

PALFINGER



LIFTGATES

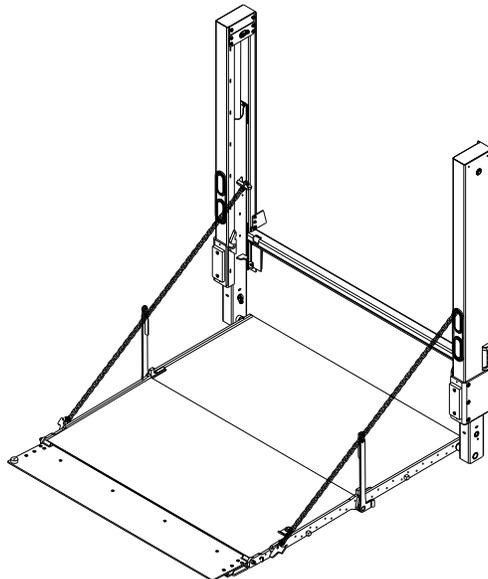
PTV INSTALLATION MANUAL

PTV 35 – 3500 lbs. Capacity

PTV 44 – 4400 lbs. Capacity

PTV 55 – 5500 lbs. Capacity

PTV 66 – 6600 lbs. Capacity



PTV 35/44/55/66 Installation Manual
Document Part Number: ML90-1121-100 / ML21-680_90-00_01-00
ECN-M1656, Rev. 1.2, 06-05-23
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Visit www.palfinger.com for up to date information and notifications.

If you received this product with damaged or missing parts,
contact Palfinger Liftgates at (888)-774-5844

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liftgateparts@palfinger.com

Technical Support
technicalapplications@palfinger.com



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Company Information:

Company Name: _____

Advisor Name: _____

Trailer/Truck Year Make & Model: _____

Liftgate Information:

Liftgate Serial Number: _____

Liftgate Model Number: _____

Date of Purchase: _____

Date of Installation: _____



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1 **Manual Updates**

Revision	Description	Date
v1.0	<ul style="list-style-type: none">• Initial Release	04-30-21
V1.1	<ul style="list-style-type: none">• Updated Sections 10.2, 11.3, and 13.6	05-18-21
v1.2	<ul style="list-style-type: none">• Added Section 16.4	06-05-23

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

! **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 minor or moderate injury.

CAUTION

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

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 PTV 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, prepared to bare metal, free of paint, undercoating, dirt, grease, 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 the truck manufacturer’s instructions before adding any auxiliary equipment. The 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

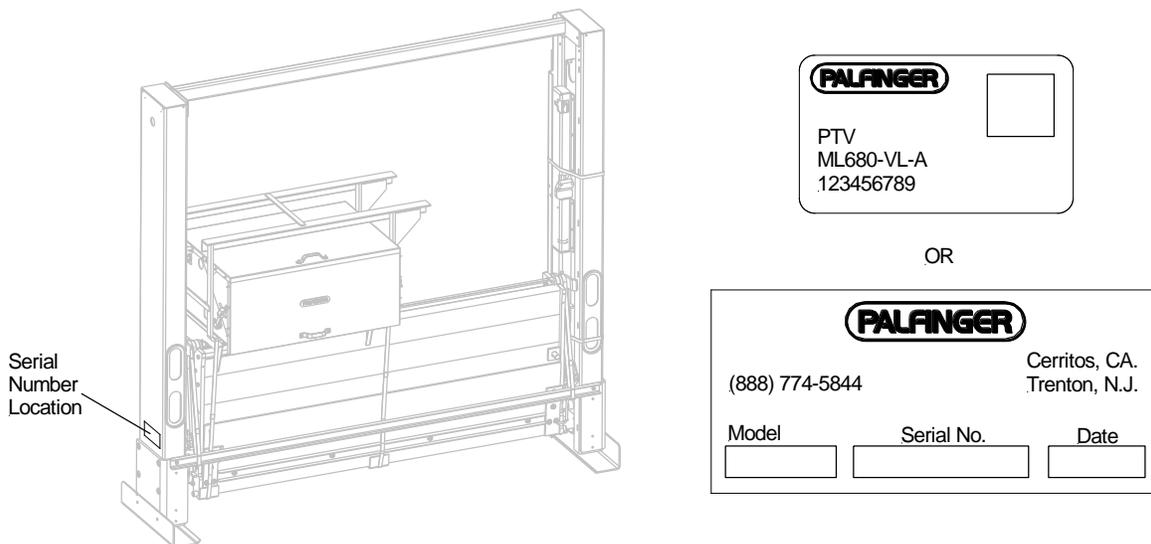
Improper operation of this liftgate may result in severe personal injury or death. **DO NOT** operate unless you have been properly instructed and have read and are familiar with the procedures in this manual. This manual has been designed to illustrate the steps needed for the basic installation of the PTV 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 only the PTV series liftgate 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 Left Side Column- as shown below):



- 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

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

Replacement manuals are available at <https://www.palfinger.com/en-us/products/liftgates>

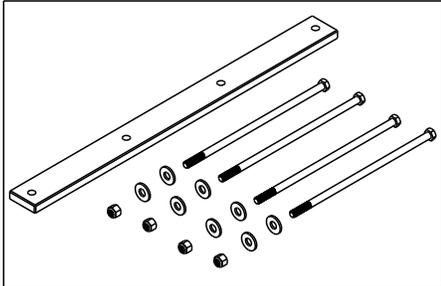
4 Tools For Installation

SAE & Metric Wrench Set	Basic Screwdrivers	Assorted Pliers	Wire Crimp Pliers
Digital Multi-Meter	Snap Ring Pliers	Hammer	SAE & Metric Allen key Set
½" Impact & Sockets	SAE & Metric Socket Set	Assorted Drill Bits	Floor Jack or Equivalent
Sm. To Med. Bottle Jack	Forklift or Overhead Hoist	Handheld Grinder	Paint Gun & Accessories
Pry Bar	3/8 Drill Motor	Grease Gun	Heat Gun or Equivalent
Min.250A Welder	Cutting Torch or Equivalent	Framing Square	Measuring Tape

5 Parts List

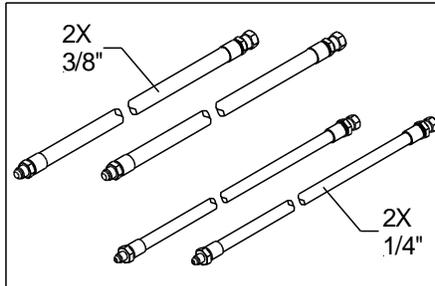
Installation of the parts listed below can be found throughout the installation manual.

All of the small parts are bagged, boxed or attached inside the Hydraulic Enclosure.



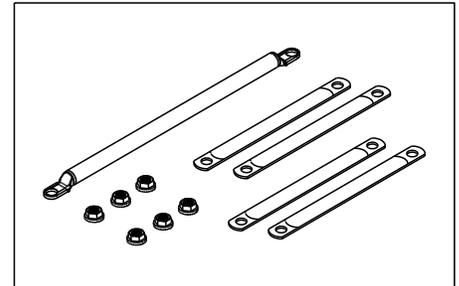
Nylon Strap Battery Kit: 99-7520-001

Nylon Hold Down, 1 pc
Hex Head Cap Screw, 3/8"-16x10", 4 pcs
Washer, Flat, 3/8" USS, Zinc; 8 pcs
Nylock Nut, 3/8"-16; 4 pcs



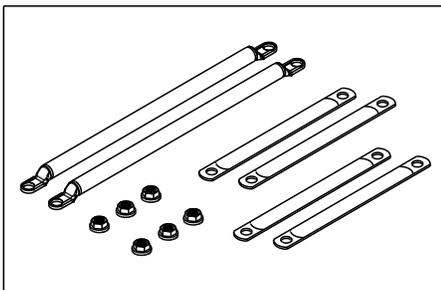
3 ft. Hose Kit: 80-1121-001

1/4" Hoses, 3 ft (36"), 2 pcs
3/8" Hoses, 3 ft (36"), 2 pcs



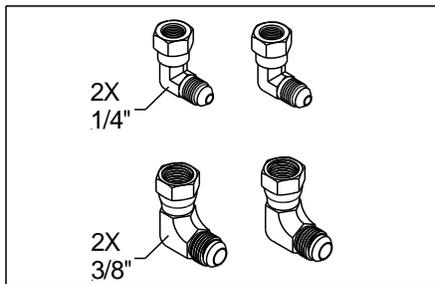
Electric Components: Single Pump

KET06882A; Cable, 11", 3/8" Lugs, 2GA, Red, 1 pc
KET06062A; Bus Bar, Red; 2 pcs
KET05916A; Bus Bar, Black; 2 pcs
EM 781; Nut, Serrated, 3/8"-16, SS; 6 pcs



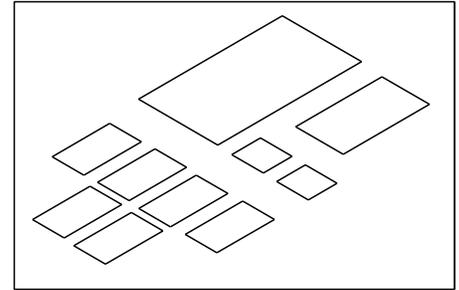
Electric Components: Dual Pump

KET06882A; Cable, 11", 3/8" Lugs, 2GA, Red, 2 pcs
KET06062A; Bus Bar, Red; 2 pcs
KET05916A; Bus Bar, Black; 2 pcs
EM 781; Nut, Serrated, 3/8"-16, SS; 6 pcs



Hydraulic Fittings Kit: 80-1121-100

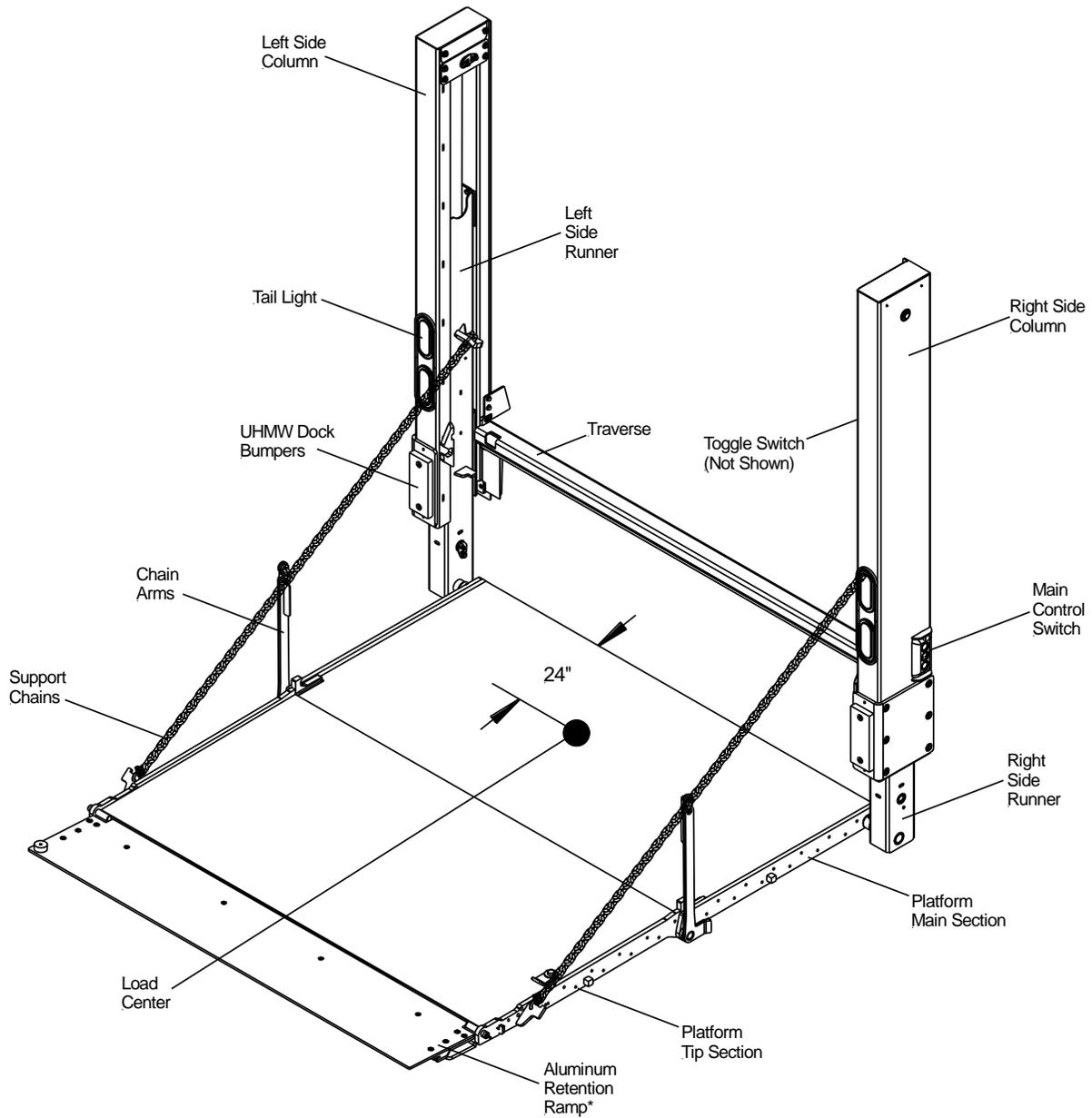
Elbow, 90°, 1/4", JIC Female - 1/4", JIC Male, 2 pcs
Elbow, 90°, 3/8", JIC Female - 3/8", JIC Male, 2 pcs



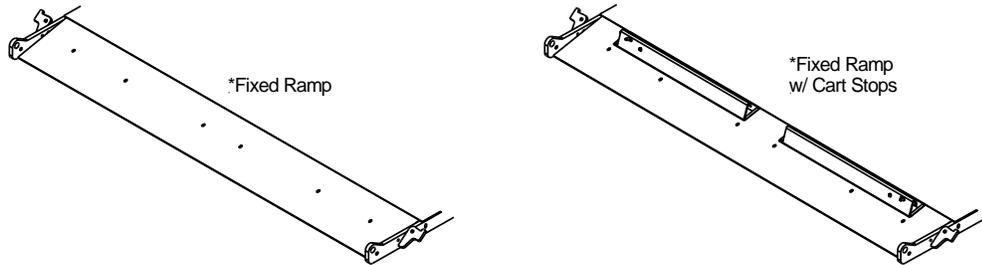
Decal Base Kit: 85-1121-010

Decal Base Kit; 10 pcs

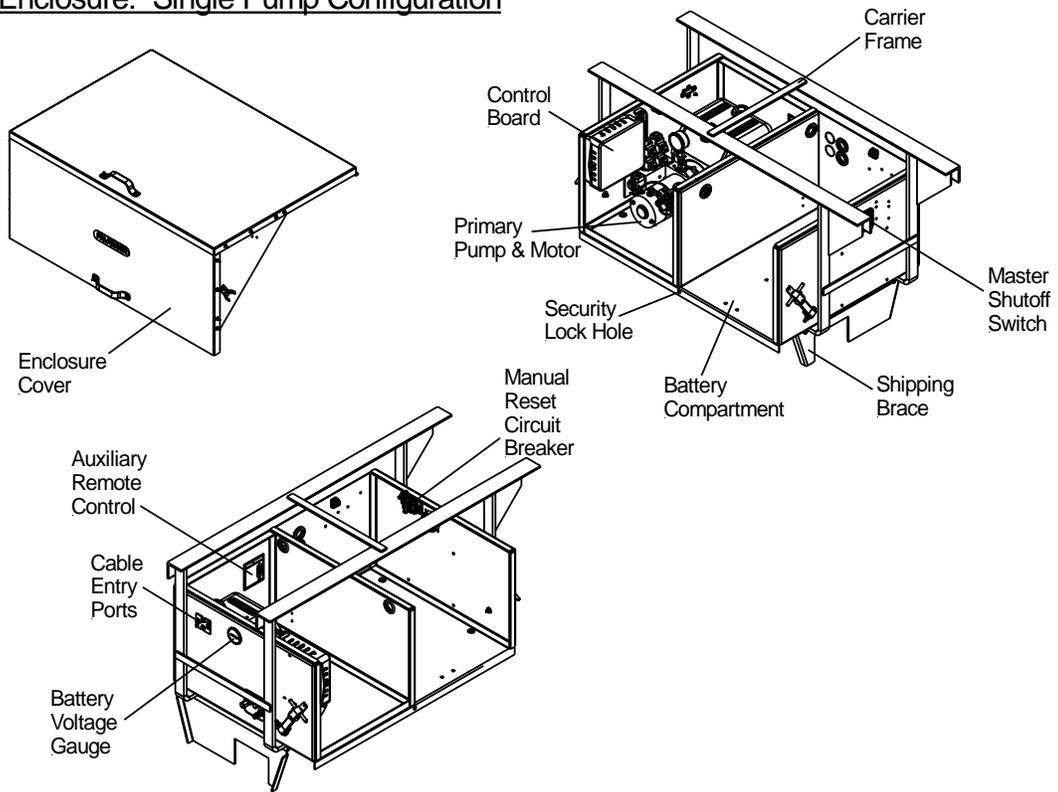
6 General View of Liftgate



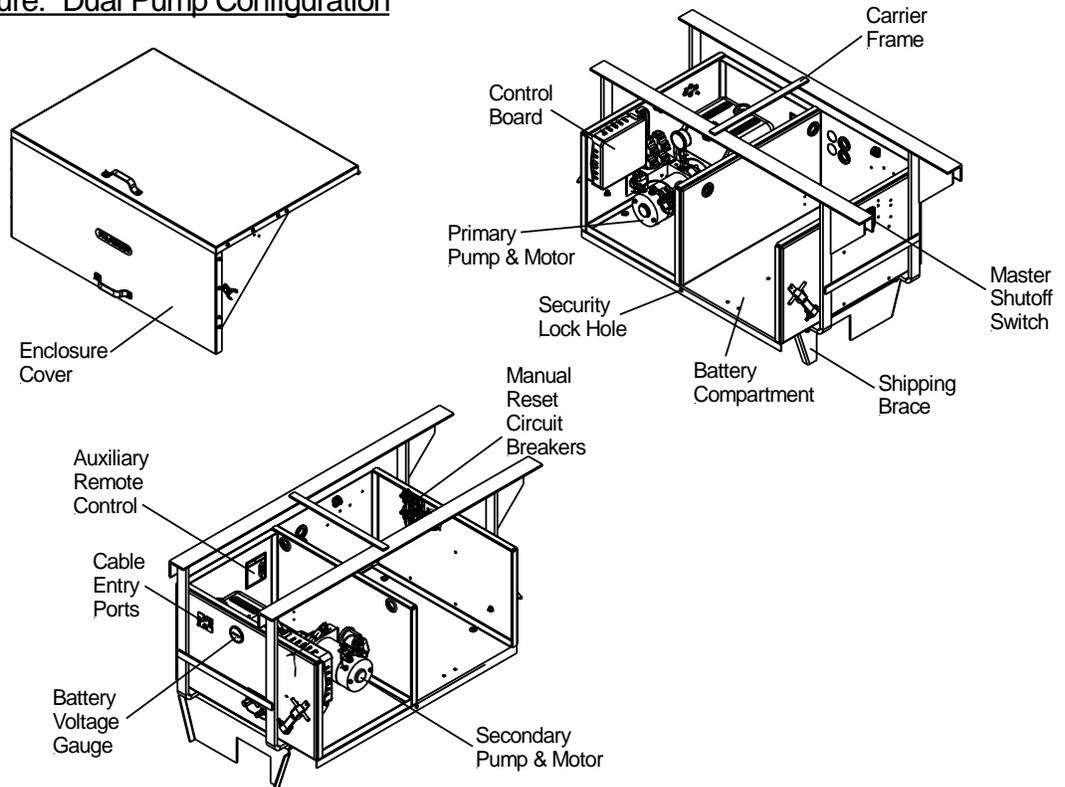
Ramp options shown below are steel platform ramps. Same options are available for aluminum platforms.



Hydraulic Enclosure: Single Pump Configuration



Hydraulic Enclosure: Dual Pump Configuration



7 **Installation Dimension Sheets**



Truck Chassis Dimension Sheet

Customer Information

Quote#/SO#: _____
 Company: _____
 Phone: _____
 Email: _____ @ _____

Liftgates Information:
Model
Capacity
Platform Size
Platform Material

Truck Information

Truck Specifications:	
Manufacturer: (ex. Hino)	
GVWR: (ex. 68,000 lbs)	
Length: (ex. 53ft)	
Width: (96", 102")	

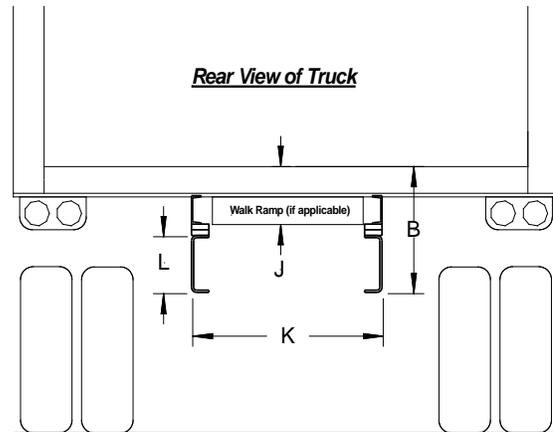
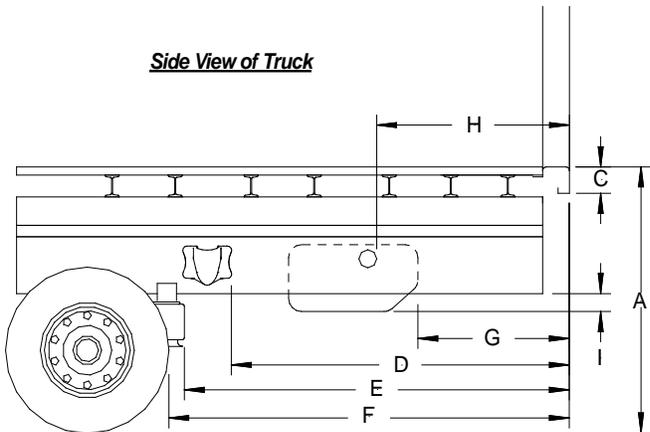
Type of Body (check applicable) <input checked="" type="checkbox"/>	
Van	<input type="checkbox"/>
Flatbed	<input type="checkbox"/>
Reefer	<input type="checkbox"/>
Other (specify) _____	<input type="checkbox"/>

Type of Rear Door (check applicable) <input checked="" type="checkbox"/>	
Flip-Up	<input type="checkbox"/>
Roll-Up	<input type="checkbox"/>
Swing	<input type="checkbox"/>
Other (specify) _____	<input type="checkbox"/>

Truck Dimensions

- A = Bedheight:..... Loaded 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:



90-9813-003_b



Trailer Chassis Dimension Sheet

Customer Information

Quote#/SO#: _____
 Company: _____
 Phone: _____
 Email: _____ @ _____

Liftgates Information:	
Model:	
Capacity:	
Platform Size:	
Platform Material:	

Trailer Information

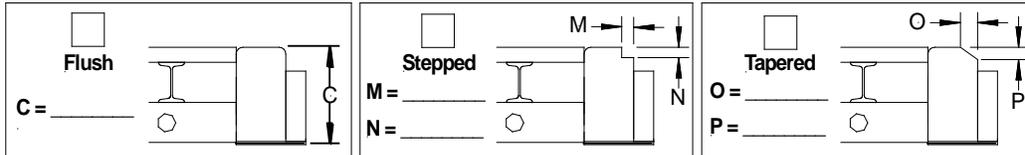
Trailer Specifications: Manufacturer: (ex. Utility) GVWR: (ex. 68,000 lbs) Length: (ex. 53ft) Width: (96", 102")	Type of Body (check applicable) <input checked="" type="checkbox"/> Van Flatbed Reefer Other (specify) _____	Type of Rear Door (check applicable) <input checked="" type="checkbox"/> Flip-Up Roll-Up Swing Other (specify) _____
---	---	---

Trailer Dimensions

A = Bedheight: 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 _____
 If Yes complete G, H, I, K, and L dimensions

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:.....

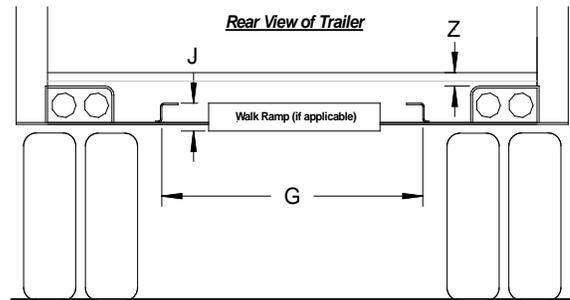
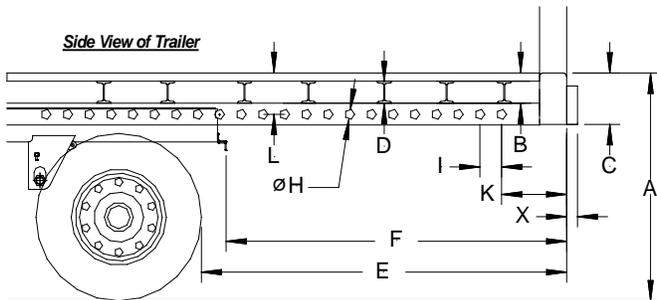
K = Rear sill face to first slider hole:.....

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:



90-9813-002_b

8 Installation Dimensions

8.1 Important Dimensions

NOTICE

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

Ensure that the truck body or trailer rear door does not interfere with installation or operation of the PTV series liftgate.

The PTV series cannot be installed with "barn" or "full opening swing" door types.

Trucks need to be 26,000 lbs. GVWR (Gross Vehicle Weight Rating) and above.

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

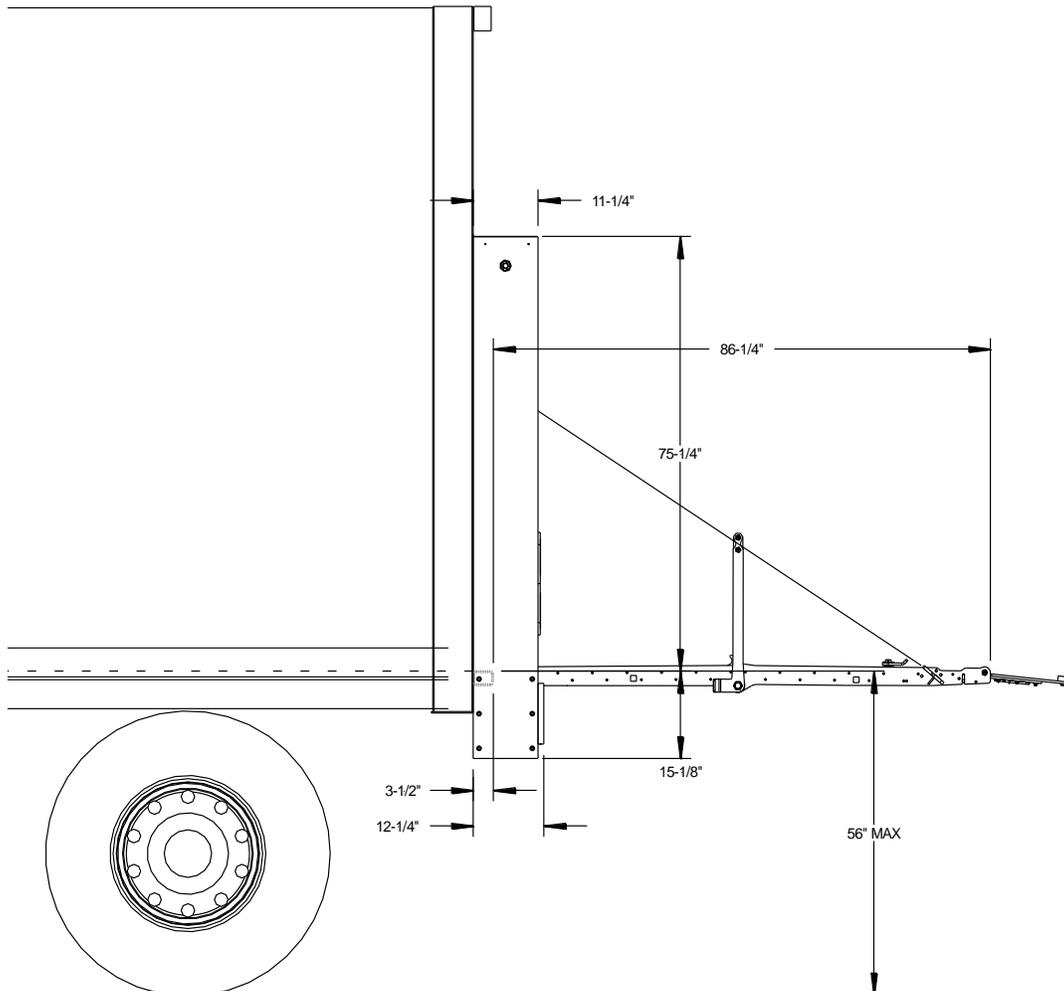
Call tech support before starting the installation if you have any questions or concerns on mounting dimensions or procedures 888-774-5844.

8.2 Installation Dimensions - Weld-On Liftgate

1. Measure Floor Height: Measure the floor height of your truck or trailer and determine clearance requirements for your liftgate platform size.
2. Verify Compatibility: Reference the compatibility table below to ensure that your gate is compatible with your vehicle's bed height.

Liftgate Model	Platform Depth	Platform Width (Based on Vehicle Width)		Dock Loading Bed Height Range		NO Dock Loading Bed Height Range	
		96"W	102"W	Min.	Max.	Min.	Max.
PTV BG	42"+16" ARR	80"	86"	46"	56"	34"	56"
PTV	60"+12" Fixed Ramp	80"	86"	32"	56"	34"	56"
PTV	60"+16" ARR	80"	86"	32"	56"	34"	56"
PTV	72"+12" Fixed Ramp	80"	86"	38"	56"	34"	56"
PTV	72"+16" ARR	80"	86"	38"	56"	34"	56"
PTV	84"+16" ARR	80"	86"	44"	56"	34"	56"

ARR = Aluminum Retention Ramp; BG = Bottle Gas

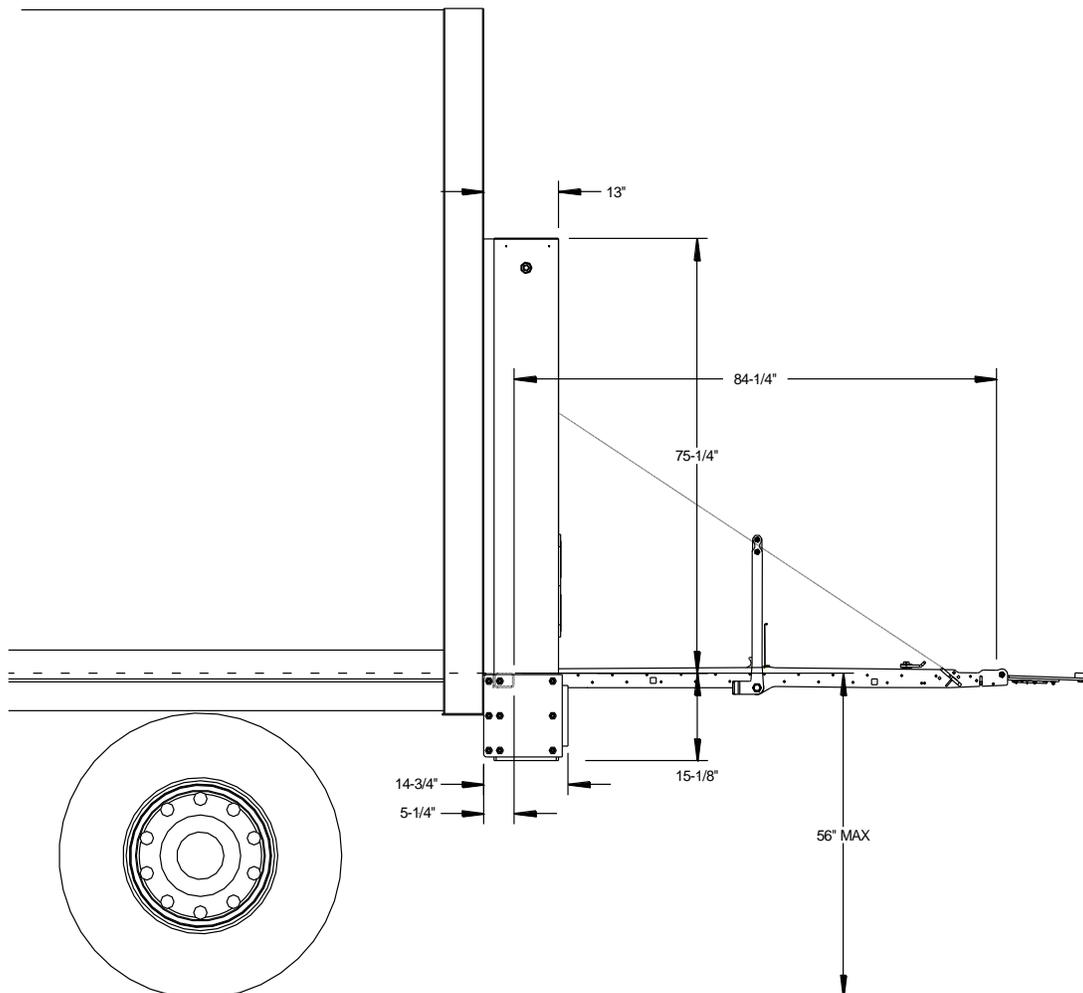


8.3 Installation Dimensions - Bolt-On Liftgate

1. Measure Floor Height: Measure the floor height of your truck or trailer and determine clearance requirements for your liftgate platform size.
2. Verify Compatibility: Reference the compatibility table below to ensure that your gate is compatible with your vehicle's bed height.

Liftgate Model	Platform Depth	Platform Width (Based on Vehicle Width)		Dock Loading Bed Height Range		NO Dock Loading Bed Height Range	
		96"W	102"W	Min.	Max.	Min.	Max.
PTV BG	42"+16" ARR	80"	86"	46"	56"	34"	56"
PTV	60"+12" Fixed Ramp	80"	86"	32"	56"	34"	56"
PTV	60"+16" ARR	80"	86"	32"	56"	34"	56"
PTV	72"+12" Fixed Ramp	80"	86"	38"	56"	34"	56"
PTV	72"+16" ARR	80"	86"	38"	56"	34"	56"
PTV	84"+16" ARR	80"	86"	44"	56"	34"	56"

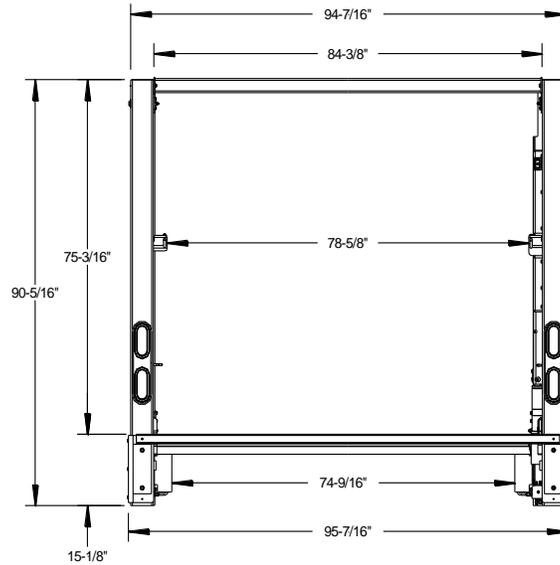
ARR = Aluminum Retention Ramp; BG = Bottle Gas



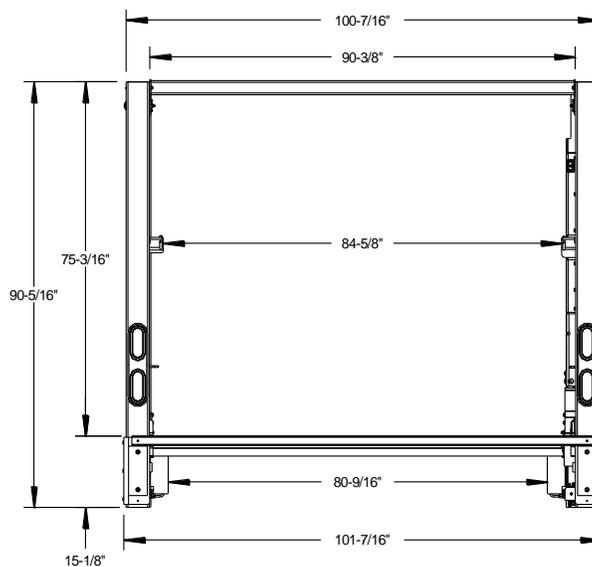
8.4 Installation Dimensions - Width Requirements

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

Nominal Truck or Trailer Width	Outside Column Dim.	Inside Column Dim.	Inside Platform Chain Plate	Overall Outside Dim.	Overall Liftgate Dim. H"xW"
96" Wide Body	94-7/16"	84-3/8"	78-5/8"	95-7/16"	90-5/16" x 95-7/16"



Nominal Truck or Trailer Width	Outside Column Dim.	Inside Column Dim.	Inside Platform Chain Plate	Overall Outside Dim.	Overall Liftgate Dim. H"xW"
102" Wide Body	100-7/16"	90-3/8"	84-5/8"	101-7/16"	90-5/16" x 101-7/16"

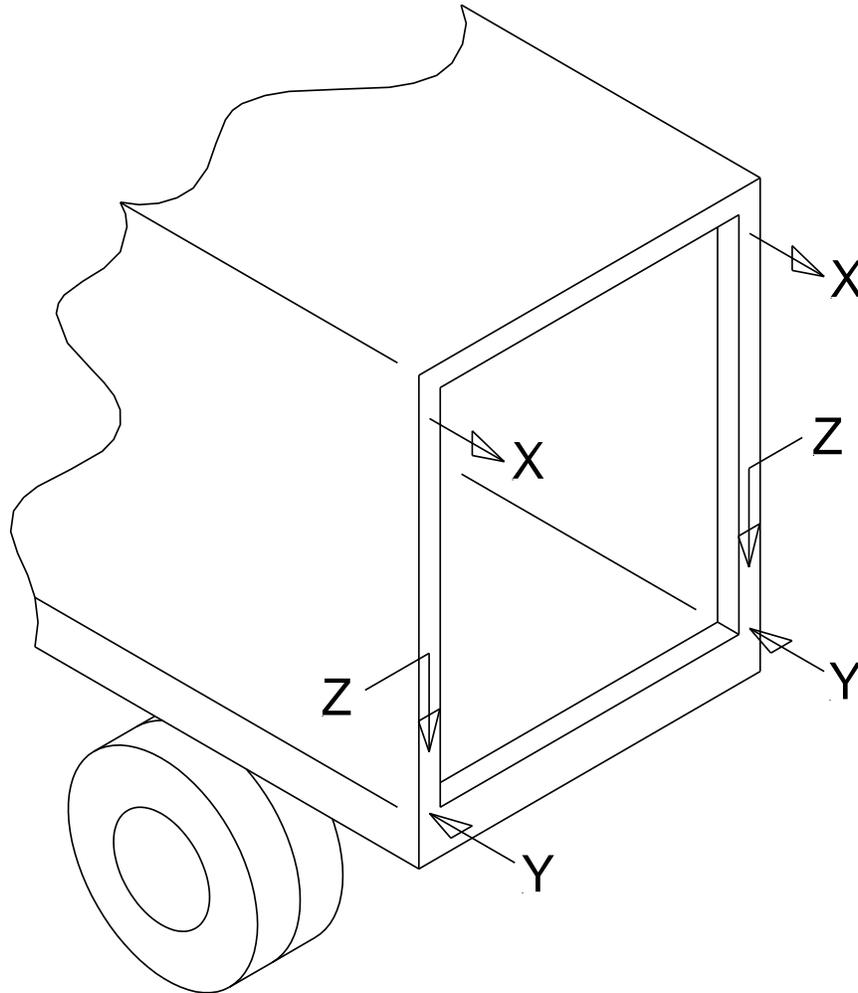


8.5 Strength Requirements

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.



Side Wall Requirements				
	PTV 35	PTV 44	PTV 55	PTV 66
X = Side Wall Tension	1900 lbs.	2400 lbs.	2950 lbs.	3500 lbs.
Y = Side Wall Compression	1900 lbs.	2400 lbs.	2950 lbs.	3500 lbs.
Z = Side Wall Shear	2700 lbs.	3100 lbs.	3800 lbs.	4300 lbs.

9 Body Preparation

In order to install your PTV 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 PTV installations. Rear of body should be 90° to ground.

9.1 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 the support materials from the rear sill of the 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 the under ride bumper, trailer hitch, or other auxiliary equipment do not extend rearward of the rear sill. Use the following illustrations as a guide. A more detailed explanation can be found in the following sections. **Fig. 2**.

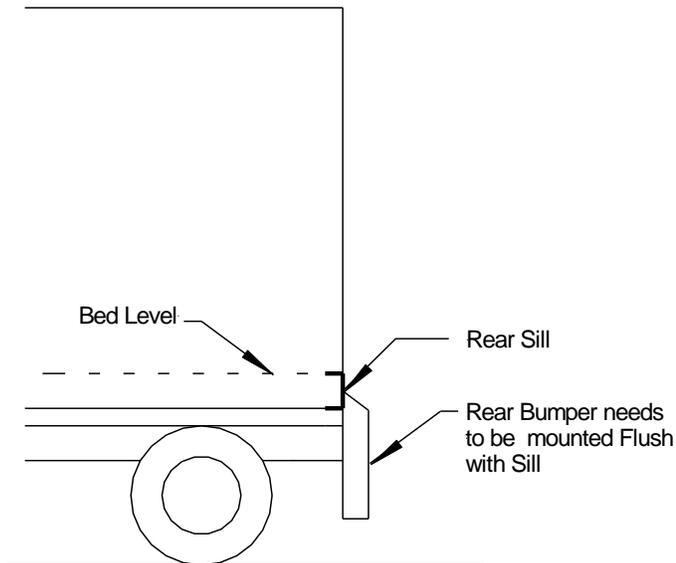


Fig. 1

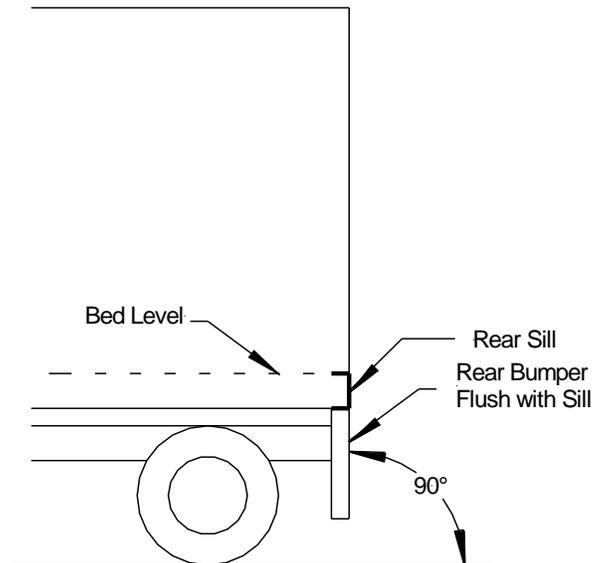


Fig. 2

9.2 Tow Hitch/Auxiliary Equipment

Steps:

1. Relocate Hitch (If applicable): Trailer Hitches are common truck or trailer equipment and are compatible with the PTV 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 truck body or trailer warranty.

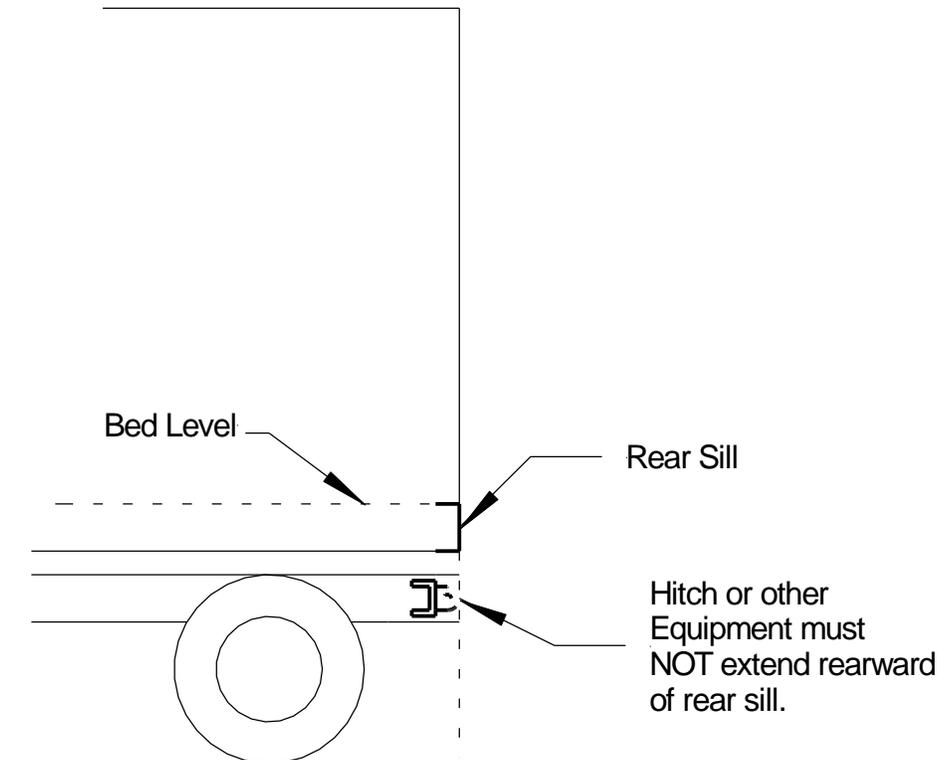


Fig. 3

9.3 Flush the Sill (Sub-Framing)

Steps:

1. Flush the sill: Some trucks or trailers may have configurations with irregularly shaped sills, **Fig.4**. The liftgate mounting surface may NOT be flush with the 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 in one of two ways; The sub-frame can be built up using correct size 3/16" or greater wall tubing before the liftgate is mounted. Or, the liftgate can be mounted into position and the sub-frame can be built as the liftgate is installed with 3/16" or greater flat bar. **Fig. 5**. In either case, the liftgate installation weld procedure does not change.

These examples are show below:

Flushing the floor or filling the gap between the sill and liftgate can span up to 6" without cross supports. Use 1/4" thick or greater flat bar or diamond plate to span gap. The original width of the truck frame should be matched as closely as possible.

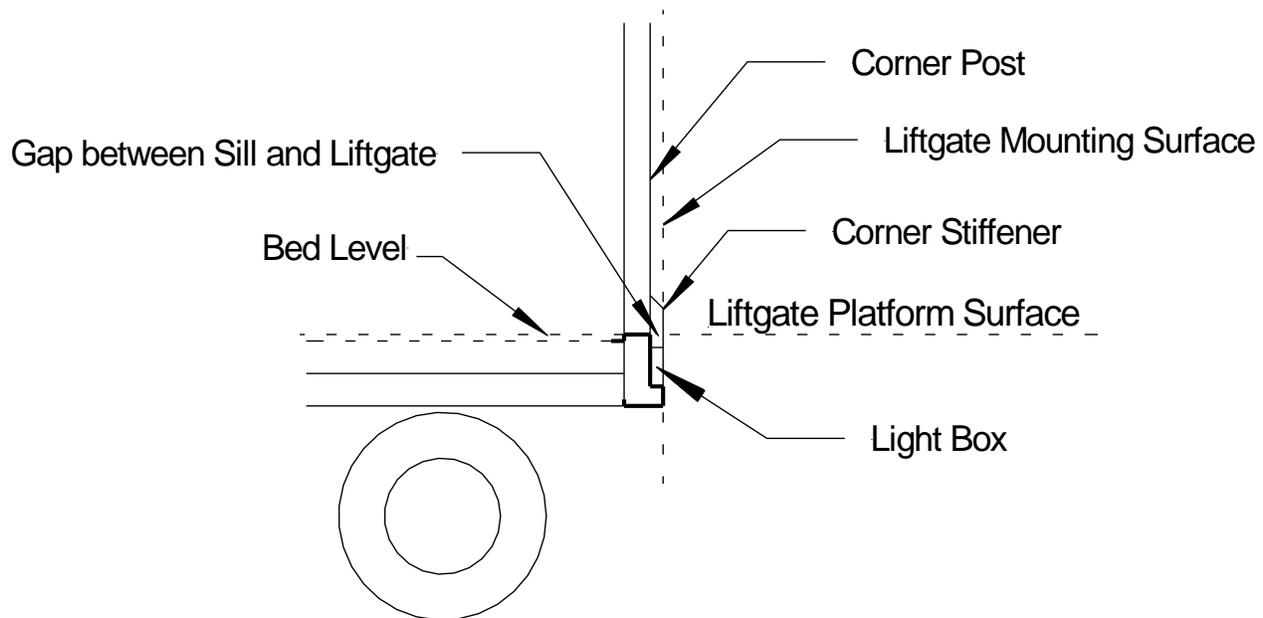


Fig. 4

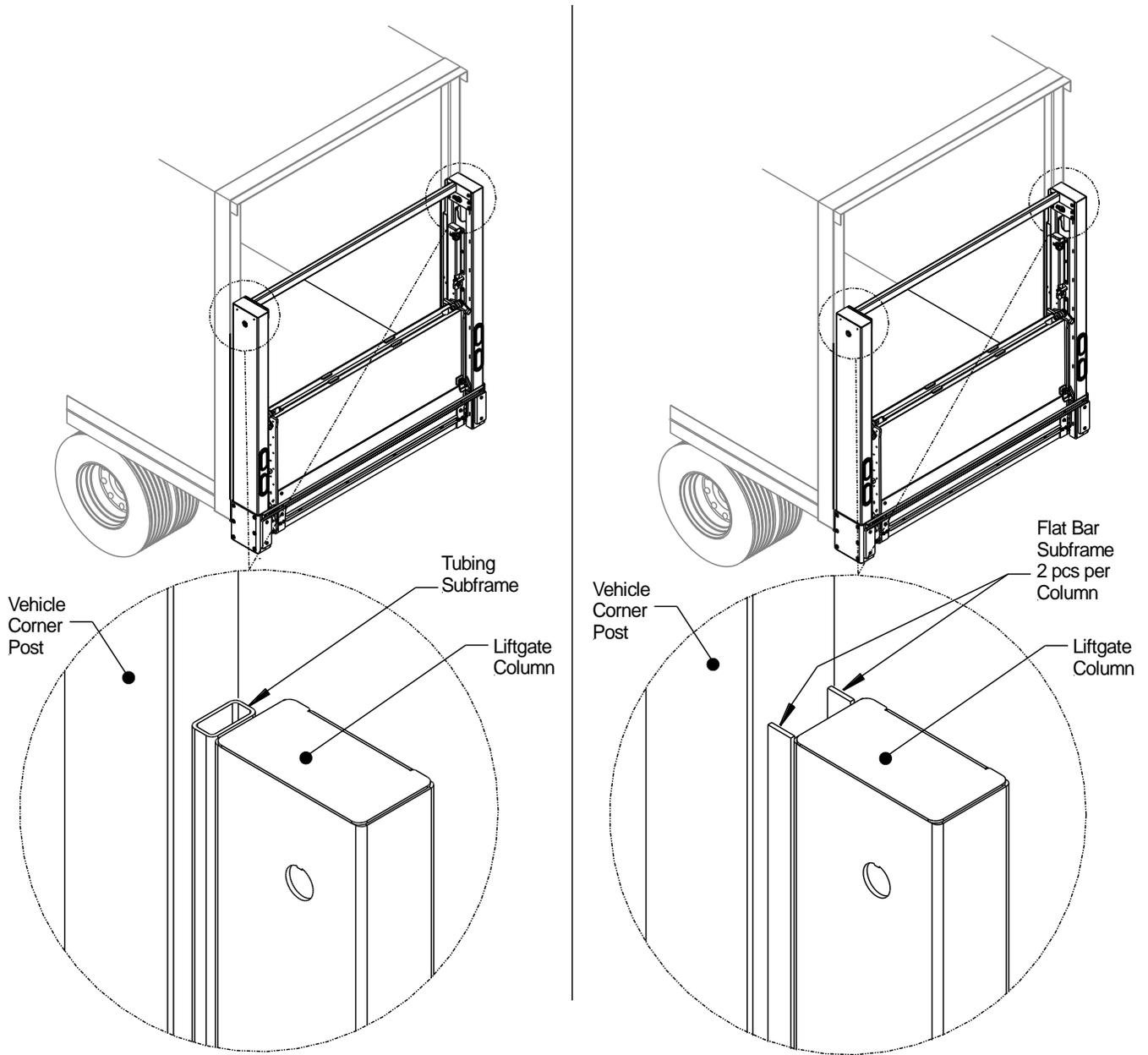
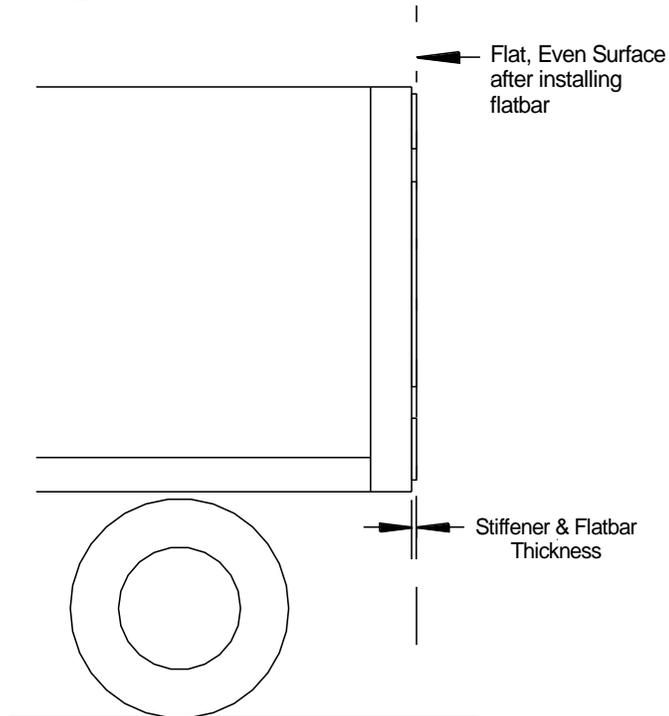
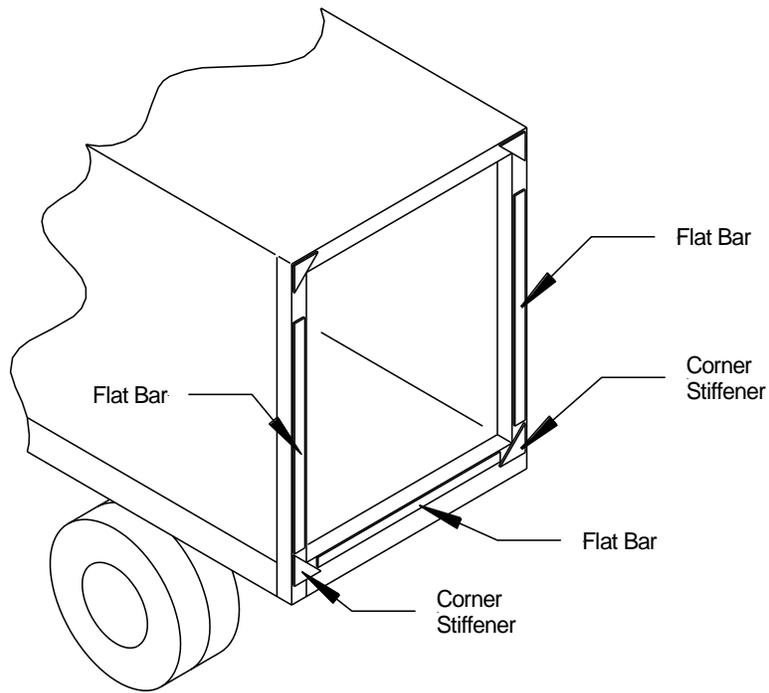


Fig. 5

Flat Bar Posts (if necessary): Corner stiffeners are common and should NOT be removed. It is recommended to use "flat bar" with the same thickness as the stiffeners, typically 1/4" to 3/8" thick x 3" wide. The liftgate Installation weld procedure is the same.

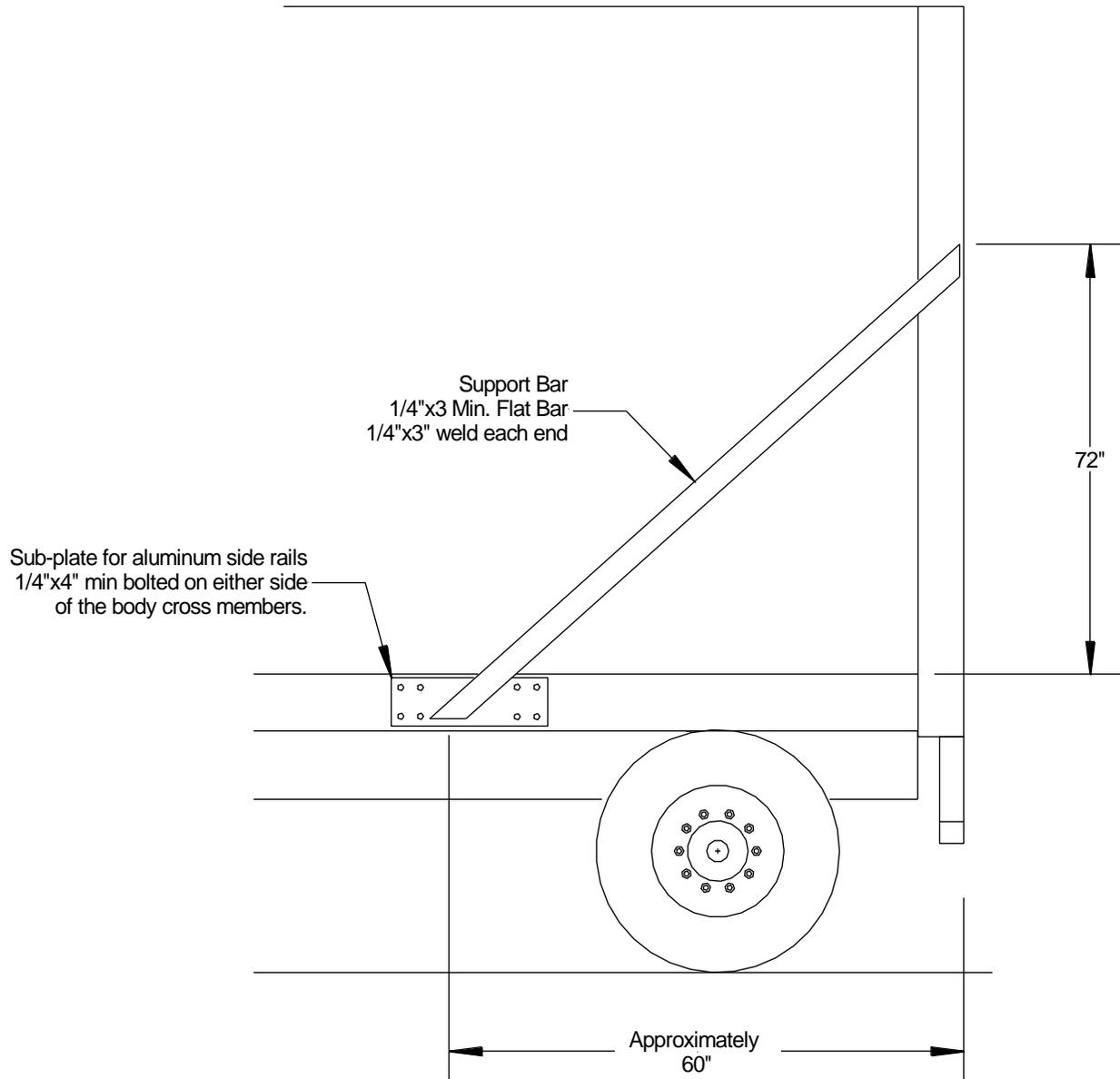


9.4 Support Body

Side supports can be used to strengthen the body.

Steps:

1. Add body supports (If necessary): If extra support is required, add support bars as shown below. Flatbed installations may use a similar arrangement with 3/16" x 4" x 4" min. rectangular tubing for corner posts and 3" channels for support bars.



10 Liftgate Preparation

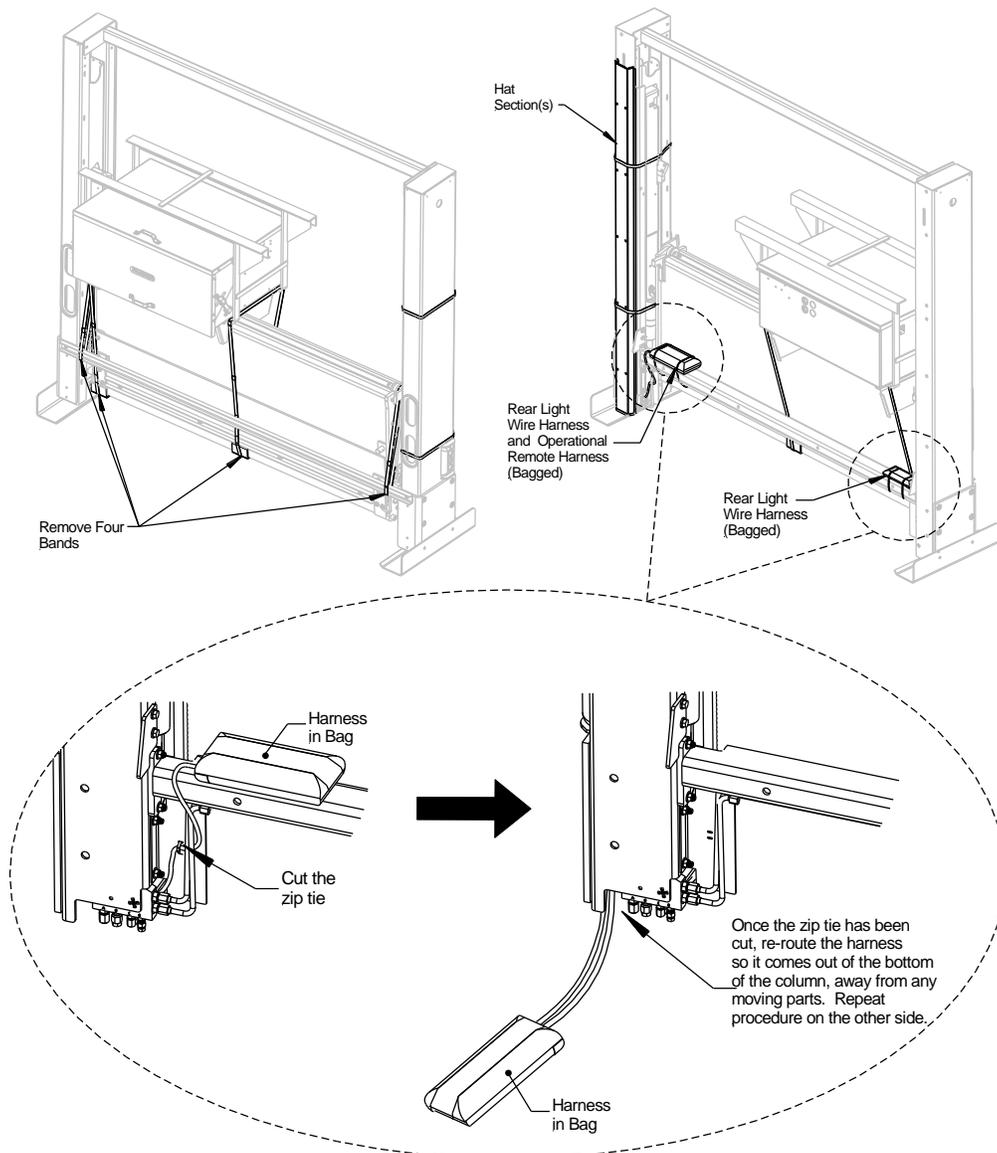
⚠ WARNING

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

10.1 Liftgate Preparation

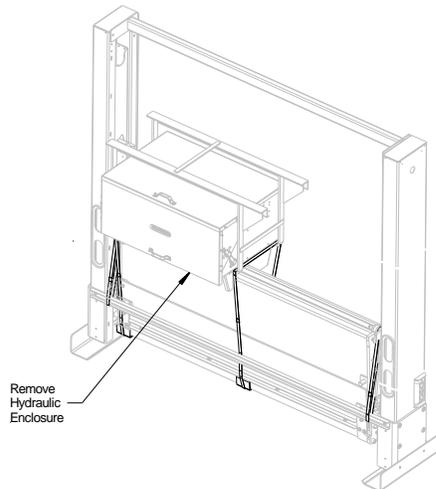
The PTV liftgate comes with multiple assemblies and components attached that need to be removed prior to installation. Prepare the liftgate for installation by removing the following components and assemblies.

1. Remove Shipping Bands: Remove bands. Cut the bands from the front and rear of the liftgate. The hat section(s) are banded to the column, cut the bands to remove hat sections. The light and control wire harness are bagged for protection, cut the bands and leave the harnesses in the bag until ready to install.



2. **Remove Pump/Battery Box:** Remove the Hydraulic Enclosure from the liftgate. It is recommended to use a forklift to remove the hydraulic enclosure. Set the enclosure aside until it is required to be installed.

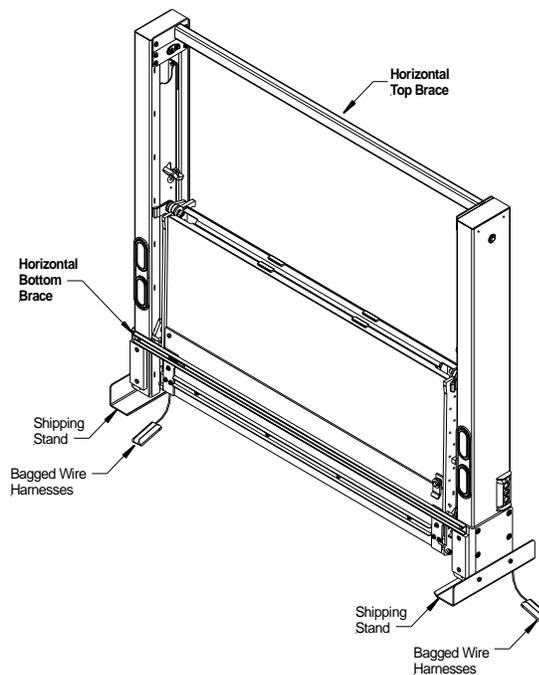
Attention: Be certain **NOT** to damage the hydraulic fittings located on the side of the enclosure.



3. **Liftgate Ready for Installation:** After removal of the shipping bands and the hydraulic enclosure, the liftgate is ready for installation as shown below.

⚠ WARNING

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



NOTICE

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.

11 Liftgate Mounting

CAUTION

This manual features installation procedures for “Weld-On PTV” and “Bolt-On PTV” liftgate models. Before continuing with the installation, identify what PTV model is to be installed.

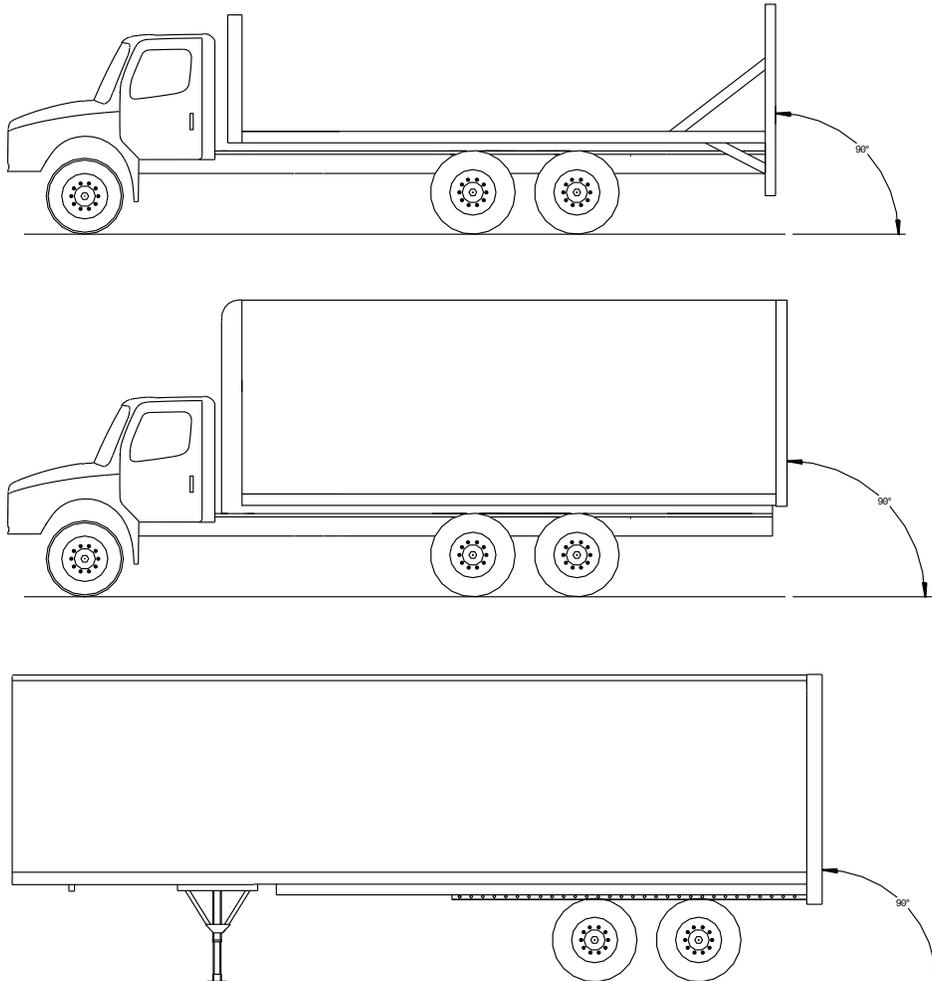
11.1 Mounting the Liftgate (Standard Installation)

NOTICE

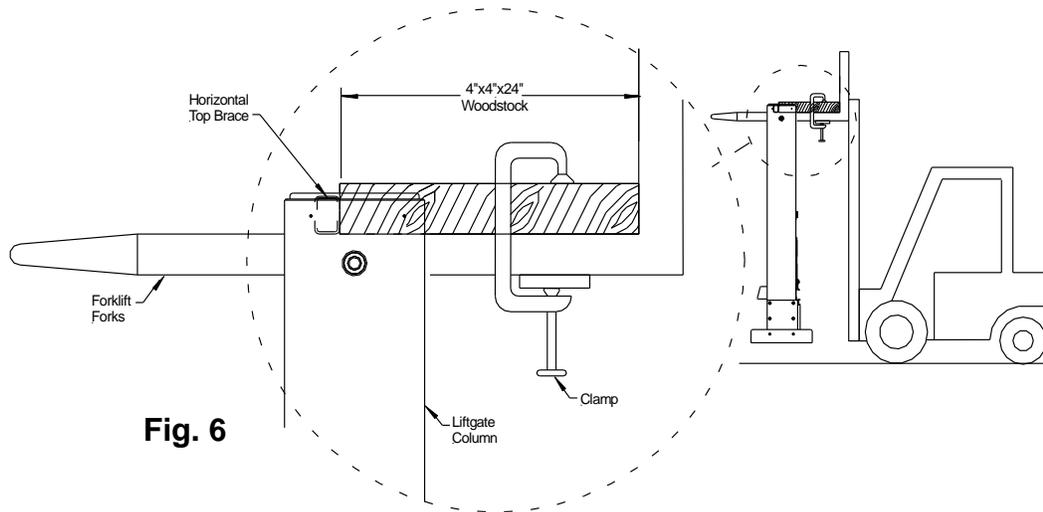
Before positioning the liftgate; consider when measuring and centering the liftgate that the truck or trailer may NOT be perpendicular to the ground. Special care must be taken to ensure that the liftgate is perpendicular to the ground before welding.

Steps:

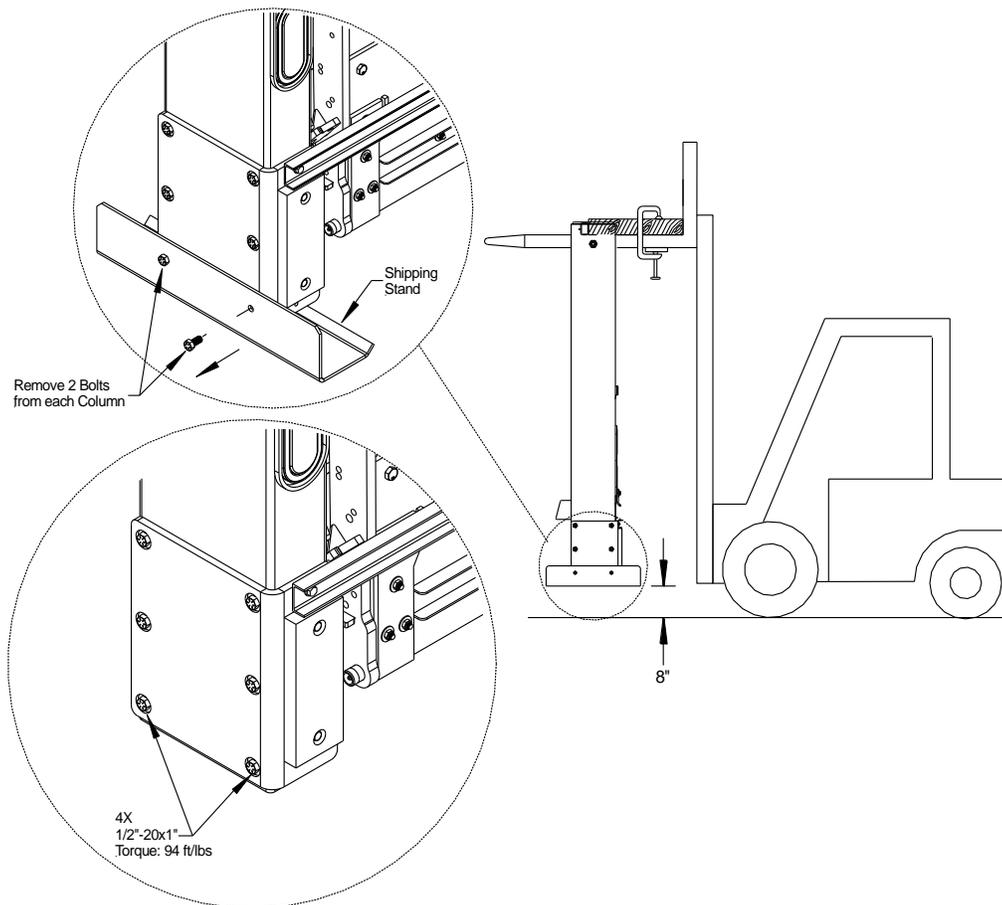
1. Level Vehicle: The vehicle must be on level and even ground. Uneven ground will give misleading measurements and can cause body twist or raking.



2. **Make sure the liftgate is properly secured:** Ensure that the liftgate is attached safely to the lifting device. If using a forklift to hoist the liftgate, use 4"x4" 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.



3. **Remove Shipping Stand:** Hoist the liftgate approximately 8" off the ground and remove the two (2) bolts located on the outside of the shipping stand for the street and curb side columns. After removing the shipping stands, install two (2), 1/2"-20x1" bolts on each column, torque bolts to 94 ft/lbs.



NOTICE

Before positioning the liftgate against the vehicle, open the vehicle's rollup door. The full weight of the liftgate should be supported by the lifting device, and not the alignment plates, Fig 7. Do not remove the lifting device.

4. Fit Liftgate Against Truck: Use a forklift (recommended) to position the liftgate flush against the vehicle's corner posts and sill.

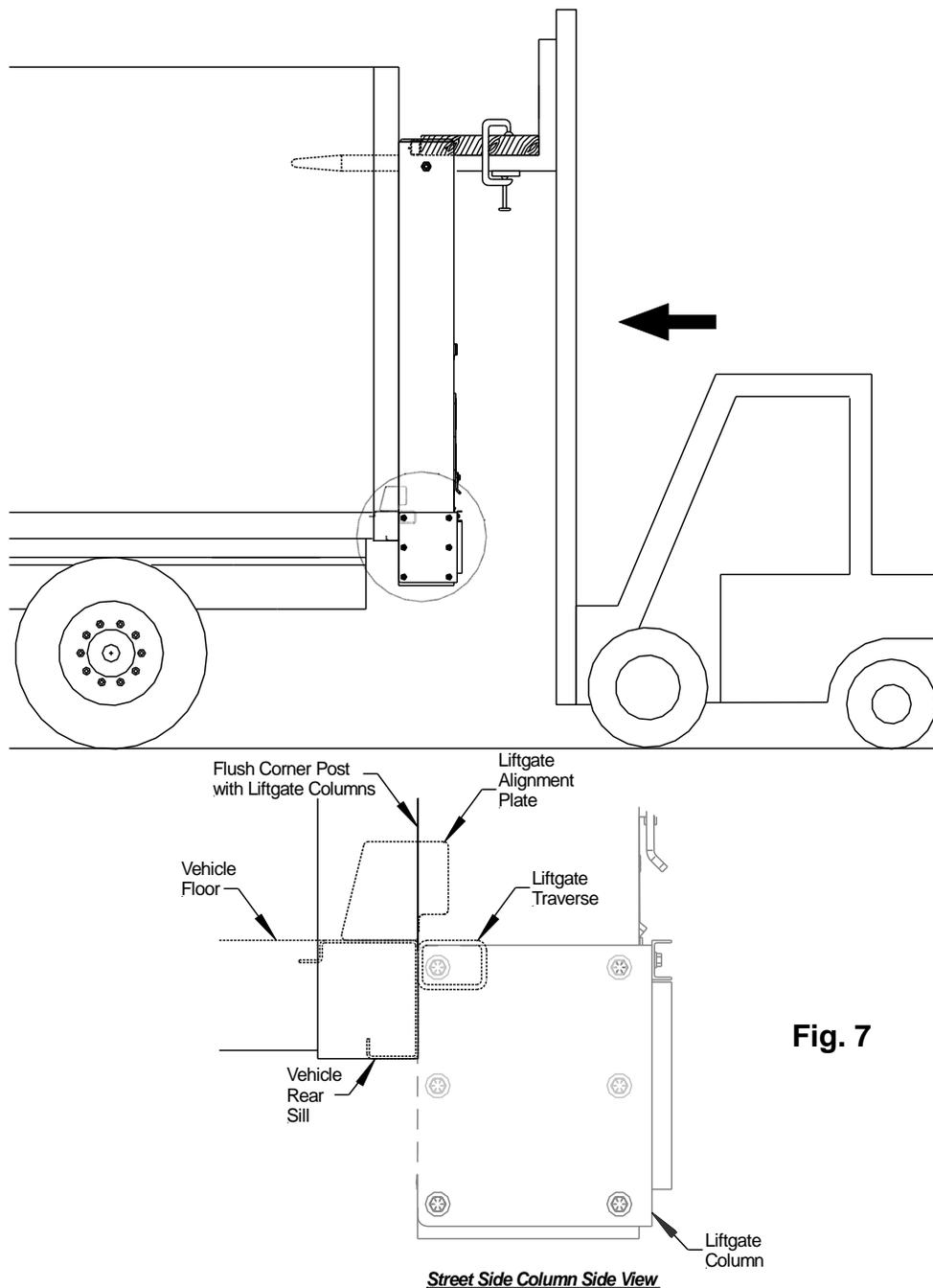
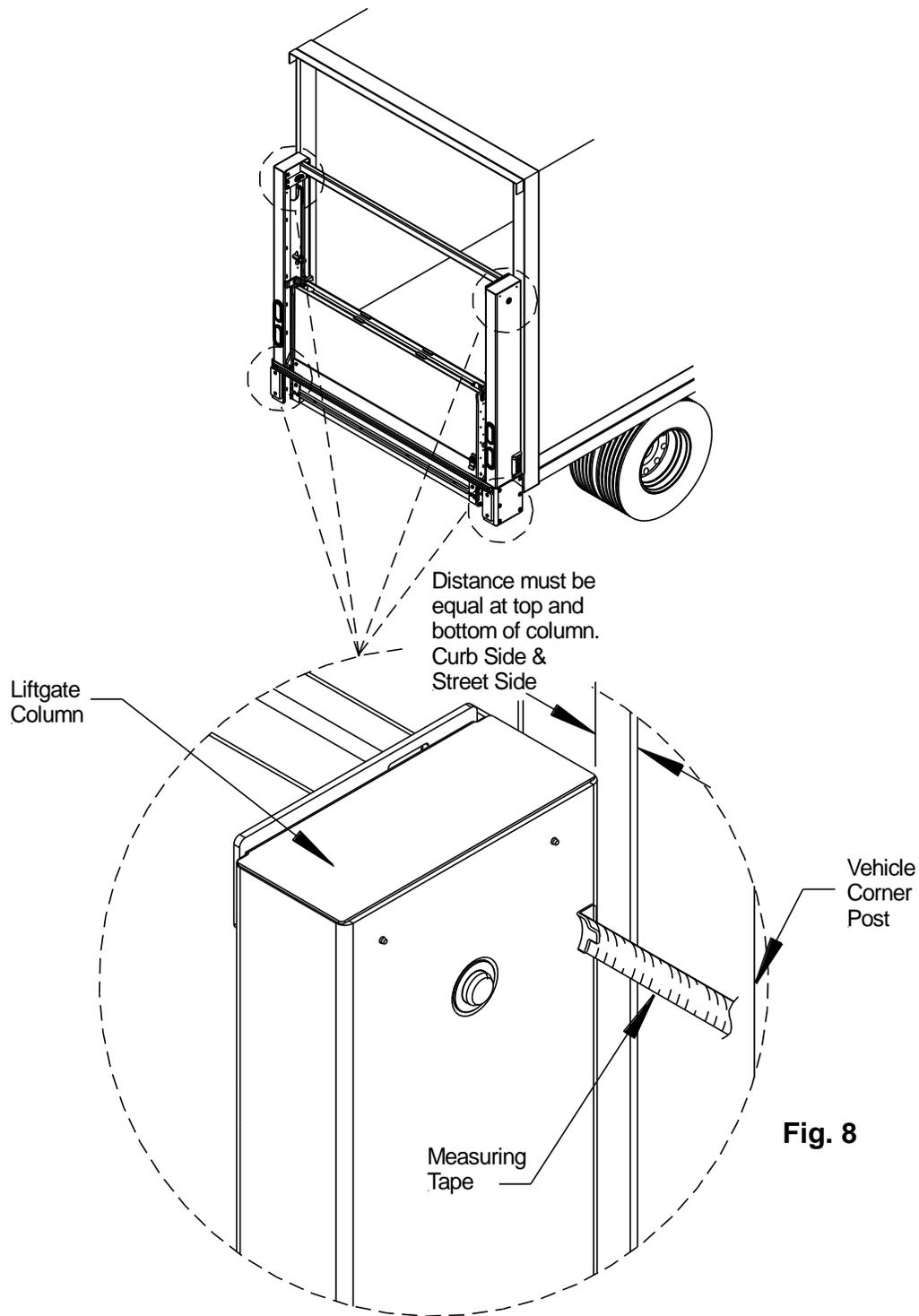
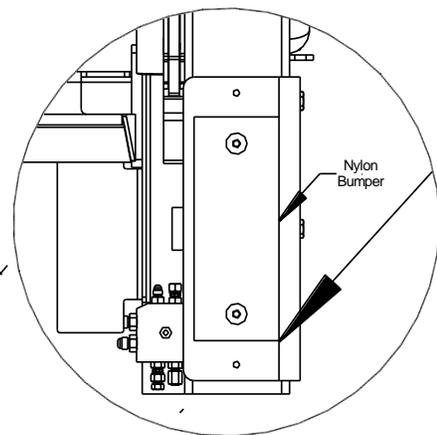
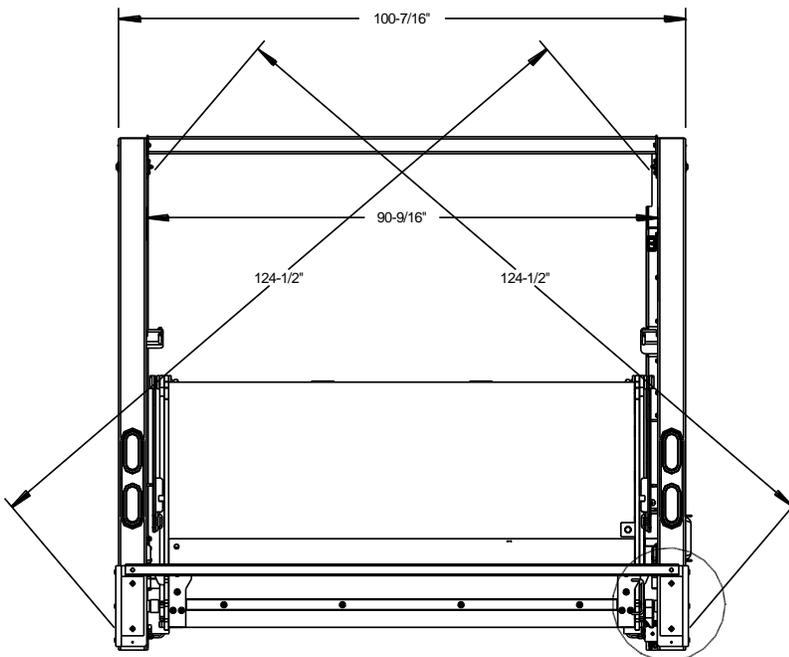
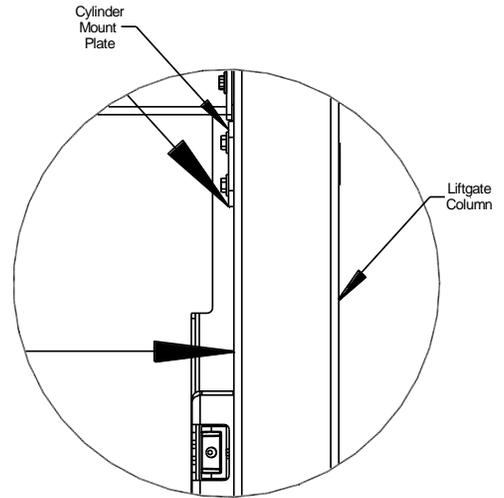
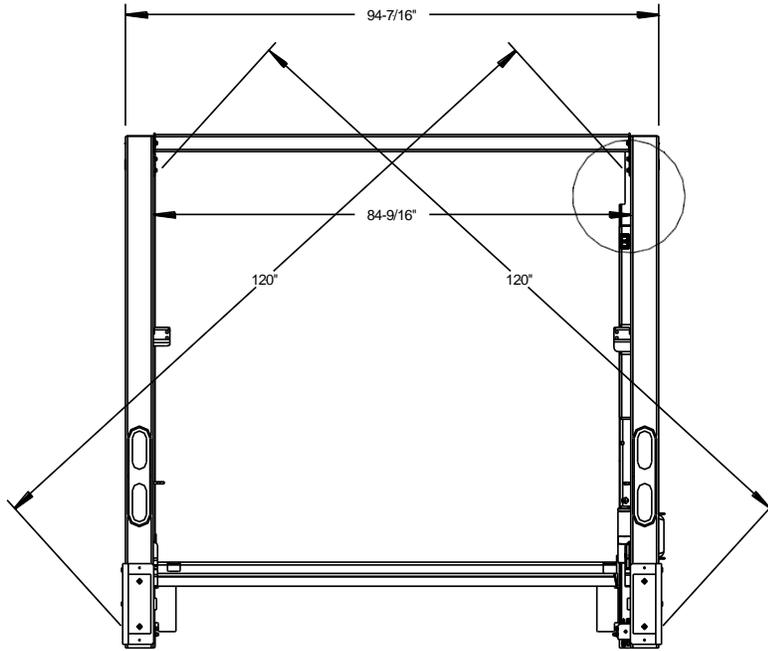


Fig. 7

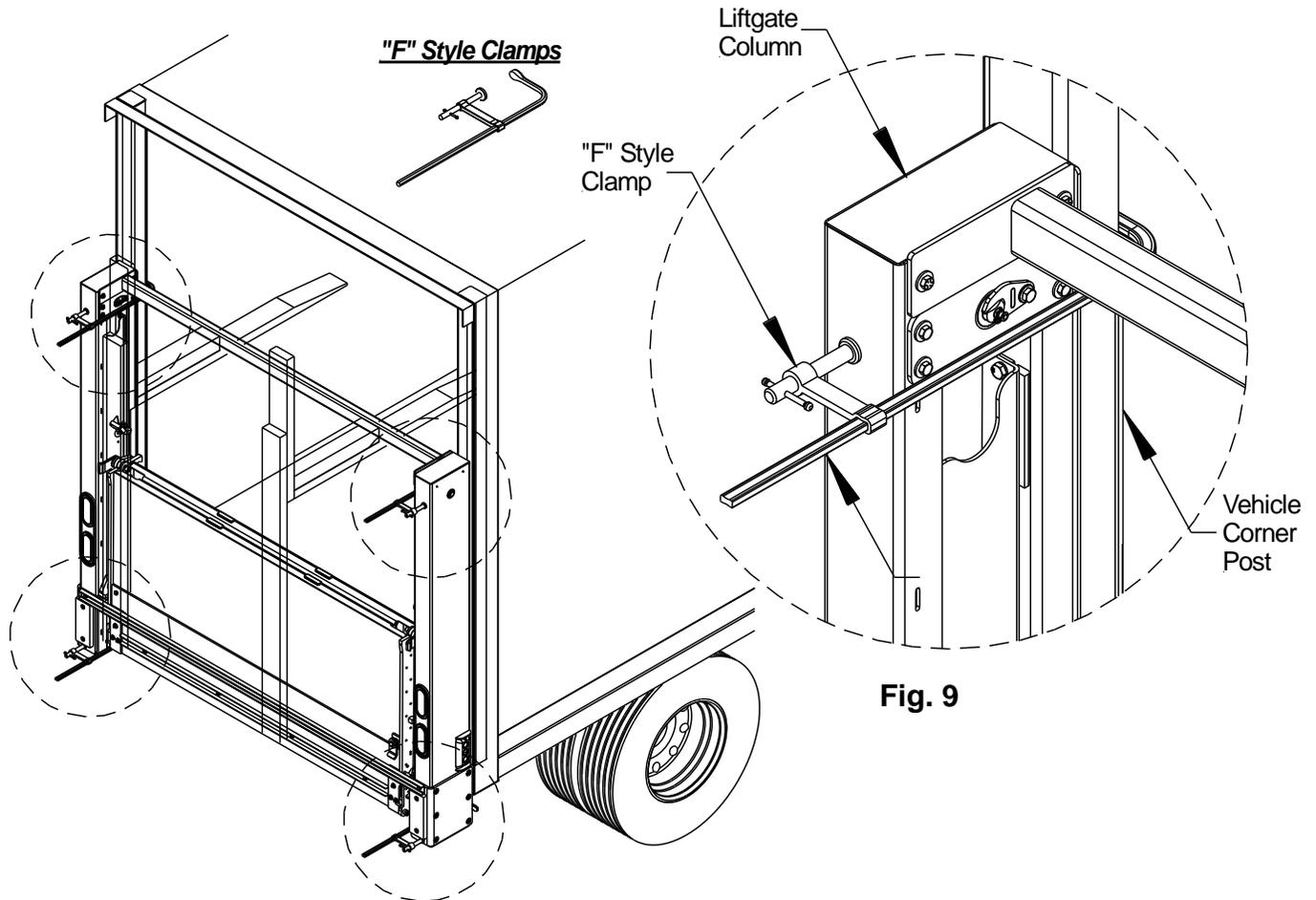
5. Centering the Liftgate to Vehicle: After positioning the gate against the vehicle, measure the distance from the edges of the columns to the edges of the vehicle using a measuring tape. Measure at the top of the columns and the at bottom, both measurements must be the same, **Fig. 8**. If both sides don't measure equally, shift the liftgate as required.



6. **Check Dimensions:** Inspect liftgate to be certain the columns are square and parallel. Use a framing square to verify columns are square at 90° to the vehicle's sill and body. Measurements should reflect dimensions below when measured from the indicated points.



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, check to ensure that the floor and traverse are flush, and that the columns are flush to the vehicle.



NOTICE

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

WARNING

Do not remove lifting device (forklift/crane/other) until instructed.

11.2 Liftgate Welding

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 welding, Fig. 10.

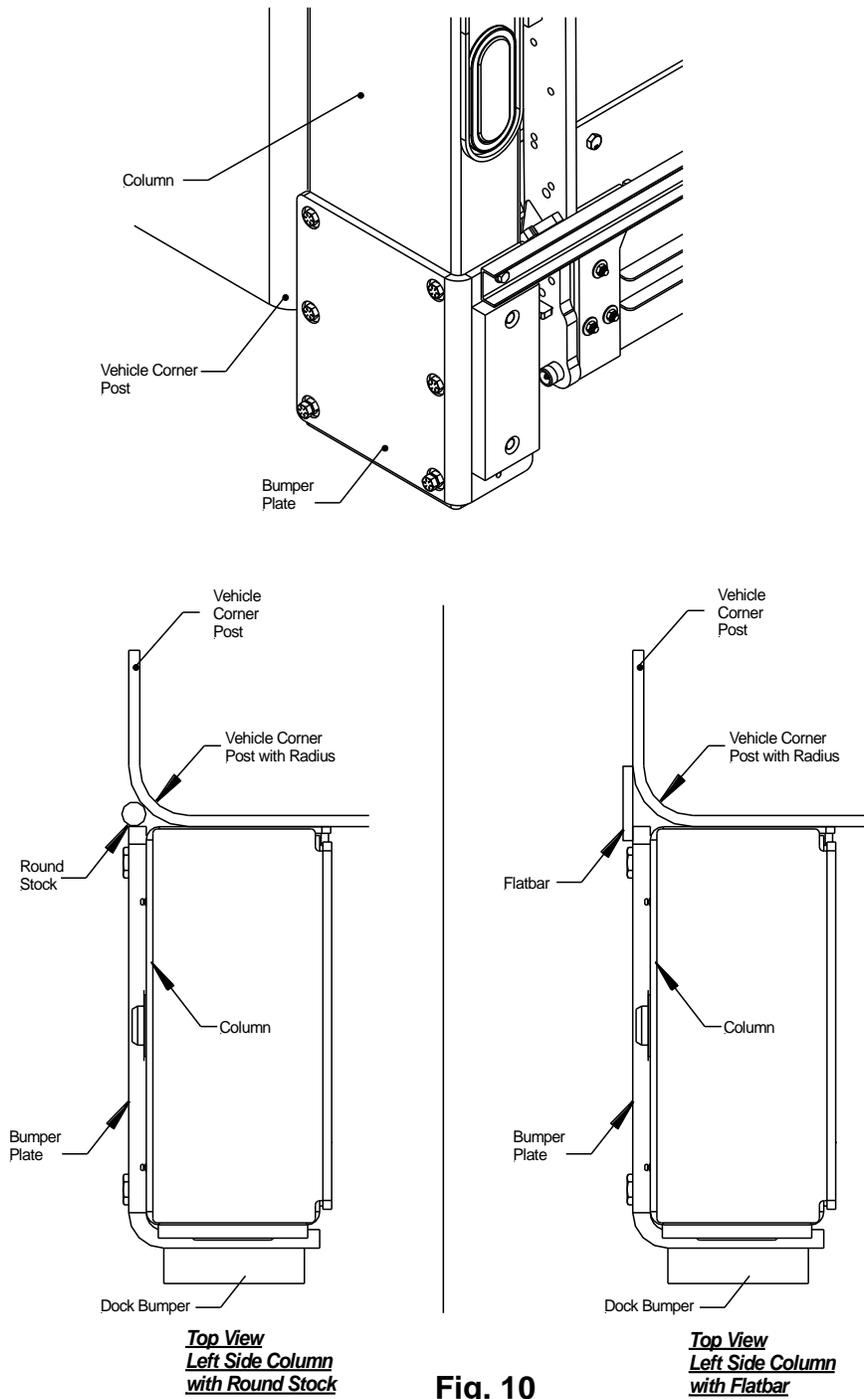
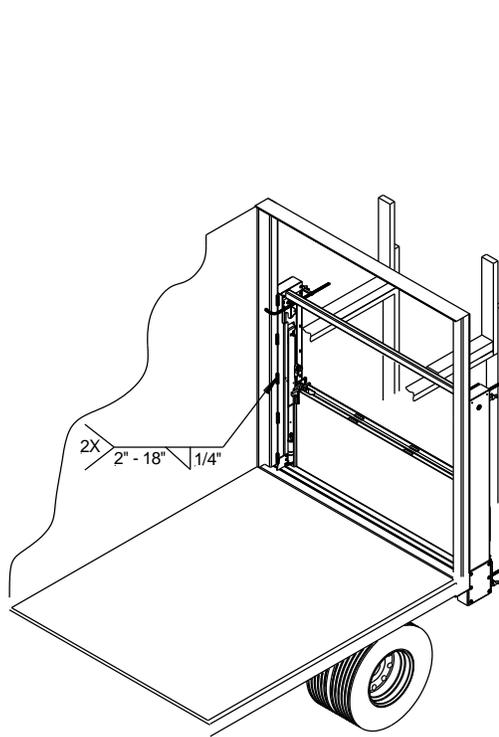


Fig. 10

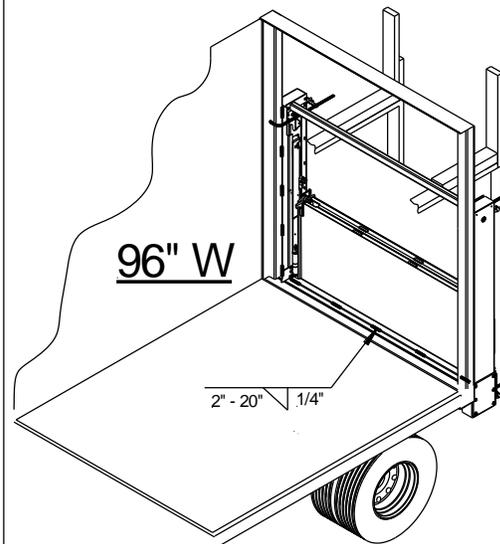
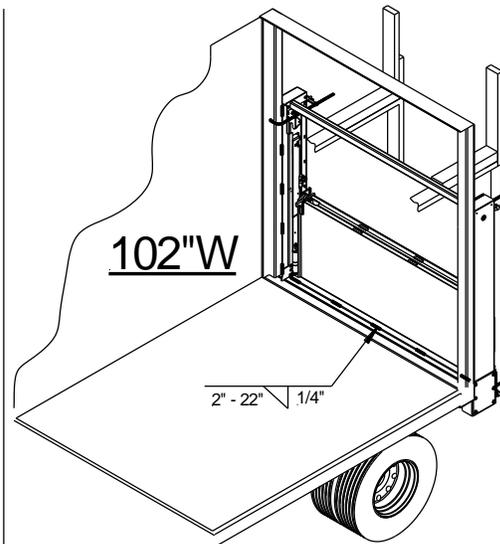
Steps:

NOTICE

1. **STOP** and recheck all mounting dimensions.
2. **Inside Column Welds:** Weld inside of columns from top to bottom. Curb side column shown below, repeat welding procedure on street side column.
3. **Traverse Welds:** Weld traverse per vehicle width, 96"W or 102"W, as shown below. Do not weld the alignment plates.



Inside Column Welds



Traverse Welds

4. Column Welds (Outside): Weld the outside of the columns to the vehicle using a $\frac{1}{4}$ " weld on the dock bumpers as shown and $\frac{1}{4}$ " x 3" welds, 5 places evenly spaced on columns top to bottom. Do not weld near the control area. **Fig.11.** Repeat welding procedure on the street side column.

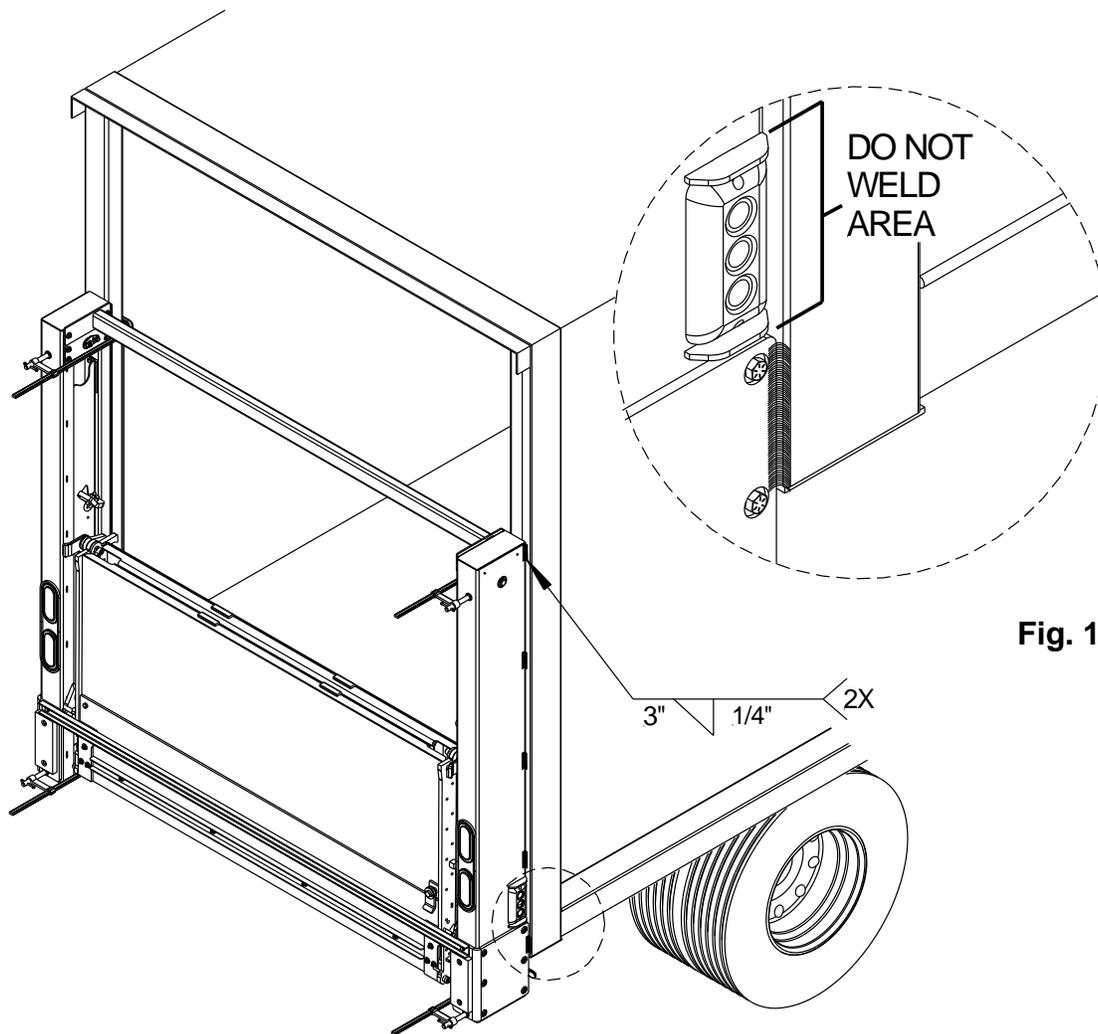
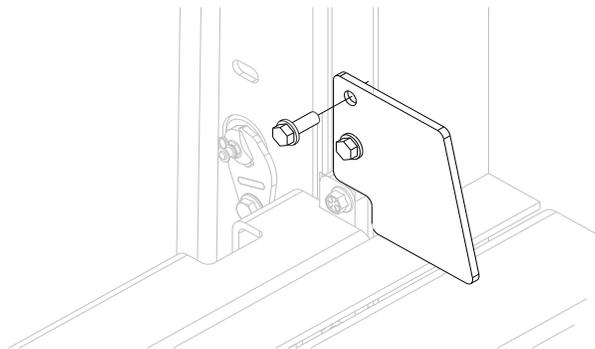
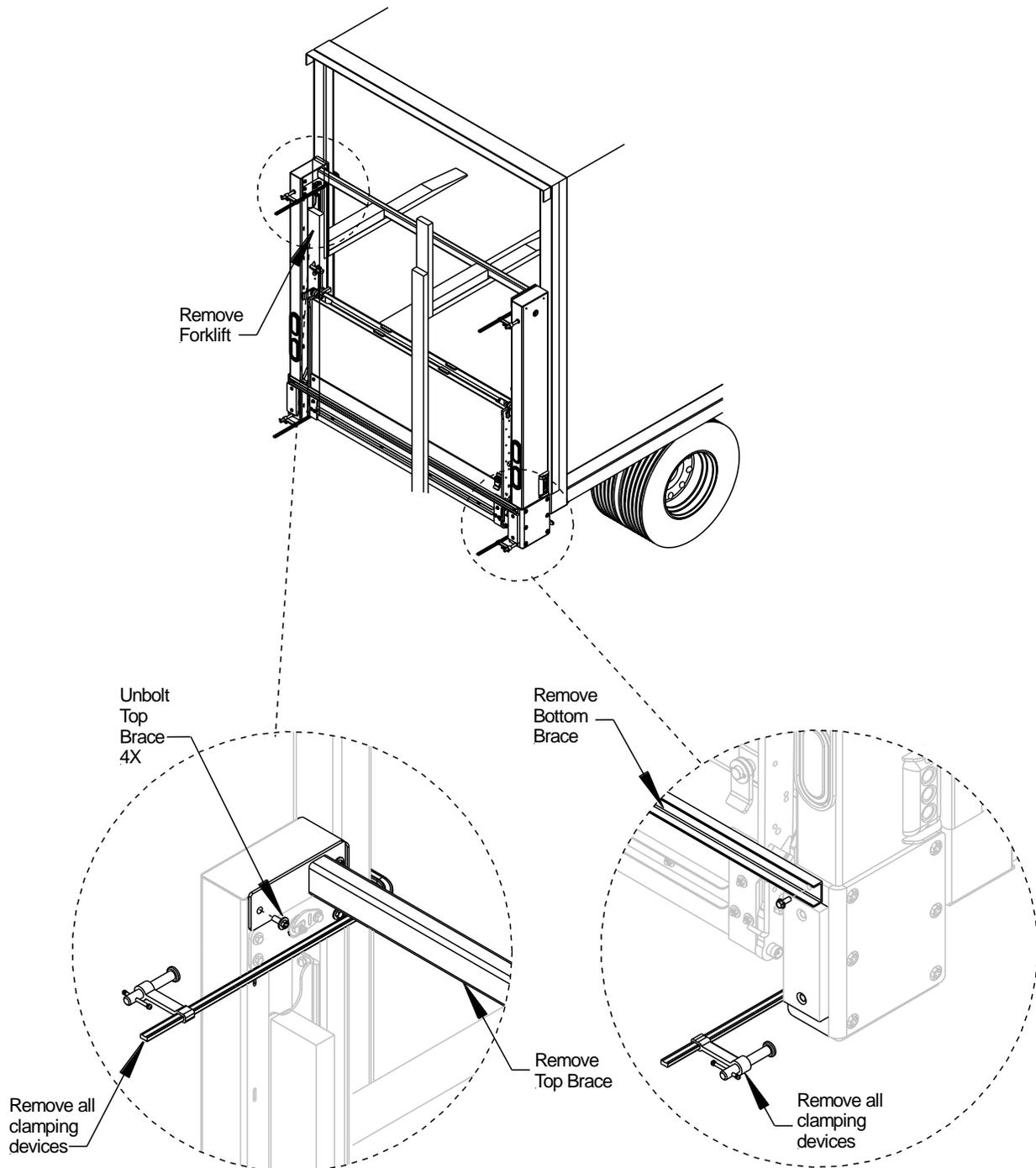


Fig. 11

5. Remove Alignment Plates: Remove the bolts securing the alignment plates, on the left and right side.



6. Remove Forklift Fork, Bracing and Clamps: First remove the forklift. Second remove the clamps, and finally remove the liftgate braces.



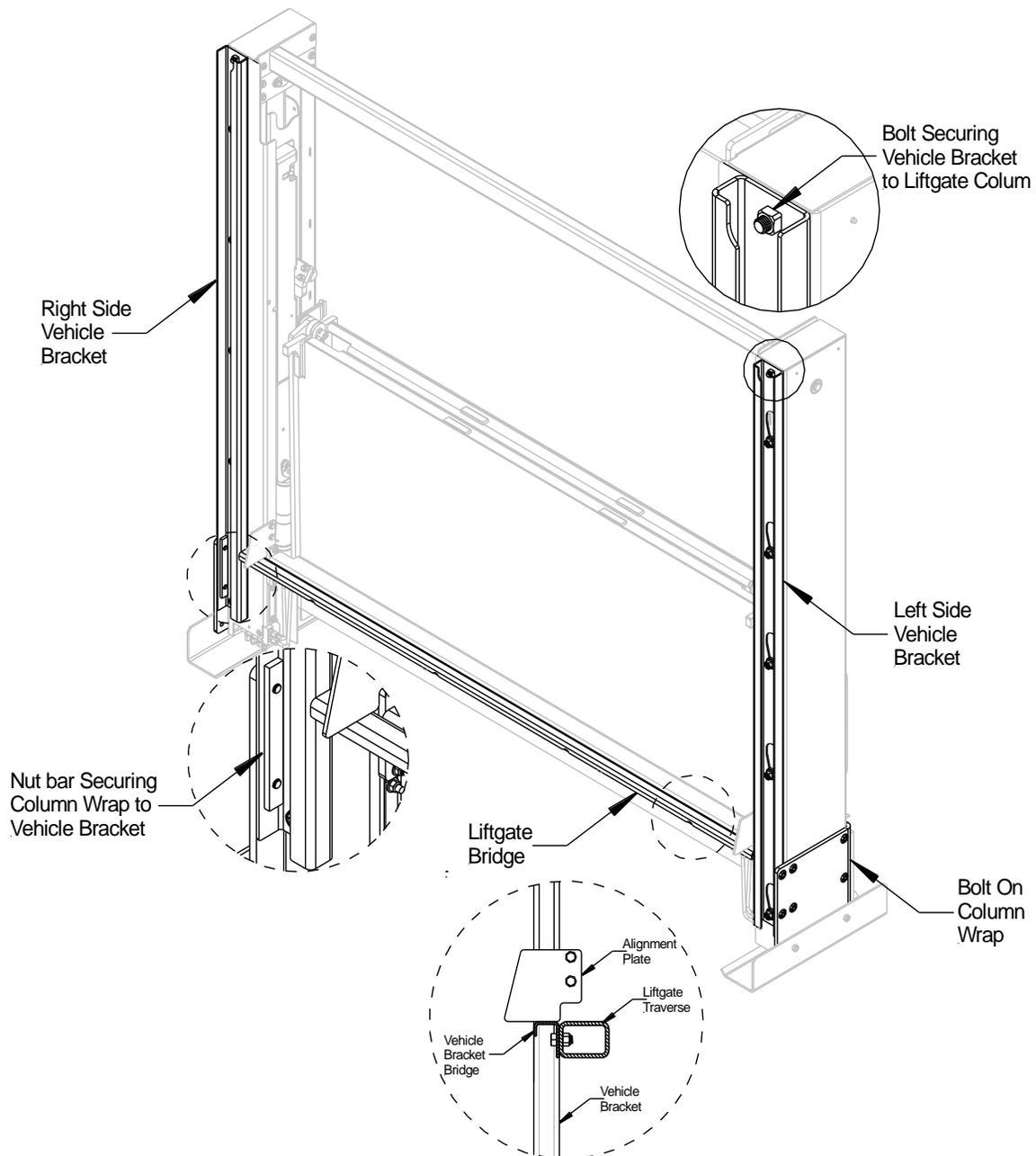
7. Gate Mounting Complete: Standard lifegate mounting is now complete, proceed to hydraulic installation.

11.3 Bolt-On Liftgate Installation (Optional)

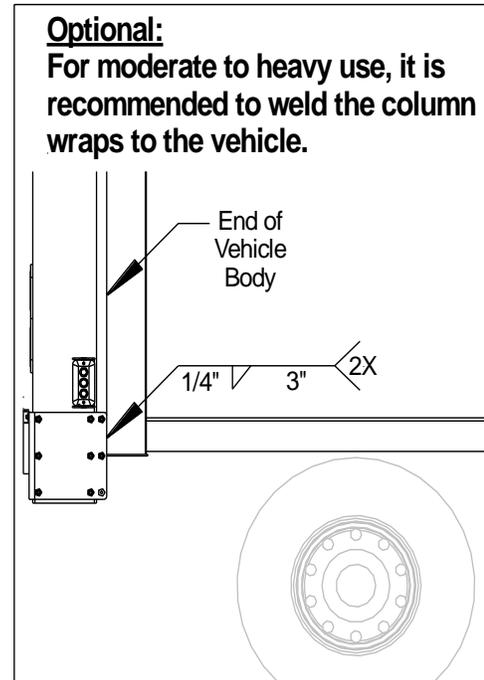
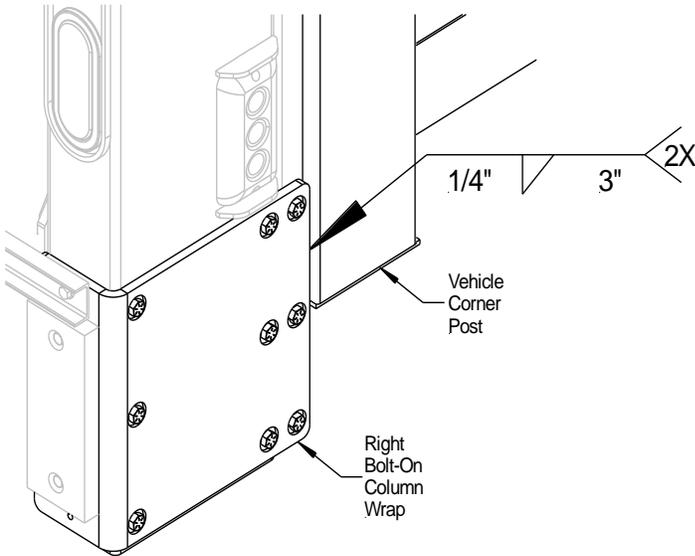
The bolt-on mounting system is installed by using one of the two methods described below: Factory Installed Vehicle Brackets or Customer Installed Vehicle Brackets.

11.3.1 Factory Installed Method

1. Factory Installed: The liftgate arrives from the factory with the Vehicle Brackets installed on the liftgate. Vehicle Brackets will be secured to the liftgate columns at the top and bottom with bolts.

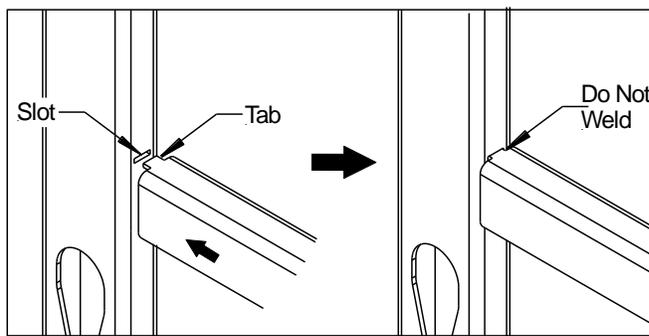
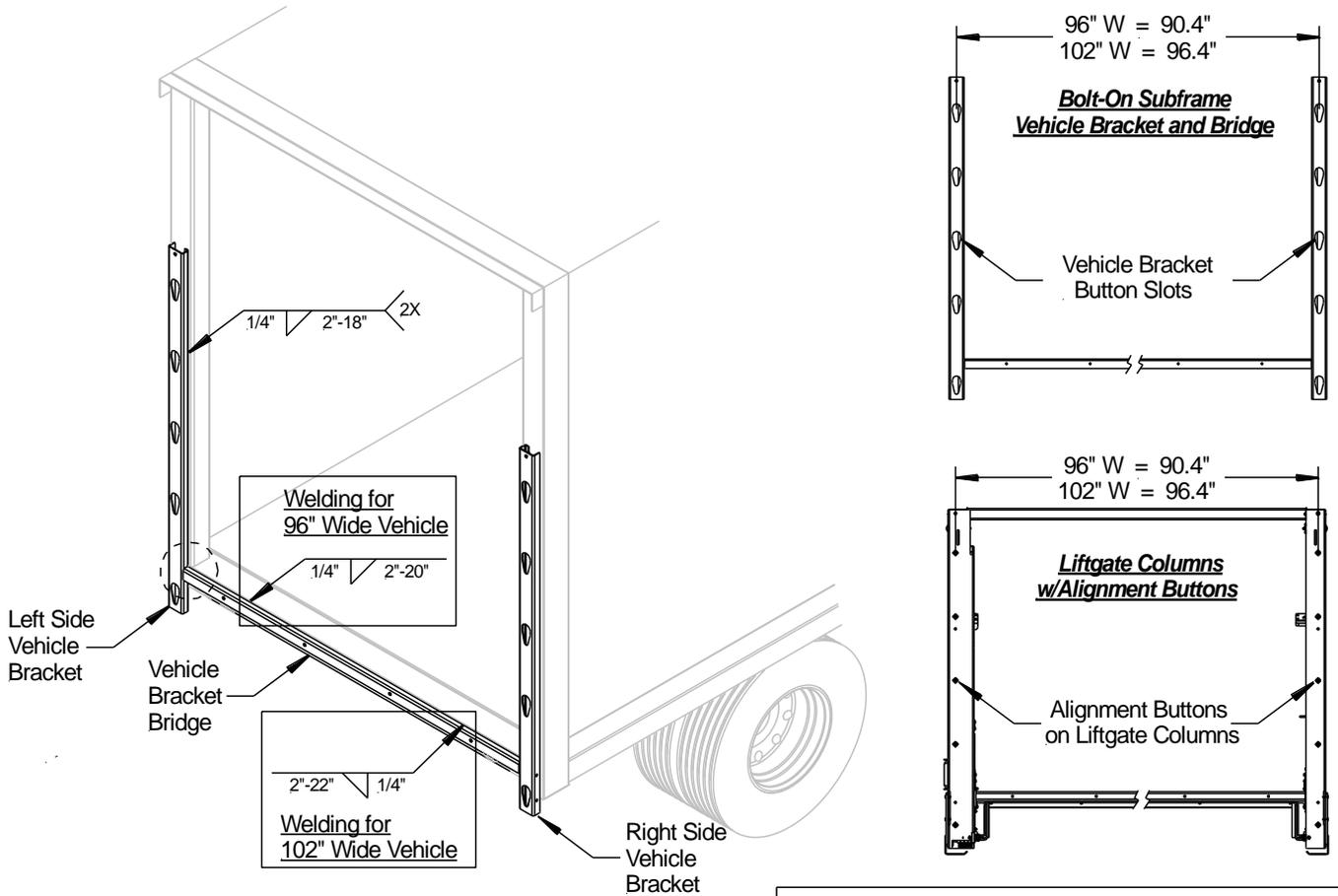


2. **Installing the Liftgate:** The installation process is the same as the Weld-On version of the liftgate. Follow the Preparation, Mounting, and Welding procedures from Sections 10 & 11.
3. **Finalizing Installation:** To finalize this method of installation, both column wraps on the liftgate must be welded to the vehicle in the location shown below.

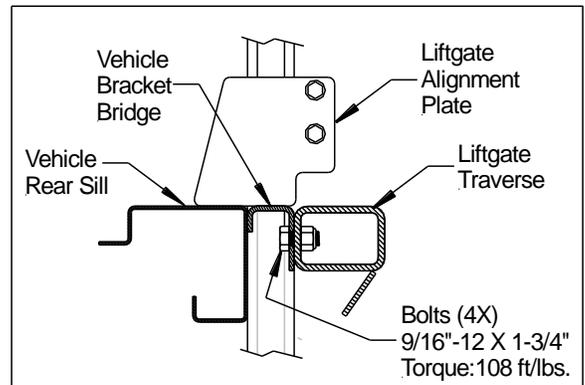


11.3.2 **Customer Installed Method**

1. **Customer Installed:** The Vehicle Brackets are shipped before the liftgate for pre-installation to the vehicle done by the customer/installer. The Vehicle Brackets are to be dimensioned and welded as shown below before the arrival of the liftgate.

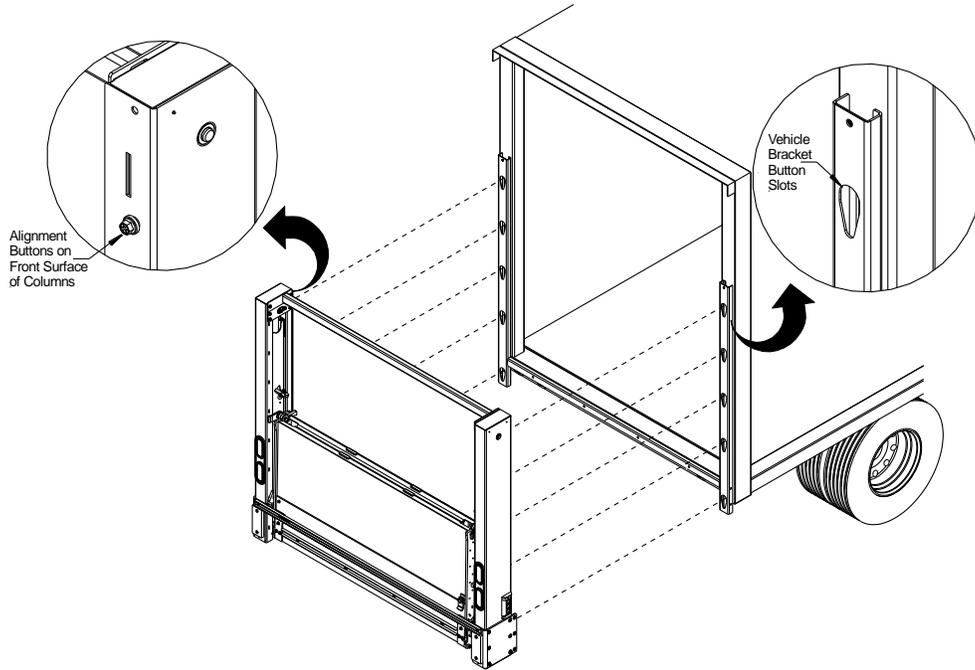


Vehicle Bracket Assembly with Vehicle Bracket Bridge
The slot and tab are intended for assembly of the bridge and vehicle bracket.

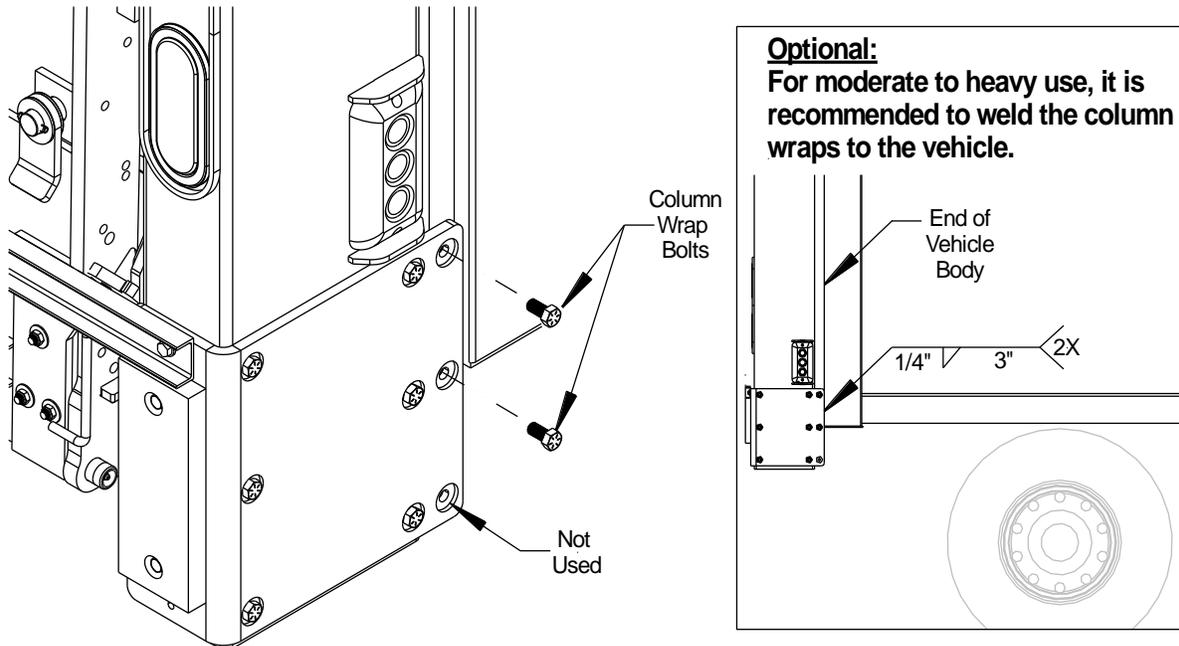


Vehicle Bracket Assembly w/Vehicle Bracket Bridge
Section view of vehicle sill, liftgate alignment plate, bolt-on vehicle bracket bridge, and liftgate traverse, bolts that secure the bridge to the traverse.

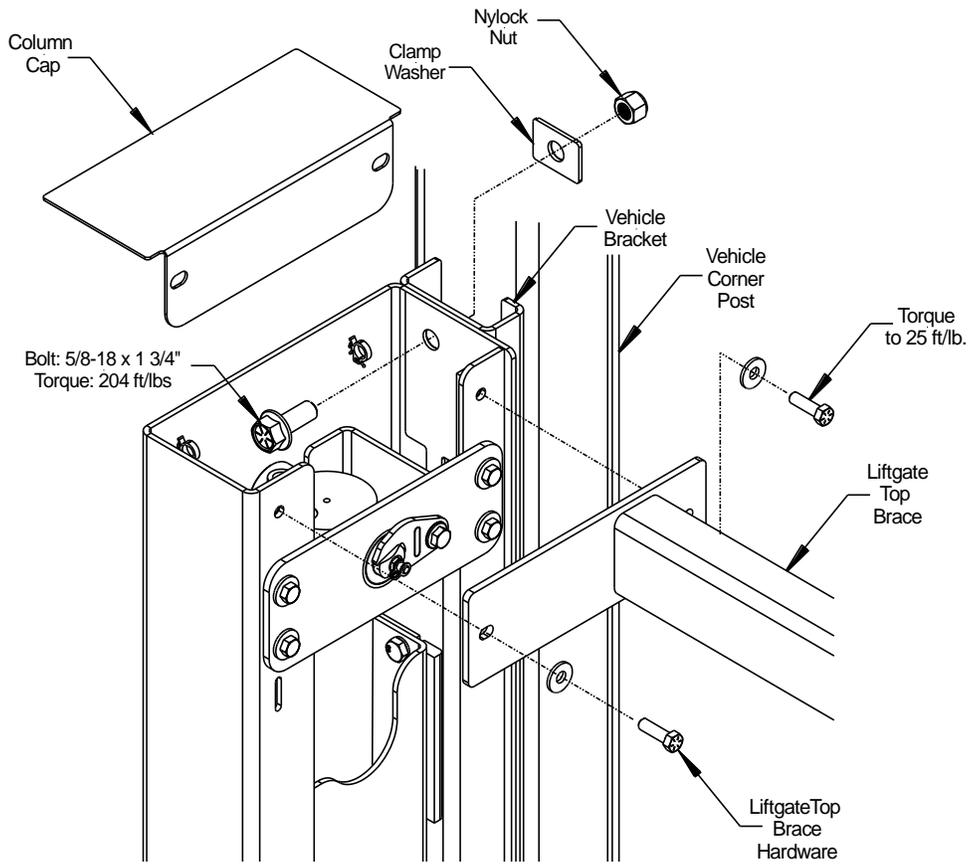
2. **Installing the Liftgate:** The liftgate will be pre-equipped from the factory with alignment buttons installed on the front side of the columns. To install the liftgate to the Vehicle Brackets pre-installed on the vehicle, lift/hoist the liftgate and align the alignment buttons with the mounting slots on the Vehicle Brackets. Slowly maneuver the liftgate buttons into the slots until the liftgate columns become flush with the Vehicle Brackets. Slowly lower the forklift forks/hoist so that all buttons are seated properly in the vehicle bracket slots.



3. **Bolting the Columns:** Use the provided bolts to prevent the column buttons from moving out of location on the vehicle bracket. Install two bolts on the right and left side columns to secure the bottom section of the vehicle bracket. Torque bolts to 94 ft/lb. Both column wraps must be welded to the vehicle as shown.

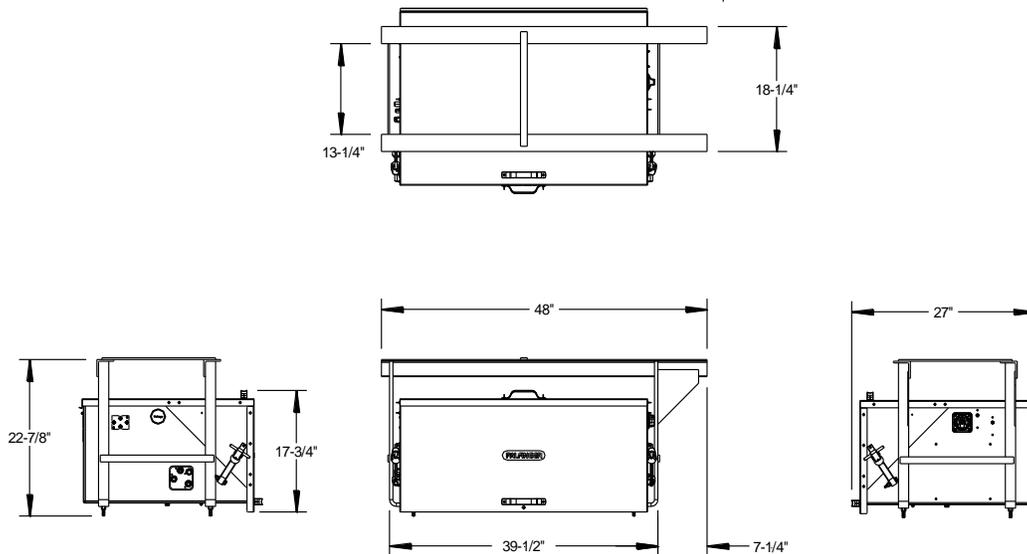


4. **Finalizing the Installation:** Remove the liftgate's top brace and column caps to install the 5/8-18 bolts that will secure the top section of the column to the vehicle bracket. After installing the bolt, reinstall the column caps back to the column using the same hardware. Torque 5/8" bolts to 204 ft/lbs.



12 Hydraulic Installation

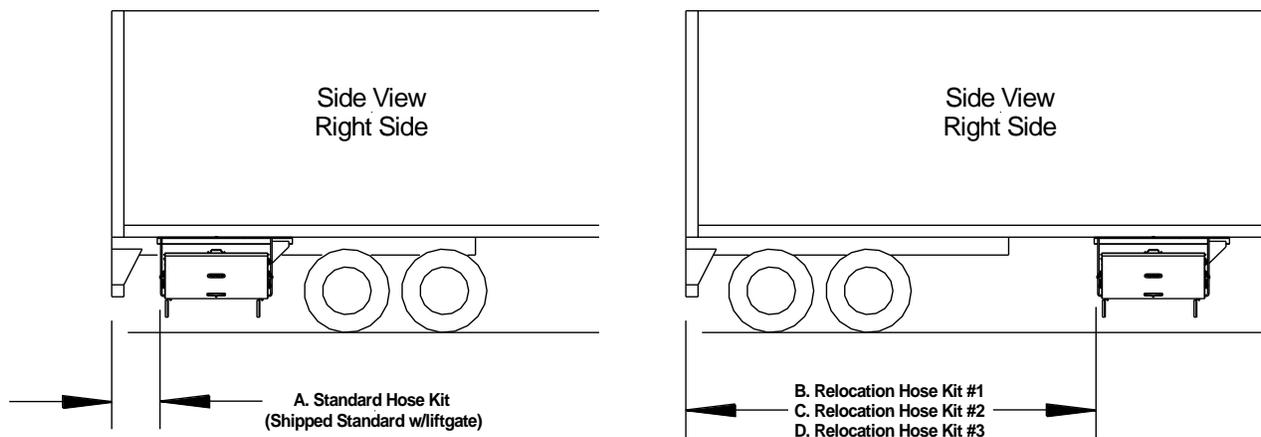
12.1 Hydraulic Enclosure - Dimensions



12.2 Hydraulic Enclosure – Hose Kits

NOTICE

When possible, position the hydraulic enclosure so it can be accessed from the right side of the vehicle. Place the enclosure such that the access door is 8" 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.



	Hose Kit Part No.	Relocation Kit	Hose Kit Length	Application (Recommended)
A	80-1121-001	Included with Liftgate	3 ft. (36") / 914mm	Pump/Battery box mounted behind rear wheels
B	80-1120-012	Optional	9 ft. (108") / 4570mm	Pump/Battery box mounted Max. 6ft forward.
C	80-1120-013	Optional	18 ft. (216") / 5486mm	Pump/Battery box mounted Max. 15ft forward.
D	80-1120-014	Optional	27 ft. (324") / 8230mm	Pump/Battery box mounted Max. 24ft forward.

12.3 Hydraulic Enclosure – Installation

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.

NOTICE

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

Steps:

1. Weld Enclosure: Weld the enclosure to body cross members with 1/4" x 1-1/4" welds. Weld to a minimum of four (4) crossmembers. Weld front, rear, and sides of angles at each crossmember. Observe the recommended welding practices shown below, **Fig. 12**.

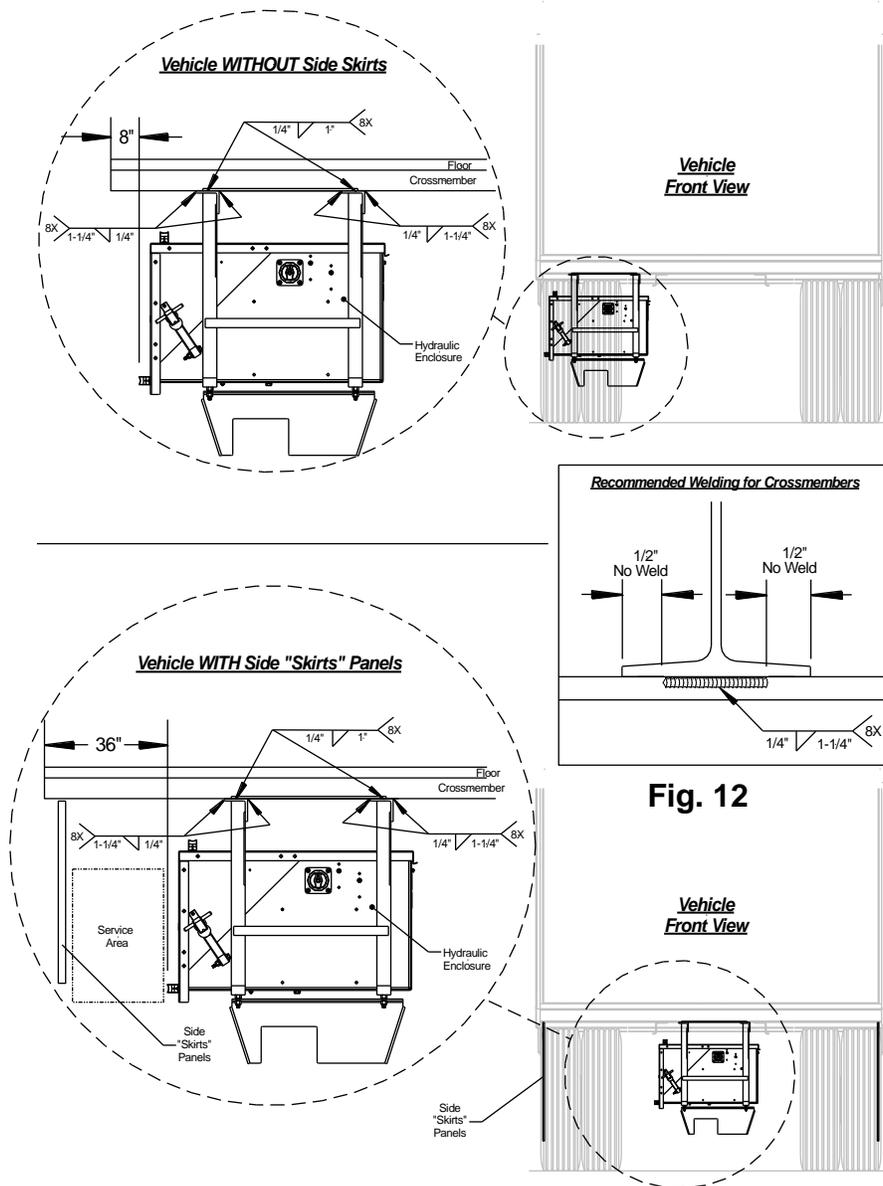
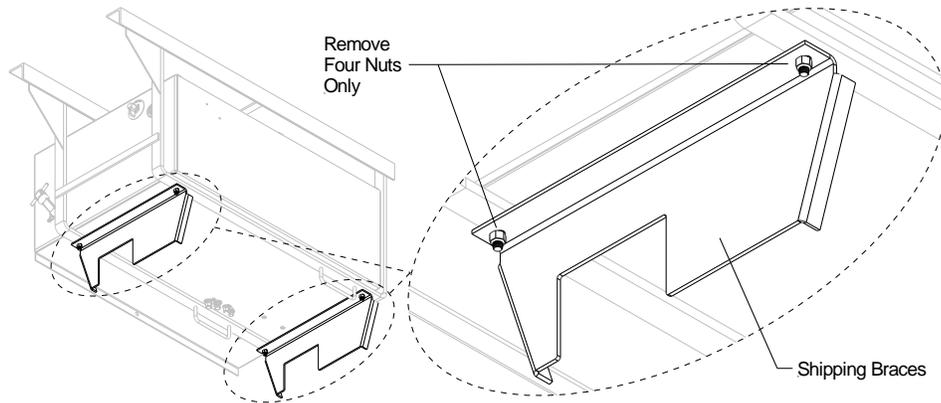


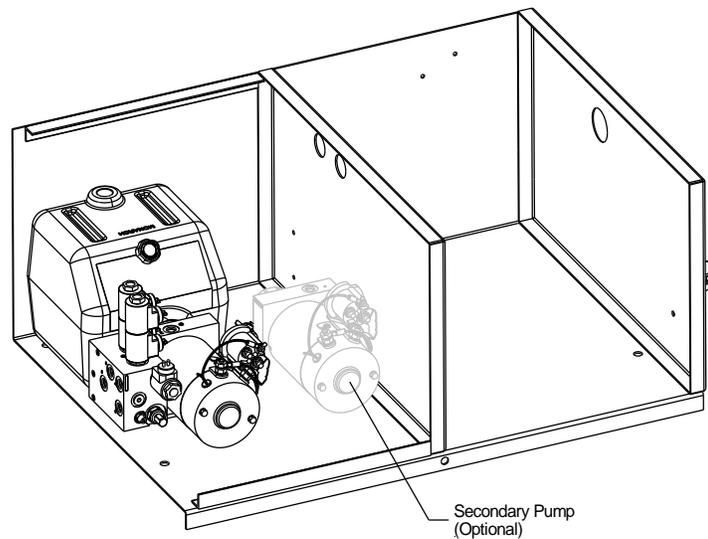
Fig. 12

2. **Remove Shipping Braces:** Unbolt the four nuts that secure the shipping braces to the enclosure. Once braces have been removed, reinstall the four nuts on the enclosure.



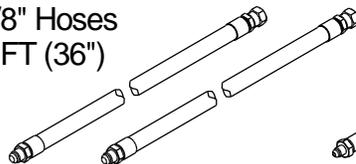
12.4 Hydraulic Connections

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

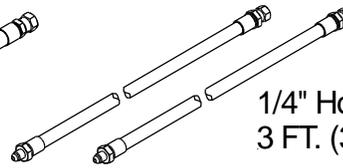


3 ft. Hose Kit (Included with Liftgate)

3/8" Hoses
3 FT (36")



1/4" Hoses
3 FT. (36")

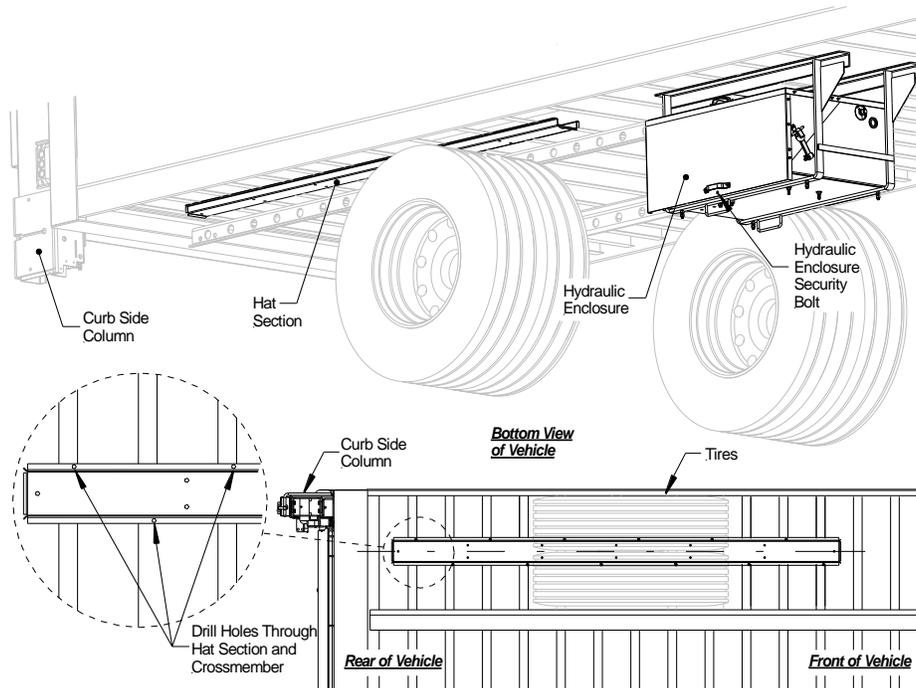


NOTICE

To prevent leaks during shipping and storage, hydraulic connections at liftgate are plugged. **DO NOT** disconnect any plugs until ready to connect hoses to liftgate and hydraulic enclosure.

Steps:

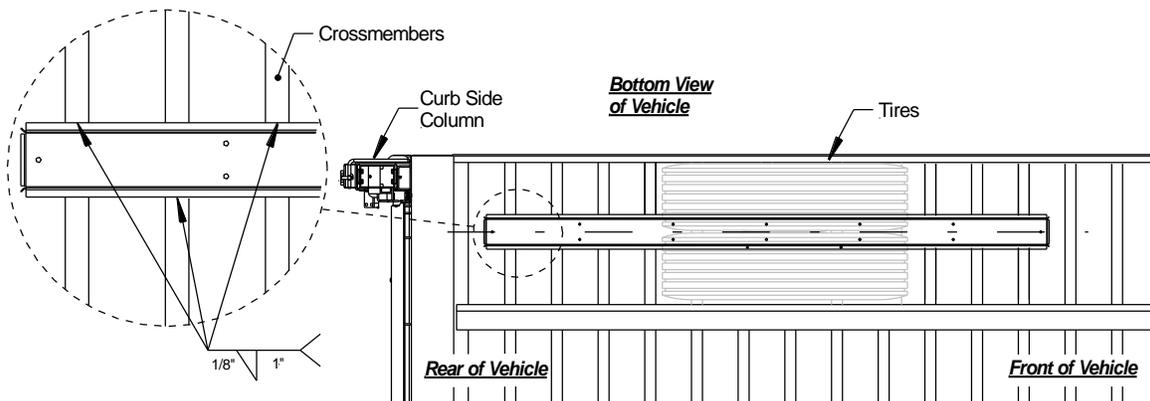
1. **Hat Section (Bolt-On):** Position the hat section on the right side of the vehicle centered between the vehicle wheels. Clamp the hat section in place. Drill holes diagonally through the hat section flange and the cross member. Secure with thread cutting flange screws.



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 $1/8" \times 1-1/4"$ welds every 12" minimum on both sides. Reference Fig.12 for welding to crossmembers.



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 1/4" 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.

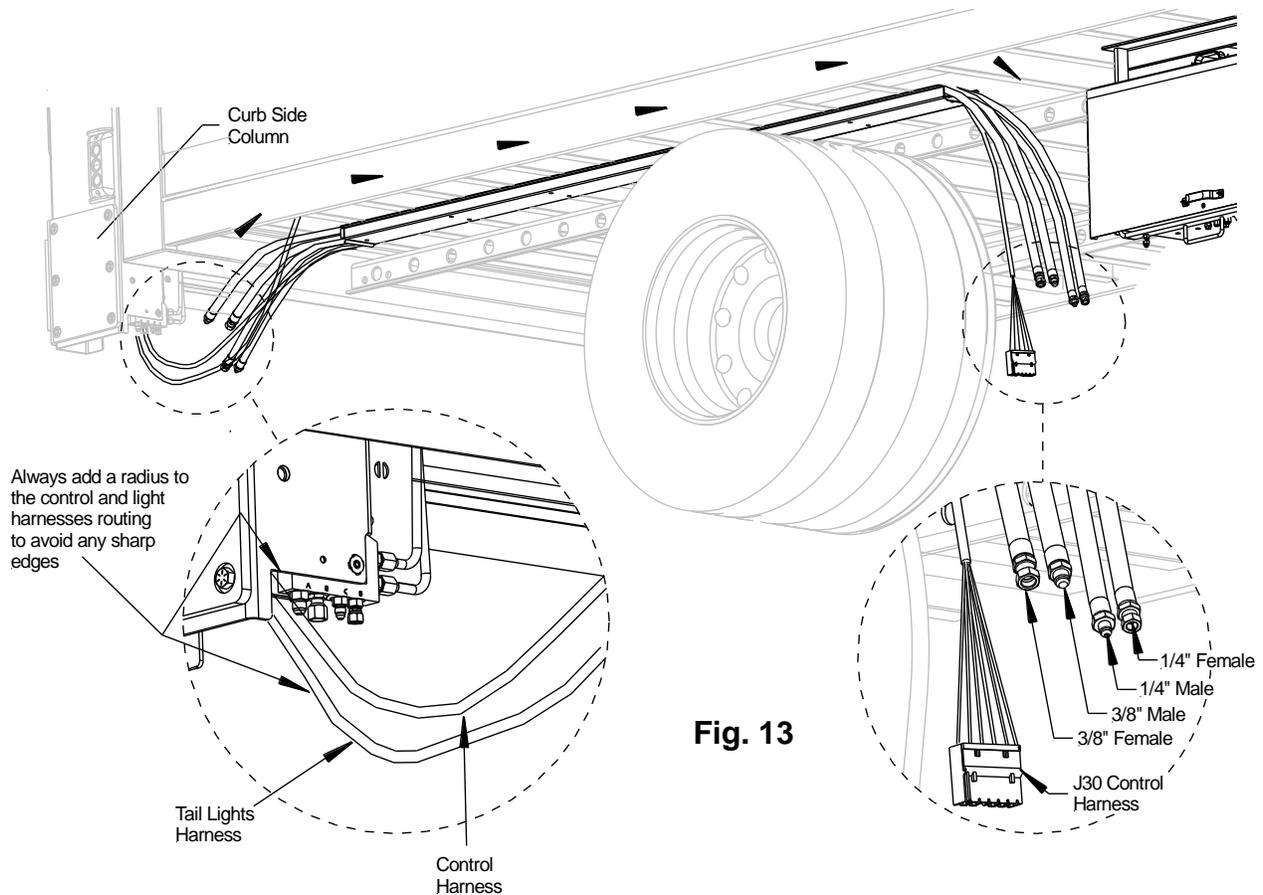
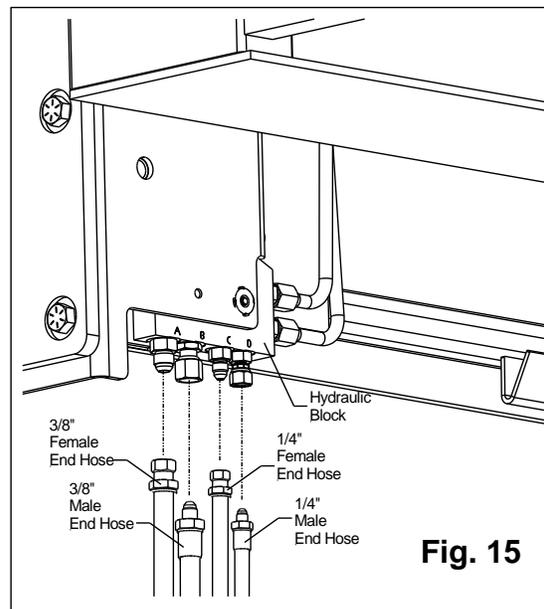
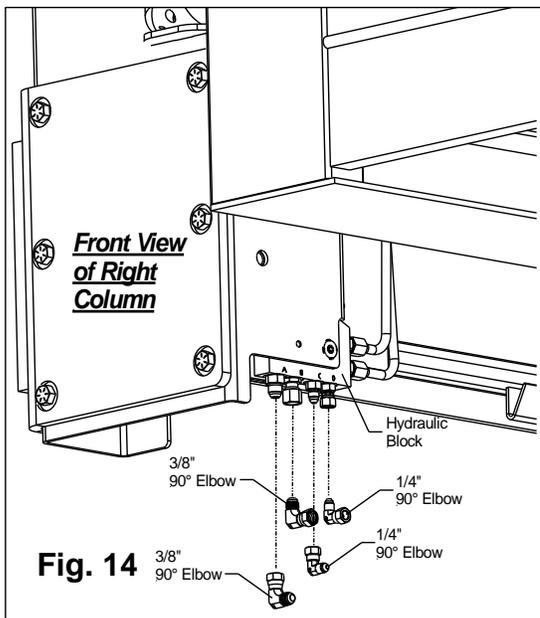
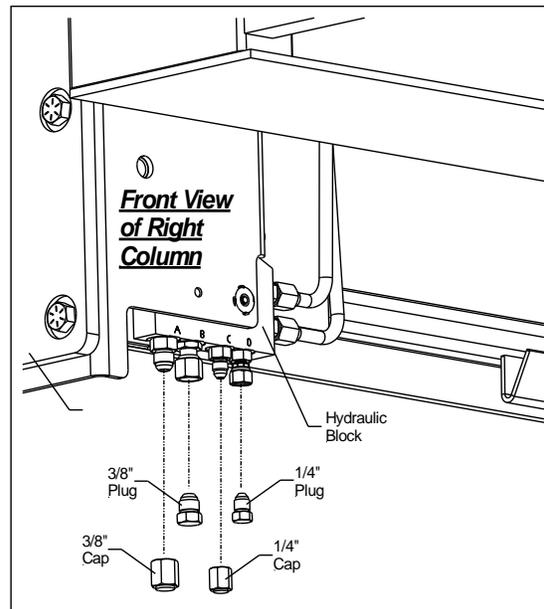
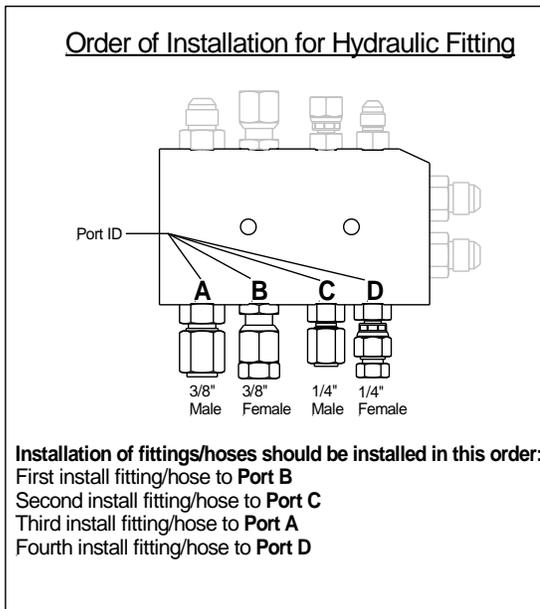


Fig. 13

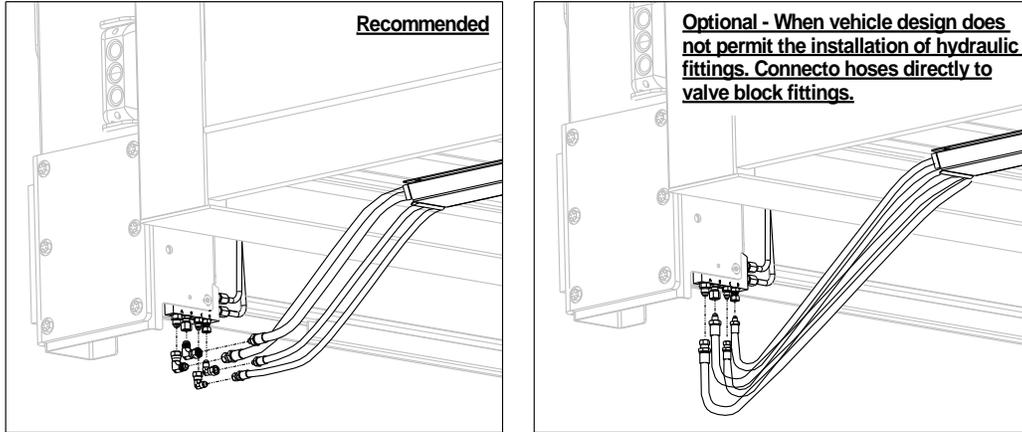
NOTICE

When disconnecting hydraulic lines and fittings 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.

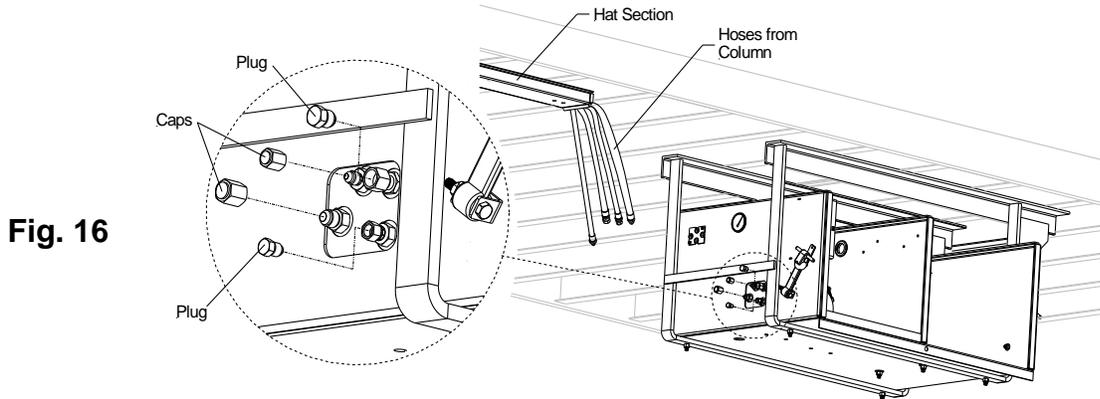
3. Hydraulic Fittings at Hydraulic Junction Block: All fittings on the junction block are capped or plugged. Remove the male plugs first and the female caps second. It is highly recommended to install the 90° elbow fittings as shown when the installation permits, **Fig.14**. When the elbow fittings cannot be installed due to the construction of the vehicle, connect the 1/4" male and female hoses going to the hydraulic enclosure directly to the hydraulic junction block, **Fig. 15**.



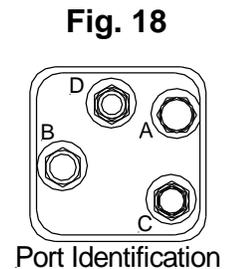
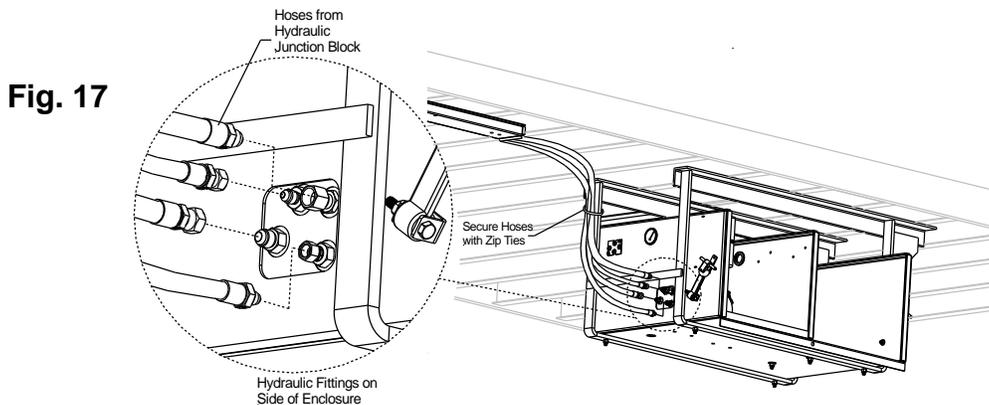
4. **Installing 1/4" and 3/8" Hoses at Right Side Column:** Install hoses to the hydraulic block. **Torque 1/4" hoses to 11 ft/lbs. max, and 3/8" hoses to 19 ft/lbs. max.**
Note: Mark or label each hose end with the corresponding Port ID letter before routing to facilitate installation at the hydraulic enclosure side.



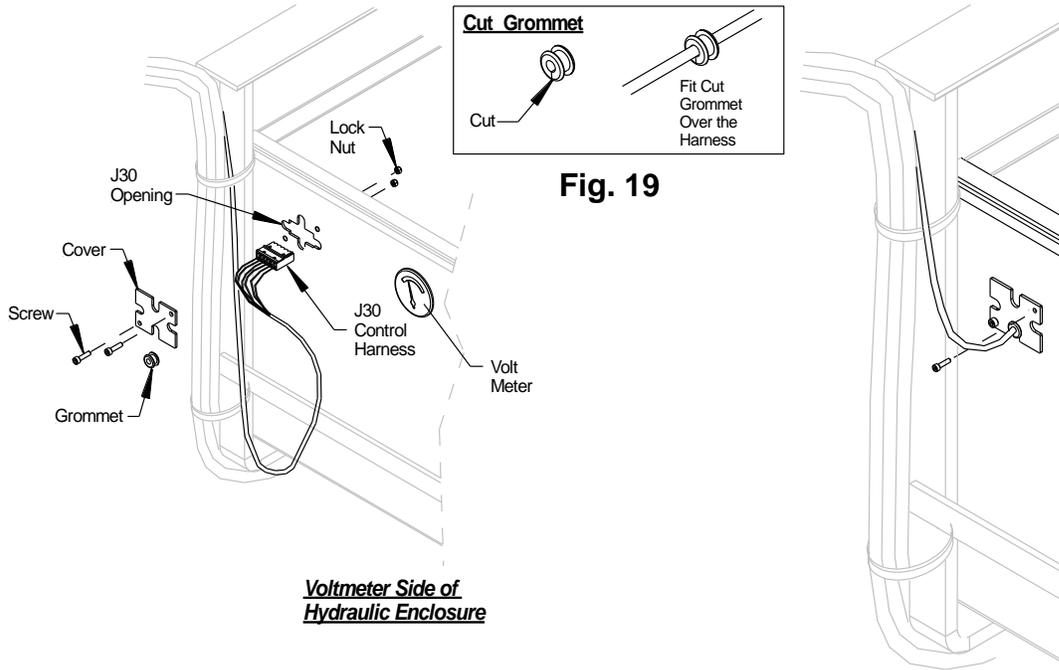
5. **Installing Hoses at Hydraulic Enclosure:** Remove the plugs and caps, **Fig. 16**, from the side of the hydraulic pump and motor (enclosure).



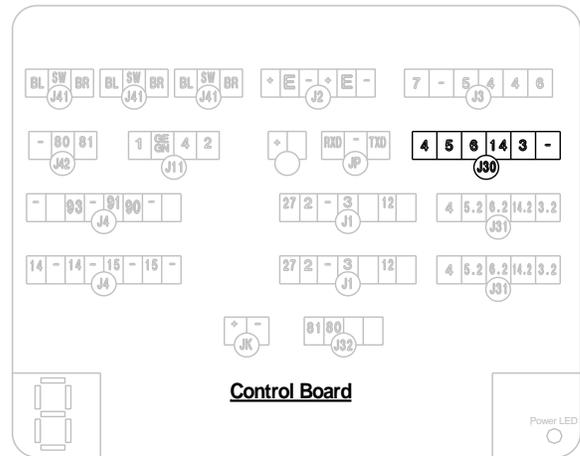
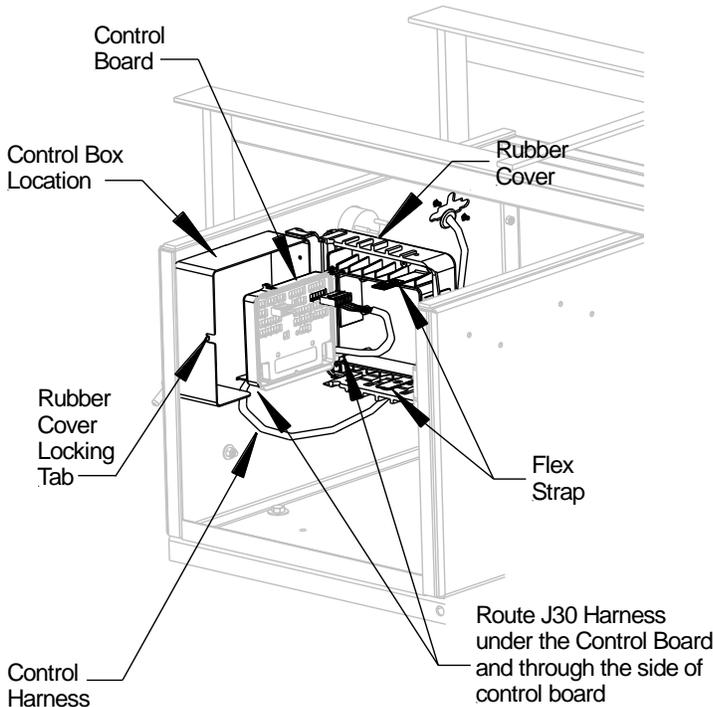
Route the hoses coming from the column over to the hydraulic enclosure, **Fig.17**. Route along the enclosure frame. When routing hoses never make sharp bends, maintain a natural hose radius. Connect the hoses from the hydraulic block to the pump & motor (hydraulic enclosure) corresponding ports, **Fig 18**. Use zip ties to secure the routed hoses to the mounting frame. **Torque 1/4" hoses to 11 ft/lbs. max, and 3/8" hoses to 19 ft/lbs. max.**



- 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.

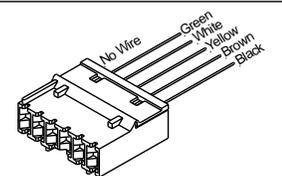


On the inside of the Hydraulic Enclosure, open the control board cover by pulling the side of the rubber cover out of the locking tab. Unhook the two flex straps that secure the control board to the rubber cover. Plug the control harness connector into the J30 port of the control board.



5- Wire Color Code

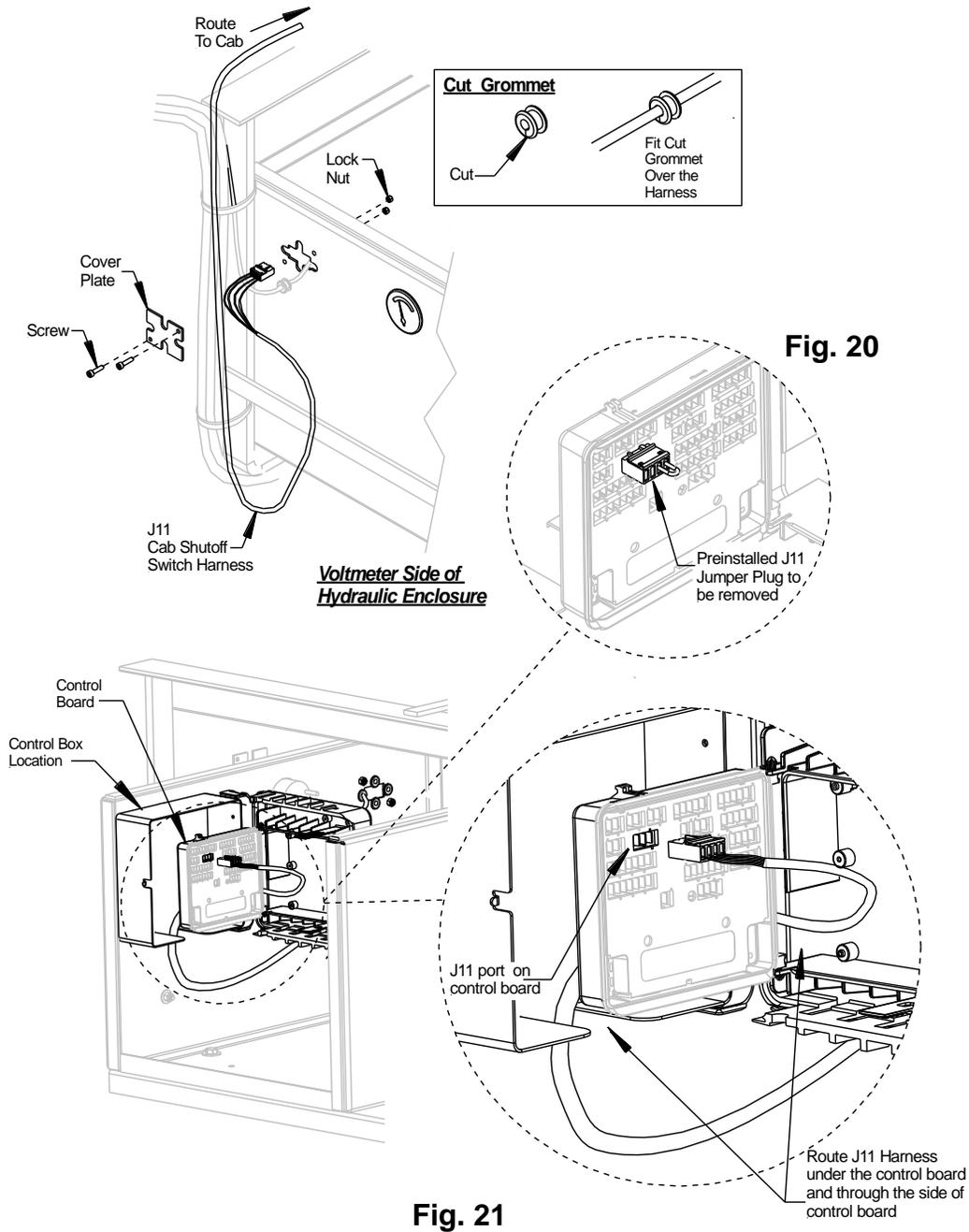
- 14.2 - White
- 6.2 - Yellow
- 4.3 - Black
- 5.2 - Brown
- 3.2 - Green



12.4.1 Cab Shutoff Switch Installation (Optional)

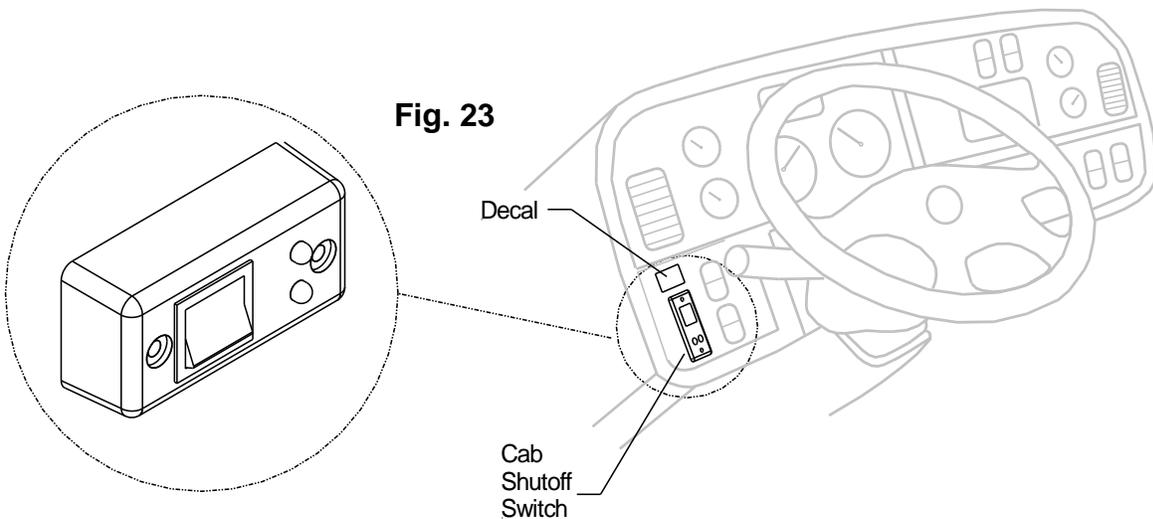
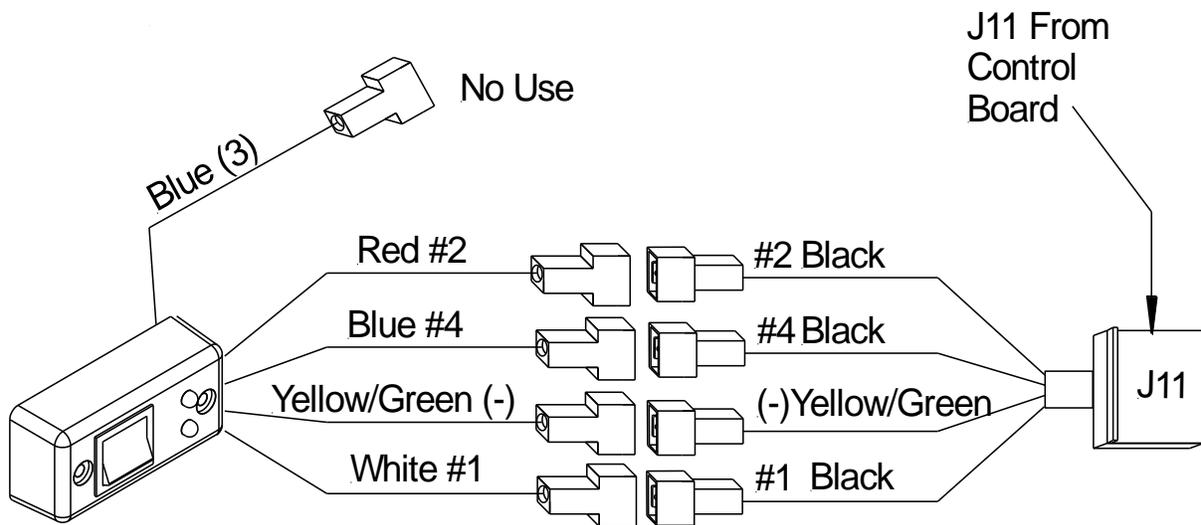
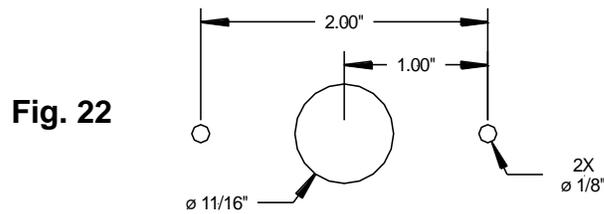
Steps:

1. **J11 Control Harness:** Remove the cover plate. 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 **Fig. 19**, 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.



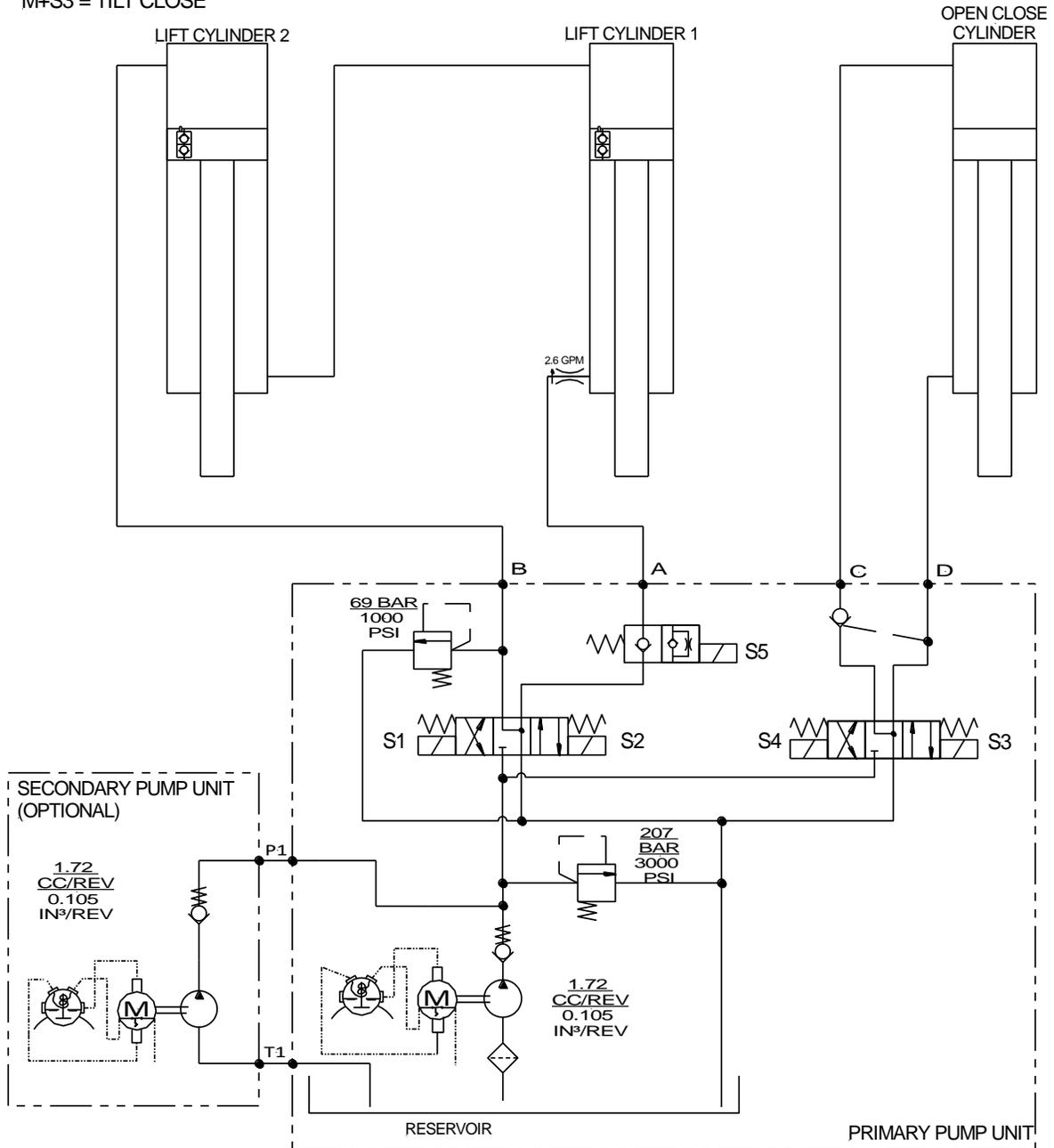
2. **Switch Installation:** Route the other end of the harness to the cab's dashboard. Position the switch where it is visible and accessible by the user from outside the cab. Use the mounting hole pattern below and mount the switch with the provided screws, **Fig. 22**. Wire the switch and harness per 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



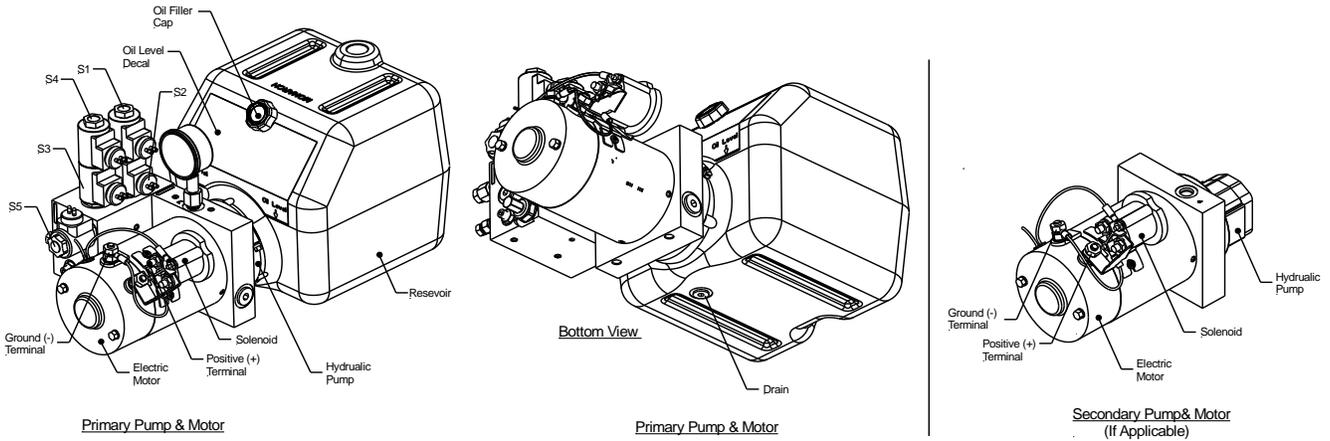
12.5 Hydraulic Schematic

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



<p>HYDRAULIC, SCHEMATIC, PTV BUCHER PUMP (90-1118-001)</p>	 <p>15529 Plume Ave., Corcoran, CA 90703</p>
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12.6 Hydraulic Pump/Motor Overview



12.7 Hydraulic Fluid

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

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

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

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

13 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

- It is the liftgate installer or incomplete vehicle builder's responsibility to be certain all chassis ground systems are adequate for the job. Liftgates with a single motor can pull 250 amps at full load, and liftgates with dual motors will pull 500 amps at full load. These requirements include liftgate charging systems and OEM chassis battery grounding. Failure to adequately ground the whole system can lead to burned electrical harnesses, metal braided hoses, and other vehicle components.
- 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 175 Amp circuit breaker at the batteries unless otherwise instructed by the Palfinger Liftgates technical support group.
- Assure all connections are tight and securely sealed.
- Heat shrink all cable connections.
- Never secure a cable in a way where it can make contact with other wiring, brake, fuel, or air lines etc. or get pinched against other objects.
- 2 gauge cable, minimum, is required throughout the motor circuit.
- When working on the electrical installation, remove any jewelry, tools, or components that are conductive to prevent any damage or injuries.
- Ensure that all wiring is secured and away from heat sources, sharp corners/edges, and abrasion from moving components during the operation of the liftgate and vehicle.

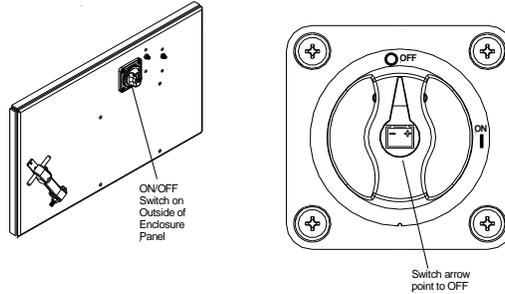
13.1 Auxiliary Batteries Installation

NOTICE

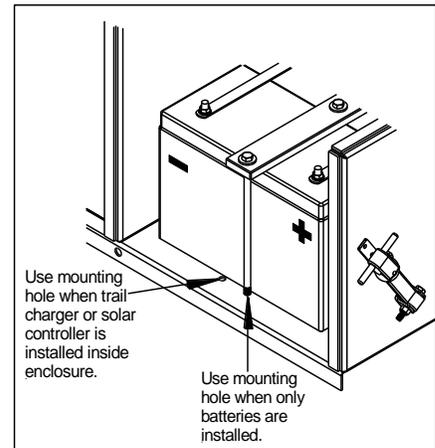
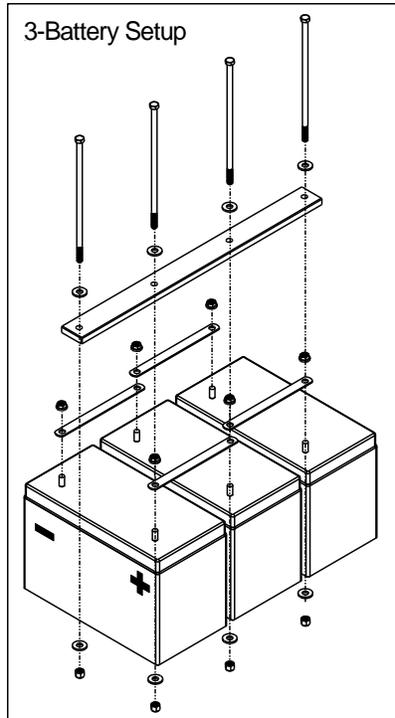
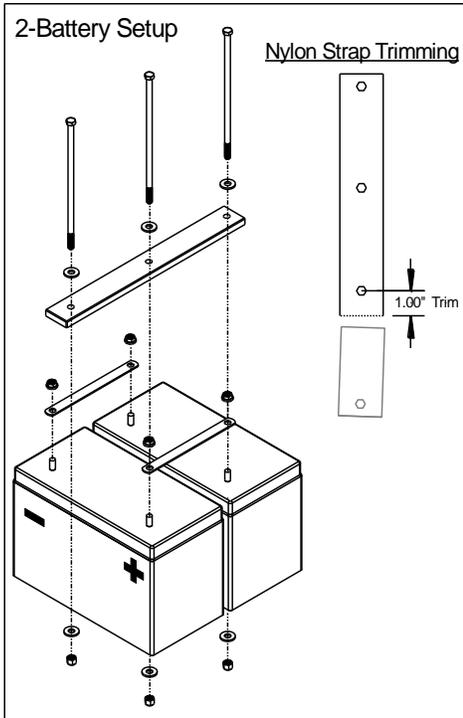
Three (3) batteries are always recommended for PTV55 & PTV66, for high cycle and max load applications and for city deliveries with short duration between stops.

Steps:

1. ON/OFF Switch: Ensure the switch is set to OFF before installing any power and ground wires.



2. Battery Installation: 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 strap kit.
3. Battery Strap Kit and Buss Bars: Secure the batteries to the enclosure with the battery strap kit provided. The nylon strap is made for a 3-battery setup. When installing only 2-batteries, the nylon strap will require trimming as shown. Connect the three (3) batteries in parallel by installing two buss bars on the negative terminals and two buss bars on the positive terminals. Use two (2) buss bars when connecting two batteries.



13.4 Battery Wiring – Truck and Trailer



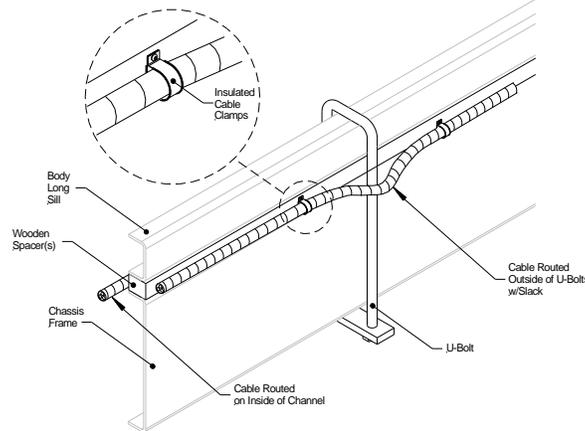
Never secure cable in a way where it can make contact with other wiring, brake fuel, or air lines or get pinched against other objects.



When grounding to any part of the vehicle, the contact area should be prepared to bare metal, free of paint, under coating, dirt and grease. Corrosion preventative grease or compound is to be applied to the terminal area of the ground connection.

13.5 Cable Routing & Wiring Crimping

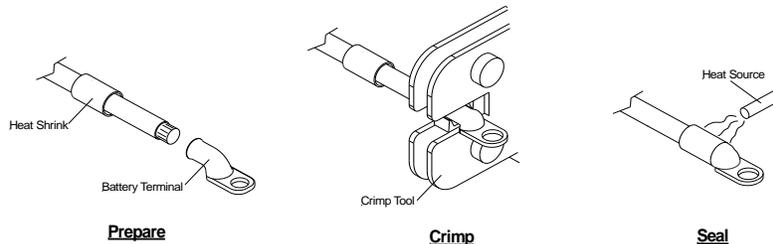
1. The use of wire loom is highly recommended to protect and facilitate cable routing. Wire loom not supplied.
2. Route all cables along the wooden spacer and through the outside of the U-bolts or on the inside part of the channel.
3. Secure the wire along the wooded spacer with insulated cable clamps.



! 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.

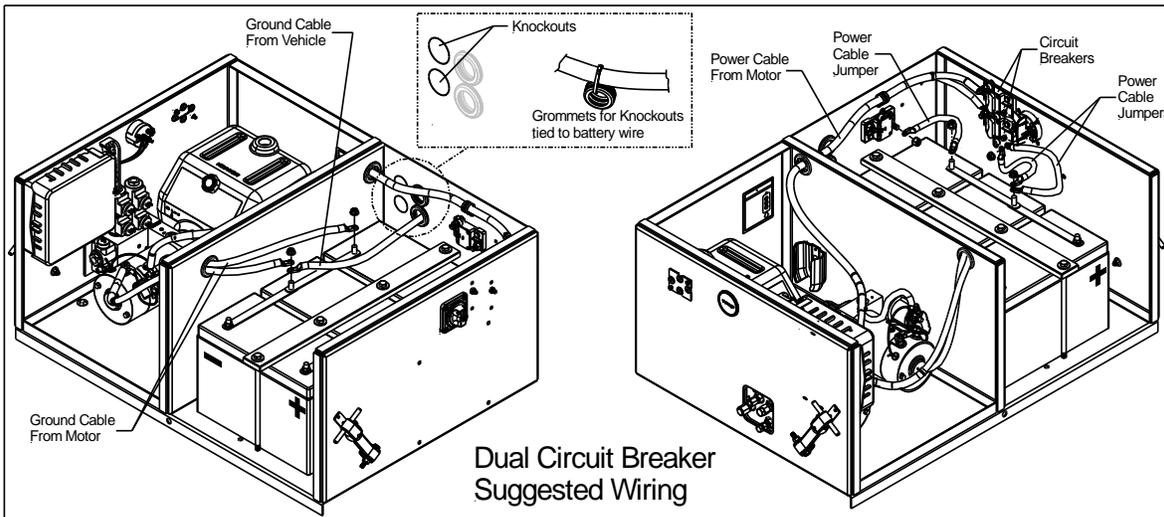
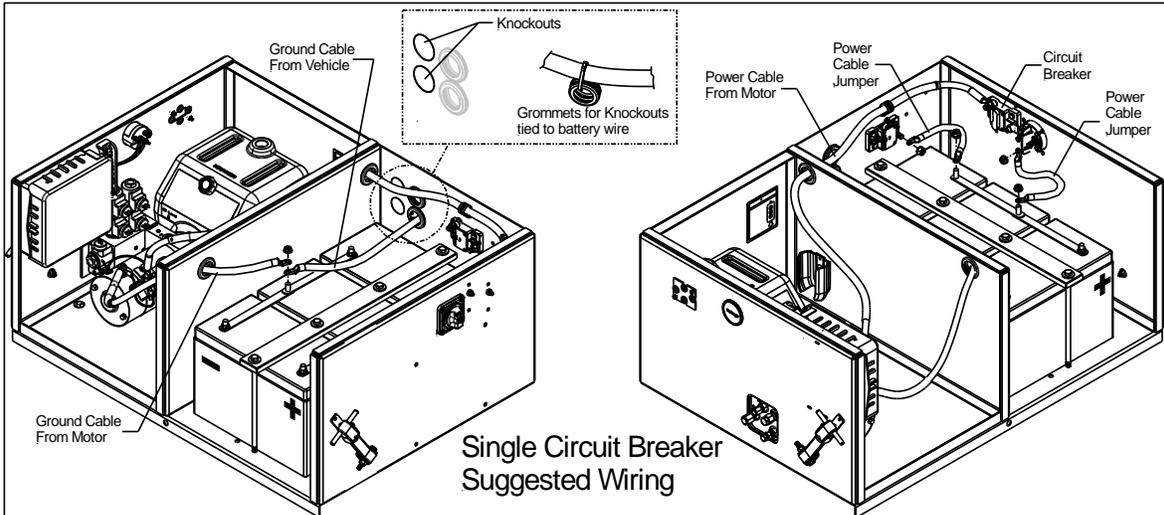
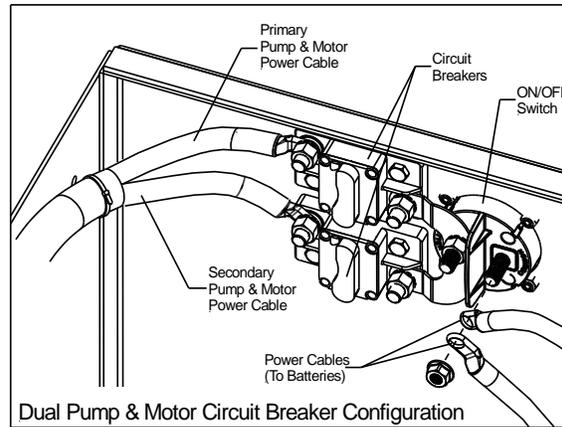
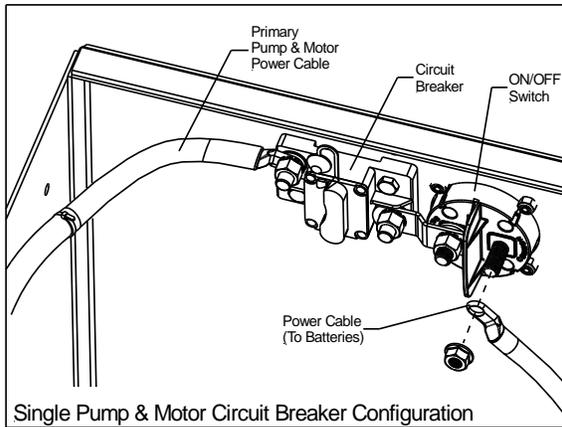
Battery Cable Crimping

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.
4. Slide the provided heat shrink over the battery terminal and cable to seal the connection.



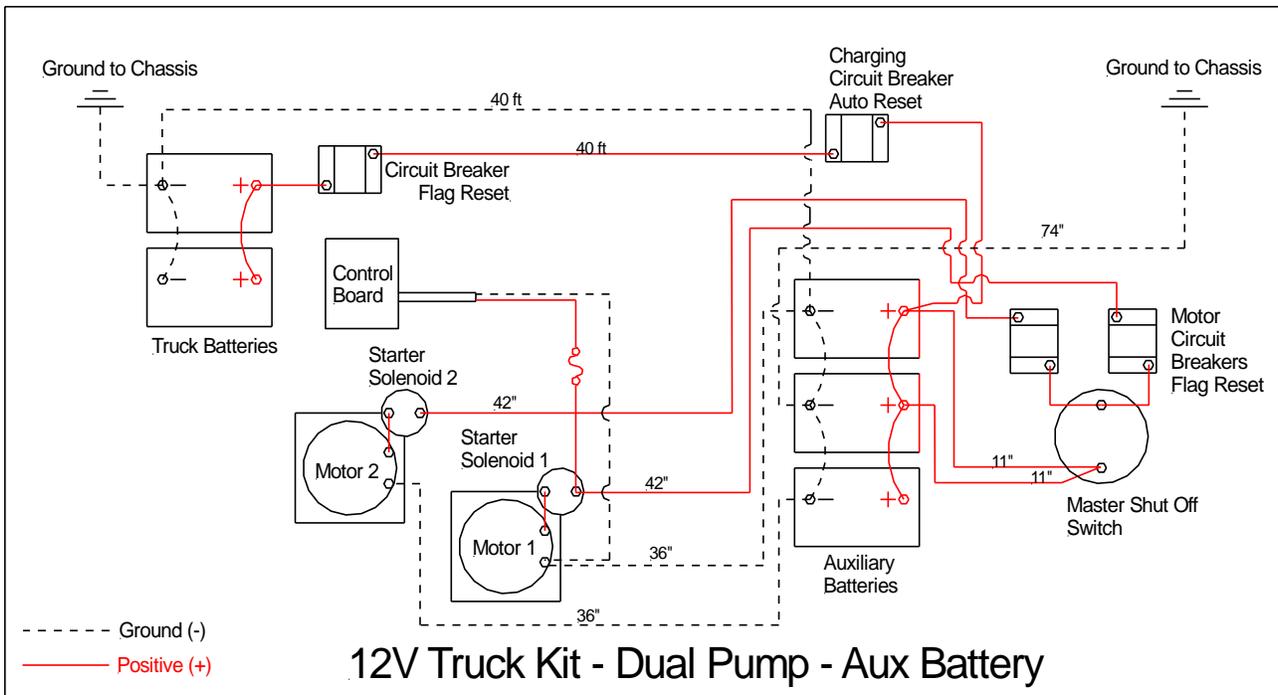
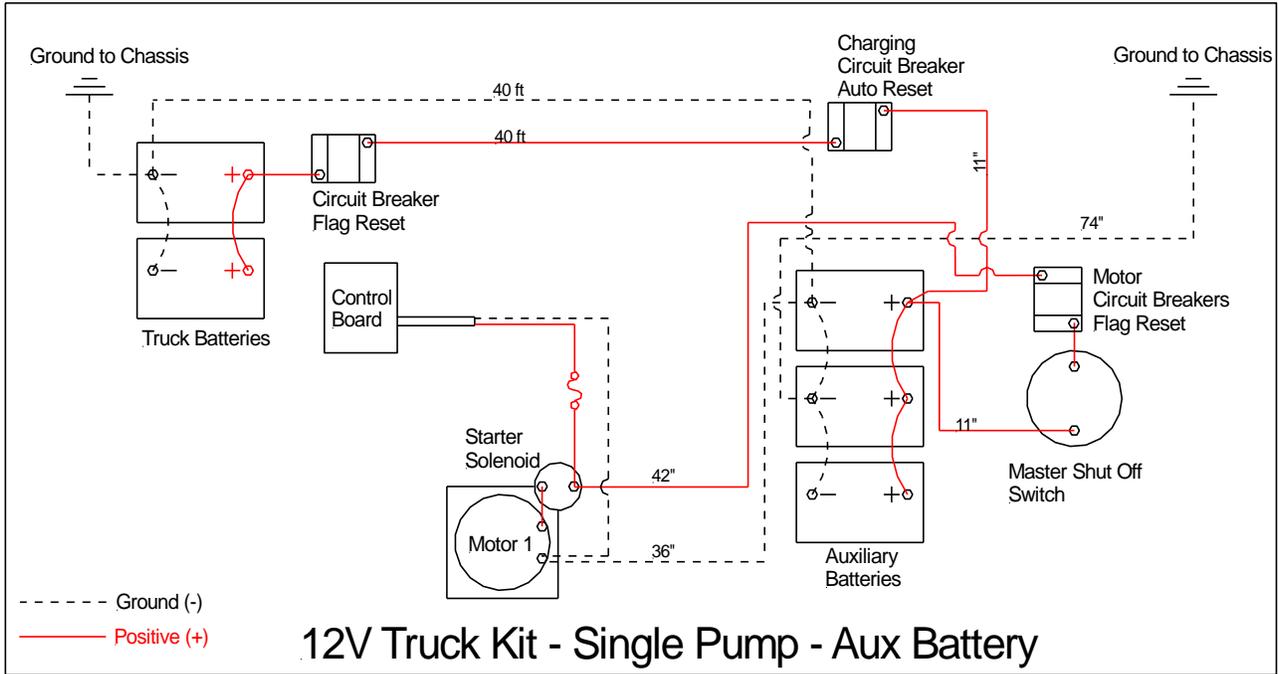
13.6 Circuit Breaker(s) Inside Enclosure

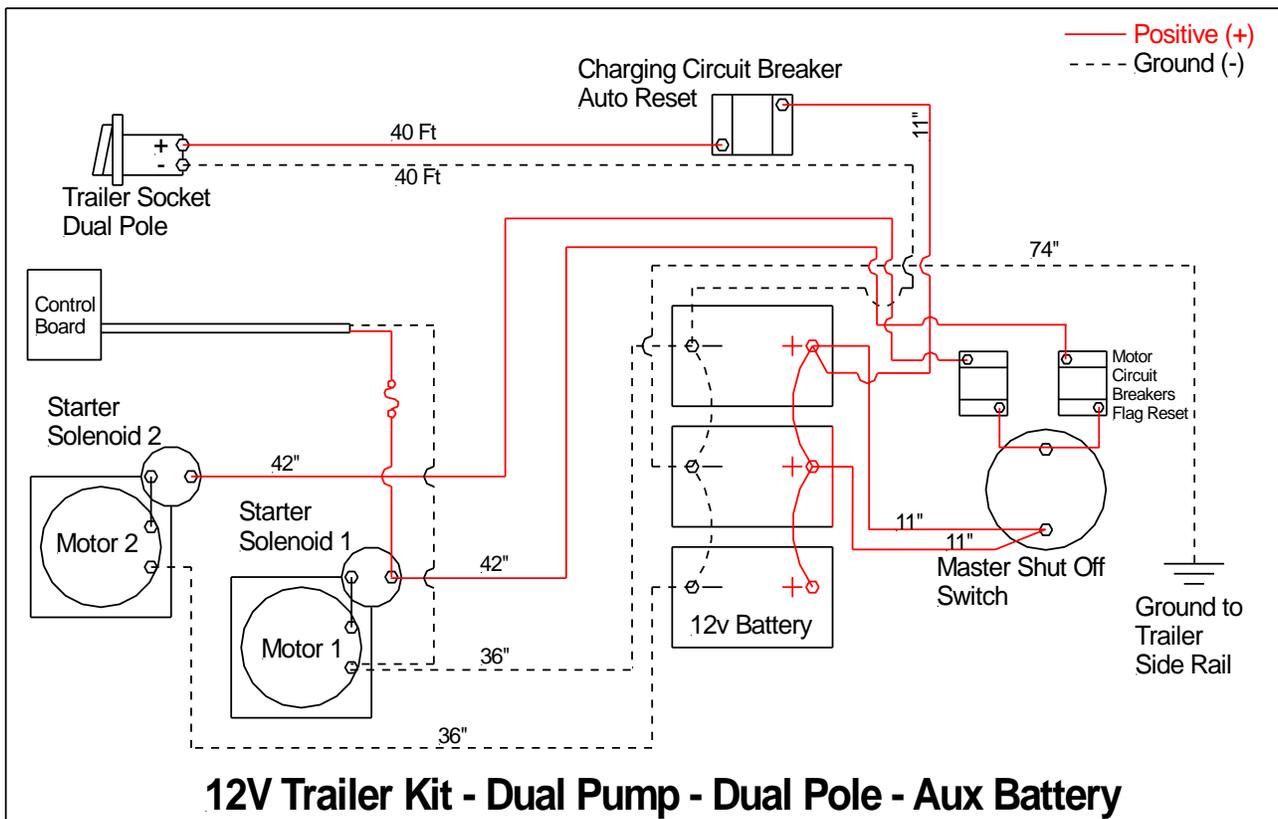
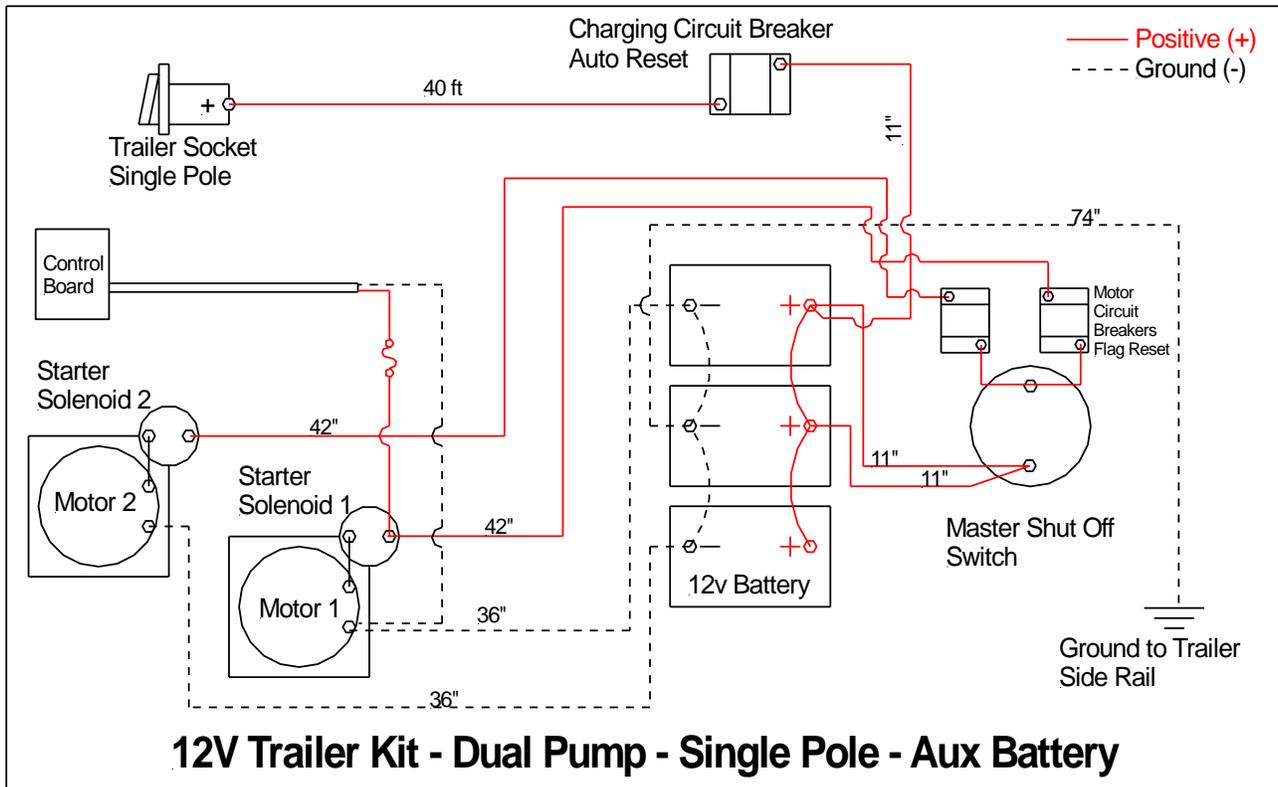
Circuit breakers are preinstalled inside the Hydraulic Enclosure. The ON/OFF switch is connected to the circuit breaker(s) with a bus bar. Installing the power cable to ON/OFF switch is the same for single and dual pump and motor configurations. Reference Section 13.7 for wiring truck or trailer configurations.



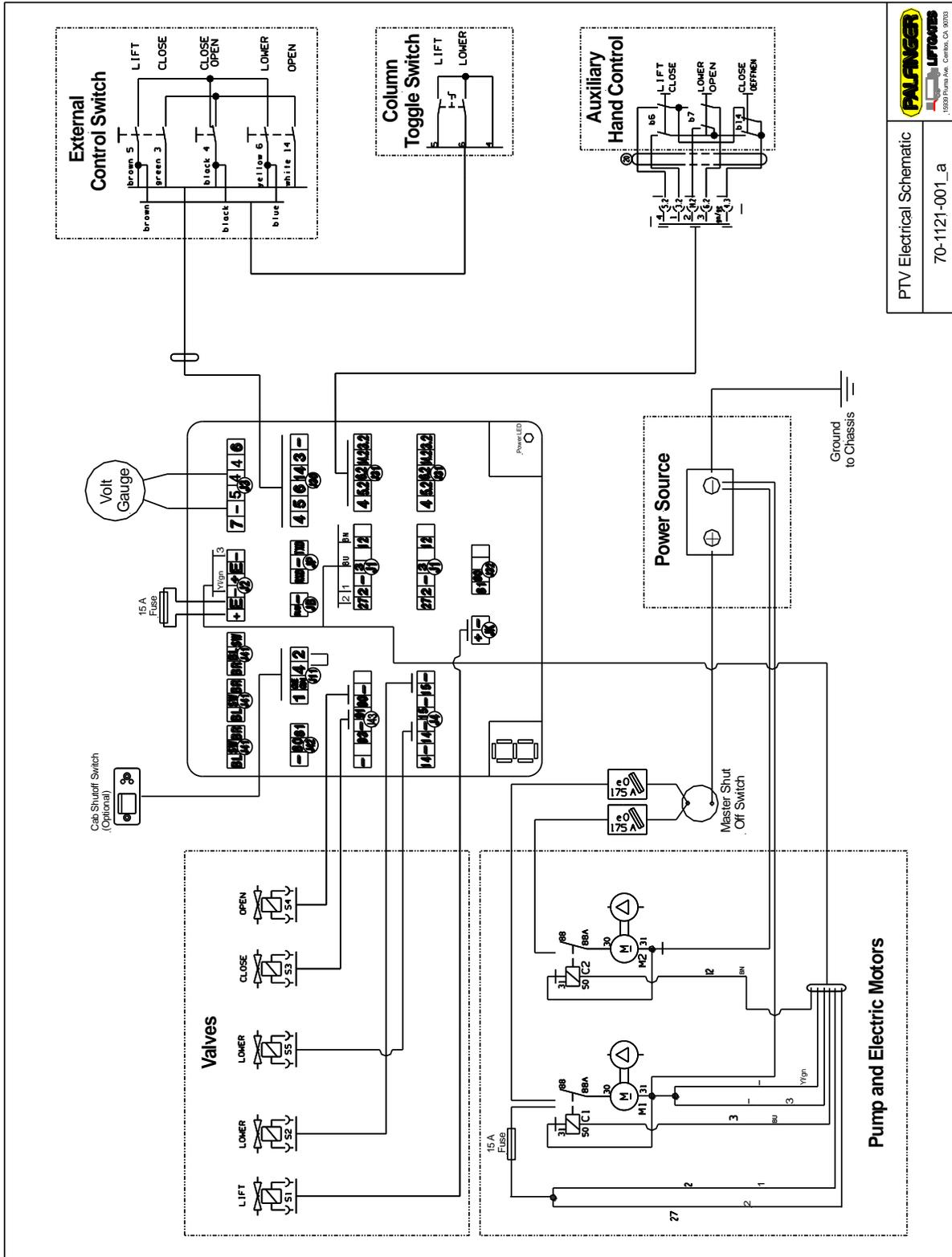
13.7 Battery Wiring – Truck Kit

For 24V wiring reference document 90-1120-005.





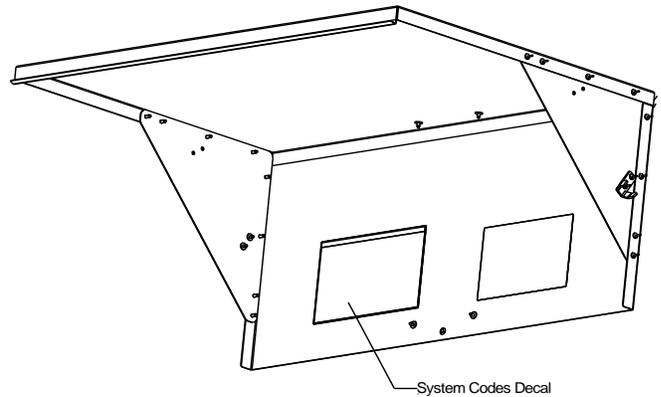
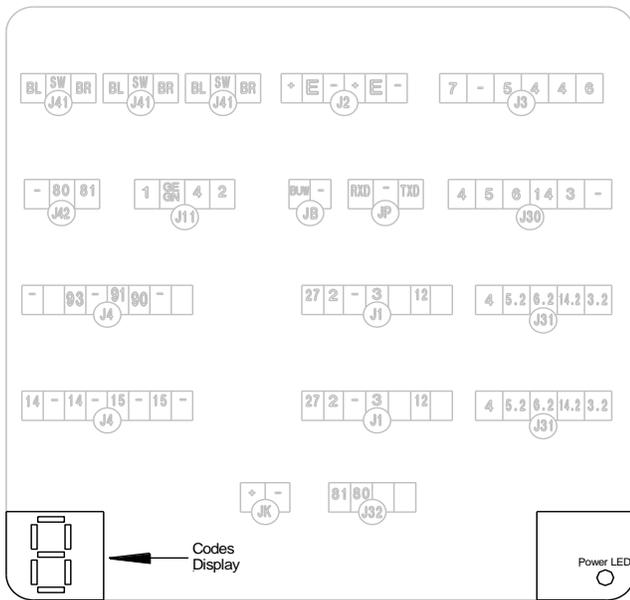
13.9 Electrical Schematic



FALINGER
LIFTERS
 1555 Pump Ave. Corbiss, CA 90033

PTV Electrical Schematic
 70-1121-001_a

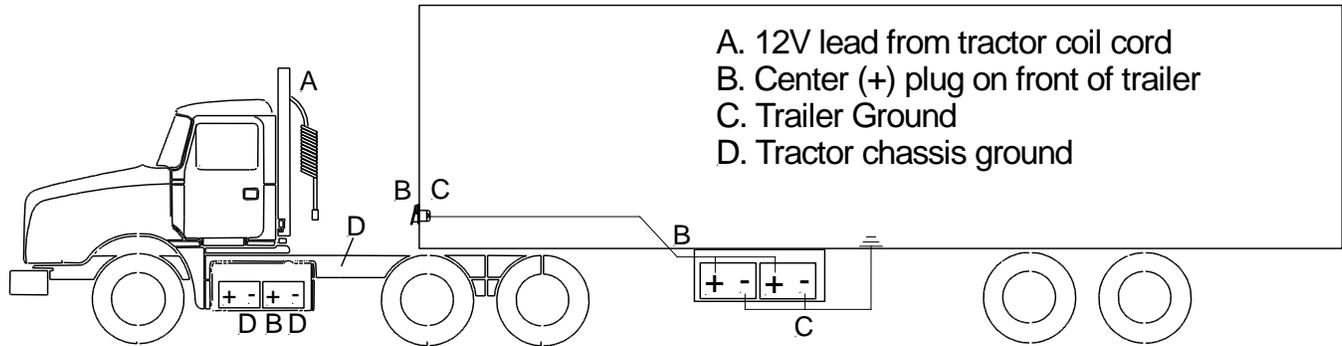
13.10 Control Board System Codes



Inside View of Pump and Motor Enclosure Lid

Control Board Code	Description	Reset
0	System ok / Cab switch off, (or missing bridge J11/2<->4)	
1	System ok / Cab switch on, (or bridge J11/2<->4)	
2	Low voltage – start truck engine, charge battery	Cab switch: off/on (or disconnect bridge J11/2<->4)
7	Short in cab switch / on-off-switch or aux port	Cab switch: off/on (or disconnect bridge J11/2<->4) or close tail lift
8	General short in electric 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	Defect at motor solenoid or S5 valve detected during closing	Automatically when the valves are back to normal
P	Diagnosis mode activated	Removing service connector
To clear code: Unplug J11 and plug back in.		

13.11 Trailer to Tractor Ground Test



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).

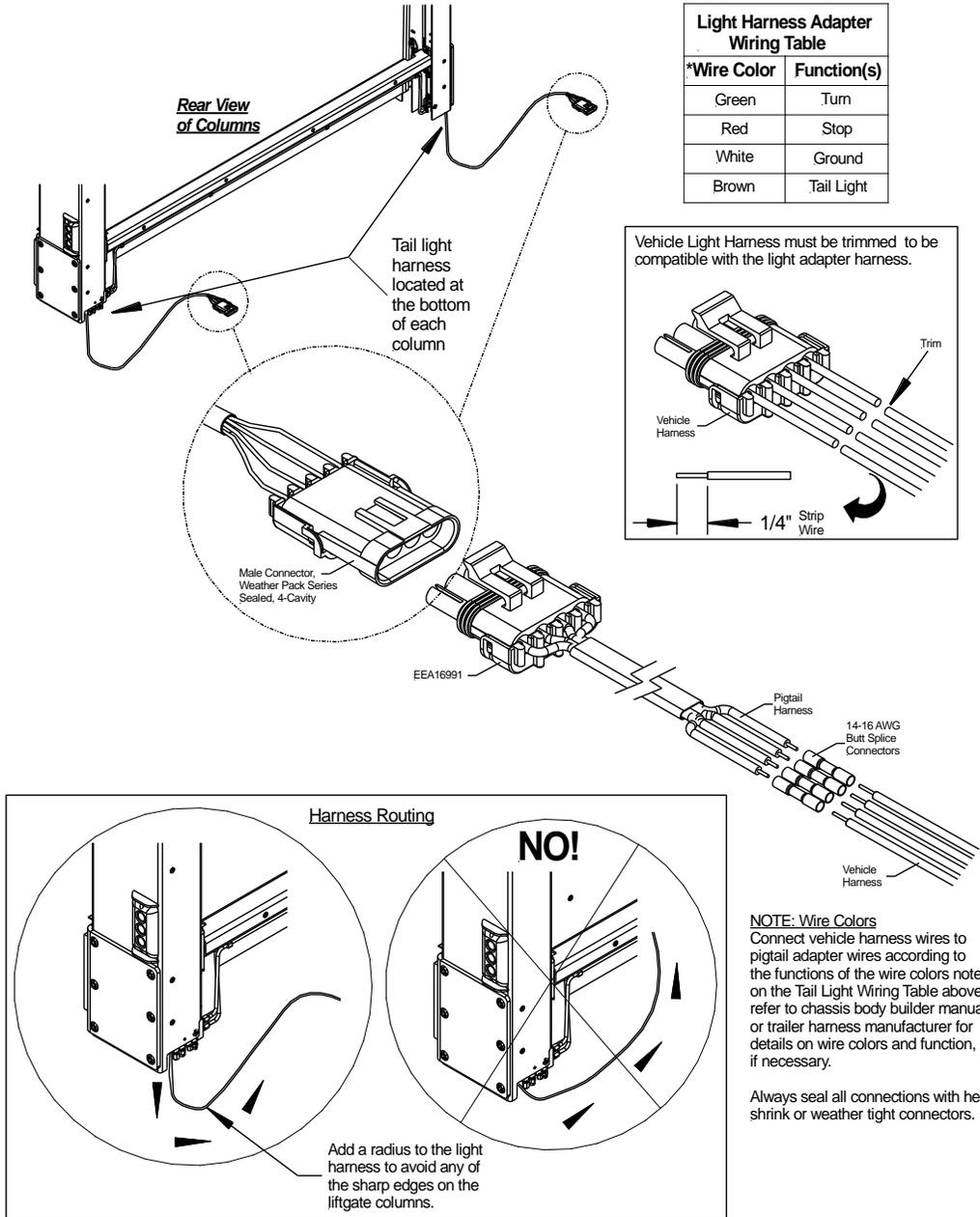
Run load test- This will test entire circuit on tractor and trailer including ground between tractor, trailer, and circuit breaker on trailer.

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

13.12 Tail Light Harness

NOTICE

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



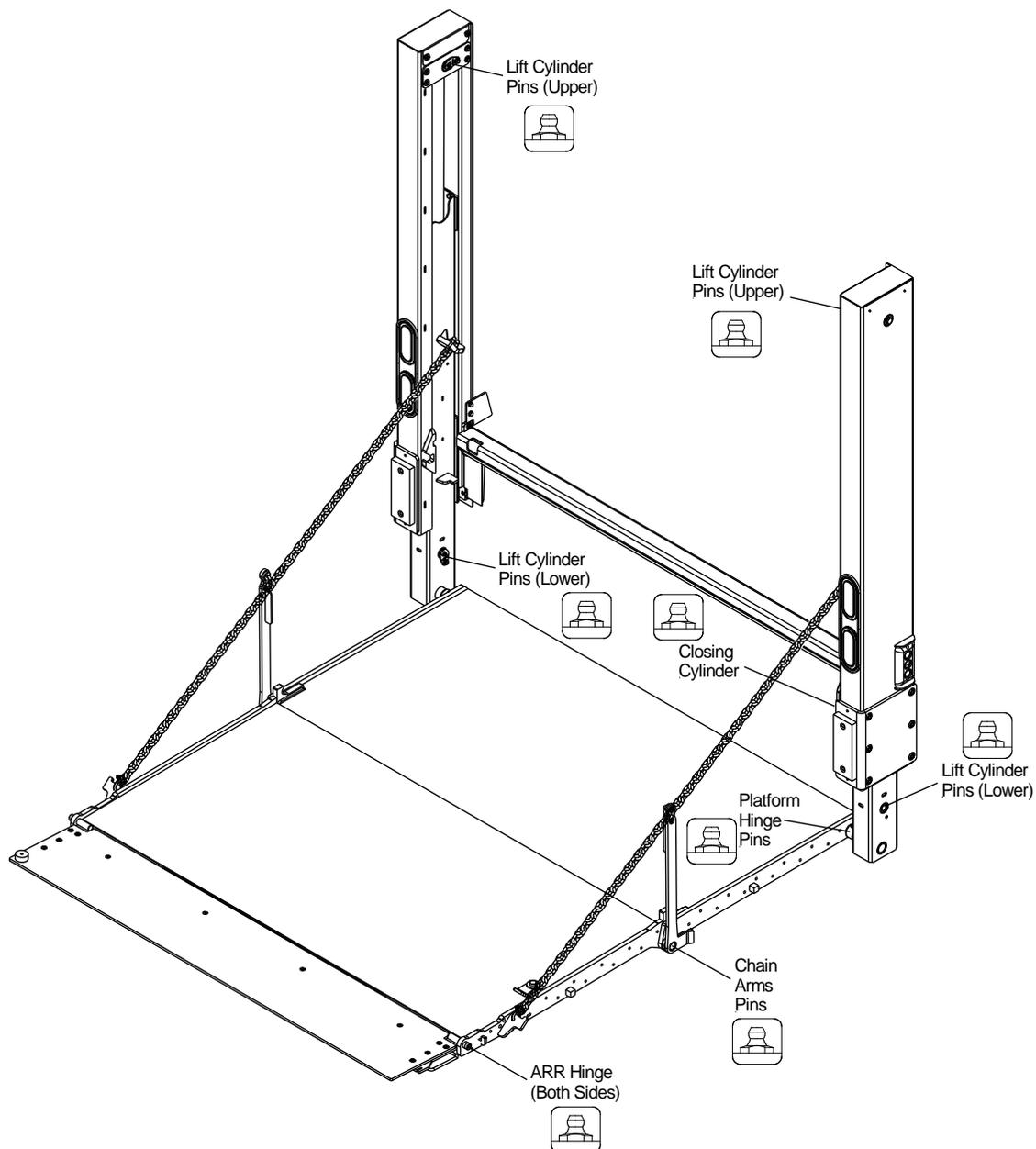
Routing Light Harness:

Never route the light harnesses inward towards the valve blocks, there are many sharp corners that can cut the cable over time. Always leave a radius on the harnesses coming out of the column so the harnesses do not touch the bottom of the sharp edge of the columns and then route the harnesses up into the vehicle body.

14 Lubrication**CAUTION**

DO NOT grease the “Slider Bearings”, “Columns”, or “Runners”, as this will **VOID** your **WARRANTY** on the slide bearings. Lubricate liftgate per instructions below before releasing liftgate to service.

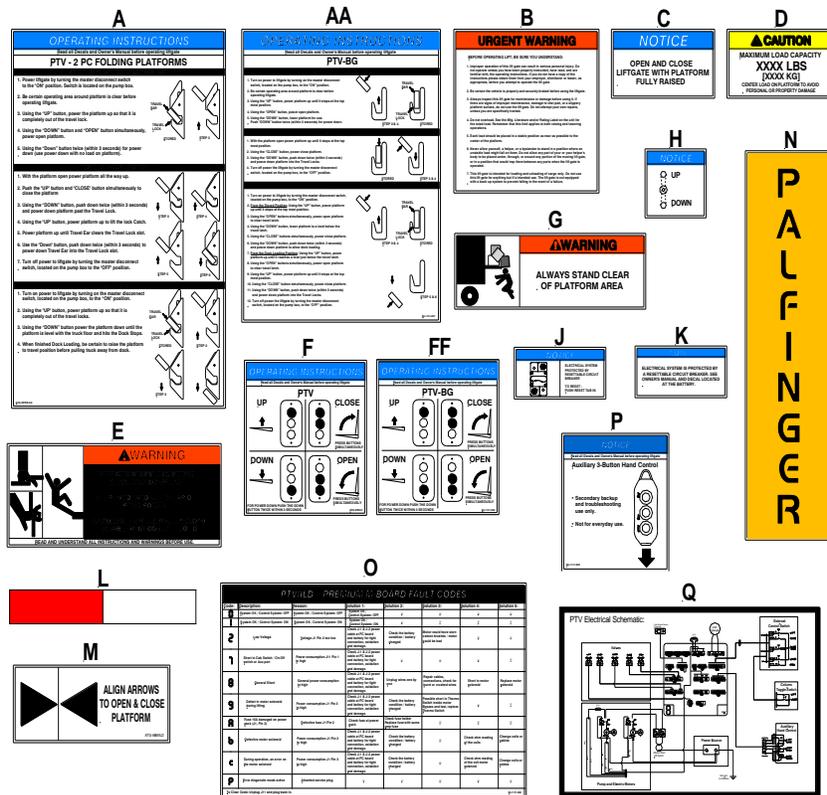
- Liftgates with Fixed Ramps have 9 grease fittings.
- Liftgates with Aluminum Retention Ramps (ARR) have 11 grease fittings.
- Use a light penetrating oil on closing aids. For power closing units, grease upper & lower pivot mounting points.

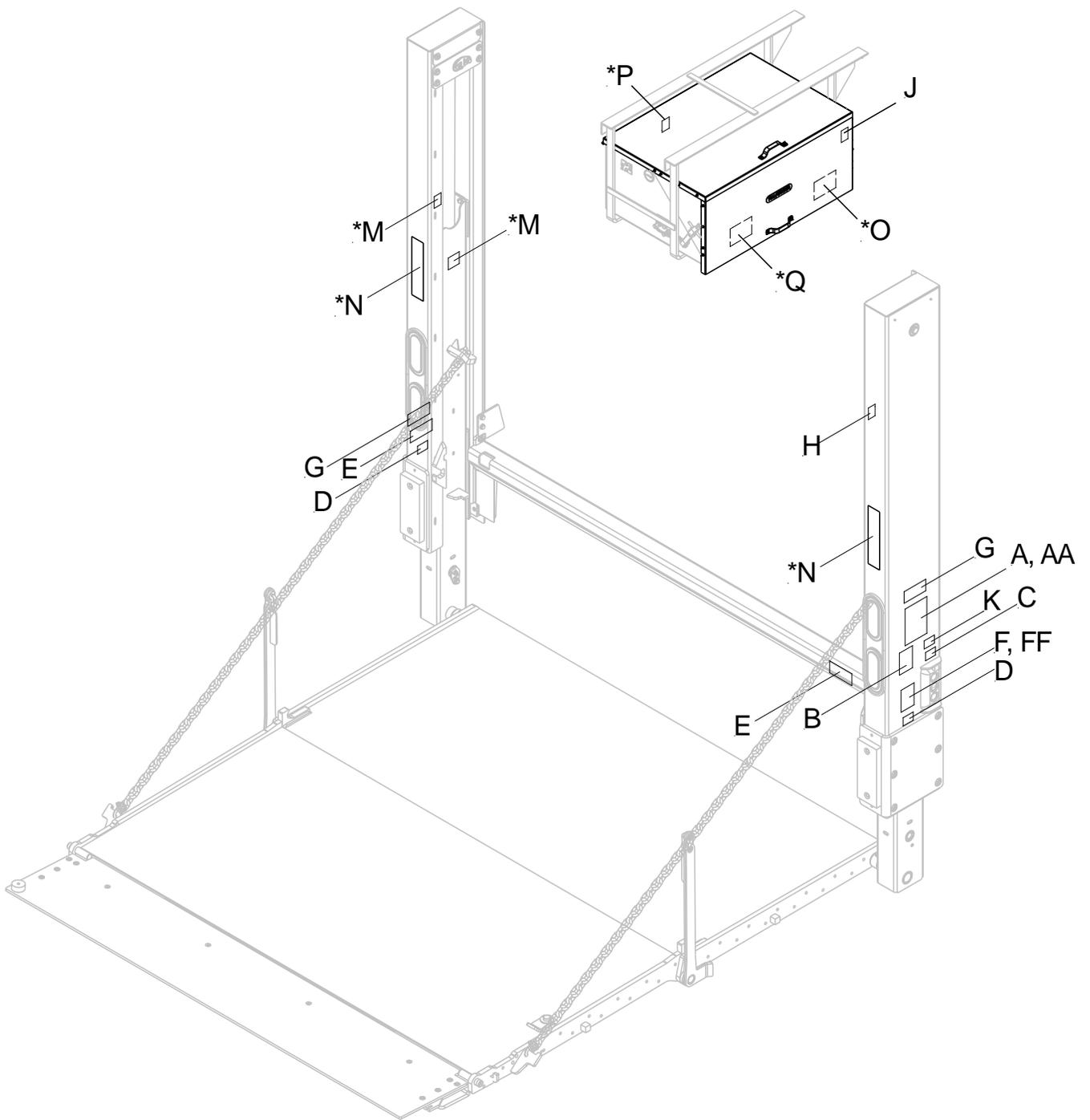


15 Decal Placement

! For operator's safety, all decals appearing in the "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 columns. Please make sure to place the maximum capacity decal (C) on driver and curb side.

Decals			
Decal	Qty.	Part No.	Description
A	1	ML85-1121-005	Operating Instructions - PTV
AA	1	ML85-1121-007	Operating Instructions – PTV-BG
B	1	MLATG-URGWA	Urgent Warning: Elevating Gate Instructions
C	1	MLATG-OPENILD	Notice for Open & Close
D	2	MLATG-XXXX	Max. Capacity (please check the serial number plate to find out your specific capacity)
E	2	MLATG-WLH	Warning: Liftgate Can Crush
F	1	ML85-1121-004	Main Operation Switch - PTV
FF	1	ML85-1121-006	Main Operation Switch – PTV-BG
G	2	MLATG-PLAT	Warning: Always Stand Clear of Platform Area
H	1	MLATG-UD	Toggle Decal: Up-Down
J	1	MLATG-BKR	Circuit Breaker Reset (Must be located at the circuit breaker)
K	1	MLATG-RESET	Circuit Breaker Protection
L	1	ML85-1114-003/ML85-1114-001	Conspicuity Tape (If applicable)
M	1	MLATG-ARWILD	Arrow Decal
N	2	OS1263362	Palfinger Nameplate (Vertical)
O	1	ML85-1117-000	M-Board Fault Codes, Pump and Motor Enclosure Lid
P	1	ML85-1117-003	3-Button Auxiliary Hand Control, Pump and Motor Enclosure
Q	1	ML85-1121-010	Electrical Schematic, Pump and Motor Enclosure Lid

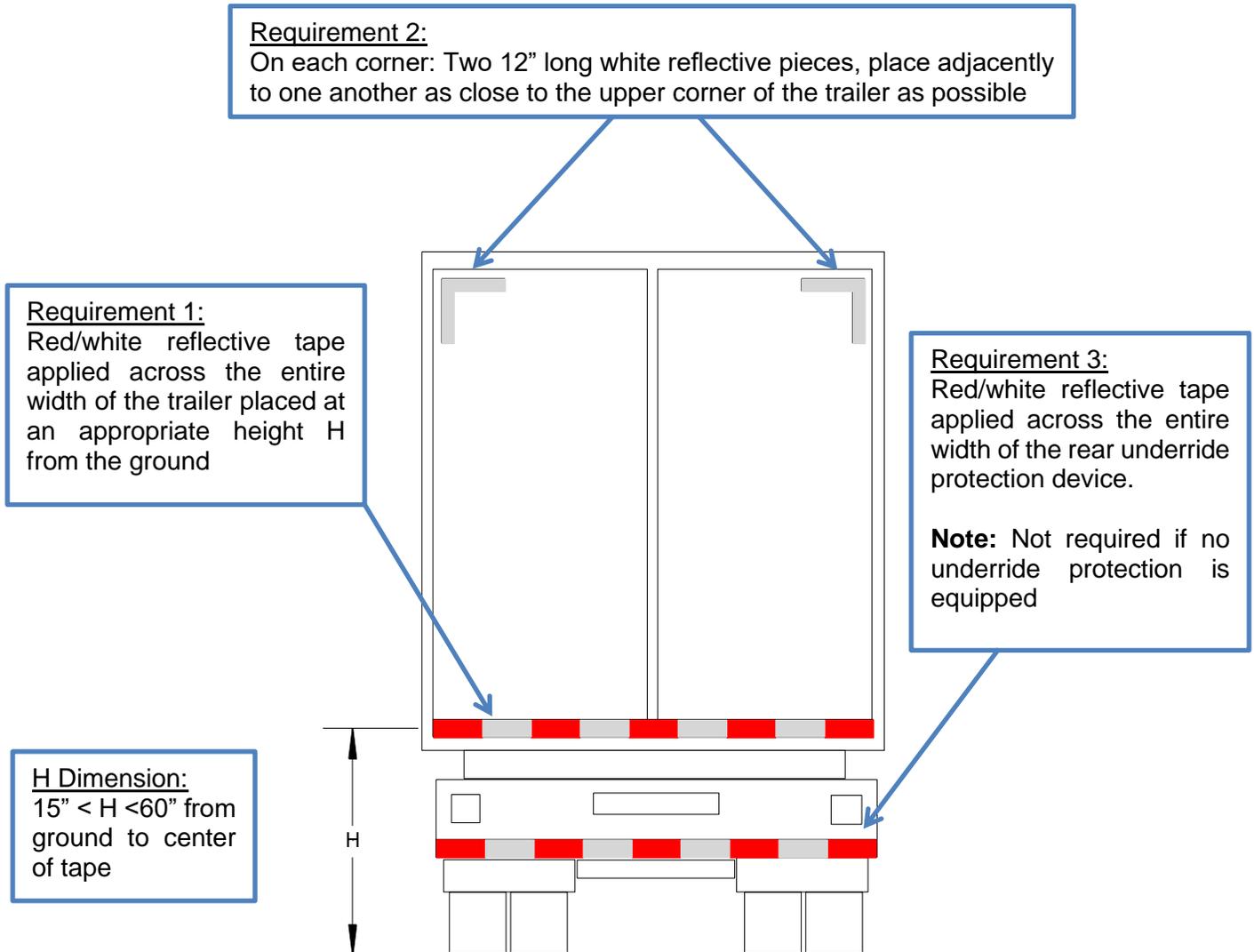




**Pre-installed decals.*

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>.



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.

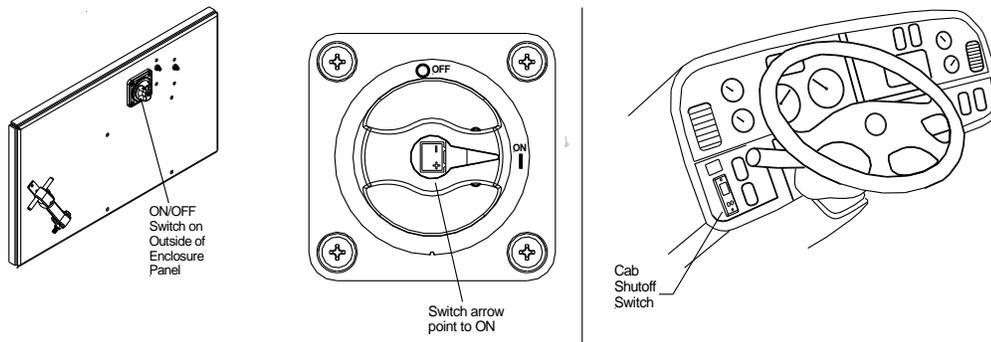
NOTICE

Test steps 2-9 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.

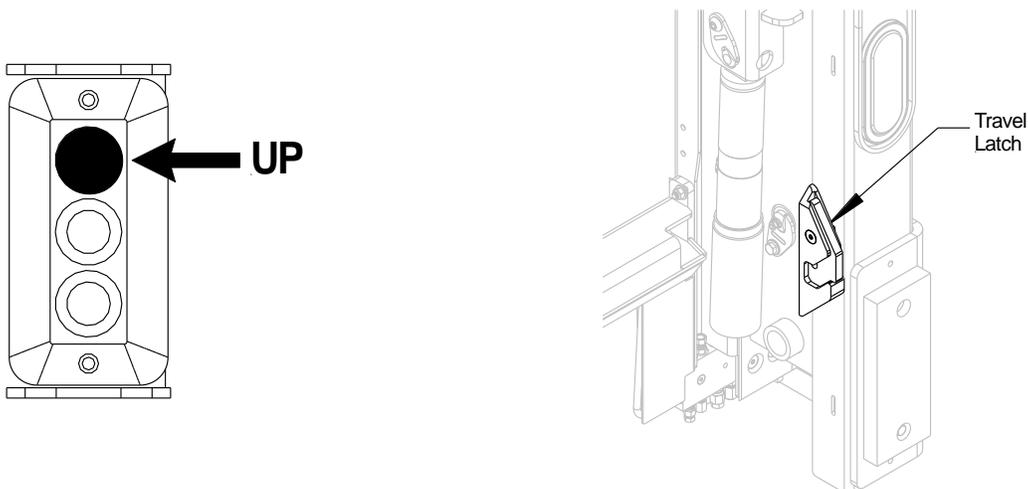
16.2 Operating Instructions (Standard Units)

Steps:

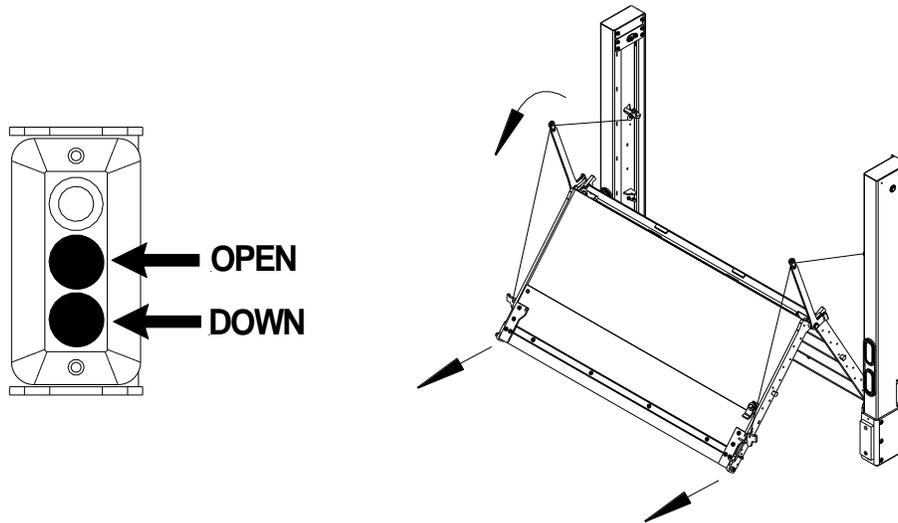
1. Turn on power: To activate power to the liftgate, turn the master disconnect switch located on the outside of the battery box to the "ON" position. If the vehicle has a cab switch, verify that its turned ON also.



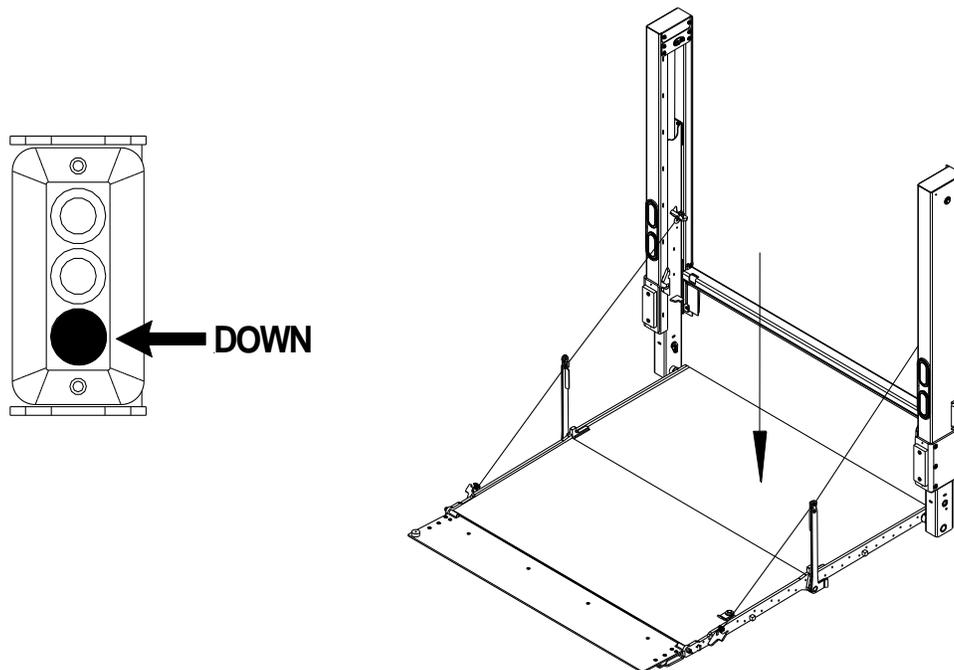
2. Open Liftgate Platform: Be certain the operating area around platform is clear before opening platform. Pushing the "UP" button, raise the platform up so that it is completely out of the travel locks. Hold the up switch for 5 seconds to level the platform.



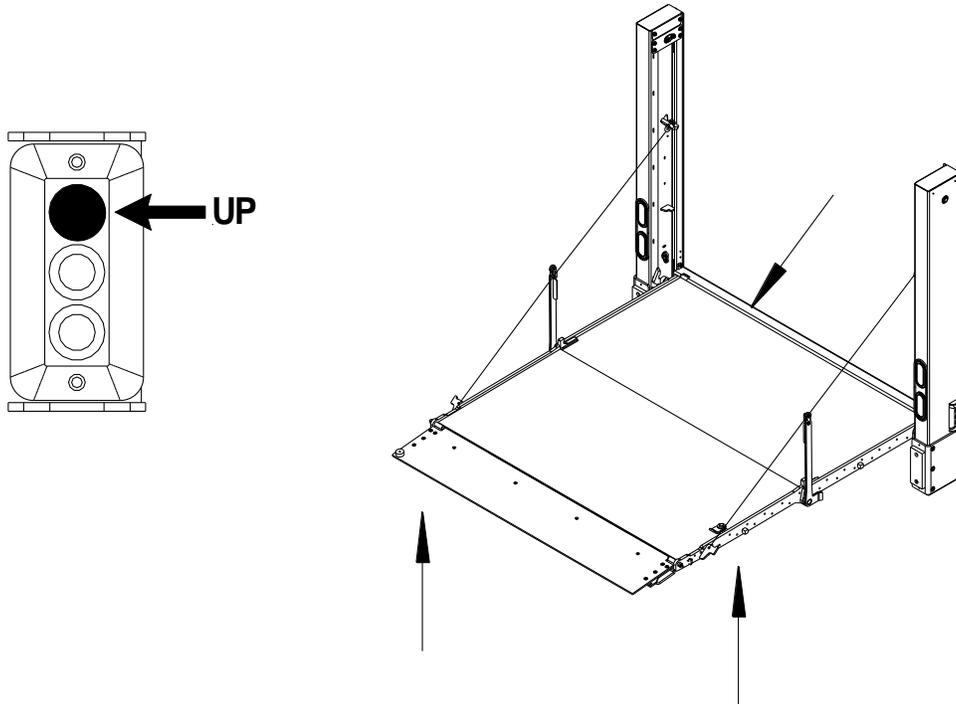
Open the Liftgate Platform (continued): Be certain operating area around platform is clear before opening platform. Pushing the “DOWN” button, and “OPEN” button together to power the platform open.



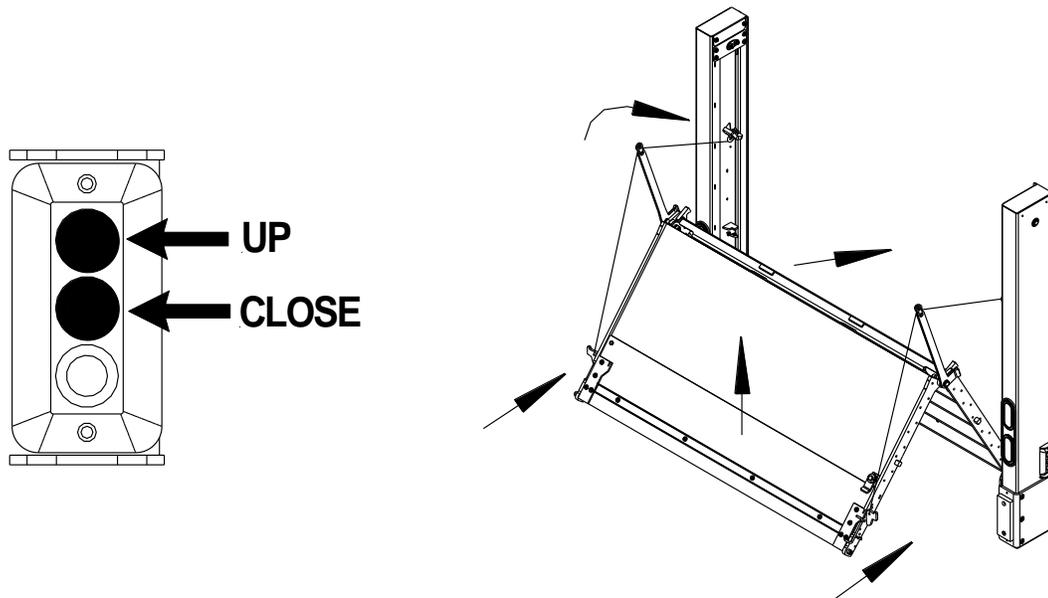
3. Lower the platform to the ground: Pushing the “DOWN” button, lower the platform to the ground. Note: for power down operation, push the down button twice (within 3 seconds).



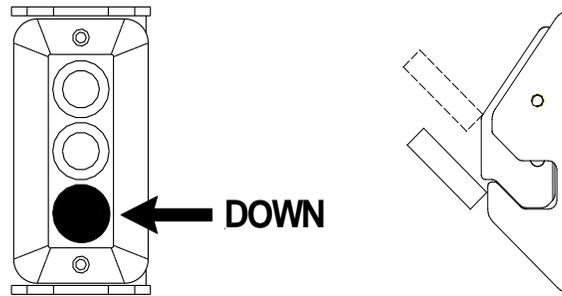
4. Raise the platform to bed level: Pushing the “UP” button, raise the platform to bed level.
5. Bleeding the system: With the platform at bed level, push the “UP” button for thirty (30) seconds. This will bypass hydraulic fluid through hydraulic poppet valves located in each of the lift cylinder pistons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



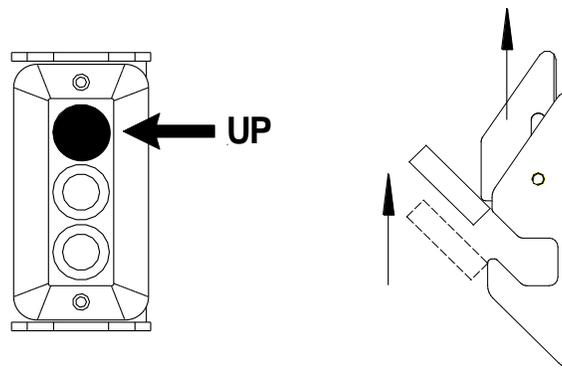
6. Closing and Storing of the Platform for transit: With the platform open at bed level use the “UP” button and “CLOSE” button together, power the platform closed.



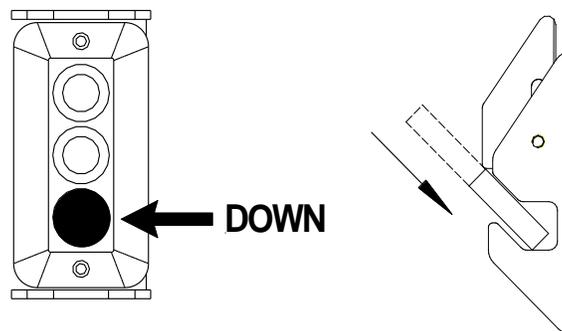
7. Lower the Platform: Using the “DOWN” button, push down twice (within 3 seconds) and power down platform past the Travel Locks. (See Illustration)



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.

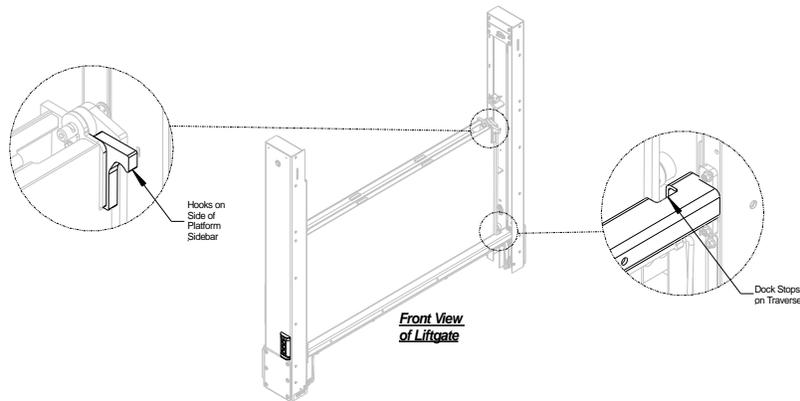


16.3 Dock Loading – Lowering Platform (Standard Unit)

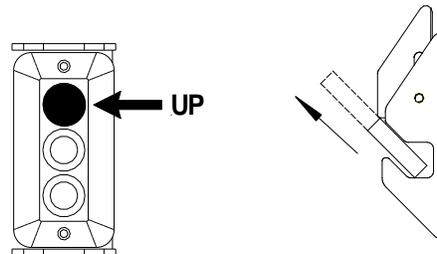


When backing up vehicle to loading dock

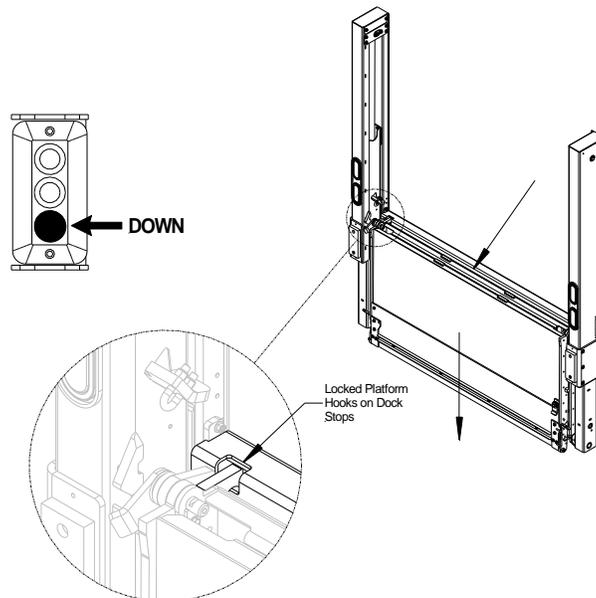
DO NOT hit the dock. Have a second person outside the truck directing you. Hitting the dock may cause hidden damage to liftgate components. Be sure to inspect the liftgate for damage.



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.

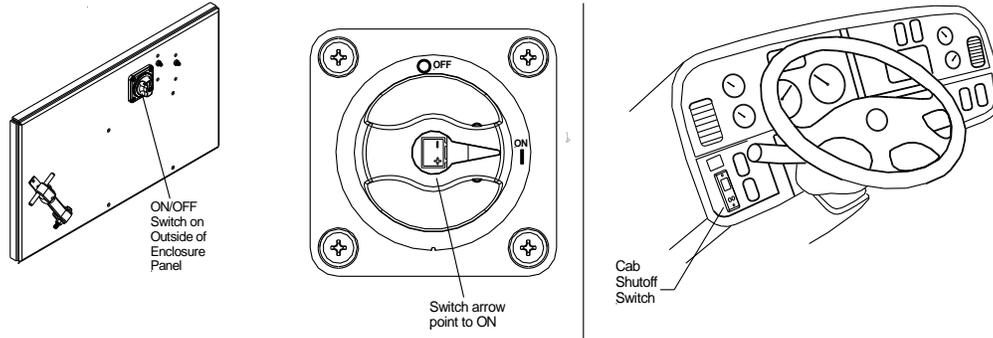


Bottle Gas Units

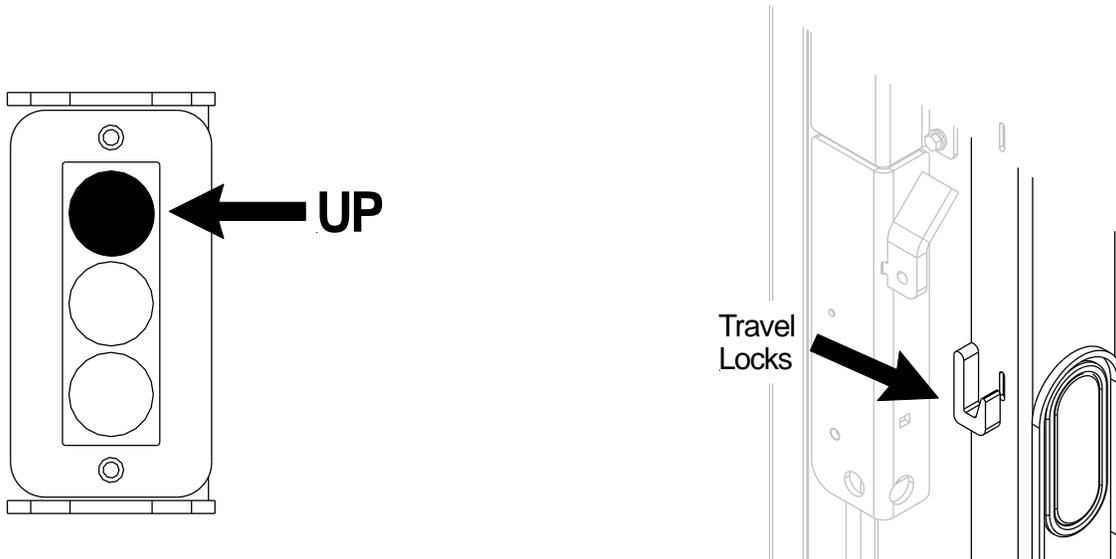
16.4 Cycle Test and Bleed The Hydraulic System, Bottle Gas Units

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 its turned ON also.

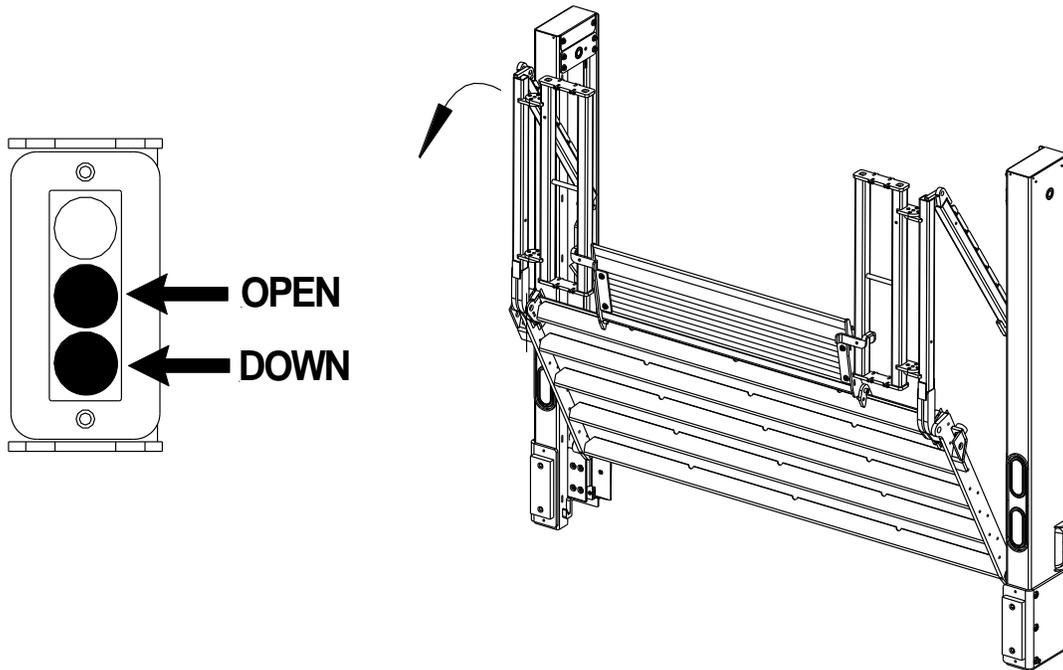


2. Open Liftgate Platform: Be certain the operating area around platform is clear before opening platform. Pushing the "UP" button, raise the platform up so that it is completely out of the travel locks.

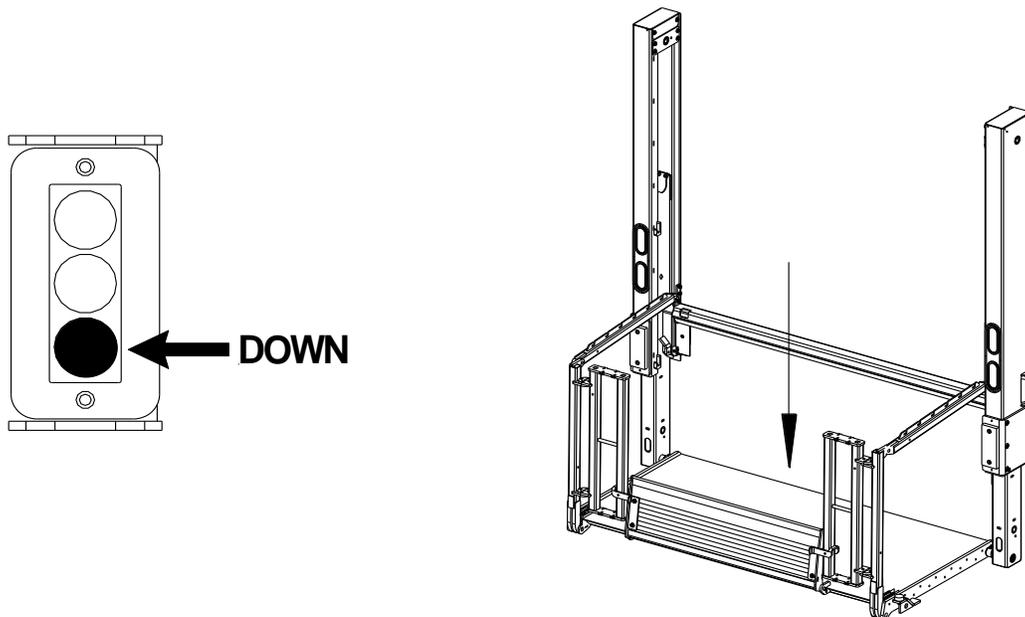


Bottle Gas Units

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.

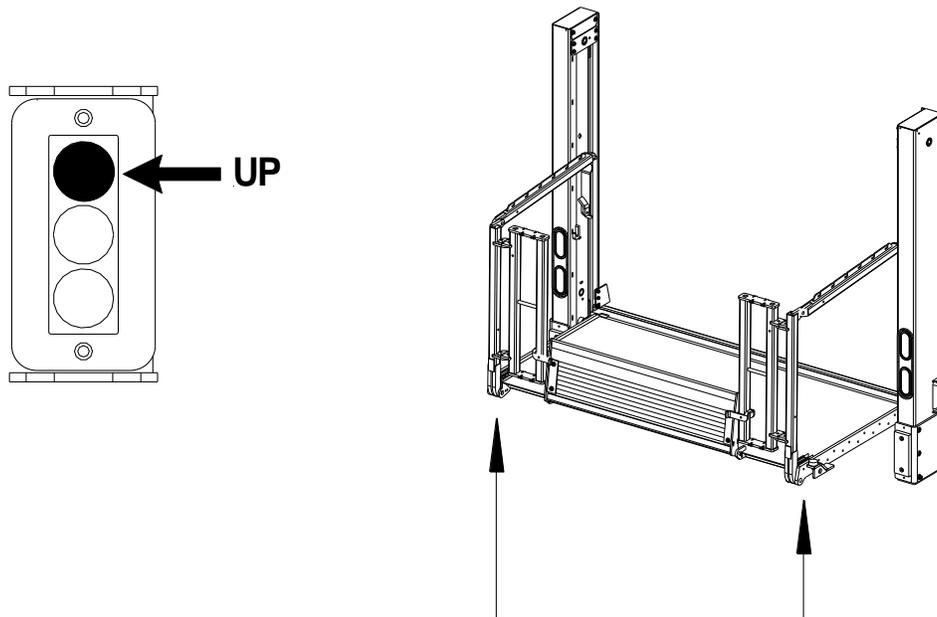


3. Lower the platform to the ground: Pushing the "DOWN" button, lower the platform to the ground. Note: for power down operation, push the down button twice (within 3 seconds).

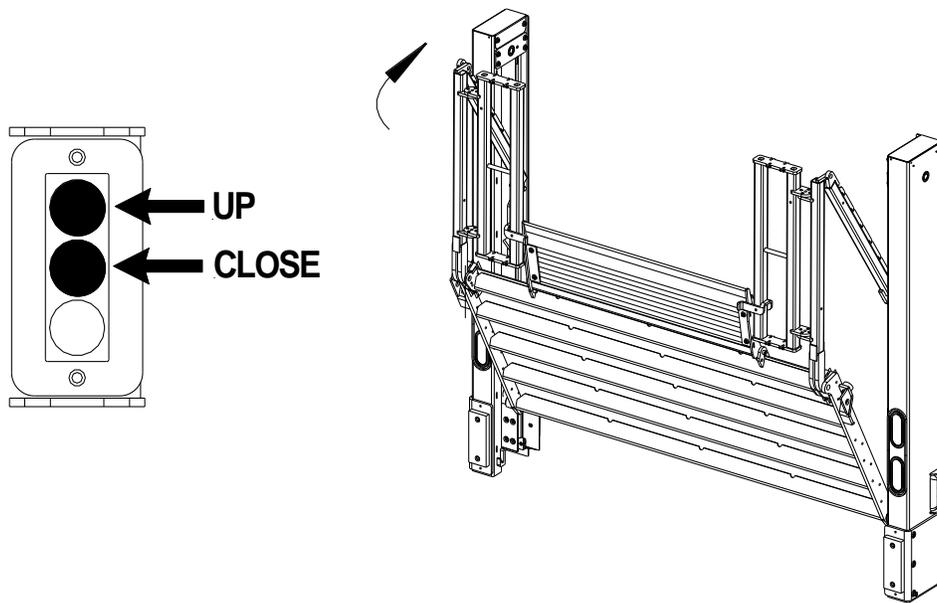


Bottle Gas Units

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.

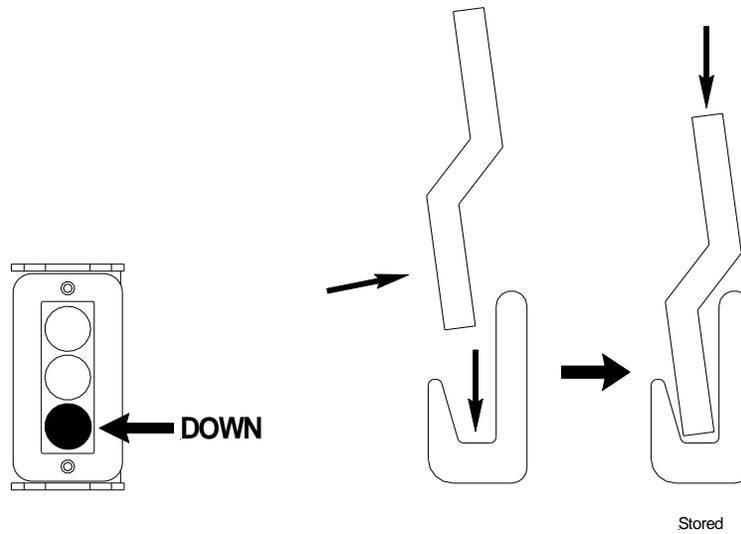


6. Closing and Storing of the Platform for transit: With the platform open at bed level use the “UP” button and “CLOSE” button together, power the platform closed.

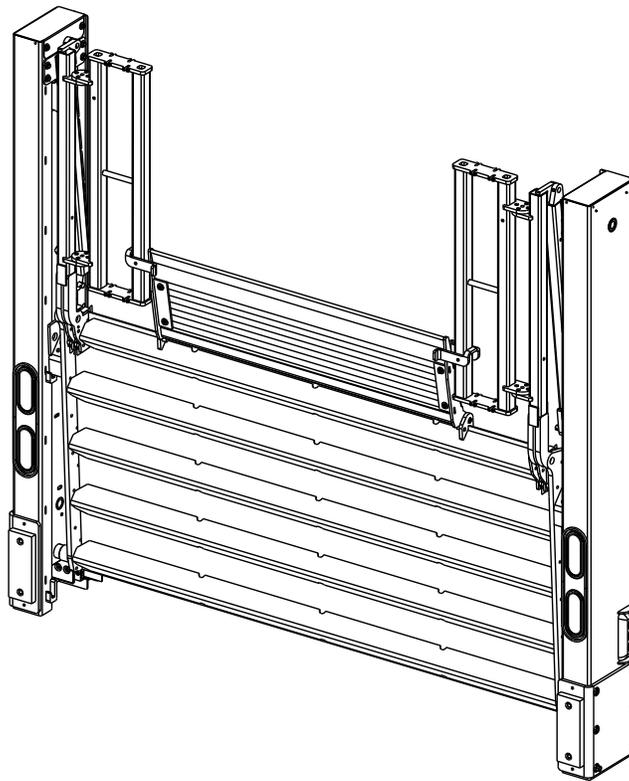


Bottle Gas Units

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)



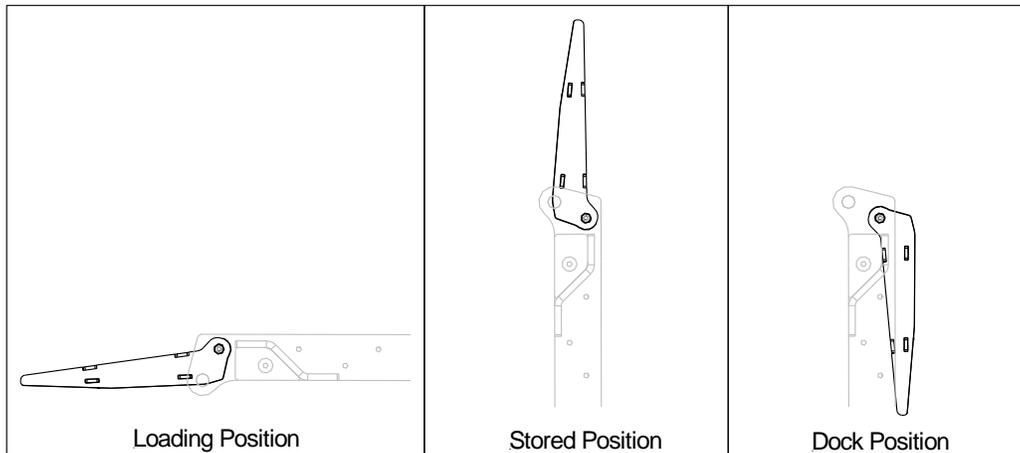
The platform should now be in stored/ transit position, as shown below.



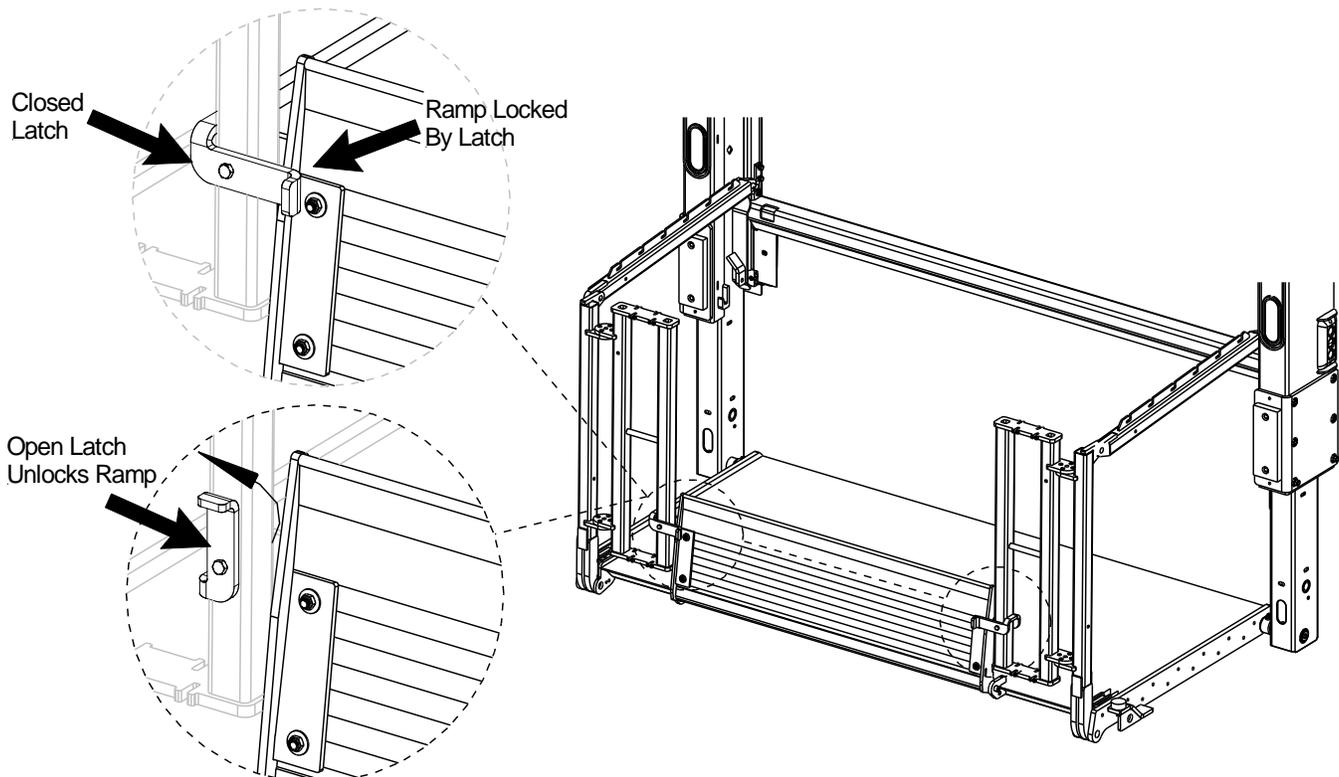
Bottle Gas Units

During the operation of the liftgate, the ramp will be in one of the three positions shown below.

Curb Side View of Ramp Positions

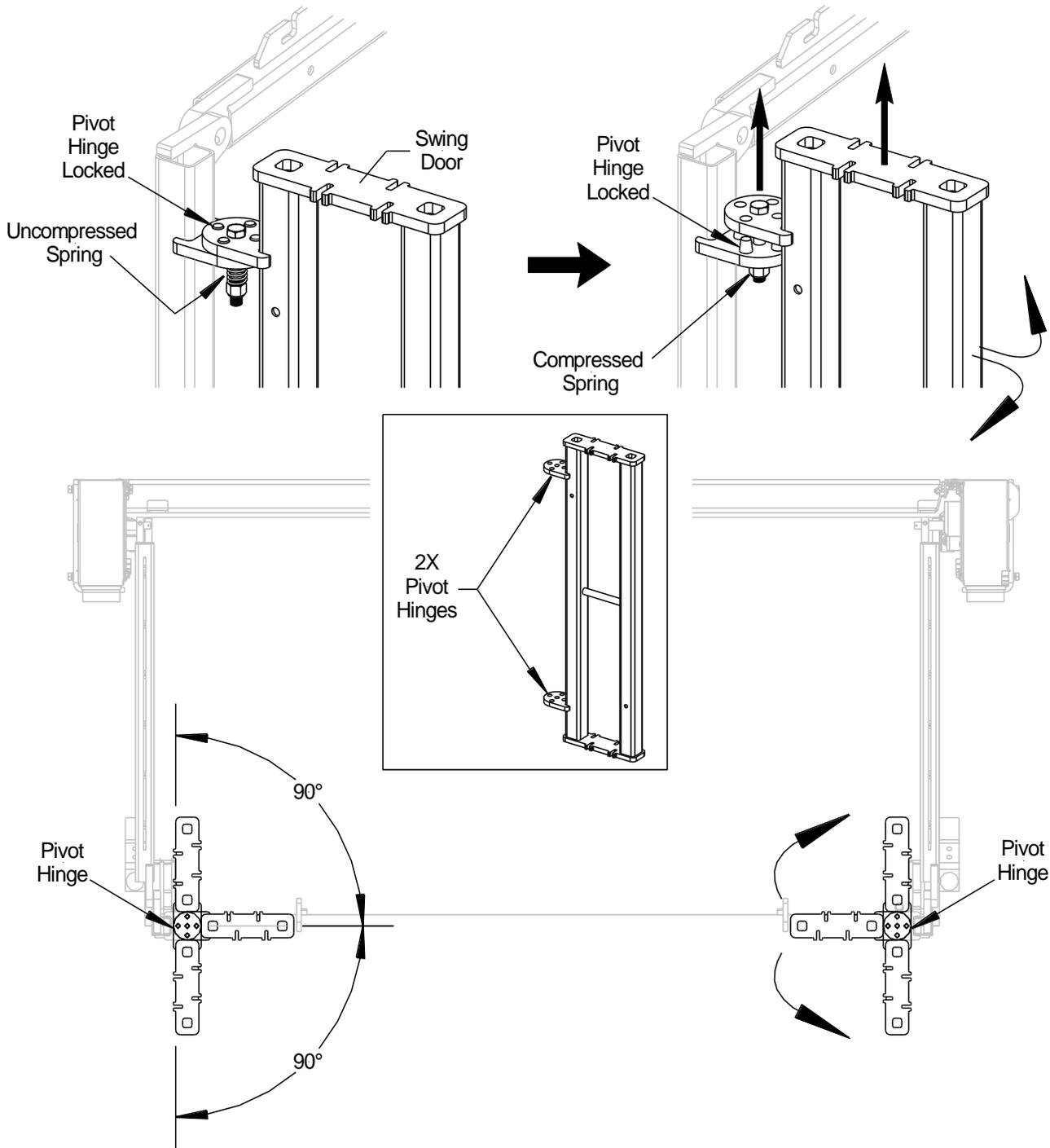


“Loading” position: Is achieved with the gate completely lowered to the ground, platform out, and the ramp out. To open the ramp, flip the ramp latches to a vertical position. This will release the ramp



Bottle Gas Units

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.

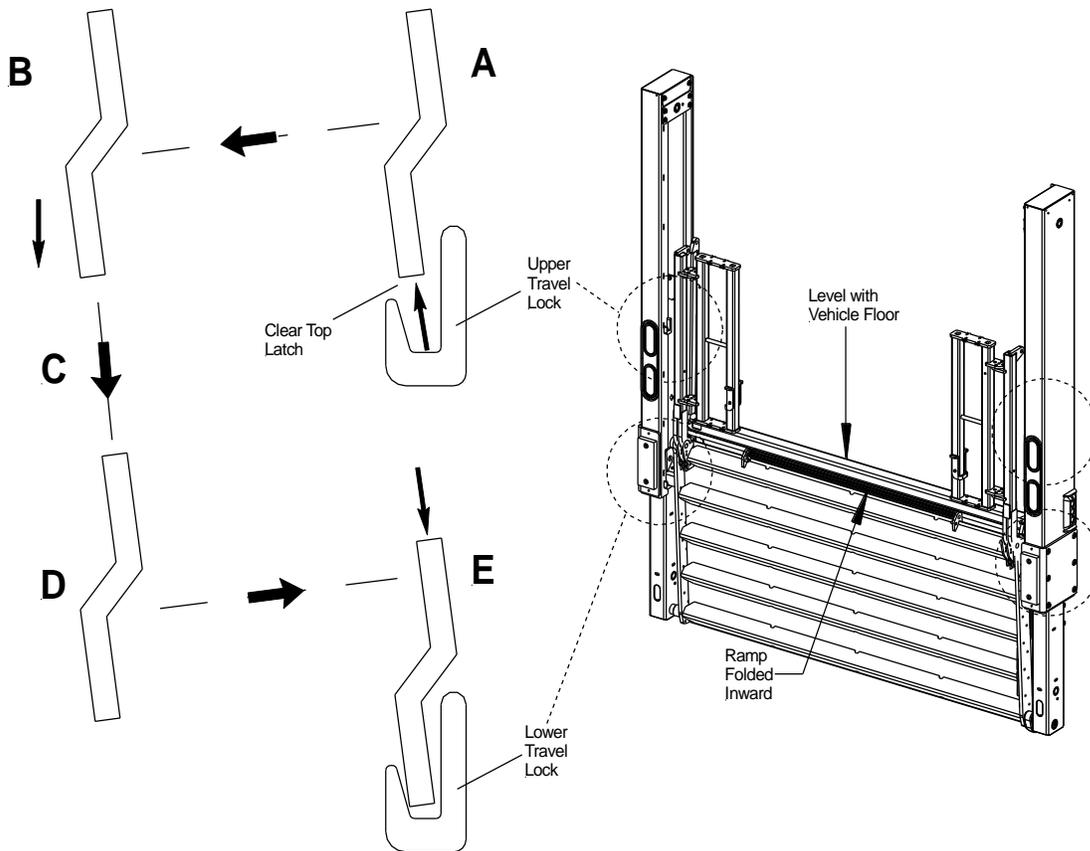


Top View of Swing Door Positions

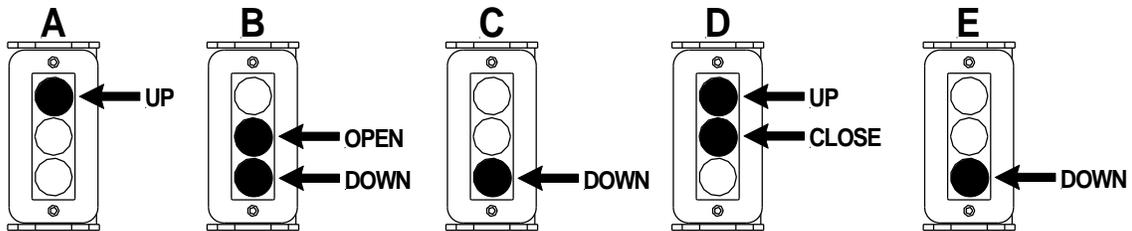
Bottle Gas Units

“Dock Loading”: 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** button **(A)** and the **OPEN/CLOSE** buttons **(B)** briefly to open the platform enough to clear the travel lock. Fold the ramp inward as shown below, if it is not already. Press the **DOWN** button **(C)** to lower the gate until the platform passes the travel latch and is level with the vehicle floor. Press the **UP/CLOSE** buttons **(D)** to close the platform and then press **DOWN** button **(E)** to store the platform in the lower travel lock.



Control Switch Sequence



NOTE: When backing up vehicle to loading dock.

DO NOT hit the dock. Have a second person outside the truck directing you. Hitting the dock may cause hidden damage to the liftgate components. Be sure to inspect the liftgate for damage.

17 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, hose 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, 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 13.11 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.4).
- 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: _____

