, air lines, vehicle electrical, exhaust system, fuel lines, or liftgate moving parts.

2. **Route Hoses and Control Harness**: At the bottom of the curb side column of the liftgate the controls wire harness can be found. Position hoses opposite to each other. 3/8” hoses should have one male and one female exposed at each end. Position the ¼“ hoses in the same manner, one male and one female at each end, **Fig.13**. Route the control wire harness and the all hoses through the hat section(s) and out towards the hydraulic enclosure.
**NOTICE**

When disconnecting hydraulic lines and fitting hydraulic fluid will escape. It is recommended to have a proper container to catch any escaping fluid during installation. Always wear safety glasses when performing these procedures.

3. **Hydraulic Fittings at Hydraulic Junction Block:** The hydraulic junction box has one ¼" male fitting and one ¼" female fitting. Both fittings are capped/plugged. Remove the male plug first and the female cap second.

4. **Installing ¼" Hydraulic Fittings at Hydraulic Junction Block:** It is highly recommended to install two (2) ¼" 90° elbow fittings as shown, Fig. 14. When the elbow fittings cannot be installed due to the construction of the vehicle, connect the ¼" male and female hoses going to the hydraulic enclosure directly to the hydraulic junction block, Fig. 15.
5. **Installing ¼” Hoses at Curb Side Column:** Install ¼” hoses to the fittings on the hydraulic junction block.

6. **Installing 3/8” Hoses at Curb Side Column:** Separate the 3/8” hoses. After separating the hoses, maneuver the hose coming from inside the column behind the junction block fittings, **Fig.16**. After all hoses have been connected, bundle all hoses and use zip ties to secure.

   **Attention:** No pre-installed or installed hoses should be left in front of fittings, as they will get damaged.
7A. Installing Hoses at Hydraulic Enclosure: Remove the plugs and caps from the hydraulic enclosure, located under the enclosure, Fig. 17.

Route the hoses coming from the column down to the hydraulic enclosure, Fig. 18. Route along the enclosure frame and in through. When routing hoses never make sharp bends, maintain a natural hose radius. Connect the hoses to the hydraulic enclosure (pump and motor) as shown. Use zip ties to secure the routed hoses to the mounting frame.
7B. Installing Hoses at Hydraulic Enclosure: Remove the plugs and caps from the side of the hydraulic pump and motor (enclosure).

Route the hoses coming from the column down to the hydraulic enclosure. Route along the enclosure frame. When routing hoses never make sharp bends, maintain a natural hose radius. Connect the hoses to the hydraulic enclosure (pump and motor) as shown. Use zip ties to secure the routed hoses to the mounting frame.
8. **J30 Control Harness**: Remove the hydraulic enclosure cover. Remove the cover on the side of the hydraulic enclosure. Feed the control harness inside the enclosure. Before closing, cut the grommet so it can fit over the harness, **Fig.19**. Re-install the cover over the opening by removing the cover of the enclosure.

On the inside of the Hydraulic Enclosure, open the control board cover by pulling the side of the rubber cover out of the locking tab. Unhook the two flex straps that secure the control board to the rubber cover. Plug the control harness connector into the J30 port of the control board.
Cab Shutoff Switch Installation (Optional)

Steps:
1. **J11 Control Harness:** Remove the cover. Feed the J11 harness through the enclosure opening and route it to the control board. Disconnect the preinstalled J11 plug from the control board, Fig. 20. Connect the cab shutoff switch harness (J11) on the same slot from the preinstalled J11 plug that was removed, Fig. 21. At the hydraulic enclosure entry, cut one grommet as shown in step 8, Section 11.2, and fit the cut grommet over the J11 harness. Position the J11 harness with grommet in one of the grommet slots on the cover and screw the cover back on to the enclosure.
2. **Switch Installation**: Route the other end of the harness to the cab's dashboard. Position the switch where it is visible and accessible by the user from outside the cab. Use the mounting hole pattern below and mount the switch with the provided screws, **Fig. 22**. Wire the switch and harness per diagram. Test the switch. After testing and making sure the switch is functioning properly, place the decal near the switch, **Fig. 23**.

![Mounting Hole Pattern](image)

**Fig. 22**

![Diagram of Switch Wiring](image)

**Fig. 23**
Note: Serial # PD10256 & PD10258 and higher.
11.3.2 After March 2018

M+S1 = LIFT
M+S2+S5 = POWER DOWN
S5 = GRAVITY DOWN
M+S4 = TILT OPEN
M+S3 = TILT CLOSE

HYDRAULIC, SCHEMATIC, ILD
BUCHER PUMP (90-1118-001)
15939 Piuma Ave. Cerritos, CA 90703
11.4 Hydraulic Pump/Motor Overview

Prior March 2018

After March 2018
11.5 Hydraulic Fluid

All ILD liftgates come with Hydrex MV Arctic 15 hydraulic fluid.

<table>
<thead>
<tr>
<th>Property</th>
<th>HYDREX MV ARCTIC 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Up Temperature</td>
<td>&lt;50°C / -58°F</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-45°C to +23°C / -49°F to 73°F</td>
</tr>
<tr>
<td>Pour Point</td>
<td>-57°C / -71°F</td>
</tr>
<tr>
<td>Flash Point</td>
<td>128°C / 262°F</td>
</tr>
<tr>
<td>Density 15°C (59°F). kg/L</td>
<td>0.834</td>
</tr>
<tr>
<td>Viscosity:</td>
<td></td>
</tr>
<tr>
<td>cSt @ 40°C/SUV @ 100°F</td>
<td>13.0 / 69.7</td>
</tr>
<tr>
<td>cSt @ 100°C/SUV @ 210°F</td>
<td>4.95 / 42.5</td>
</tr>
<tr>
<td>cP @ -50°C (-58°F)</td>
<td>1,310</td>
</tr>
</tbody>
</table>

When changing fluids, it is highly recommended to use Hydrex MV Arctic 15 fluid, however, alternatives fluid brands listed below can be used.

<table>
<thead>
<tr>
<th>Temperature Range</th>
<th>Fluid Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>30° TO 150°F</td>
<td>EXXON UNIVIS J26</td>
</tr>
<tr>
<td></td>
<td>MOBIL DTE 13M</td>
</tr>
<tr>
<td></td>
<td>CHEVRON AW MV32</td>
</tr>
<tr>
<td></td>
<td>ROSEMEAD MV 150 (32)</td>
</tr>
<tr>
<td>-50° TO 150°</td>
<td>MOBILE DTE 11</td>
</tr>
<tr>
<td></td>
<td>SHELL AERO FLUID 4/41</td>
</tr>
<tr>
<td></td>
<td>SHELL TELLUS 15</td>
</tr>
<tr>
<td>Extreme Cold Temperature</td>
<td>MIL H5606 (Military Spec.)</td>
</tr>
</tbody>
</table>
12  **Electrical Installation**

**CAUTION**

When performing electrical installation, please be certain to install and secure everything in a way where it is not subject to damage from moving parts, sharp edges, exhaust systems, fuel lines, etc. It is recommended to use dielectric grease on all electrical connections.

12.1  **Auxiliary Battery Kit**

**NOTICE**

Three (3) batteries are always recommended for ILD55 & ILD66, for high cycle and max load applications and for city deliveries with short duration between stops.

**Steps:**

1. **Install Batteries**: Remove the hydraulic enclosure cover by removing the bolt under the handle. Install batteries in hydraulic enclosure with positive terminals to the right side as shown. Secure the batteries to the box with the battery hold down bracket and hardware provided.

2. **Battery Hold Down Bracket**: Secure the batteries to the enclosure with the battery hold down bracket.
   
   *Note: Install the battery hold down bracket the same way if less than 3 batteries are installed.*

3. **Copper Buss Bars**: Connect the three (3) batteries in parallel by installing two buss bars on the negative terminals and two buss bars on the positive terminals for three battery configuration. Use two (2) buss bars when connecting two batteries.
12.2 Connecting Power to Control Board

The Control Board Power Cable is pre-routed from the Control Board to the battery side of the hydraulic enclosure. Connect the paired wires with the fuse holder (Wire #2, & #4) to the master shutoff switch. Connect the other two paired wires (Wire #1 & Green/Yellow) with the ring terminal to the ground terminal on the battery(s).

**Attention:** Connect the wires to each terminal and continue to wiring the batteries. After batteries have been wired, all terminals must be secured with nuts.
12.4 Battery Wiring – Truck and Trailer

**WARNING**

Never secure cable in a way where it can make contact with other wiring, brake fuel, or air lines or get pinched against other objects.

**NOTICE**

When grounding to any part of the vehicle, be sure to grind off paint or undercoat and seal connection.

12.5 Cable Routing

1. The use of wire loom is highly recommended to protect and facilitate cable routing. Wire loom not supplied.
2. Route all cables along the wooden spacer and through the outside of the U-bolts or on the inside part of the channel.
3. Secure the wire along the wooded spacer with insulated cable clamps.
12.6  Wiring 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.
2. Use a crimping tool designed for crimping battery terminals for best results. The use of other tools 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.

12.7  Circuit Breaker at Truck Batteries

Circuit breakers are preinstalled inside the Hydraulic Enclosure from factory. Instructions below show how to install a circuit breaker at the truck batteries.
1. Battery Mount: Attach the bus bar to the circuit breaker on the BAT post. Mount the circuit breaker securely on the positive terminal post of battery.
2. Connect the 2 gauge power cable from the hydraulic enclosure (Auto Reset Breaker) to the AUX post on the circuit breaker.
12.8 Battery Wiring – Truck Kit

For 24V wiring reference document 90-1117-008.

Truck Kit - Single Pump

Truck Kit - Single Pump - Aux Battery
Truck Kit - Dual Pump - Aux Battery
12.9 Battery Wiring – Trailer Kit

For 24V wiring reference document 90-1117-008.

Trailer Kit - Single Pump - Single Pole - Aux Battery

Trailer Kit - Single Pump - Dual Pole - Aux Battery
Trailer Kit - Dual Pump - Single Pole - Aux Battery

Trailer Kit - Dual Pump - Dual Pole - Aux Battery
12.10  Electrical Schematic

12.10.1  Schematic (Prior to March 2018)
12.10.2 Schematic (After to March 2018)
## Control Board System Codes

### Control Board Code | Description | Reset |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>System ok / Cab switch off, (or missing bridge J11/2&lt;-&gt;4)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>System ok / Cab switch on, (or bridge J11/2&lt;-&gt;4)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Low voltage – start truck engine, charge battery</td>
<td>Cab switch: off/on (or disconnect bridge J11/2&lt;-&gt;4)</td>
</tr>
<tr>
<td>3</td>
<td>Defective or missing tilt switch B13 at lift arm</td>
<td>Automatically when the valves are back to normal</td>
</tr>
<tr>
<td>4</td>
<td>Defective or missing tilt angle sensor B15 at lift arm</td>
<td>Automatically when the valves are back to normal</td>
</tr>
<tr>
<td>5</td>
<td>Defective or missing tilt angle sensor B15 at platform</td>
<td>Automatically when the valves are back to normal</td>
</tr>
<tr>
<td>6</td>
<td>Warning lights shorted</td>
<td>Cab switch: off/on (or disconnect bridge J11/2&lt;-&gt;4) or close tail lift</td>
</tr>
<tr>
<td>7</td>
<td>Short in cab switch / on-off switch or aux port</td>
<td>Cab switch: off/on (or disconnect bridge J11/2&lt;-&gt;4) or close tail lift</td>
</tr>
<tr>
<td>8</td>
<td>General short in electric wiring</td>
<td>Cab switch: off/on (or disconnect bridge J11/2&lt;-&gt;4) or voltage interruption MBB control</td>
</tr>
<tr>
<td>9</td>
<td>Defect at motor solenoid detected during lifting</td>
<td>Automatically when the valves are back to normal</td>
</tr>
<tr>
<td>A</td>
<td>Voltage V02 (J1 pin 2) is missing, defective fuse?</td>
<td>Replace the fuse</td>
</tr>
<tr>
<td>b</td>
<td>Defect at opening, valve (S3/S4) or motor relay detected during opening</td>
<td>Automatically when the valves are back to normal</td>
</tr>
<tr>
<td>c</td>
<td>Defect at motor solenoid or S5 valve detected during closing</td>
<td>Automatically when the valves are back to normal</td>
</tr>
<tr>
<td>d</td>
<td>Defect at lowering valve (S1/S2) or S5 valve detected</td>
<td>Automatically when the valves are back to normal</td>
</tr>
<tr>
<td>E</td>
<td>Emergency program (all sensors are bypassed). Activation by: Press Open + Lower + Extra Button &gt; 10 seconds</td>
<td>Cab switch: off/on (or disconnect bridge J11/2&lt;-&gt;4)</td>
</tr>
<tr>
<td>P</td>
<td>Diagnosis mode activated</td>
<td>Removing service connector</td>
</tr>
</tbody>
</table>
12.12 Trailer to Tractor Ground Test

A. 12V lead from tractor coil cord
B. Center (+) plug on front of trailer
C. Trailer Ground on front of trailer
D. Tractor chassis ground

Testing of full system using a battery load tester. Start with testing each individual battery on both tractors and trailer before proceeding to check the system:

1. Tractor Test:
   Ground battery load tester on tractor chassis point (D)
   Connect positive load tester cable on positive pole of single pole plug at end of tractor coil cord (A)
   Run load test- This will test entire circuit on tractor including ground

2. Trailer Test:
   Ground battery load tester on trailer chassis point (C)
   Connect positive cable on positive pole of single pole plug receptacle on trailer (B).
   Run load test- This will test entire circuit on tractor including circuit breakers and ground between trailer batteries and trailer chassis.

3. Tractor and Trailer Charging system test while connected:
   Ground battery load tester on tractor chassis point (D)
   Connect positive cable on positive pole of single pole plug receptacle on trailer (B).
   Run load test- This will test entire circuit on tractor and trailer including ground between tractor, trailer, and circuit breaker on trailer.

A simple low amp voltage test at the front of the trailer or at the tractor will not show insufficient connections or ground problems.
12.13 Tail Light Harnesses

**NOTICE**

All truck or trailer lighting, auxiliary lighting, and reflectors must be in accordance with DOT, State, and Federal regulations.

---

**Rear View of Columns**

Tail light harness located at the bottom of each column

---

**Tail Light Wiring Table**

<table>
<thead>
<tr>
<th>Wire</th>
<th>Function(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Left/Right Stop/Turn</td>
</tr>
<tr>
<td>Red</td>
<td>Back Up</td>
</tr>
<tr>
<td>White</td>
<td>Ground</td>
</tr>
<tr>
<td>Brown</td>
<td>Tail Light</td>
</tr>
</tbody>
</table>

*All wires are 16 AWG.*

*Wire ends are bare, no connectors attached.

---

12.14 Dock Bumper Installation

Remove bolt and nut from the bumper plate, **Fig. 24**. Slide the bumper down into the bumper plate, **Fig. 25**. Secure bumper by reinstalling the nut and bolt, **Fig. 26**. Curb side column shown below, repeat installation on the street side column.

---

**Fig. 24**

**Fig. 25**

**Fig. 26**
Above Floor Installation Only

13  Above Floor Liftgate Installation (Optional)

13.1  Mounting the Liftgate

**NOTICE**

Read this entire section before beginning installation. The above floor installation reduces the bed height limit of the liftgate. The maximum travel of the platform is 56”. For example: If the gate is mounted 6” above floor, the maximum bed height lowers to 50”. Above floor installations can be mounted a **Maximum** of 6” above the floor level of the vehicle.

**NOTICE**

Before positioning the liftgate; consider when measuring and centering the liftgate that the truck or trailer may NOT be square or parallel. Special care must be taken to ensure that the liftgate is square and parallel before welding.

Steps:
1. **Level Truck**: Truck should be on level and even ground. Uneven ground will give misleading measurements and can cause body twist or racking.
2. **Make sure the liftgate is properly secured**: Verify the liftgate is attached safely to the lifting device. If using a forklift to hoist the liftgate, use 4”x 4” x 24” wood spacers to keep the unit from sliding back when lifting. This will help force the top of the liftgate tight against body for welding.
3. **Place Spacers**: It is recommended to use spacers to aid in positioning the liftgate’s height. Steel spacers, such as a 6”x6” ¼” thick tube can be placed along the rear sill for a 6” above floor installation. For smaller above floor heights, use smaller spacers. These spacers should be placed where the alignment plates will land. The spacers should not be used to support the full weight of the liftgate, but only to aid in setting the height of the liftgate.
4. Fit Liftgate Against Truck: Hoist the Liftgate; preferred method for lifting liftgate is with a forklift. Position forks to widest point and lift from center. Above floor installations can be mounted a maximum of 6” above floor level, when measuring from the traverse floor level. The full weight of the liftgate should be supported by the lifting device, and not the alignment plates.

Please reference the diagrams on the following pages. The traverse member of the liftgate should be above floor level of the truck at this point. Instructions to lower the traverse will be explained in a later step.

**WARNING**

Never remove lifting device until liftgate is securely welded.
5. **Center Liftgate:**

   **Method A:** Align the liftgate so that it is centered on the truck. Use the center marks as a reference for this step. 12” or larger “C” or “F” style clamps can be used to coach or hold the liftgate in position.

   **Method B:** An Alternative method for centering the liftgate is to measure side clearances from the outside of the liftgate to the outside of the body. (Centerline marked on sill is NOT easily visible, but can still be used as a reference.)

6. **Verify Position:** Confirm all mounting dimensions are correct, double check that floor and threshold extension are flush.
13.2 Check Liftgate Dimensions

Steps:
1. **Check Dimensions**: Inspect liftgate to be certain it is square and parallel. Use a 3 ft. carpenter's square. Verify columns are 90 degrees to sill or body.
2. Use “Dim A” and “Dim B” to verify columns are parallel.
3. Use “Dim C” and “Dim D” to verify columns are square.

**NOTICE**

DO NOT WELD until all dimensions are checked and rechecked after each positioning adjustment.
13.3 Welding Liftgate

Do not weld the traverse yet.

**NOTICE**

Optional: Take precautionary measures to ensure that columns do not toe-out due to welding. Flat bar or round stock can be added in the corner to minimize pull from the weld. Maintain tension with come along from one bumper over to the other one as work is performed.

Steps:

1. **Outside Welds:** Using ¼” x 2” welds, place one weld ½” from the top of each column on the outside and place one weld at the bottom of each dock bumper plate.

2. **STOP** and recheck all mounting dimensions.
3. **Inside Column Welds:** Weld inside of columns ¼" x 2" x 5 places evenly spaced top to bottom.
4. **Final Outside Welds**: Final welding for the outside of liftgate is $\frac{1}{4}'' \times 100\%$ on dock bumpers and $\frac{1}{4}'' \times 3'' \times 5$ places evenly spaced on columns top to bottom.
5. **Remove Spacers:** If spacers were used during installation, remove them from the truck/trailer.

6. **Traverse Welds:** After the outside of the columns have been welded in place, remove the 4 traverse bolts, and lower the traverse member to be flush with the floor (Alignments plates can assist in setting traverse member height). Weld the traverse to each column, \(rac{1}{4}\)“ weld by \(\frac{1}{2}\)“ long, x3 on each side.

7. **Threshold Welds:** Weld threshold \(\frac{1}{4}“ \times 2“ \times 5\) places evenly spaced left to right.

8. **Remove Mount Plate Hardware:**
   Using a 9/16” socket, remove the hardware holding the mount plates in.

9. **Gate Mounting complete:** Above floor mounting is now complete. Continue with the hydraulic installation.
14 **Lubrication**

Proper lubrication will help ensure a long trouble free service life for the PALFINGER ILD+. Therefore, the liftgate should be lubricated at the same time as the truck/trailer. Grease more frequently if the lift gate is heavily used or whenever the pivot points appear to be dry. Average ILD plus use is considered 25 cycles per day or 500 cycles per month. Lubricate the gate at least every 3 months or 1500 cycles, whichever comes first.

**CAUTION**

DO NOT grease the “Slider Bearings” or “Columns” or “Runners”, as this will VOID your WARRANTY on the slide bearings. Lubricate liftgate per instructions in this chapter prior to release to service.

All Units:
- There are 12 grease fittings to maintain.
- Use a light penetrating oil on closing aids. For power closing units, grease upper & lower pivot mounting points.

**Bottle Gas Units:**
For units with the Bottle Gas Options, there are an additional 8 grease fittings, and additional 8 locations that require light penetrating oil.

Check the oil level in the tank. The level should be 1.5” below the top of the reservoir when the platform is opened and on the ground. Use a good quality hydraulic fluid, ISO 32. Change oil at least once a year, preferably in the fall before the weather gets cold. The operation of the liftgate will accumulate condensation and some dirt which can interfere with the liftgate functions.
14.1 **Standard Unit Lubrication Points**

All bearing points must be lubricated in accordance with the maintenance interval.

There are grease fittings for the lubrication of the platform folding pin. A light penetrating spray lubricant should be used for lubrication of both chain linkage bars on the outer part of the pin (both sides).
14.2 **Bottle Gas Unit Lubrication Points**

In addition to the lubrication locations shown in Section 14, Bottle Gas units require the following locations to be maintained:

- **Forward Horizontal arm pin**, 1 grease fitting per side
- **Upper Vertical arm pin**, 2 grease fittings per side
- **Lower Vertical arm pin**, 1 grease fitting per side
- **Rail Pivots, Latch Pins, and Ramp Pivots** (4 locations per side) require a light penetrating oil
For operator’s safety, all decals appearing in “Decal Kit” must be placed visibly 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 (C) on driver and curb side.

<table>
<thead>
<tr>
<th>Decal</th>
<th>Qty.</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>ATG OPER-ILD</td>
<td>Operating Instructions</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>ATG-OPER-ILD-BG-2</td>
<td>Operating Instructions (ILD-BG)</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>ATG-SWILD</td>
<td>Main Operation Switch</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>ATG-OPENILD</td>
<td>Notice for Open &amp; Close</td>
</tr>
<tr>
<td>E</td>
<td>2</td>
<td>ATG-XXXX</td>
<td>Max. Capacity (please check the serial number plate to find out your specific capacity)</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>ATG-URGWA</td>
<td>Urgent warning: Elevating gate instructions</td>
</tr>
<tr>
<td>G</td>
<td>2</td>
<td>ATG-WLH</td>
<td>Warning: liftgate can crush</td>
</tr>
<tr>
<td>H</td>
<td>1</td>
<td>ATG-BKR</td>
<td>Circuit Breaker Reset (must be located at the circuit breaker)</td>
</tr>
<tr>
<td>I</td>
<td>1</td>
<td>ATG-RESET</td>
<td>Circuit Breaker Protection.</td>
</tr>
<tr>
<td>J</td>
<td>2</td>
<td>ATG-PLAT</td>
<td>Warning: Always stand clear of platform area</td>
</tr>
<tr>
<td>K</td>
<td>1</td>
<td>ATG-CAB</td>
<td>Liftgate Shut-Off (Place Decal next to the On-Off Switch in the Cab)</td>
</tr>
<tr>
<td>L</td>
<td>1</td>
<td>85-1114-003/85-1114-001</td>
<td>Conspicuity tape (If applicable)</td>
</tr>
<tr>
<td>M</td>
<td>1</td>
<td>ATG-UD</td>
<td>Toggle Decal, Up-Down</td>
</tr>
</tbody>
</table>

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

Decal - N

Decal - O

Decal - P

Decal - Q

Decal - R

Decal - S

Decal - T

Decal - U

Decal - V

Decal - W

Decal - X

Decal - Y

Decal - Z
You may obtain free replacement decals by calling PALFINGER Liftgates at 888-774-5844. Please have your liftgate model # and serial # ready.
NOTICE

It is the installer’s responsibility to determine the proper application of the Conspicuity tape, and to ensure that the vehicle or trailer meets DOT and federal lighting regulations. The following diagram is a guideline for placement on trailers over 80” wide and GVWR of 10,000 Lbs. or more. This document is not intended to replace published agency regulations, and it is strongly recommended that the installer refer to the Code of Federal Regulations (CFR) which can be viewed at http://ECFR.gpoaccess.gov.

**Requirement 1:**
Red/white reflective tape applied across the entire width of the trailer placed at an appropriate height $H$ from the ground

**Requirement 2:**
On each corner: Two 12” long white reflective pieces, place adjacently to one another as close to the upper corner of the trailer as possible

**Requirement 3:**
Red/white reflective tape applied across the entire width of the rear underride protection device.

**Note:** Not required if no underride protection is equipped

**H Dimension:**
$15'' < H < 60''$ from ground to center of tape
16   Cycle Test and Bleed the System

16.1   Cycle Test and Bleed the hydraulic system, Standard Units

**WARNING**

Improper use of the liftgate may result in serious injury. DO NOT operate this liftgate without being properly instructed and fully understanding the Owner’s manual. Platform may crush or pinch. Make certain area around liftgate is clear during all times of operation.

**NOTICE**

Test steps 2-9 (2-7 on bottle gas units) a minimum of five (5) times each to ensure NO unusual noises or movements are found. This will confirm all controls work correctly and hydraulic system is completely bled of air.

16.2   Operating Instructions (Standard Units)

Steps:

1. **Turn on power:** To activate power to the liftgate, turn the master disconnect switch located on the outside of the battery box to the “ON” position. If the vehicle has a cab switch verify that its turned ON also.

2. **Open Liftgate Platform:** Be certain the operating area around platform is clear before opening platform. Pushing the “UP” button, raise the platform up so that it is completely out of the travel locks. Hold the up switch for 5 seconds to level the platform.
Open the Liftgate Platform (continued): Be certain operating area around platform is clear before opening platform. Pushing the “DOWN” button, and “OPEN” button together to power the platform open.

3. Lower the platform to the ground: Pushing the “DOWN” button, lower the platform to the ground. Note: for power down operation, push the down button twice (within 3 seconds).
4. Raise the platform to bed level: Pushing the “UP” button, raise the platform to bed level.

5. Bleeding the system: With the platform at bed level, push the “UP” button for thirty (30) seconds. This will bypass hydraulic fluid through hydraulic poppet valves located in each of the lift cylinder pistons returning hydraulic fluid back to the reservoir via the return lines.

6. Closing and Storing of the Platform for transit: With the platform open at bed level use the “UP” button and “CLOSE” button together, power the platform closed.
7. **Lower the Platform:** Using the “DOWN” button, push down twice (within 3 seconds) and power down platform past the Travel Locks. (See Illustration)

8. **Raise the Platform:** Using the “UP” button, raise platform up until travel ears clear the travel lock slot. (See Illustration)

9. **Lock the Platform:** Once the travel ear clears the slot, use the down button twice (within 3 seconds) to power down travel ear into travel lock slot.
Lowering Platform for Dock Loading (Standard Units)

Steps:

1. Using the “UP” button to power platform up so that it is completely out of the travel locks.

2. To lower platform down push **Down Button twice** (within 3 seconds) until the platform passes the travel latch and is level with the vehicle floor and rests on the Dock Stops.
16.3 Operating Instructions (Bottle Gas Units)

Steps:

1. **Turn on power:** To activate power to the liftgate, turn the master disconnect switch located on the outside of the battery box to the “ON” position. If the vehicle has a cab switch verify that is turned ON also.

2. **Open Liftgate Platform:** Be certain the operating area around platform is clear before opening platform. Pushing the “UP” button, raise the platform up so that it is completely out of the travel locks.
Open Liftgate Platform (continued): Be certain operating area around platform is clear before opening platform. Push the "DOWN" button, and "OPEN" button together to power the platform open.

3. **Lower the platform to the ground:** Pushing the "DOWN" button, lower the platform to the ground. Note: for power down operation, push the down button twice (within 3 seconds).
4. **Raise the platform to bed level:** Pushing the “UP” button, raise the platform to bed level.

5. **Bleeding the system:** With the platform at bed level, push the “UP” button for thirty (30) seconds. This will bypass hydraulic fluid through hydraulic poppet valves located in each of the lift cylinder pistons returning hydraulic fluid back to the reservoir via the return lines.

6. **Closing and Storing of the Platform for transit:** With the platform open at bed level use the “UP” button and “CLOSE” button together, power the platform closed.
7. **Lower the Platform:** Using the “DOWN” button, push down twice (within 3 seconds) to power down the travel ear into travel locks. (See Illustration)

The platform should now be in stored/ transit position, as shown below.
"Loading" position (Position 1 above) is achieved with the gate completely lowered to the ground, platform out, and the ramp out. To open the ramp, flip the ramp latches to a vertical position. This will release the ramp...
The swing doors can open in a 180° range. Lift the swing door vertically, and pivot the door in the direction you wish to open. The doors lock automatically in 3 positions.

“Dock Loading” position (Position 3) is achieved when the platform is folded closed, and the liftgate is lowered. The ramp should be folded over, on top of the platform.

**Operation:** From the stored position, raise the liftgate out of the travel lock. Press the “Up/Raise” button and the “Open/Close” button briefly to open the platform enough to clear the travel lock. Fold the ramp as shown below, if it is not already. Lower the gate until the platform passes the travel latch and is level with the vehicle floor. The platform will rest on “Dock Stops” built into the unit.
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.

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**
- Lifting braces and shipping stand are removed from the liftgate.
- 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.

**Hydraulic Inspection**
- Pump reservoir is filled 1.5” from top when platform is opened at bed level.
- 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 and are away from sharp edges and moving parts.

**Electrical Inspection**
- Battery cable(s) attached and clamped tight and dielectric grease is used to seal all connections.
- Master disconnect switch is installed and operating properly.
- All electrical lines are secured with cable ties, hoses clamps, or other fasteners and are away from sharp edges and moving parts.
- Circuit Breakers installed and wired per instructions.
- Lights wired properly and operate per DOT, State, and Federal requirements.
- Load test has been performed as explained in Section 12.12 Trailer to Tractor Ground Test.
- Measure battery voltages: Flooded Batteries = 12.6V; AGM Batteries = 12.8V.

**Operational Inspection**
- All decals are in place and legible per instructions.
- All pivot points are lubricated per instructions.
- Platform secures properly in its stowed position latches.
- Platform travels up and down smoothly and freely, without any hesitation or unusual noises.
- Platform is level with the floor of the vehicle when raised completely.
- Platform is level across the fold when opened.
- Platform rests on the ground evenly when lowered completely.
- Platform opens and closes properly and at correct speed. (2 to 4 inches per second)
- The liftgate serial number and model number are documented on the inside of the Owner’s Manual (pg.iii).
- Owner’s Manual has been provided to end user or is placed inside the hydraulic enclosure.
- Supervisor has demonstrated the instructions in the Owner’s Manual to the customer/driver upon delivery.

**Inspection Information (Please Print):**

Name: ___________________________ Signature: ___________________________

Completed by: ___________________________ Title: ___________________________ Date: ___________________________

Liftgate Model: ___________________________ Liftgate Serial Number: ___________________________