

# PALFINGER



## LIFTGATES

### ILK-18

# INSTALLATION MANUAL & CHECK-OFF SHEET

ECN-M1042 Rev. 1.1, Date 06-09-17 Part #90-0415-000

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If you received this product with damaged or missing parts,

Please contact PALFINGER Liftgates at (888)-774-5844

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**Recommended Tools For Installation**

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

- 1  **Important Notes:** 
1. **Read Manual completely before beginning any work**
  2. Mount fixture must be ordered separately
  3. Refer to your truck manufacturer's instructions before adding any auxiliary equipment.
  4. Pay special attention to items marked with this symbol: 
  5. All welding should be performed by qualified personnel per AWS standards
  6. For flip up door or full seal kit applications, please read 3.1 first
  7. For swing door applications, please read 3.2 first
  8.  Always Ground closest to your welding point to prevent arcing through moving parts
  9. Contact PALFINGER Liftgates for Special Installations not covered in this Installation Manual
  10.  Do not paint cylinder shafts or nylon rollers (Use non-chlorinated brake cleaner to remove over spray)
  11. Verify that pin lock bolts are tight
  12. Grease all pivot points
  13. Verify that ALL decals are placed properly (Contact PALFINGER Liftgates to replace any missing decals)
  14.  Final Check-Off-Sheet at rear of this manual **MUST** be filled out and kept in your records for future reference.
  15. Refer to owner's manual for troubleshooting & repairs.

### **Important Dimensions:**

(Refer to line drawing on following pages)

- 1) BED HEIGHT [H] Bed Height Ranges: Max=Unloaded / Min=Loaded Truck
  - Measure from top of body floor to ground. Vehicle must be on flat level ground when measured.
- 2) MOUNT TUBE HEIGHT [F]
  - Measure from **TOP** of Mount Tube to **TOP** of body floor
- 3) MOUNT TUBE [K]
  - Measure from **rear of body** to forward edge of Mount Plate.
- 4) REAR SILL CUT OUT [S]
  - Refer to H, K & S Charts and Cut Out diagrams on following pages
- 5) GROUND CLEARANCE
  - Measure from **BOTTOM** of Mount Tube to ground

## Mounting Notes:

Read and clearly understand manual BEFORE beginning ANY work



**Important!!!**



The basic rule of PALFINGER Liftgates' ILK 18 installation is to raise mount frame to achieve **MAXIMUM** ground clearance **WITHOUT** exceeding Min "F" dimension.

Refer to mounting tables and determine the proper [S] dimension. If the sill is greater than what's allowed, the sill has to be notched and capped to achieve original strength. Bend flat stock and weld 100% around the notch.



### **Warning**

- Minimum bed height dimensions are ALWAYS MAXIMUM LOADED TRUCK
- Floor Height Ranges: Max=Unloaded Truck; Min=Loaded

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.

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

2 Dimension Sheet



# Trailer Chassis Dimension Sheet

**Customer Information**

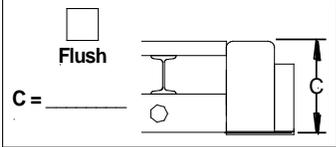
Quote#/SO#: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_ @ \_\_\_\_\_

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

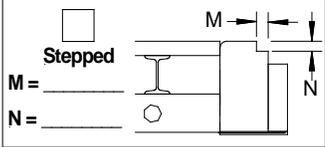
**Trailer Information**

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

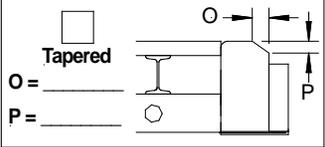
**Trailer Dimensions**

- 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.*
- 

Flush  
C = \_\_\_\_\_

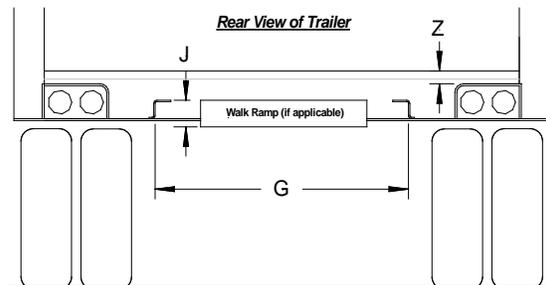
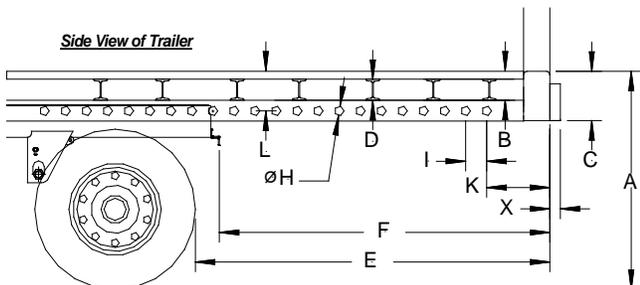


Stepped  
M = \_\_\_\_\_  
N = \_\_\_\_\_



Tapered  
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



# Truck Chassis Dimension Sheet

### Customer Information

Quote#/SO#: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_ @ \_\_\_\_\_

<b>Liftgates Information:</b>	
Model	
Capacity	
Platform Size	
Platform Material	

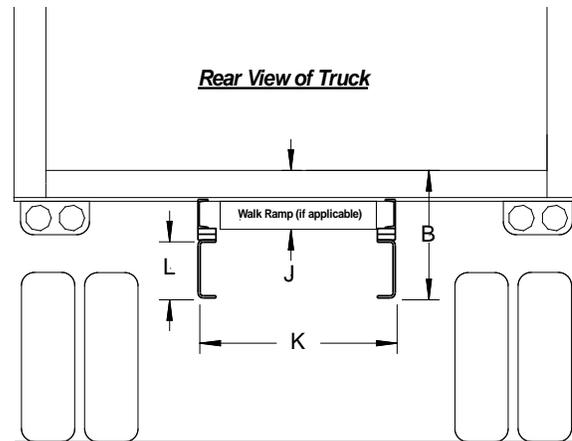
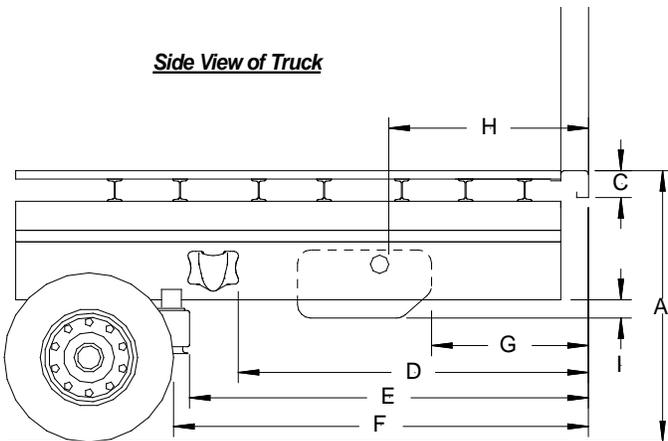
### Truck Information

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

2.1 Installation Dimensions **ILK 18**

**IMPORTANT:**

Always use the **smallest F-dim possible** for best ground clearance (don't exceed max. ground clearance!)

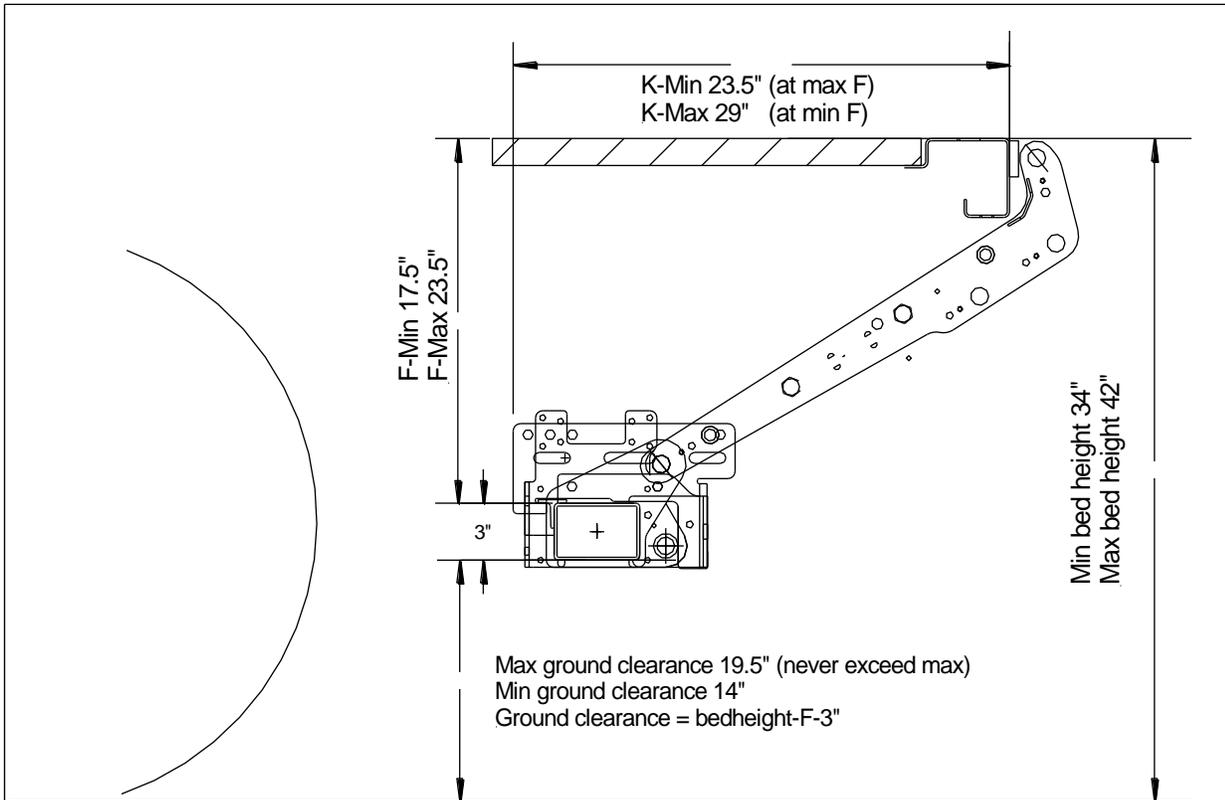
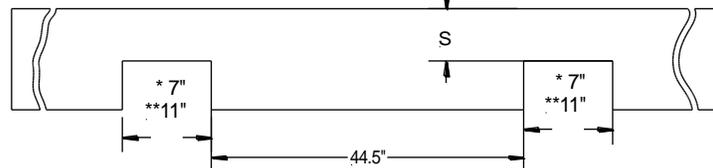


Figure 1 ILK 18 680 mm arm mounting dimensions

Rear sill notching

No Cut out required on 4.375" body rear sill height or less

cut out widths\* without platform rollers - \*\* with platform rollers



ILK 18 mounting dimensions

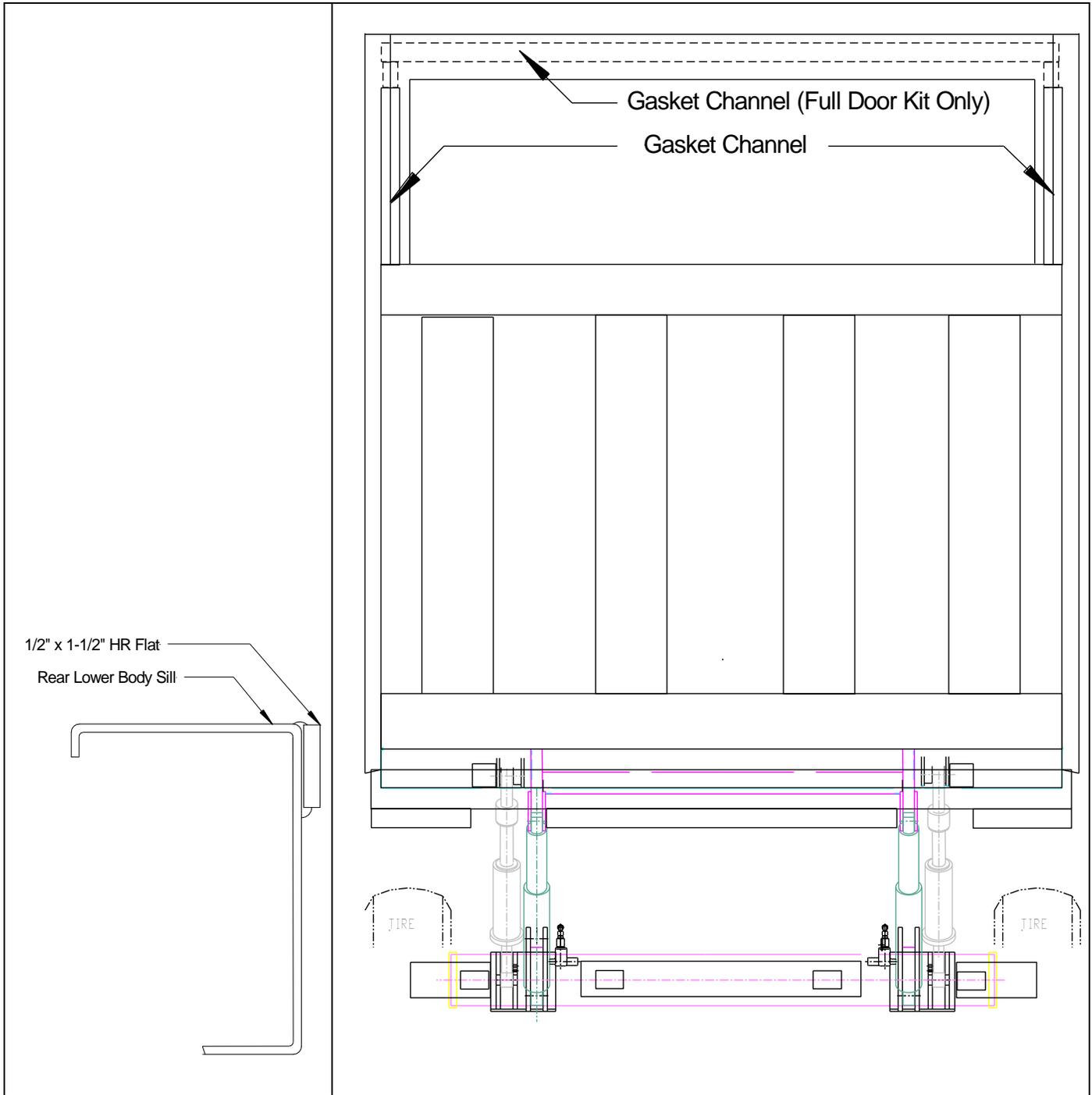


**MINIMUM bed height is defined as truck/trailer loaded to MAX GVW**

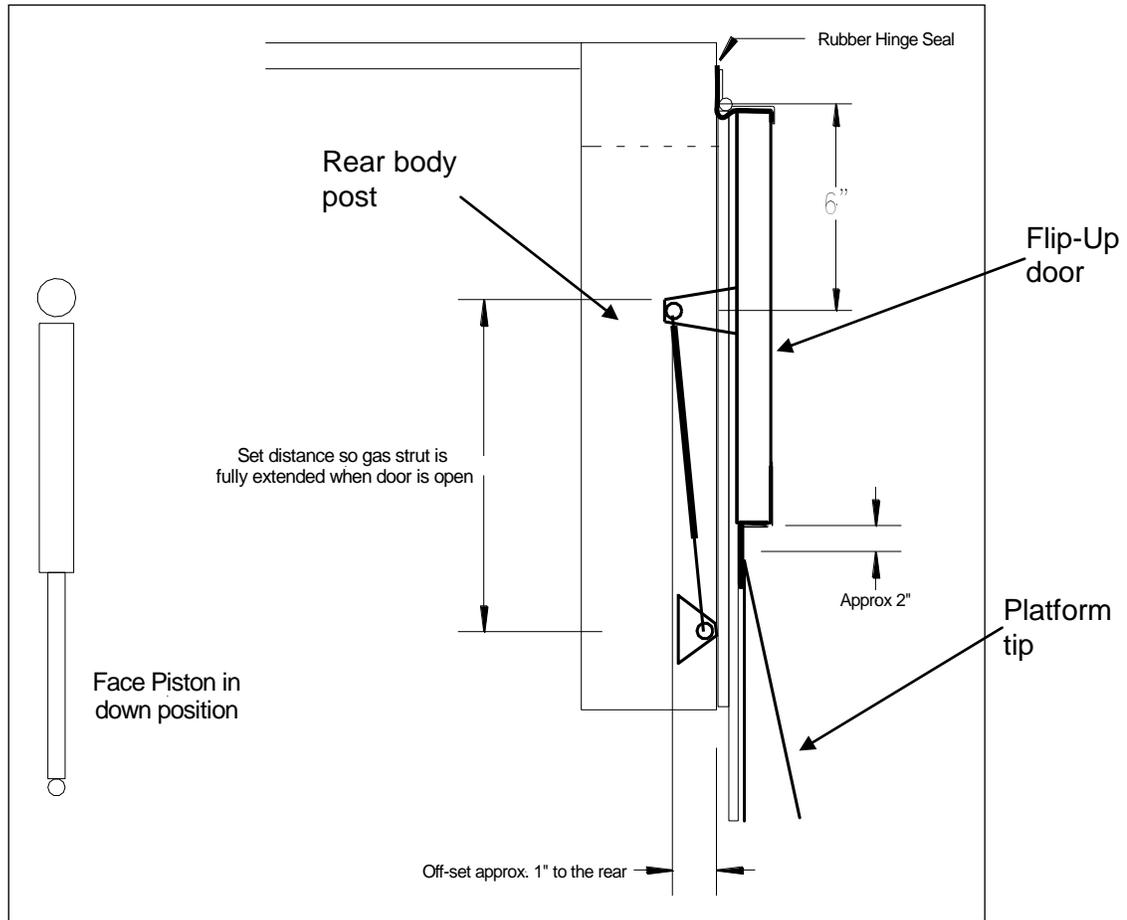
### 3 Chassis and Body Preparation for special applications

#### 3.1 Flip-Up door & Full-door seal kit installation

1. Install 1/2" x 1-1/2" HR flat bar to the lower rear body seal



2. Install gate per instructions per Section 4.1
3. Install gasket channels on rear vertical body posts to match width of platform
4. For full door seal kits install gasket channel along header at edge of platform



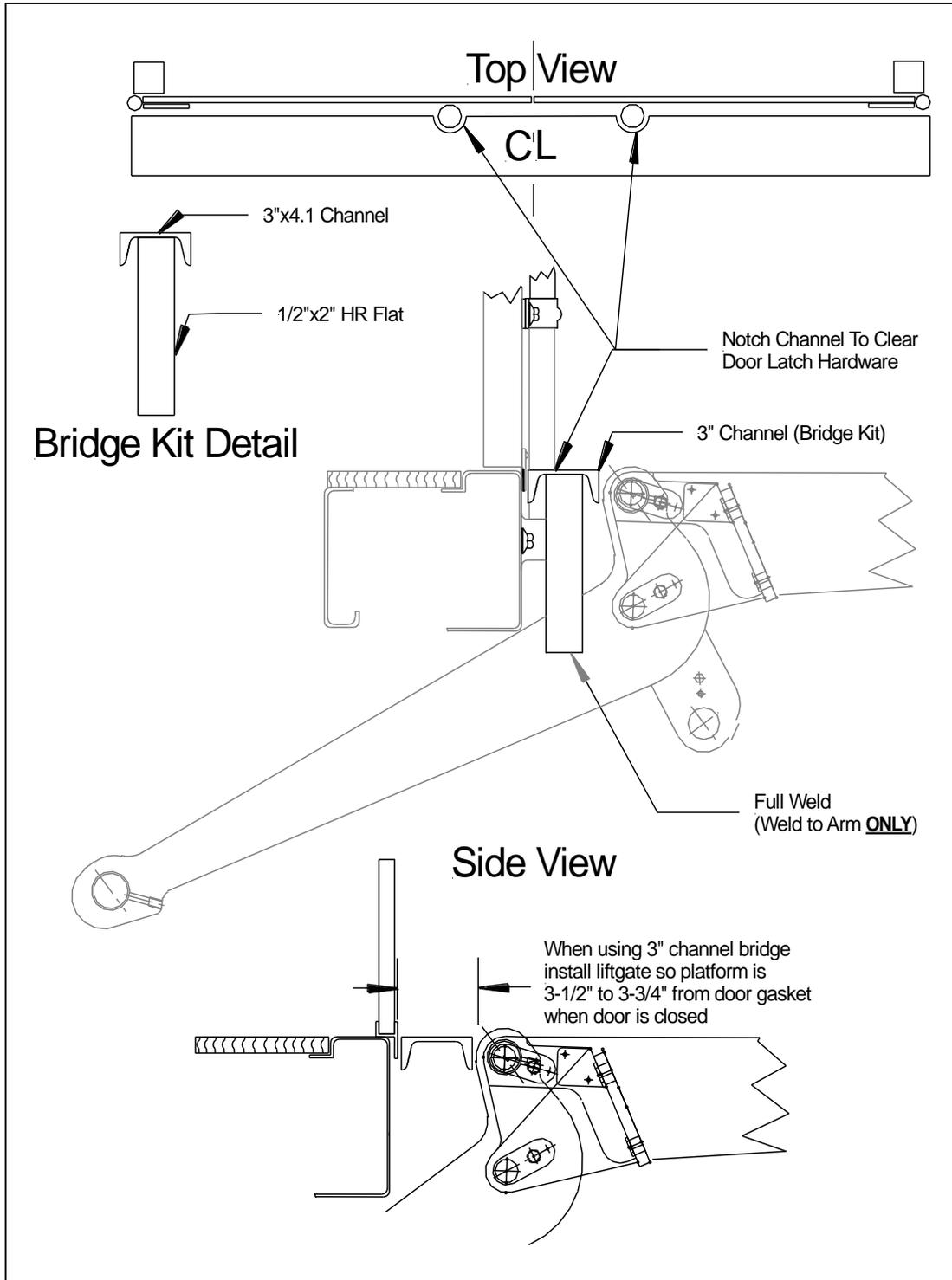
Flip-Up door

5. Apply Silaprene (or equivalent) to gasket channel and slide gasket into channel. Silaprene not provided by Palfinger.
6. Trim gasket flush with channel and crimp channel slightly at top and bottom to lock gasket
7. Install flip-up door
8. Verify Hinge Seal is approximately 3/16" above top hinge and even before tightening any fasteners
- ⚠ Open door several times before tightening any top hinge fasteners ⚠**
9. Install lower gas strut mount so that gas strut is fully extended when door is open
10. Lower gas strut mount should be off set (approx. 1") to the rear of body to pull door in when closed

### 3.2 Swing door applications



A bridge kit is recommended for the usage of an ILK 18 liftgate behind swing doors. Due to the shifted pivot points all welding and cut out points have to be shifted accordingly.



Bridge kit for swing door application

Please consider your particular door frame. Set up for best solution for your application.

## 4 Gate and Platform Installation

The ILK 18 was especially designed for the wide frame Panel Van Chassis, all these chassis has pre-determined hole patterns for installation of the mount plates



Refer to 3.1 for flip-up door/full seal kit and swing door applications **BEFORE INSTALLATION**



Refer to 4.3 for installs with Mounting Fixture **BEFORE INSTALLATION**

### 4.1 Sill Preparation

1. Notch rear sill if necessary per mount table for your particular model
2. Box in notch with flat bar to maintain sill strength

### 4.2 Mount Plates

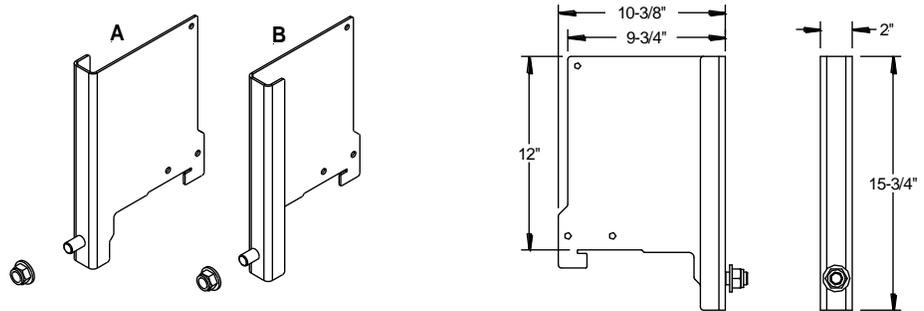
Mount plates are available for Mercedes Sprinter, Ford Transit, and standard C-Channel Chassis. Determine the vehicle and follow the instructions below to assemble and prepare the liftgate for installation with the corresponding mount plate kit.

#### 4.2.1 C- Channel Chassis

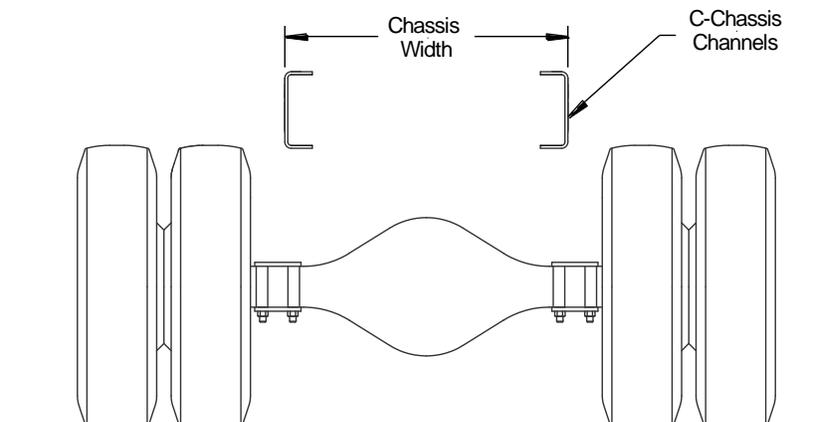
Part No.: 65-0417-003

Content:

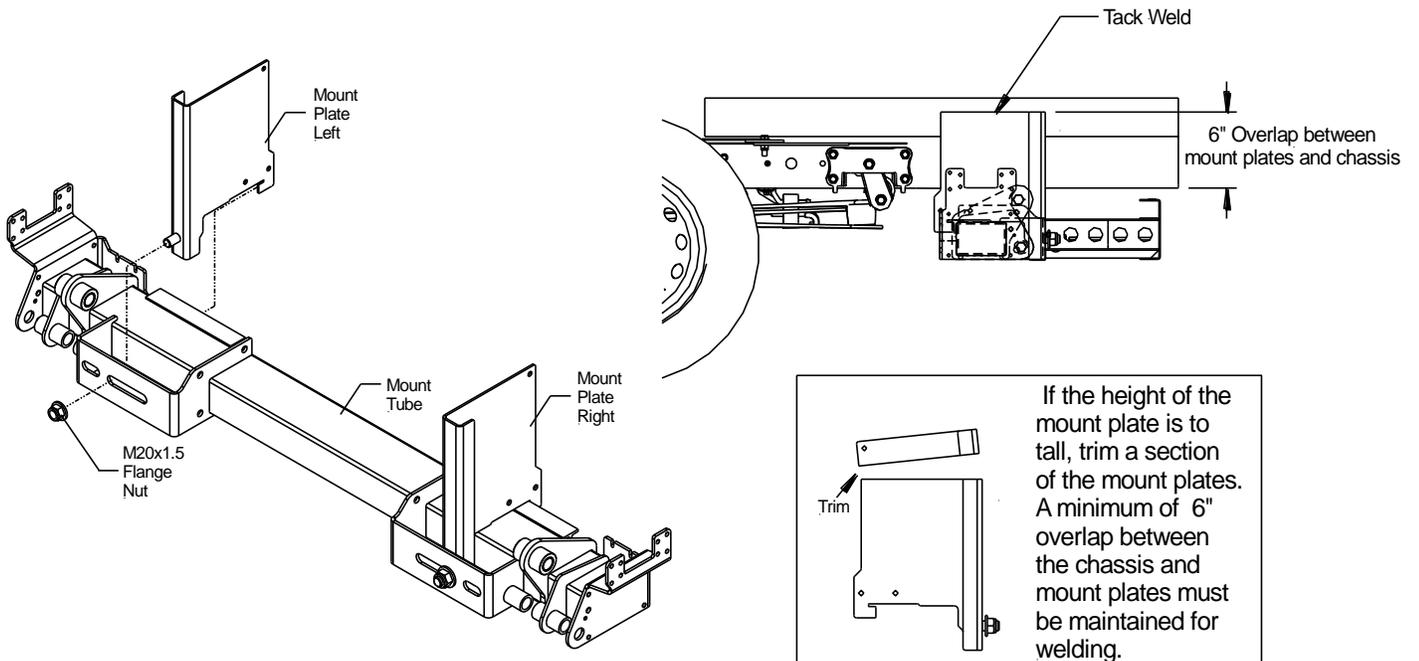
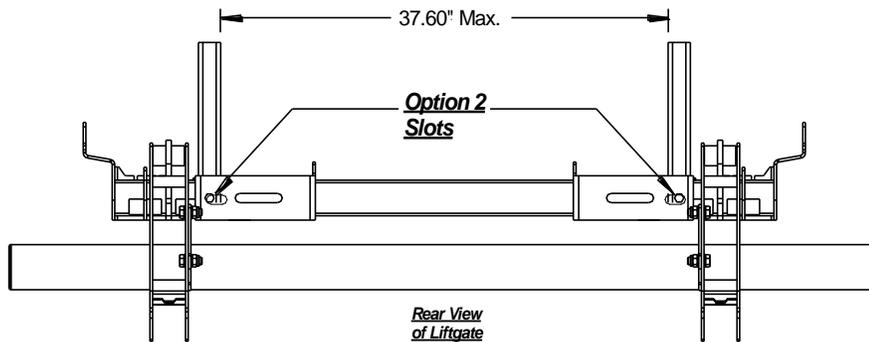
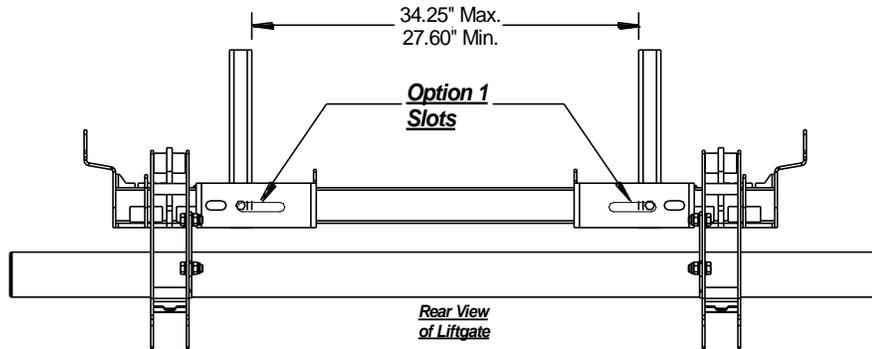
- A. 2029911 - Mount Plate Left, 1 pc
- B. 2029910 - Mount Plate Right, 1 pc



1. Measure the chassis width of the vehicle the liftgate will be installed on.



- The liftgates mount tube has two options of mounting the mount plates. Choose the mounting option based on the dimension from Step. 1. Hook the front end of the mount plate to the mount tube and install the M20 flange nut on the rear of the mount plate. Do not tighten nuts completely in case adjustments are necessary. After any adjustments, tack the mount plate to the chassis using 1/4" welds.

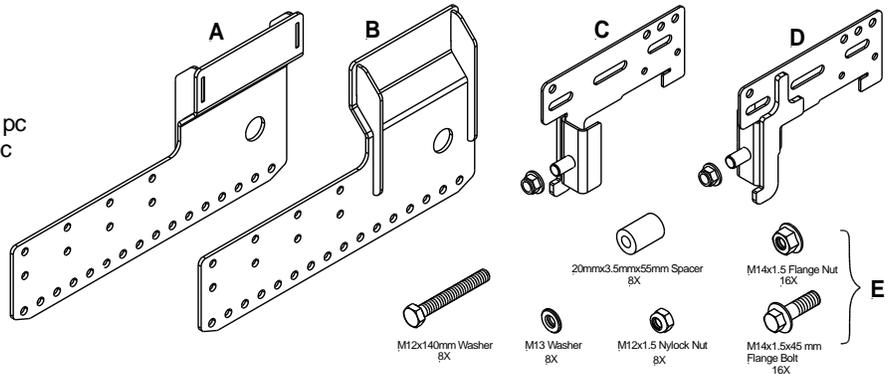


4.2.2 Mercedes Sprinter – 144”/170” Wheelbase; 49”-53” Overhang

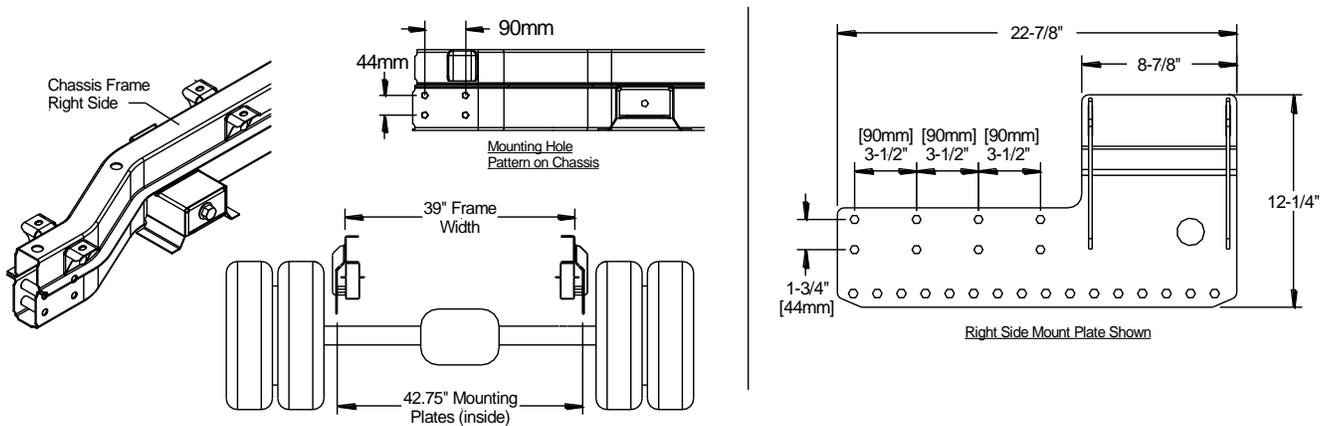
Kit Part No.: 65-0417-001

Content:

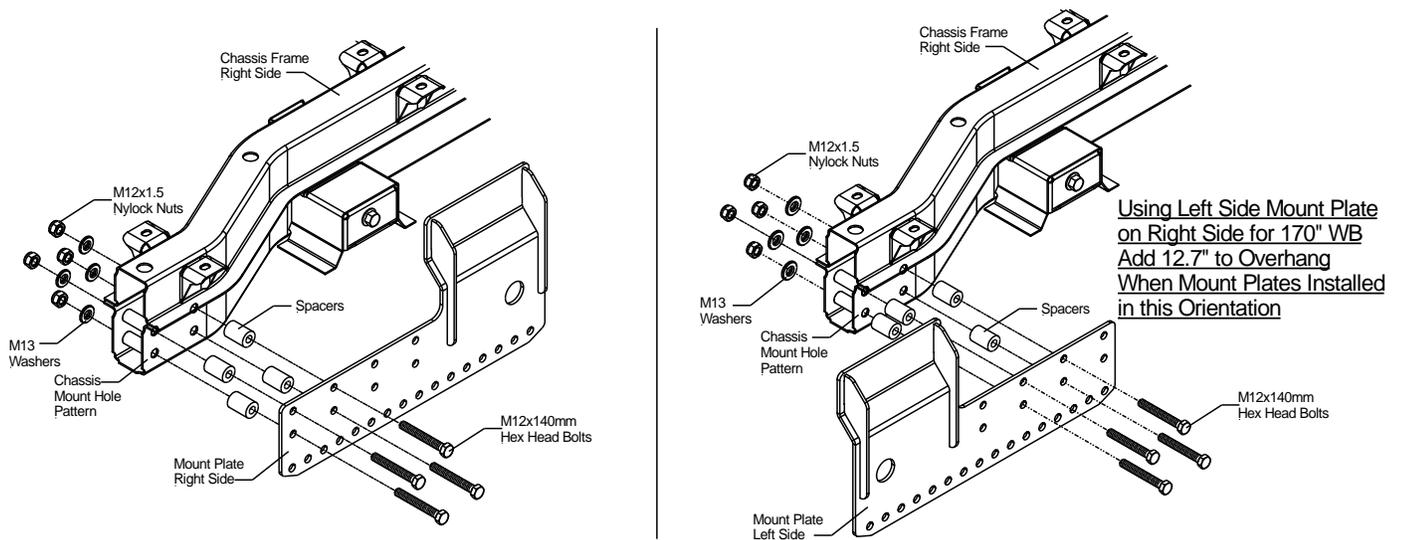
- A. 2024862 - Mount Plate Left, 1 pc
- B. 2024864 - Mount Plate Right, 1 pc
- C. 2029915 - Mount Plate Support Right, 1 pc
- D. 2029916 - Mount Plate Support Left, 1 pc
- E. 2024861 - Hardware Kit, 1 Kit



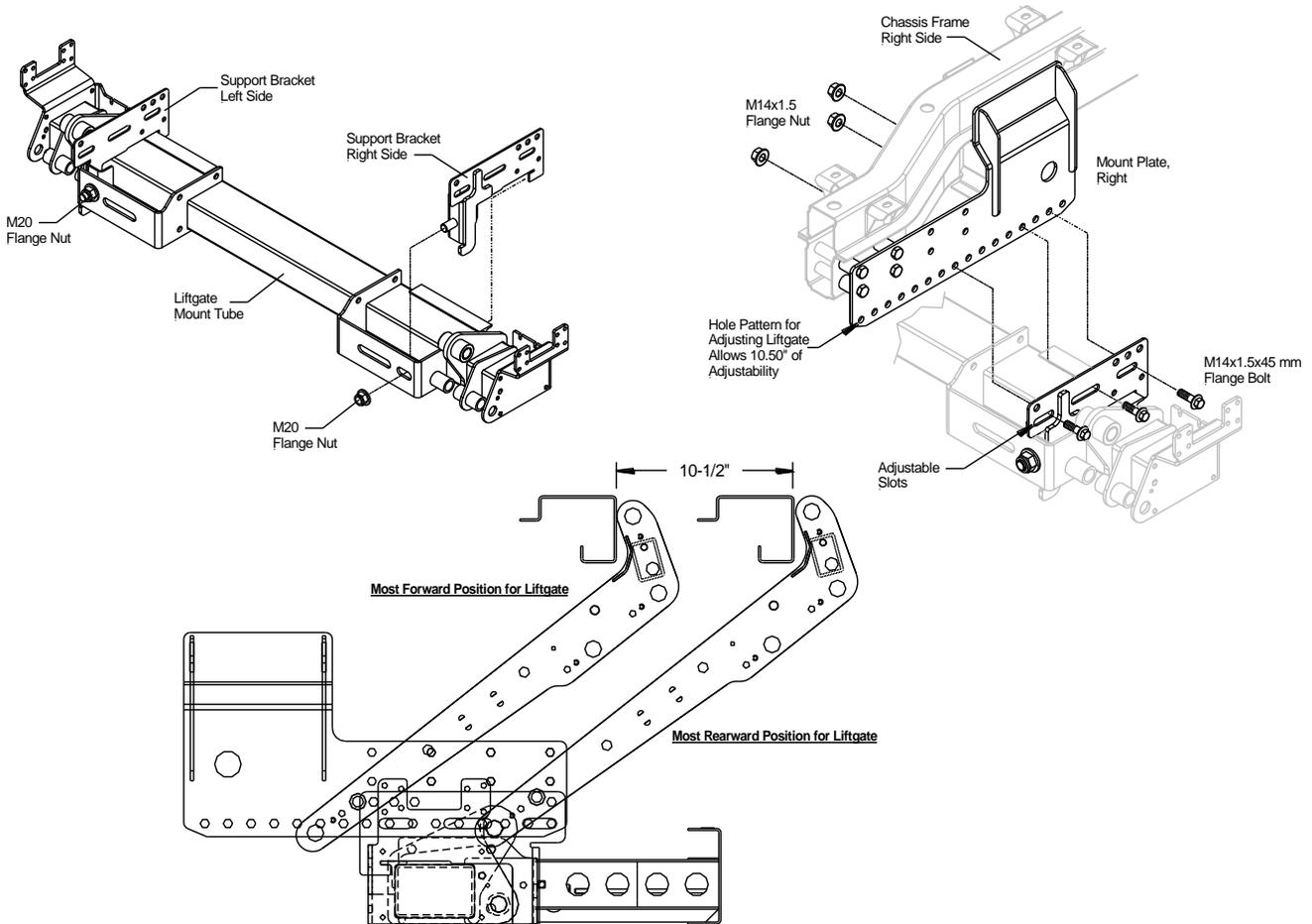
1. Chassis: The hole pattern at the end of the chassis frame measures 90mm x 44mm. The mount plates have three mounting options with the same dimensions of 90mm x 44mm.



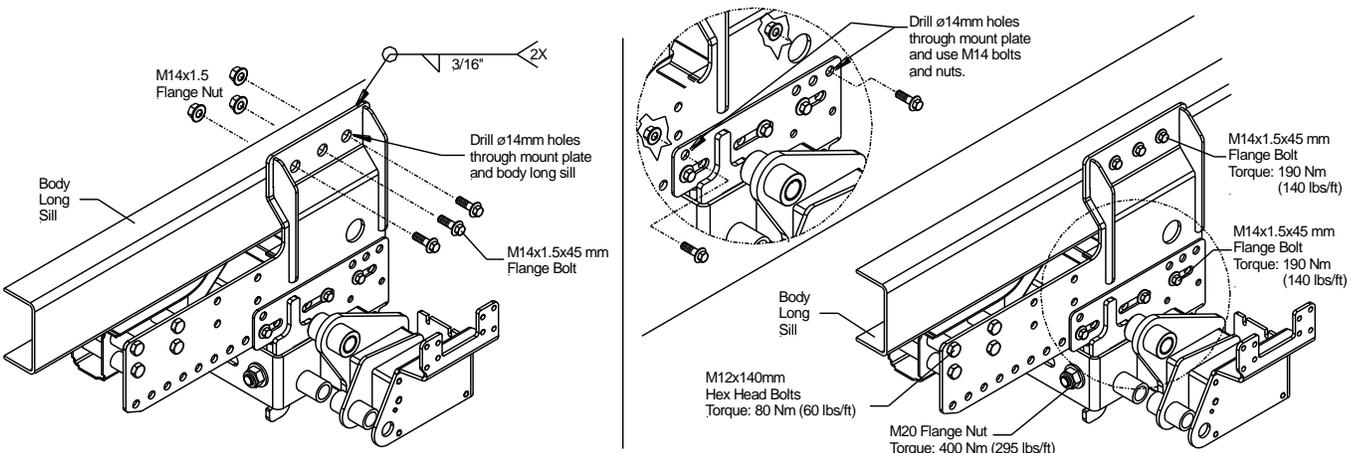
2. Mount Plates: Mount the mount plates to the chassis using the hole pattern of the chassis frame. Add four spacers between the chassis frame and mount plates. Secure the mount plates using M12x90mm hex head bolts. Do not tighten bolts completely. Attention: The body on a 170” wheelbase could extend further back than on a 144” wheelbase. An alternative to mounting the liftgate on a 170” wheelbase is to use the left side mount plate on the right side in the orientation shown below.



3. Install the support brackets on the mount tube in the orientation shown. Hook the front end of the mount plate to the angle on the mount tube, and on the rear install the M20 nut. Do not tighten nuts completely. After installing the support brackets secure the support brackets to the mount plates using the M14x1.5x45mm flange bolts as shown.



4. Securing the mount plate to the body's long sill. The mounting bracket must be tied to the body long sill by either bolting or welding the mount plate. Bolting might not be an option if the mount bracket does not extend high up to reach the body long sill and welding should be used in this case. After any adjustments to the support brackets, drill the mount plates and add two additional M14 bolts to the support brackets and mount plates. Finally torque all bolts to their corresponding values shown.

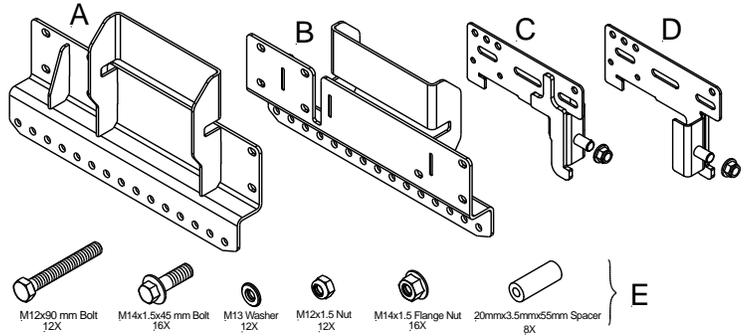


4.2.3 Ford Transit – 156 Wheelbase; 52”-59” Overhang

Kit Part No.: 65-0417-002

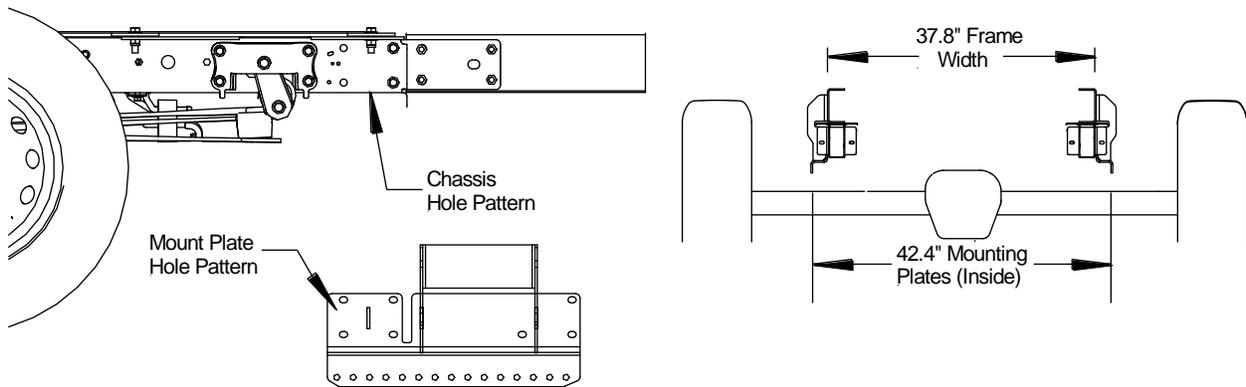
Content:

- A. 2036392 - Mount Plate Left, 1 pc
- B. 2036389 - Mount Plate Right, 1 pc
- C. 2029915 - Mount Plate Support Right, 1 pc
- D. 2029916 - Mount Plate Support Left, 1 pc
- E. 2028524 - Hardware Kit, 1 Kit

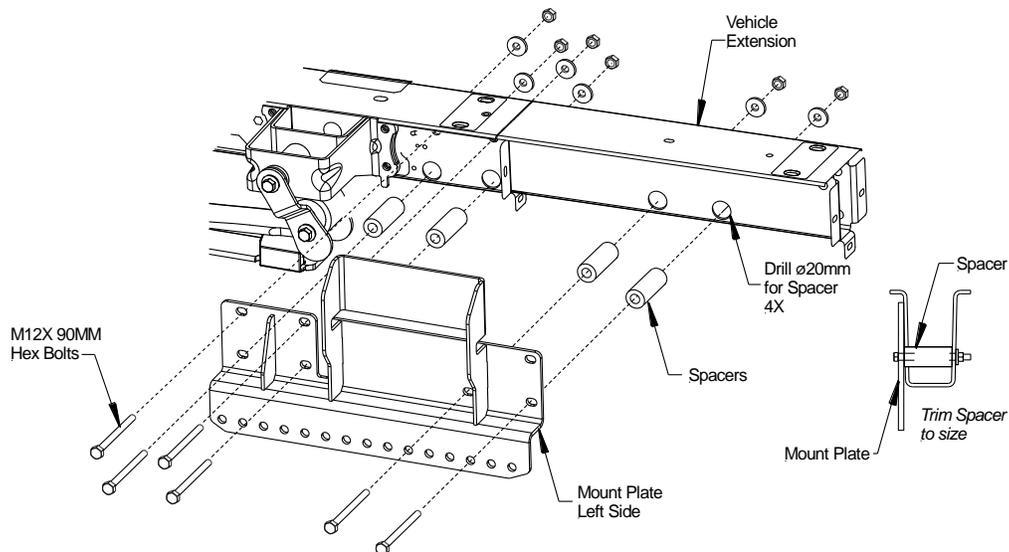


It is important to reference the OEM chassis modification documentation from the manufacture prior to any vehicle modifications.

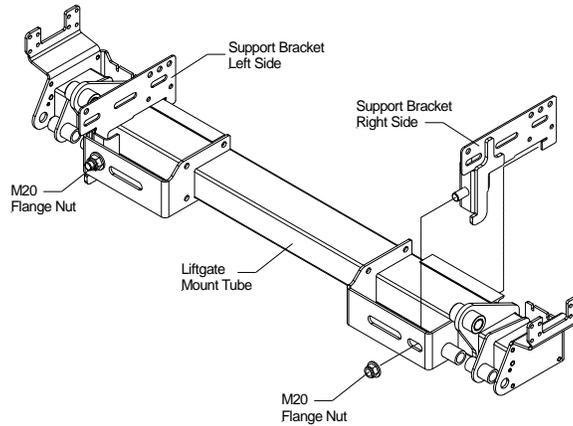
1. Chassis: Install the mount plates on the chassis using the hole pattern of the vehicle chassis frame. The mount plates will have the same hole pattern pre-drilled.



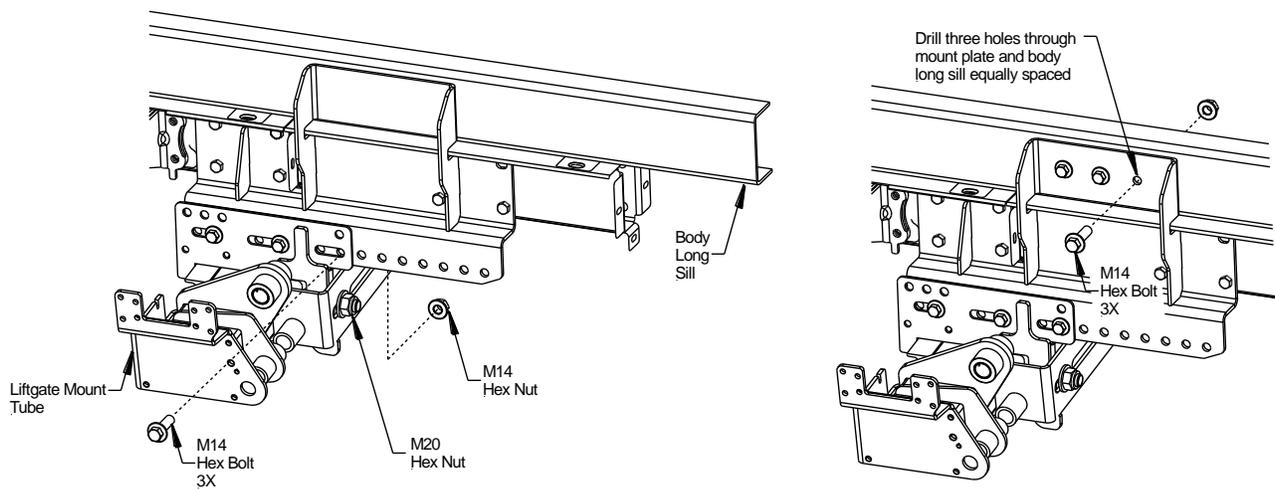
2. Mount Plates: Install the mount plates on the chassis using the hole pattern of the vehicle chassis frame. Drill three  $\varnothing 20\text{mm}$  holds to install the three spacers between the chassis frame and mount plates. Secure the mount plates using M12x90mm hex head bolts. Do not tighten bolts completely.



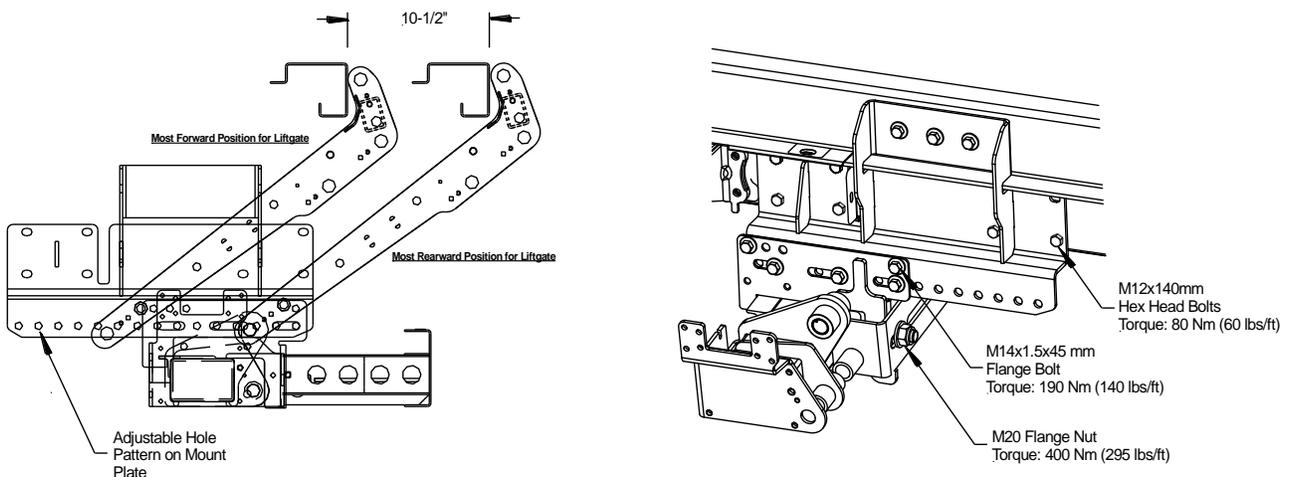
3. Install the support brackets on the mount tube in the orientation shown. Hook the front end of the mount plate to the angle on the mount tube, and on the rear install the M20 nut. Do not tighten nuts completely.



4. After installing the support brackets secure the support brackets to the mount plates using the M14x1.5x45mm flange bolts as shown, do not tighten bolts completely. Tie the mount plates to the body long sill by drilling three additional holes through the mount plates and body long sill. Use M14 flange bolts and nuts.

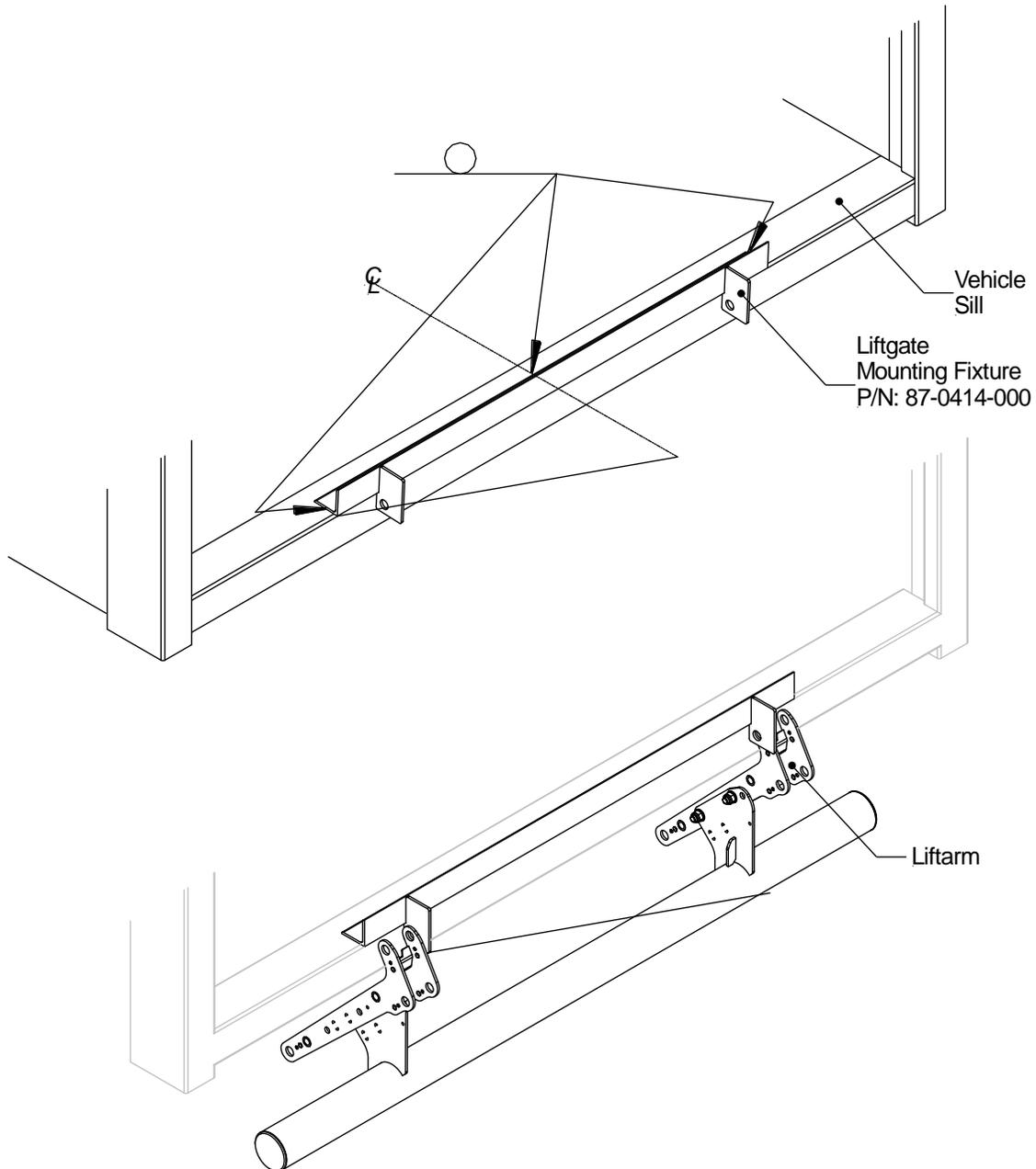


Make any adjustments to the mount tube using the hole pattern on the mount plate. The mount plates allows for up to 10.5" of adjustments. After any adjustments, torque all bolts to their corresponding values shown.



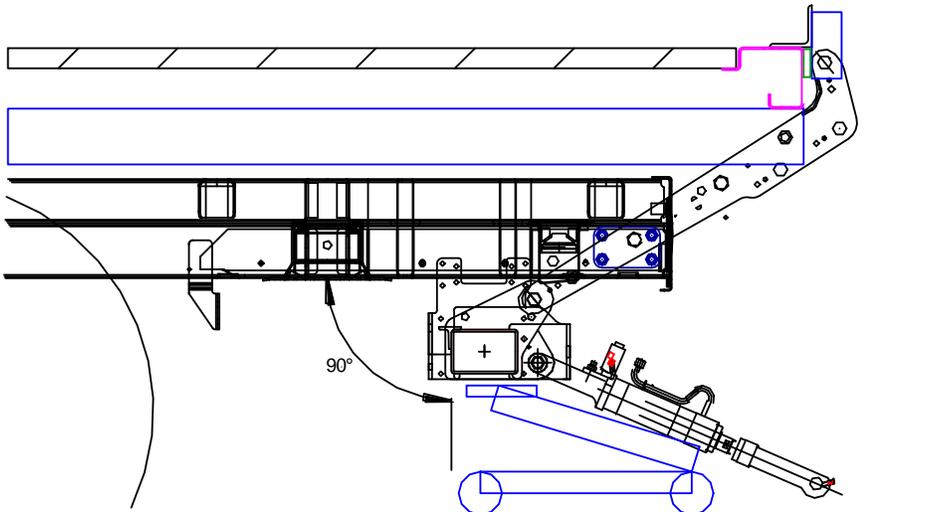
### 4.3 Installation with mounting fixture

1. Tie tilt cylinders with rope or wire to lift arm to avoid dragging on the ground.
2. Locate and mark out the center of the rear body or vehicle sill.
3. Attach the liftgates mounting fixture centered to the sill by tack welding it in place.



*Mount fixture welded to rear sill*

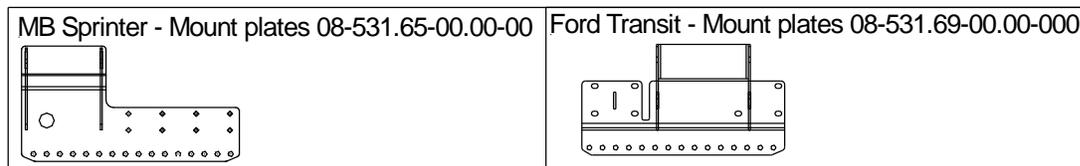
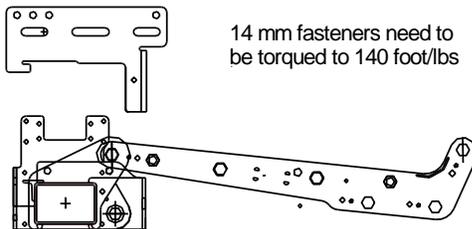
- Slide mount tube under the truck frame and attach the liftarm to the mounting fixture. At this point you should place the mount tube in the pre-determined position, keeping the given **maximums and minimums in mind** (K- and F- dimensions). You can use a forklift, a floor jack or a similar device to position the mount tube. Make sure that you **place the tube at a 90-degree angle to the truck bed**.



Always make sure to pursue the policy of  
**MAXIMUM GROUND CLEARANCE**

*Mount frame alignment with fixture*

- With the mount tube held in place, position the mount plates over tube and against truck frame. As most Truck makers require chassis specific mount plates make sure you have specified the truck make and body lengths you are mounting on as well as using the correct mount plates and chassis holes for the installation



*Mount frame with MB and Ford Mount plates*

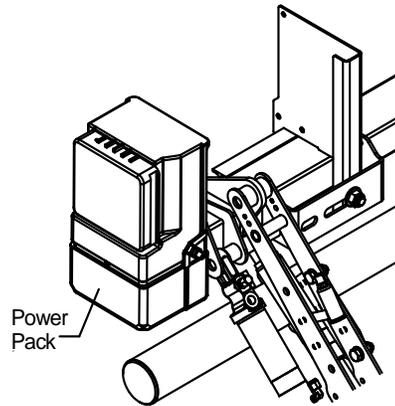


**Before tightening down or welding the mount plates to final position, check that liftgate is balanced and not binding in mounting fixture, you should have equal pressure on each lift-arm pin. This is very important to make platform align with truck sill.**



**Cover power pack before any welding. IMPORTANT!!!!!!**

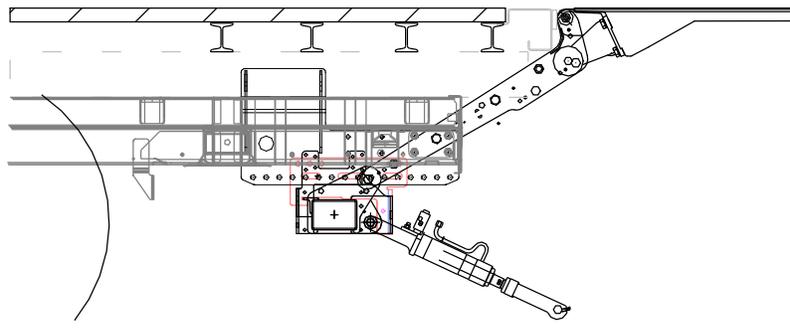
6. The reservoir is made of plastic and you will burn it while welding. Make sure hoses and cables are covered if you need to do any welding for the installation of mount plates



*Cover Power Pack*



**Before finishing the install we recommend doing the electrical installation (see 5, Page 28) and platform installation (see 4.4, Page 21) to make sure that everything aligns like it should.**



*Bolted mount plates (picture shows Ford Transit)*



**Before running the unit through its cycle, make sure that the In-Cab Switch is in the “ON” position (lights on)**



**Before running the unit through its cycle, make sure that the solenoids on the lift cylinders are not hitting the mount plates or Chassis items**

## 4.4 Platform Installation

- If power pack is still removed from mount tube for welding, reconnect the ground cable and power connection. Do not push back in, welding is not finished!!!!!!

**Attention: check all PC-Board connections for tightness**

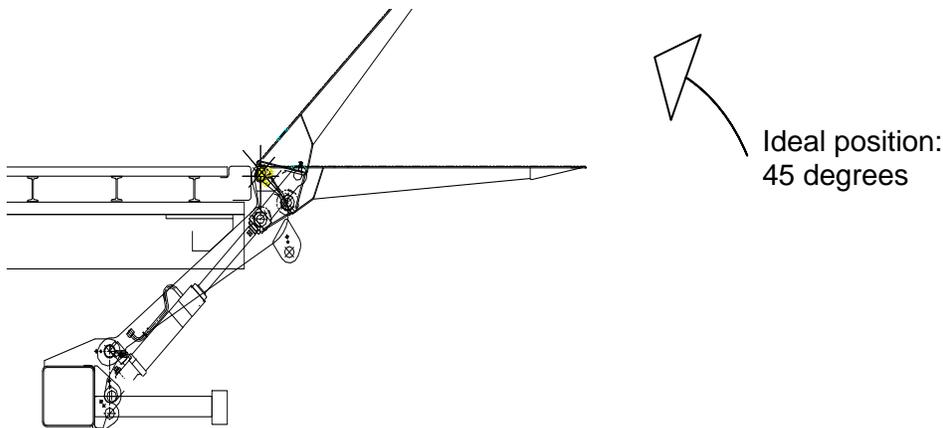
### 4.4.1 Attach platform to liftarm

1. Remove pins attached to mounting fixture and lift arm. Lift arm will drop about 12" - 16".
2. Remove mounting fixture from truck bed
3. Lower lift arm to ground to bleed air out
4. Support platform horizontally with forklift, overhead crane or similar equipment
5. Install platform onto lift arm using small pins.
6. Tighten up pin lock bolts

### 4.4.2 Installation and Adjusting the tilt cylinders



**Pin only one cylinder at a time to the platform**



*Attaching of platform with tilt cylinders*

1. Tilt platform up to a point of easy access of the tilt bushings (using the forklift, overhead crane, etc.)
2. When installing the tilt cylinder into the platform, extend the tilting cylinder by pressing the switch for opening and closing until the pins fit in the tilt cylinder and the platform bushings. For this purpose, hold the platform sensor B-16 with the cable straight down.
3. For the platform to be in the required stored position, the **tilting cylinder must be fully extended**

- Verify that reservoir breather cap is installed and hydraulic fluid is at proper level with platform on the ground



**Make sure to tighten the tilt piston rod lock nuts when you are finished.**



**Wrench Sizes for Tilt Cylinder Adjustments**

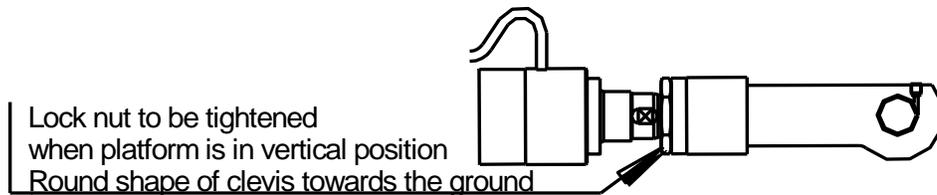
Gate Model	Nut	Piston
ILK 18	29MM	29MM

How to adjust the tilt cylinders:

- Raise the gate all the way up against the truck body.
- Close the platform – tilt cylinders fully extended.
- Look for a gap at the platform tip and the body.
- If platform is not completely in a vertical position, open up platform about 15-20 degrees and lower down about 5”-10”. Adjust the tilt cylinders by rotating the piston in the cylinder head.
- Repeat step 4 till platform is vertical and even with body
- Tighten left and right lock nut at tilt piston to keep



**Round side of tilt cylinder clevis MUST face down towards ground**



If you have not finished the welding, **carefully** run lift to see if it is properly aligned with the floor sill, remove pump & motor from tube and finish all welding work before continuing with detail work.



**Never power the lift hard against anything if you have not finished welding.**



#### 4.5 Installation without mount fixture

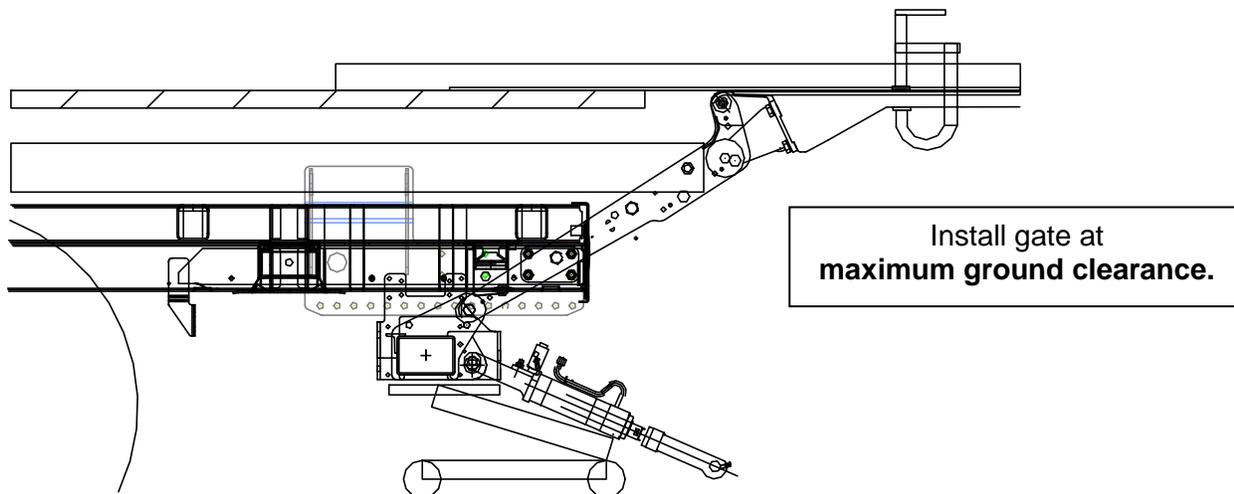
1. Connect platform to lift arms using short pins
2. Tie tilt cylinders with rope or wire to lift arm to avoid dragging on the ground
3. Support platform with forklift, overhead crane or similar device
4. Lift platform up and support mount tube with rolling floor jack or similar device
5. Slide platform/mount tube assembly under the vehicle frame
6. Set platform so it is centered level and flush with body floor
7. Secure and attach platform to body using 3" channel or equivalent with clamps to assure level position of platform to body floor.



**Warning: Never work or place yourself under unsupported Platform**



8. Place the mount tube in the predetermined position, keeping the given maximum and minimum F- and K-Dimensions in mind. Use floor jack or a similar device to position the mount tube. Make sure that you **place the tube at a 90-degree angle to the truck bed.**

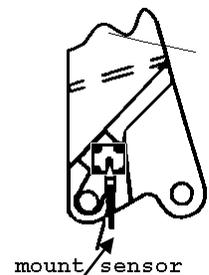


*Platform install without fixture*

9. When mount frame is in place, tack weld **mount plates to mount tube** with minimum three 2" welds and three 2" welds to the frame.
10. Before finishing all welding we recommend doing the electrical installation (see chapter 5 on page 28) and to make sure that everything aligns like it supposed to be.
11. Remove the 3" channel and follow instructions to install tilt cylinder as shown in **chapter 4.4.2**

## 4.6 Setting and Operation of B-16 Sensor

1. Mount the platform sensor B-15 to the right-hand side of the platform. Make sure to **loop wire around to give it enough slack** in normal operation and route clear of any pinch points.
2. Close the platform as much as possible to body of vehicle. (**Tilting cylinder is fully extended**). Relieve tilting cylinder pressure with the 'tilt open' switch. Adjust the platform to required vertical position by turning the piston rod in or out of the clevis using a wrench (See page 22). Repeat the setting procedure if necessary. **It is important that both of the cylinders are adjusted equally.**
3. Verify that the platform sensor B-15 is set correctly by placing platform in stored position (fully vertical) and check that warning lights are off (with cab switch off). If lights still on when gate is stored loosen the 5mm x 50mm Allen Head mount screws at sensor and rotate slightly till lights turn off. Retighten screws



Assure that B-15 sensor is installed with a service loop so cable does not get damaged during full cycle of platform.

With platform in vertical position the wire is pointing straight down, parallel to the platform surface.

*B-16 Sensor and warning light cable installation and placement*



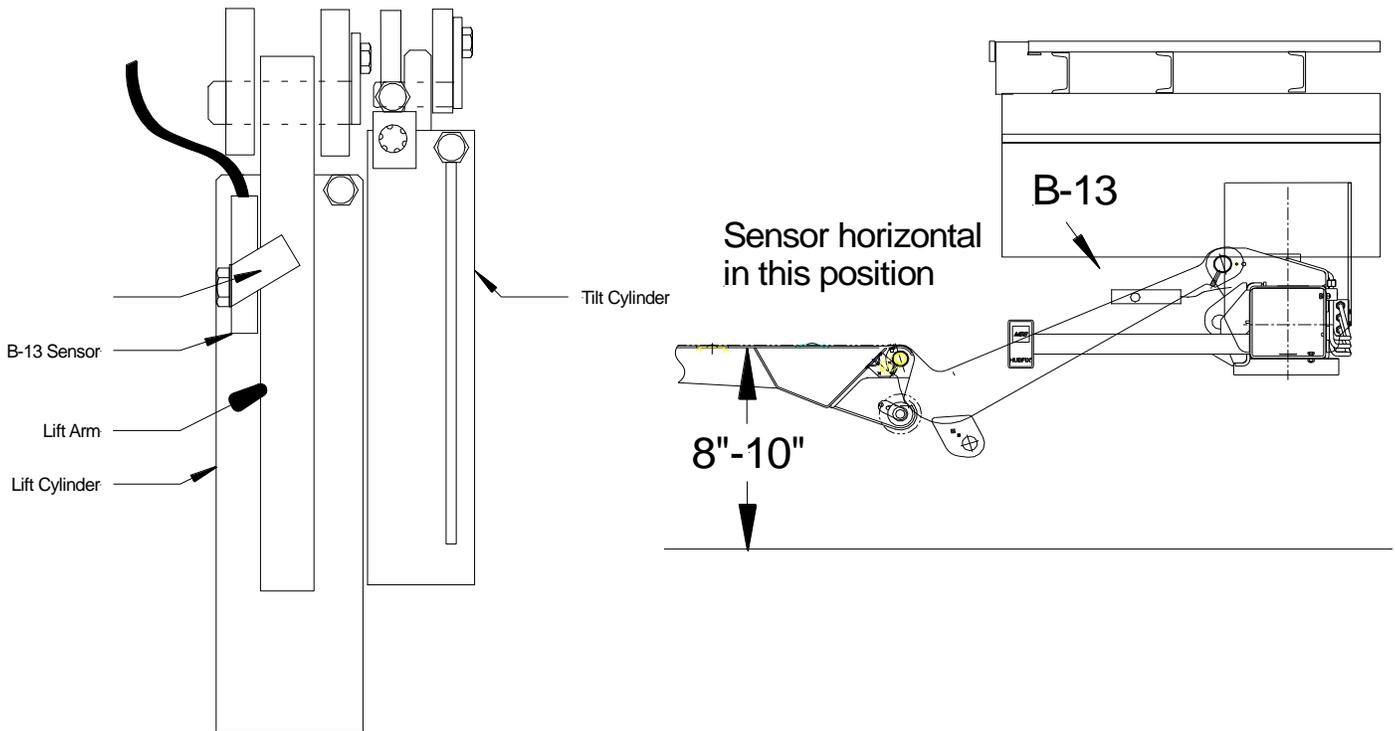
Warning Light/Foot Control (option) MUST have all connectors tied off and inserted into platform profile after connections are made.



Route cables secure to avoid damaging harness during regular operation

4.7 Setting and Operation of B-13 Sensor

1. Raise platform approx. 8" – 10" off ground and verify platform is level (tilt if necessary)
2. Loosen lock bolt and **set sensor level with platform surface/ground** (verify colored side of sensor is out, plastic housing is facing to lift arm)
3. Lower platform to ground. When properly set, platform should remain level for approx. 2 seconds, then tip will tilt towards ground.
4. Cycle Platform from bed height to ground several times to verify proper operation. Tilt sensor slightly forward or back to achieve proper Auto-Tilt action.

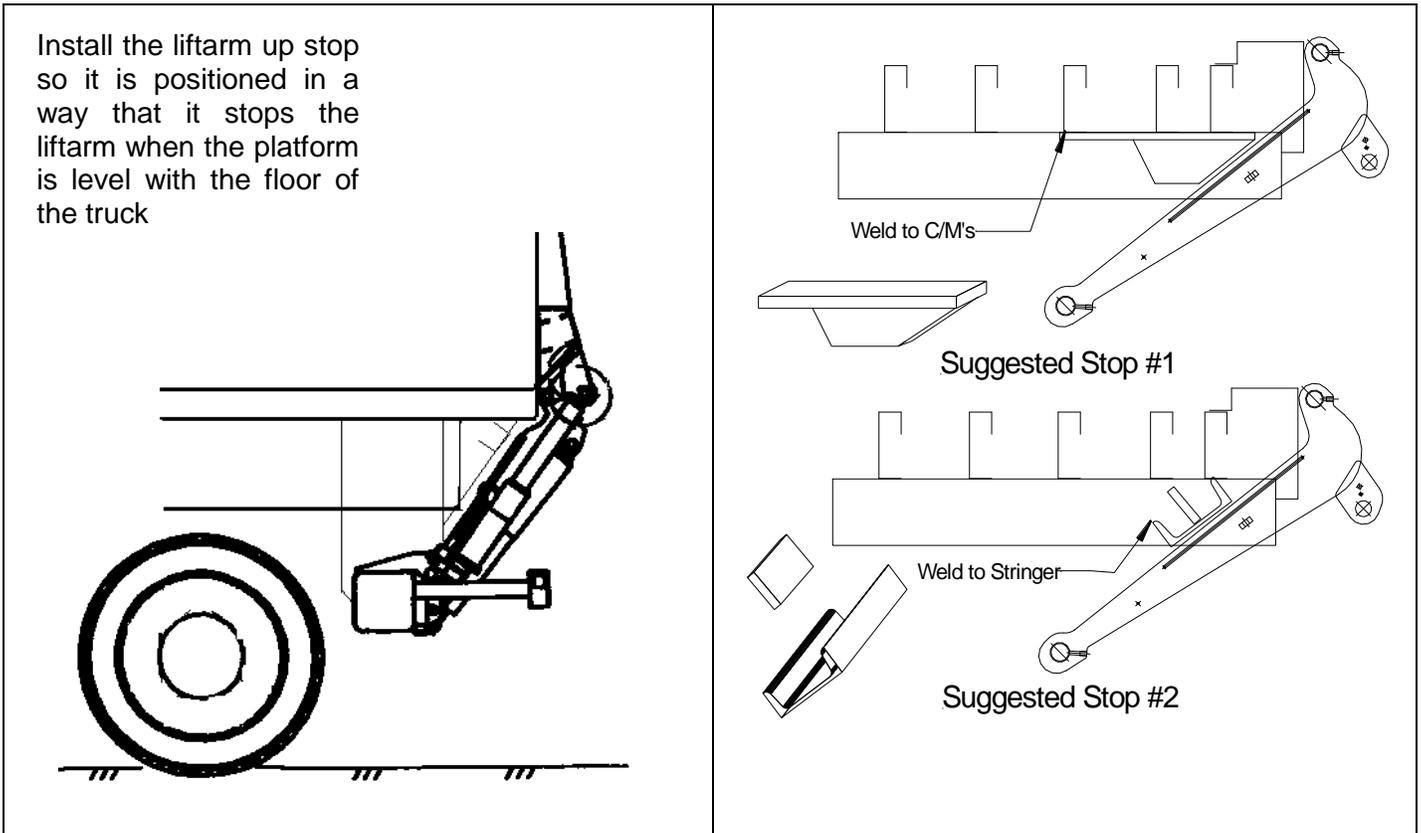


**⚠ At NO time should the platform tilt towards ground while lowering. Platform should ONLY tilt AFTER Lift Arms/Nylon Rollers contact ground.**

5. After sensor is properly set, tighten lock bolt to 43 in.lbs/3.5 ft.lbs
6. Cycle platform several times to check operation after tightening.
7. If Platform does not level, but lifts up only, check batteries, start truck in fast idle.
8. Fold down Lock Tab tightly onto Lift Arm (see above)

- ⚠ Never over torque B-13 lock bolt.**
- ⚠ Verify colored side of sensor is out (facing away from arm)**
- ⚠ Under torquing B-13 lock bolt may allow sensor to shift during normal gate operation.**

4.8 Installation of left and right Up Stops



Damage to the body may occur if up stops are not installed properly



How to install the Up-stop:

1. Raise platform up to rear sill verifying it is level with body floor and there is a slight gap (approx. 1/8") between lift arm and rear sill.
2. Determine type of up stop for your installation.
3. Set up stop so that it makes contact with liftarm.
4. Tack weld in place.
5. Cycle gate to verify liftarm makes contact with left and right up stops before making contact with rear sill.
6. There **is not** an excess gap between rear sill and liftarm
7. Platform is level with body floor.

## 4.9 Finalize Install



**If any welding is required for sub frame or mount plates**



**Protect all wires from dropping slag or splatter when welding mount plates.**

1. Verify the platform is in the correct position in relation to truck sill.
2. If a bolt on installation is not possible due to different chassis set up-Weld mount plates to chassis/body subframe with a min of 2 x 12" x 1/4" fillet weld around mount plates and chassis/body long sill
3. PALFINGER Liftgates recommends adding 3/16" flat bar or plate to the top of mount plates if needed to tie Liftgate mount plates to body stringer.

## 5 Electrical Installation

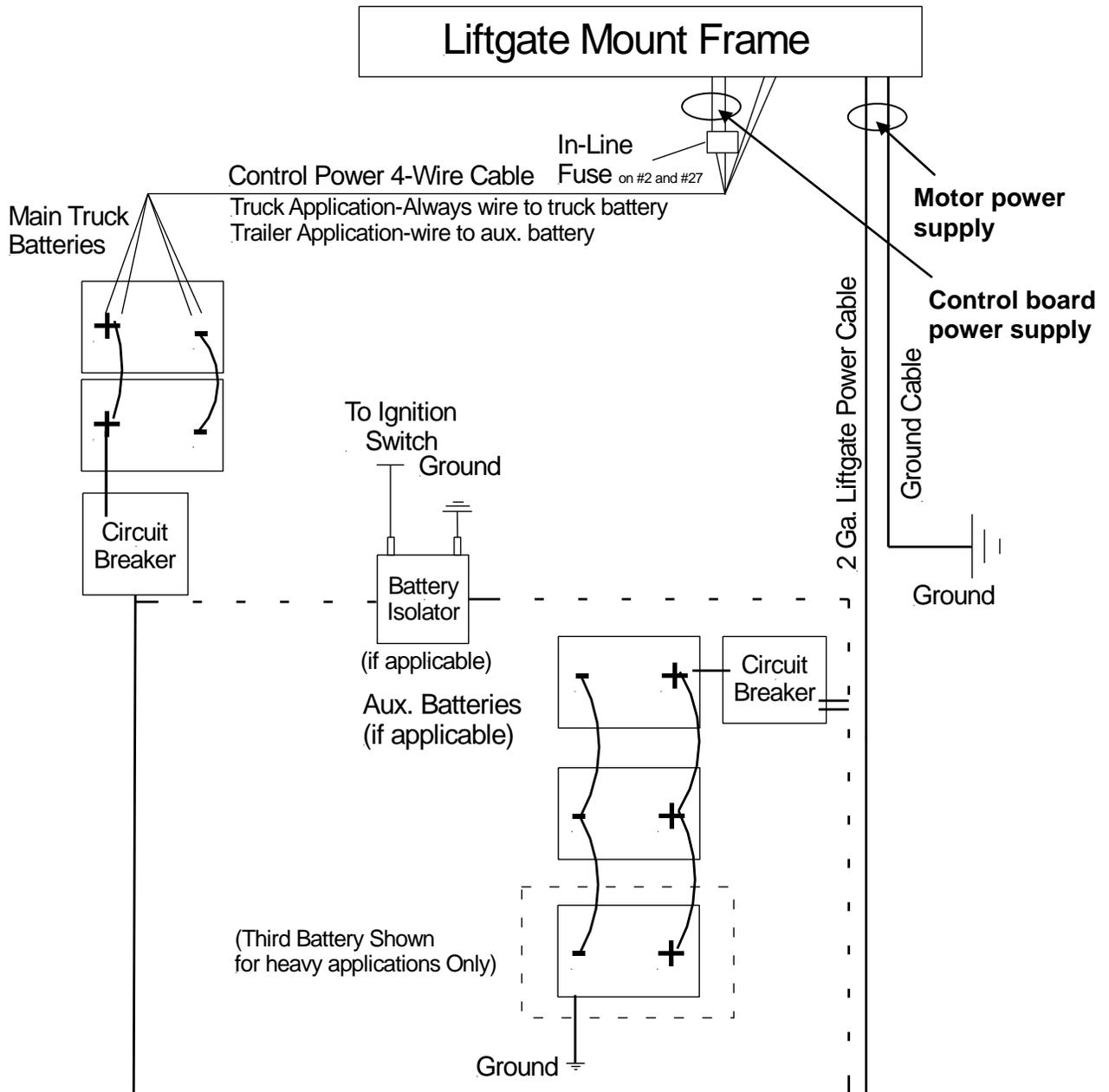
When performing electrical installation, please be certain to install and secure everything in a way where it is not subject to damage from moving parts, sharp edges, exhaust systems, etc.



**Never exceed rating of existing fuses located at the battery and control board at the pump and motor**

### 5.1 Main Power Connections

1. Install the 2 Ga. battery cable securely from mount frame to battery.
2. Secure the cable every 12 inches.
3. Heat shrink lug connection to cable.
4. Assure all connections are tight and securely fastened.



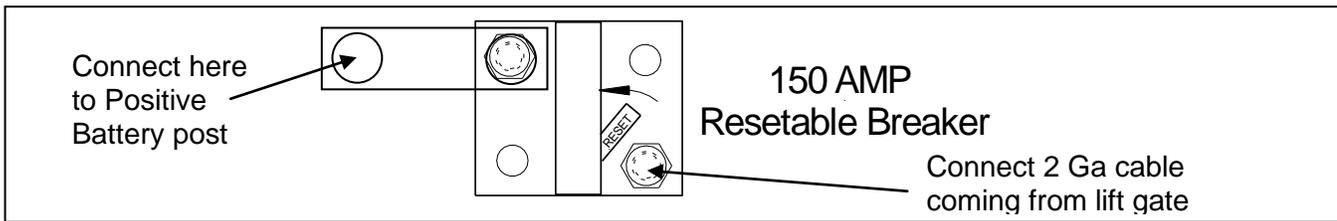
**! FOLLOW DOTTED LINE IF ISOLATOR OR AUXILLIARY BATTERIES INSTALLED!**

**! Never secure cable in a way where it can make contact with other wiring, brake fuel or airlines etc. or get pinched against other objects.**

**! Never run wiring next to fuel hoses or attach to it.**

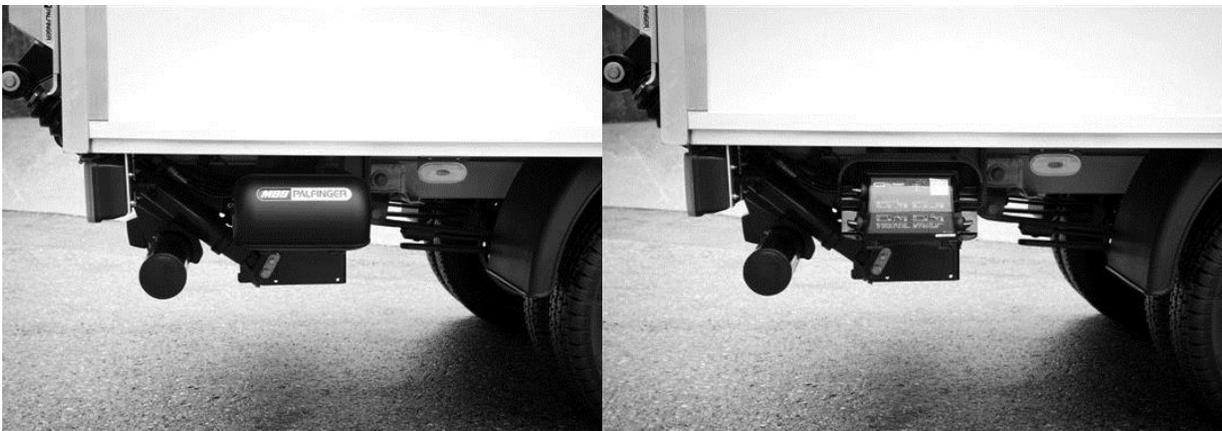
**Breaker Installation**

1. Mount circuit breaker securely in battery box
2. Connect liftgate 2Ga. cable to open stud on circuit breaker
3. Connect 2Ga. jumper from forward most stud on breaker to positive battery post



*Circuit Breaker installation*

- Mount circuit breaker securely in battery box or at positive battery post using supplied buss bar
  - Connect liftgate 2Ga. cable to open stud on circuit breaker
  - Connect 2Ga. jumper from open stud on breaker to positive battery post if circuit breaker was not mounted straight at battery with buss bar
1. Determine location for fixed control box; locate it in a way that the operator can view the platform and surrounding areas while operating the liftgate. Also, locate in a way where the lid does not extend outside the van body when open.

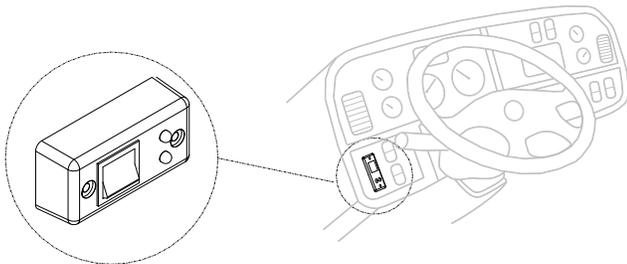


Suggested mounting dimensions

### 5.2 On-off switch installation

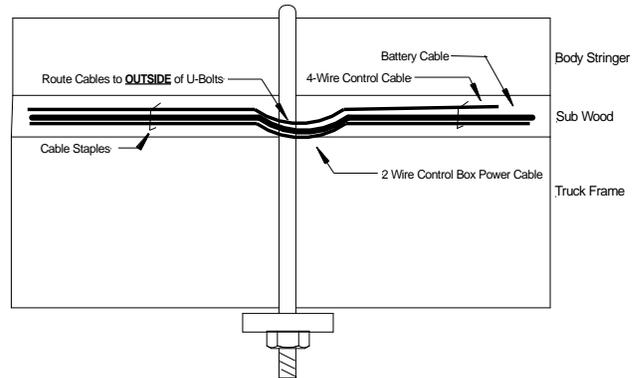
1. Install the cab shut-off switch inside the cab. Locate it where it can conveniently be seen and reached from the driver's seat as well as from the ground.

Place cab shut off in view of the driver and within reach from the ground.



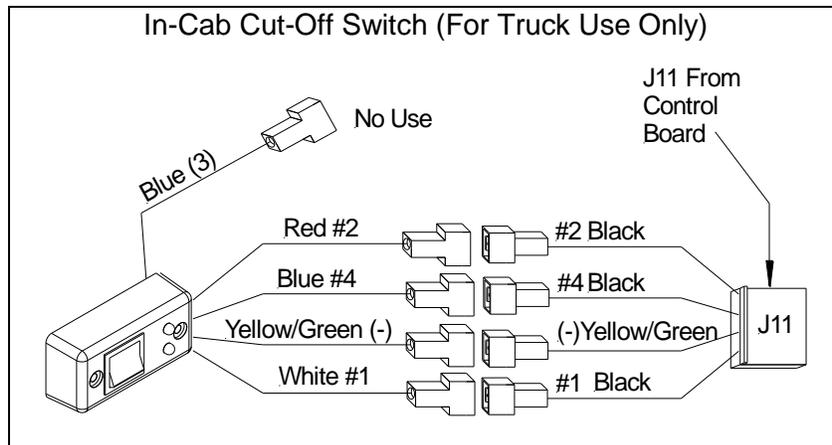
**Shutoff Switch Location for Trucks**

#### Recommended Cable Routing for Trucks



For trailer installation refer to trailer manufacturers recommended routing

2. Lead the 4-wire cab switch together with the battery cable and the 4 wires for the control power to the batteries along the sub-wood. Secure the cable every 12 inches against the sub-wood with cable staples. Run only the cab switch into the cab. Battery cable and 4 wire control power cable will go directly to the truck battery. (#2 and #4 go to positive post **with an inline 20 amp fuse**; #1 and green/yellow go to negative post).



#### In-Cab Switch Color and Number Coding

Cable wires are marked:		Cab Cut off Switch Code	
1	= Hot Lead To Red L.E.D. Lights	-	WHITE
(-)	= Ground To L.E.D. Lights	-	GREEN YELLOW
2	= 12 Volt Power	-	RED
4	= Control Power To Liftgate	-	BLUE

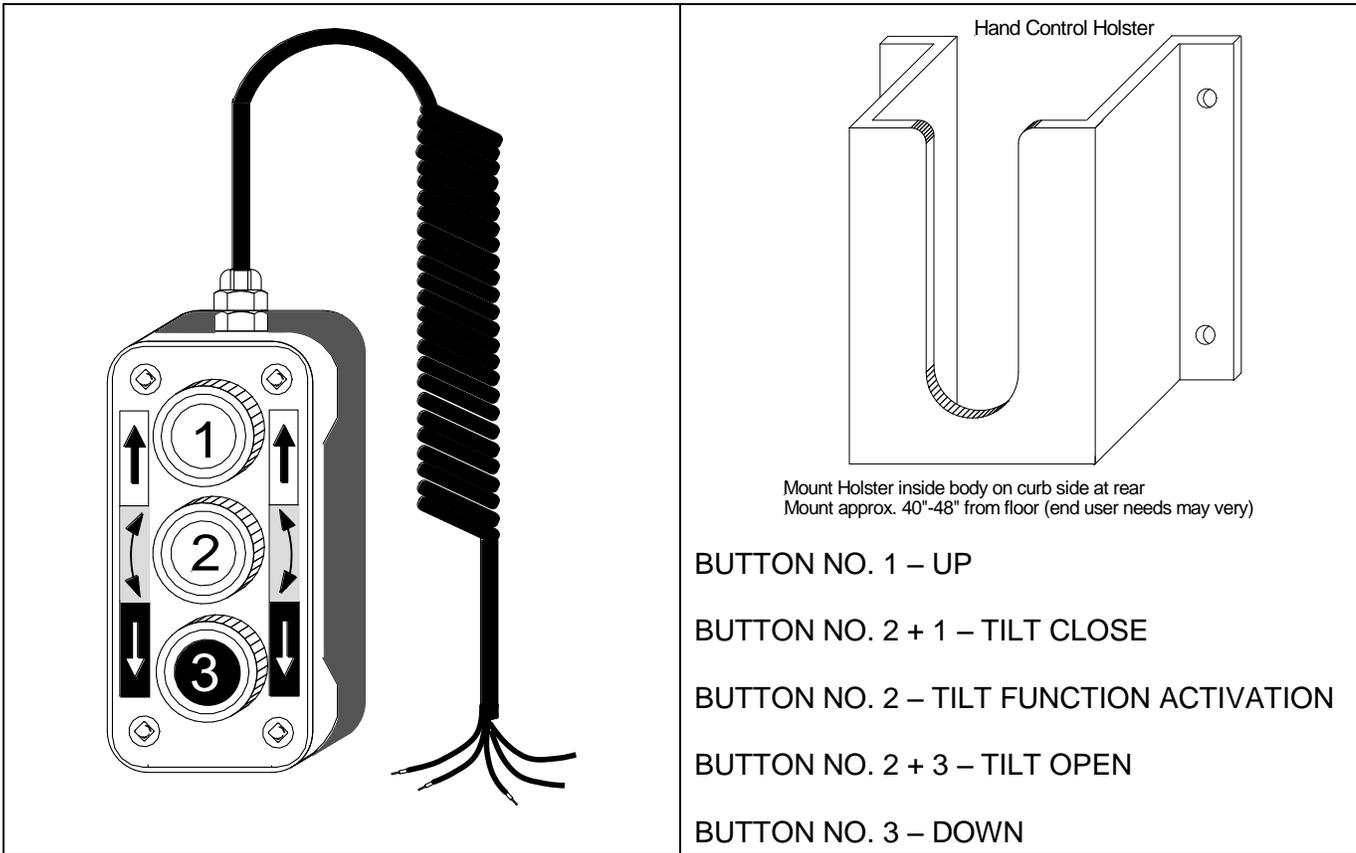


Inspect and test all electrical connections, wiring and the different functions to make sure that the electrical installation is complete.

5.3 Remote Hand Control Installation



Hand Controls are NOT weatherproof and have to be stored inside body in holster or in weatherproof box (PALFINGER Liftgates option). For “Reefer”- & Flatbed Installations or stored in cab solutions we recommend “plug & socket” option.

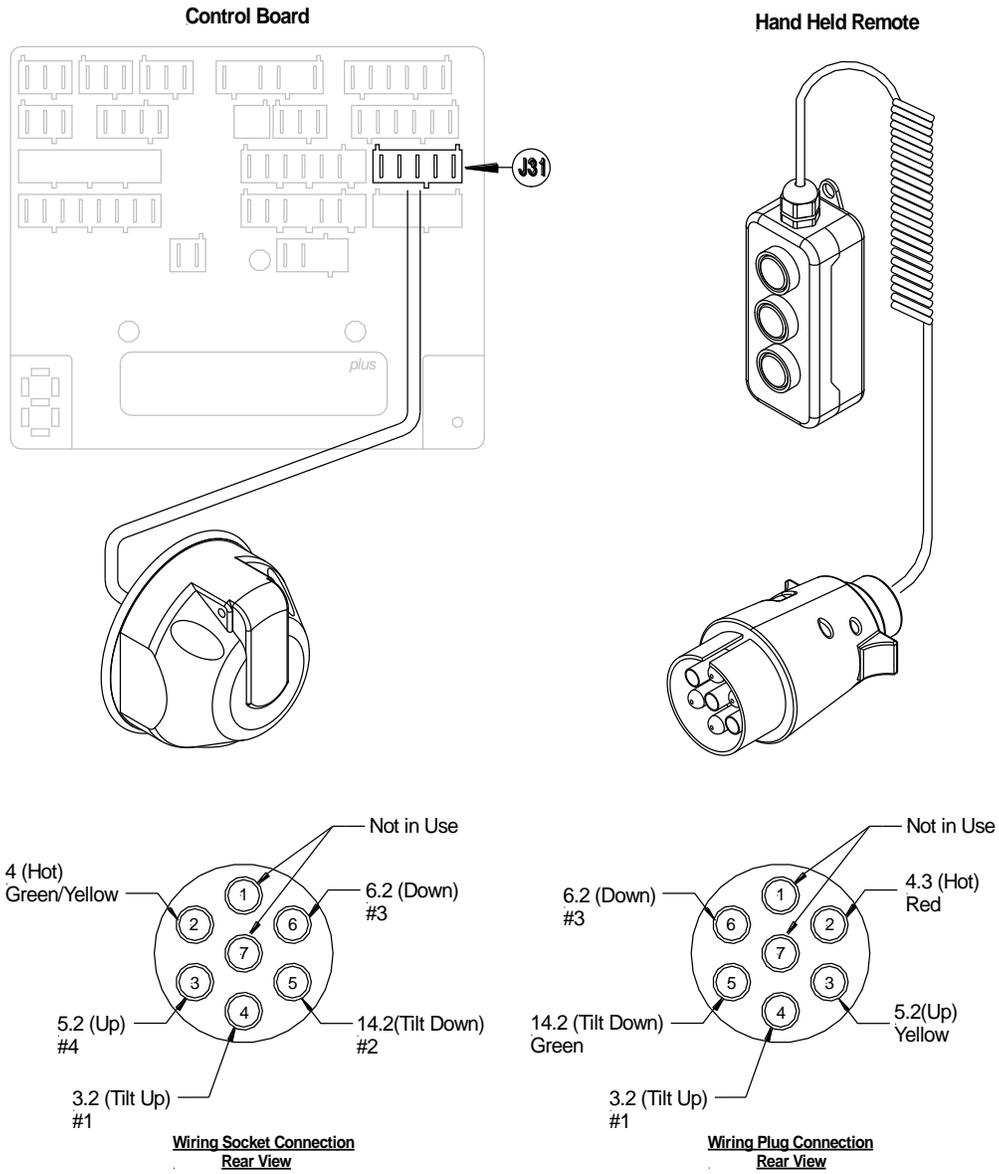


Connect all wires together according to cable ID's. Use heat-shrink to seal the connection.

**3 Button Hand Control**

Function	From H/C / Color	From Gate / Number
Up -	5.2 / Yellow	5.2 - #4
Down -	6.2 / Brown	6.2 - #3
12V Hot -	4.3 / Red	4 – Gn/Ye
Tilt-Up -	3.2 / White	3.2 - #1
Tilt-Down -	14.2 / Green	14.2 - #2

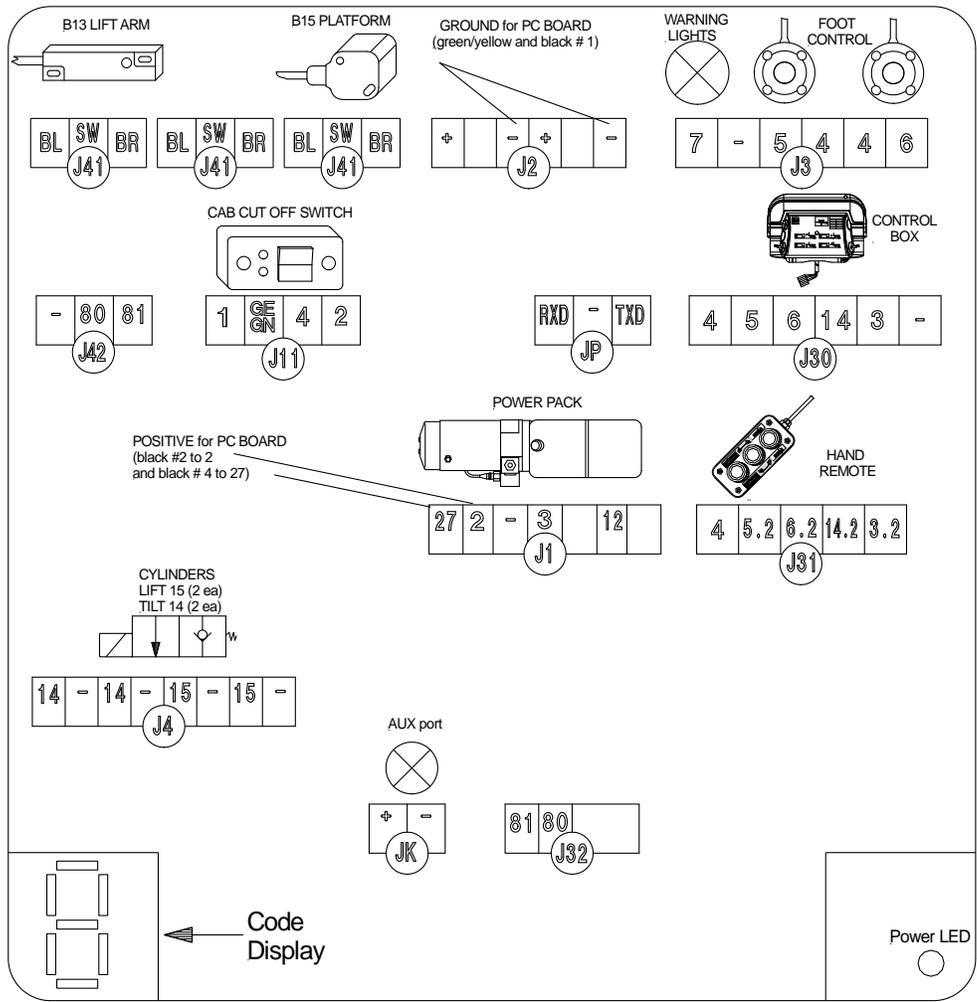
**Plug and Socket application (Optional)**



*Hella Plug & Socket wiring for Hand Control*



### 5.5 Connector Overview



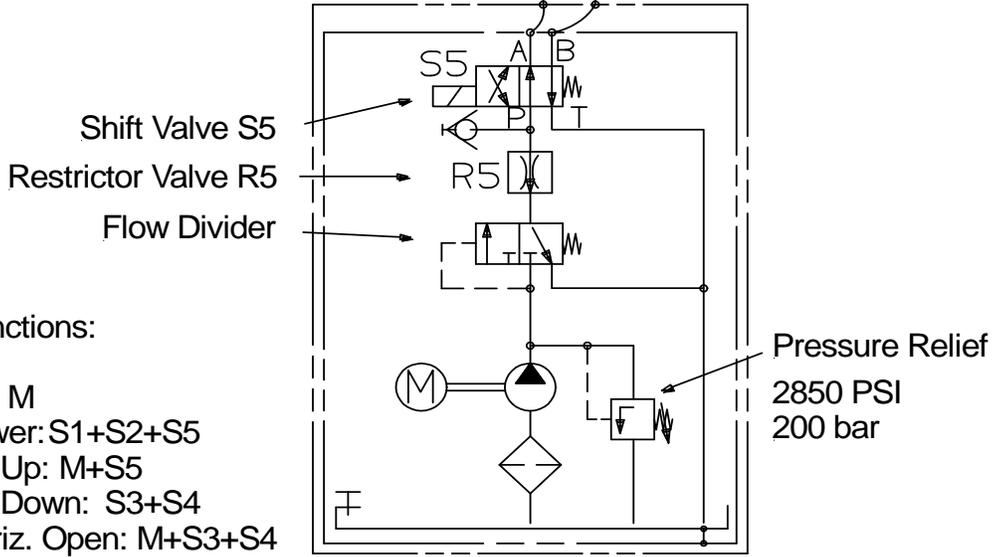
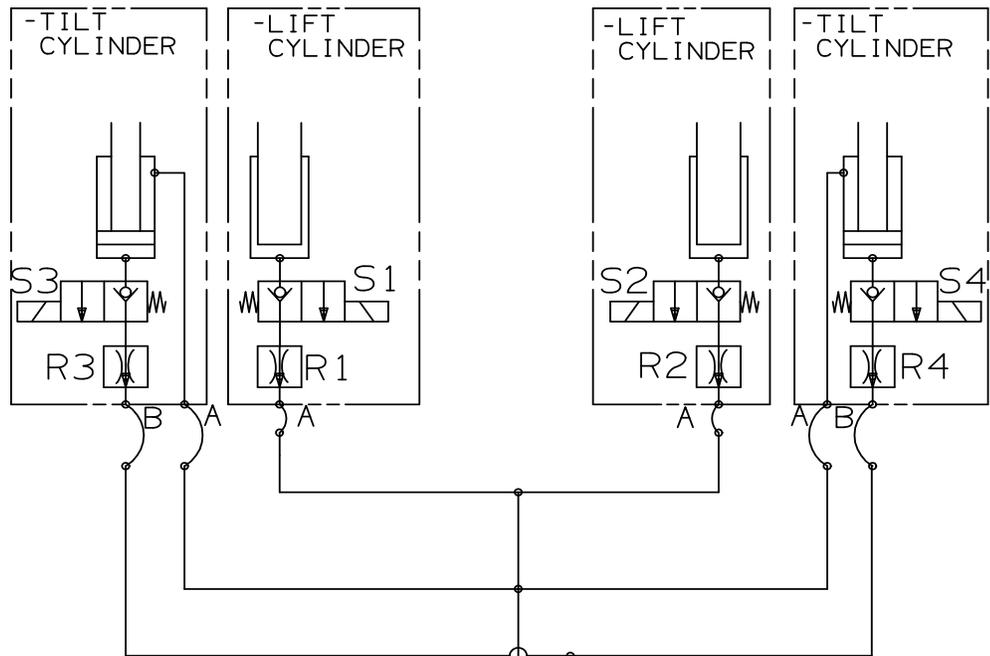
5.6 Control Board Codes

Code:	Description	Reason:	Solution 1:	Solution 2:	Solution 3:	Solution 4:	Solution 5:
0	System OK / control system: OFF	System OK / control system: OFF	System OK / control system: OFF				
1	System OK / control system: ON	System OK / control system: ON	System OK / control system: ON				
2	Low voltage	Voltage J1 pin 2 too low	Check J-1 & J-2 power cable at PC board and Battery for tight connection, oxidation and damage	Check the battery condition / battery charged	Motor could have worn carbon brushes / motor could be bad		
3	Lift arm sensor (B-13): Broken wire, short	J41-A shorted; J41 pin BLUE wire: getting signal when platform in stored position ( left upper location J-41 )	Check adjustment B-13	Check sensor for signal Blue wire with platform 10"-12" off ground	Change B-13 liftarm sensor		
5	Platform sensor (B-15): Broken wire, short	J41-C shorted; J41 pin BLUE: wire getting more than 5 Volts ( right upper location J-41 )	Check adjustment B15 platform	Unplugged, plugged in wrong location	Change B-15 platform sensor	To temporary By-pass, jump Black to Blue	
6	Short on warning light	Power consumption J3 pin 7 to high	Check J-1 & J-2 power cable at PC board and Battery for tight connection, oxidation and damage	Check warning light cables for damage			
7	Short in cab switch, control system	Power consumption J11 pin 1 to high	Check J-1 & J-2 power cable at PC board and Battery for tight connection, oxidation and damage	Check cab cut off/warning light cable for damage			
8	General short in electric wiring	General power consumption to high	Check J-1 & J-2 power cable at PC board and Battery for tight connection, oxidation and damage	Unplug wires one by one, check for correct plug location	Repair cables, connections, check for burnt crushed wires		
9	Defect in motor solenoid during lifting.	Power consumption J1 pin 3 too high	Check J-1 & J-2 power cable at PC board and Battery for tight connection, oxidation and damage	Check the battery condition / battery charged	Possible short in diode jumper wire on Motor Solenoid: Remove Jumper	Possible short in Thermo switch inside motor: Bypass and test, replace Thermo switch	
A	Fuse 15A damaged on power pack (J1 Pin2).	Defective fuse J1 pin 2	Check fuses at power pack	Check fuse holder replace fuse with same amp fuse			
b	During opening, an error was recognized on the valve spool for opening (S3/S4) or at the motor solenoid. NOTE: ONLY APPLIES TO ILK CANTILEVER LIFTGATE.	Power consumption J1 pin 3 too high; ohm reading J4 pins 14 have changed	Check J-1 & J-2 power cable at PC board and Battery for tight connection, oxidation and damage	Check the battery condition / battery charged		Check ohm reading of the coils	Change coils or cables
c	During closing, an error was recognized on the motor solenoid or on the valve spool S-5. NOTE: ONLY APPLIES TO ILK CANTILEVER LIFT GATE.	Power consumption J1 pin 3 too high; ohm reading J1 pin 12 has changed	Check J-1 & J-2 power cable at PC board and Battery for tight connection, oxidation and damage	Check the battery condition / battery charged		Check ohm reading of the coils	Change coils or cables
d	During lowering, an error was recognized on S-1/S-2 lowering valves or valve spool S-5	Resistance J1 pin 12 has changed; ohm reading J4 pins 15 have changed	Check resistance of the coils	Change valve coils and cables		Check ohm reading of the coils	Change coils or cables
E	Emergency mode active (all logic functions and comfort functions are switched off)	Activate by pressing OPEN and LOWERING button (and Second Hand if in use) simultaneously for over 10s	Deactivate by turning cab switch or on off switch OFF then back ON				
P	Error diagnostic mode active.	Attached service plug					
			<b>TO CLEAR CODE :</b>				
			NOTE: B-13 SENSOR WIRE POINTS TOWARD FRONT OF VEHICLE				1. UNPLUG J-11 AND PLUG BACK IN
			NOTE: IF, IU, ILUK B-15 SENSOR WIRE POINTS TOWARD FRONT OF VEHICLE WHEN PLATFORM UP AT BED LEVEL				2. CAB SWITCH OFF AND ON, TO CLEAR CODE

5.7 Hydraulic Schematic

Functions:

- S1 and S2 = Release Valve for lowering function
- S3 and S4 = Release Valve for tilt down function
- R1 and R2 = Flow Restrictor located inside hose adaptor on lift cylinder
- R3 and R4 = Flow Restrictor located inside hose adaptor on tilt cylinder
- S5 = Shift Valve is activated on tilt up and lowering function
- R5 = Restrictor Valve located in power pack
- Flow Divider is activated, when fluid is going back into the power pack
- If Flow Divider is loose or hanging up the fluid is circulated back in to tank



Functions:

- Lift: M
- Lower: S1+S2+S5
- Tilt Up: M+S5
- Tilt Down: S3+S4
- Horiz. Open: M+S3+S4

Hydraulic Schematic

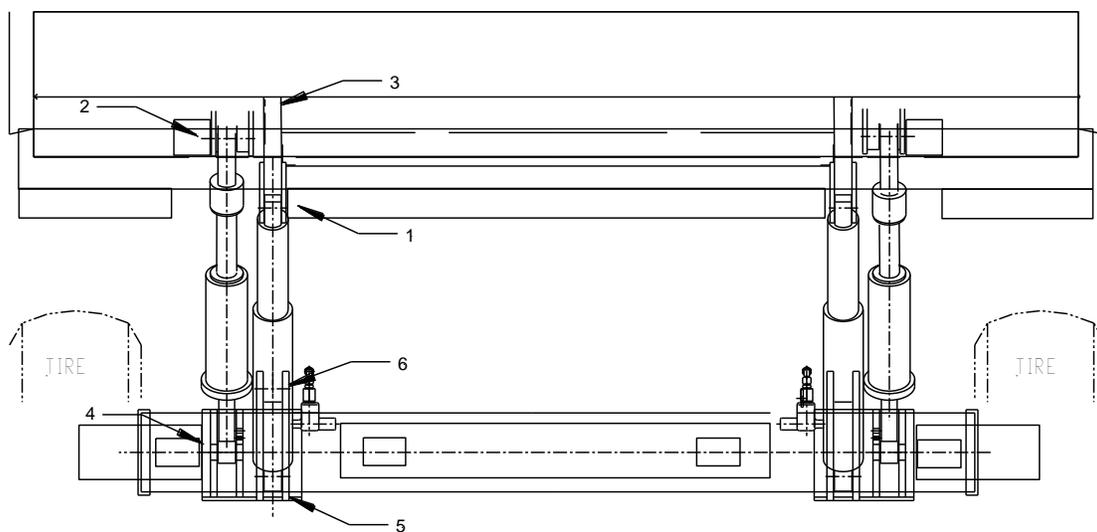
## 6 Lubrication and Final Inspection

1. Open platform and lift gate to bed level
2. Remove red caps, apply grease until grease begins to flow from bushing ends
3. Lower platform to ground and grease left over grease zerks.
4. Cycle platform open and closed several times and grease again as shown below.
5. Wipe excess grease from joints and replace ALL red caps
- 6. Check ALL pin lock bolts for proper torque of 14 ft-lbs**
7. Paint all welded areas and area that have been scratched during installation



**Note: Do not paint chrome hydraulic piston rods**

8. Remove any overspray from cylinder piston rods
9. Check for any wires or hoses that may rub during operation.
10. Re-route and/or tie up wires and hoses as necessary
11. Lower platform completely to ground and slide out pump/motor to check oil level
12. Check Plugs on PC Board. Push tight and reinstall clamp on rubber cover
13. Install all operation and safety decals

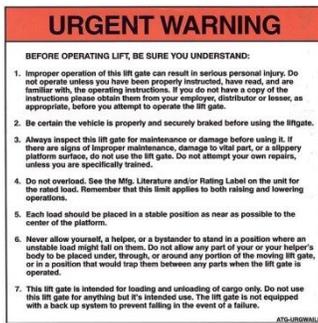


*Lubrication Points (opposite direction on curb side)*

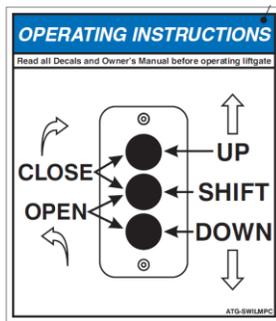
### 6.1 Decal Placement and Inspection

For operator’s safety, all decals appearing in “Decal Kit” must be in a conspicuous place on control side of liftgate. This is typically a combination of decals on the liftgate and truck body. Please make sure to place the maximum capacity decal (D) on driver and curb side.

- (A) 1 ATG-URGWA - Urgent warning: Elevating gate instructions
- (B) 1 ATG-ILK - Main Operation (Control Box)
- (C) 2 ATG-XXXX - Max. Capacity (please check the serial number plate to find out your specific capacity)
- (D) 1 ATG-CAB - Liftgate Shut-Off (must be placed next to the Shut-Off Switch)
- (E) 1 ATG-BKR - Circuit Breaker Reset (must be located at the circuit breaker)
- (F) 2 ATG-WLH - Warning: liftgate can crush
- (G) 2 ATG-CTN - Caution: Always stand clear of platform area
- (H) 1 ATG-RESET - Circuit Breaker Protection
- (J) 1 ATG-OPENILD - Notice for Open & Close
- (K) 1 ATG-FT - Notice for Foot Control (if applicable)



Decal - A



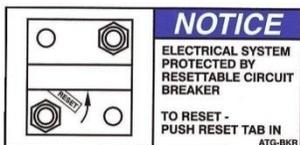
Decal - B



Decal - C



Decal - D



Decal - E



Decal - F



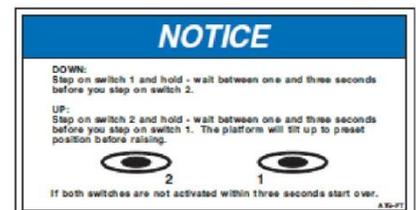
Decal - G



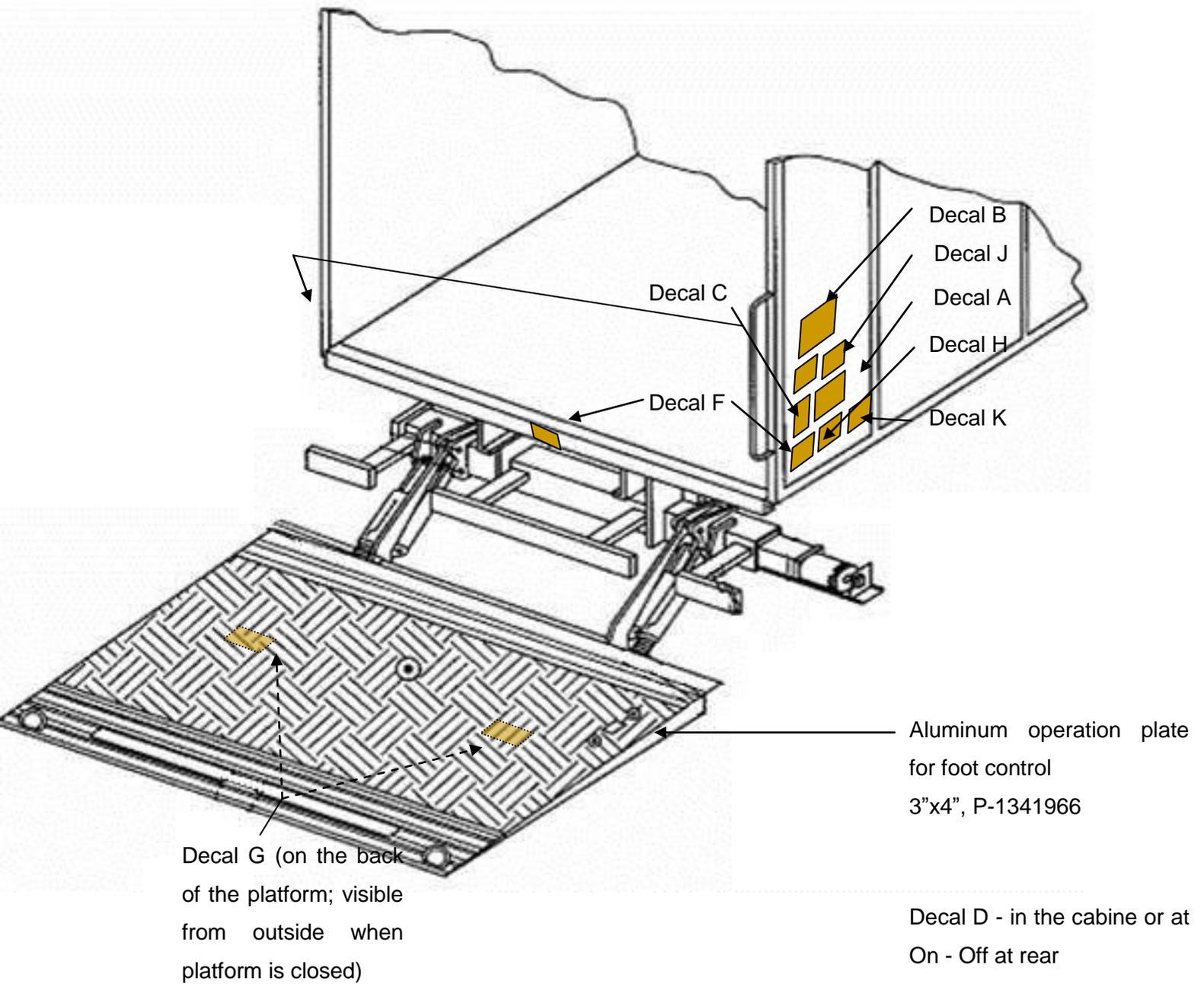
Decal - H



Decal - J



Decal - K



**Decal Placement Guideline**

# 7 Check Off Sheet

JOB NO. \_\_\_\_\_

GATE NO. \_\_\_\_\_

VIN NO. \_\_\_\_\_

- OWNER'S MANUAL IN CAB
- ON-OFF SWITCH WORKING & DECAL IN PLACE

- WIRING**
  - 1. Power Cord Secured
  - 2. Cables Not Rubbing Steel
  - 3. 12V Control Wire Secured
  - 4. Loomed & Stapled
  - 5. Circuit Breaker & Fuse Installed & Decal In Place
  - 6. Loop in platform sensor wire

- HYD. LINES SECURED**
  - 1. No Rubbing On Frame
  - 2. No Rubbing On Platform
  - 3. Up-Down Clear
  - 4. Storing Platform Clear

- HYD. OIL LEAKS**
  - 1. None At Hoses
  - 2. None Power Pack
  - 3. Cylinders

- WELDS**
  - 1. Full Welds Mount Plates
  - 2. Ground Off / Clean
  - 3. Frame Capped Off

- PUMP & MOTOR**
  - 1. Check Fluid With Platform On Ground
  - 2. Connections Tight With Heat Shrink
  - 3. Power Cable Tight
  - 4. Ground Cable Tight
  - 5. Breather Installed
  - 6. Cables Tied Off
  - 7. Fuses Tight
  - 8. Clamp on cover

- PINS**
  - 1. Grease Zerks In Place
  - 2. Red Grease Caps On Zerks
  - 3. Bolts Tight On Pins
  - 4. Ground Rollers On

- OPERATION**
  - 1. All Functions Operate On outside Control & Hand Control
  - 2. Up Stops In Place
  - 3. Platform Meets Body
  - 4. Sensor Set For Proper Auto tilt
  - 5. Warning lights stop flashing when platform stored
  - 6. Cab switch not flashing when platform stored and switch off
  - 7. Platform hits rear sill even at the same time
  - 8. Tilt cylinder clevis lock nuts tight
  - 9. No Paint on cylinder shafts

- FINAL INSPECTION**
  - 1. Platform Touches Ground
  - 2. Lights Working On Chassis
  - 3. Lic. Plate Bolts & Lights
  - 4. Decals Installed
  - 5. Rubber & Plastic Caps on
  - 6. Gate Painted Completely
  - 7. Body Clean Around Gate
  - 8. Pin Greased - 12 Places
  - 9. Cylinders Clean
  - 10. Clamp on cover
  - 11. Exhaust mud flaps are ok

- OPTIONS**
  - 1. All Options On Gate
  - 2. Circuit Breaker Tight
  - 3. Cart Stops Working

CHECKED BY \_\_\_\_\_

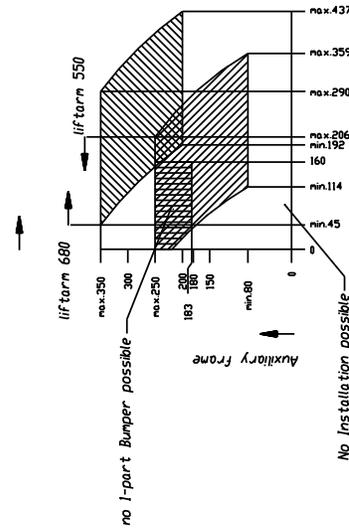
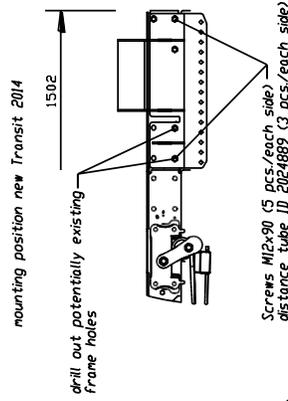
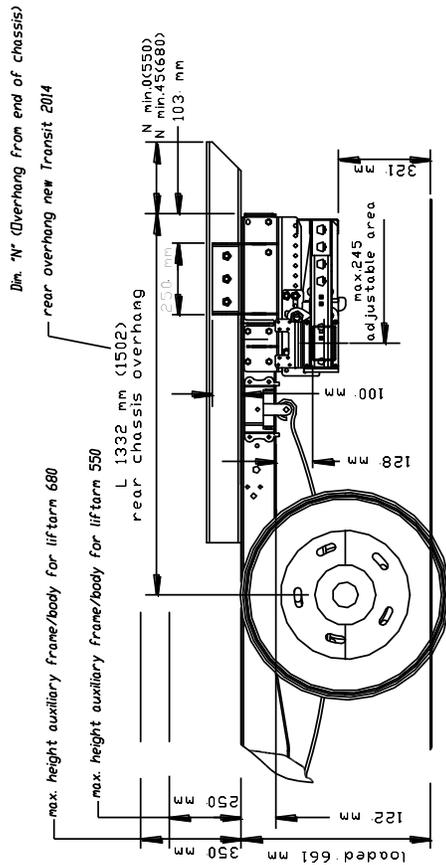
DATE \_\_\_\_\_

**Note:**

**This must be filled out and kept for your records. A copy of this sheet must be presented to PALFINGER Liftgates for any warranty compensation**

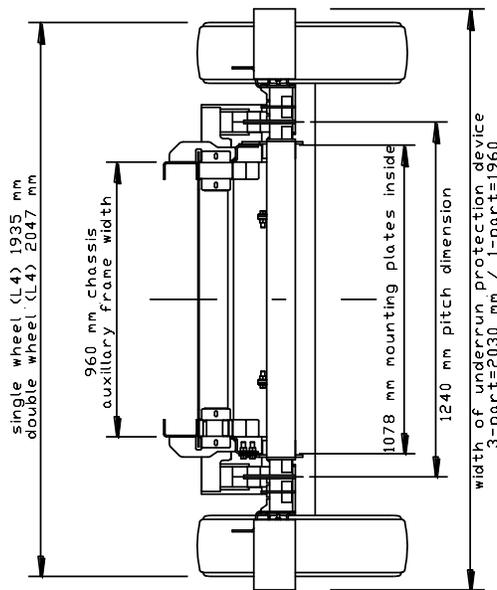


7.2 Ford Transit, Wheelbase 156", Extended Chassis, 2014



ANZULCUMENTE	NM
STARTING TORQUE	
M20	400
M14	190
M12	80

08-531\_69-00\_00-00



Holes (3x) Ø14H12 to drill while the installation depend on the height of the auxiliary frame

