

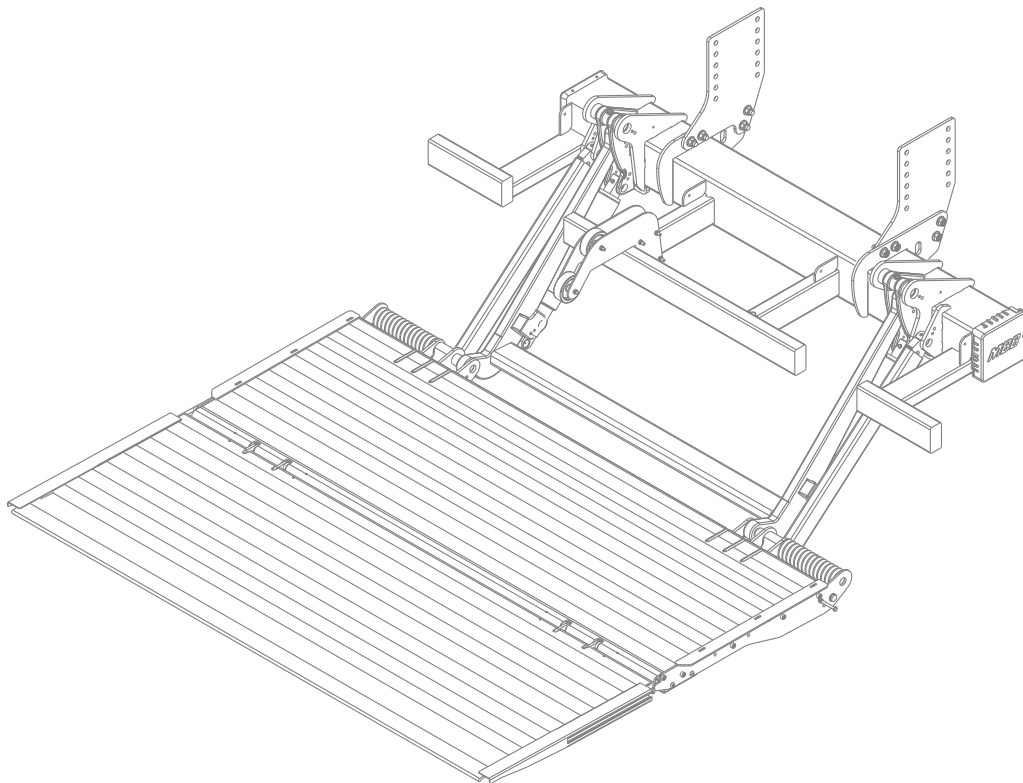


LIFTGATES

INSTALLATION MANUAL & CHECK OFF SHEET

ILT 35, 3500 lbs. Capacity

ILT 40, 4000 lbs. Capacity



ILT 35/40, ILT-PD 35/40, ILT-WR 35/40, ILT-WR-PD 35/40 Owner's Manual**Document Part Number: 90-1013-000 / 13-681_90-00_00-00****ECN-M0804, Rev. 1.15, 07-20-16****Copyright © 2016 Palfinger Liftgates LLC.****All rights reserved.****Information in this document is subject to change without notice.****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****Parts Order****liftgateparts@palfinger.com****Technical Support****technicalapplications@palfinger.com****Palfinger Liftgates, LLC.****15939 Piuma Ave.****Cerritos, CA 90703****Tel (888) 774-5844****Fax (562) 924-8318****Palfinger Liftgates, LLC.****572 Whitehead Road.****Trenton, NJ 08619****Tel (609) 587-4200****Fax (609) 587-4201**

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Company Information:

Company Name: _____

Advisor Name: _____

Trailer Year Make & Model: _____

Liftgate Information:

Liftgate Serial Number: _____

Liftgate Model Number: _____

Date of Purchase: _____

Date of Installation: _____

1 Manual Updates for v1.15

- Updated Section 7.1: Added Trailer Hitch dimensions.
- Updated Section 9.1, step 2: Included note stating channel must be flush with platform not sidebar.
- Added figure numbers to linearts.
- Wiring schematics: Updated toggle switch cable colors.

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.



! **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** in minor or moderate injury.



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

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



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

- Always be aware of your surroundings.
- Wear eye protection at all times during installation.
- Ear protection and gloves should be used when necessary.

3 Important Information

Before Getting Started

“READ FIRST”

NOTICE

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

- Review lift gate invoice, packing slip, and installation drawing to assure delivery of correct gate and complete delivery of accessories and optional equipment.
- Refer to chapter 6 page 13 MOUNTING TABLE and verify that the truck/trailer has sufficient bed height and mount clearance for the selected gate. Keep in mind that the truck/trailer can settle several inches depending on suspension, over hang, addition of equipment and loading.
 1. If the minimum bed height is not maintained the gate will not fold or unfold
 2. If the maximum bed height is exceeded the gate may not reach the ground
- Read and understand the “Installation Manual” and “Owner’s Manual” in their entirety before starting the 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.
- 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 sent to Palfinger Liftgates for warranty activation.
- Refer to owner’s manual for Operation and maintenance information.
- Check the battery voltage before installation. Flooded lead acid batteries should measure 12.6V and AGM batteries should measure 12.8V. If batteries are not at these voltages, fully charge before installation

⚠ WARNING

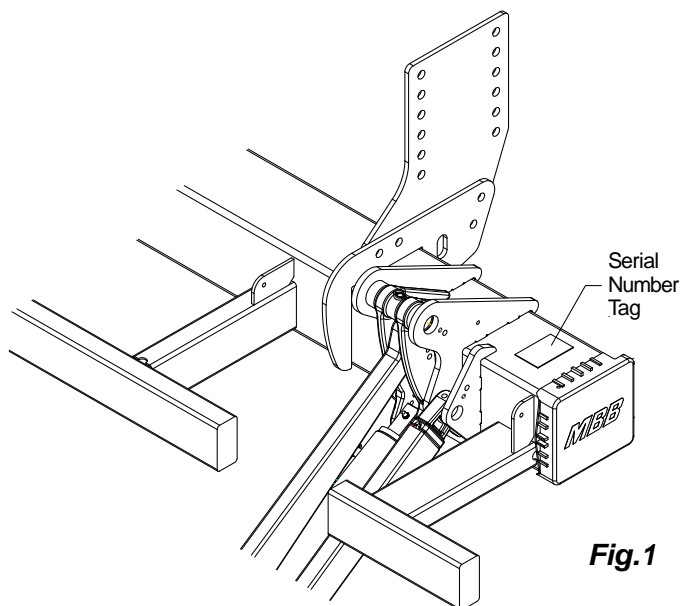
Improper operation of this liftgate may result in severe personal injury or death. **DO NOT** operate unless you have been properly instructed, have read and are familiar with the procedures in this manual. This manual has been designed to illustrate the steps needed for the basic installation of the ILT 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 ILT series liftgate only which is designed for different capacities and features.

- 1) Refer to the serial number tag on top of the mount tube at curb side as shown in **Fig. 1**.



- 2) Ask your employer or lessor;
- 3) Call your Palfinger Liftgates Authorized Service Center for assistance.
- 4) Call Palfinger Liftgates for assistance in the USA at 888-774-5844. You can also contact Palfinger Liftgates by fax (562) 924-8318 or on the internet at www.palfinger.com

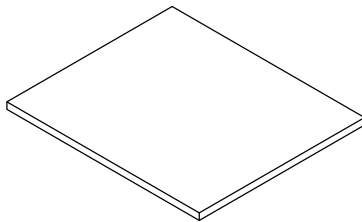
For technical support, contact Palfinger Liftgates or an authorized Palfinger service center. www.palfinger.com

4 Tools For Installation

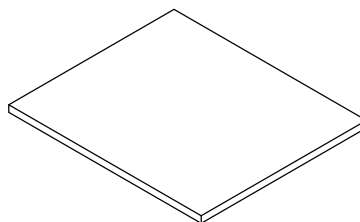
Metric Wrench Set	Basic Screwdrivers	Assorted Pliers	Wire Crimp Pliers
Digital Multi-Meter	Snap Ring Pliers	Hammer	SAE & Metric Allen key Set
½" Impact & Sockets	SAE & Metric Socket Set	Assorted Drill Bits	Floor Jack or Equiv.
Small to medium bottle Jack	Forklift or Over Head Crane	Hand Held Grinder	Paint Gun & Accessories
Pry Bar	3/8 Drill Motor	Grease Gun	Heat Gun or Equiv.
Min. 250 Amp Welder	Cutting Torch or Equiv.	Safety Goggles	

4.1 Bagged Items

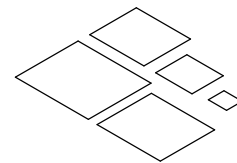
Installation for each bagged item can be found throughout this installation manual.



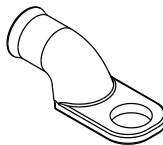
Owner's Manual
1 pc



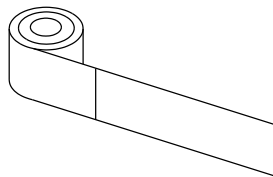
Installation Manual
1 pc



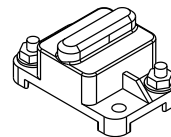
Decal Kit
15 pcs



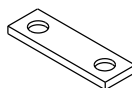
Battery Lug, 5/16"
1 pc



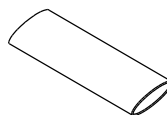
Conspicuity Tape
Roll



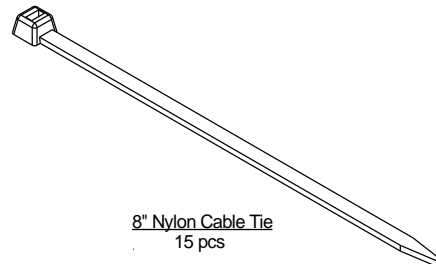
Circuit Breaker
1 pc



Copper Bus Bar
1 pc



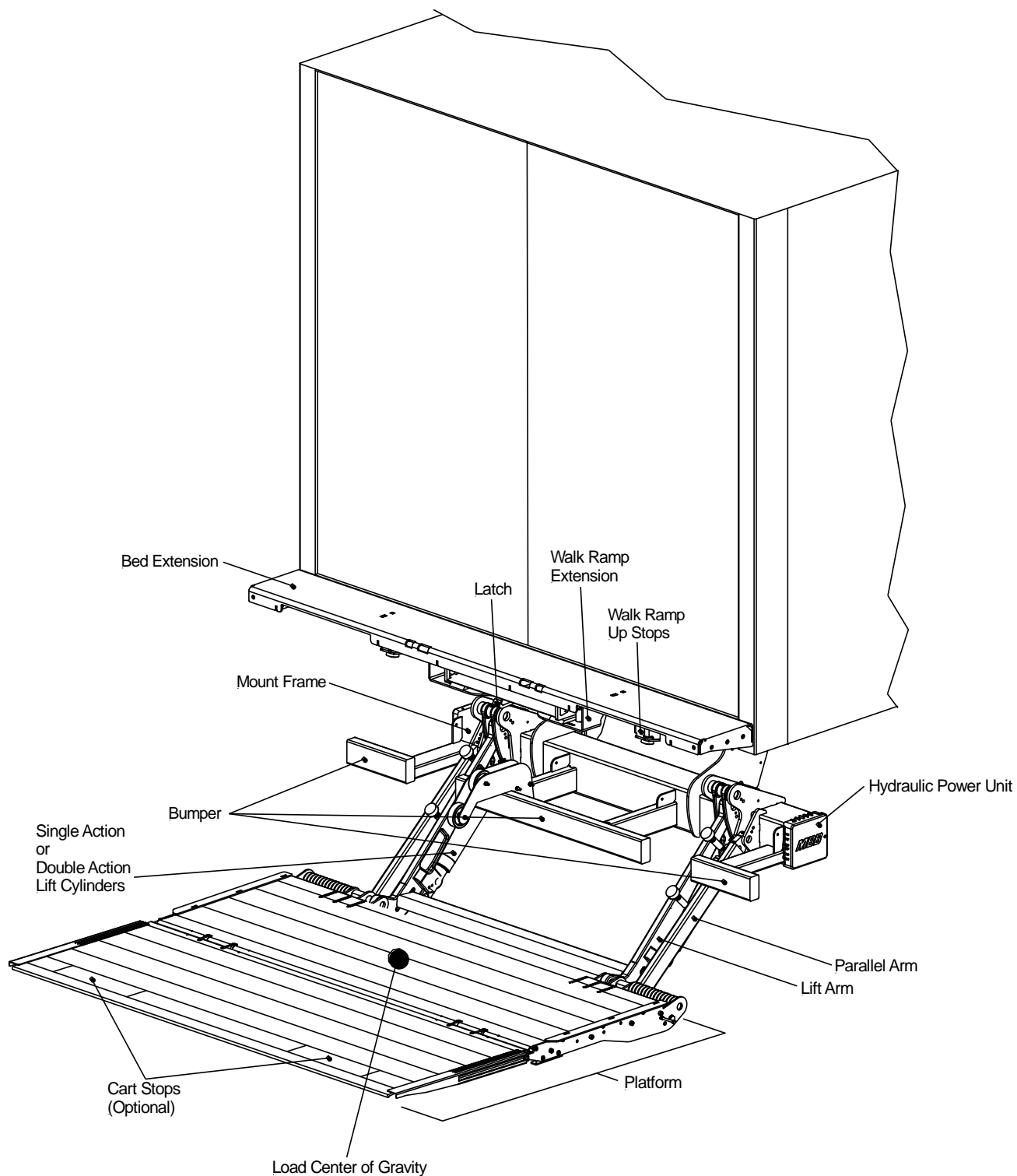
Heat Shrink
ø1/2" x 3"L
1 pc

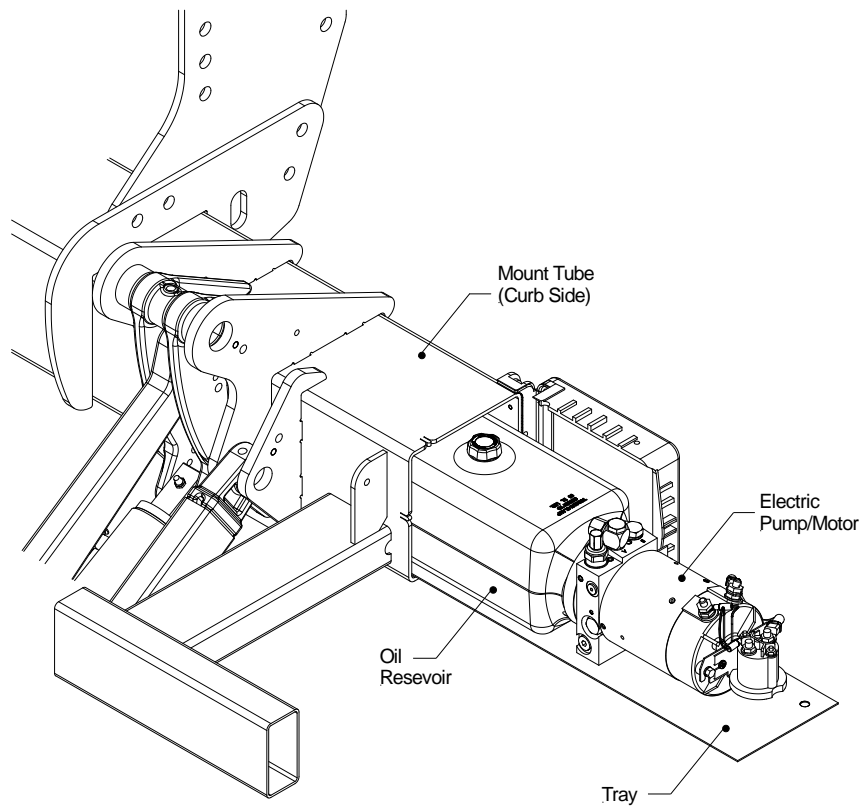


8" Nylon Cable Tie
15 pcs

5 General View of Liftgate(s)

5.1 ILT General Overview





Hydraulic Power Unit

NOTICE

5.2 Important Dimensions

Minimum Bed Height dimensions are ALWAYS MAXIMUM LOADED TRUCK.

Maximum Bed Height dimensions are ALWAYS DRY UNLOADED TRUCK.

- Installing a gate at or close to minimum bed height normally results in a gate that will NOT open and close from stored position if the minimum floor height is exceeded when truck is loaded.
- Ensure trailer/truck body does not interfere with installation or operation of the ILT liftgate series.
- It is not recommended to cut, torch, or remove support materials from trailer/truck. Removing gussets, stiffeners, light rings, or other such support structures may VOID your trailer/truck warranty.
- Call technical support before starting the installation if any questions or concerns arise on mounting dimensions or procedures.
- Minimum clearance area required for an ILT liftgate to install on a vehicle is 36". Clearance area should be free of any obstruction that will prevent the installation of the liftgate, **Fig.2**.

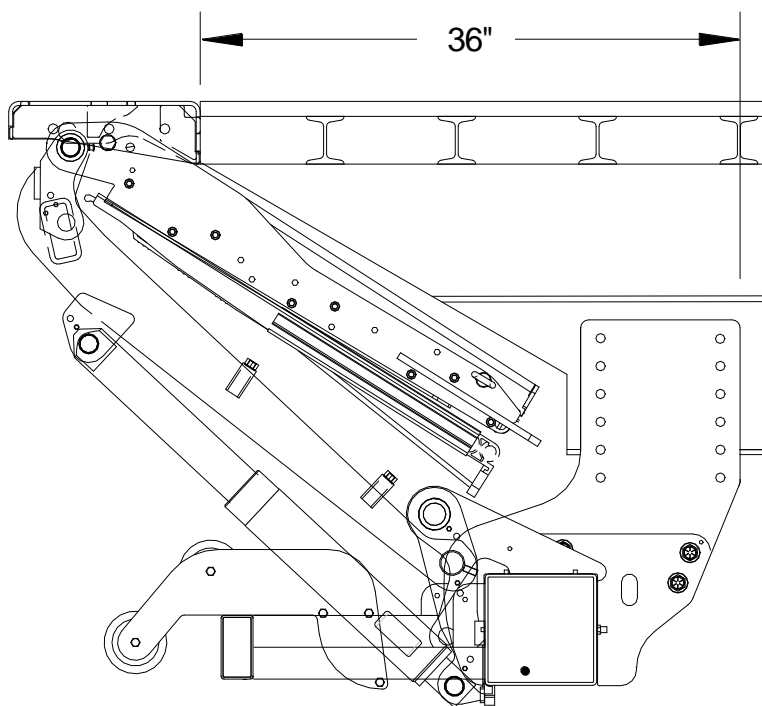


Fig.2

6 Installation Dimensions



Chassis Dimension Sheet

Trailer Chassis Dimension Sheet – 90-9813-002

Contact Information

Quote#/SO# _____

Company _____

Phone (____) ____-____ Fax (____) ____-____

Email _____@_____

Chassis Information

Type of Body (check one)	
Van	<input type="checkbox"/>
Flatbed	<input type="checkbox"/>
Refer	<input type="checkbox"/>

Type of Rear door (check one)	
Roll-up	<input type="checkbox"/>
Swing	<input type="checkbox"/>
Flip-up	<input type="checkbox"/>

VIN #: _____ Trailer Make: _____ GVWR _____ Length _____

Liftgate Model: _____ Liftgate Capacity: _____

Liftgate platform dimensions: _____

A = Bedheight: top of trailer floor to level ground (with air bags up).....

B = Top of floor to bottom of trailer cross member.....

C = rear sill height: top of floor to bottom of buck plate.....

D = Crossmember height.....

E = Tire to end of body.....

F = Bogie to end of body Sliding suspension? Y / N

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.....

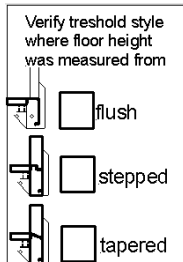
J = Bottom of cross members to bottom of sliding ramp box if equipped.....

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 hole

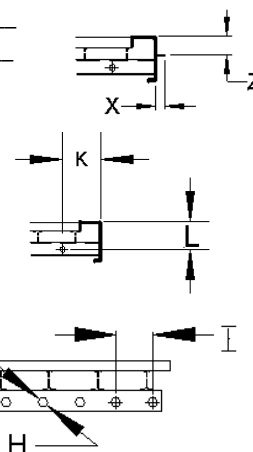
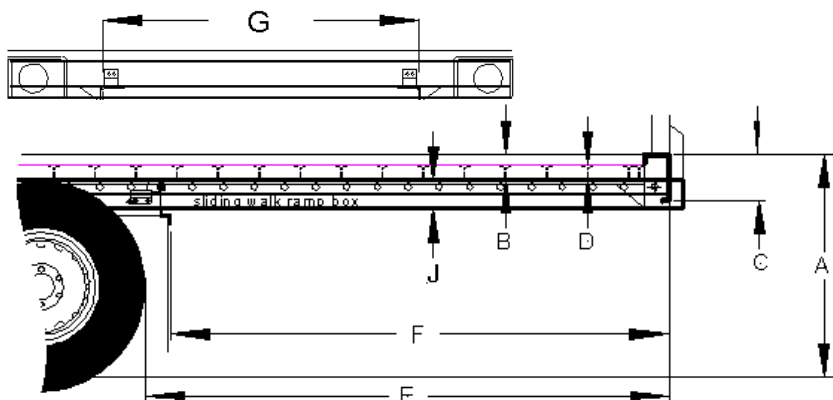
X = Eyebrow depth.....

Z = Top of floor, where the liftgate platform will meet to the top of the eyebrow.....



If Stepped Sill:

Fill out the Sill-Dimension-Sheet





Chassis Dimension Sheet

Truck Chassis Dimension Sheet – 90-9813-003

Contact Information

Quote#/SO#: _____

Company: _____

Phone: (____) ____-____ Fax: (____) ____-____

Email: _____@_____

Chassis Information

Type of Body (check one)	
Van	<input type="checkbox"/>
Flatbed	<input type="checkbox"/>
Refer	<input type="checkbox"/>

Type of Rear door (check one)	
Roll-up	<input type="checkbox"/>
Swing	<input type="checkbox"/>
Flip-up	<input type="checkbox"/>

VIN #: _____ Truck Make: _____ GVWR: _____

Liftgate Model: _____ Liftgate Capacity: _____

Liftgate platform dimensions: _____

A = Bedheight..... Loaded BedHeight.....

B = Top of floor to bottom of frame.....

C = Rear sill height.....

D = Spring hanger to end of body.....

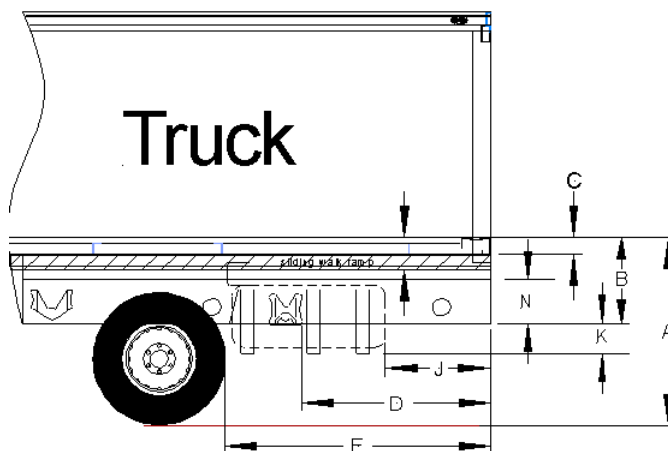
E = Tire to end of body.....

J = Gas tank to end of body (if applicable).....

K = Bottom of frame to bottom of gas tank (if applicable).....

H = Top of floor to bottom of sliding walk ramp (if applicable).....

N = Frame Thickness: Top of Frame to bottom of frame.....

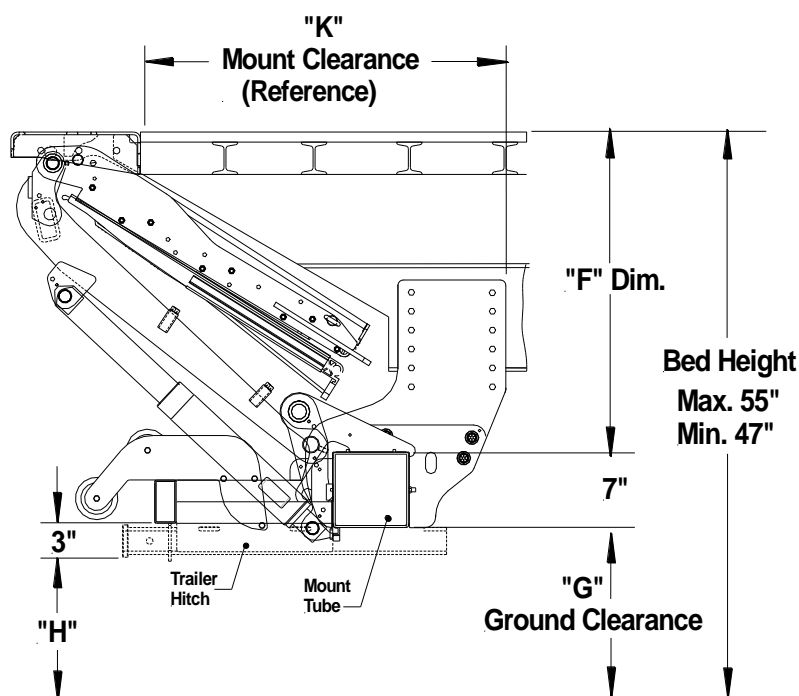


7 Chassis and Body Preparation

7.1 Installation Dimensions

NOTICE

Decrease ground clearance only to clear obstructions (i.e. fuel tanks, cross members, hitches, etc.) **WITHOUT EXCEEDING MAXIMUM "F" dimension of 27"**.



1) Bed Height:

Bed Height Ranges: Max=Unloaded / Min=Loaded Truck

- Measure from **Top** of body floor to ground. Vehicle must be on a flat leveled surface when measuring.

2) "F" Dimension (Mount Tube Height):

- Measure from **Top** of Mount Tube to **Top** of body floor.

3) "K" Dimension Ref.(Mount Clearance):

- Measure from **rear of body** to rear edge of Mount Plates.

4) "G" Dimension (Ground Clearance):

- Measure from **Bottom** of Mount Tube to ground.

5) "H" Dimension (Trailer Hitch Option):

- Measure from bottom of hitch to ground. *NOTE: Trailer hitch will reduce "G" dimension by 3".*

Mounting Dimension Table

Bed Height (Loaded)	F Dim.	G Dim.	H Dim.	K Dim.	ILT-WR
55"-49"	27"	21"-15"	18"-12"	36"	Available
48"-47"	26"	15"-14"	12"-11"	37"	Not Available

Never exceed any of the dimensions from the table when installing the liftgate.

*ILT-WR is unavailable for 49" bedheight with 5" vehicle sill.

G Dim = Bed Height – F Dim. – Mount Tube Height

H-Dim = Bed Height – F Dim. – Mount Tube Height – Trailer Hitch

7.2 Body Frame Cutout

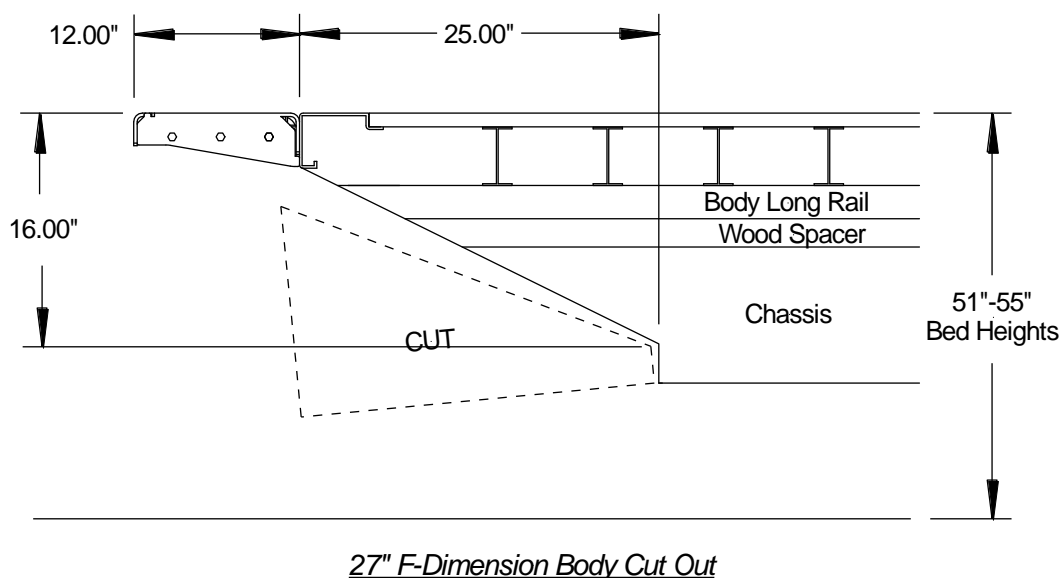
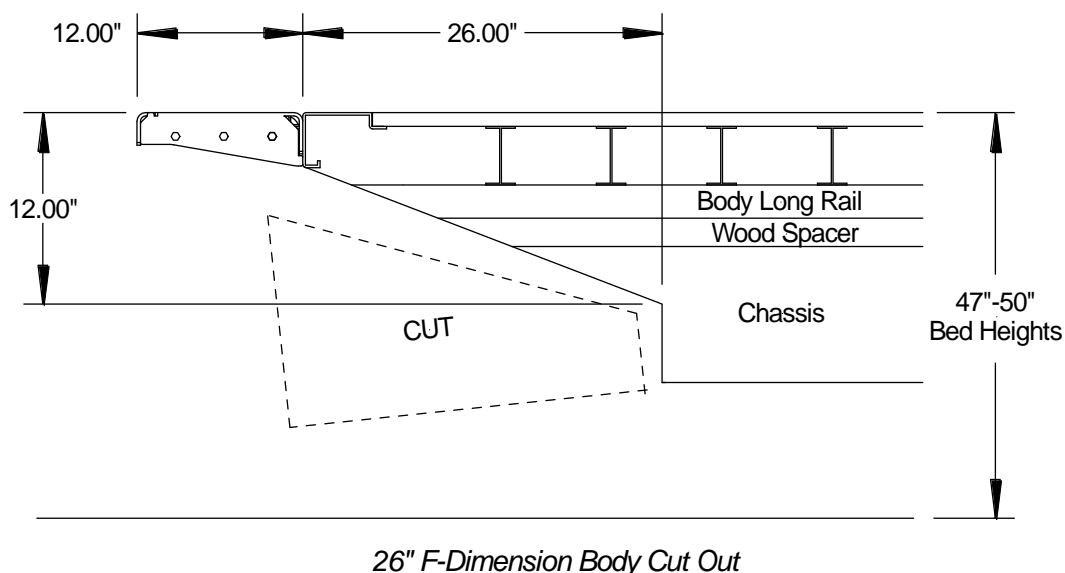


These Dimensions are starting points. Your final dimensions may vary depending on actual installation F Dimension.

The ILT liftgate will require different mounting space requirements **depending on floor heights**.

Steps:

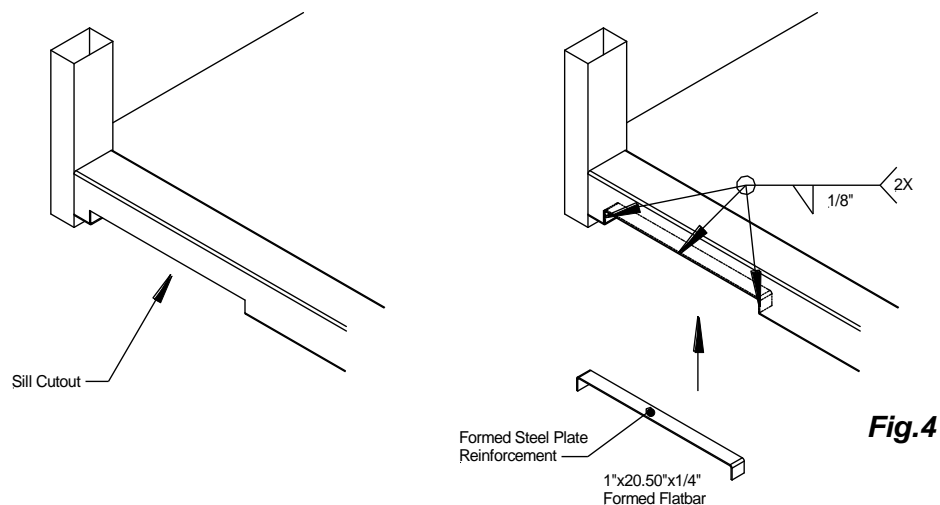
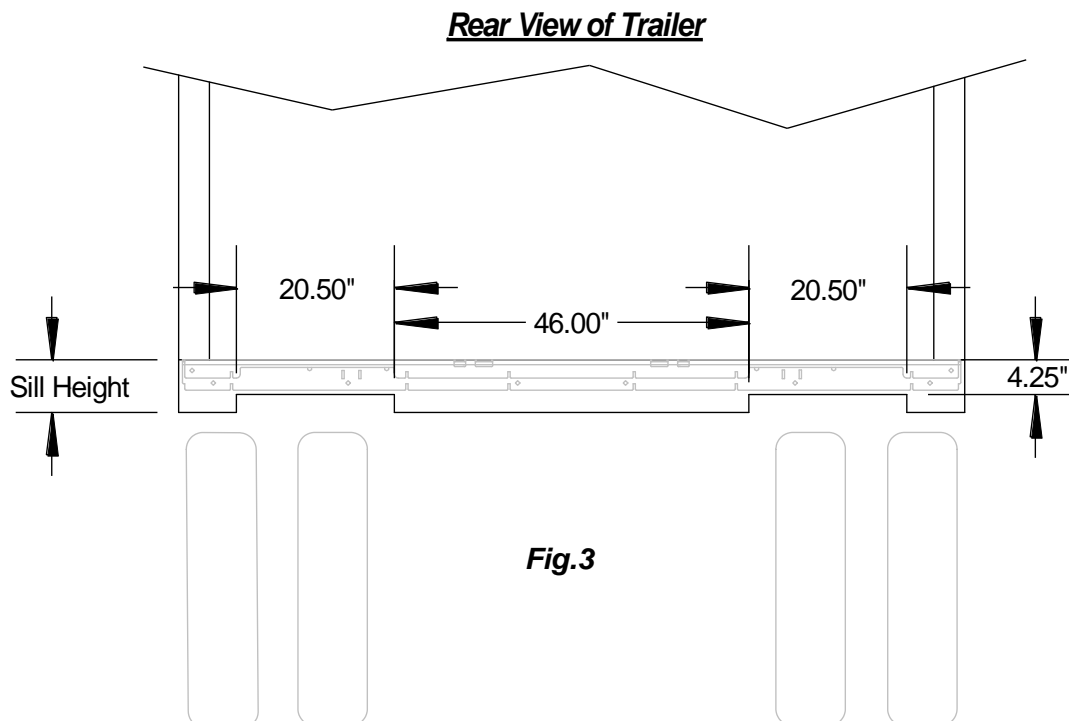
1. Determine Cutout Dimensions: Determine the correct frame cut out according to your specific bed height refer to mounting table. With long overhang it is even more important to maintain MIN F-Dim and MAX ground clearance.



7.3 Sill Cutouts Options

To prevent interference with the platform when it is in stored position the trailer sill could require notching.

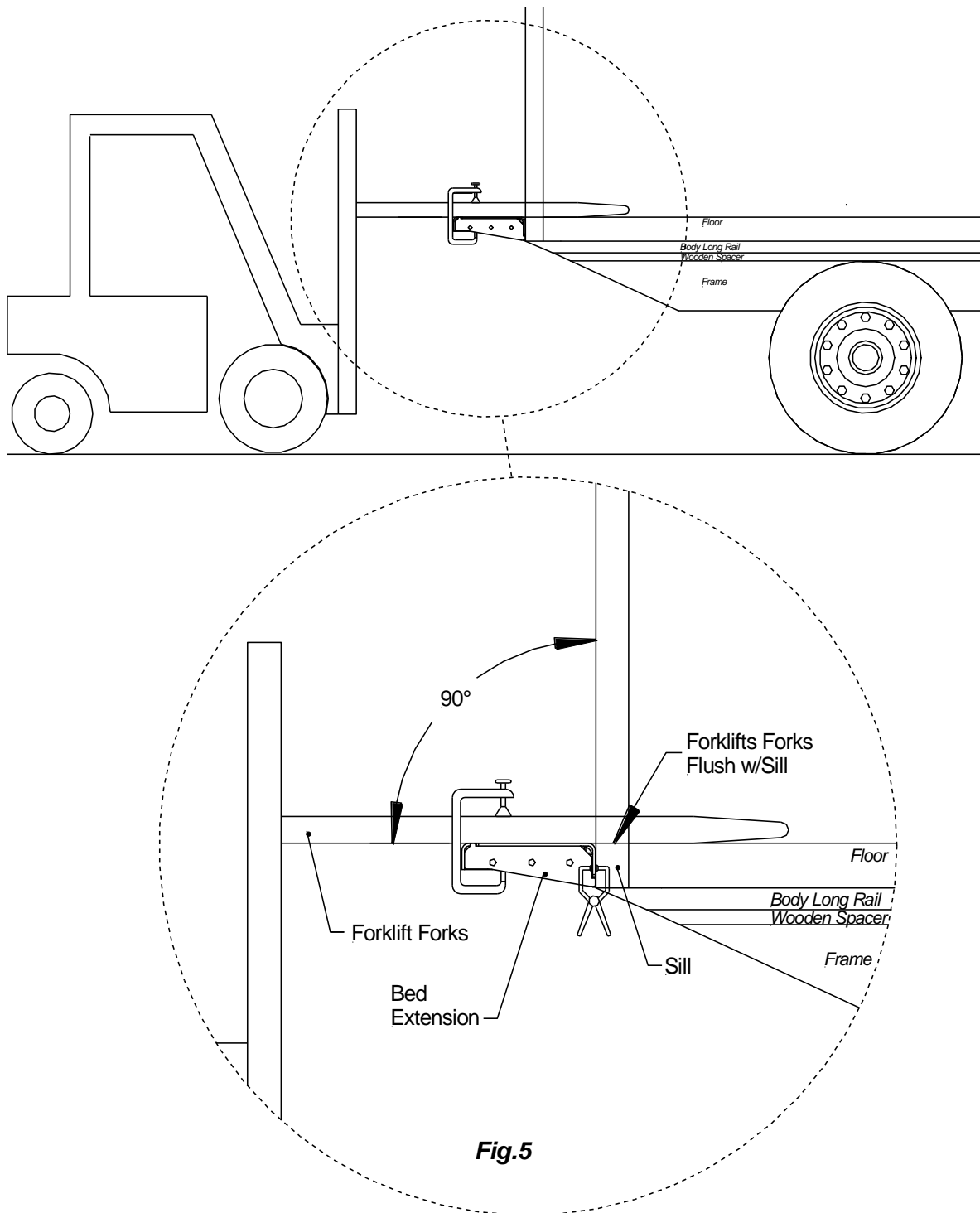
Options	
Sill Height	Action
4"	No sill notching required.
5"	If not notched, liftgate will be offset down approximately 1"-2" from bed extension.
Over 5"	Notch sill as shown in Fig. 3 ; notches will require reinforcement, Fig.4



8 Bed Extension Installation

8.1 Bed Extension (Weld-On)

1. Mark the center of the vehicle body and the bed extension. Clamp the bed extension to the forklift Forks, **Fig.5**. Maintain the bed extension centered and flush to the sill vertically and horizontally. Check for squareness before continuing.



If using a hoist, make a hole on the edge of a 3" standard channel, **Fig.6**. Clamp the channels to the bed extension and attached the hoist to the 3" channels. Maintain the bed extension centered and flush to the sill vertically and horizontally. Check for squareness before continuing.

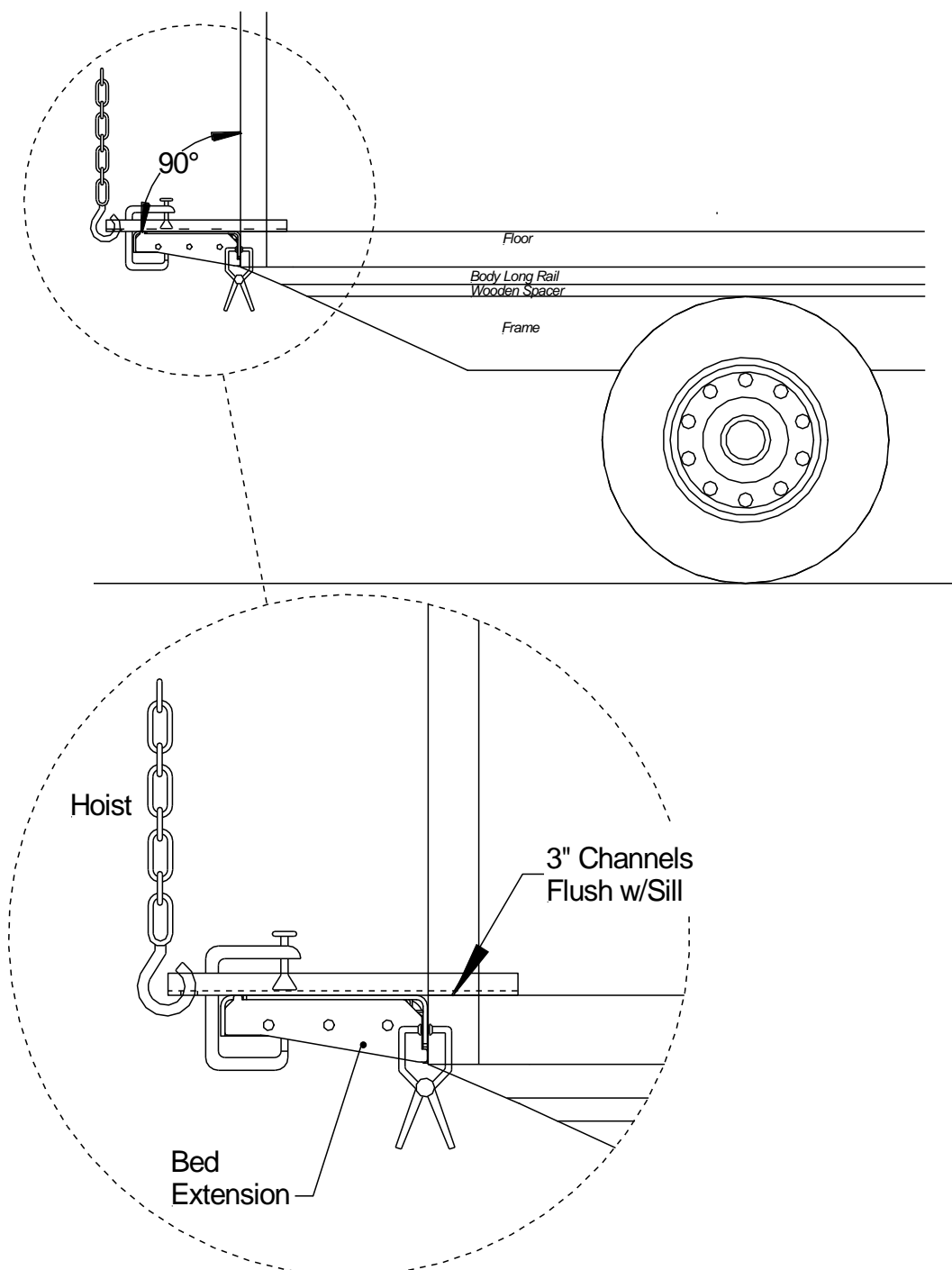
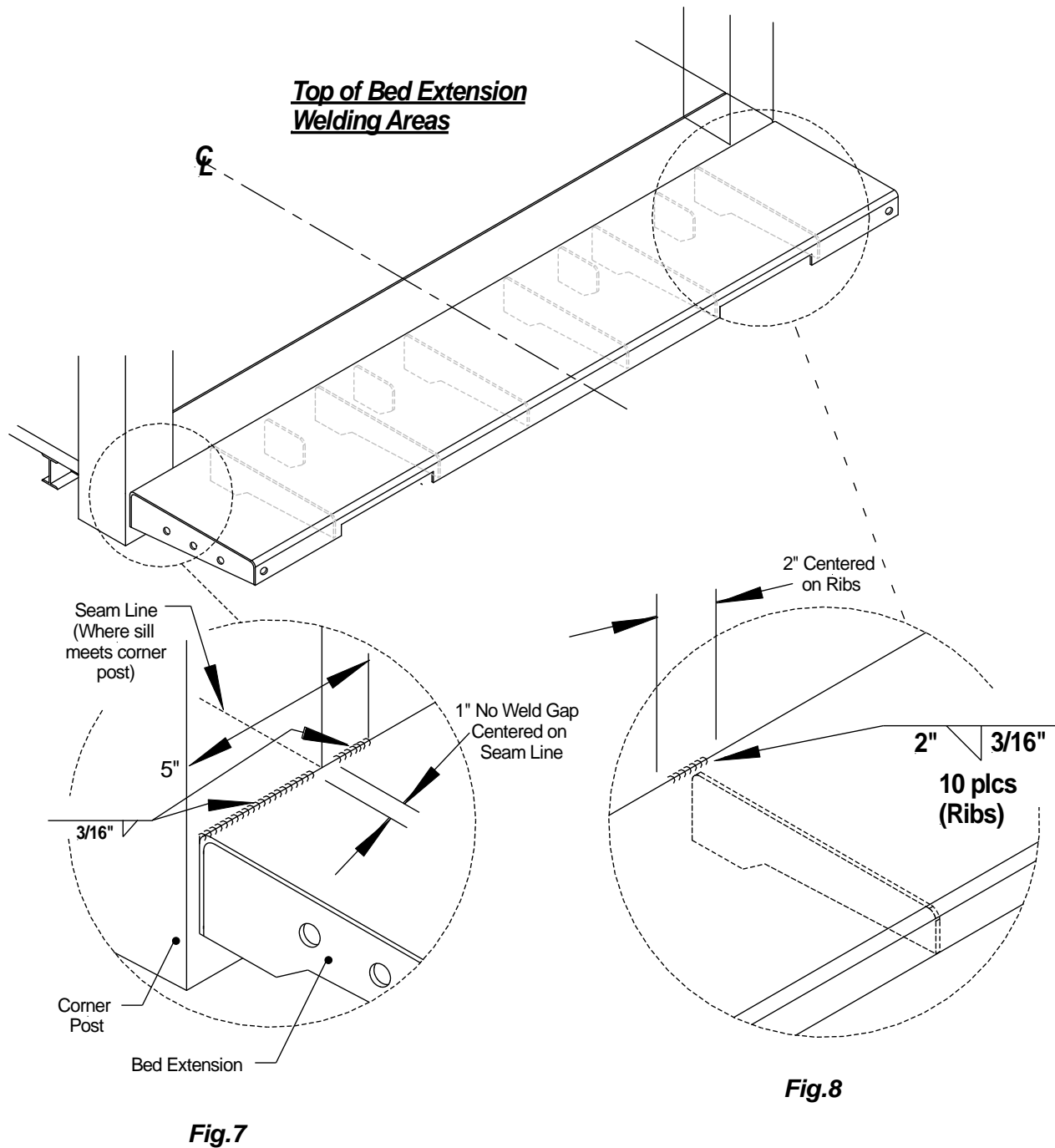
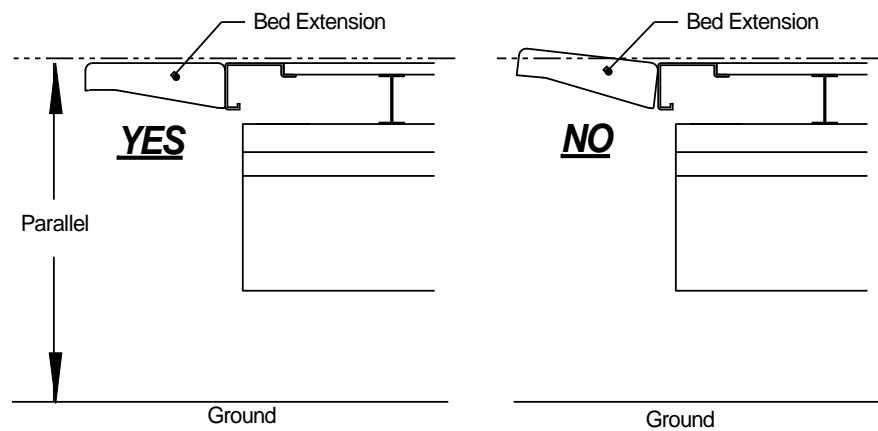
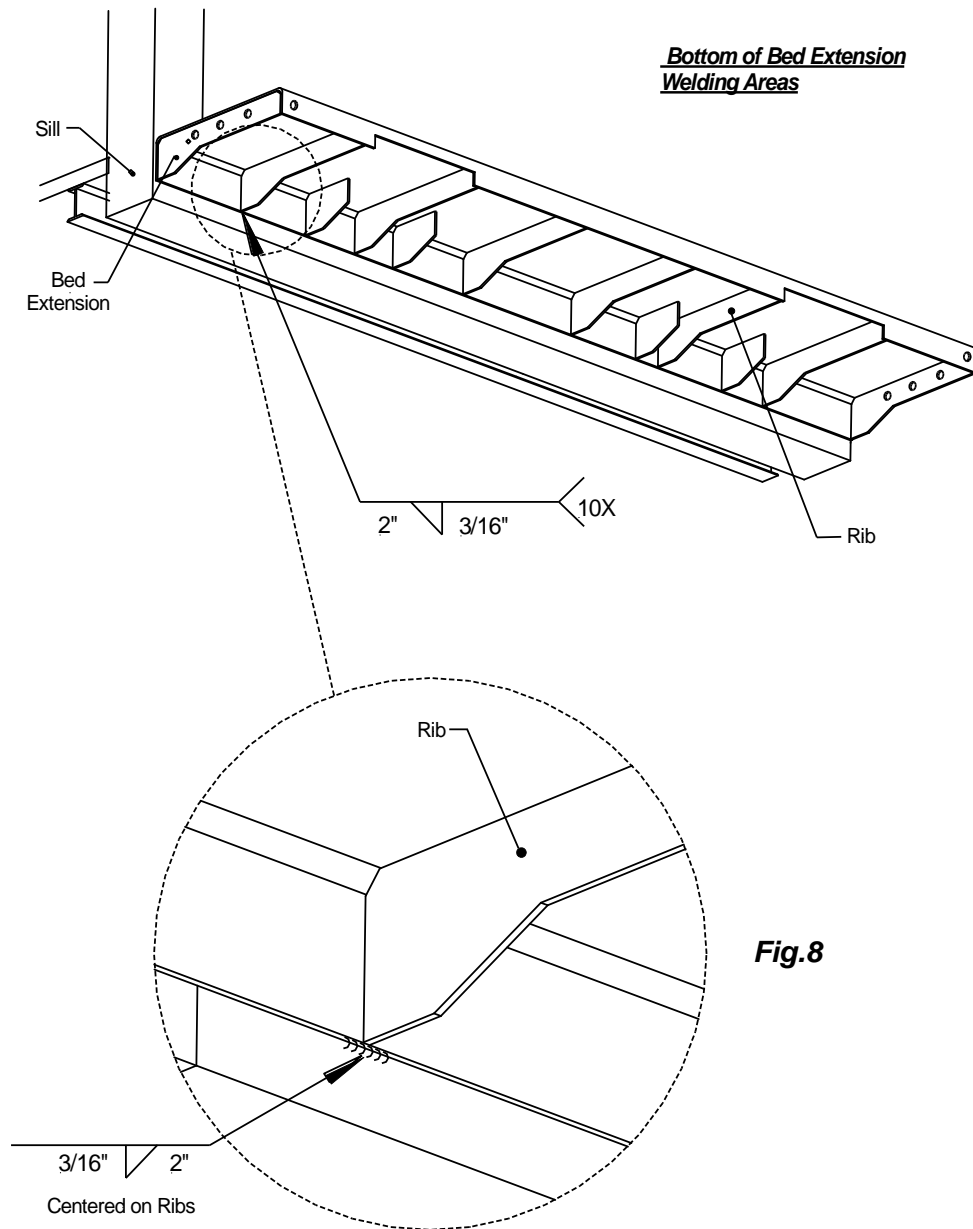


Fig.6

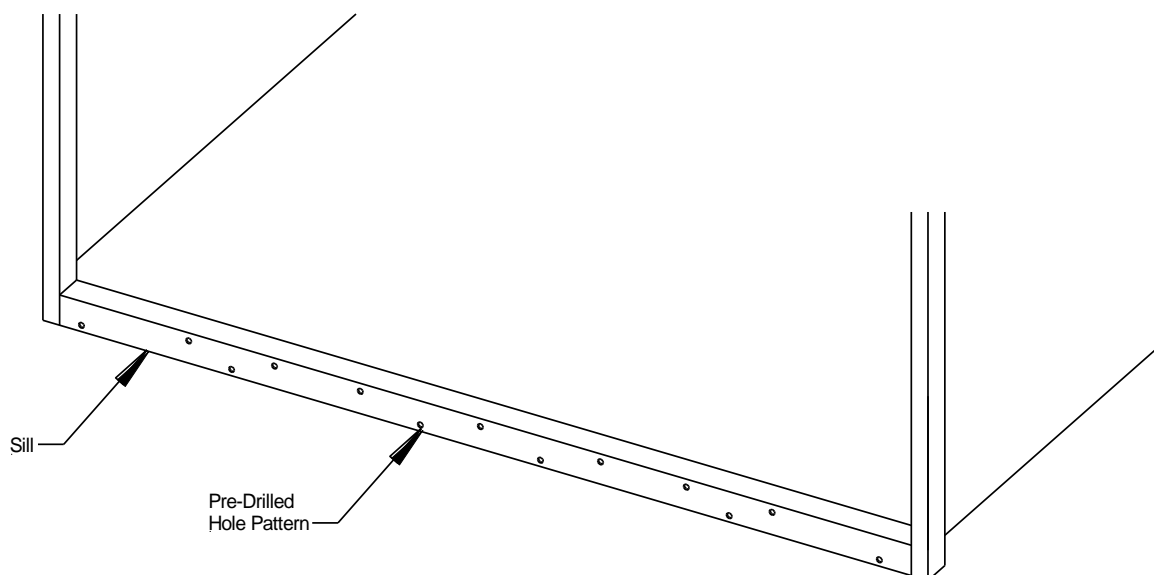
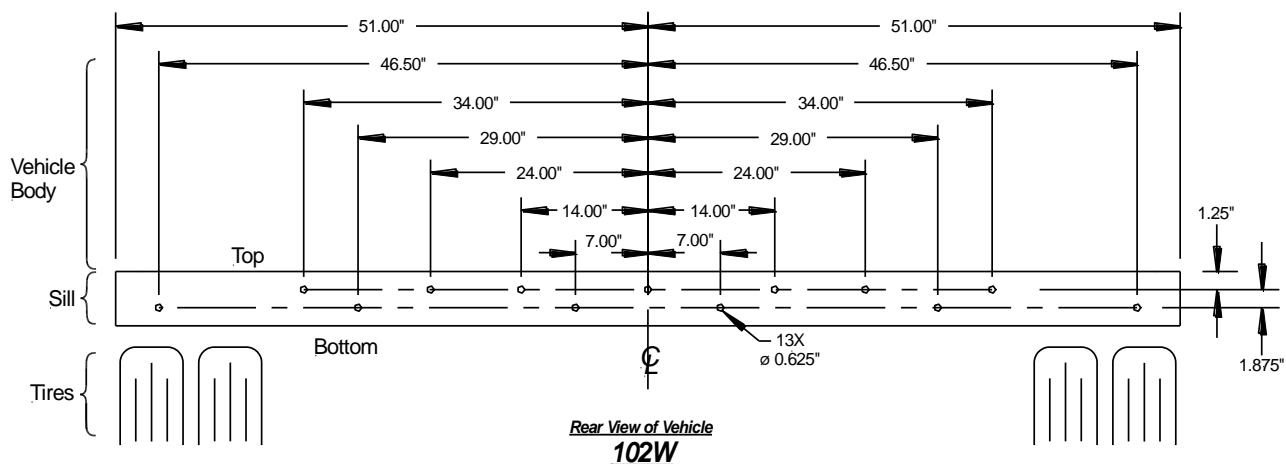
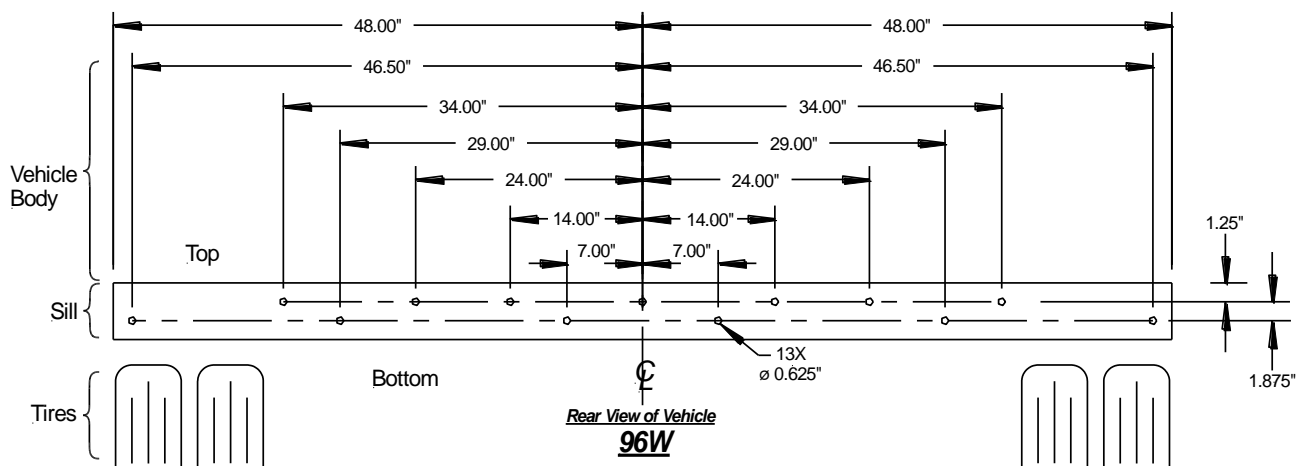
2. Weld $3/16"$ x $5"$ welds around each end. Keep $1"$ gap clearance on corner post seam line, **Fig.7**. All other welds shall be $3/16"$ x $2"$ centered on each rib, top and bottom of bed extension, **Fig.8**. Bed extension shall be parallel to the ground after installation, **Fig.9**.





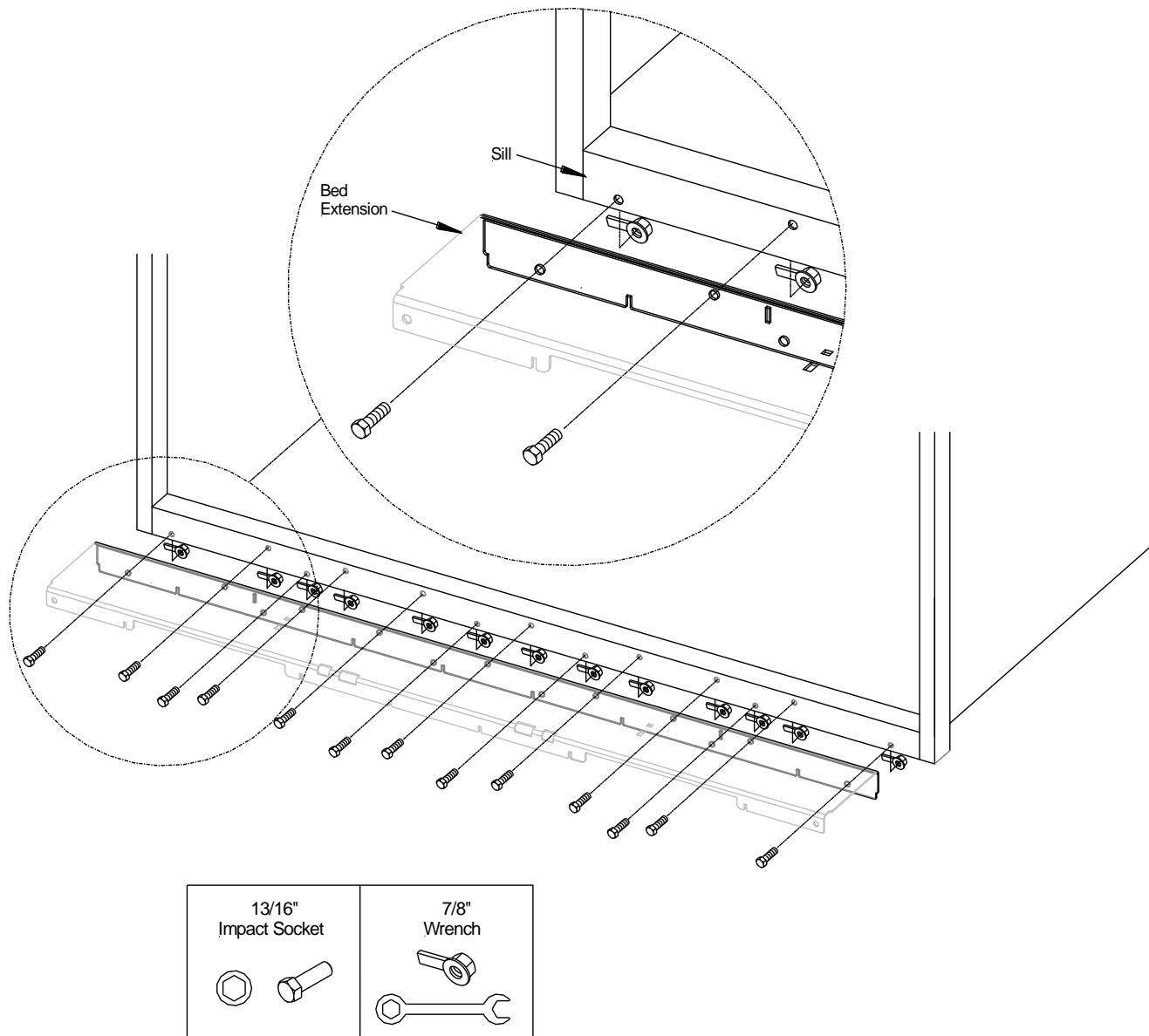
8.2 Bed Extension (Bolt-On)

1. Pre-drill 13, 9/16" (14mm) holes on the rear of the sill. Follow the dimensions below. The hole pattern below applies to both 96" wide and 102" wide vehicles.



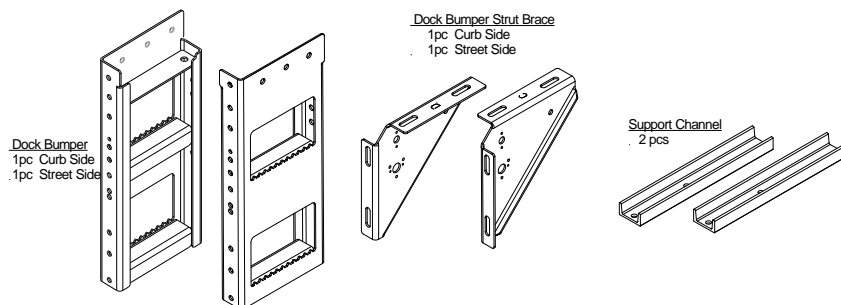
2. Use a forklift, hoist or equivalent to support the bed extension and align the bed extension with the pre-drilled hole pattern on the sill. Verify the bed extension is squared. Secure the bed extension to the sill with the provided 13/16" x 1.75" bolts and 7/8" nuts. Torque all bolts to 125 ft./lbs. min., 145 ft./lbs. max.

Recommendation: It is highly recommended to lubricate all bolts and nuts prior to installation.



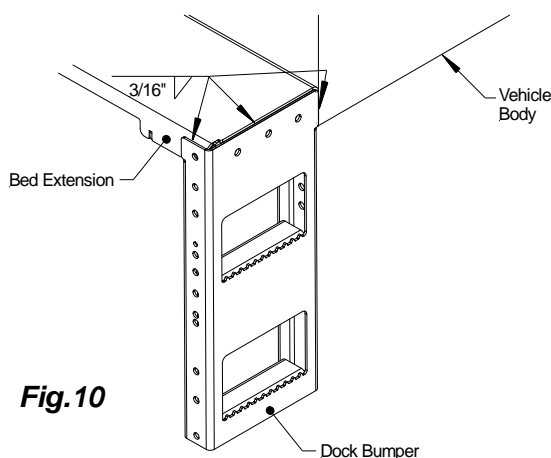
Bolt-On Bed Extension

8.3 Dock Bumper Installation (Weld-On)

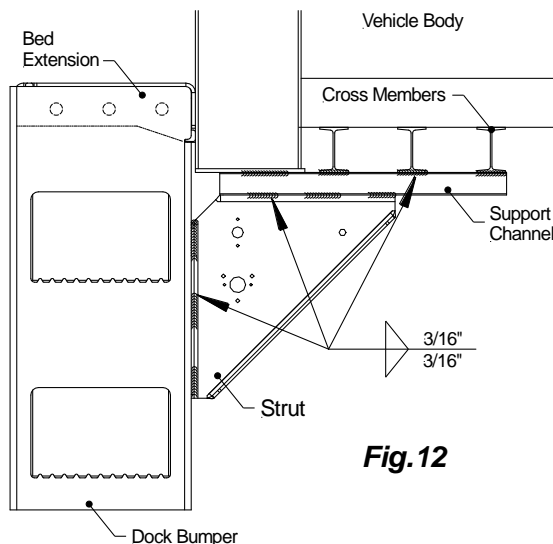
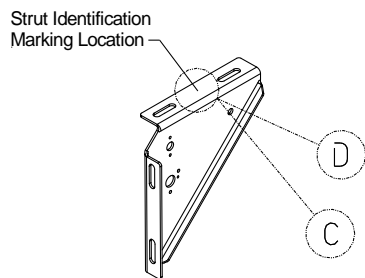


Steps:

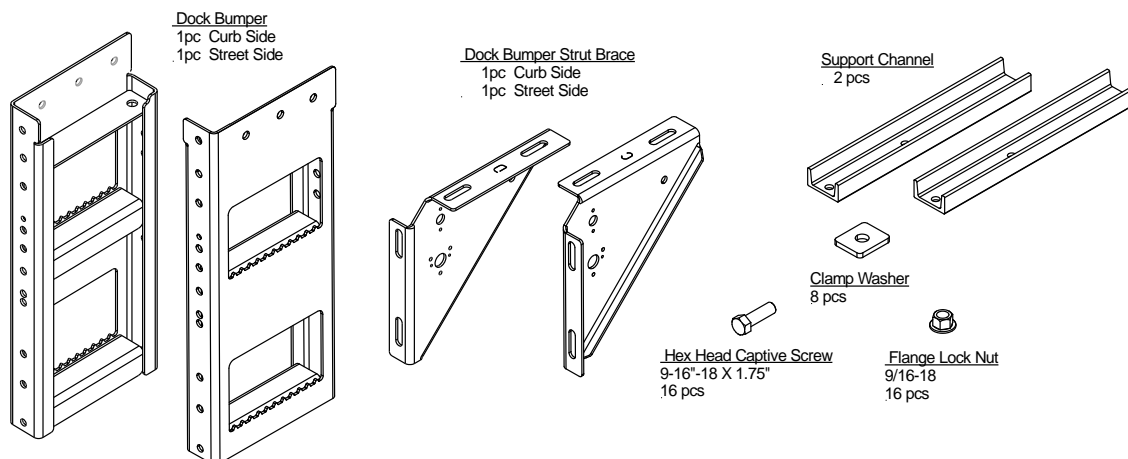
1. Support Dock Bumpers: Clamp dock bumpers to bed extension as shown, **Fig.10**. Check for squareness. Tack weld the dock bumper.



2. Dock Bumper Supports: Each strut brace has a marking for easy identification, the curb side strut has a "C" marking and the drive side strut has a "D", **Fig.11**. Position the support channels perpendicular to a minimum of three of the vehicles cross members, move the channel horizontally for adjustment, **Fig.12**. Use clamps or similar devices to hold the support channels in place. Next position the strut against the dock bumper and support channel, clamp in place. Check for squareness. Finally, secure all components by welding.

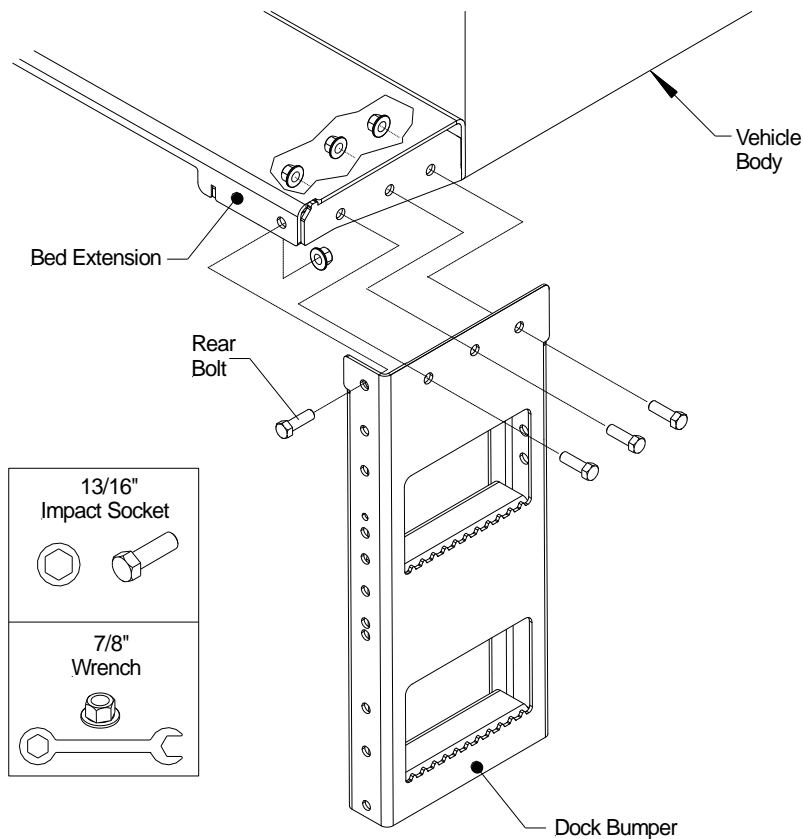


8.4 Dock Bumper Installation (Bolt On)



Steps:

1. **Dock Bumpers:** Use four (4) bolts and four (4) nuts to mount the dock bumper to the bed extension.
Fig.13. Torque nuts to 125 ft. /lbs. minimum. Make sure the dock bumper is properly squared.
Recommendation: It is highly recommended to lubricate all bolts and nuts prior to installation.

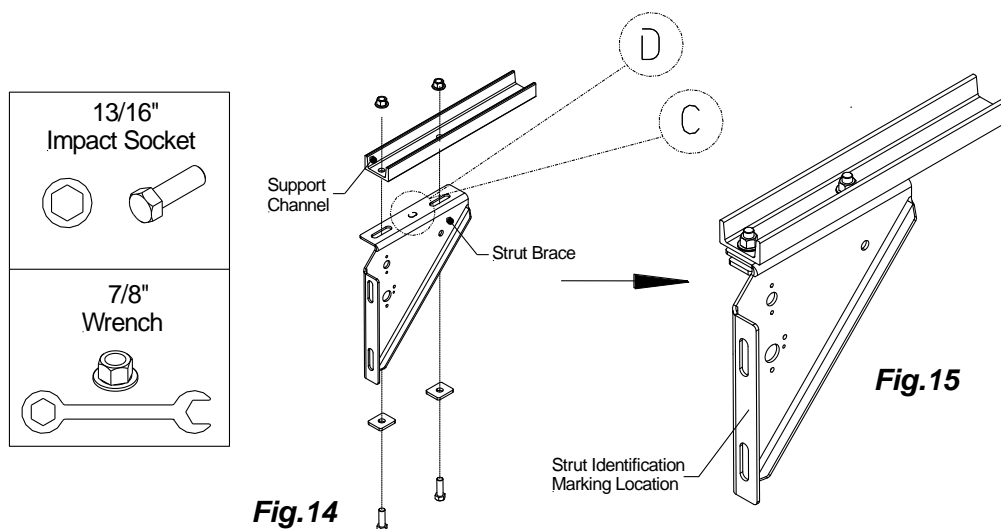


NOTICE

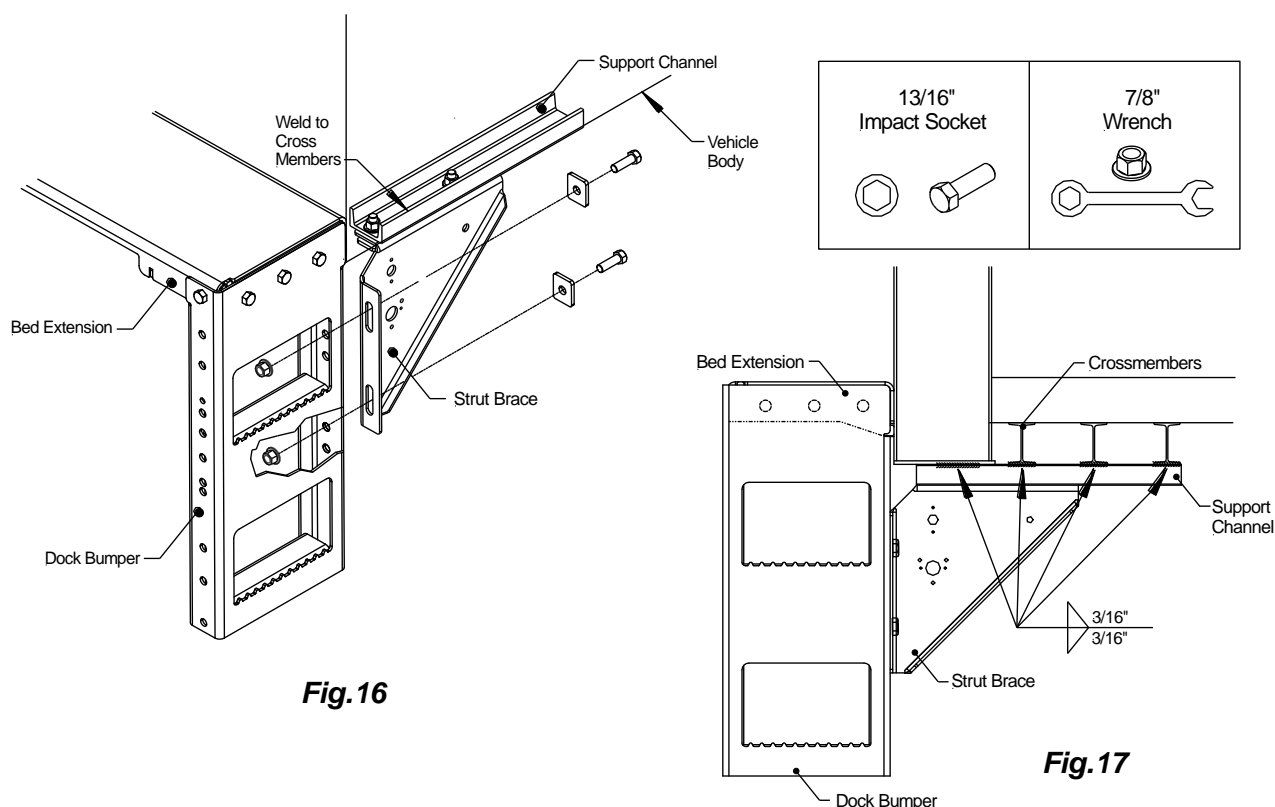
Fig.13

When installation requires a Walk Ramp Kit, do not install the rear bolt. The bolt hole will be required to install the Walk Ramp Extension (reference Section 9.5).

2. **Dock Bumper Support:** Each strut brace has a marking for easy identification, the curb side strut has a "C" and the drive side strut has a "D", **Fig.14**. Join the support channel to the strut using a set of bolts, clamp washers and flange nuts, **Fig.15**. Do not tighten nuts completely as adjustment to the support channel could be required.



3. **Bolt Assembly:** Secure the strut support to the dock bumper with a set of bolts, clamp washers, and flange nuts, **Fig.16**. Adjust the strut brace by moving it vertically along the dock bumper and also the support channel horizontally along the vehicles cross members for best positioning. Check for squareness. After tightening all bolts in place, weld the support channel to the bottom of the vehicles cross members. A minimum of three cross members should be welded to the support channel, **Fig.17**. Torque nuts to 125 ft./lbs. minimum.



9 Gate Installation (Truck)

9.1 Liftgate Installation

Installation for a Weld-On and Bolt-On are identical with the exception of the mount plate installation. Follow the steps below to install the liftgate and pay attention to the mount plate installation steps.

⚠ WARNING

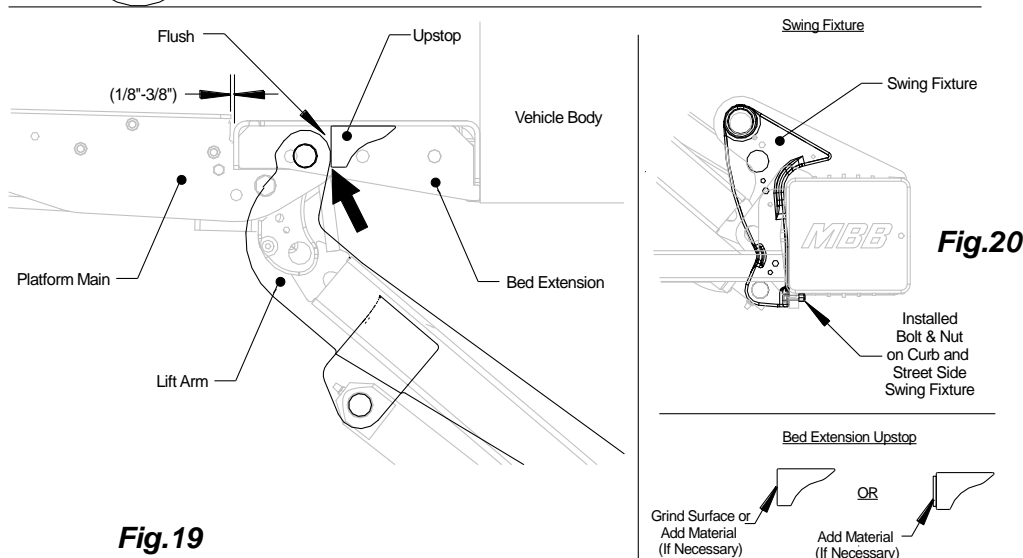
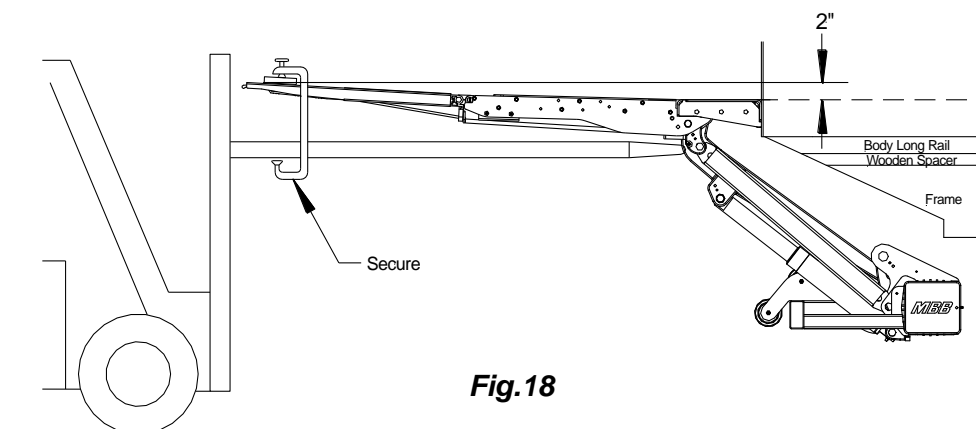
Never work under platform without safety supports

CAUTION

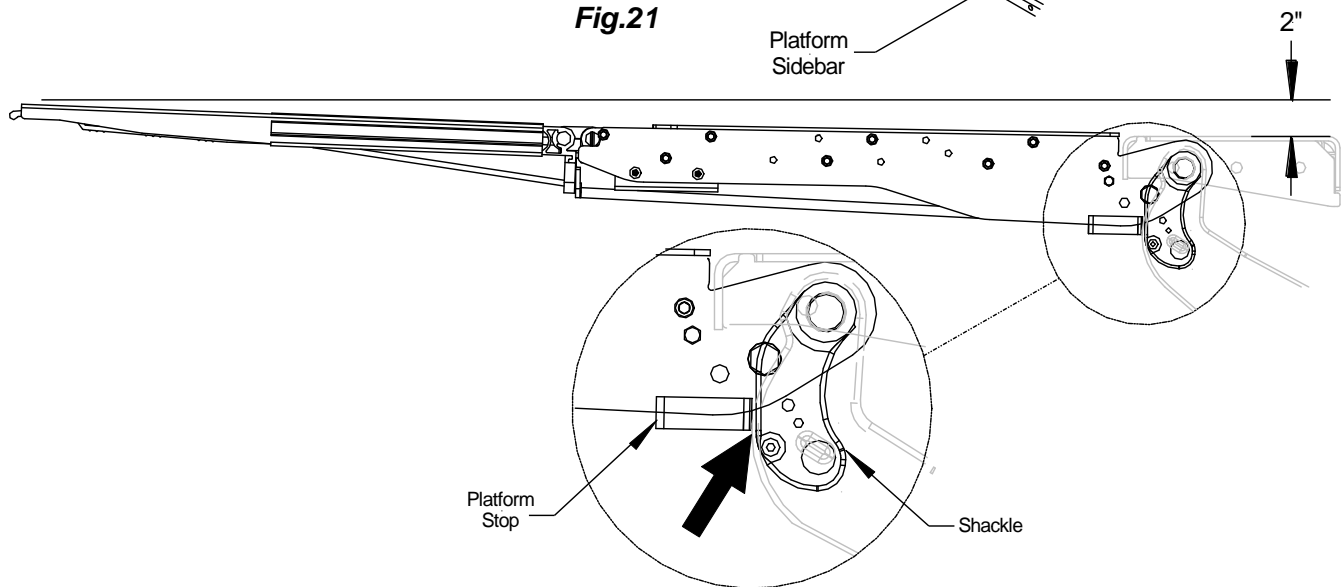
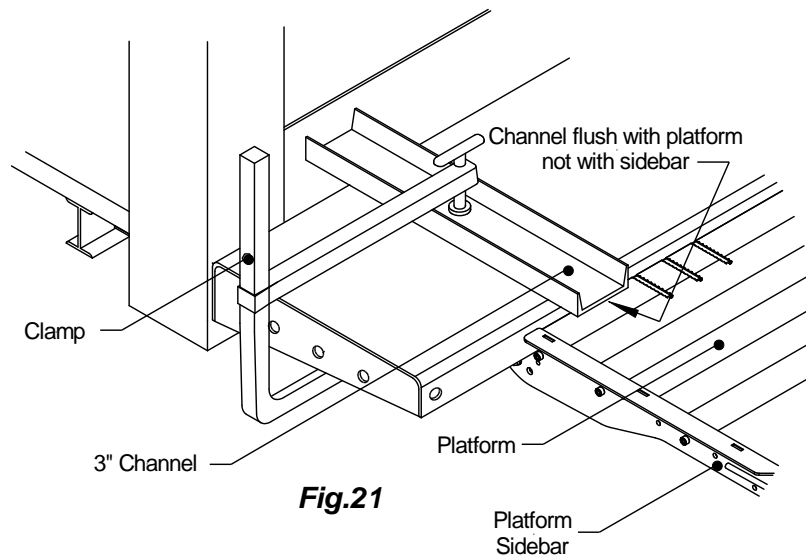
High heat from welding can damage components within the heated area.

Steps:

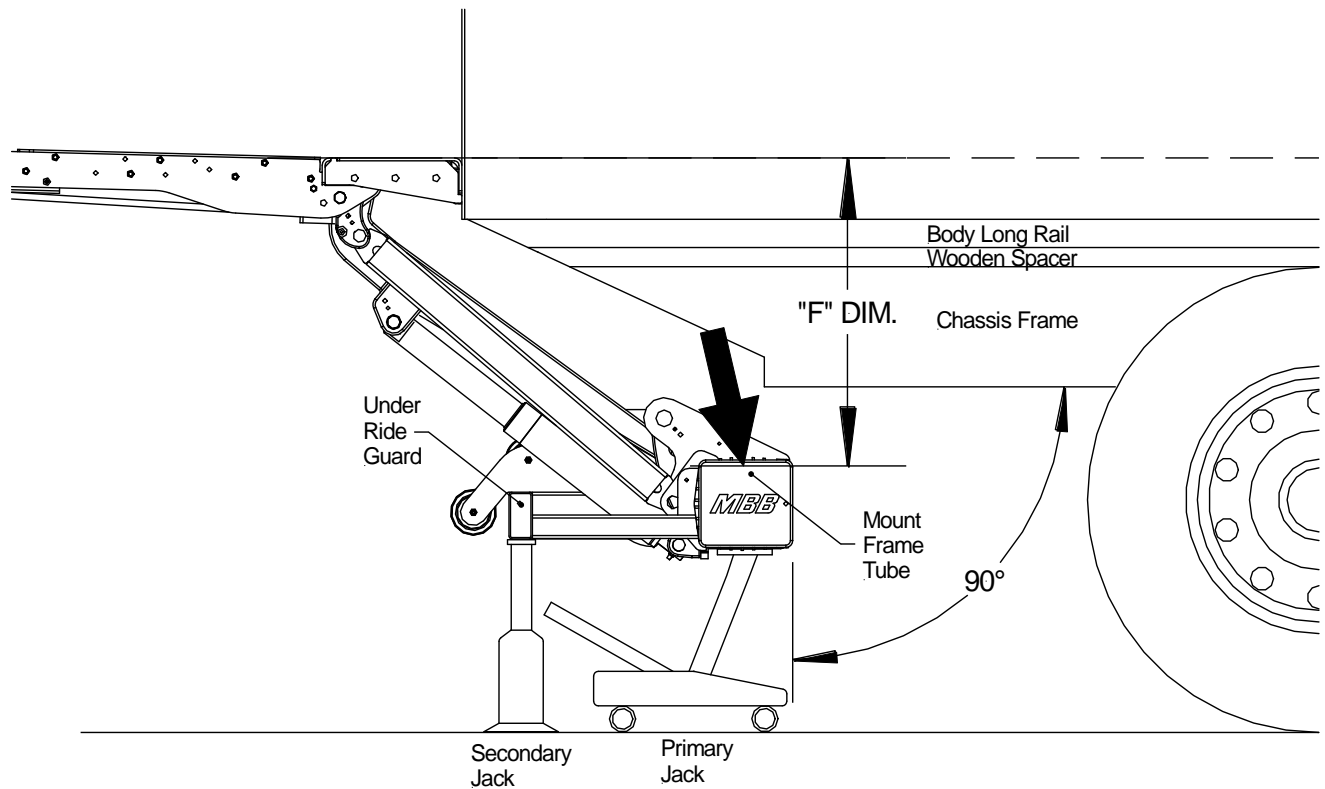
1. Hoist Platform: Unfold platform manually and clamp forklift forks, overhead crane or equivalent to platform. Make sure the platform is secured. Always maintain the mount tube centered to the vehicles body. Make sure the tip of the platform is pitched up 2" and the platform is centered to the bed extension, **Fig.18**. Verify that both liftams are flush with both upstops on the underside of the bed extension, **Fig.19**. **Important: Verify the bolts and nuts are installed on each swing fixture, Fig.20.**



2. **Raise Platform:** Clamp 3" channels over the bed extension and align the front edge of the platform, not the platform sidebar, to the back edge of the bed extension, **Fig.21**. Again, verify the liftarms are still flush with the bed extension upstops. Maintain the top of the platform flush to the bed extension (channel), and keep the 2" pitch at the platform tip. Check that both shackles are flush with the platform stops, **Fig.22**. Note: Shims may be required between the stop and the shackle to maintain the tip of the platform pitched up.

**Fig.22**

3. **Set "F" Dimension:** "F" Dimension should be determined from Section 7 of this manual. Use floor jack or equivalent to position the frame assembly up to the required "F" dimension, **Fig.23**. Use a second jack to level out the under ride guard, if necessary. Check for squareness vertically and horizontally. 12V power supply may be required to release pressure on lift cylinder valves, if power is required continue to the Electrical Installation in Section 10.

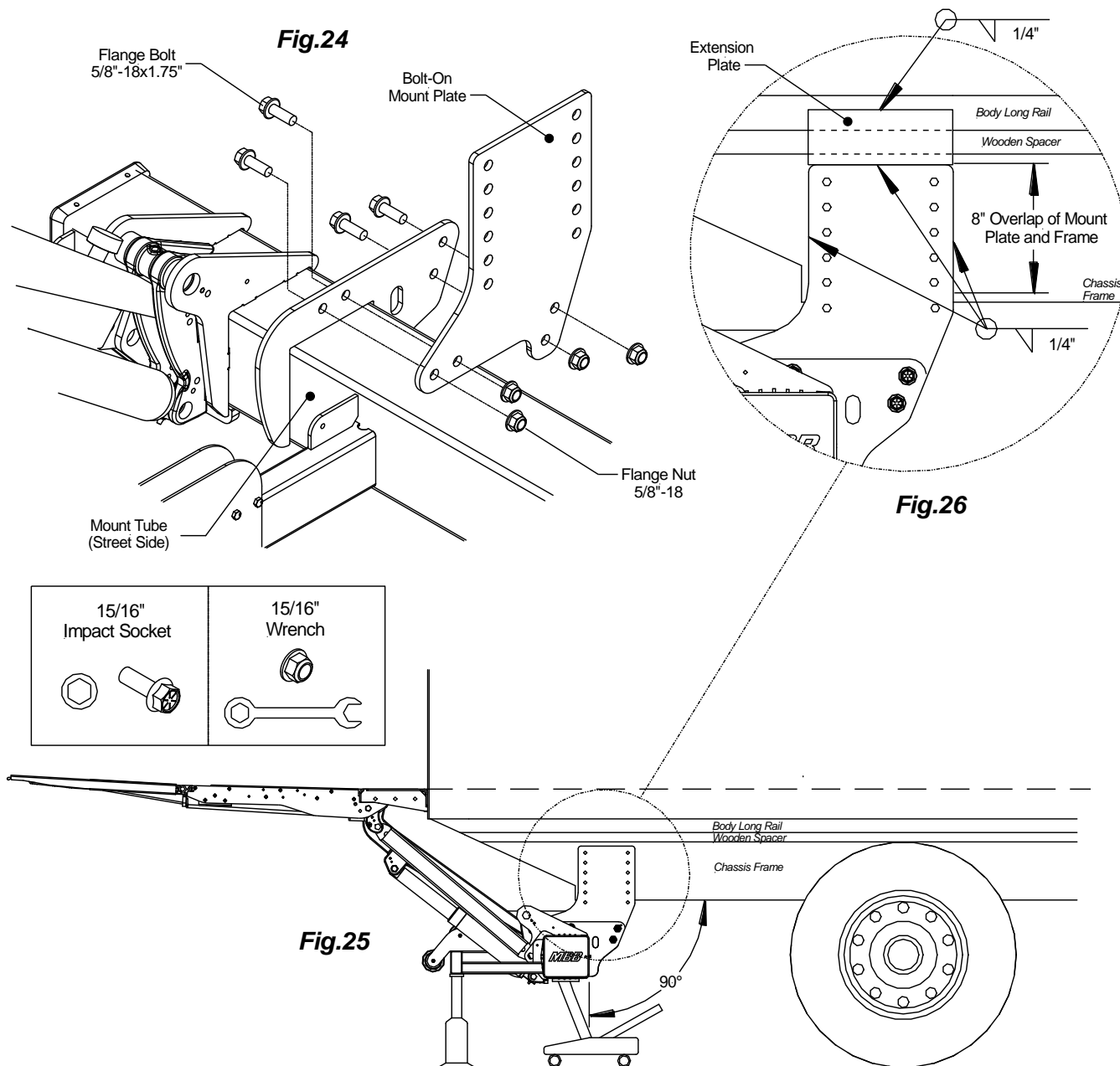
**Fig.23**

- 4a. **Bolt on Mount Plates (Assembly):** Assemble the bolt-on mount plate to the mount tube by using 5/8"-18 hardware, **Fig.24**. Torque bolts to 180 ft./lbs.

Weld on Mount Plates (Tack): Make sure the mount plate is squared to the tube vertically and horizontally. Install the mount plate on the chassis in the shown orientation and tack weld using three fillet welds 2" long on each side and on top of the mount plate.

Weld on Mount Plates (Verify): Verify the following: One, F dimensions has not changed. Two, bed extension and platform are still squared prior to tack welding the mount plates. Three, gate is operating as intended, **Fig.25**. **Do not power gate hard against bed extension while gate is only tack welded in position.**

Weld on Mount Plates (Finalize): After verification continue to 100% welding of the mount plate to the vehicle frame. Connect the body long sill to the mount plate by adding an extension plate, **Fig.26**.



4b. **Bolt on Mount Plates (Assembly):** Assemble the bolt-on mount plate to the mount tube by using 5/8"-18 hardware, **Fig.27**. Torque bolts to 180 ft./lbs.

Bolt on Mount Plates (Drill): Make sure the mount plate is squared to the tube vertically and horizontally. Drill a minimum of four (4) holes per mount plate on each vehicle frame, **Fig.28**. Set mount plates in the shown orientation and secure the mount plates to the frame with bolts and nuts. Torque mounting bolts to 180 ft./lbs.

Bolt on Mount Plates (Verify): Verify the following: One, F dimensions has not changed. Two, bed extension and platform are in the same position. Three, gate is operating as intended, **Fig.29**. **Do not power gate hard against bed extension while gate is only tack welded in position.**

Bolt on Mount Plates (Finalize): After verification continue to drilling two (2) additional mount holes, for a total of six mounting holes. Use the provided mounting bolts and nuts to secure the mount plates to the vehicle frame. Torque mounting bolts to 180 ft./lbs. Connect the body long sill to the mount plate by adding an extension plate, **Fig.30**.

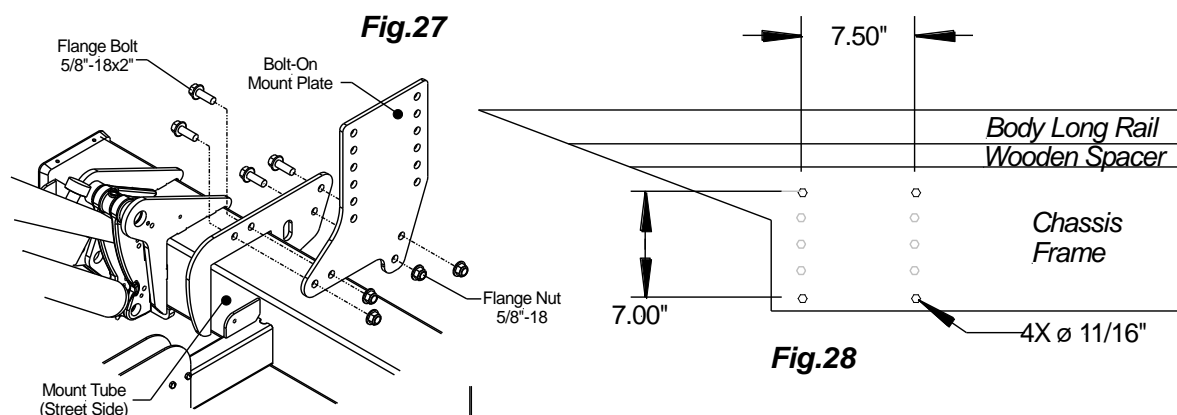
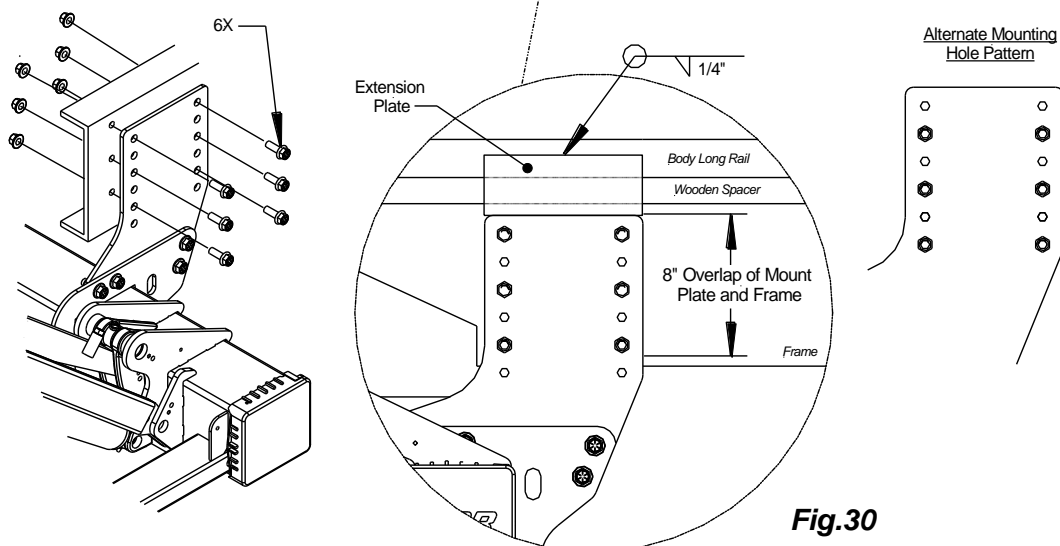
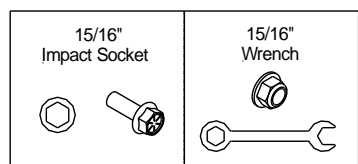
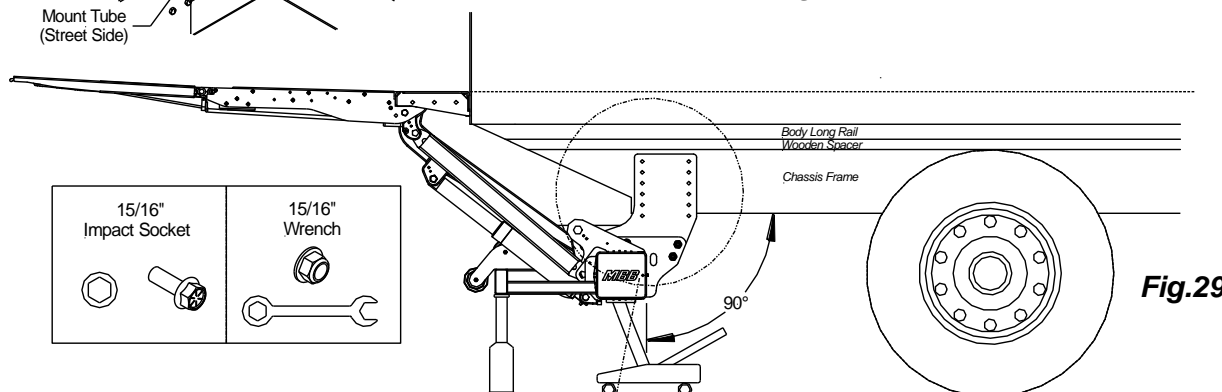


Fig.28



9.2 Sub-frame Installation

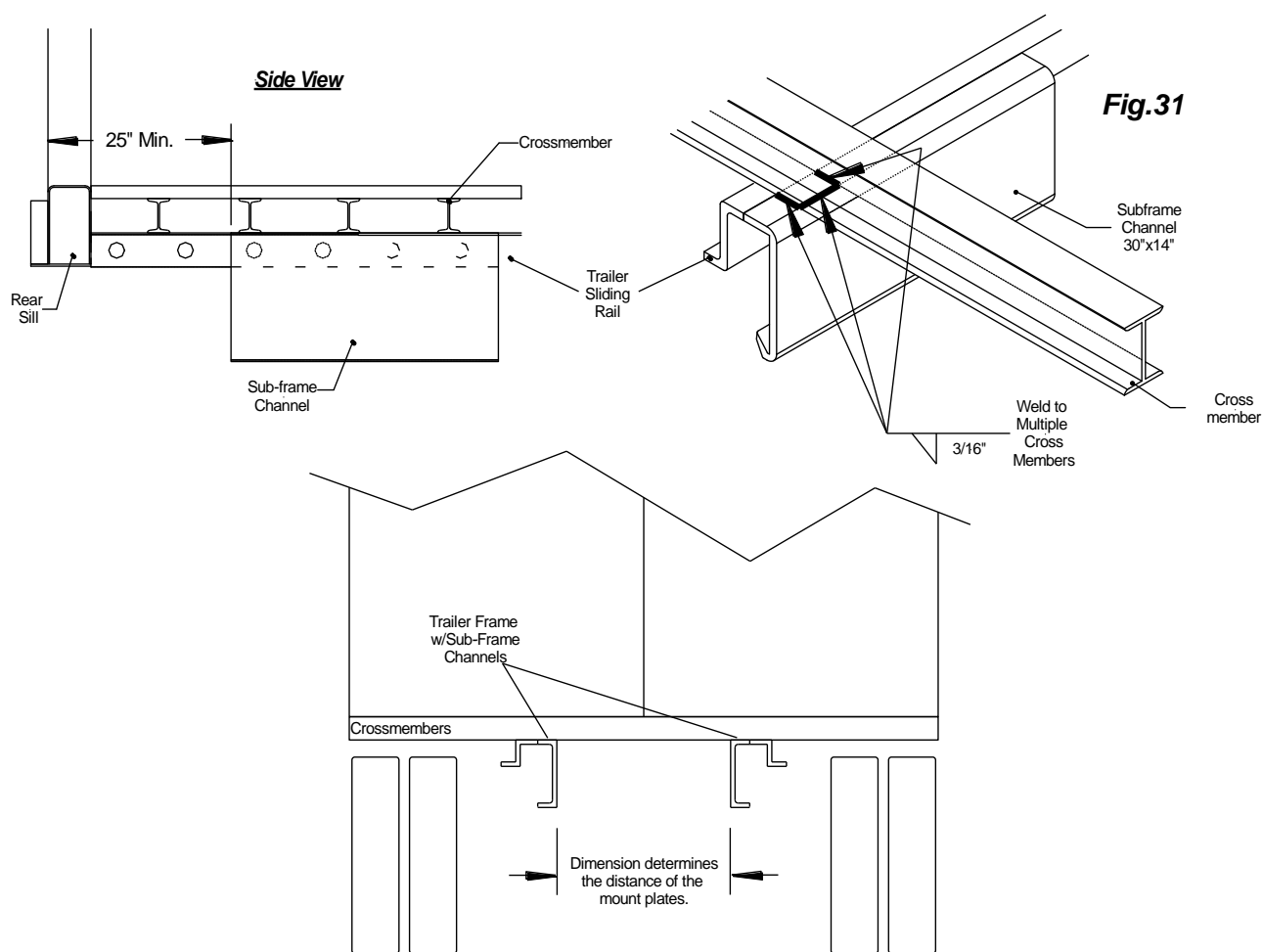
Trailer installations require a sub-frame to be installed prior to installing the liftgate. After installing the sub-frame, follow the installation procedure in Section 9.1 to complete the liftgate installation.

⚠ WARNING

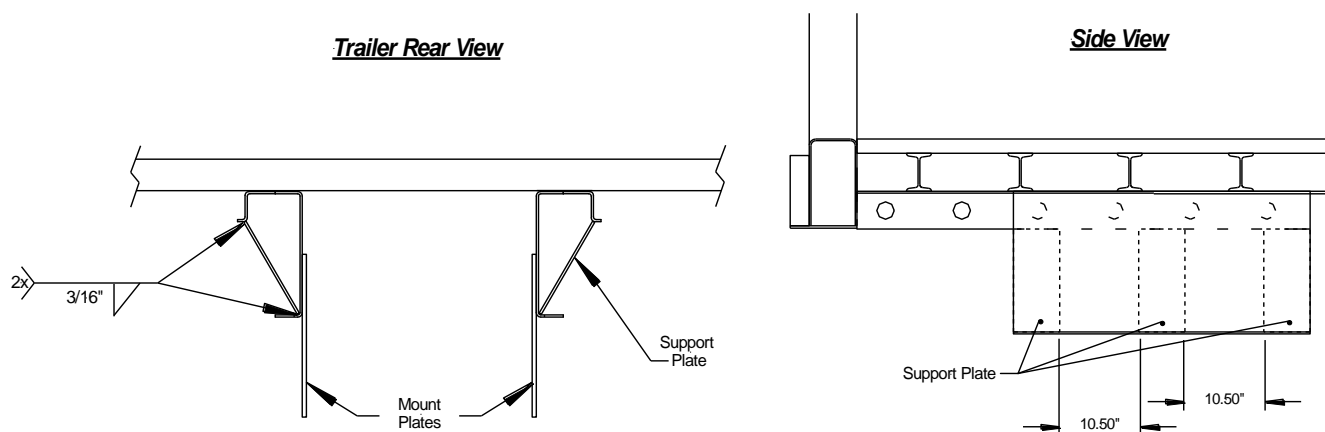
Never work under platform without safety supports

Steps:

1. Sub-Frame: Position the sub-frame channels up against the trailers crossmembers in the orientation shown below. Weld the sub-frame channel to multiple crossmembers, **Fig.31**. Use 3/16" welds to secure the sub-frame to a minimum of four crossmembers.



2. Support Plates: Install three support plates per sub-frame channel as shown and secure the plates with 3/16" welds.



3. Set "F" Dimension: "F" Dimension should be determined from Section 7 of this manual. Use floor jack or equivalent to position the frame assembly up to the required "F" dimension, **Fig.32**. Use a second jack to level out the under ride guard, if necessary. Check for squareness vertically and horizontally. 12V power supply may be required to release pressure on lift cylinder valves, if power is required continue to the Electrical Installation in Section 10.

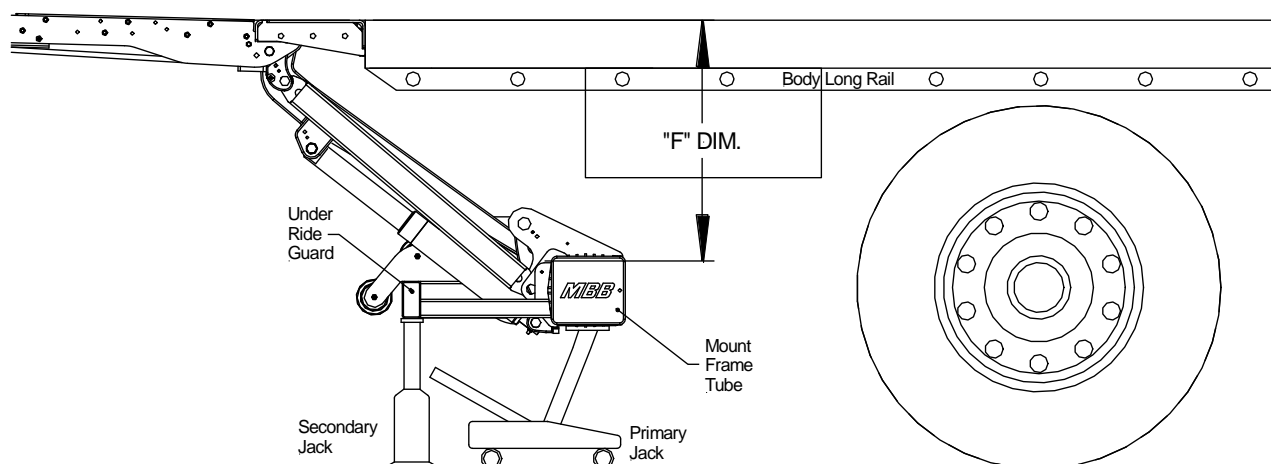
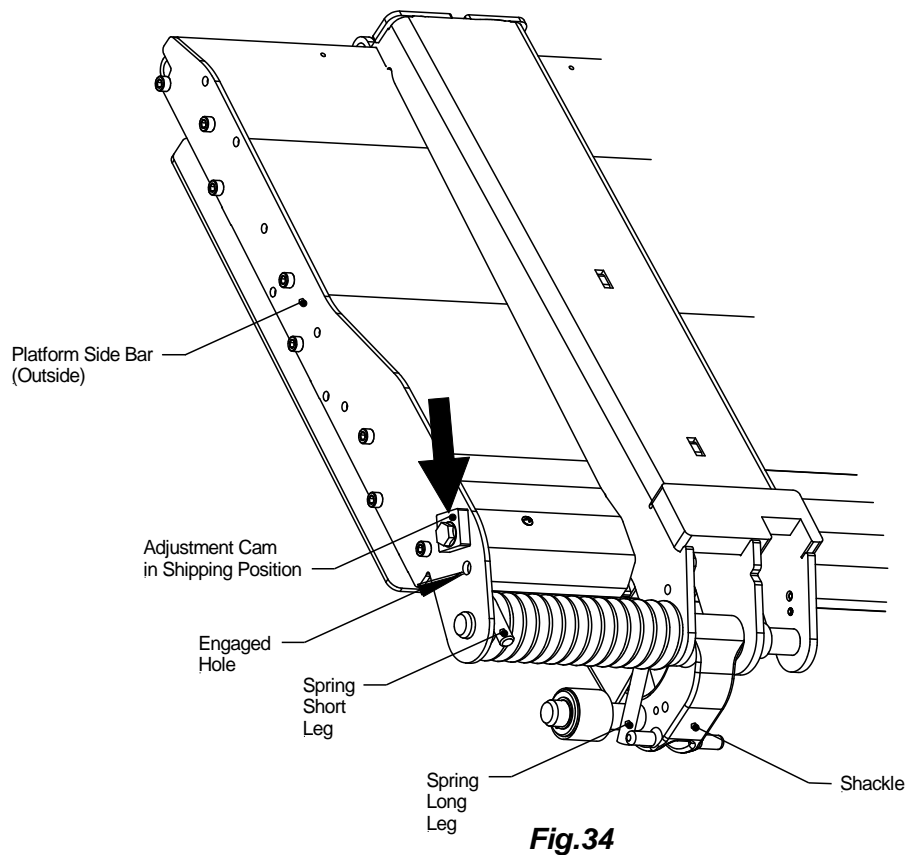
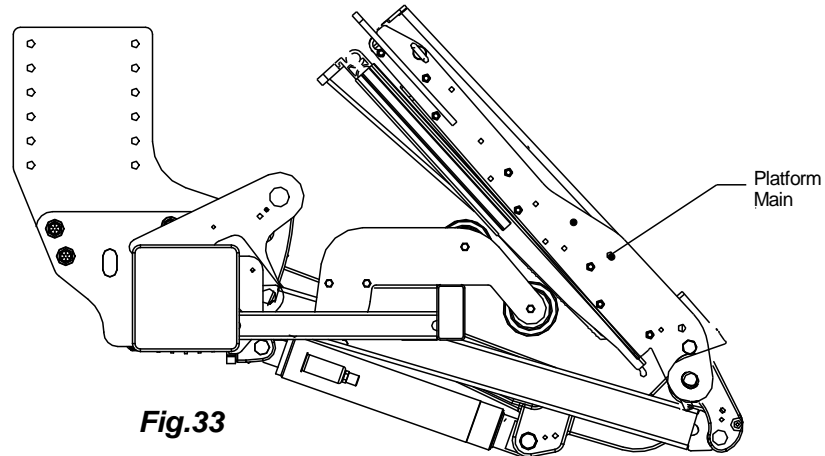


Fig.32

9.3 Adjusting the Platform

Steps:

1. **Torsion Cam Installation:** To change the amount of platform spring assist, position the gate as shown below with the platform resting on the parting wheel, **Fig.33**. The adjustment cam is installed with no tension when shipped from the factory, **Fig.34**.



To add tension to the torsion spring, remove the adjustment cam from its shipping position, **Fig.35**. Next, install the cam on the inside part of the side bar, **Fig.36**. The short leg of the spring should be in contact with the cam, **Fig.37**. Secure the cam with the bolt and nut. Torque the bolts to 100 ft-lbs, **Fig.38**. Repeat the process for the curb side cam. Make sure driver side and curb side cams are installed in the same tension setting.

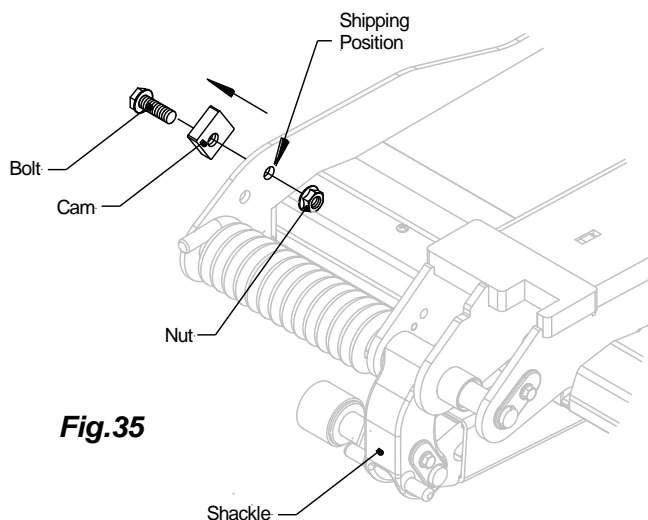


Fig.35

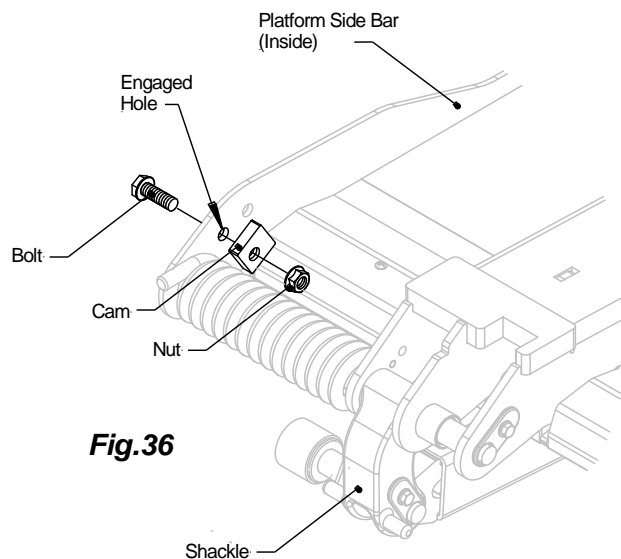


Fig.36

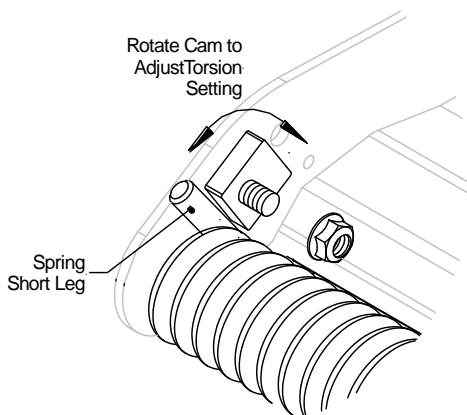
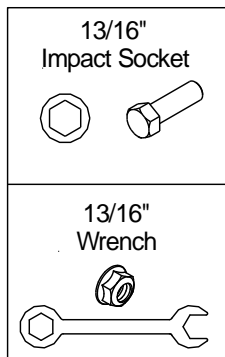


Fig.37

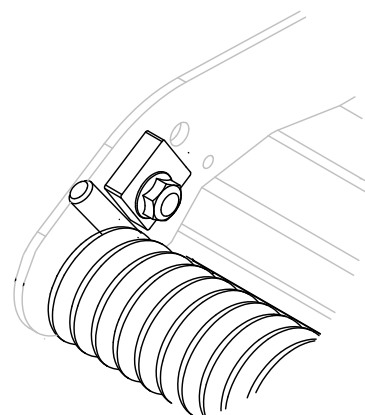
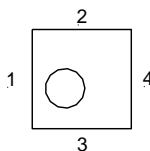


Fig.38



Tension Settings:
1 = Low Tension
4 = High Tension

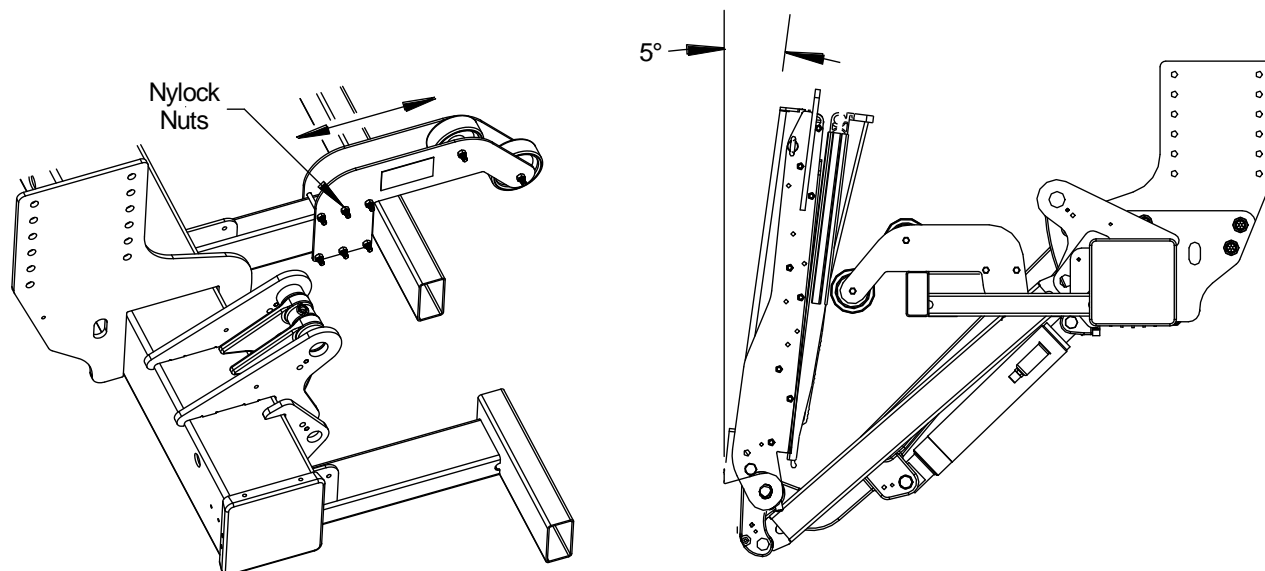
4 different torsion settings are possible after adjusting the cam.

Torsion Settings for Aluminum and Steel Platforms:

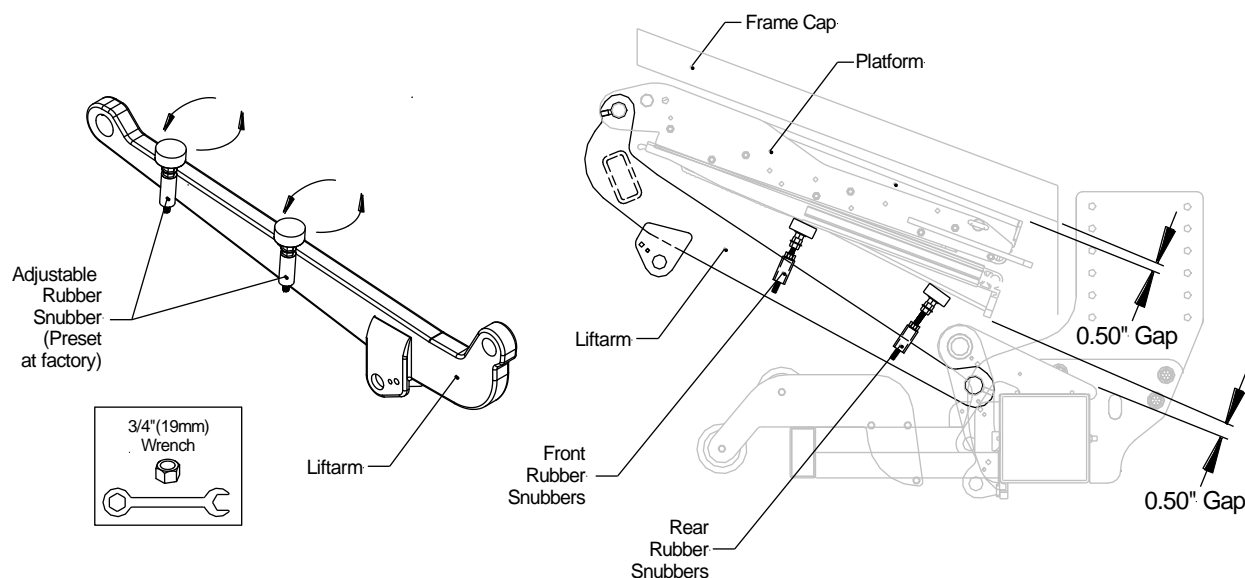
Aluminum: Setting 2

Steel: Setting 4

2. **Adjust Sliding Wheel:** Loosen the nylock nuts to adjust the sliding wheel bracket, back or forward, so the platform is 5 degrees in from vertical when resting against the wheel. Tighten all lock nuts when finished.

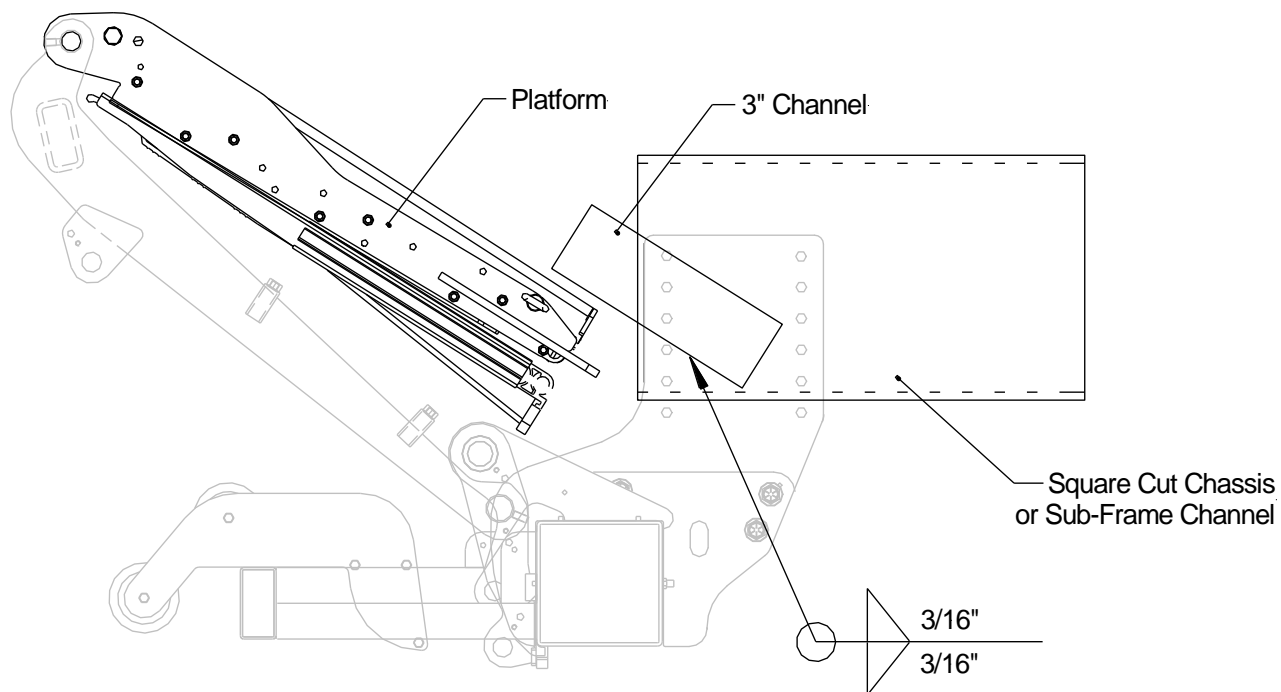


3. **Adjustable Rubber Snubber:** Adjust (4) rubber snubbers up to force platform against frame caps to hold platform from bouncing while vehicle is moving. Make sure there is a 1/2" gap between the frame cap and the platform. Adjust the Rear rubber snubber first and the Front second. Also make sure the rubber snubbers are adjusted so that the gate does not rub on other components during the opening and closing sequences.



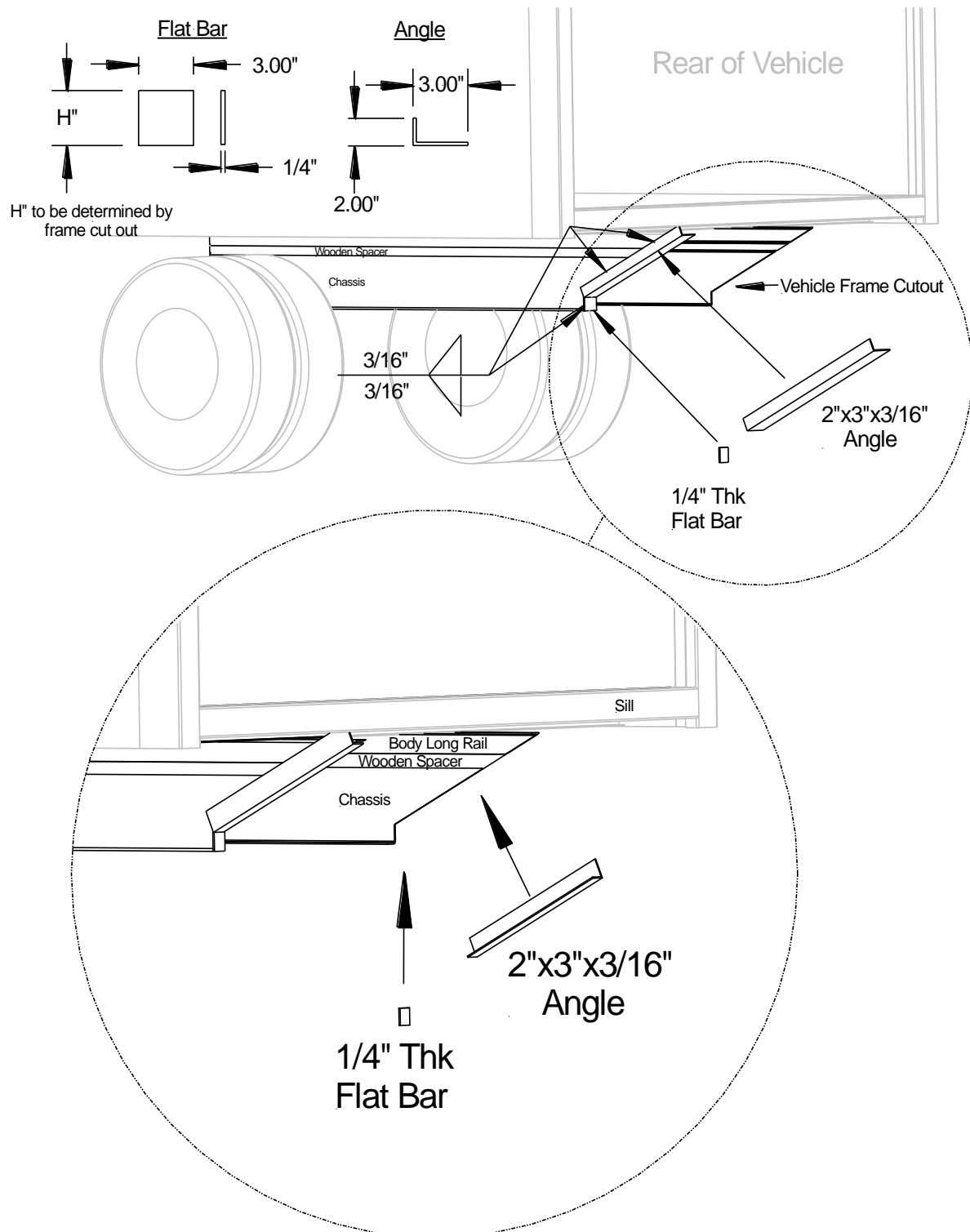


Use a 3" channel (each side) as a platform stop where frame caps cannot be installed.



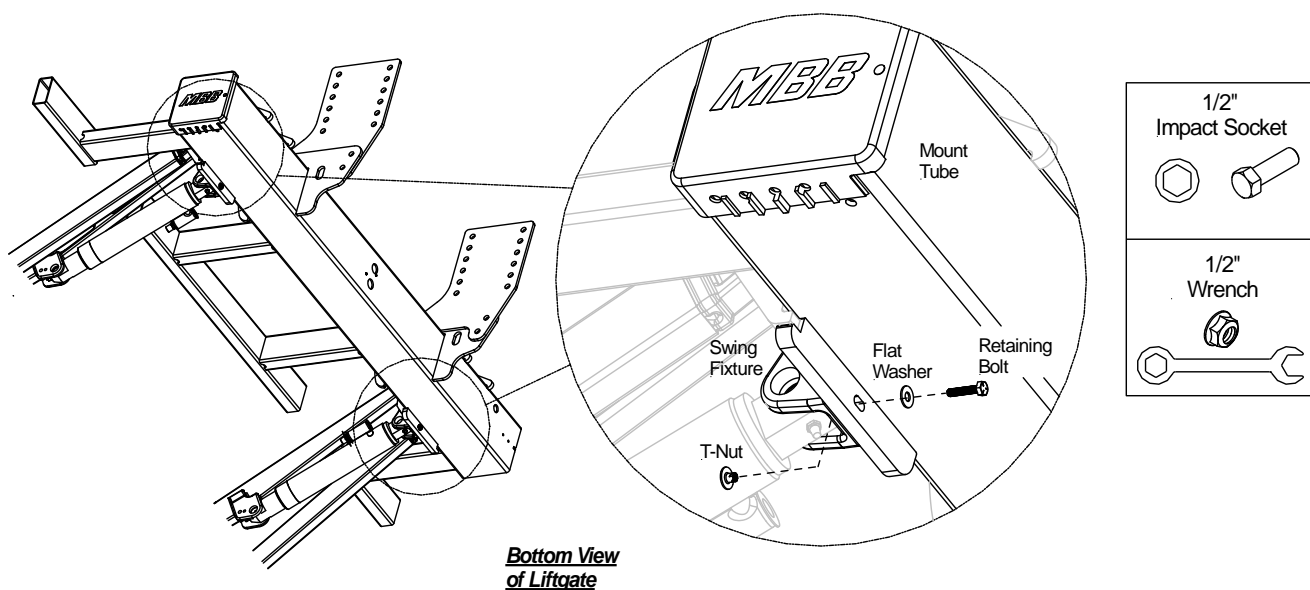
4. **Frame Cap:** Cap both frame cut outs with two pieces of $\frac{1}{4}$ " flat bar and two 2"x3"x $\frac{3}{16}$ " angles. Install the 2" side of the angle on the outside of the frame. Weld components to the chassis and the body long rail. Flatbar may not be required if the frame cut out does not have a step.

Note: Palfinger Liftgates does not supply cap materials. All material must be supplied by end users.



9.4 Final steps of installation

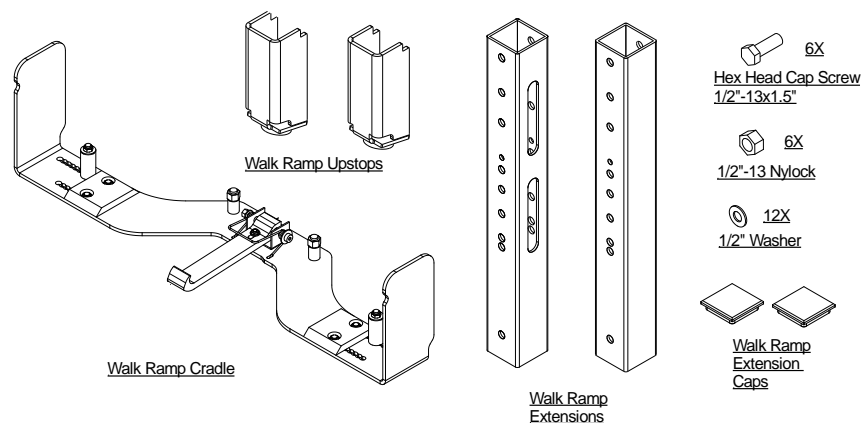
1. **Battery Connect:** Connect battery cable to batteries, aux batteries to power the liftgate. Refer to electrical installation on Section 10.
2. **Cycle Gate:** Cycle gate several times to assure proper alignment.
3. **Weld Gate:** Complete welding of gate. Weld all contact areas 100% with 1/4" fillet welds.
4. **Remove Retaining Bolts:** Lower the platform down to the ground and remove the two retaining bolts (curb side and street side) and T-Nuts holding the swing fixture fixed to the mount tube, **Fig.39**. The removal of the bolts will allow the platform to tilt to the ground when being operated. Discard the bolts after removal.



NOTICE

Platform will not tilt to the ground if these bolts are not removed.

9.5 Walk Ramp Installation (Optional)

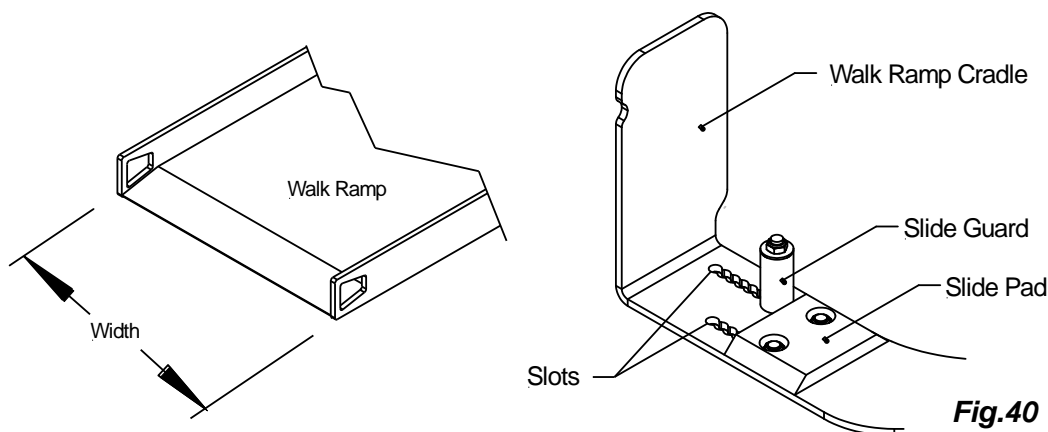


NOTICE

Application for Walk Ramp is only available for the Laden (Loaded) Bed Heights from 49" to 55" as an option.

Steps:

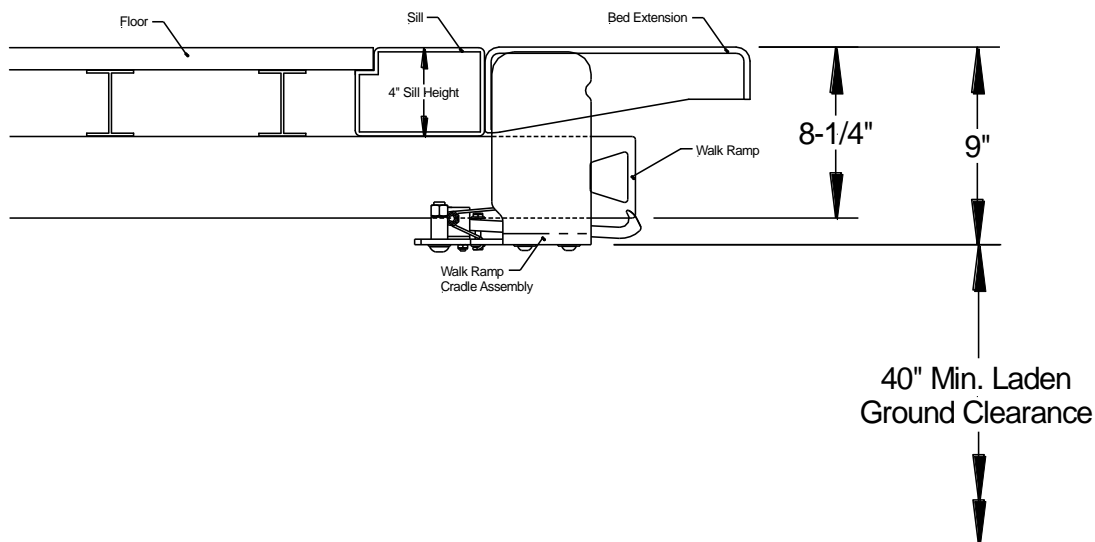
1. Walk ramp: Measure the walk ramps width. The walk ramp cradle has adjustable Slide Guards and Slide Pads to accommodate different widths of walk ramps, **Fig.40**. Adjust the slide guard and pad by removing the nut and sliding the guard and pad on both sides of the cradle to the next available slot.



2. Cradle Position: Position cradle in the orientation shown below with the hook retainer pointing out, **Fig.41.** Reference dimensions below for optimized mounting based on the sill height. Slide the walk ramp cradle assembly in between the two guide ribs of the bed extension and weld 100%.

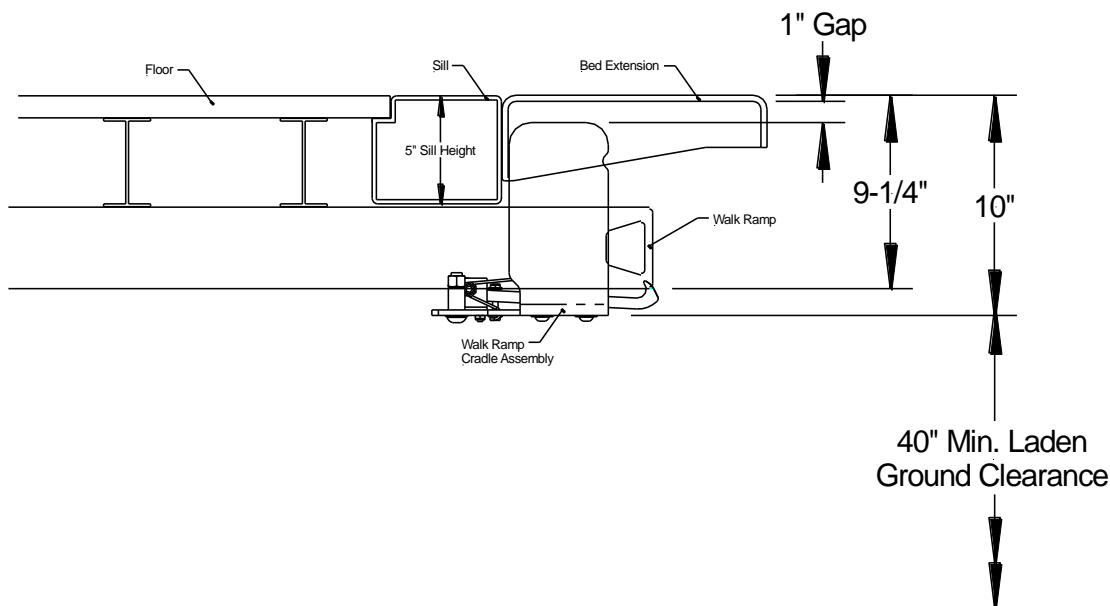
4" Sill Highly Recommended for Application

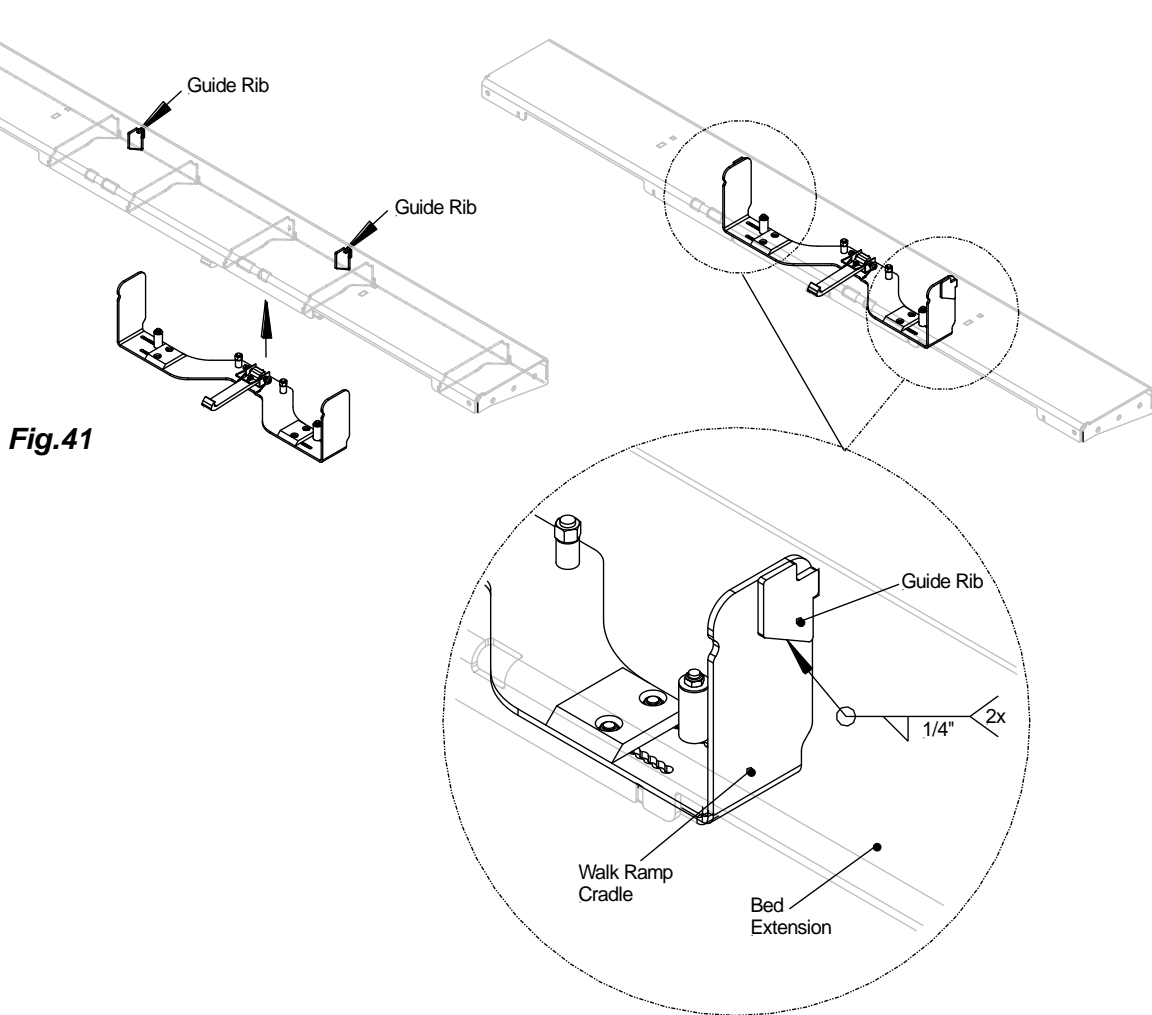
4" Sill highly recommended for application, especially on lower range of laden dimension as folding clearances are increased with 1"



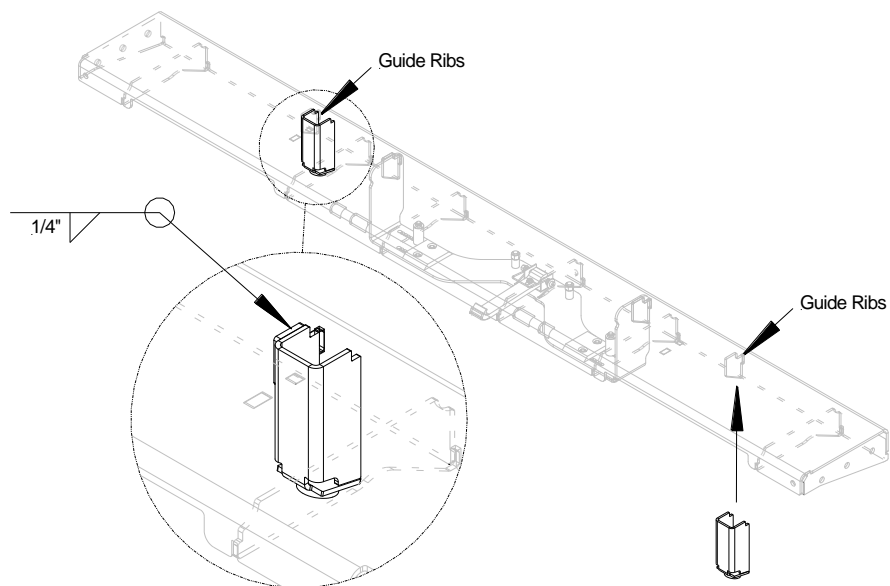
5" Sill Optional

50" or higher laden floor height





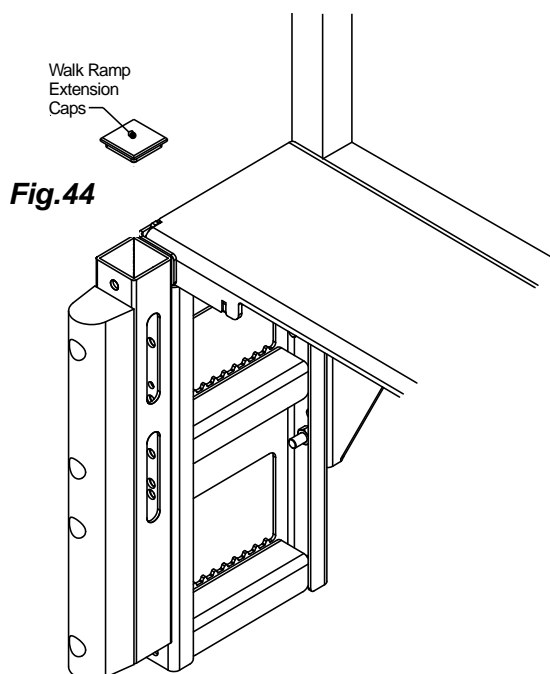
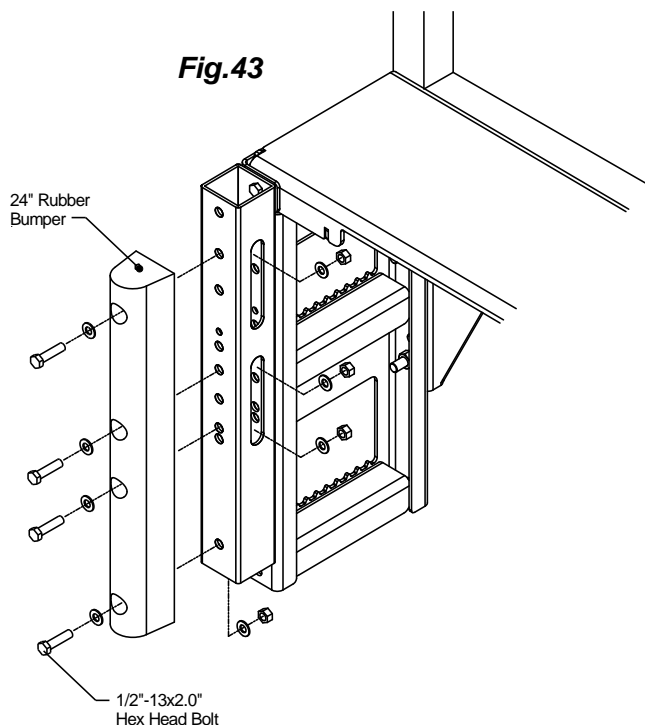
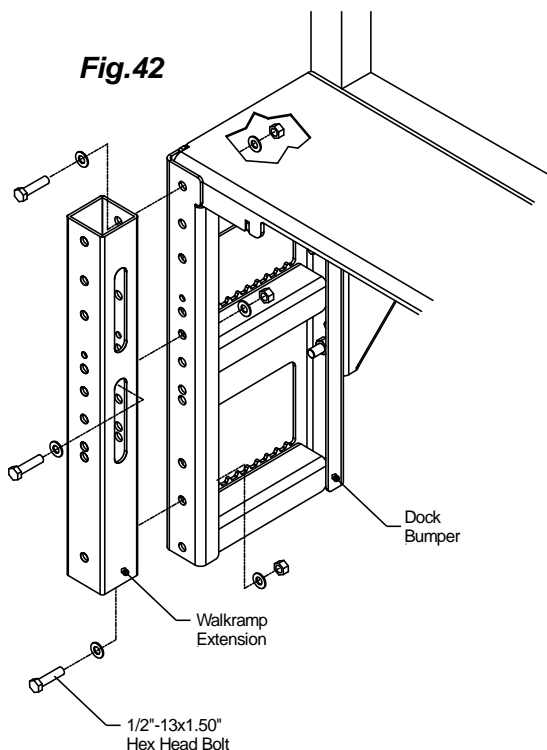
3. Upstops: Upstops need to be installed to prevent any damage to the walk ramp and the platform. Position the upstops up against the inside of the guide rib and weld 100%.



IMPORTANT! If cradle has been mounted lower, up-stops need to be lowered equally.

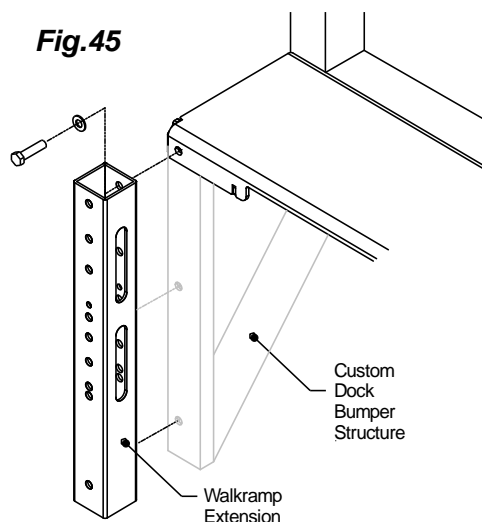
4. **Walk Ramp Extension:** Install the Walk Ramp Extension onto the dock bumpers using three $\frac{1}{2}$ "-13x1.5" bolts, washers, and nuts for each walk ramp extension, **Fig.42**. Next, install the rubber bumper onto the Walk Ramp Extension, **Fig.43**. Install the Walk Ramp Extension Caps after all bolts have been tightened, **Fig.44**.

*Note: Rubber bumpers will vary depending on required specifications. The Walk Ramp Extension will accept a variety of rubber bumpers (5", 16", 24" rubber bumpers), shown below is the 24" rubber bumper, **Fig.45**.*



NOTE: The Walk Ramp Extensions are required to be installed. On vehicles where dock bumpers have not been installed, custom dock bumper structures will need to be installed to mount the Walk Ramp Extensions. Palfinger Liftgates does not supply material for these custom dock bumper structures.

Fig.45



10 Electrical Installation

⚠ WARNING

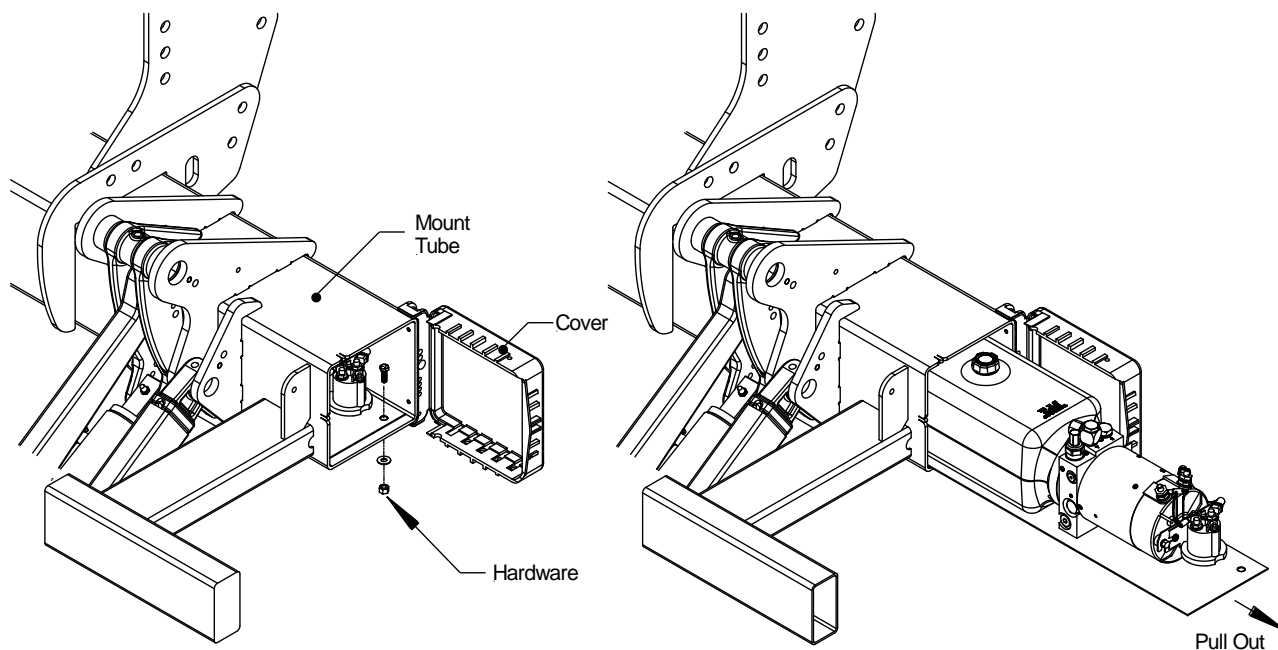
Any deviation from Palfinger Liftgates's recommended power setup **will void warranty and product liability** unless you have a written confirmation by Palfinger Liftgates that allows you to do specific changes.

NOTICE

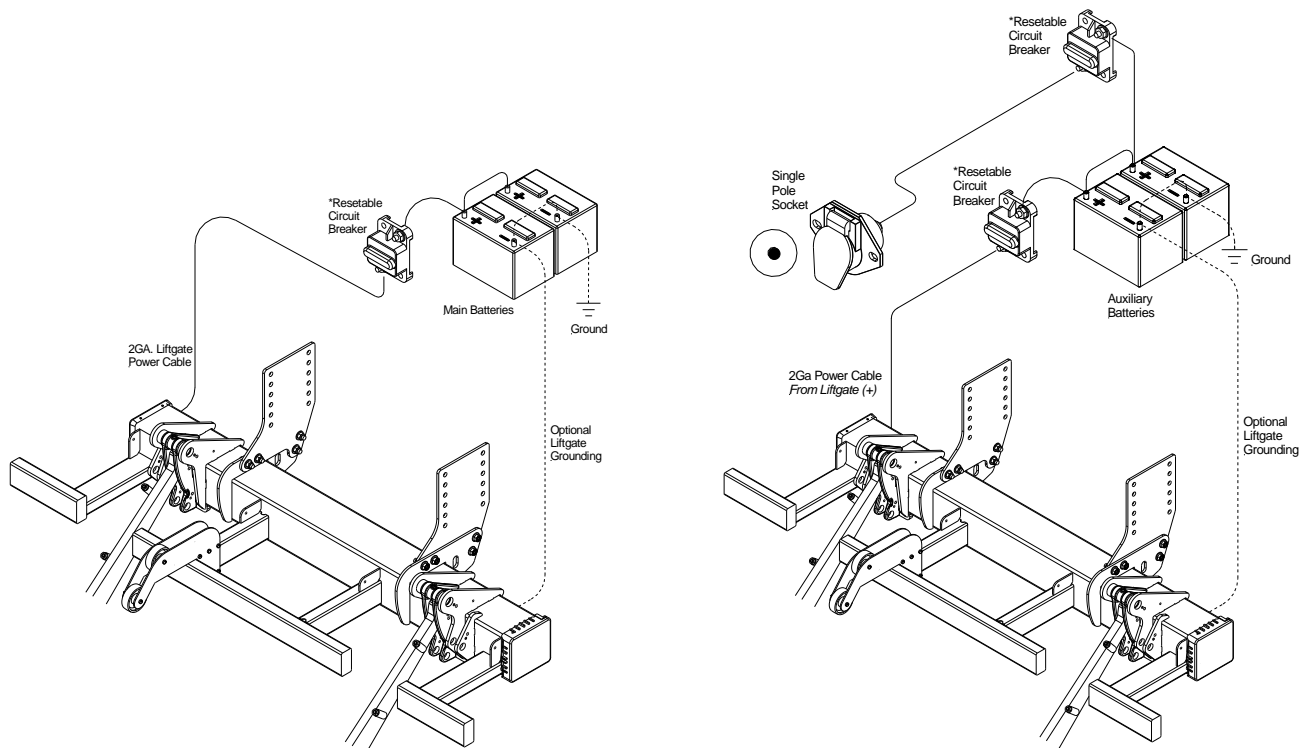
- Never exceed rating of existing fuses located at the battery, control board and/or the pump and motor which may result in serious damage to the equipment.
- Never jump the 150 Amp circuit breaker at the batteries unless otherwise instructed by the Palfinger Liftgates technical support group.
- Assure all connections are tight and securely sealed.
- Heat shrink all cable connection.
- 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.
- Insure 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.

Accessing the Hydraulic Power Unit:

To access the Hydraulic Power Unit, open the cover on the curb side of the mount tube. Remove the nut and bolt securing the hydraulic power unit to the mount tube. Pull the hydraulic power unit out approximately 14-16" to access the solenoid, oil reservoir, etc.

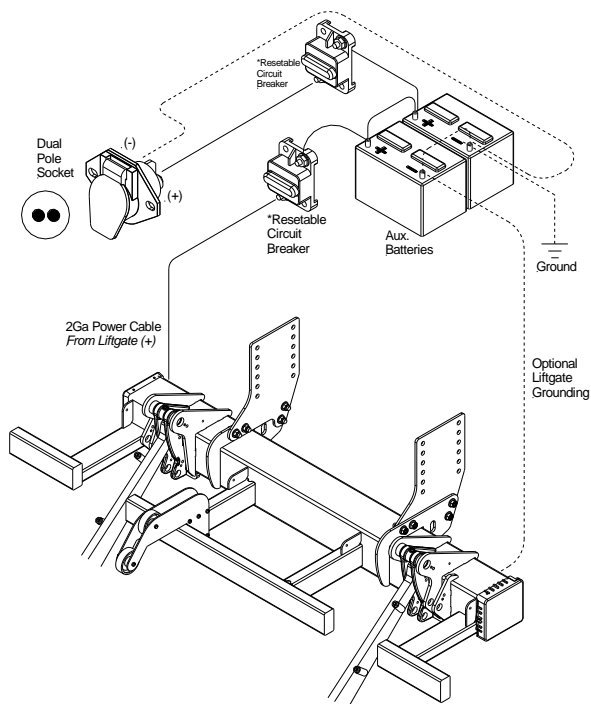


10.1 Wiring Diagram – Battery Setup



Wiring Diagram – Truck

Wiring Diagram – Single Pole - Trailer



Wiring Diagram – Dual Pole – Trailer

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

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

NOTICE: DO NOT attempt to jump in-line fuses with other objects other than the specified fuse.

Do not increase the amperage rating of fuse. Serious harm to the liftgate will result when standard practices are not followed.

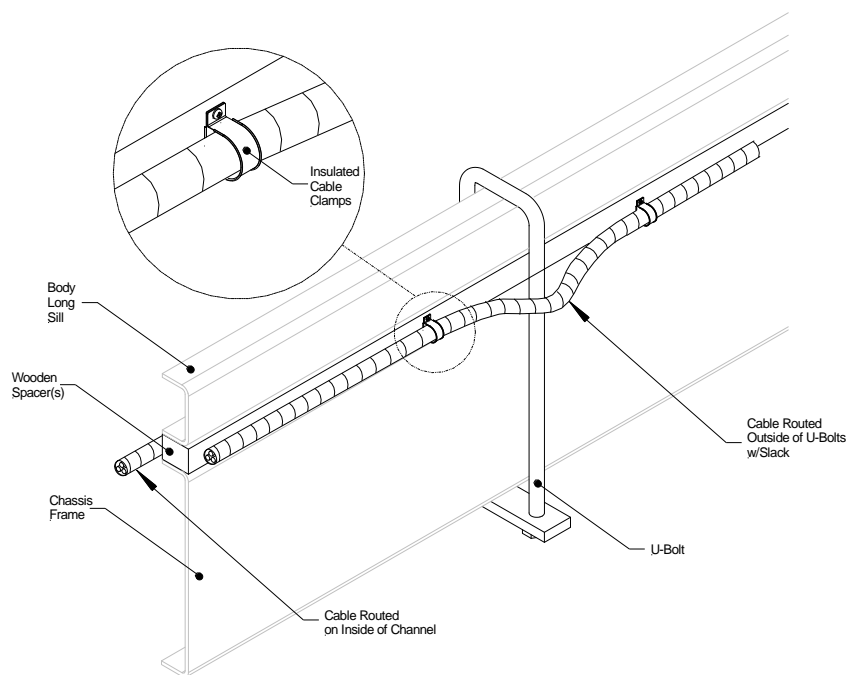
10.2 Cable Routing

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.



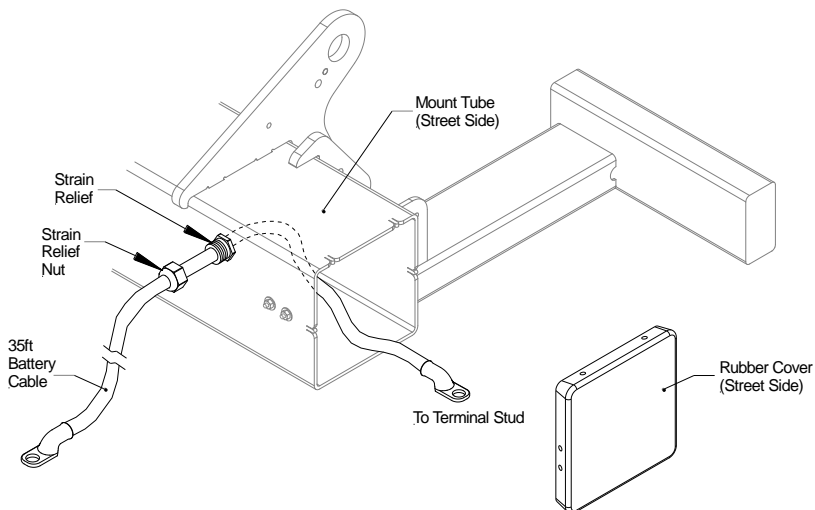
WARNING

Do not tie electrical cables along with hoses.

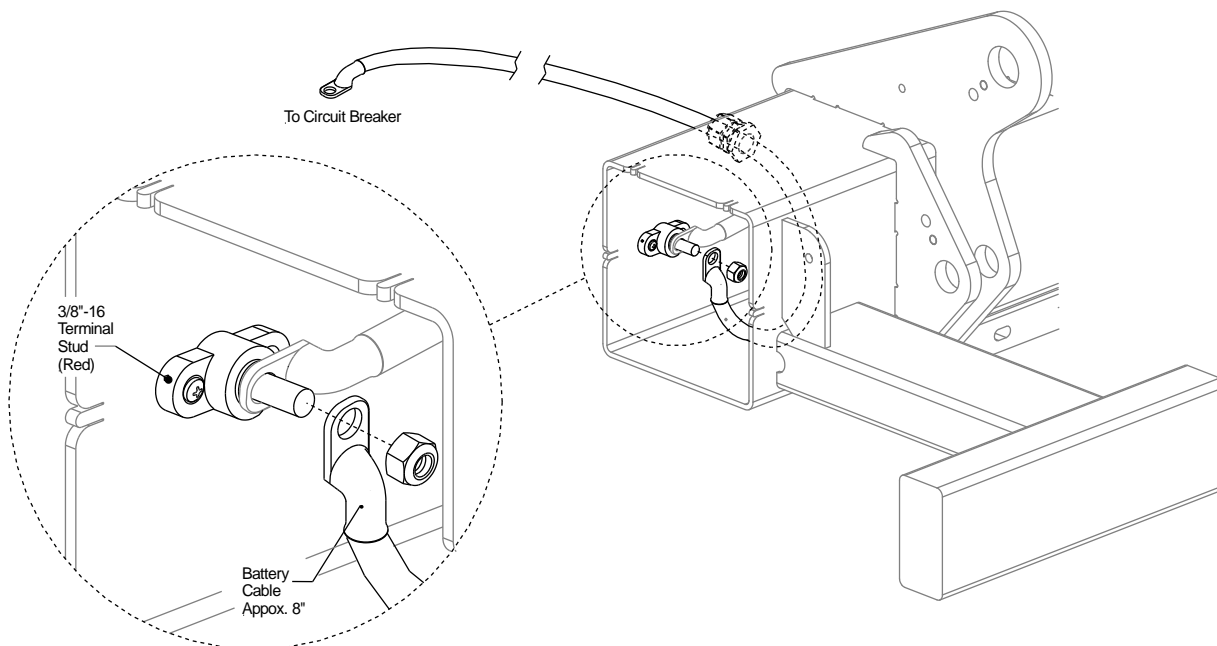


10.3 Connecting Power to Liftgate

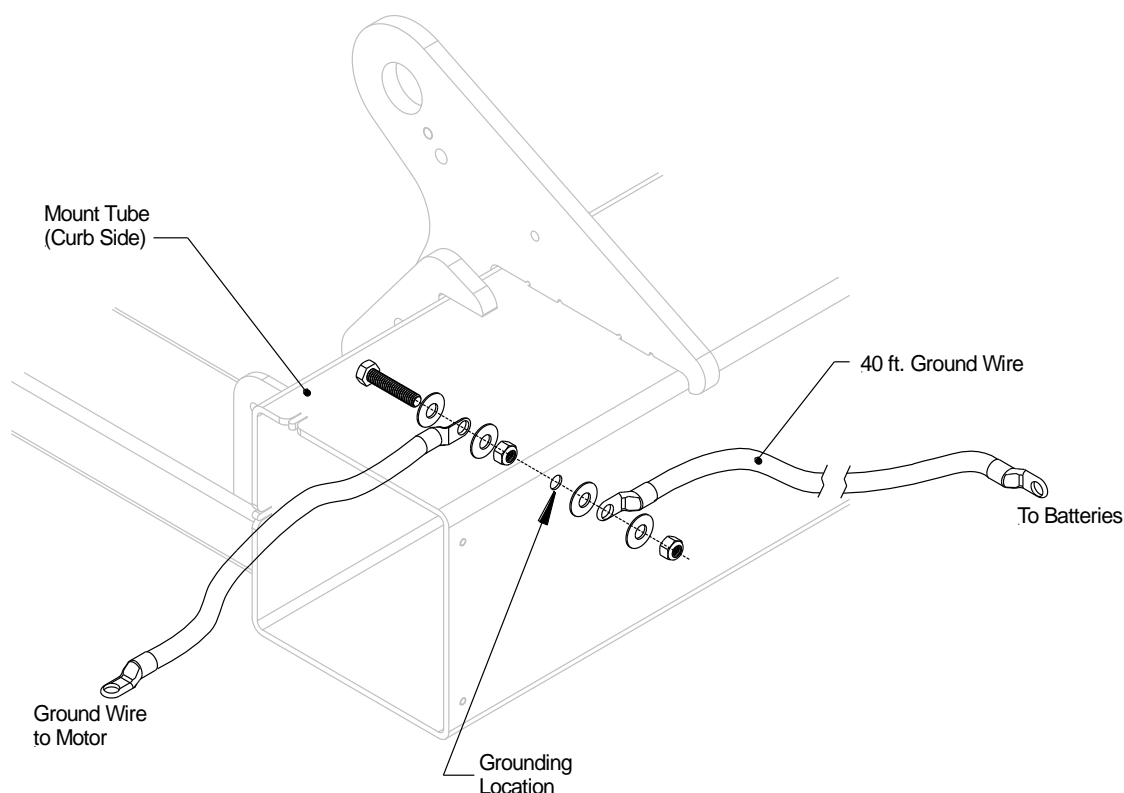
1. Remove the rubber cover from the mount tube on the street side. A 35ft battery cable will be inside the mount tube.
2. Unscrew the strain relief nut by hand. Slide the strain relief nut over the battery cable and feed approximately 6-8" of cable inside the mount tube through the strain relief.
3. Tighten the strain relief nut.



4. Inside the tube, a 3/8"-16 terminal stud (red) is installed. An existing battery cable will be installed on the stud, remove the nut and add the battery cable to the terminal stud. Secure both battery cables with the same hardware. Place the rubber cover back onto the mount tube. Route the other end of the battery cable to the circuit breaker.



5. Grounding Kit (Optional): Remove the rubber cover and slide the power pack out from the mount tube (Curb Side). Unscrew the preinstalled grounding bolt and replace it with the grounding bolt from the grounding kit. Attach each ground cable as shown using the provided hardware and route to each location.



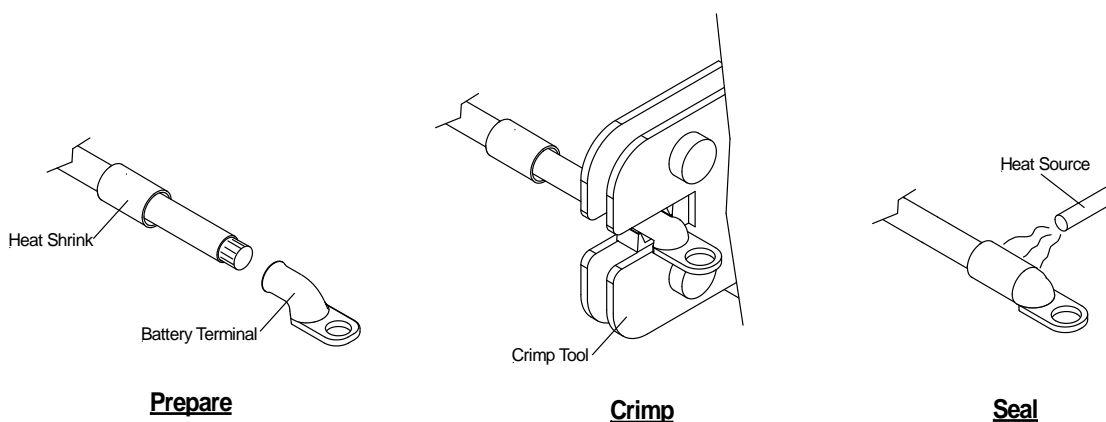
10.4 Wire Crimping



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

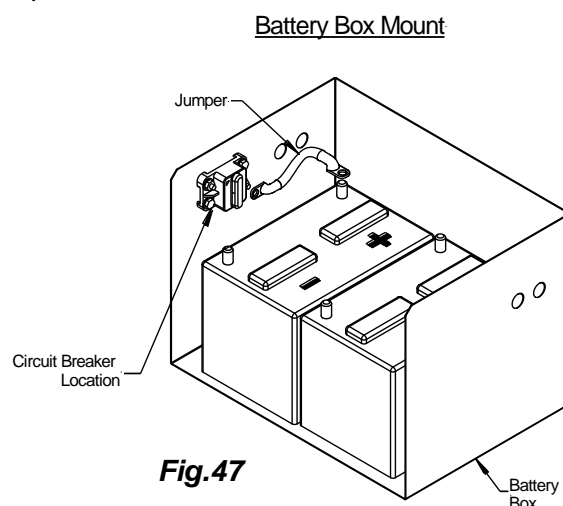
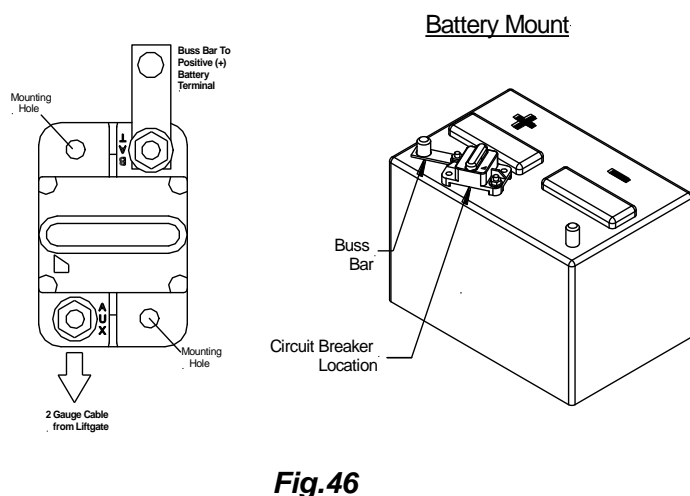
Battery Cable Crimping

1. Prepare the wire to be crimped. Straighten out the exposed copper wire and insert into the battery terminal.
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.



10.5 Circuit Breaker Installation

1. **Battery Mount:** Attach the bus bar to the circuit breaker on the BAT post. Mount the circuit breaker securely to the positive terminal post of the battery, **Fig.46**.
2. **Battery Box Mount:** When mounting the circuit breaker in a battery box, connect a 2 gauge jumper from the BAT post to the circuit breaker to the positive post of the battery, **Fig.47**.
3. Connect the liftgates 2 gauge power cable to the AUX post on the circuit breaker.



10.6 Toggle Switch Installation



The Toggle Switch is weatherproof from factory, do no substitute or tamper with the switch.

NOTICE

Determine location for fixed toggle switch on corner post in a way that the operator can view the platform and surrounding areas while operating the lift gate. Place toggle switch in a horizontal position

Steps:

Roll Up Door Vehicles

1. Mounting Hole Pattern: Locate area on rear curb side post of body where switch can be reached by the operator from ground and body floor. Position the holes approximately 24" up from vehicles floor. Drill two 5/32" (.156") holes spaced at 1-3/4" vertically, and one 7/8" hole, centered to the two 5/32" holes, for the switch cable harness, **Fig.48**.
2. Wiring: Route cable harness through rear post and down to the pump & motor box. Heat shrink or protect all connections. Use cable clamps to keep the cable clear of all moving parts. Reference the wiring diagrams in Sections 10.9-10.10.
3. Mount Switch: Verify all operations are functional as intended. Secure the switch to the corner post with the two #10-24 x 1" self-tapping screws.

IMPORTANT: Screws must be hand tighten, do not use power tools to tighten screws.

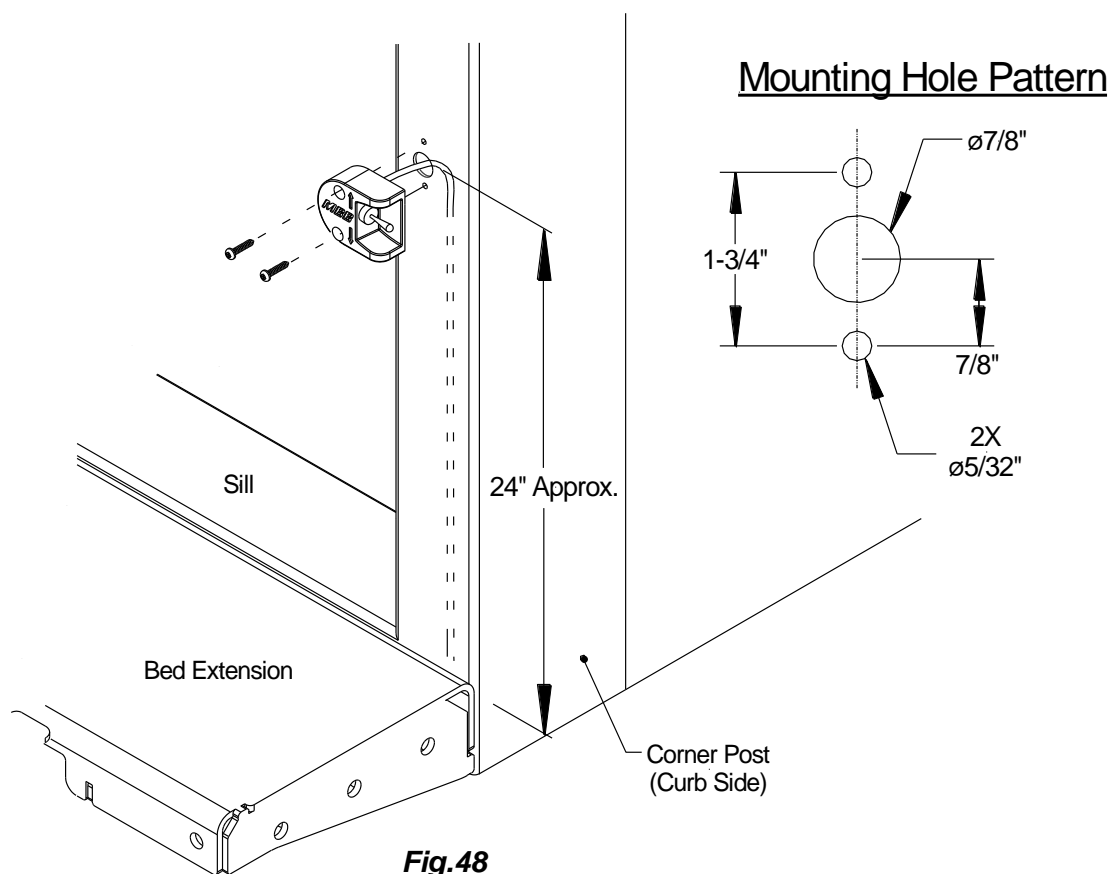
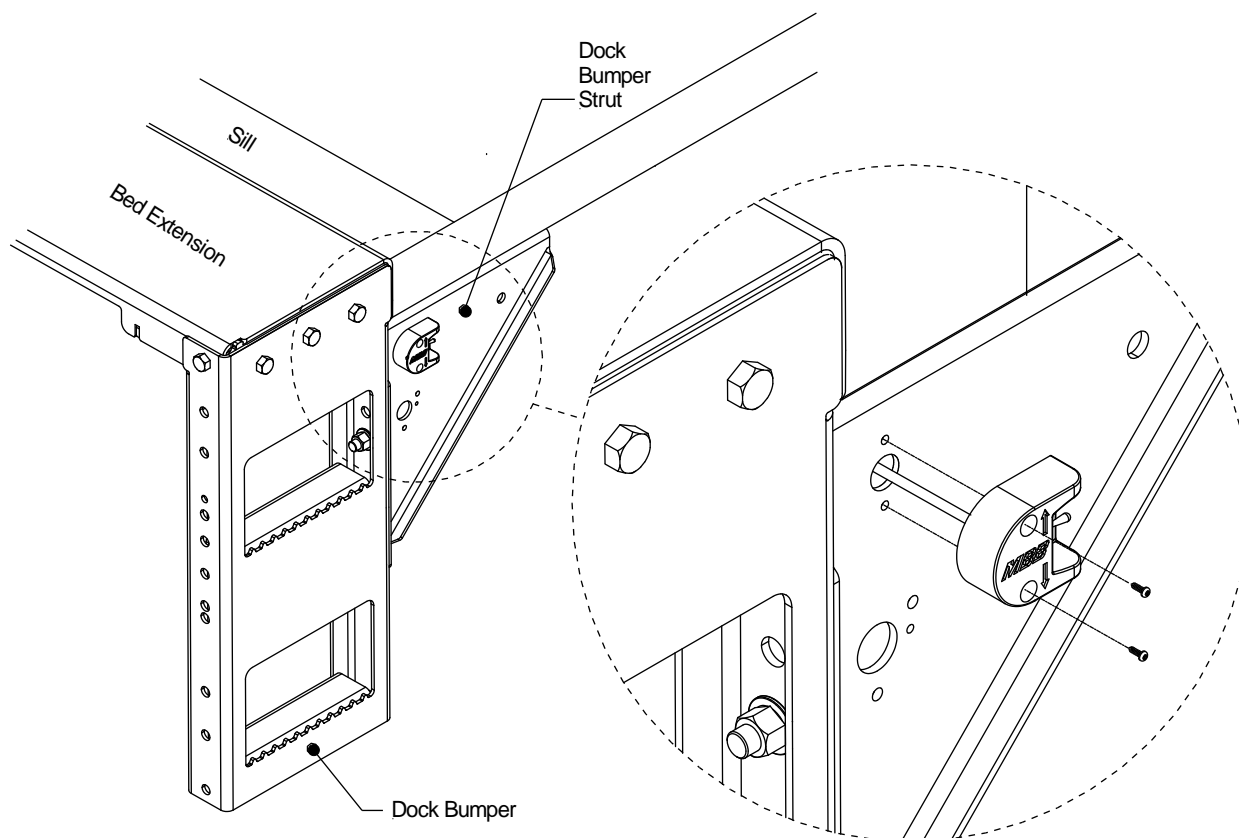


Fig.48

Stake Bed Vehicles

1. Mount Switch: Mount toggle switch to dock bumper strut using two #10x1-1/2" self-tapping screws.



2. Route Wire: Route the toggle switch harness along the vehicle body down to the pump and motor. To prevent damage to the harness, properly secure the harness and keep cleared from any moving liftgate parts.
3. Connect wires: Reference Sections 10.9-10.10 for wiring according to your liftgate specifications.
4. Check Switch Operation: Verify that the up and down functions on the toggle switch operate as intended.
5. Seal Connections: Heat shrink and seal all connections, if applicable.

10.7 ON/OFF Liftgate Switch

NOTICE

Liftgate Cab ON/OFF Switch **MUST** be installed and in clear view of driver.

1. Mount Switch:

Truck Application: Install the liftgates shut off switch on the vehicles dashboard in clear view of the driver and within reach from the ground, **Fig.49**.

Trailer Application: Install the shutoff switch on the dock bumper strut, if applicable, or use the faceplate to install the switch on the vehicles body as shown (faceplate requires a 2" hole to be drilled on vehicle body for installation), **Fig.50**.

Decal: Apply the accompanying decal in the surrounding area of the switch.

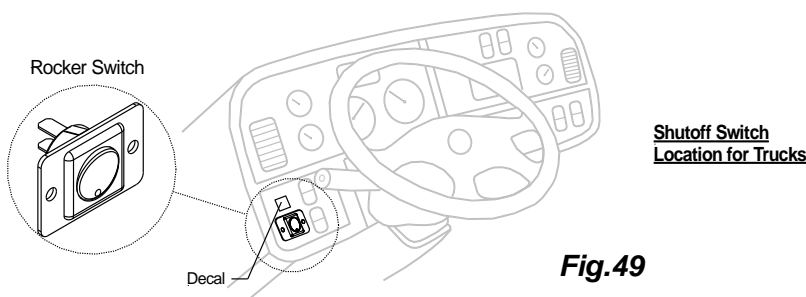


Fig.49

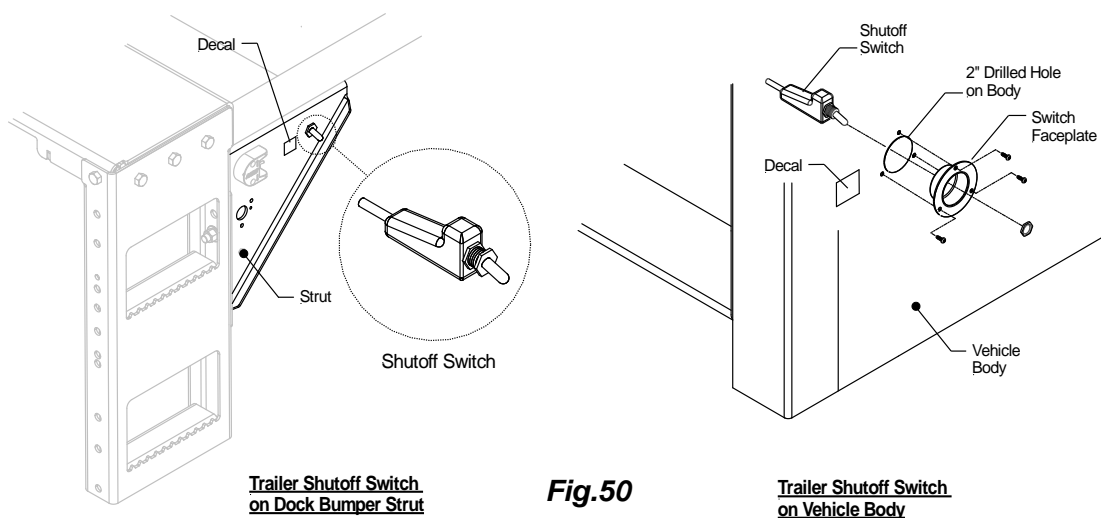


Fig.50

2. Route Wire: Route and secure the control wire cable every 12 inches against the frame with frame clamps or equivalent along the frame to pump & motor box.
3. Check Wire Clearance: Verify wire is clear of all moving parts and securely tied up.
4. Cover Connections: Heat shrink or protect all connections.
5. Wiring: Reference Sections 10.9-10.10 for wiring according to the liftgates specification's.



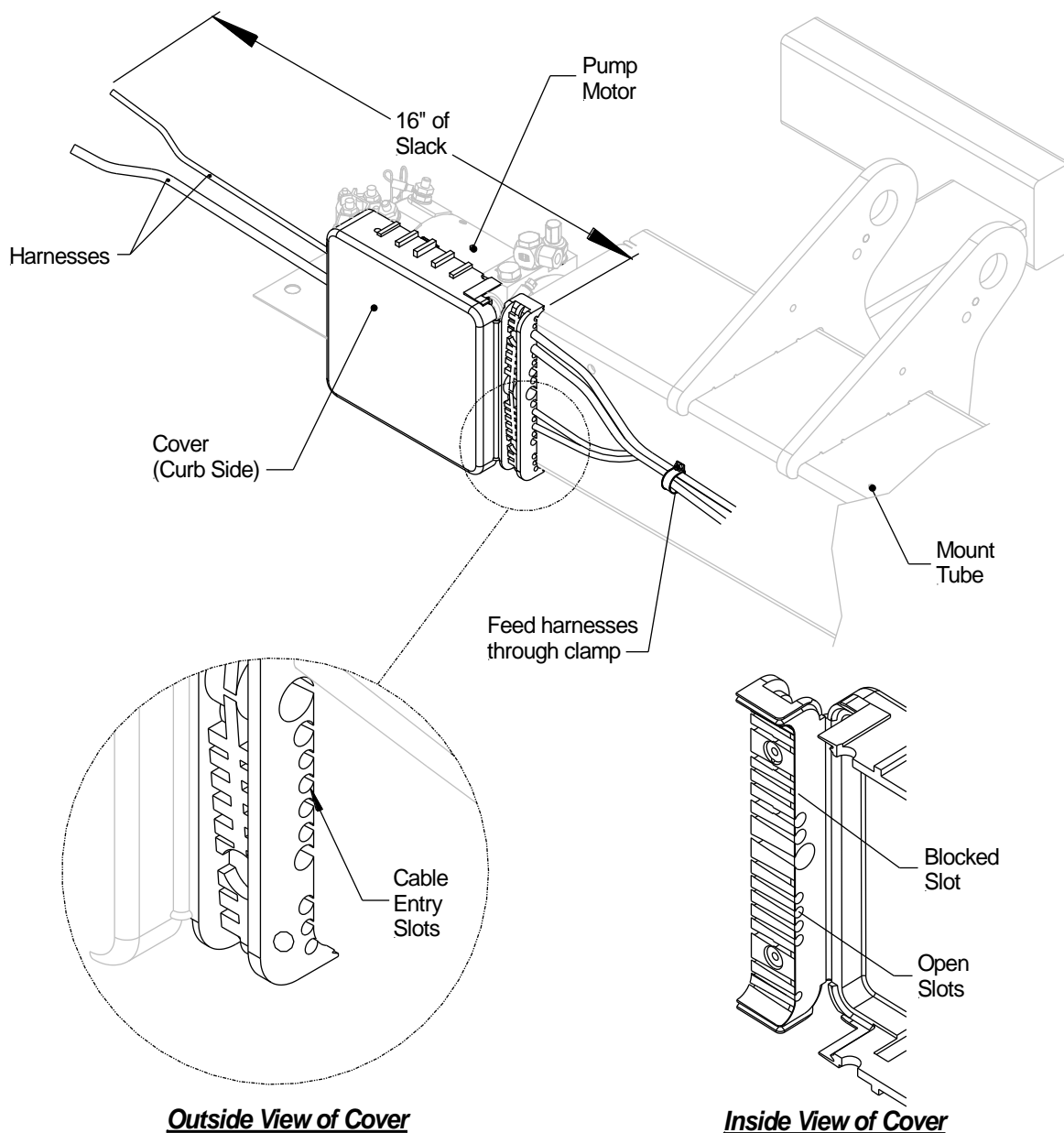
Rocker switch shall not be installed anywhere outside the truck cab.



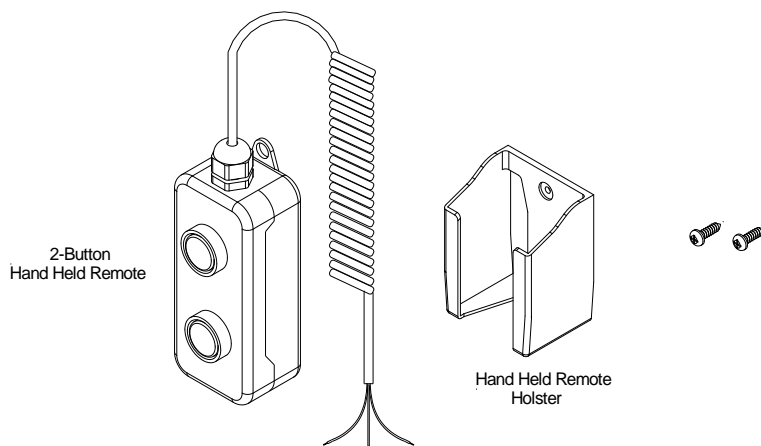
Inspect and test all electrical connections, wiring and the different functions to make sure that the electrical installation is complete.

Routing Switch Harnesses to Pump and Motor

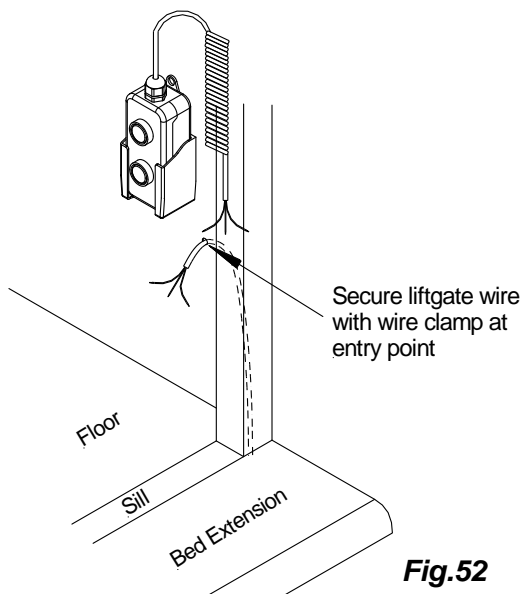
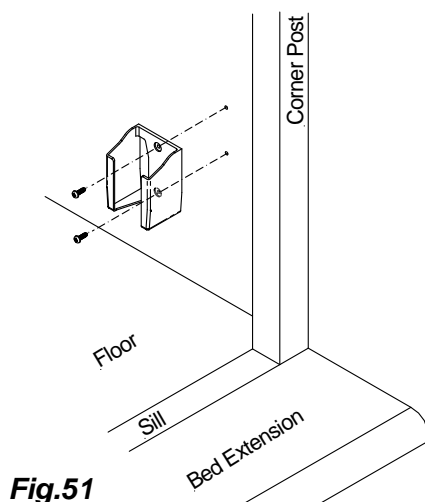
1. Feed the harnesses through the cable entry slots of the cover. Slots are of different diameters and some slots are blocked on the inside part of the cover. The blocked slots will require the removal of the blockage to properly sit the harnesses. Use a small blade to remove the blockage if necessary. Leave approximately 16" of harnesses slack from the point of entry to the end of the harnesses.
2. Make sure each harness is properly seated in its corresponding slot before closing the cover.
3. See Section 10.9-10.10 for wiring diagram.



10.8 2-Button Hand Held Remote Control (Optional)



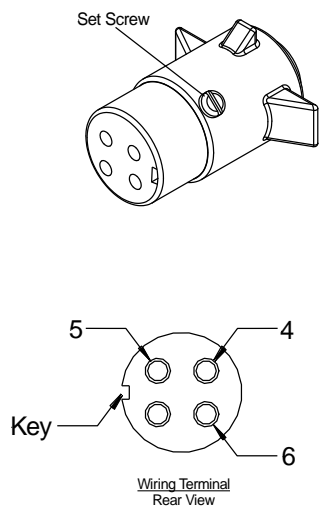
1. Mount the holster approximately 40" - 48" from the floor, or determine the best location as preferred by end user, **Fig.51**.
2. Route the cable from the liftgate up through the inside corner post or between the wall extrusions of the truck. Use the wire clamp to secure the incoming cable, **Fig.52**.
3. Splice the cables from the liftgate to the hand held remote with butt connectors and seal each connection with heat shrink.



Wiring Table

Function	To	Wires From Gate/Number
Up	Solenoid	5 / Red
Down	Release Valve	6 / Yellow
12V (Hot)	ON/OFF Switch	4 / Green

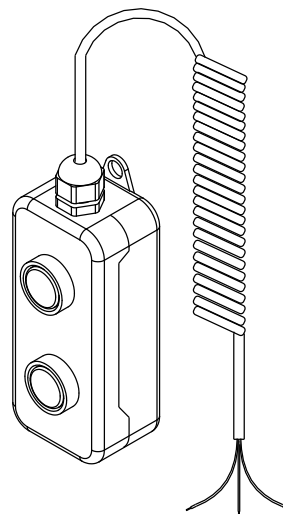
4. Use a plug and socket when the vehicle is a refrigerated body. Remove the set screw to access the wire terminals. **Never store remote inside refrigerated vehicles, control will be damaged.**



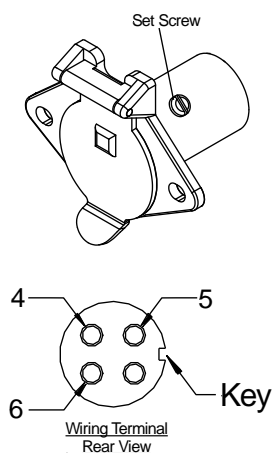
Plug

Plug to Control Wiring Table

Function	Plug	Remote
Up	5	5.2 / Red
Down	6	6.2 / Yellow
12V (Hot)	4	4.3 / Green



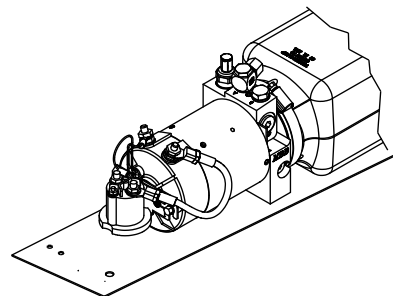
Hand Held Remote



Socket

Socket to Pump/Motor

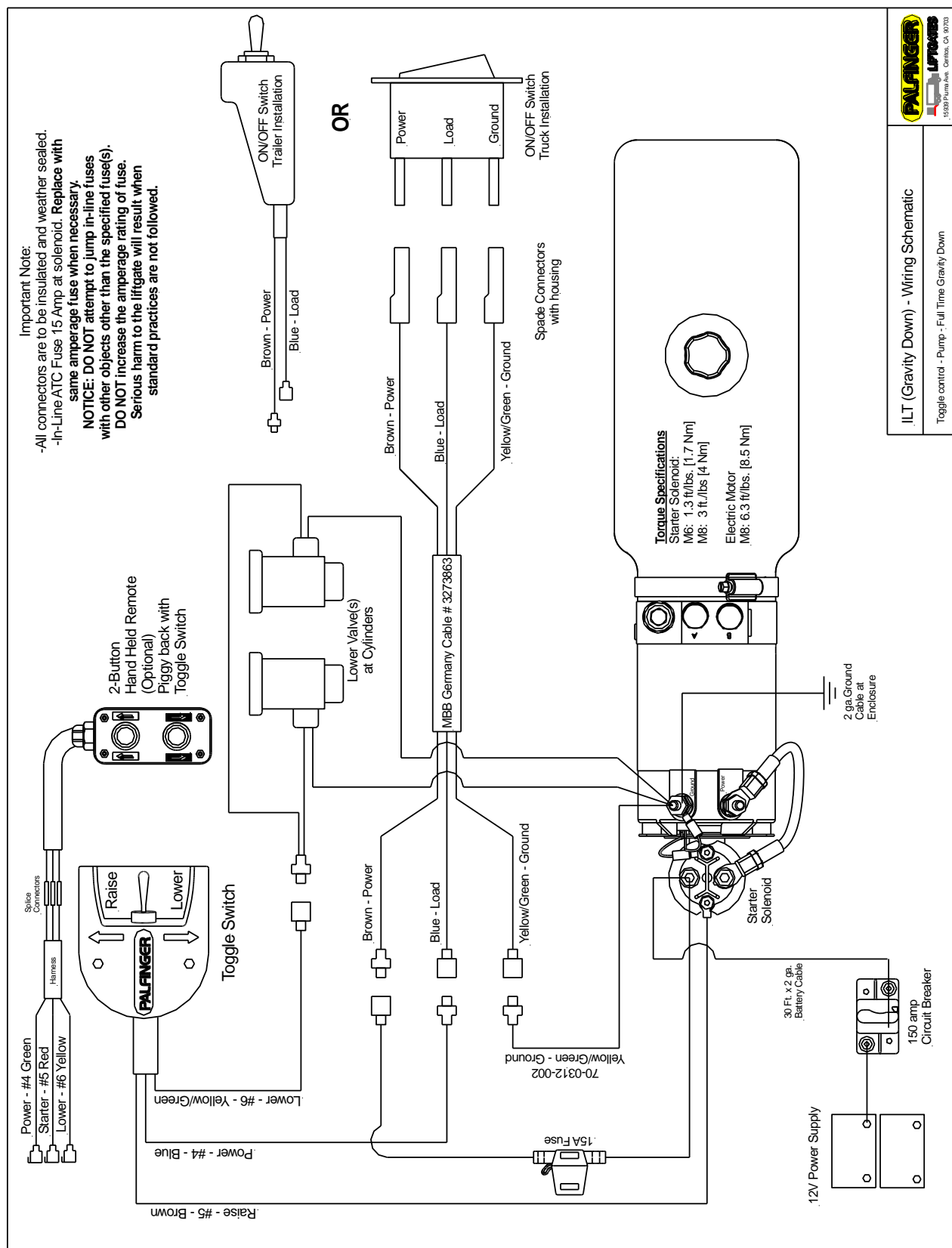
Function	Socket	Pump Motor
Up	5	Solenoid
Down	6	Release Valve
12V (Hot)	4	On/Off Switch



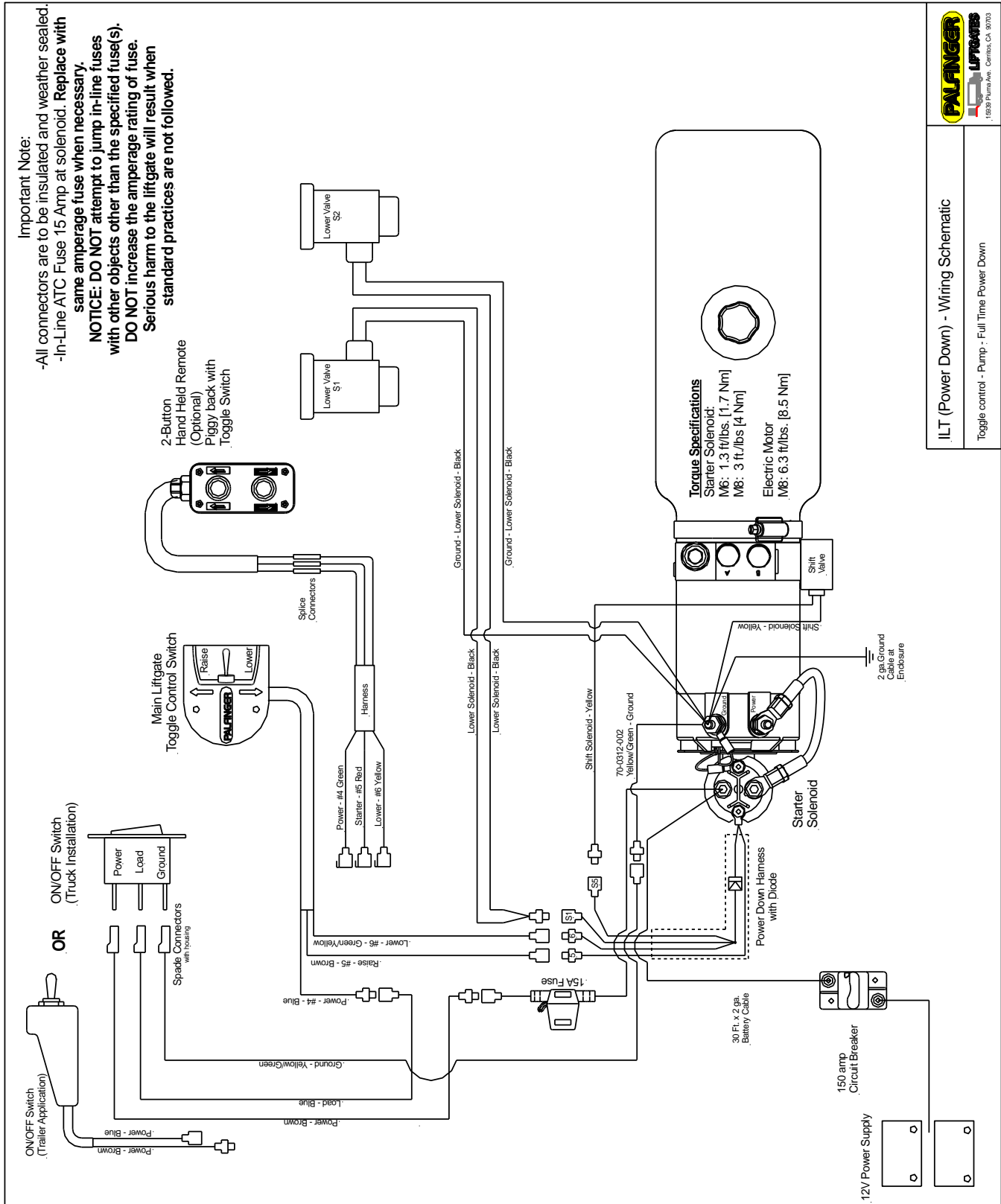
Pump & Motor

5. Reference Section 10.9-10.10 for wiring diagram.

10.9 Wiring Diagram (Gravity Down)



10.10 Wiring Diagram (Power Down)

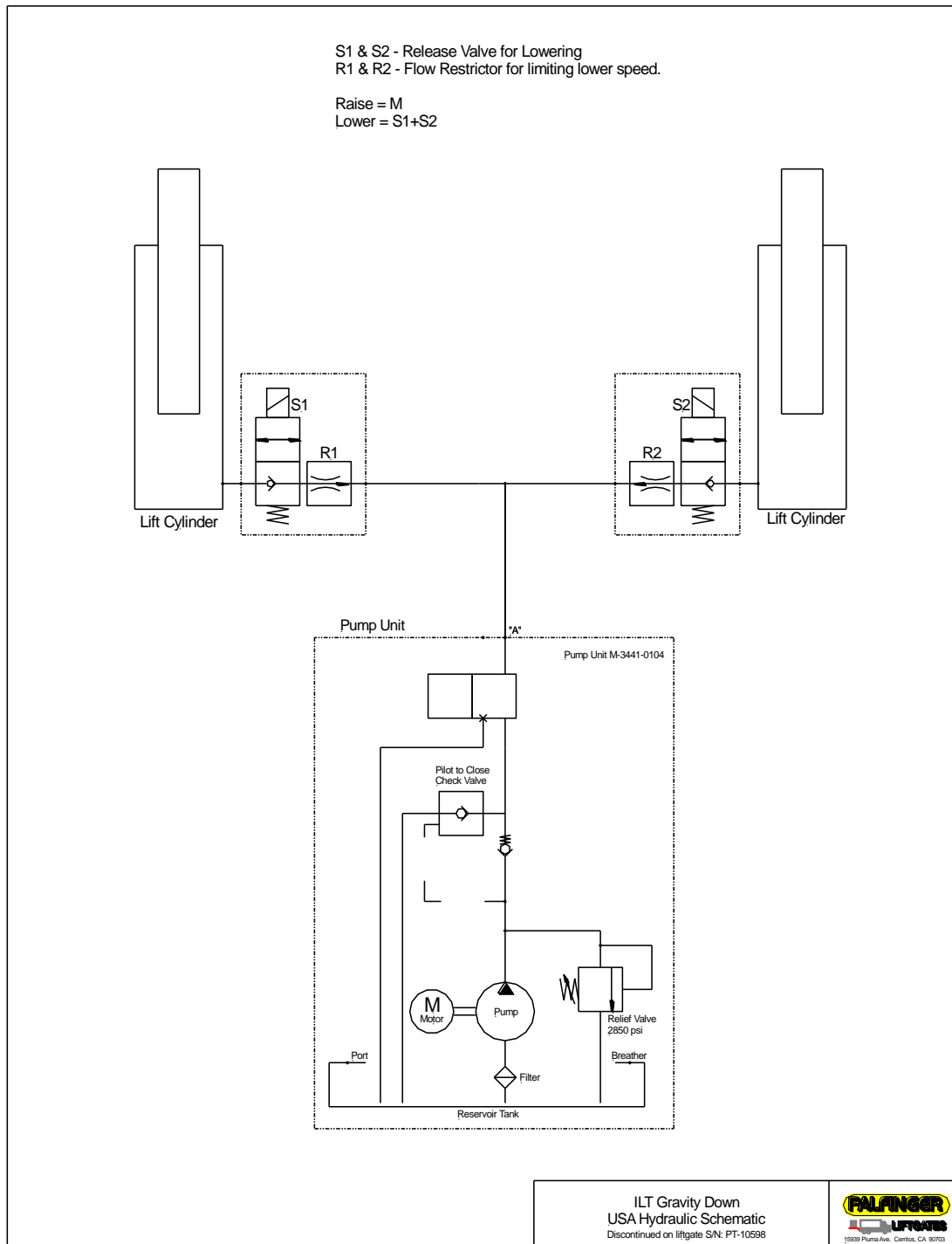


11 Hydraulic Schematic

NOTICE

- Insure that all hydraulic hoses are secured and away from heat sources, sharp corners/edges, and abrasion from moving components during the operation of the liftgate and vehicle.

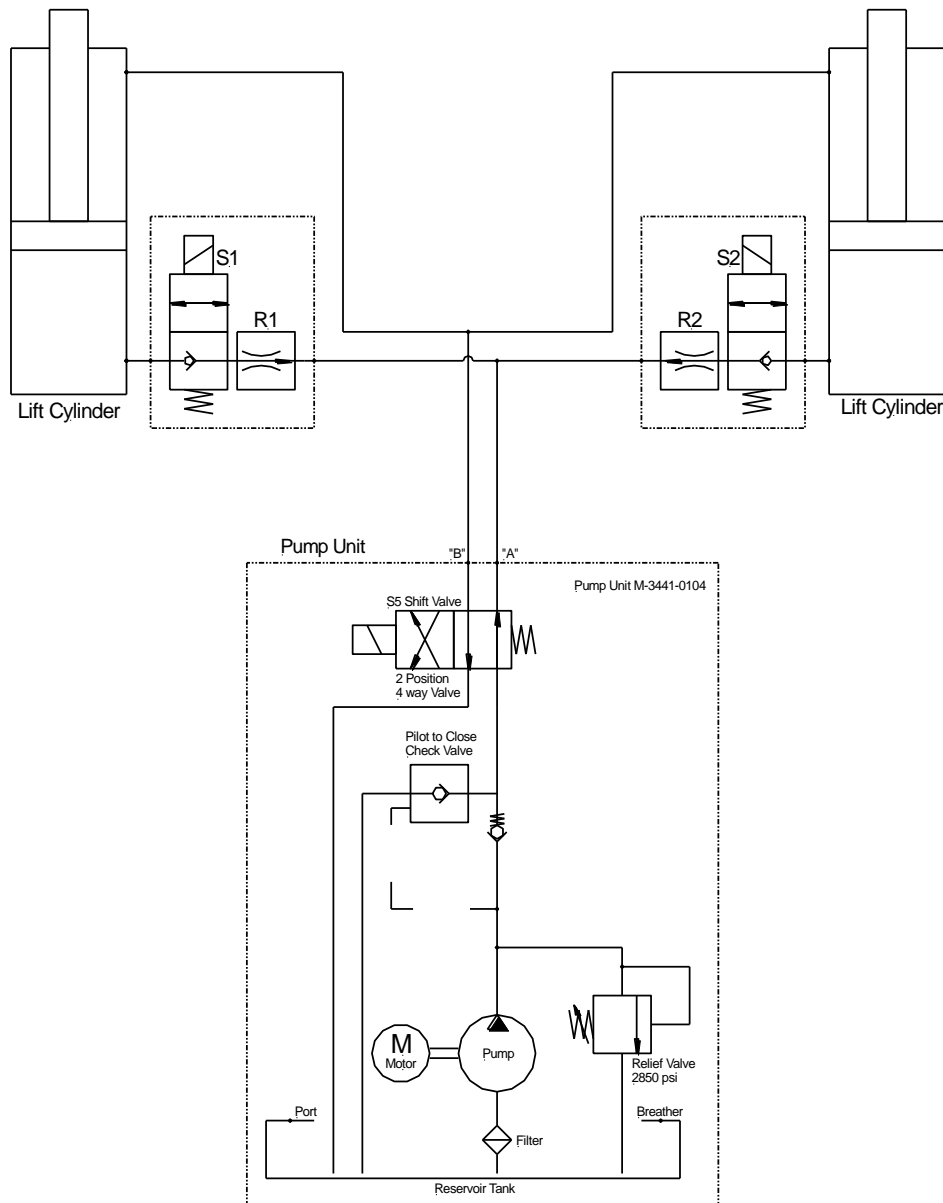
11.1 Hydraulic Schematic (Gravity Down)



11.2 Hydraulic Schematic (Power Down)

S1 & S2 - Release Valve for Lowering
R1 & R2 - Flow Restrictor for limiting lower speed.
S5 - Shift Valve is activated upon LOWER function only.
Pilot to close check valve is NOT used on Power Down.

Raise = M
Power Down = M + S1&2 + S5



MBB Toggle Control; Full time Power Down ONLY

ILT Power Down
USA Hydraulic Schematic
Discontinued on liftgate S/N: PT-10598



12 Decal Placement and Inspection



For operator's safety, all decals appearing in "Decal Kit" must be placed visibly on the control side of liftgate to be read by operator. This is typically a combination of decals on the liftgate and truck/trailer body. Please make sure to place the maximum capacity decal (D) on driver and curb side of the vehicle.

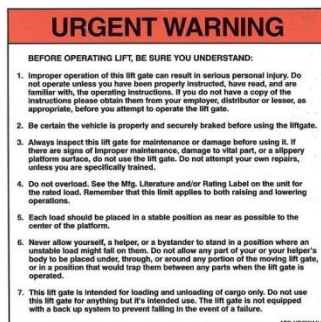
Important: Never remove or paint over any decal. If any decals below require replacement contact Palfinger Liftgates.

Decal Kit			
Decal	Qty.	Part No.	Description
A	1	ATG-URGWA	Urgent Warning: Elevating gate instructions
B	1	ATG-ILR-ILFS	Operating Instructions
C	1	ATG-BKR	Circuit Breaker Reset (must be located at the circuit breaker)
D	2	ATG-XXXX	Capacity (check the serial number plate to find out the gates specific capacity).
E	1	ATG-RESET	Circuit Breaker Protection
F	2	ATG-WLH	Warning: liftgate can crush
G	2	ATG-PLAT	Warning: Always stand clear of platform area
H	1	ATG-CAB	Liftgate Shut-Off (Place Decal next to the On-Off Switch in the Cab)
I	1	ATG-UD	Toggle Switch Decal (located on post for Trucks) Or (located on strut brace for flatbeds)
J	1	ATG-WNG	Warning: Use handle to open (must be located underneath handle (main section))
K	1	ATG-ILTLUB	Lubrication and Fluid Points
L	Roll	--	Conspicuity Tape
M	2	85-1015-00	Torque Specifications for Mount Plates (Pre-installed on each mount plate)

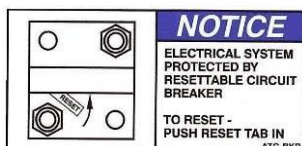
NOTICE

It is the installer's responsibility to determine the proper application of the Conspicuity tape, and to ensure that the vehicle meets DOT and federal lighting regulations. Keep in mind that there are different requirements depending on the classification of the vehicle. Placement of decal "L" shown is an example of conspicuity tape placement. This document is not intended to replace published agency regulations, and it is strongly recommended that the installer references the Code of Federal Regulations (CFR) which can be viewed at <http://www.ecfr.gov>

Decal - A



Decal - C



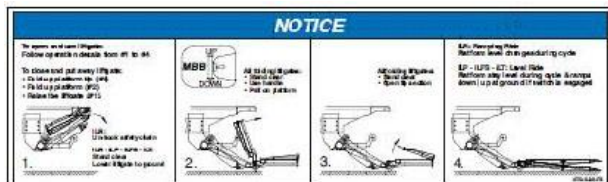
Decal - B



Decal - D



Decal - E



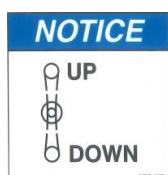
Decal - F



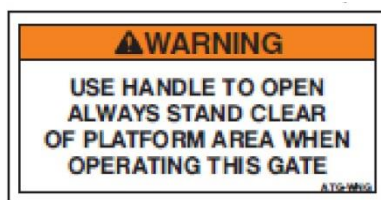
Decal - G



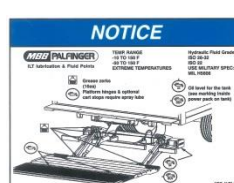
Decal - H



Decal – I



Decal – J

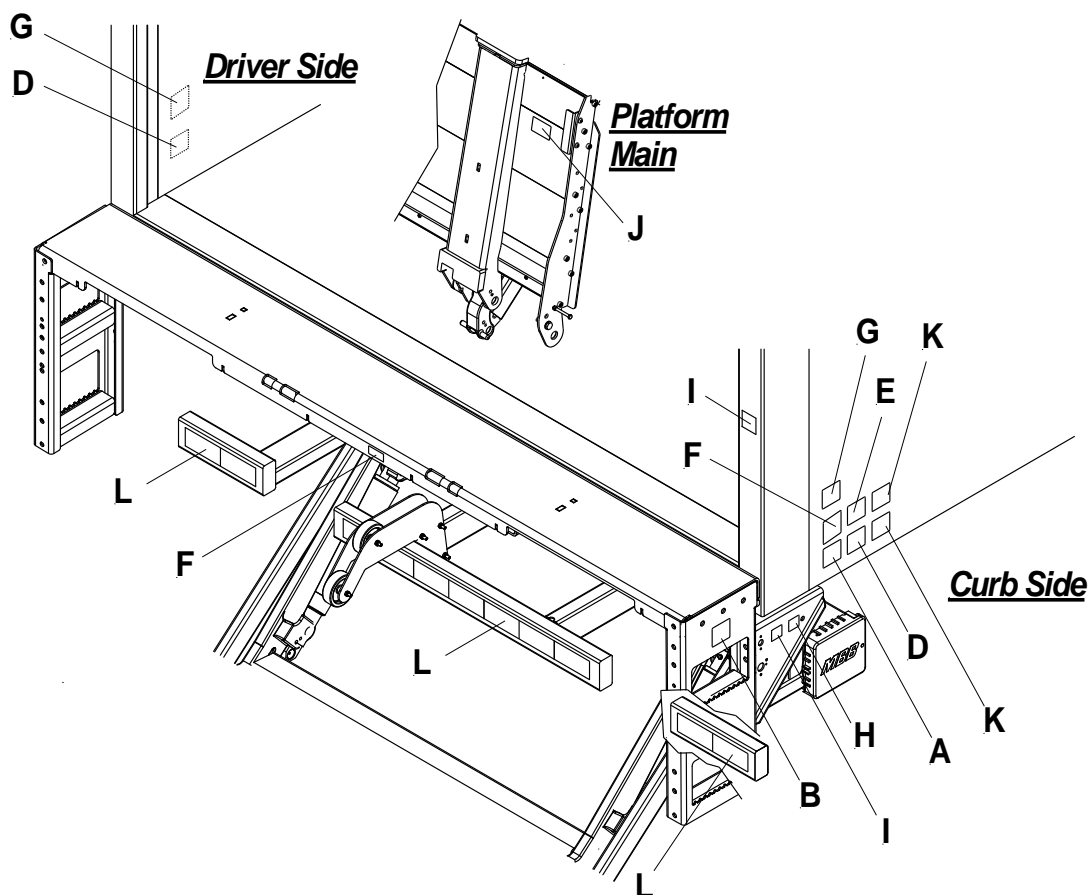


Decal - K



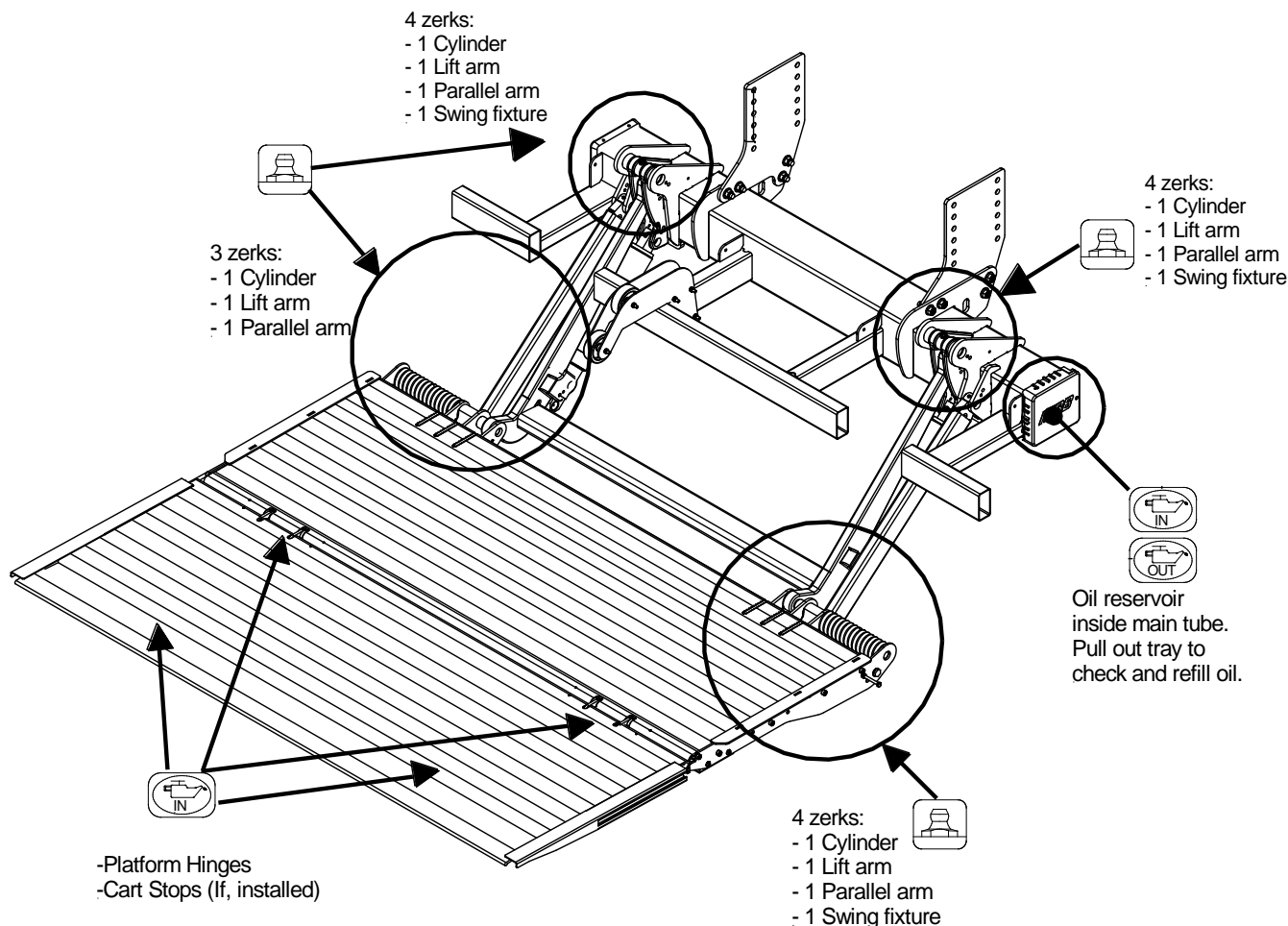
Decal - L

Decal - M



13 Lubrication

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



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



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



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

14 Final Inspection Check List



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 filled out at the facility where liftgate was installed and **MUST** be sent to Palfinger Liftgates for warranty activation.

Structural Inspection

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

Hydraulic Inspection

- ☐ Pump reservoir is filled to 1.0" from top of reservoir when cylinders are completely compressed (platform is resting on the ground).
- ☐ Hydraulic components and connections do not leak.
(Should be checked after unit is hydraulically locked for five (5) minutes.)
- ☐ All hydraulic lines are secured with cable ties, hoses clamps, or other fasteners. No hoses or components rub on the frame, platform, or any other components while unit is in operation or in storage. No hoses are kinked or bent.

Electrical Inspection

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

Operational Inspection

- ☐ All decals are in place and legible per instructions.
- ☐ All pivot points are lubricated per instructions, and Zerk fittings have been capped.
- ☐ Up stops are in place. Wheel is set for proper opening when lowering.
- ☐ Coil springs have been adjusted at the platform for proper folding and unfolding tension.
- ☐ Snubber pads are tight against platform.
- ☐ Retaining bolts are removed from both swing arm fixtures (Section 9.4).
- ☐ Platform travels up and down smoothly and freely, without any hesitation or unusual noises.
- ☐ Platform is flush with the bed extension, tip is pitched approximately 2" above rear bed extension when raised completely.
- ☐ Platform rests on the ground evenly when lowered completely.
- ☐ Platform raises and lowers properly and at correct speed. (2 to 4 inches per second)
- ☐ Gate is painted, body is clean around gate. Chrome cylinder shafts are not painted. Rubber & plastic caps are in place.
- ☐ The liftgate serial number and model number are documented on the inside of the front cover of the Owners Manual, as well as the installation manual in the space provided.
- ☐ Owners Manual is in the vehicle's glove box.
- ☐ Supervisor has demonstrated the instructions in the Owners Manual to the customer/driver upon delivery.

Inspection Information (Please Print):

Name: _____ Signature: _____

Completed by: _____

Title: _____ Date: _____

Liftgate Model: _____ Liftgate Serial Number: _____

