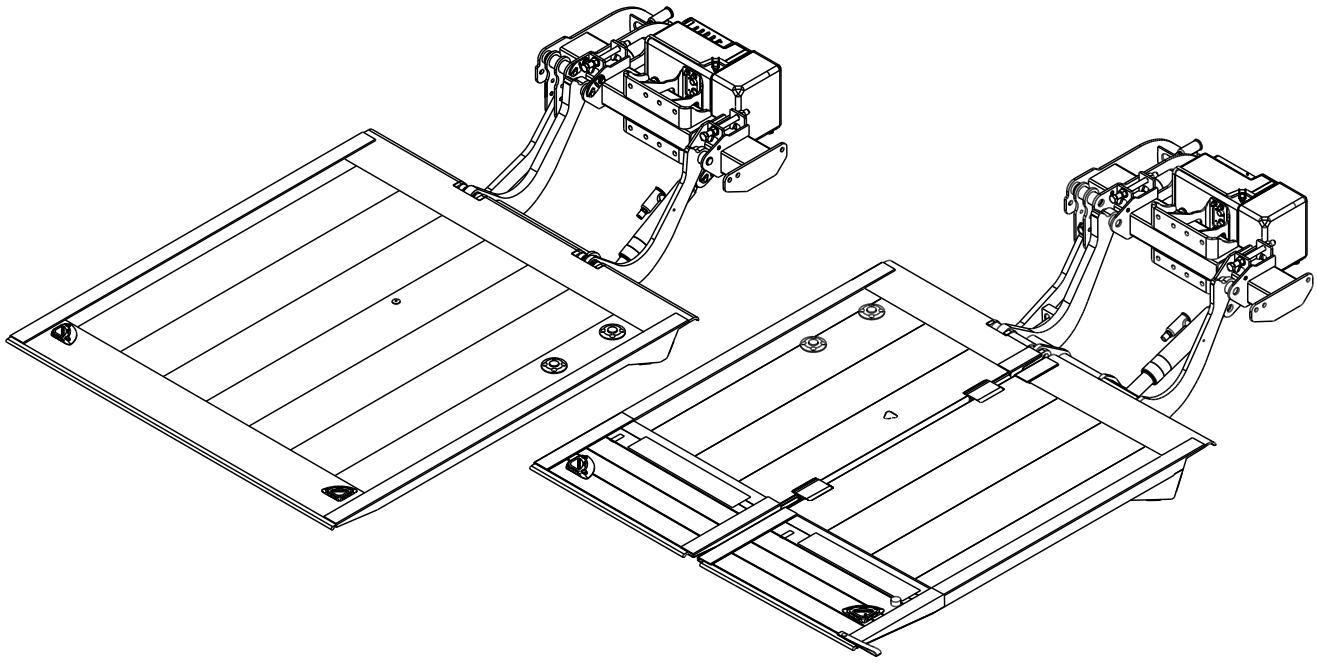
PALFINGER

LIFTGATES

INSTALLATION MANUAL & CHECK OFF SHEET

MiniFix, 1100 lbs. Capacity

MiniFix, 1320 lbs. Capacity



02/22

MiniFix 1100 / 1320 Installation Manual
Document Part Number: 90-0913-200 / 13-689_90-00_02-00
ECN-M1621, Rev. 1.8, 02-02-22

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

15939 Piuma Ave.
Cerritos, CA 90703
Tel: (888) 774-5844
Fax: (562) 924-8318

572 Whitehead Road.
Trenton, NJ 08619
Tel: (609) 587-4200
Fax: (609) 587-4201

Table of Contents

Company Information:

Company Name: _____

Advisor Name: _____

Vehicle Year/Make/Model: _____

Liftgate Information:

Liftgate Serial Number: _____

Liftgate Model Number: _____

Date of Purchase: _____

Date of Installation: _____

1 Manual Update

Revision	Description
v1.5	• Reformatted manual.
v1.6	• Updated the different vehicle mounting bracket installation instructions. • Added Nissan, Sprinter, Promaster, and Transit mount plate installation instructions.
v1.7	• Added Split Platform installation instructions.
v1.8	• Added Slim Control Panel instatllation instructions.

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

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

⚠ WARNING

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

⚠ CAUTION

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

CAUTION

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

NOTICE

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

- 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 MiniFix 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.

1. **Read Manual completely before beginning any work.**
2. **For Sprinter Series MY2007 and newer models Mercedes-Benz requires auxiliary battery kits.**
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. Always Ground closest to your welding point to prevent arcing through moving parts.
7. Contact PALFINGER Liftgates. for Special Installations not covered in this Installation Manual.
8. Do not paint cylinder shafts or nylon rollers (Use non-chlorinated brake cleaner to remove over spray)
9. Verify that pin lock bolts are tight.
10. Grease all pivot points.
11. Verify that ALL decals are placed properly (Contact PALFINGER Liftgates to replace any missing decals).
12.  Final Check-Off-Sheet at rear of this manual **MUST** be filled out and kept in your records for future reference.
13. Refer to owner's manual for troubleshooting & repairs.
14. Mercedes allows the following lifting capacities for SPRINTER models at 24" center point of load.
    1) 1100 lbs. for SPRINTER Cargo Van Setup
    2) 1320 lbs. for SPRINTER Chassis Cab Setup

⚠ WARNING

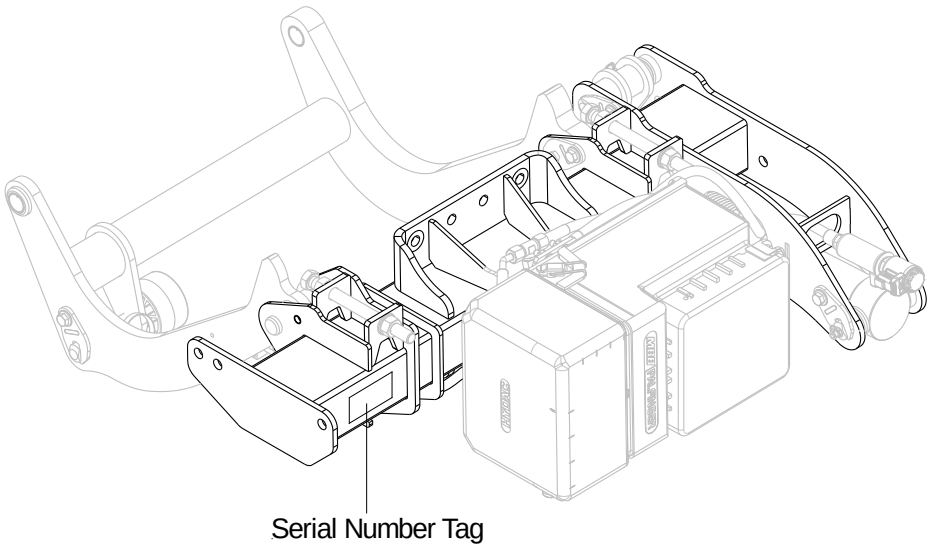
Improper operation of this liftgate may result in severe personal injury or death. DO NOT operate unless you have been properly instructed, have read and are familiar with the procedures in this manual. This manual has been designed to illustrate the steps needed for the basic installation of the MiniFix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

1) Refer to the serial number tag on the front of the liftgate mount frame.



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

NOTICE

Special Notes on installs of the MiniFix liftgate on <u>Dodge Promaster Vans</u>:

1. **Liftgate will be mounted in the same location as spare tire. Space inside van will be required for spare tire.**
2. **Vehicles exhaust system will require modification.**

Special Notes on installs of the MiniFix liftgate on <u>Ford Transit Vans</u>:

1. **Liftgate will be mounted in the same location as spare tire. Space inside van will be required for spare tire.**
2. **Sensors on bumpers, rear camera (if applicable) will need relocation.**
3. **Remove the hitch as the liftgate will occupy that space.**
4. **Overhangs beyond 49" will require modifications to the vehicles springs due to soft suspension.**

Special Notes on installs of the MiniFix liftgate on <u>Mercedes Sprinter Vans</u>:

1. **LIftgate will be mounted in the same location as spare tire. Space inside van will be required for spare tire.**
2. **Sensor Bumpers will not work once bumper is removed.**
3. **Step bumpers will need to be replaced with flat bumper.**
4. **Must have auxiliary battery.**

3.1 Recommended Tools for Installation

Metric Wrench Set	Basic Screwdrivers	Pliers	Wire Crimp Pliers
Digital Multimeter	Snap Ring Pliers	Hammer	Metric Allen Set
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/Driver	Grease Gun	Heat Gun or Equiv.
Min. 250 Amp Welder	Cutting Torch or Equiv.	Measuring Tape	

Special tools required: 7/8" hole saw for installation of switches.

4 Dimension Sheet

PALFINGER LIFTGATES

Minifix Chassis Dimension Sheet

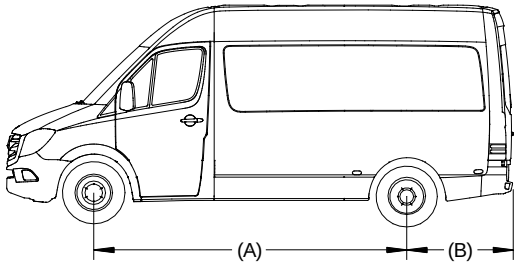
Contact Information:

Quote#/SO#:_____Company:_____

Phone: (_____) _____-_____ Email_____@_____

Vehicle Information : *(Circle applicable)*

Vehicle Model	Wheelbase (A)	Overhang (B)	Rear Wheels	Mount Plate Kit P/N:	Ramp (1-PC Platf.)	Ramp (2-PC Platf.)	Bumper Kit	Exhaust Kit
Mercedes Sprinter*	128″	39″	Single	65-0915-007	2028555	2050404	65-0918-060	-
	144″	49″	Single	65-0915-008	2028555	2050404	65-0918-060	-
	170″	64″	Single	65-0915-008	2028555	2050404	65-0918-060	-
	170″	79″	Single	65-0915-008	2028555	2050404	65-0918-060	-
	144″	49″	Dual	65-0915-009	2028555	2050404	65-0918-060	-
	170″	79″	Dual	65-0915-009	2028555	2050404	65-0918-060	-
	170″	64″	Dual	65-0915-010	2028555	2050404	65-0918-060	-
Ford Transit**	130″	49″	Single	65-0915-011	2037339	2050405	65-0918-060	-
	148″	78″	Dual	65-0915-011	2037339	2050405	65-0918-060	-
Dodge Promaster***	136″	40″	Single	65-0915-012	2037339	2050405	65-0918-040	60-0916-000
	159″	40″	Single	65-0915-012	2037339	2050405	65-0918-040	60-0914-000
	159″	54″	Single	65-0915-013	2037339	2050405	65-0918-040	60-0914-000
Nissan NV	146″	53″	Single	65-0915-014	60-0912-060	23-0919-000	65-0918-050	-



***Special Notes on installs of the Minifix liftgate for Mercedes Sprinter Vans:**

1. **Liftgate will be mounted in the same location as spare tire. Space inside van will be required for spare tire.**
2. **Sensor Bumpers will not work once bumper is removed.**
3. **Step bumpers will need to be replaced with flat bumper.**
4. **Auxiliary battery is required by manufacture to operate liftgate.**

****Special Notes on installs of the Minifix liftgate for Ford Transit Vans:**

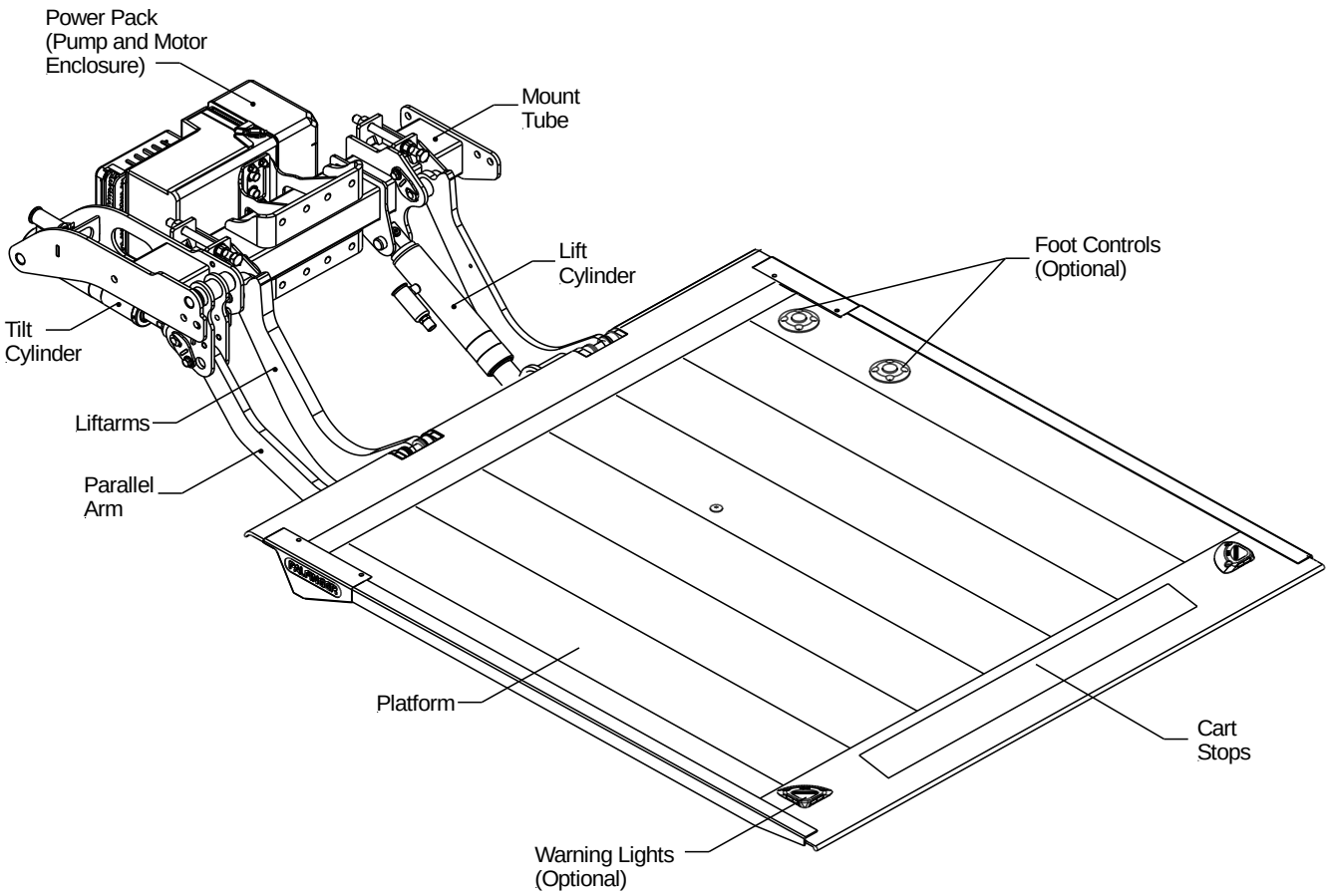
1. **Liftgate will be mounted in the same location as spare tire. Space inside van will be required for spare tire.**
2. **Sensors on bumpers, rear camera (if applicable) will need relocation.**
3. **Overhangs beyond 49" will require modifications to the vehicles spring due to soft suspension.**
4. **Auxiliary battery is highly recommended to operate liftgate.**

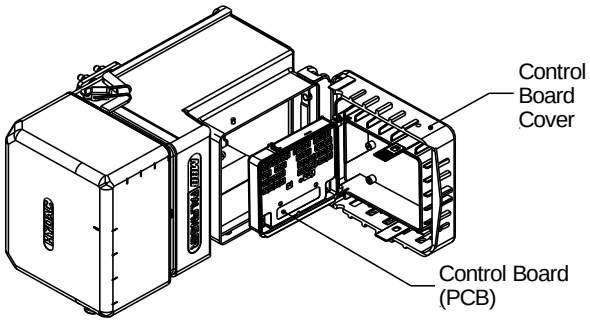
*****Special Notes on installs of the Minifix liftgate for Dodge Promaster:**

1. **Liftgate will be mounted in the same location as spare tire. Space inside van will be required for spare tire.**
2. **Vehicles exhaust system will require modification.**
3. **Auxiliary battery is highly recommended to operate liftgate.**

5 General View of Minifix Liftgate

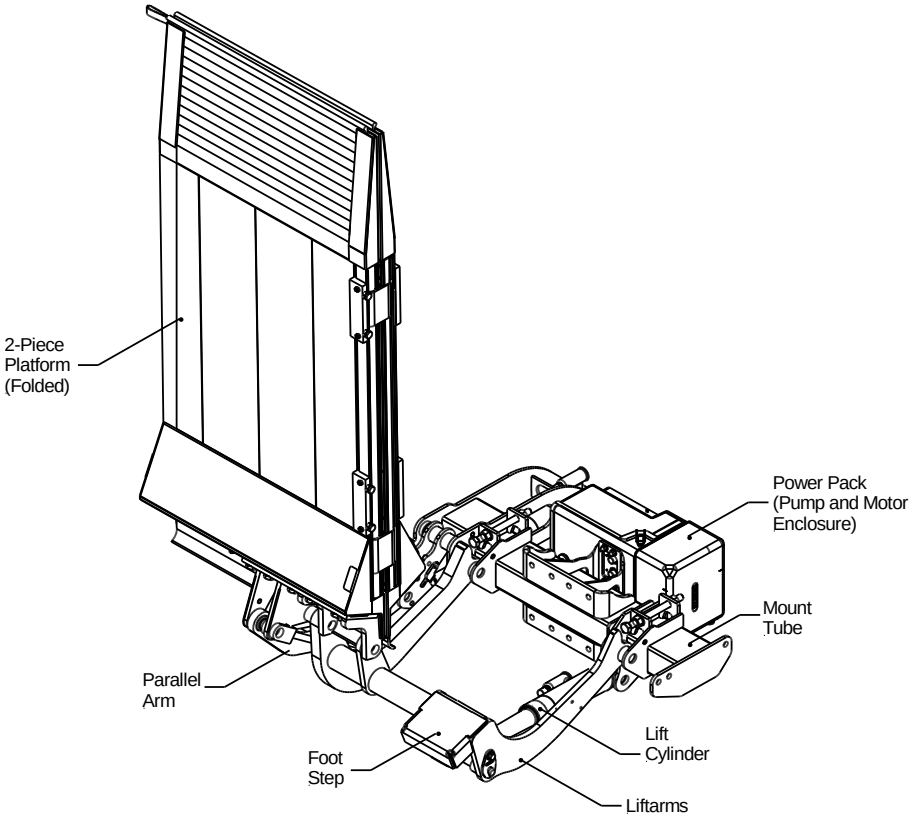
5.1 Standard Minifix Liftgate – Single Piece Platform

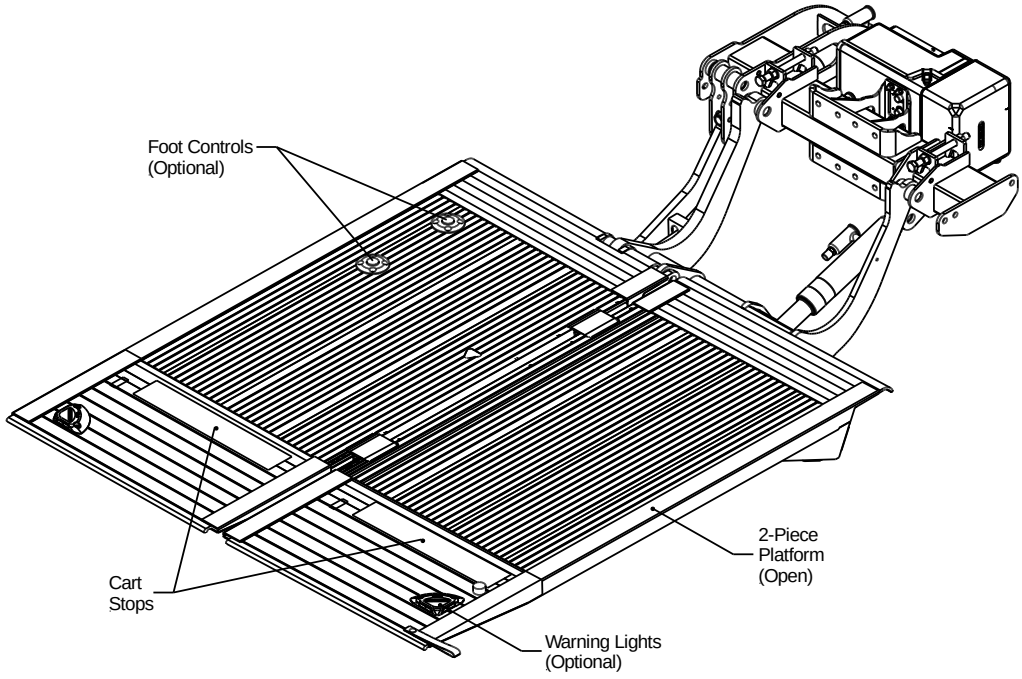




Power Pack
(Pump and Motor Enclosure)

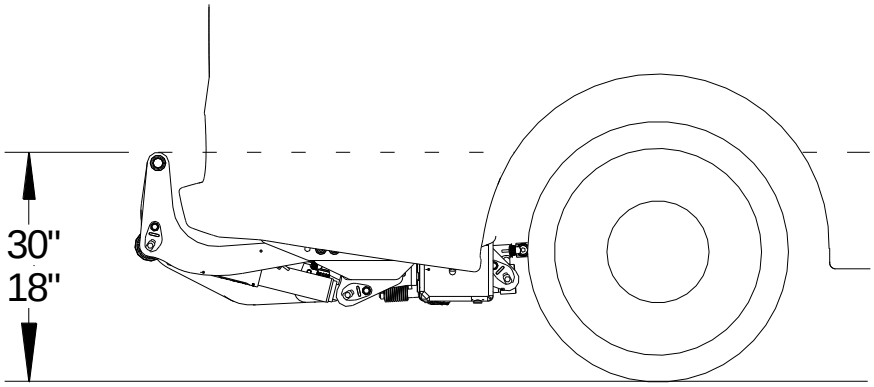
5.2 Split Platform Minifix Liftgate – Two-Piece Platform





6 Mounting Notes:

6.1 Read and clearly understand this manual BEFORE beginning ANY work.



Min bed height: 18" with Van maximum loaded; Max bed height: 30" with Van unloaded

Minimum bed height dimensions are ALWAYS MAXIMUM LOADED Vehicle

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

7 Chassis and Body Preparation for Installation

7.1 Checks Before Assembly

	✓
1. Does the liftgate match your order?	☐
2. Do you have the correct mount plates for your particular chassis?	☐
- Each Vehicle model requires its own specific mount plates.	
3. Are the assembly instructions for the Palfinger Liftgates MiniFix included?	☐
4. Does the operating voltage of the Palfinger Liftgates MiniFix match the vehicle voltage?	☐
5. Is a flip ramp included?	☐
6. Observe the chassis guidelines of the vehicle manufacturer for accessory equipment.	☐
7. Check size of battery for adequate capacity.	☐
8. Is there a compartment under passenger seat designed for an auxiliary battery?	☐

7.2 Preliminary Work on the Vehicle

NOTICE

Follow vehicles documenation for the removal of the components.

1. Remove any spare tires and their mounts from the vehicle rear underside.
2. Remove any trailer and towing hitches as well as steps attached to the rear of the vehicle.
3. Replace special step bumpers fitted with standard bumpers.
4. Remove the licence plate on the rear doors and re-attach it in a visible position after assembly of the Palfinger Liftgates MiniFix (observe local and federal regulations).

NOTES

FORD TRANSIT

8 Mount Plate and Liftgate Installation

IMPORTANT:

To install the liftgate it is very important to have the correct vehicle mount plates for the vehicle.

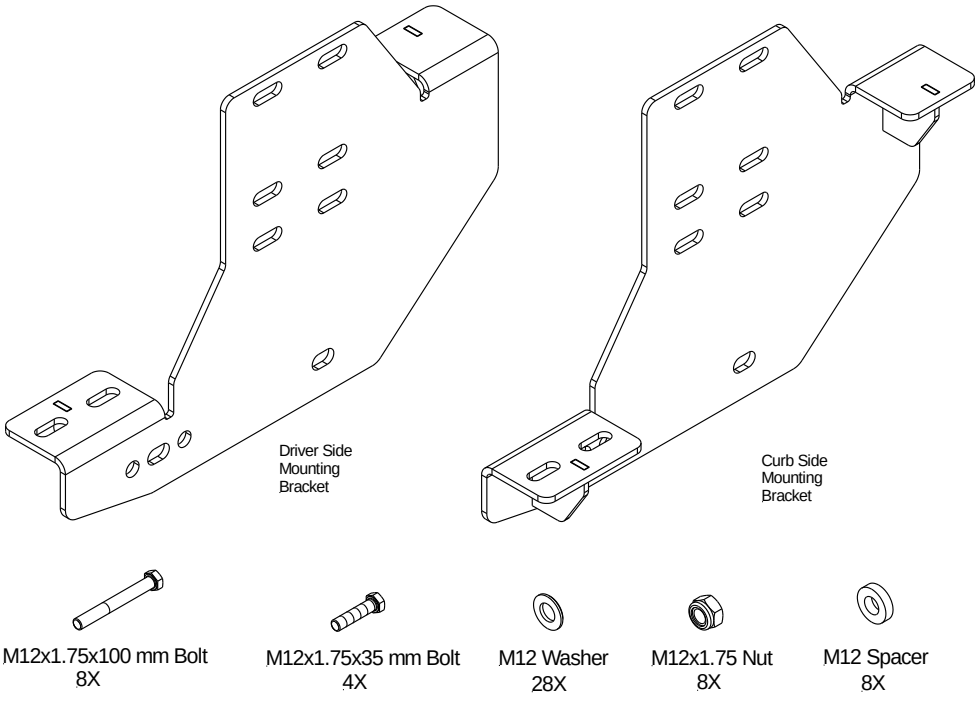
8.1 Ford Transit Vehicle

NOTICE

Special Notes on installs of the MiniFix liftgate on <u>Ford Transit Vans</u>:

1. **Liftgate will be mounted in the same location as spare tire. Space inside van will be required for spare tire.**
2. **Sensors on bumpers, rear camera (if applicable) will need relocation.**
3. **Remove the hitch as the liftgate will occupy that space.**
4. **Overhangs beyond 49” will require modifications to the vehicles springs due to soft suspension.**

8.1.1 Mounting Bracket Kit Overview - P/N: 65-0915-011

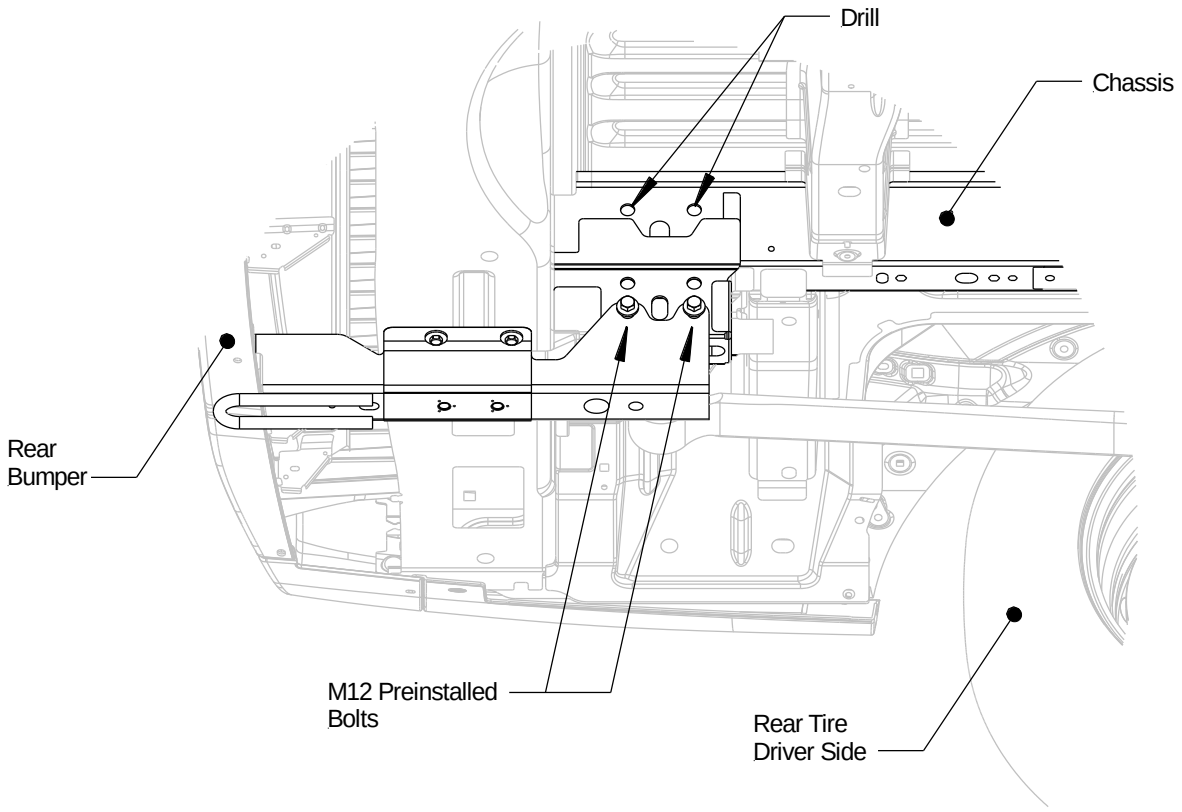


FORD TRANSIT

8.1.2 Chassis Preparation

For all vehicle modification, reference the manufacturer's manual.

1. Remove the hitch, if applicable.
2. Remove the four (two per side) preinstalled M12 bolts located on the chassis. Do no discard the hardware; it will be used to complete the installation.
3. Drill two M12 holes on the chassis as shown. Use the mounting bracket as a template to mark the drill locations.

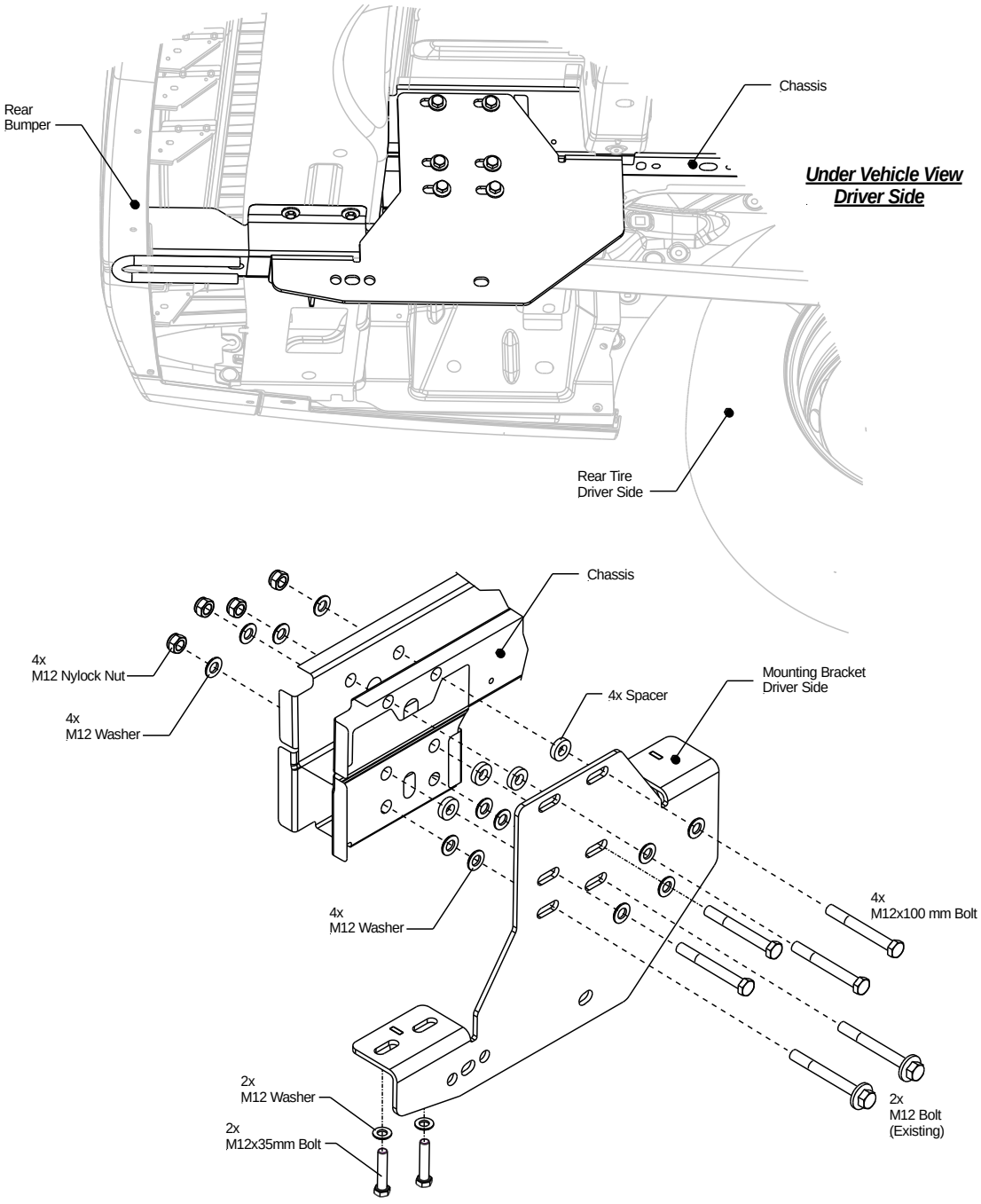


Under Vehicle View
Driver Side

FORD TRANSIT

8.1.3 Bracket Installation

1. Use the M12 hardware to mount the bracket to the vehicles chassis. Reuse the M12 bolts that were originally attached to the chassis. Follow the installation orientation of the hardware as shown below. Repeat the mounting process for the curb side bracket.



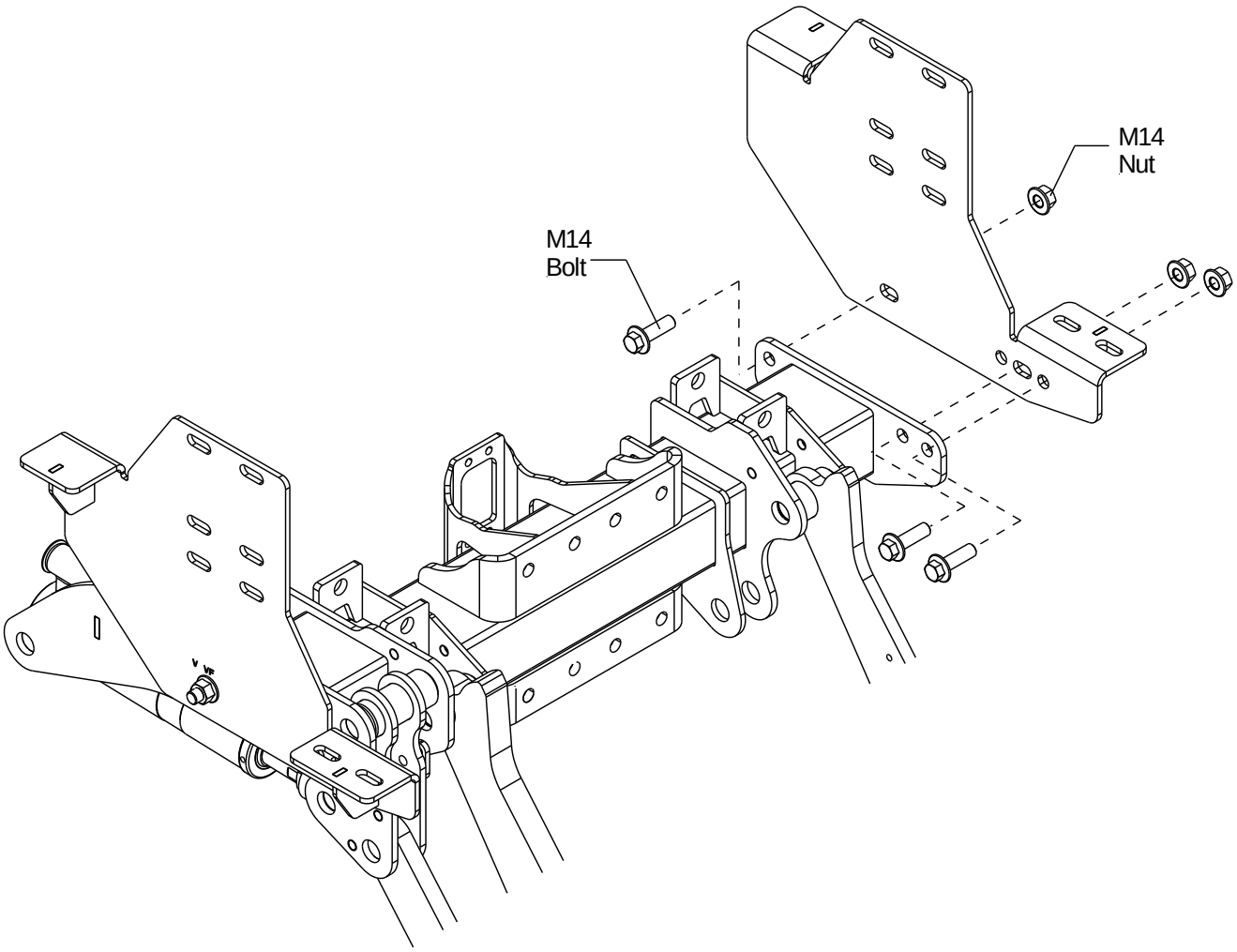
Torque Specifications

M12 –59 ft./lbs. (80 Nm)

FORD TRANSIT

8.1.4 Liftgate Installation

1. Secure the MiniFix Mount Tube to the mounting brackets by bolting the sides of the mount tube to the side of the brackets with the six (3 each side) M14 hardware provided with the liftgate.



Torque Specifications

M14 – 140 ft./lbs. (190 Nm)

MERCEDES SPRINTER

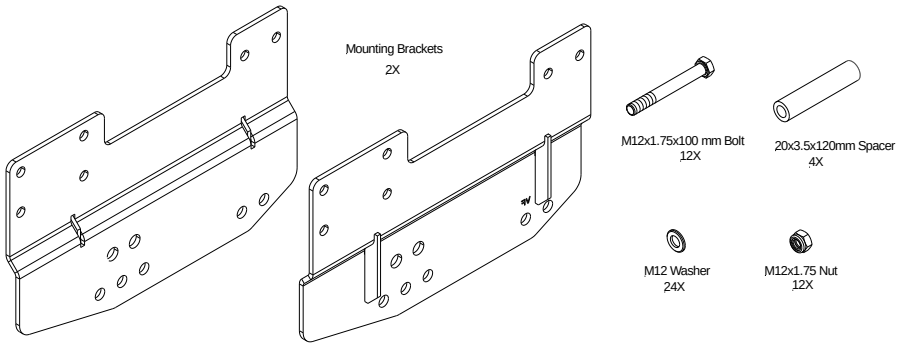
8.2 Mercedes Sprinter Vehicles

NOTICE

Special Notes on installs of the MiniFix liftgate on Mercedes Sprinter Vans:

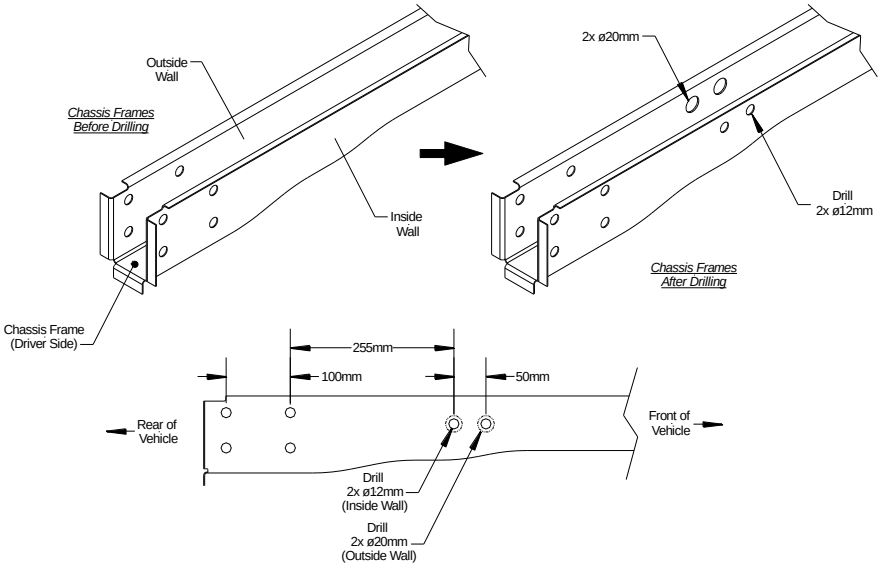
1. **Liftgate will be mounted in the same location as spare tire. Space inside van will be required for spare tire.**
2. **Sensor Bumpers will not work once bumper is removed.**
3. **Step bumpers will need to be replaced with flat bumper.**
4. **Must have auxiliary battery.**

8.3 Mounting Bracket Kit – 128" Wheelbase, 35" Overhang(Vehicle Models After 2007) P/N: 65-0915-007



8.3.1 Chassis Preparation

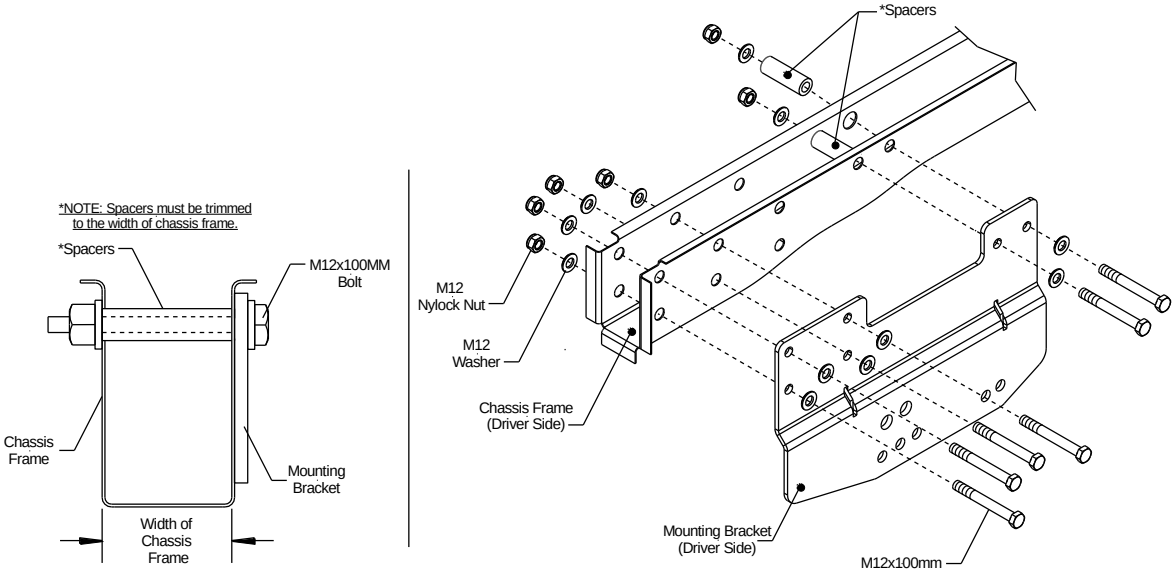
Attention: For precise drilling, use the mount plate bracket as a template to mark drilling locations. Driver side chassis frame shown below, repeat drill procedure on curb side.



Chassis Frame: Drill Dimensions Side View

MERCEDES SPRINTER

8.3.2 Bracket Installation

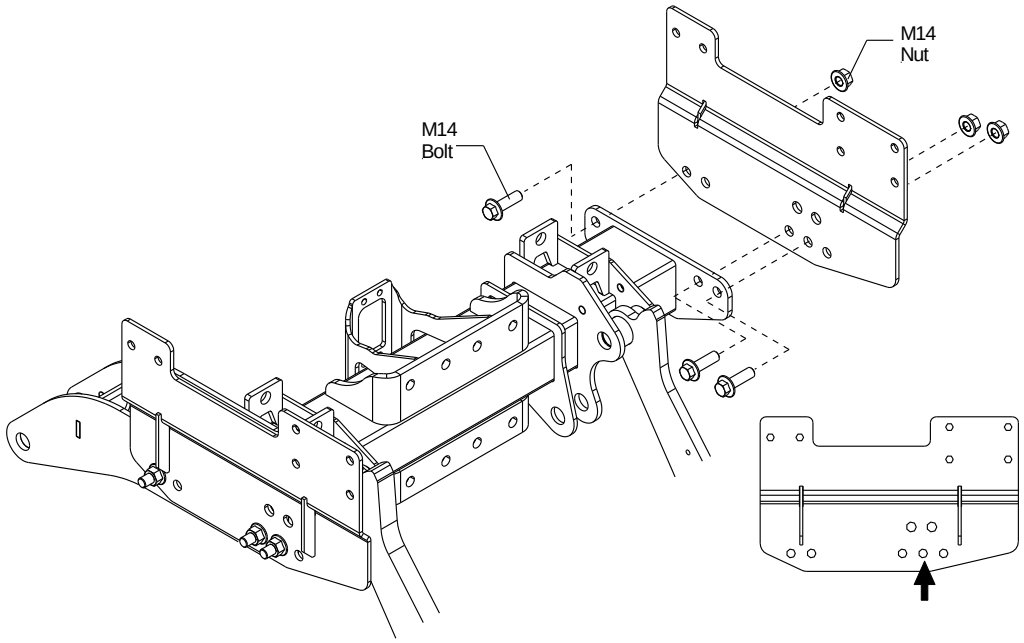


Torque Specifications

M12 – 55 ft./lbs. (75 Nm)

8.3.3 Liftgate Installation – Single Piece Platform Liftgate

1. Secure the MiniFix Mount Tube to the mounting brackets by bolting the sides of the mount tube to the side of the brackets with the six (3 each side) M14 hardware provided with the liftgate.

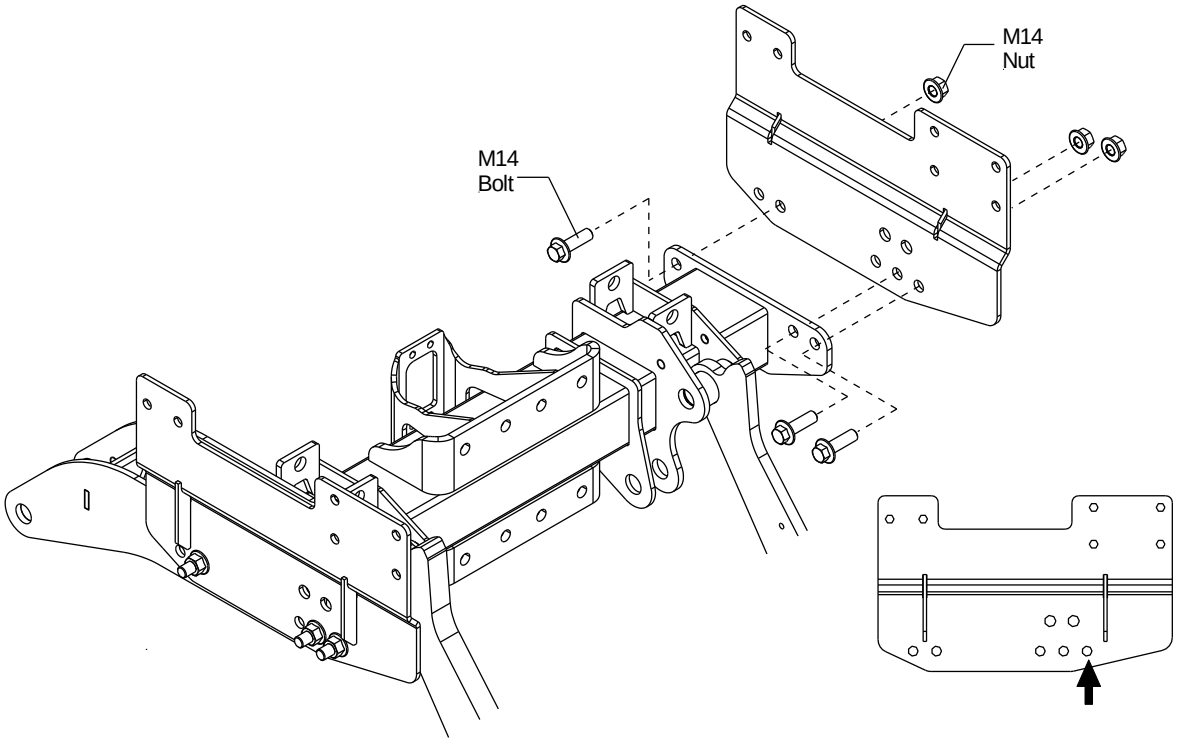


Torque Specifications

M14 – 129 ft./lbs. (175 Nm)

MERCEDES SPRINTER

8.3.4 Liftgate Installation – Two-Piece Platform Liftgate

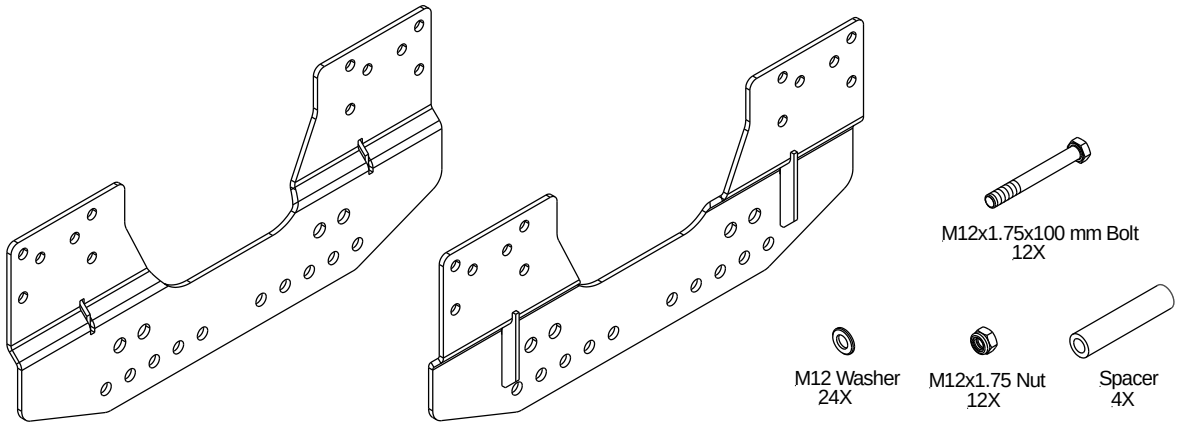


Torque Specifications

M14 – 129 ft./lbs. (175 Nm)

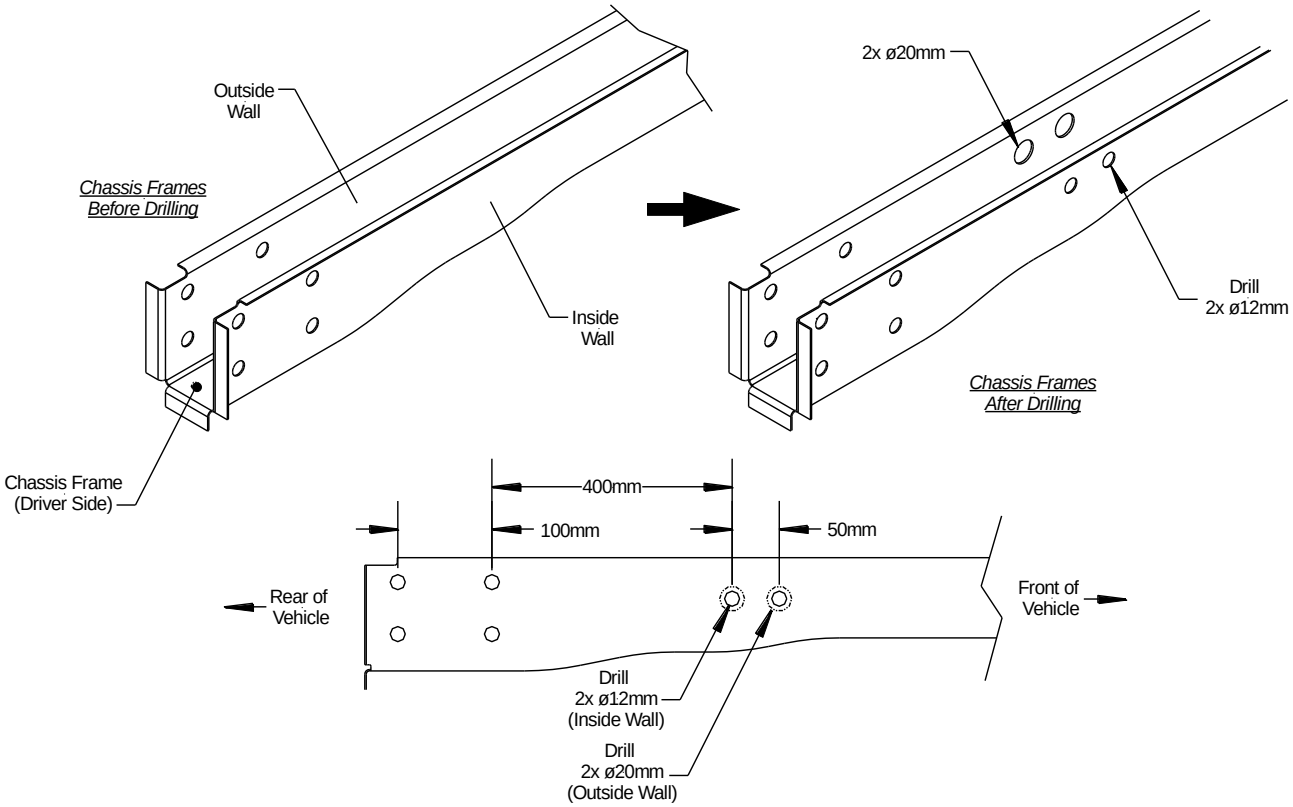
MERCEDES SPRINTER

8.4 Mounting Bracket Kit - 144”/170”/170” Ext. Wheelbase, 49”/64”/79” Overhang, Single/Dual Wheel (Vehicle Models <u>After</u> 2007) – P/N: 65-0915-008



8.4.1 Chassis Preparation

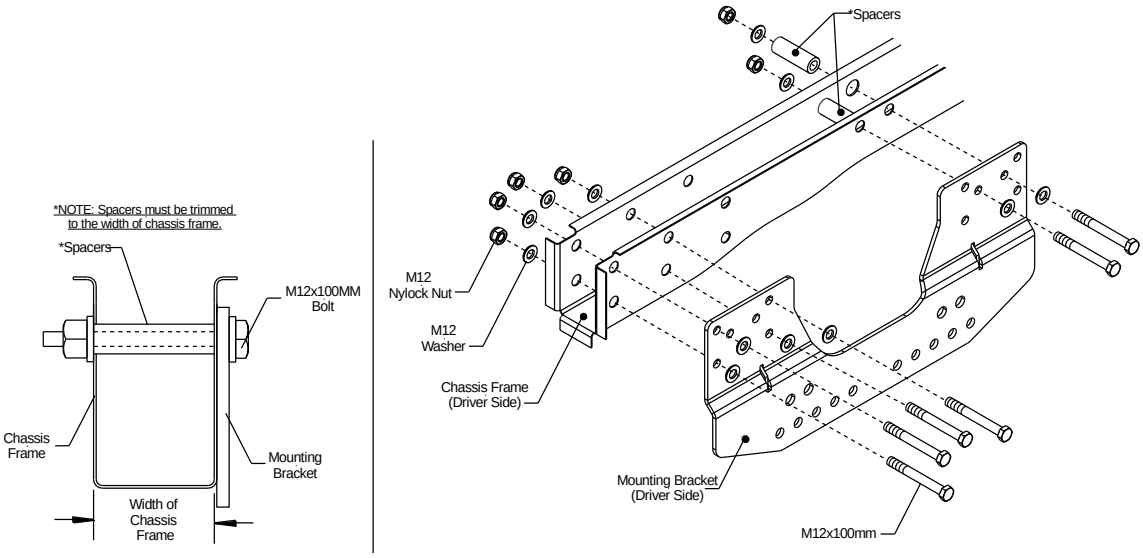
Attention: For precise drilling, use the mount plate bracket as a template to mark drilling locations. Driver side chassis frame shown below, repeat drill procedure on curb side.



*<u>Chassis Frame; Drill Dimensions
Side View</u>*

MERCEDES SPRINTER

8.4.2 Bracket Installation

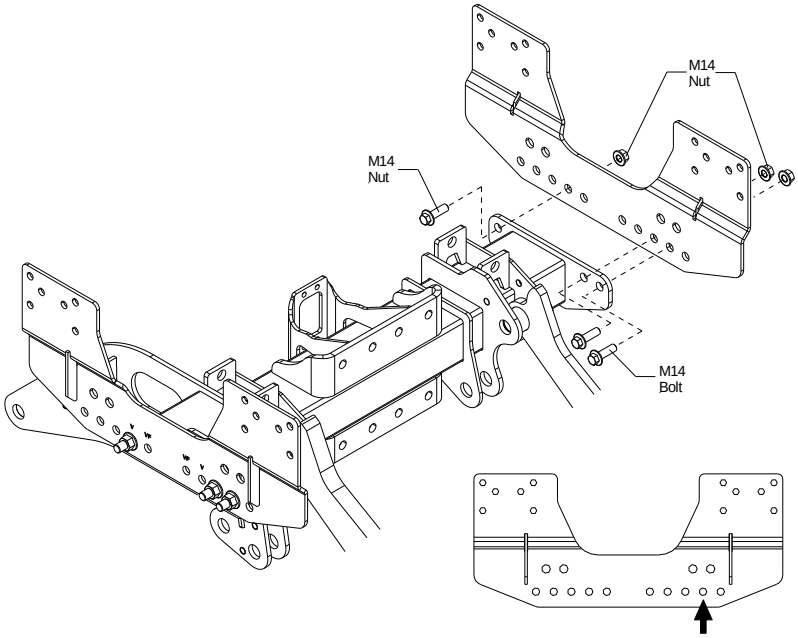


Torque Specifications

M12 – 55 ft./lbs. (75 Nm)

8.4.3 Liftgate Installation – Single Piece Platform Liftgate

1. Secure the MiniFix Mount Tube to the mounting brackets by bolting the sides of the mount tube to the side of the brackets with the six (3 each side) M14 hardware provided with the liftgate.

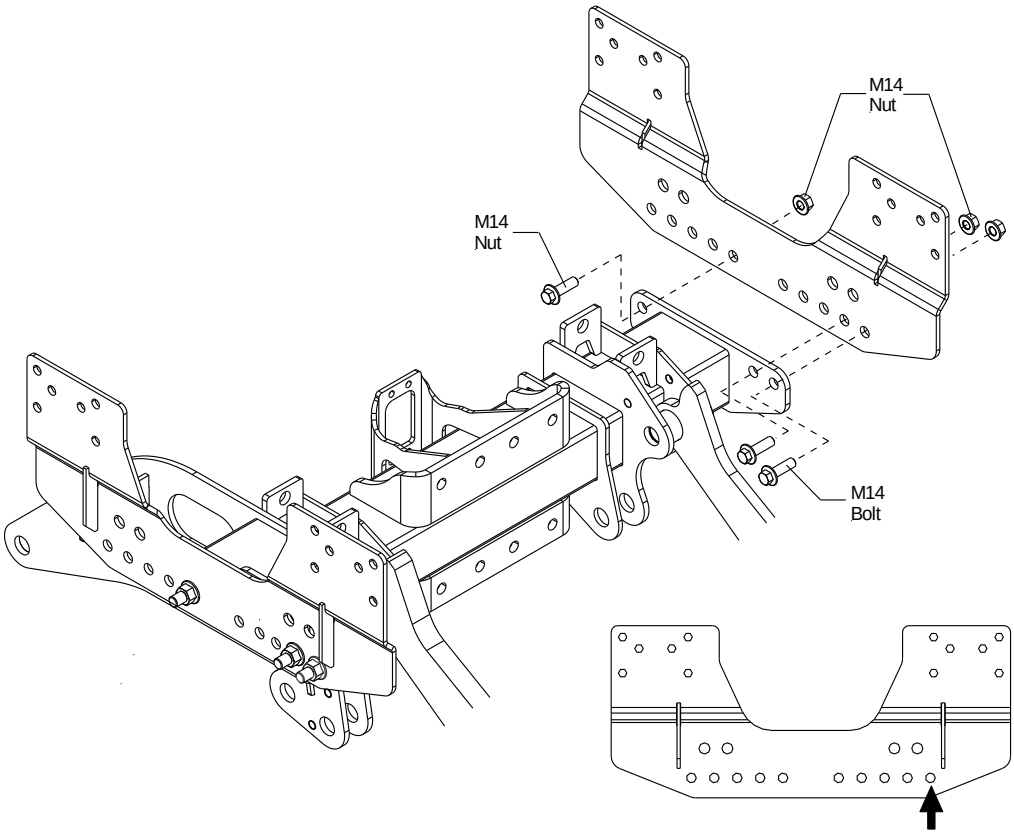


Torque Specifications

M14 – 129 ft./lbs. (175 Nm)

MERCEDES SPRINTER

8.4.4 Liftgate Installation – Two-Piece Platform Liftgate

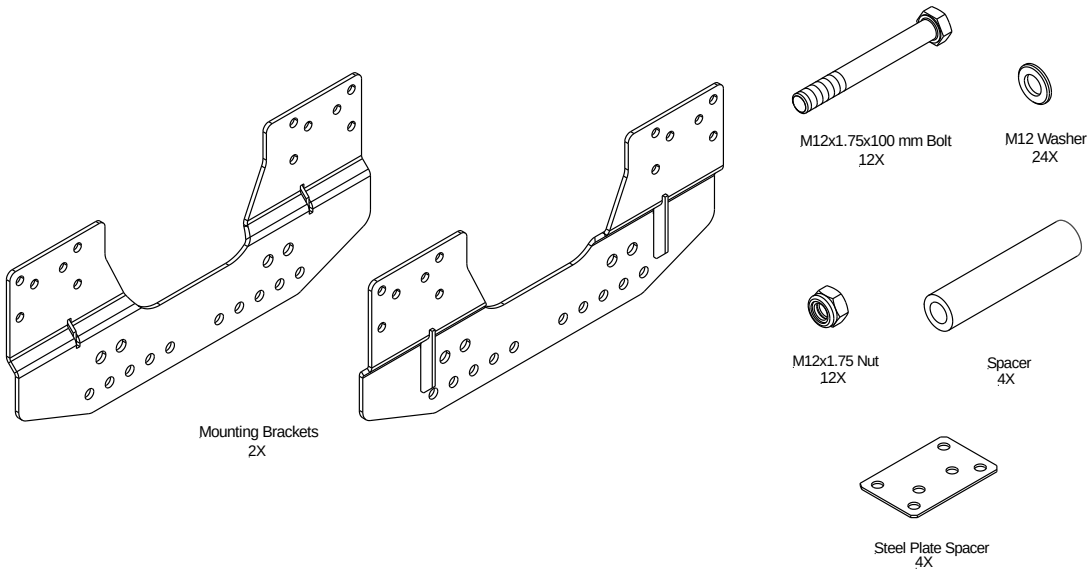


Torque Specifications

M14 – 129 ft./lbs. (175 Nm)

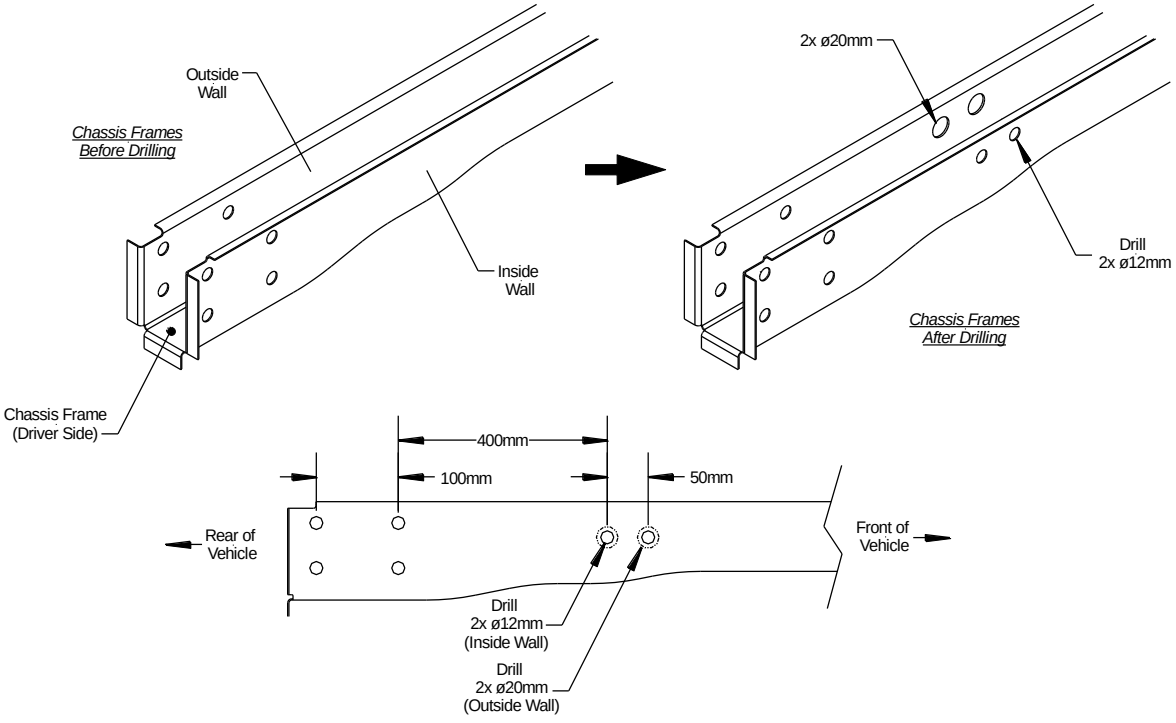
MERCEDES SPRINTER

8.5 Mounting Bracket Kit – 144”/170” Wheelbase, 49”/79” Overhang, Dual Wheel (Vehicle Models After 2007) – P/N: 65-0915-009



8.5.1 Chassis Preparation

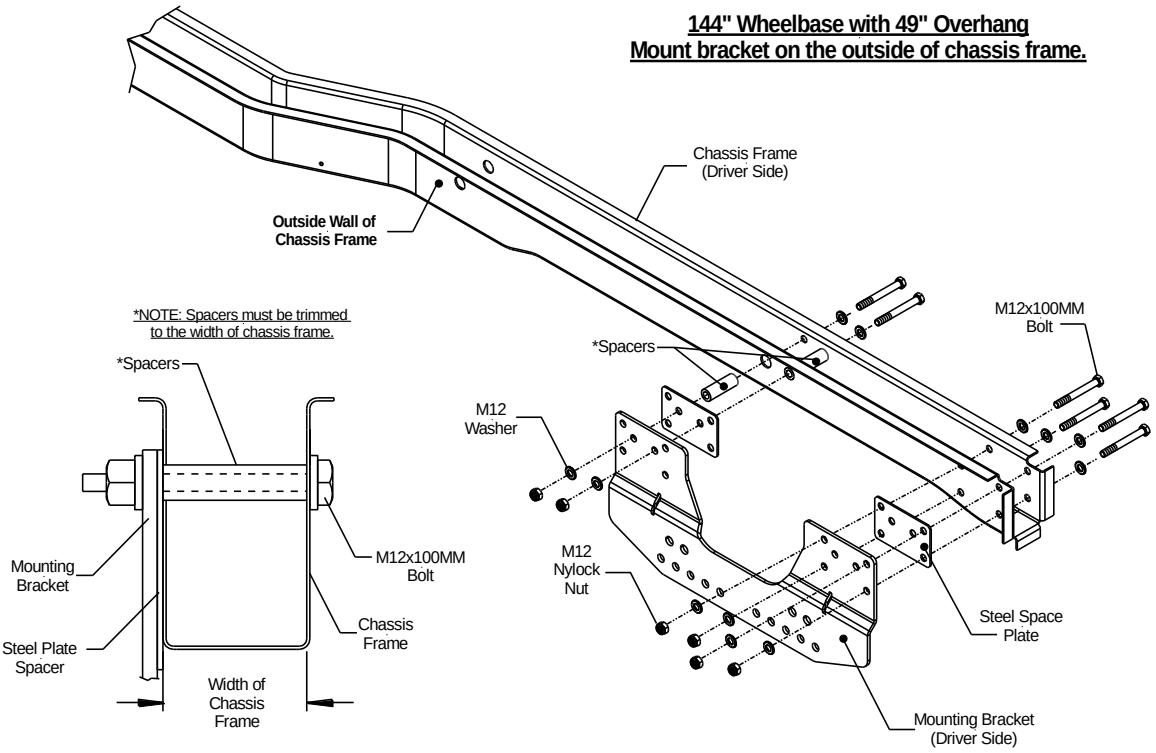
Attention: For precise drilling, use the mount plate bracket as a template to mark drilling locations. Driver side chassis frame shown below, repeat drill procedure on curb side.



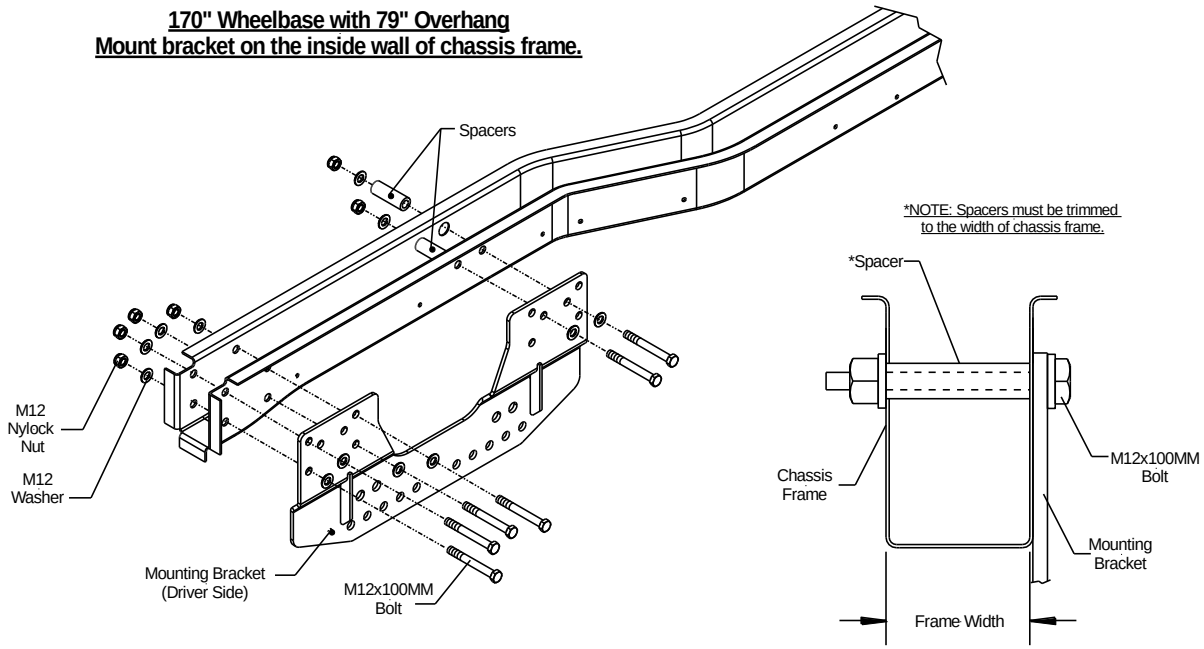
MERCEDES SPRINTER

8.5.2 Bracket Installation

144" Wheelbase with 49" Overhang
Mount bracket on the outside of chassis frame.



170" Wheelbase with 79" Overhang
Mount bracket on the inside wall of chassis frame.



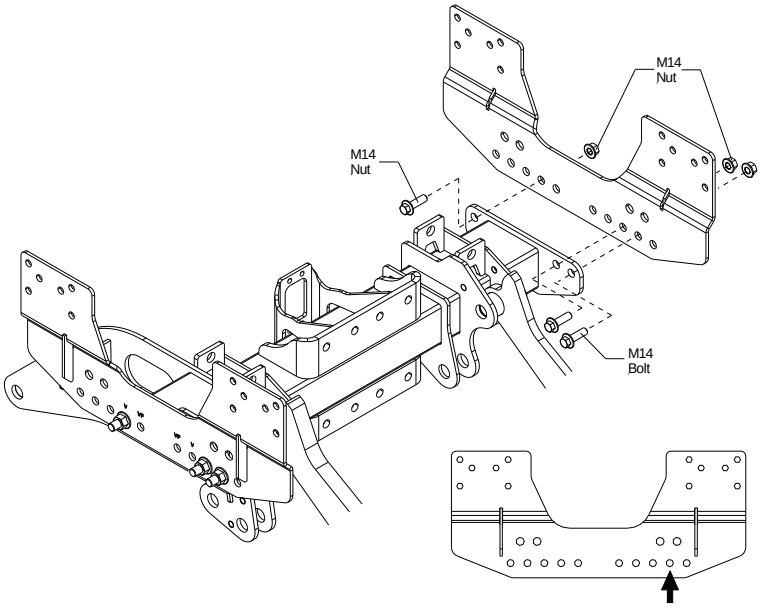
Torque Specifications

M12 – 55 ft./lbs. (75 Nm)

MERCEDES SPRINTER

8.5.3 Liftgate Installation – Single Piece Platform Liftgate

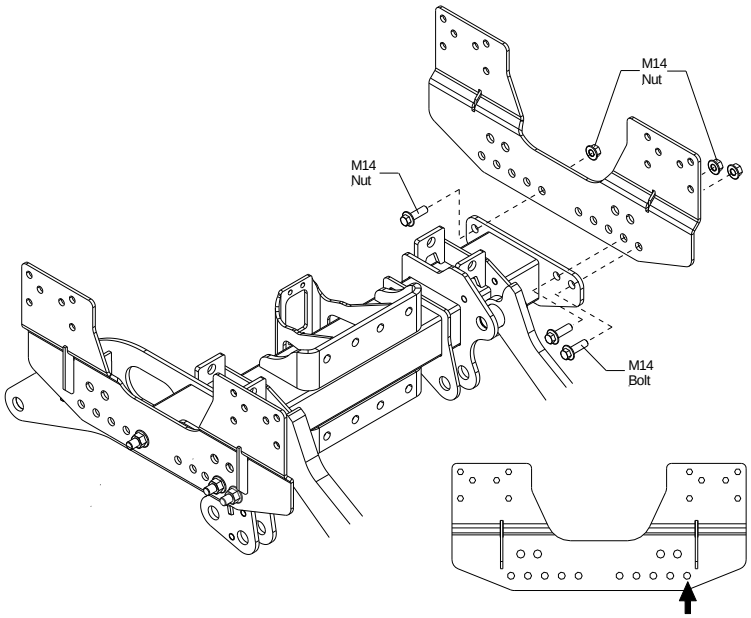
1. Secure the MiniFix Mount Tube to the mounting brackets by bolting the sides of the mount tube to the side of the brackets with the six (3 each side) M14 hardware provided with the liftgate.



Torque Specifications

M14 – 129 ft./lbs. (175 Nm)

8.5.4 Liftgate Installation – Two-Piece Platform Liftgate



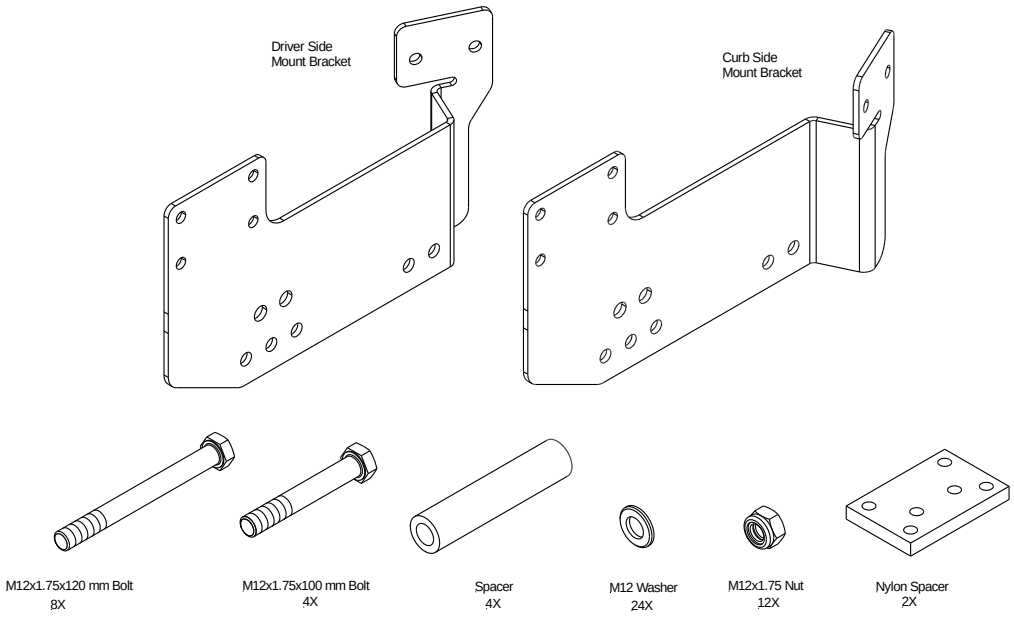
Torque Specifications

M14 – 129 ft./lbs. (175 Nm)

NOTES

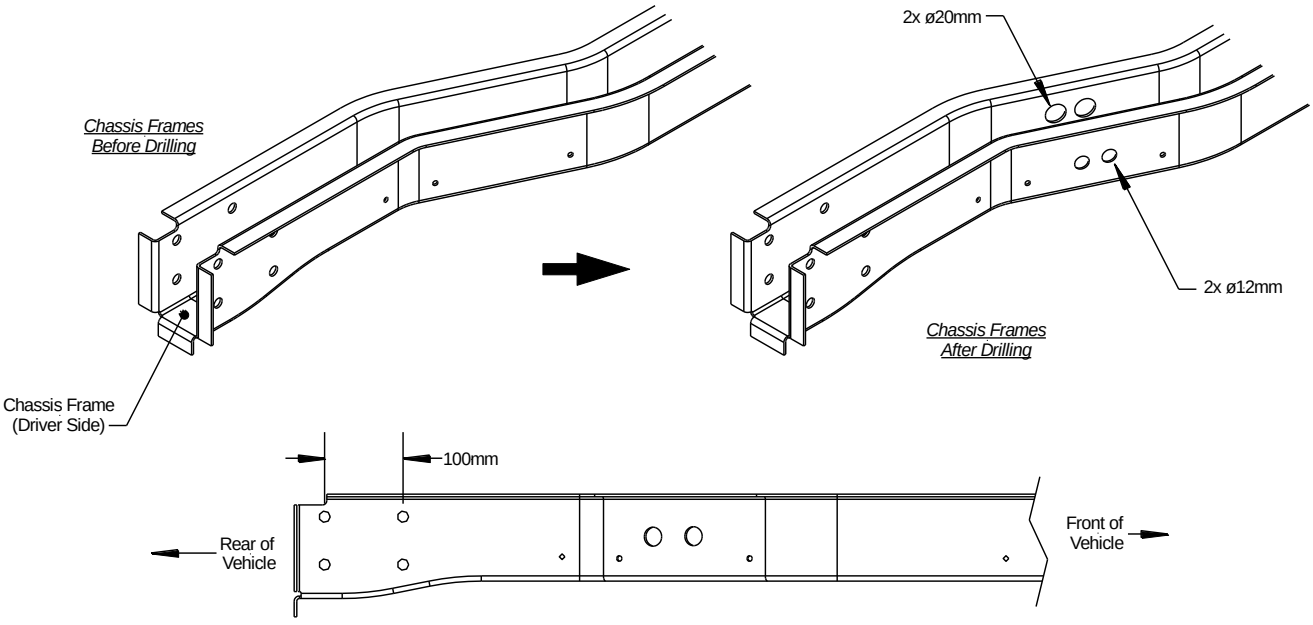
MERCEDES SPRINTER

8.6 Mounting Bracket Kit – 170" Wheelbase, Dual Wheel; 64" Overhang (Vehicle Models After 2007) – P/N: 65-0915-010



8.6.1 Chassis Preparation

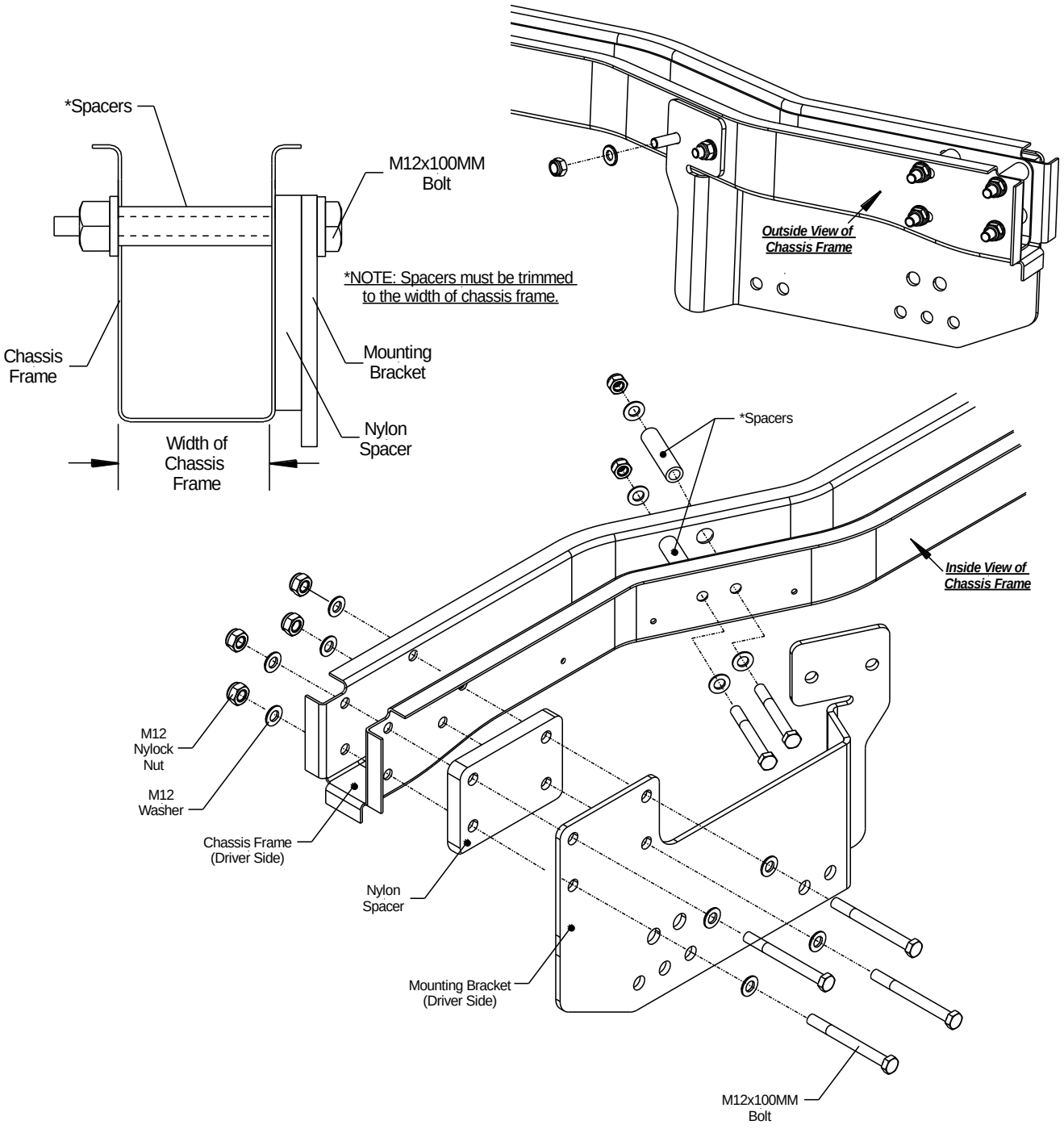
Attention: For precise drilling, use the mount plate bracket as a template to mark drilling locations. Driver side chassis frame shown below, repeat drill procedure on curb side.



Chassis Frame: Drill Dimensions
Side View

MERCEDES SPRINTER

8.6.2 Bracket Installation



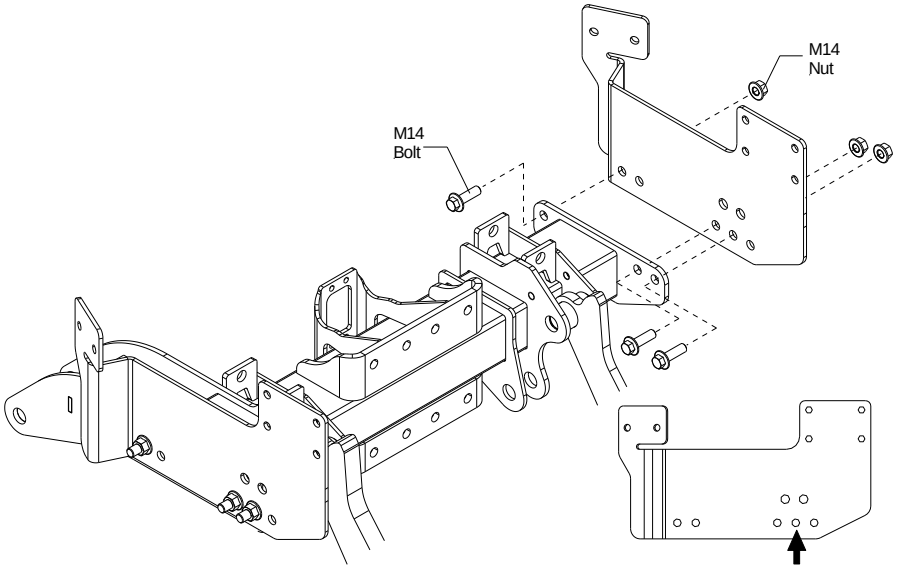
Torque Specifications

M12 – 55 ft./lbs. (75 Nm)

MERCEDES SPRINTER

8.6.3 Liftgate Installation – Single Piece Platform Liftgate

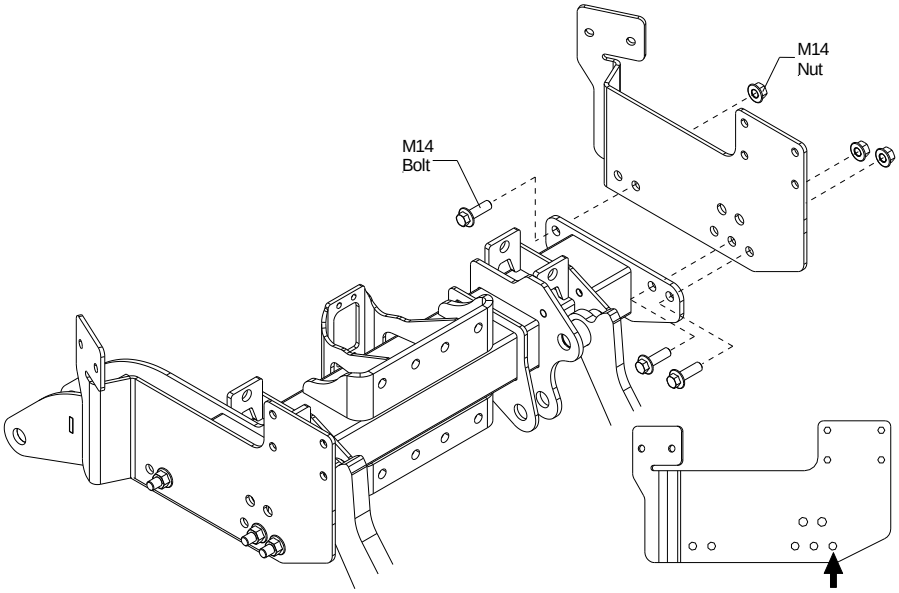
1. Secure the MiniFix Mount Tube to the mounting brackets by bolting the sides of the mount tube to the side of the brackets with the six (3 each side) M14 hardware provided with the liftgate.



Torque Specifications

M14 – 129 ft./lbs. (175 Nm)

8.6.4 Liftgate Installation – Two-Piece Platform Liftgate



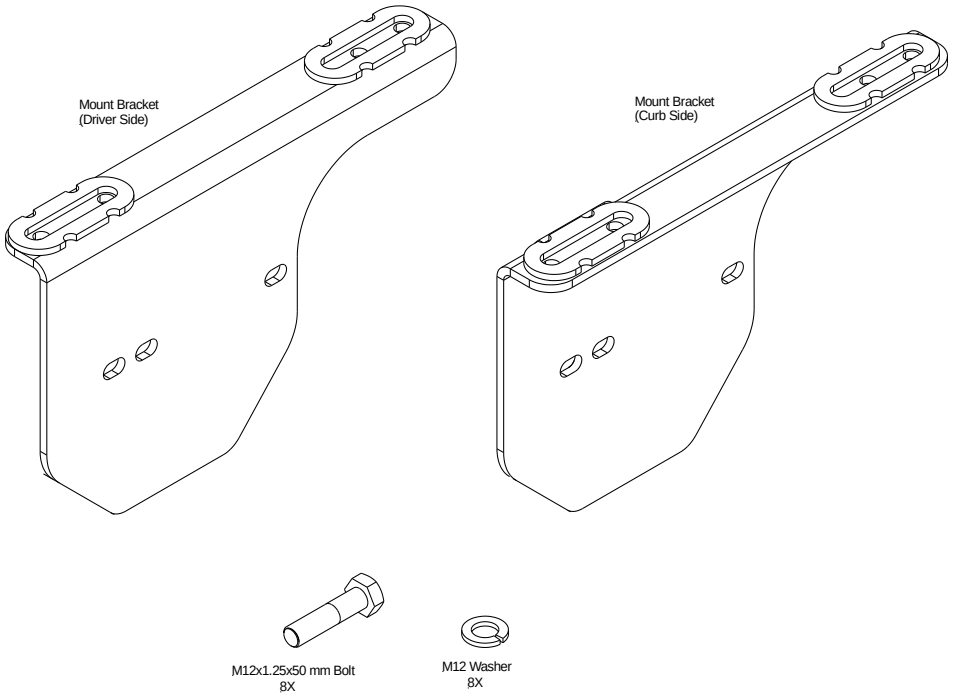
Torque Specifications

M14 – 129 ft./lbs. (175 Nm)

NISSAN NV

8.7 Nissan NV Vehicles

8.7.1 Mounting Bracket Kit – Wheelbase 146“ – P/N: 65-0915-014



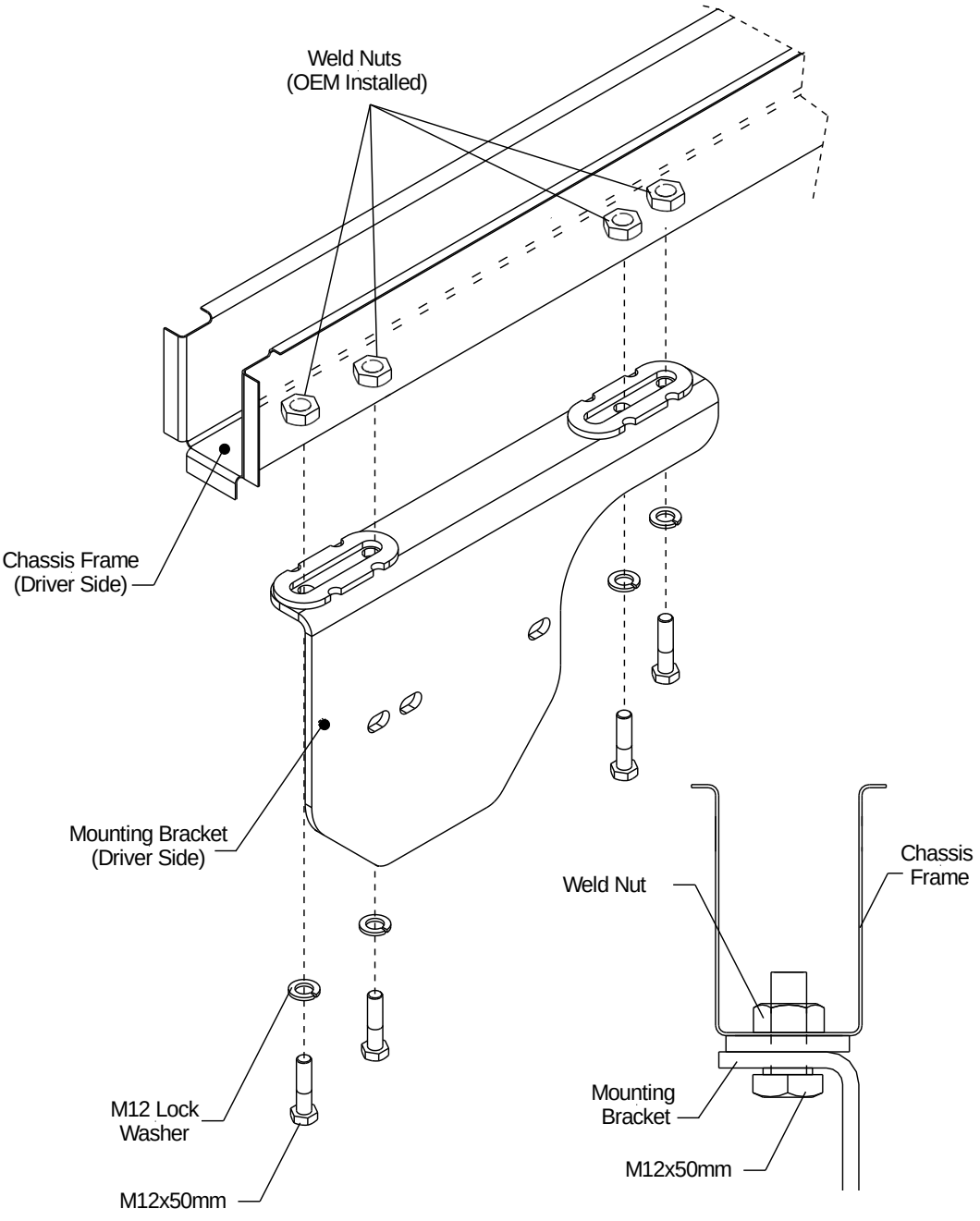
8.7.2 Chassis Preparation

For all vehicle modification, reference the manufacturer’s manual.

1. Remove the hitch, if applicable. When removing OEM equipment, reference the vehicles manufactures manuals.
2. The chassis frames are equipped with preinstalled threaded nuts on the each frame. Verify the nuts are in place prior to beginning installation.

NISSAN NV

8.7.3 Bracket Installation

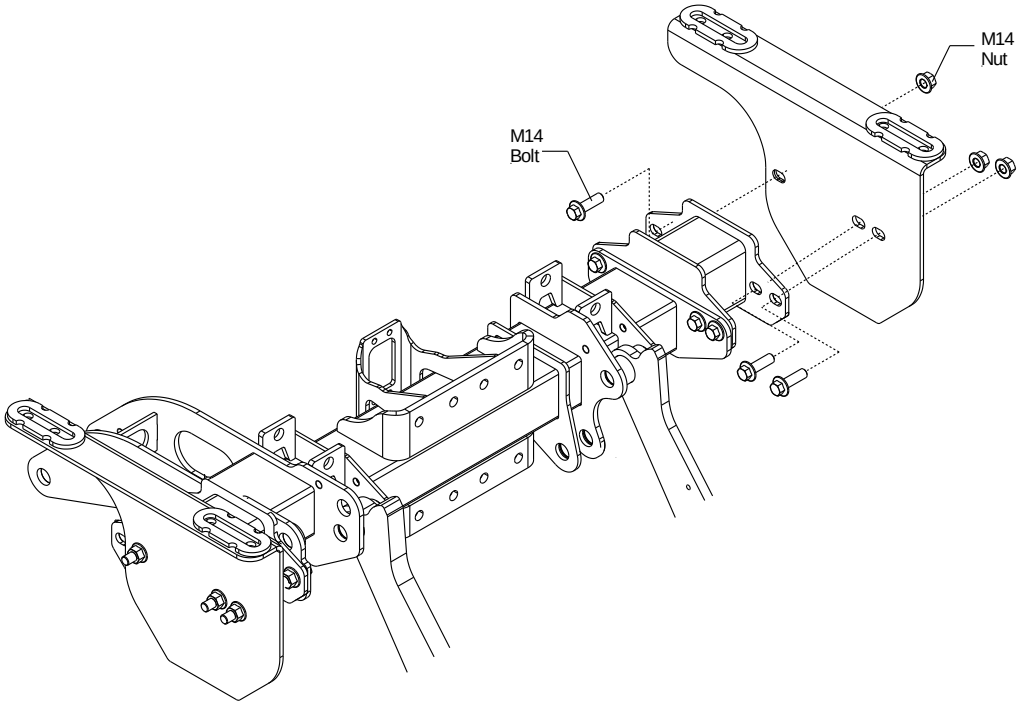


Torque Specifications

M12 – 55 ft./lbs. (75 Nm)

NISSAN NV

8.7.4 Liftgate Installation



Torque Specifications

M14 – 81 ft./lbs. (110 Nm)

DODGE PROMASTER

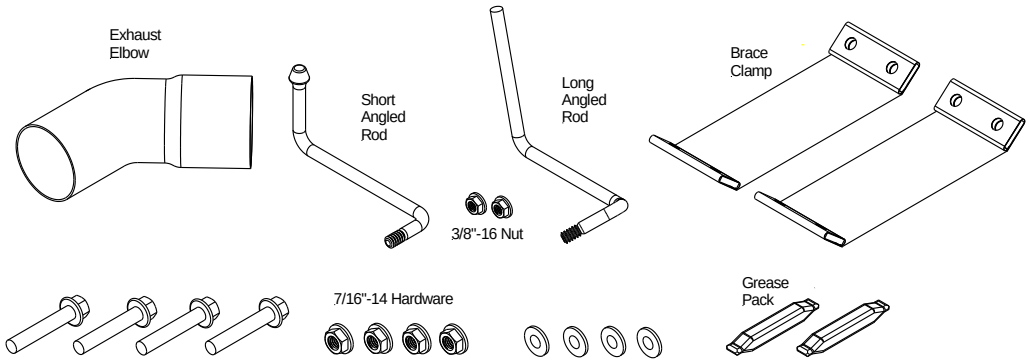
8.8 Dodge Promaster Vehicles

NOTICE

Special Notes on installs of the MiniFix liftgate on <u>Dodge Promaster Vans</u>:

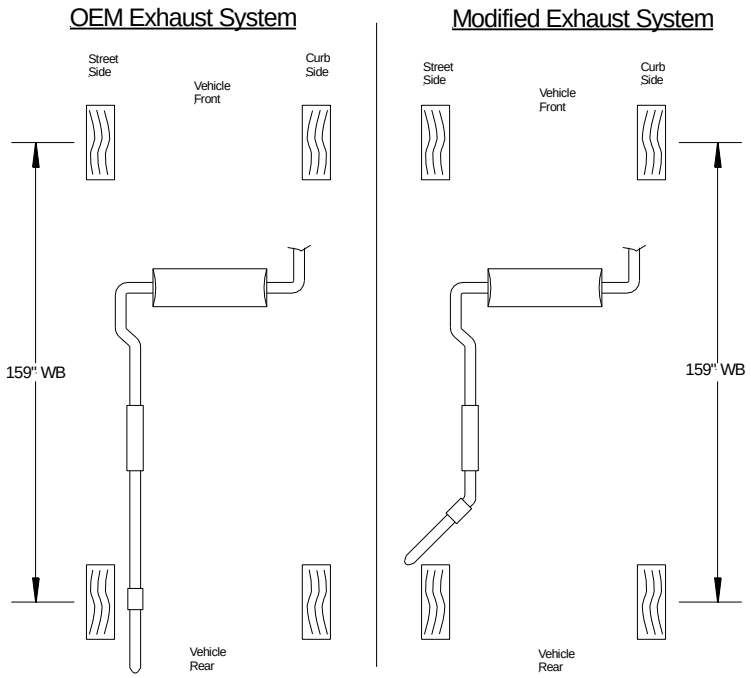
1. **All gates will be mounted in the same location as spare tire. Space inside van will be required for spare tire.**
2. **Vehicles exhaust system will require modification.**

8.8.1 Exhaust Modification Kit – 159“ Wheelbase P/N: 60-0914-000



8.8.2 Exhaust Modification

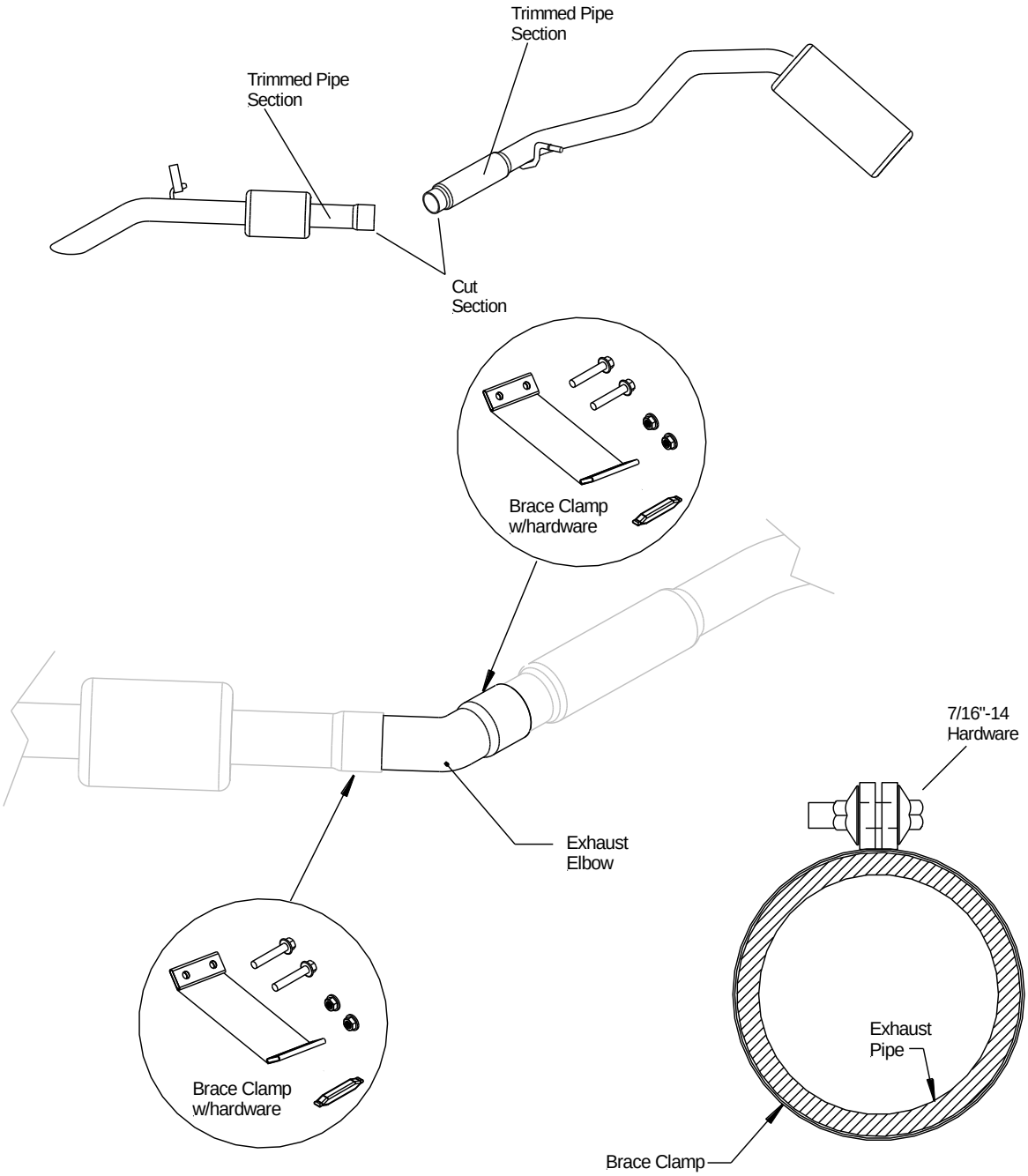
1. Remove the exhaust from the vehicle. Do not cut or remove any mounting components that are attached to the exhaust.



<u>Top View of Vehicle</u>

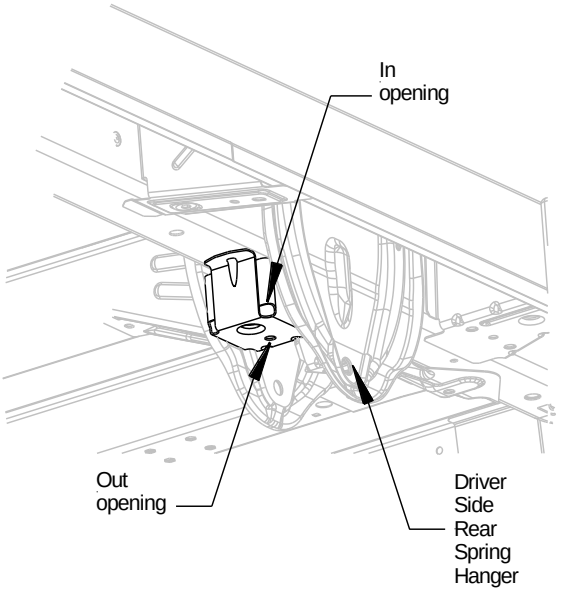
DODGE PROMASTER

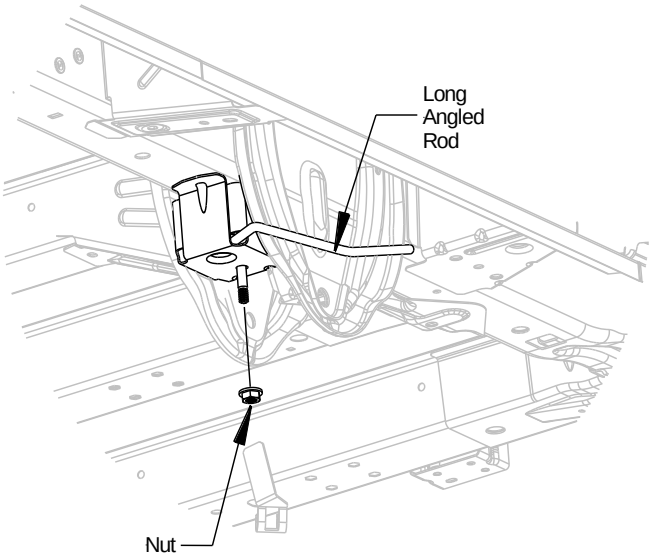
2. Cut section of exhaust as shown below. Replace the cut section of the exhaust with the Exhaust Elbow. Use the 7/16“-14 Hardware, Brace Clamps, and grease packs to fasten the Exhaust Elbow and the trimmed exhaust pipes in the two indicated areas below. Wrap the Brace Clamp around the pipe and tighten with the provided bolts and nuts.

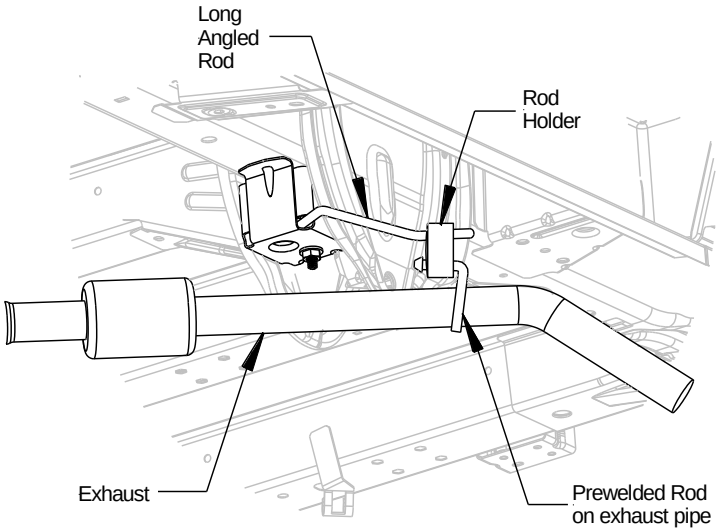


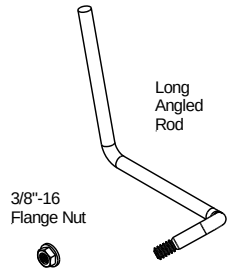
DODGE PROMASTER

3. Mount the modified exhaust back onto the vehicle. Maneuver the threaded end of the long angled rod through the In opening shown below until the threaded end is out through the Out opening. Hand tighten the 3/8” nut. The long angled rod should reach the rod holder located on the exhaust. Insert the other end of the rod through the top hole of the rod holder. Tighten the 3/8” nut when exhaust is in place.



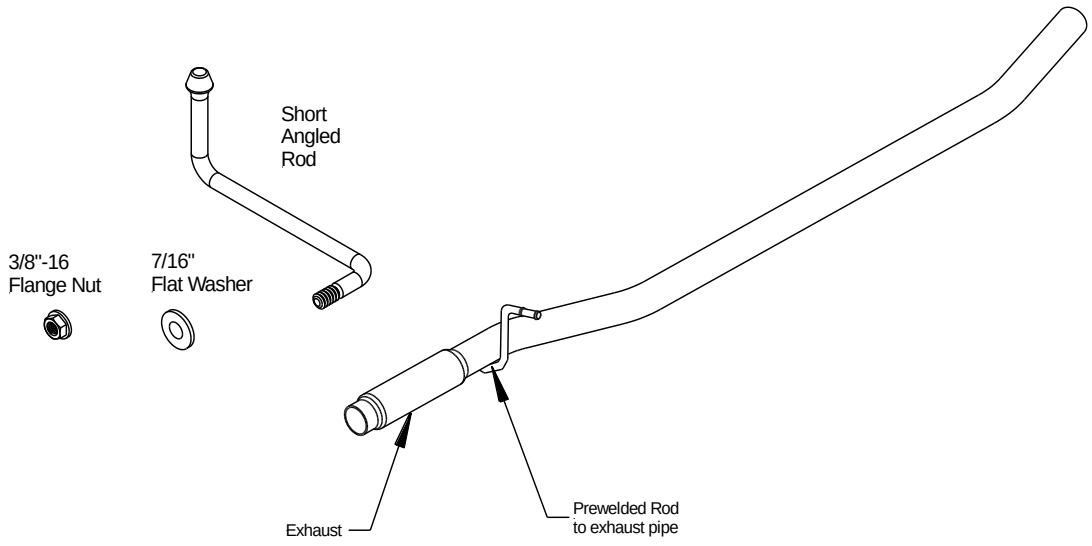


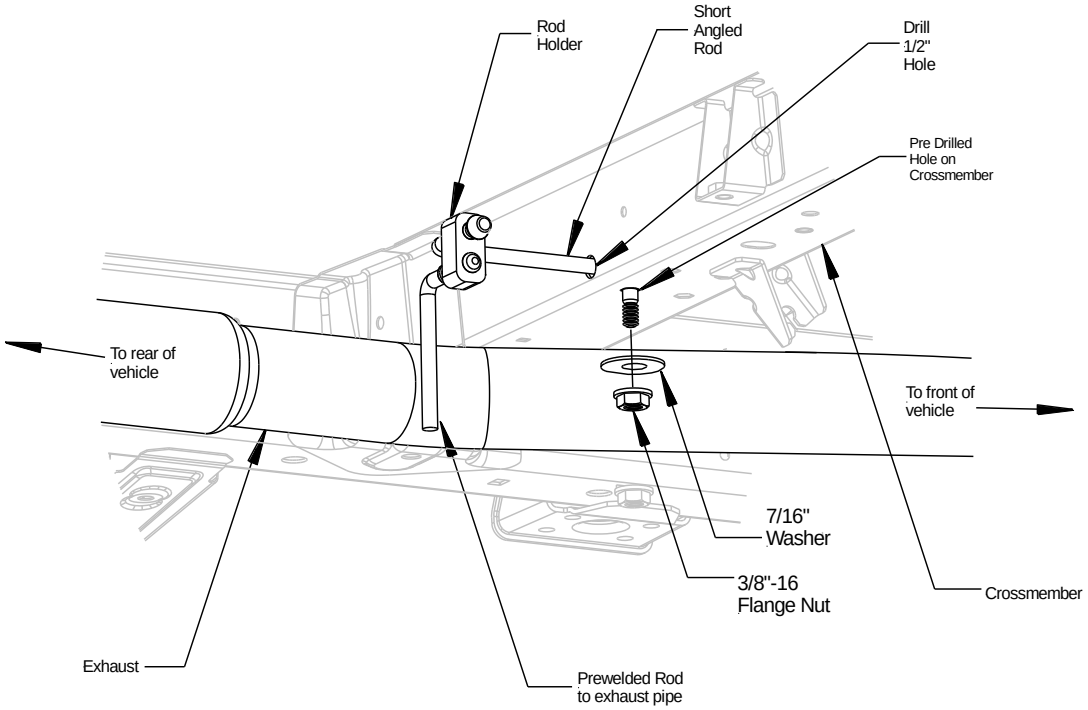




DODGE PROMASTER

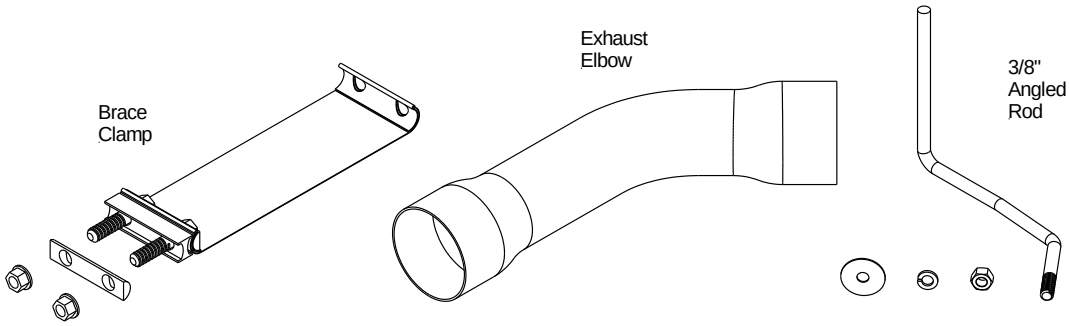
4. **If necessary**, the short angled rod will be installed on the longer piece of exhaust. The longer piece of exhaust also has a pre-welded rod with a rod holder attached. Drill a ½“ hole on the side of the cross member. Maneuver the short-angled rod through the ½ “drilled hole and out the pre-drilled punched holes on the cross member. Secure the short angled rod to the cross member with the 7/16” washer and 3/8” nut.





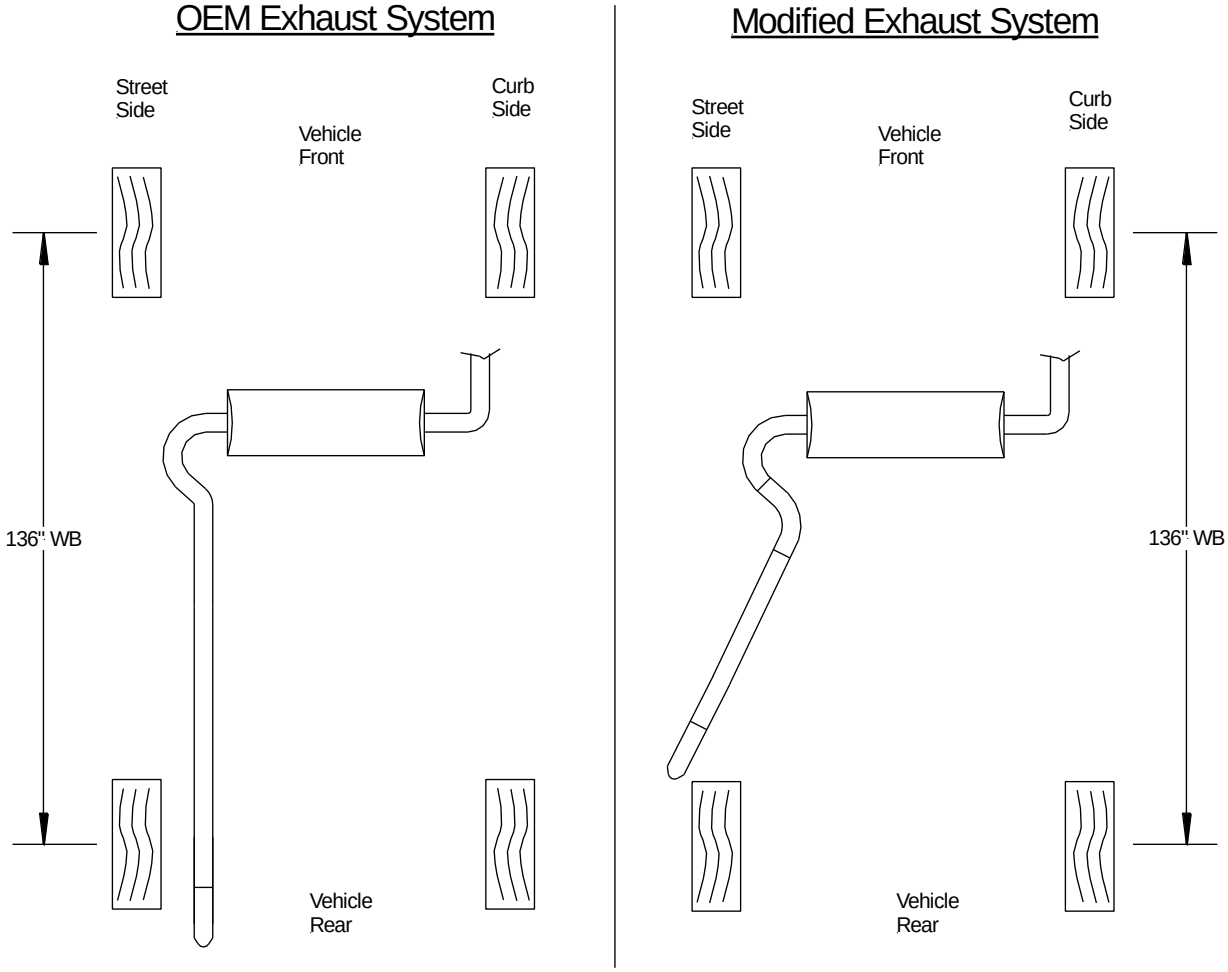
DODGE PROMASTER

8.8.3 Exhaust Modification Kit – 136“ Wheelbase - P/N: 60-0916-000



8.8.4 Exhaust Modification

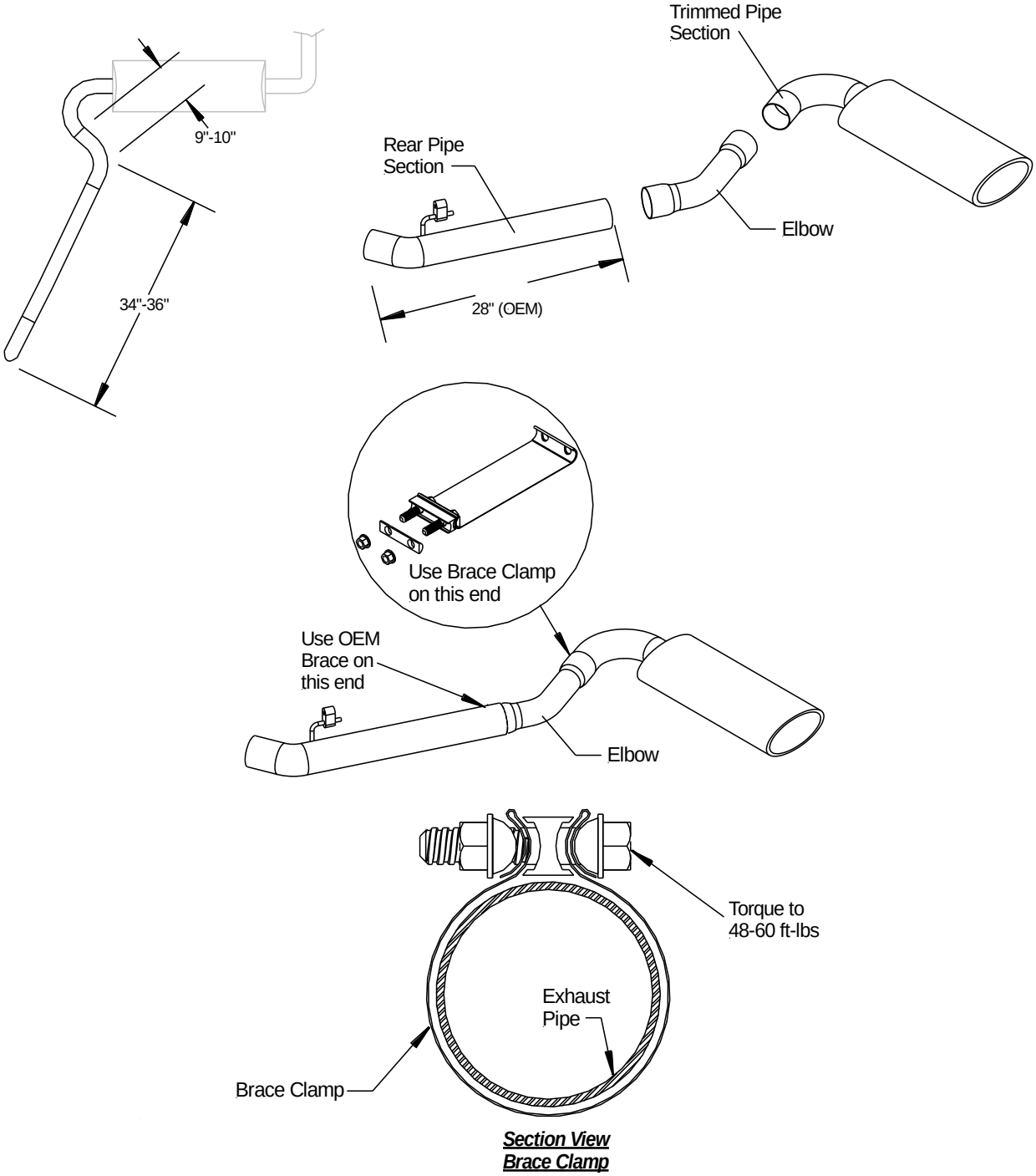
1. Remove the exhaust from the vehicle. Do not cut or remove any mounting components that are attached to the exhaust.



Top View of Vehicle

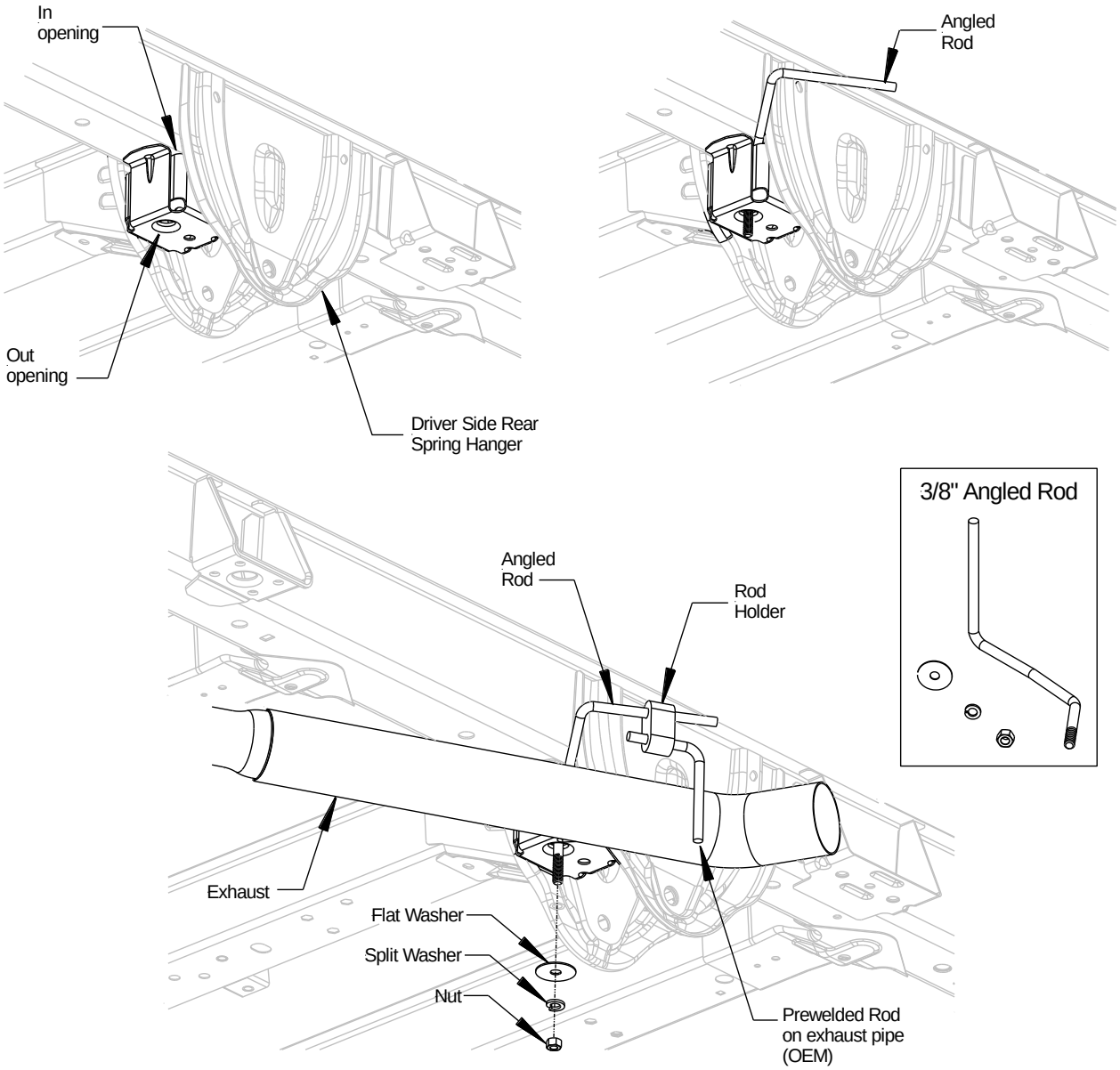
DODGE PROMASTER

2. Cut section of exhaust as shown below. Replace the cut section of the exhaust with the Exhaust Elbow. Use the Brace Clamp to fasten one end of the Exhaust Elbow and the trimmed exhaust pipes in the two indicated areas below. Wrap the Brace Clamp around the pipe and tighten with the provided bolts and nuts.



DODGE PROMASTER

3. Mount the modified exhaust back onto the vehicle. Maneuver the threaded end of the long-angled rod through the In opening shown below until the threaded end is out through the Out opening. Hand tighten the 3/8” nut. The long angled rod should reach the rod holder located on the exhaust. Insert the other end of the rod through the top hole of the rod holder. Tighten the 3/8” nut when exhaust is in place.

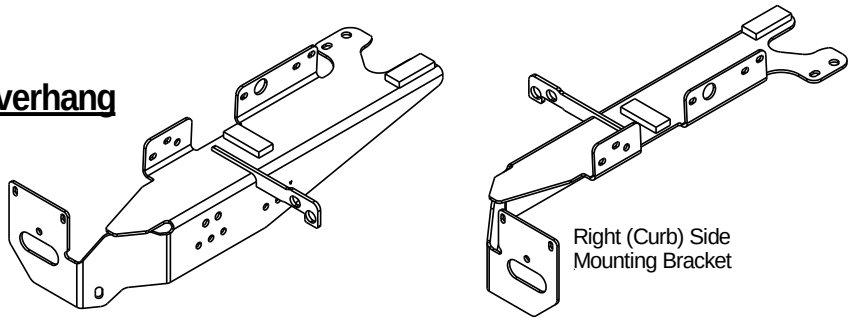


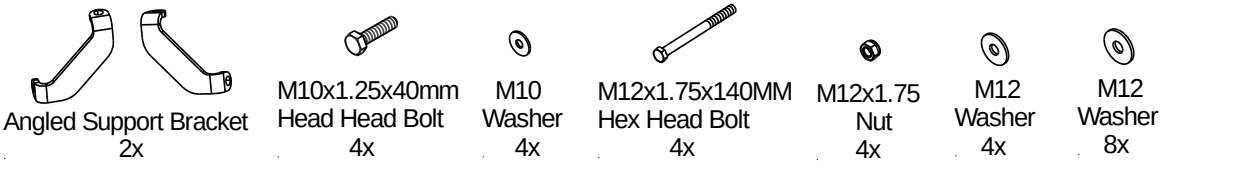
NOTES

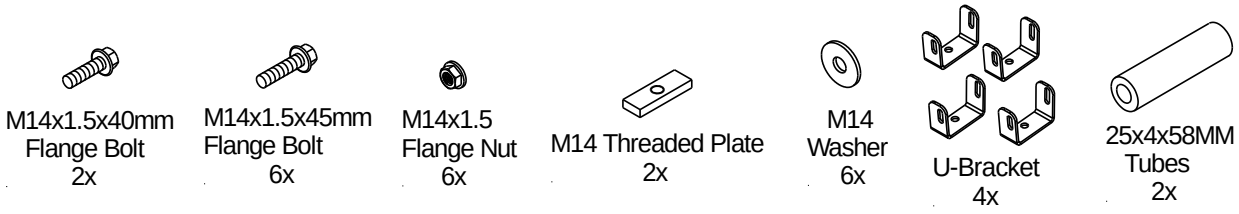
DODGE PROMASTER

8.8.5 Mounting Kits

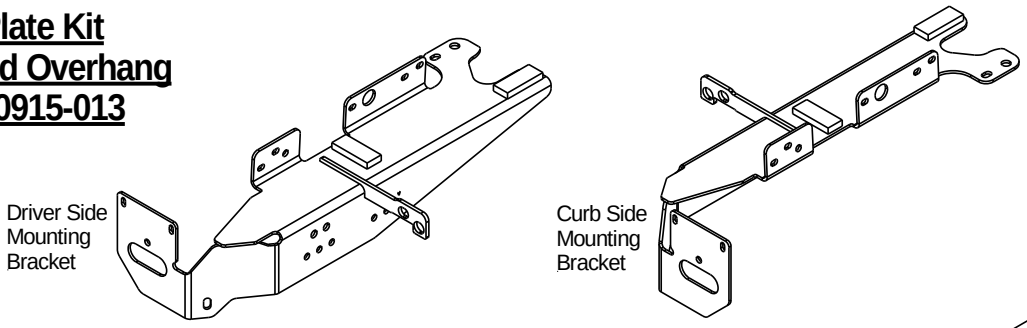
Mount Plate Kit
Non-Extended Overhang
P/N: 65-0915-012

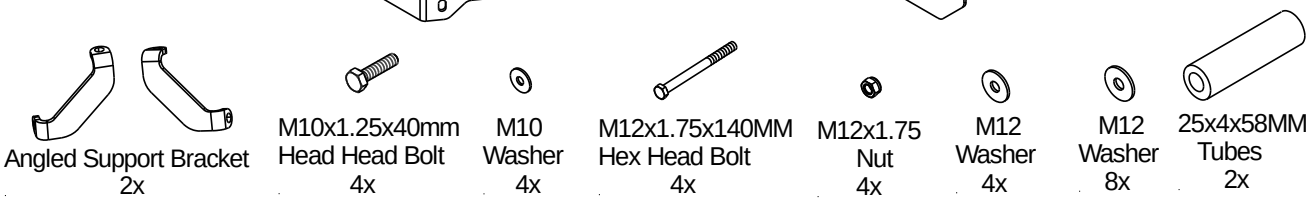


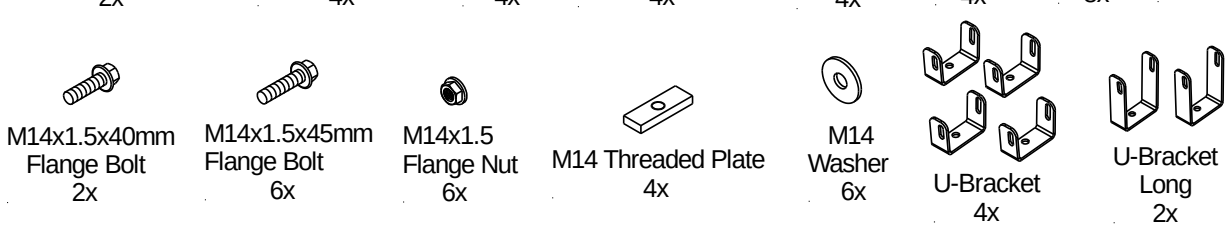




Mount Plate Kit
Extended Overhang
P/N: 65-0915-013



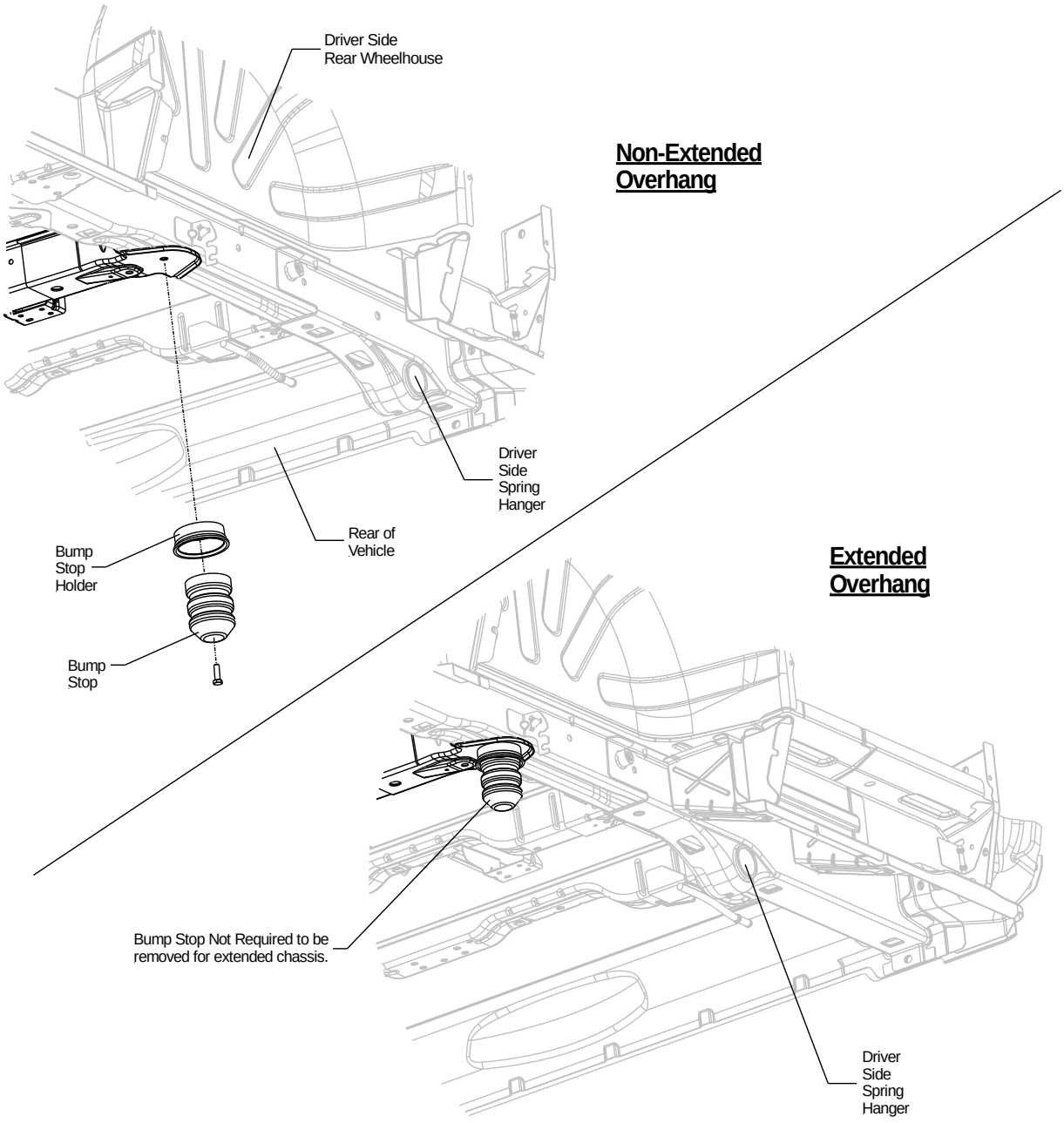




DODGE PROMASTER

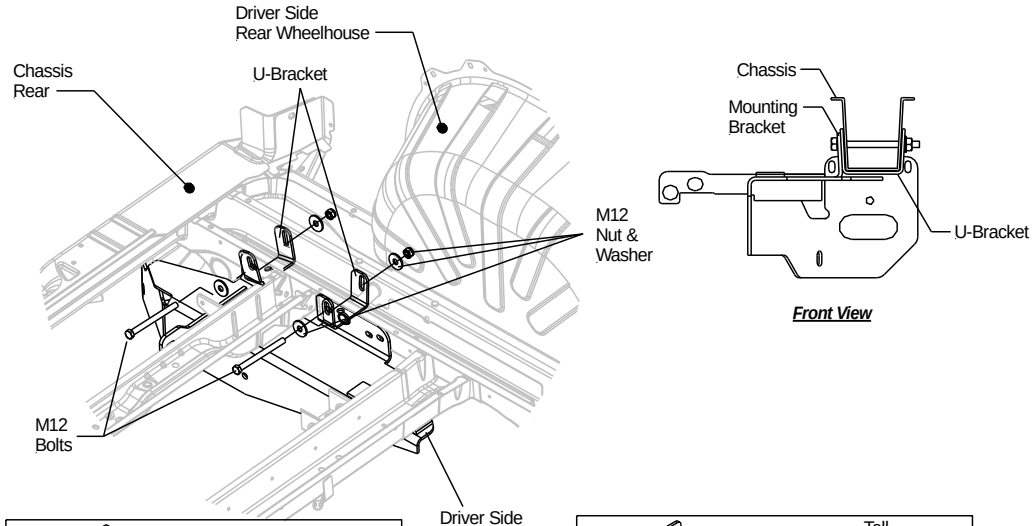
8.8.6 Bracket Installation

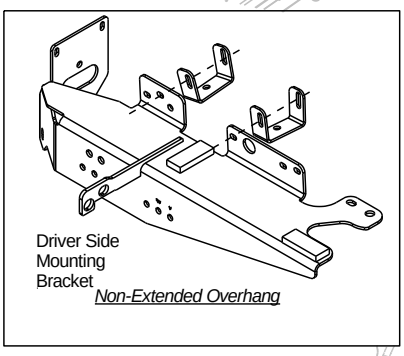
1. Remove the rear plastic center bumper from the vehicles body. See the vehicle manufactures documentation for removal of the bumper.
2. On a non-extended overhang, remove the bump stop holder and the bump stop from the chassis. Do not discard the bump stop and holder, these components will be re-installed later. For an extended overhang, the bump stop **is not** required to be removed for installation.

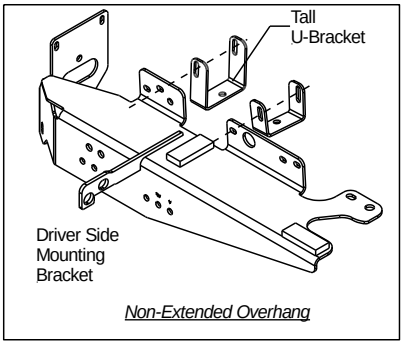


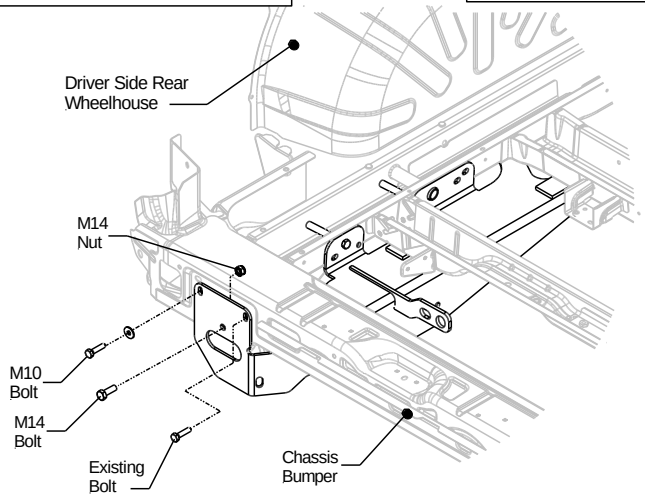
DODGE PROMASTER

3. Install the mounting brackets as shown below. Use the M10 and M12 hardware to secure the components to the chassis. Do not tighten completely until instructed to do so in this manual. Use the tall U-bracket on the rear of the mounting bracket for an extended overhang.









Torque Specifications

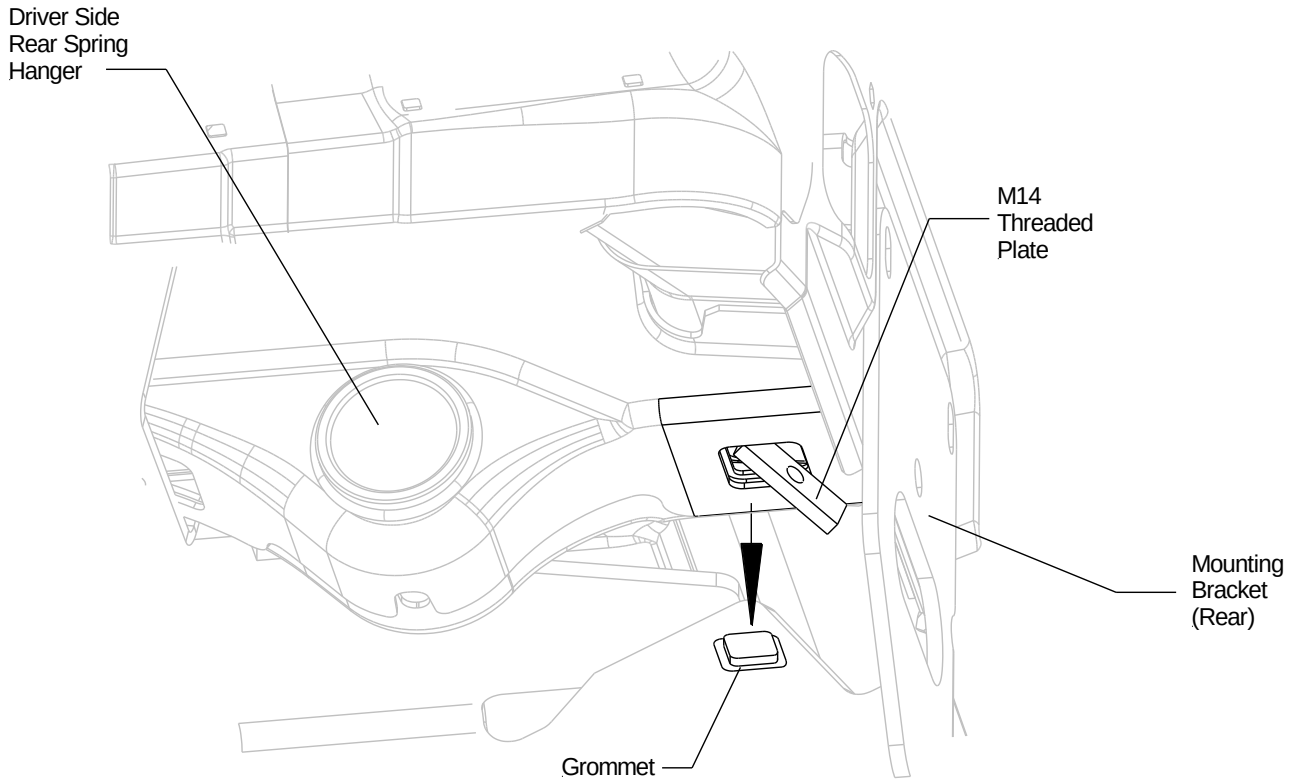
M10 – 44 ft./lbs. (60 Nm)

M12 – 59 ft./lbs. (80 Nm)

M14 – 92 ft./lbs. (125 Nm)

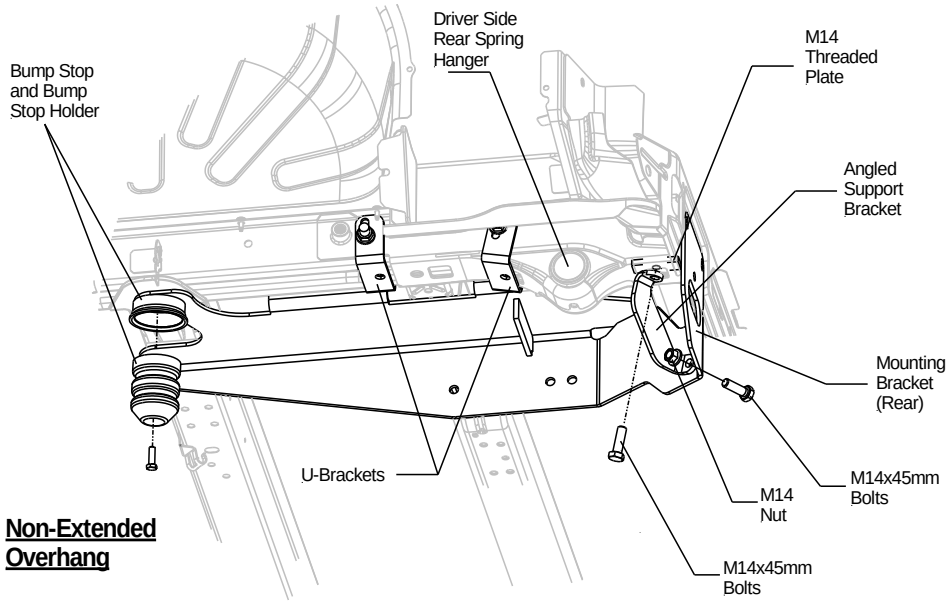
DODGE PROMASTER

4. To install the Angled Support Bracket begin by removing the grommet located to the right of the spring hanger. Slide the Threaded Plated in through the opening.

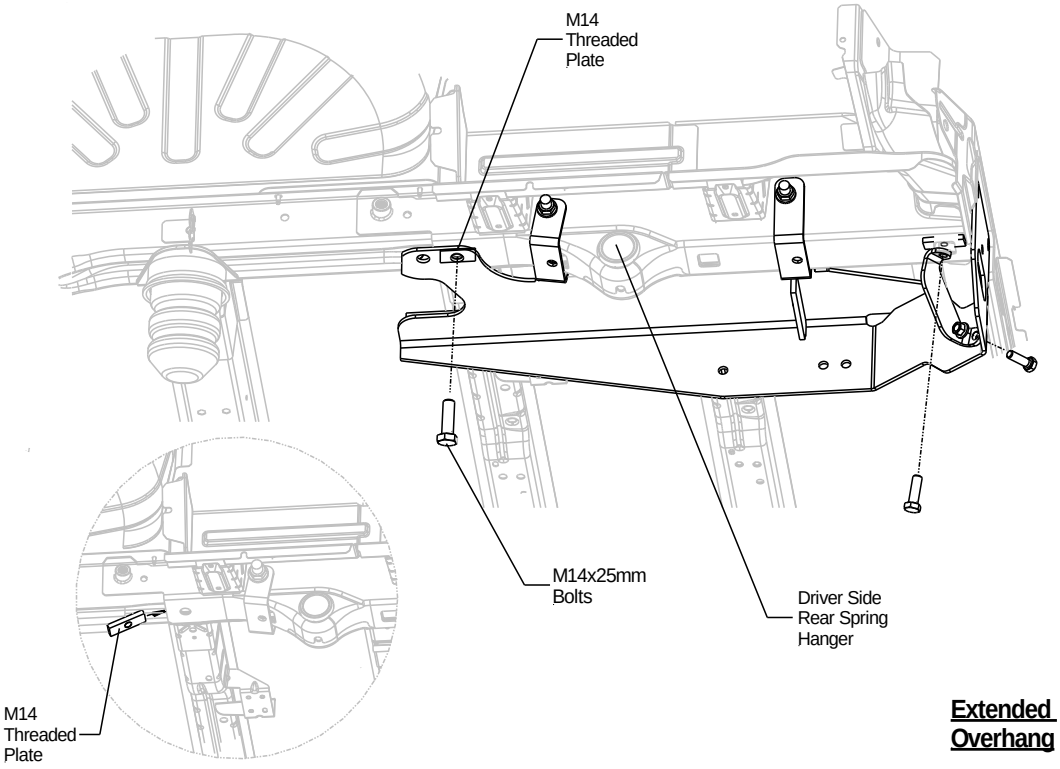


DODGE PROMASTER

5. Finalize the bracket mounting installation on the non-extended overhang by installing the bump stop holder and bump stop back to its original position wedging the mount bracket between the chassis and bump stop. For an extended overhang, install the threaded plate into the chassis channel to secure the front of the mount bracket.



Non-Extended Overhang



Extended Overhang

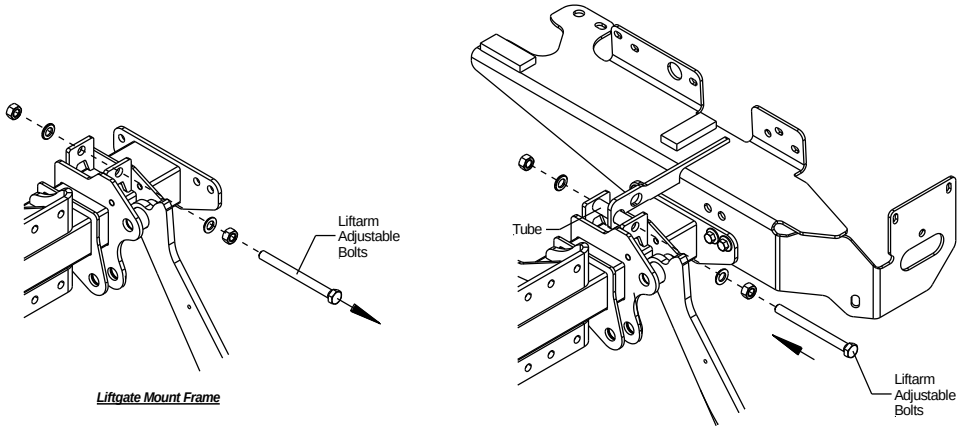
Torque Specifications

M14 – 92 ft./lbs. (125 Nm)

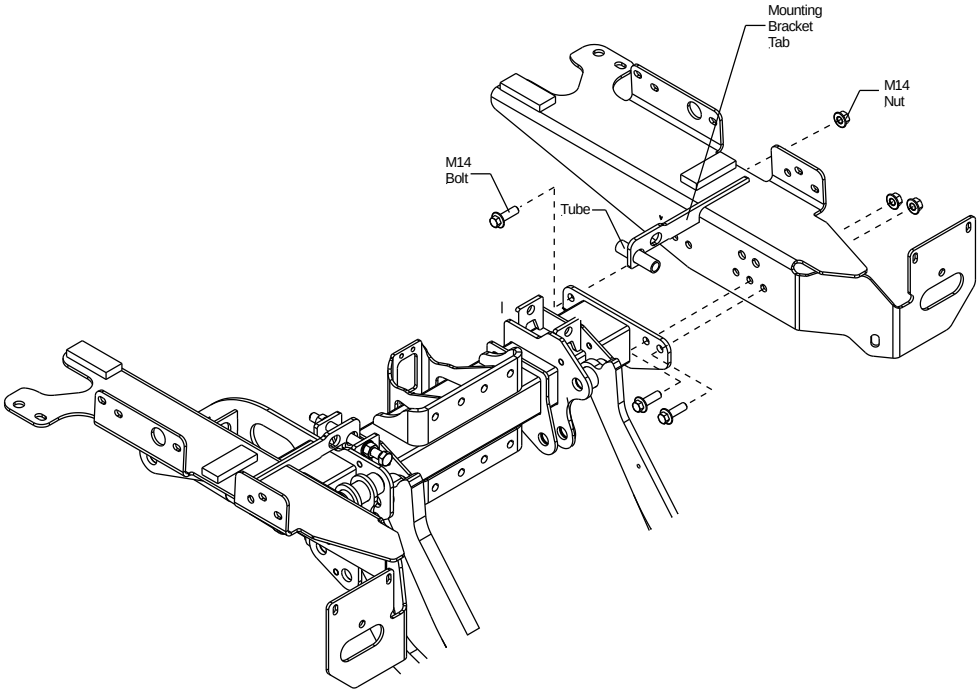
DODGE PROMASTER

8.8.7 Liftgate Installation

1. Remove the liftarm bolts and nuts which are preinstalled on the liftgates mount frame. Add one of the provided tubes through the Mounting Bracket Tab. Align the Mounting Bracket Tab and tube with the liftarm adjustable bolts holes and re-insert the bolt and nut wedging the mounting bracket tab between the bolts and the mount tube.
2. Finish securing the mount tube to the mounting brackets by bolting the sides of the mount tube to the side of the brackets with the six M14 bolts and nuts provided with the liftgate. Verify the mount tube is squared vertically and horizontally.



Liftgate Mount Frame



Torque Specifications

M20 – 133 ft./lbs. (180 Nm)

M14 – 92 ft./lbs. (125 Nm)

9 Electrical Installation

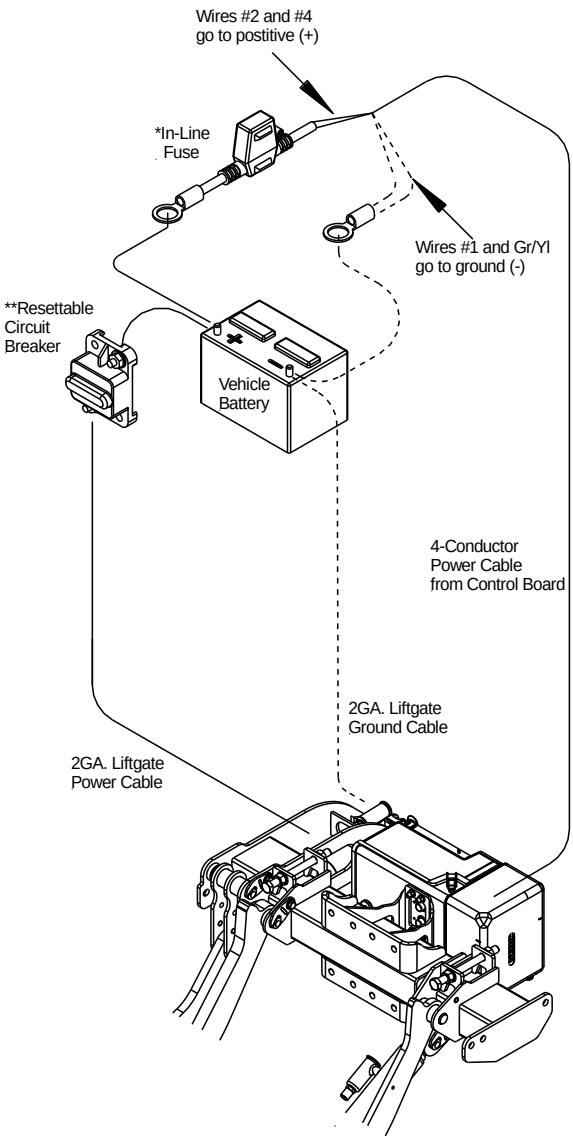
⚠ WARNING

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

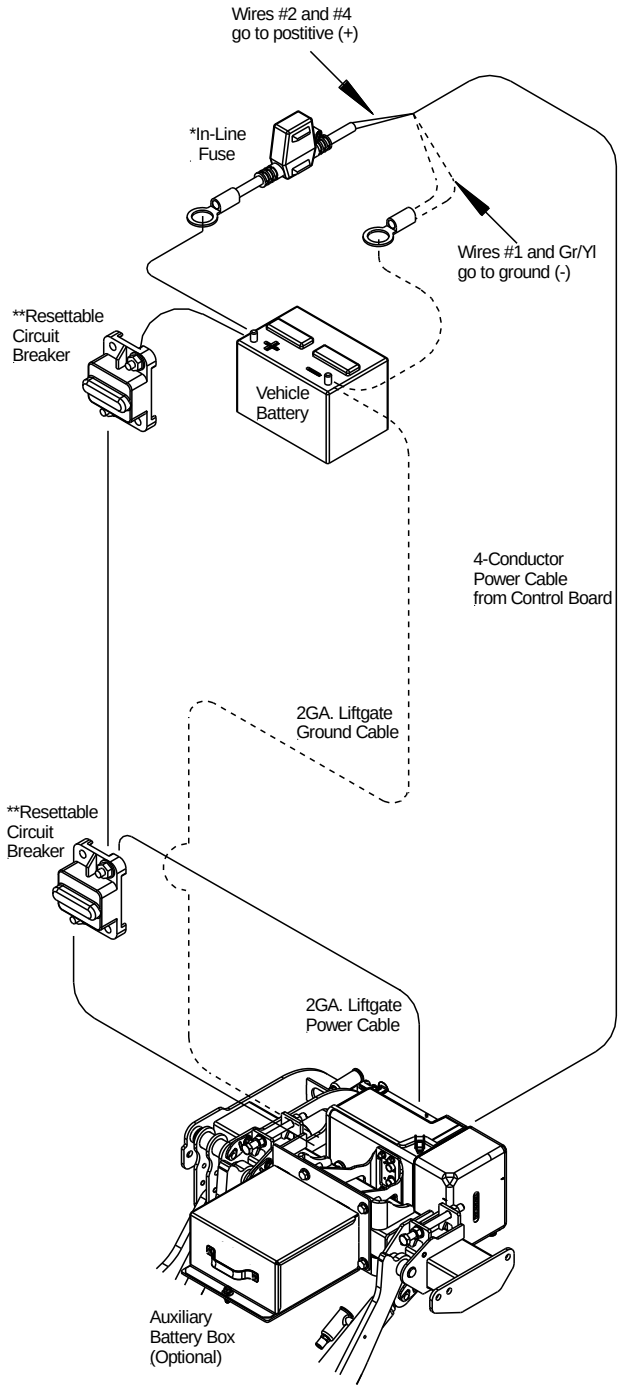
NOTICE

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

9.1 Battery Wiring Diagram



Battery Wiring Without Auxiliary Battery



Battery Wiring With Auxiliary Battery

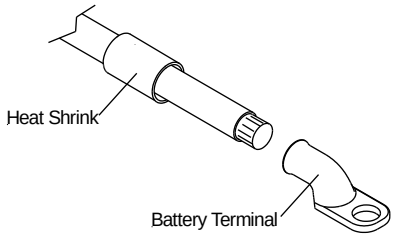
*In-Line ATC Fuse: 20 Amp. **Replace with same amperage fuse when necessary.**
Resettable Circuit Breaker: 150 Amp Min. **Replace with same amperage breaker when necessary.
***Ground: For optimal grounding, ground all batteries and power units to the body side rails of the vehicle.
NOTICE: DO NOT attempt to jump in-line fuses with other objects other than the specified fuse.
Do not increase the amperage rating of fuse. Serious harm to the liftgate will result when standard practices are not followed.
Liftgates with Auxiliary Battery will have the Resettable Circuit Breaker mounted on the side of the battery box.

9.2 Wire Crimping

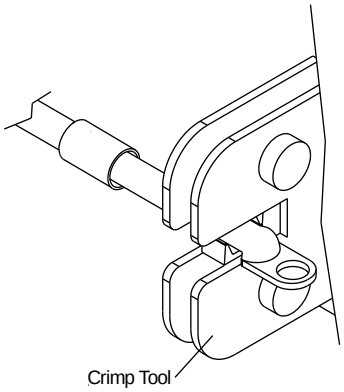
All grounding surfaces MUST be cleaned, prepped, and sealed per this manual. "Cut to size" cables MUST be properly crimped and sealed as factory supplied. All connections MUST be dressed with dielectric grease or equivalent sealer.

Battery Cable Crimping

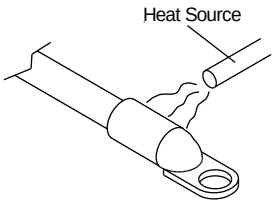
1. Prepare the wire to be crimped. Straighten out the exposed copper wire and insert into the battery terminal.
2. Use a crimping tool designed for crimping battery terminals for best results. The use of other tools could possibly damage the battery terminal and make poor connections between the wire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



Prepare



Crimp

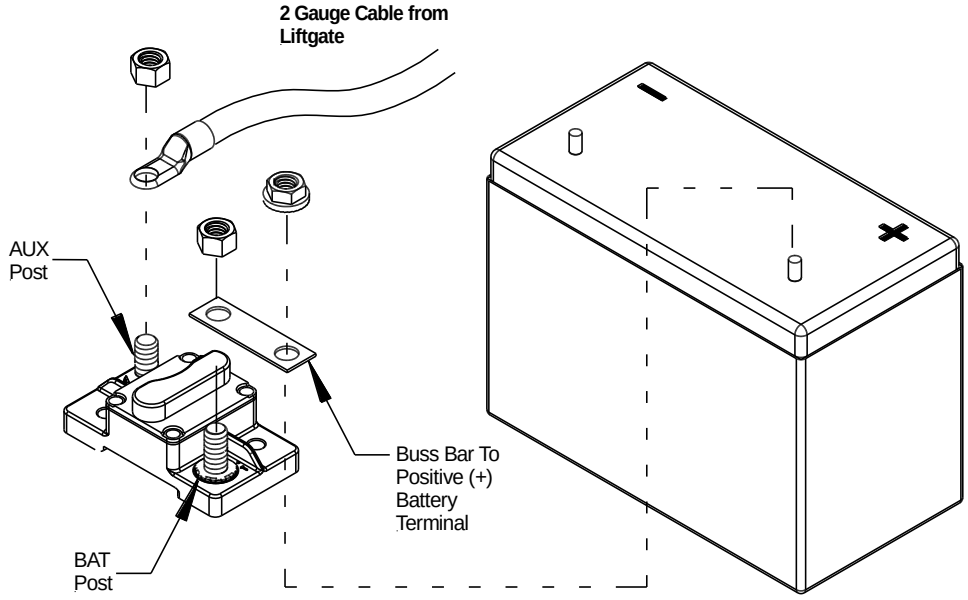


Seal

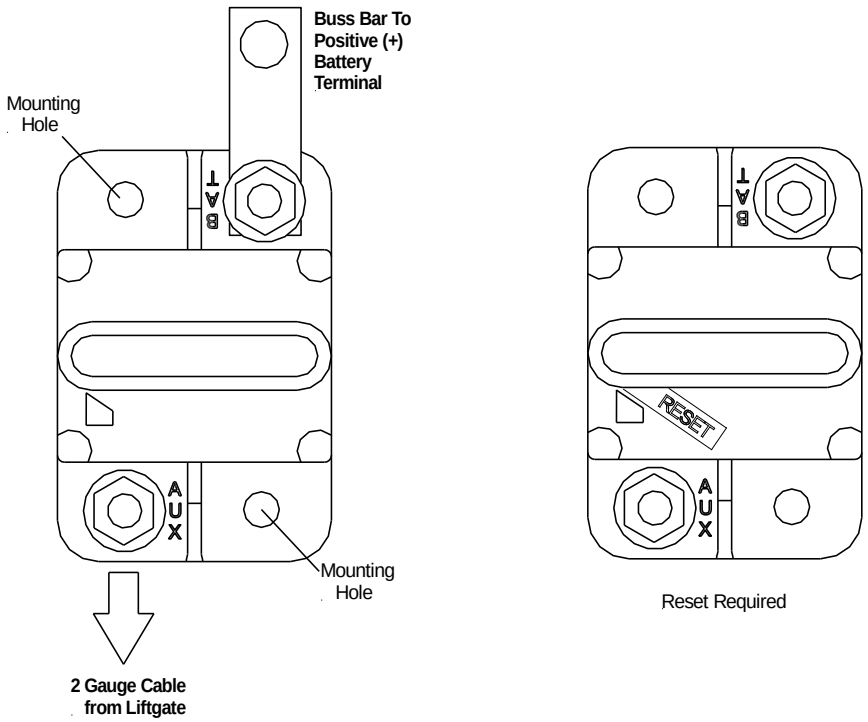
9.3 Circuit Breaker Installation

1. Mount the circuit breaker securely in battery box or at positive battery terminal using the buss bar.
2. Connect the liftgate 2 Gauge cable to AUX post on the circuit breaker.
3. Install one end of the buss bar on the “BAT” post on the circuit breaker and the other end to the positive post on battery. Secure buss bar and circuit breaker with the provided hardware.

Note: 150-amp minimum circuit breaker required.



Battery Mount Resettable Circuit Breaker



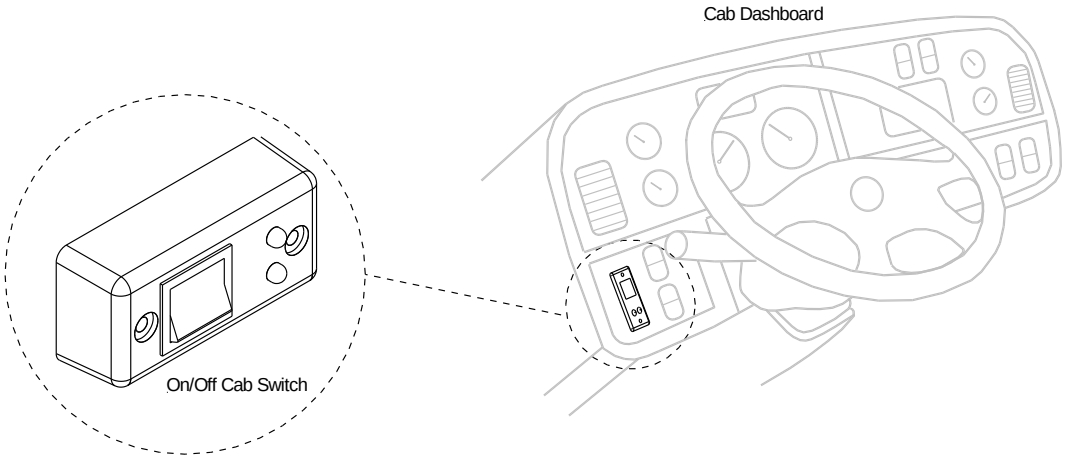
Reset Required

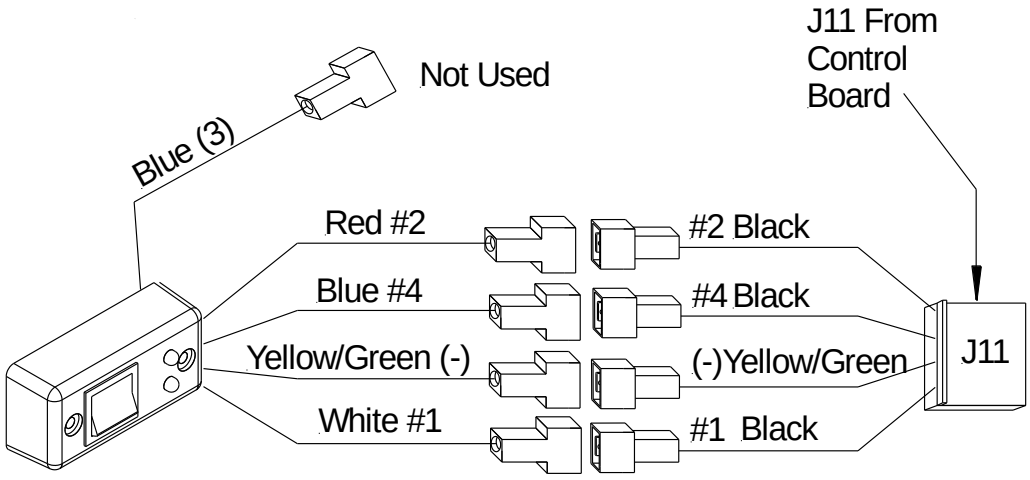
⚠ WARNING

On hazardous goods vehicles, connect the ground cable to the battery or in accordance with the set-up guidelines of the respective vehicle manufacturer.

9.4 Cab On/Off Switch Installation

1. Route the J11 wire harness from the control box to the inside of the cab.
2. Place the switch where it can conveniently be seen and reached from the driver's seat as well as from the ground.





In-Cab ON/OFF Switch Wiring Table		
Cable Number / Marking	**Color**	**Function**
1	White	Hot lead to red LED lights
-	Yellow/Green	Ground to LED lights
2	Red	12V Power from batteries
4	Blue	Control power to liftgate
3 (BS3)	Blue	Not Used

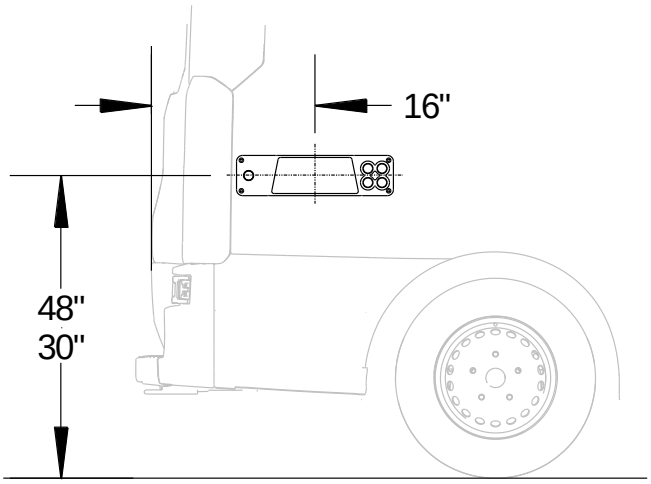
9.5 Control Panel Installation

NOTICE

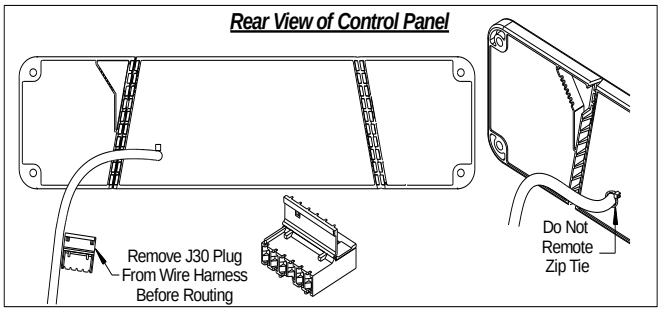
Attention: Due to the variety of van manufactures, dimensions below may vary and could require adjustments. It is up to the installer to use reasonable judgement when adjustments are required.

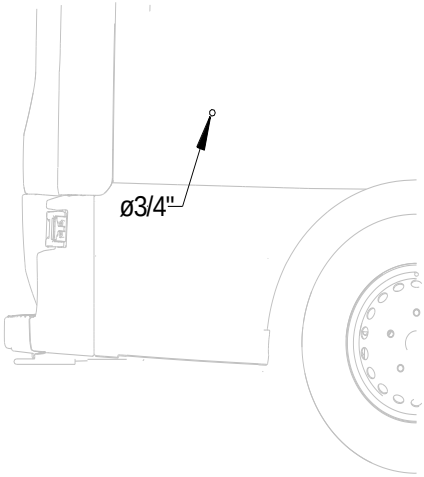
1. Position the control panel horizontally on the right side of the vehicle per dimensions shown. Use the control panel to mark the mounting hole locations on the vehicle.

Control Panel Location

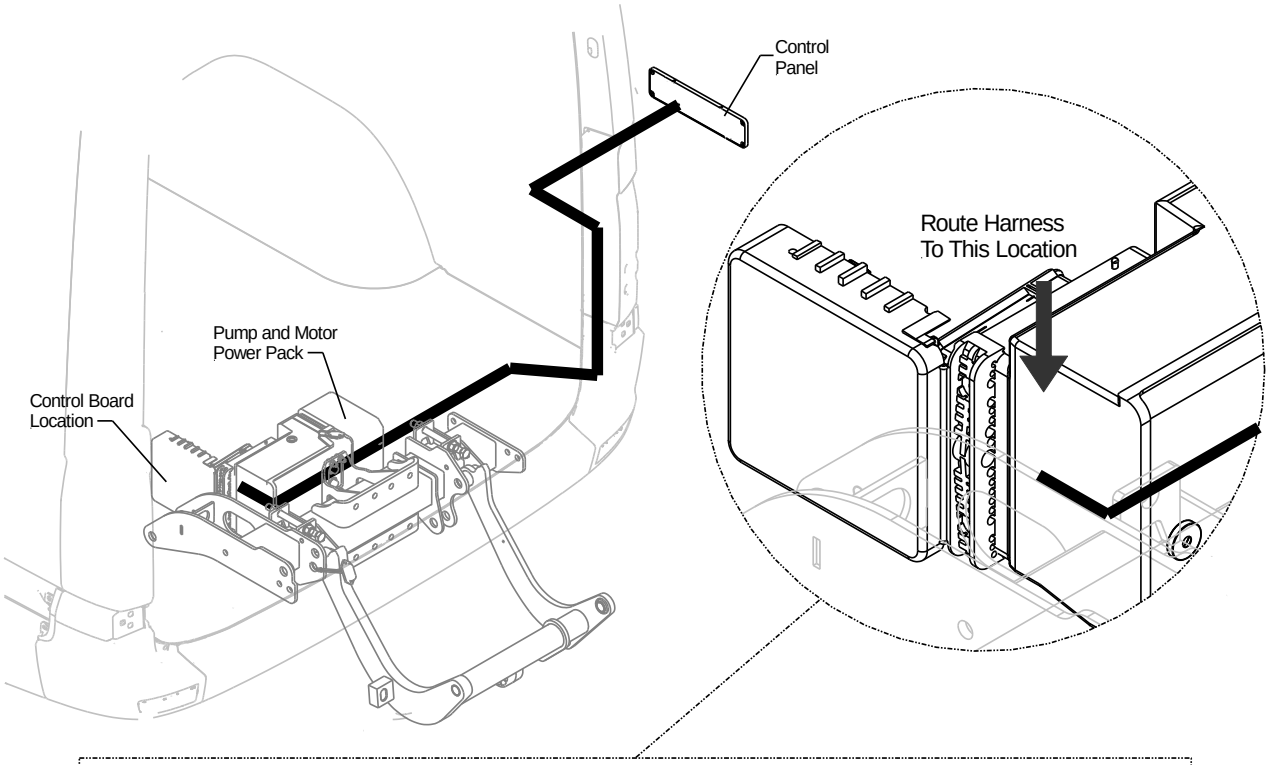


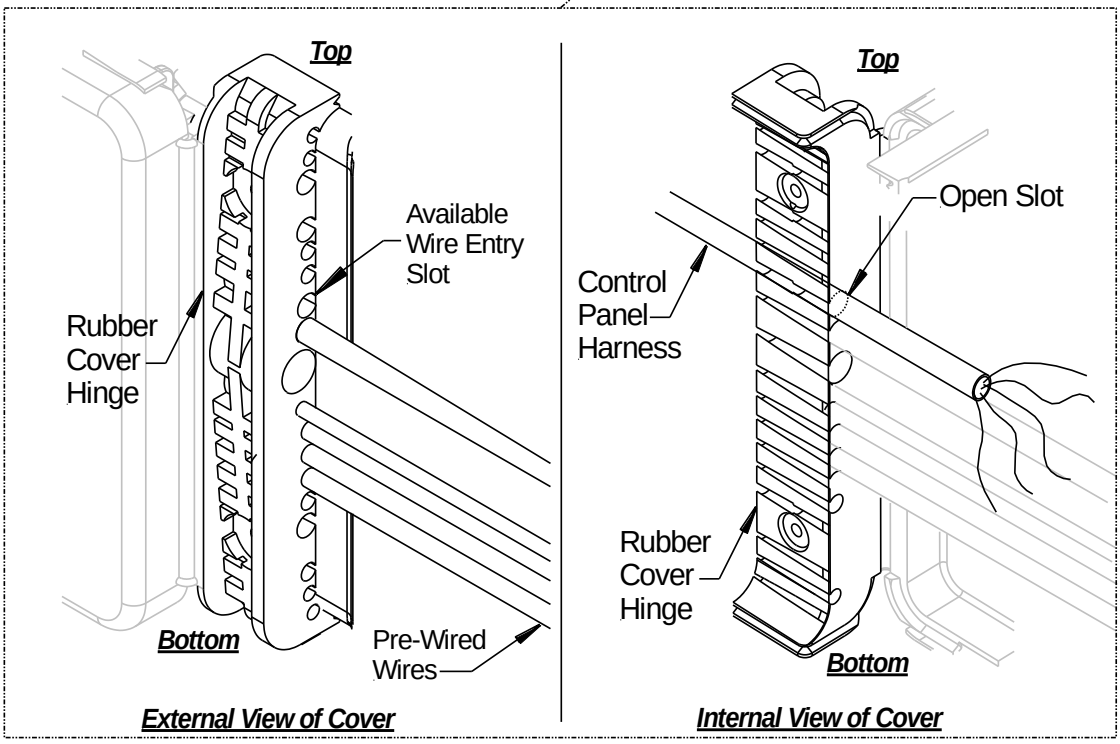
Drill a ø3/4” hole for routing the control panel harness as shown. Remove the J30 plug from the harness but DO NOT discard, the plug will be used later.



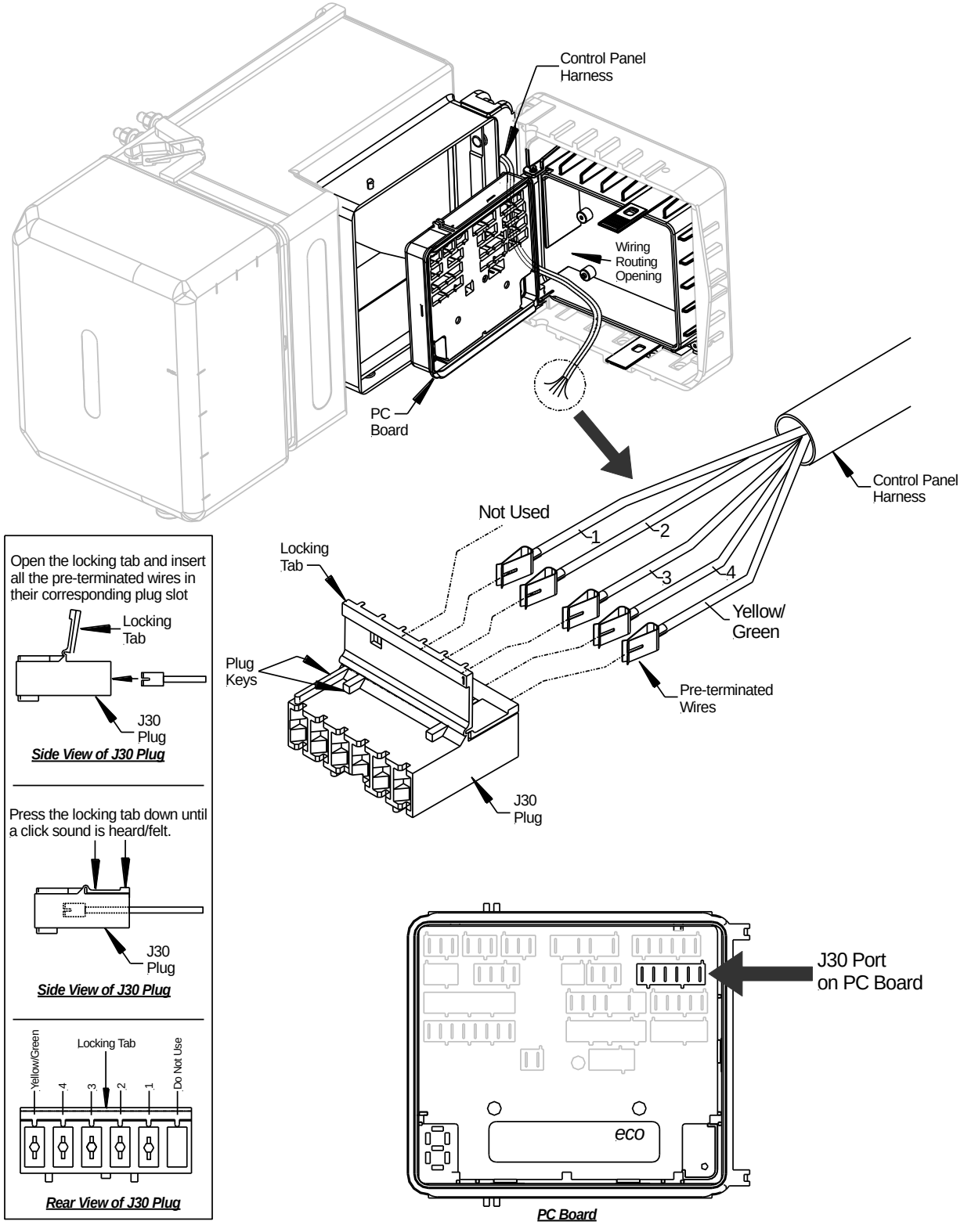


2. Route the control panel harness to the left side of the pump and motor power pack. Open the rubber cover to access the PC Board. The rubber cover hinge has available feedthrough holes that allows the harness though. On the interior part of the rubber cover hinge, cut the upper slot and feed the harness through.

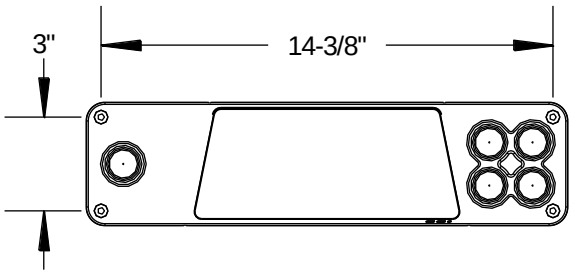


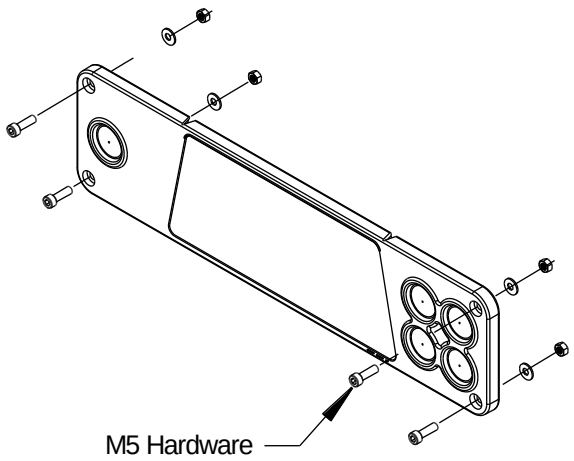


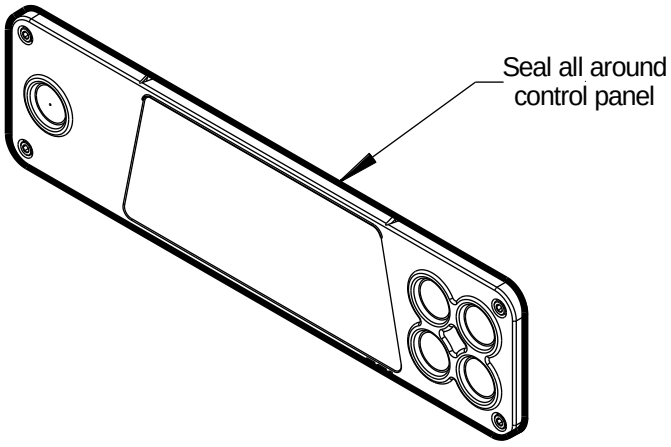
Insert each pre-terminated wire into the corresponding port on the J30 plug per the wiring diagram below. Connect the plug into the J30 port on the PC Board, test all functions on the control panel.



3. Use the control panel to mark the mounting holes on the vehicle body. Secure the panel to the vehicle using the M5 hardware provided. Apply an outdoor rated sealant around the control panel.

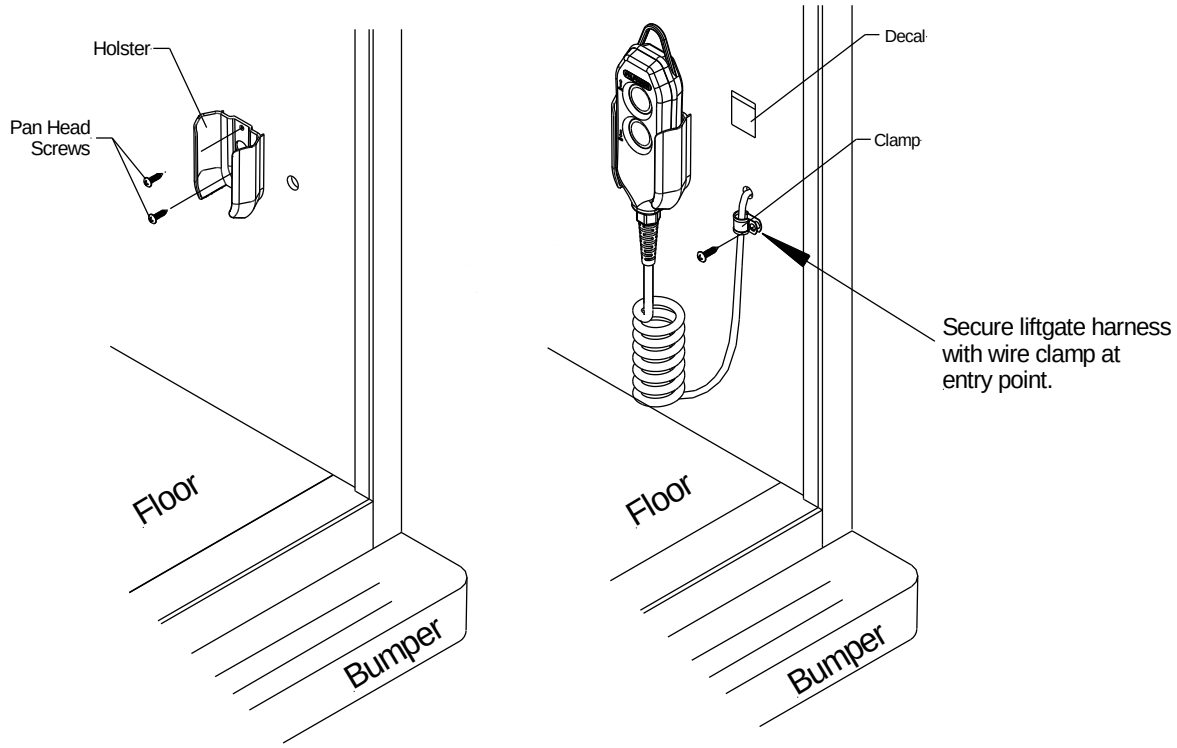






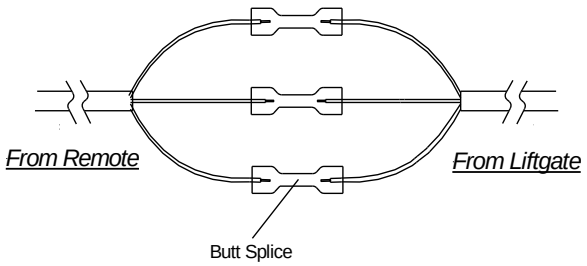
9.6 2-Button Hand Held Remote Control Installation

1. Mount the holster approximately 24”- 36” from the floor, or determine the best location as preferred by end user. Route the cable from the liftgate up through the inside corner of the vehicle. Use the wire clamp to secure the incoming cable.

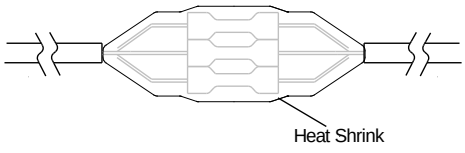


2. Splice the cables harness from the liftgate to the hand-held remote harness by crimping butt connectors and seal each connection with heat shrink. Use the wiring table below to wire the 2-button hand held remote.

Wiring Table		
Function	**Remote**	**Wires from Gate & Number**
Up	5	5 / Red
Down	6	6 / Yellow
12V (Hot)	4	4 / Green

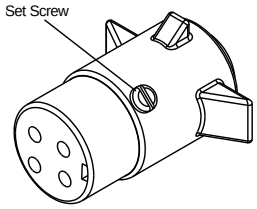


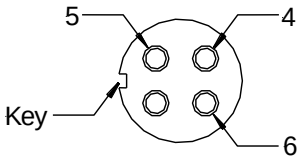
Join wires with butt splice



Use heat shrink to seal splice

3. **OPTIONAL.** 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.**



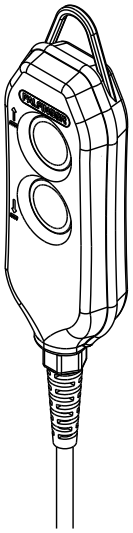


Wiring Terminal
Rear View

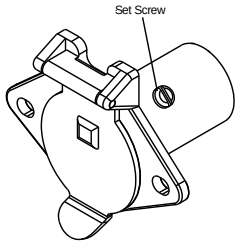
Plug

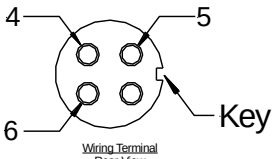
Plug to Control Wiring Table

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



Hand Held Remote



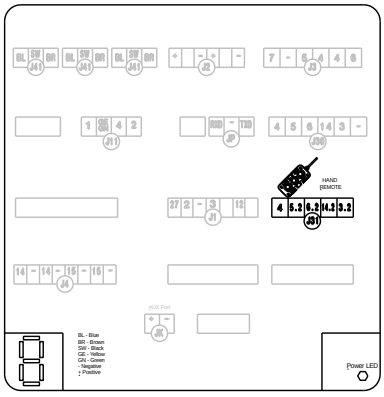


Wiring Terminal
Rear View

Socket

Socket to Control Board

Function	Socket	Control Board
Up	5	5.2 / Red
Down	6	6.2 / Yellow
12V (Hot)	4	4 / Green



Control Board

9.7 Platform Installation

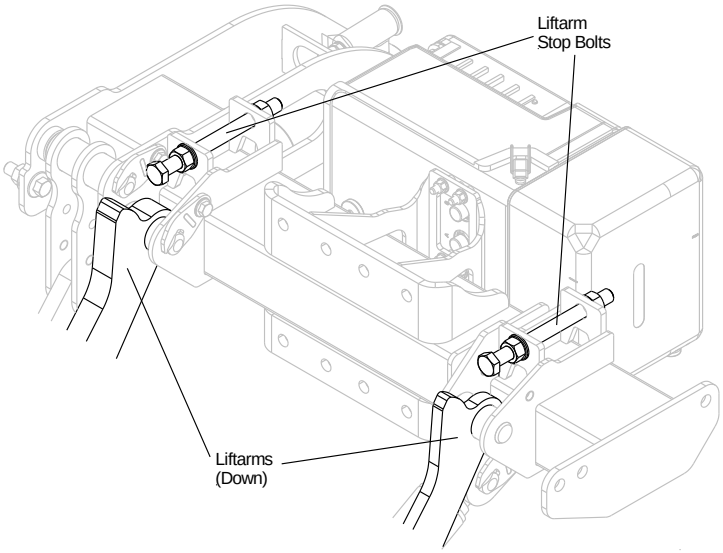
When attaching the platform be careful that it does not drop since there is no fluid in the cylinders at this point. Use suitable lifting equipment to raise the liftarm until it reaches the cargo floor height. Support the liftarm with a jack.

⚠ WARNING

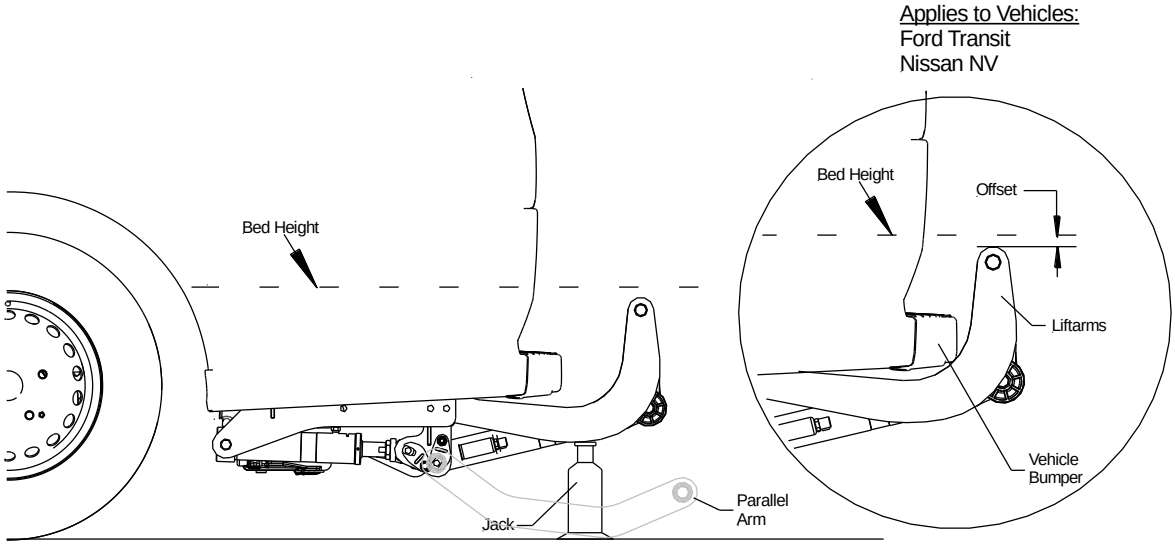
Never work under platform without safety supports

Make sure the liftarm can move freely while lifting it up.

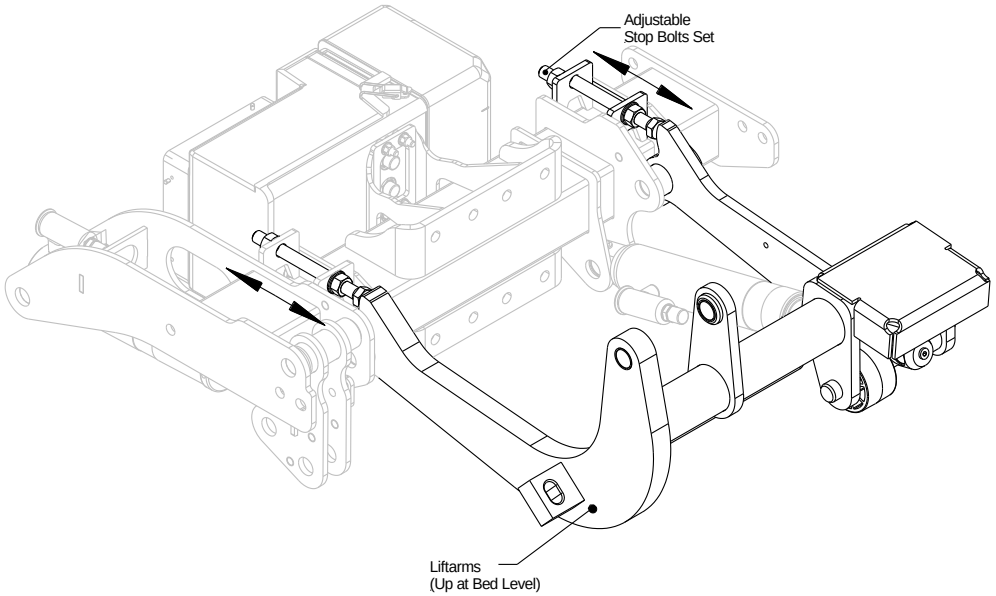
1. Loosen the adjustable stop bolts located on the mount tube.



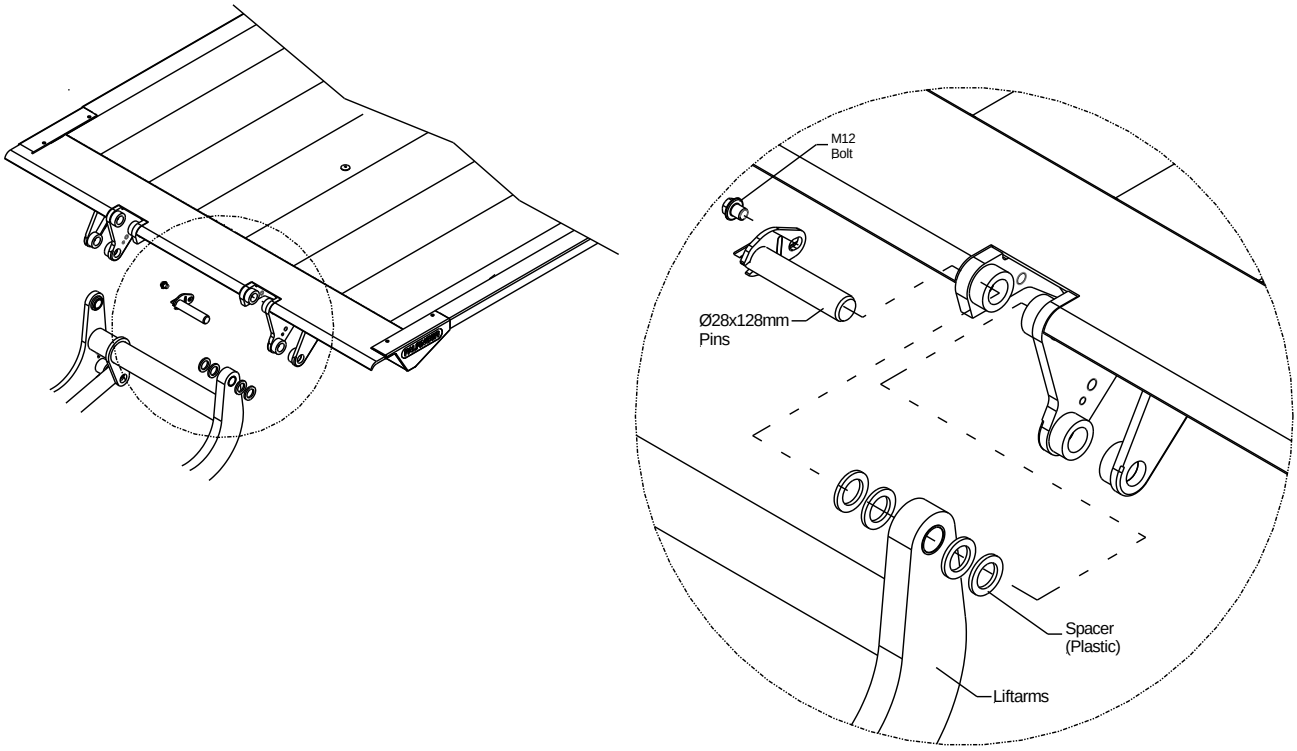
2. Manually raise both liftarm stops to bed level and assure the liftarms are at the same height. Place jacks or similar device to keep the arms in the levelled position.
   Attention: On Ford Transit and Nissan NV vehicles, the liftarm might not reach bed height and will have an offset due to the vehicles bumper.



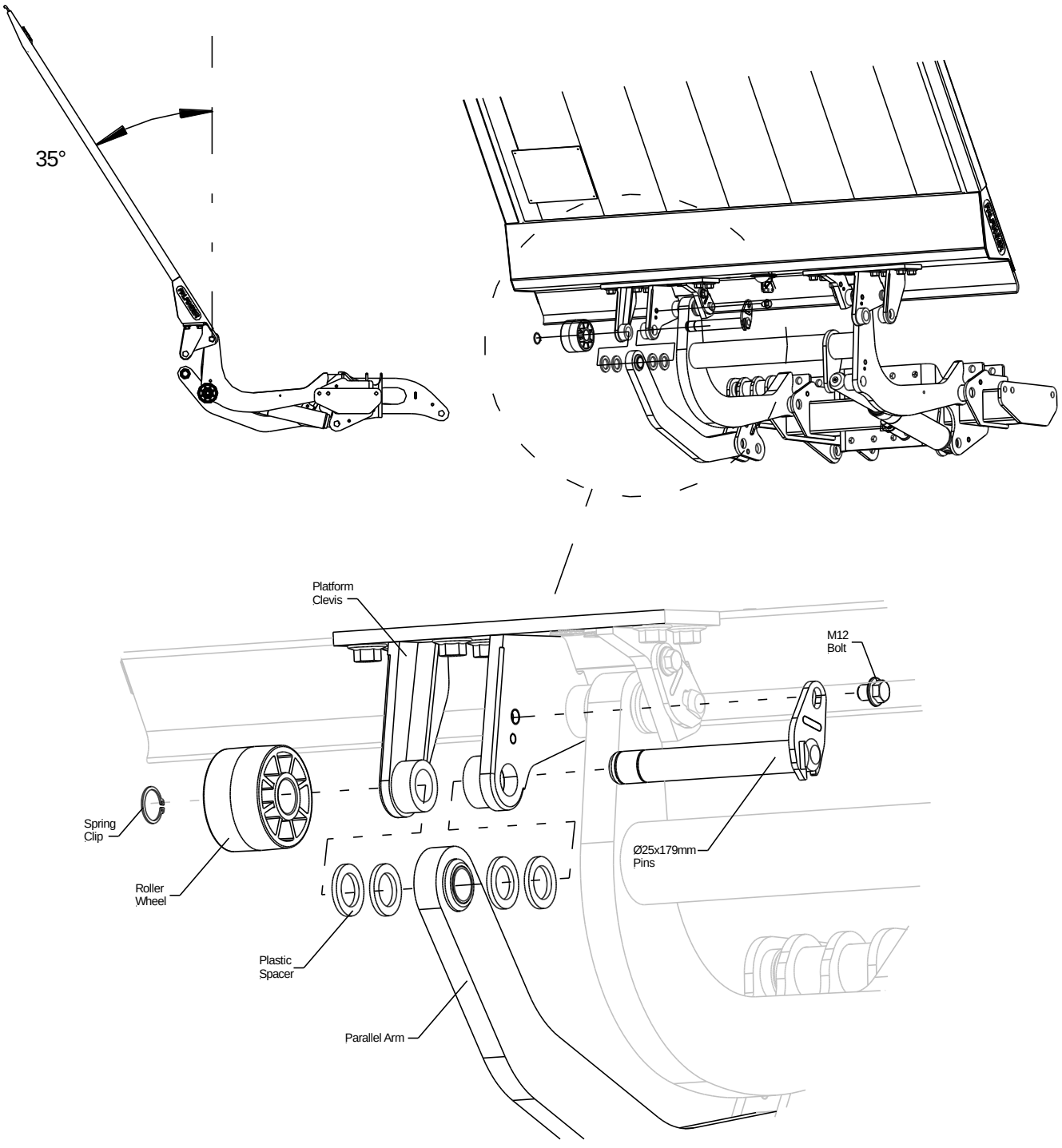
3. Set the stop bolts against the liftams to prevent any misalignment. Tighten bolts and nuts.



4. Hoist the platform up using a forklift or similar device. Align the platform pin holes with the liftarms pin holes. Maintain two plastic spacers on each side of the liftarms. Secure the platform to the liftarms using the Ø25mmx90mm pins provided. Use the M12 bolt to secure the pin to the platform clevis. Repeat pin installation on the opposite side.

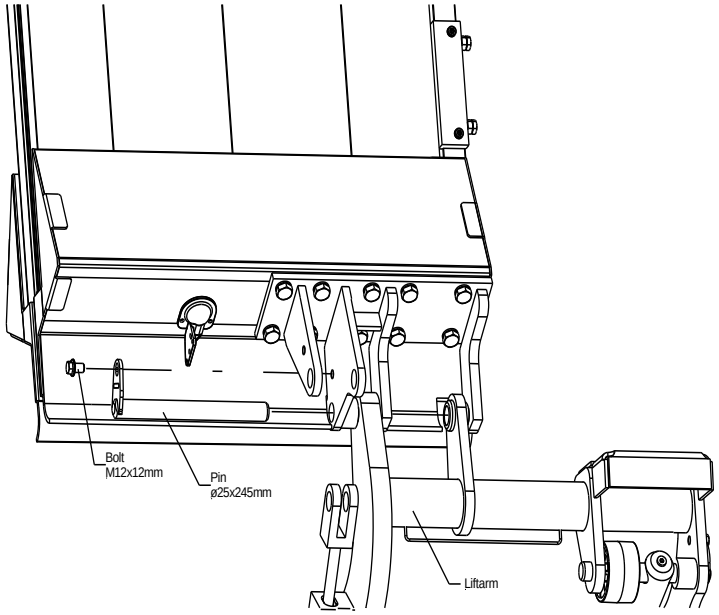


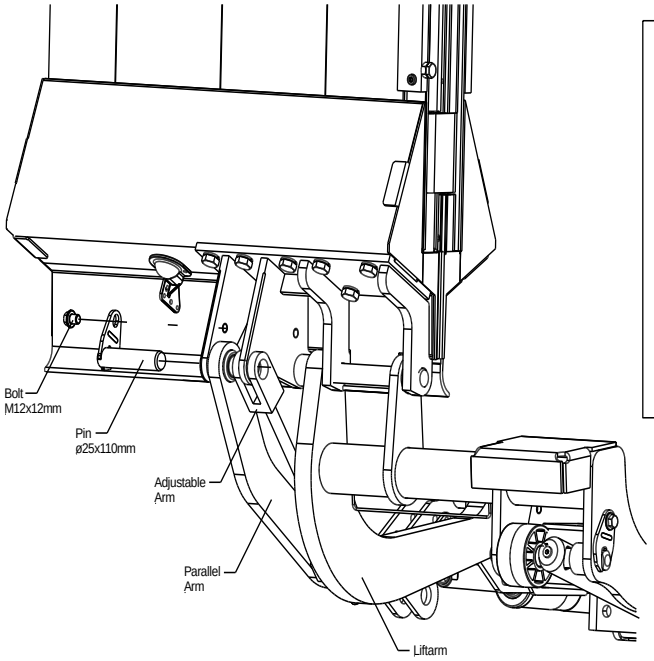
5. Tilt the platform 35-40° or enough to get the parallel arm in the install position. Use the provided wheel kit pins (Ø25x179mm) to secure the parallel arm to the platform clevis. The liftgate only has one parallel arm. On the opposite side, install the second roller wheel in the same orientation done on the parallel arm side. Secure all pins with the M12 bolts.

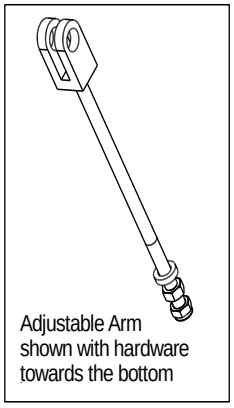


Two-Piece Platform Installation

5b. Raise the platform and align the platform clevis with the liftarm pin holes. Use the provided ø25x245mm pin to secure the platform and the liftarm. After securing the platform to the liftarm, use the controls to toggle between lowering and raising the platform clevis to reach the parallel arm and the adjustable arm. In order to get the adjustable arm to reach the platform clevis, make sure the preinstalled nuts are towards the bottom on the adjustable arm.

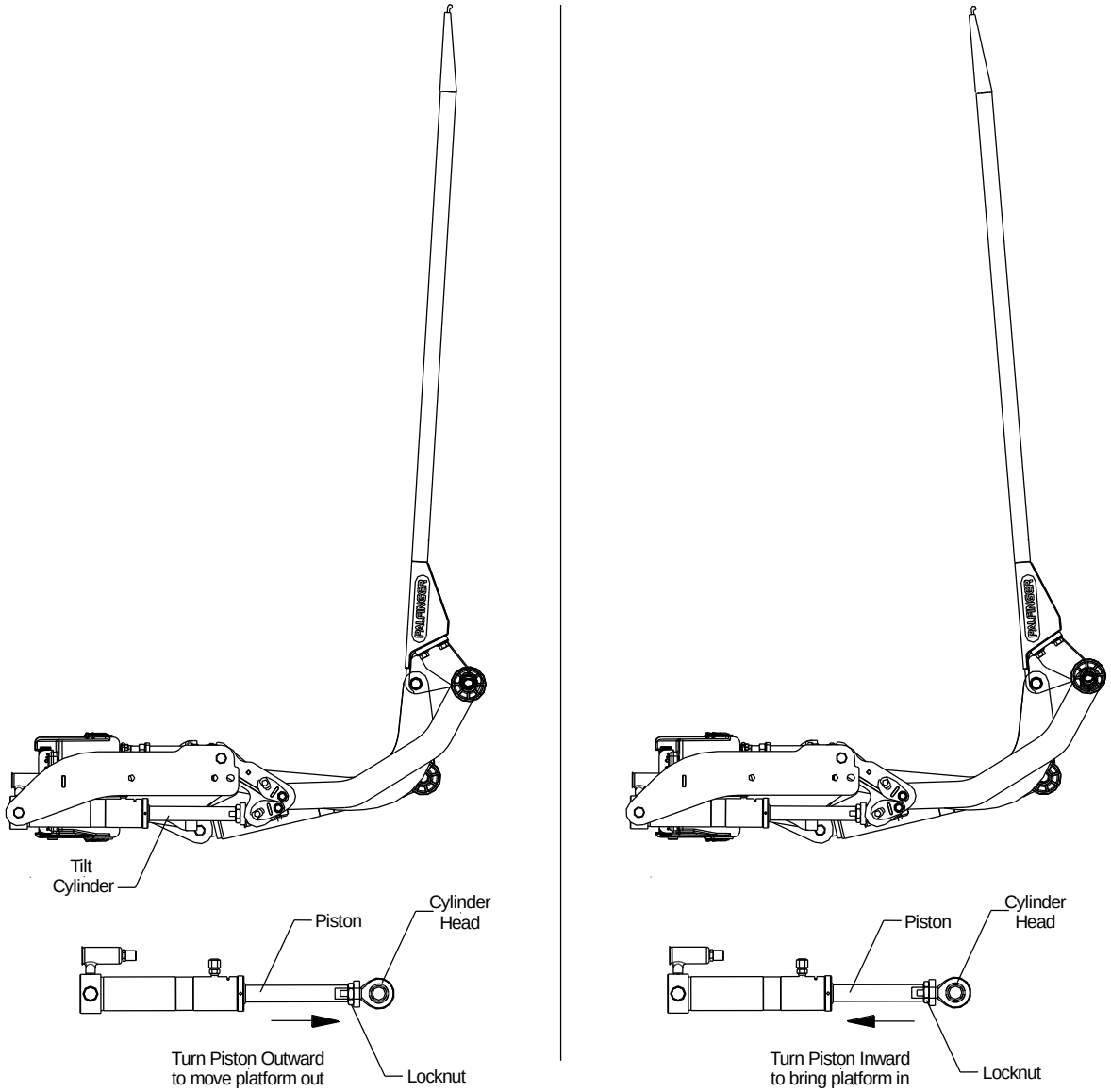






9.8 Tilt Cylinder Adjustment

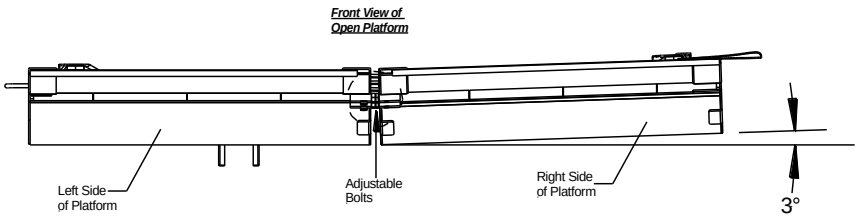
1. Raise the gate all the way up vertically.
2. Look at the platform from the side. Pay attention to the angle the platform is at when raise.
3. If platform is not completely in vertical position, open the platform about 15-20 degrees and lower the platform down approximately 2”-8”.
4. Remove the bellows off the tilt cylinder, loosen the locknut, and adjust the tilt cylinder by rotating the piston inward or outward of the cylinder head.
5. Repeat the tilt cylinder adjustment until the platform is in vertical state. Use the lock nut to secure the vertical position of the platform by tightening it to 81 ft/lbs (110 Nm).
6. Reinstall the bellows after adjustment is complete.

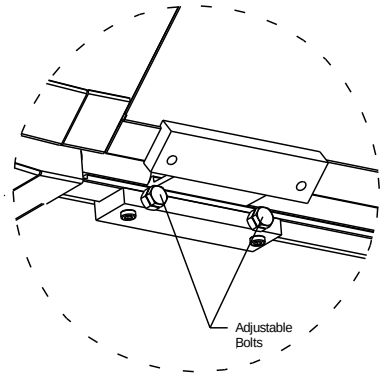


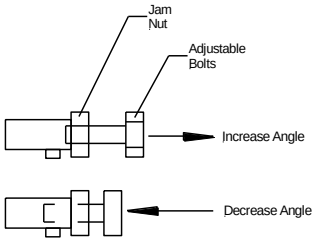
Two-Piece Platform Adjustment.

After adjusting the platform in a parallel position with the vehicle, torque the M16 locknut to 52 ft/lbs.

Adjust the adjustable bolts for be approximately ¼" protruding out of the nut. Open the platform by removing the spring latch and opening the right side of the platform flat. Verify a slight angle on the right-side section of approximately 3°. Make any adjustments to the adjustable bolts if necessary.

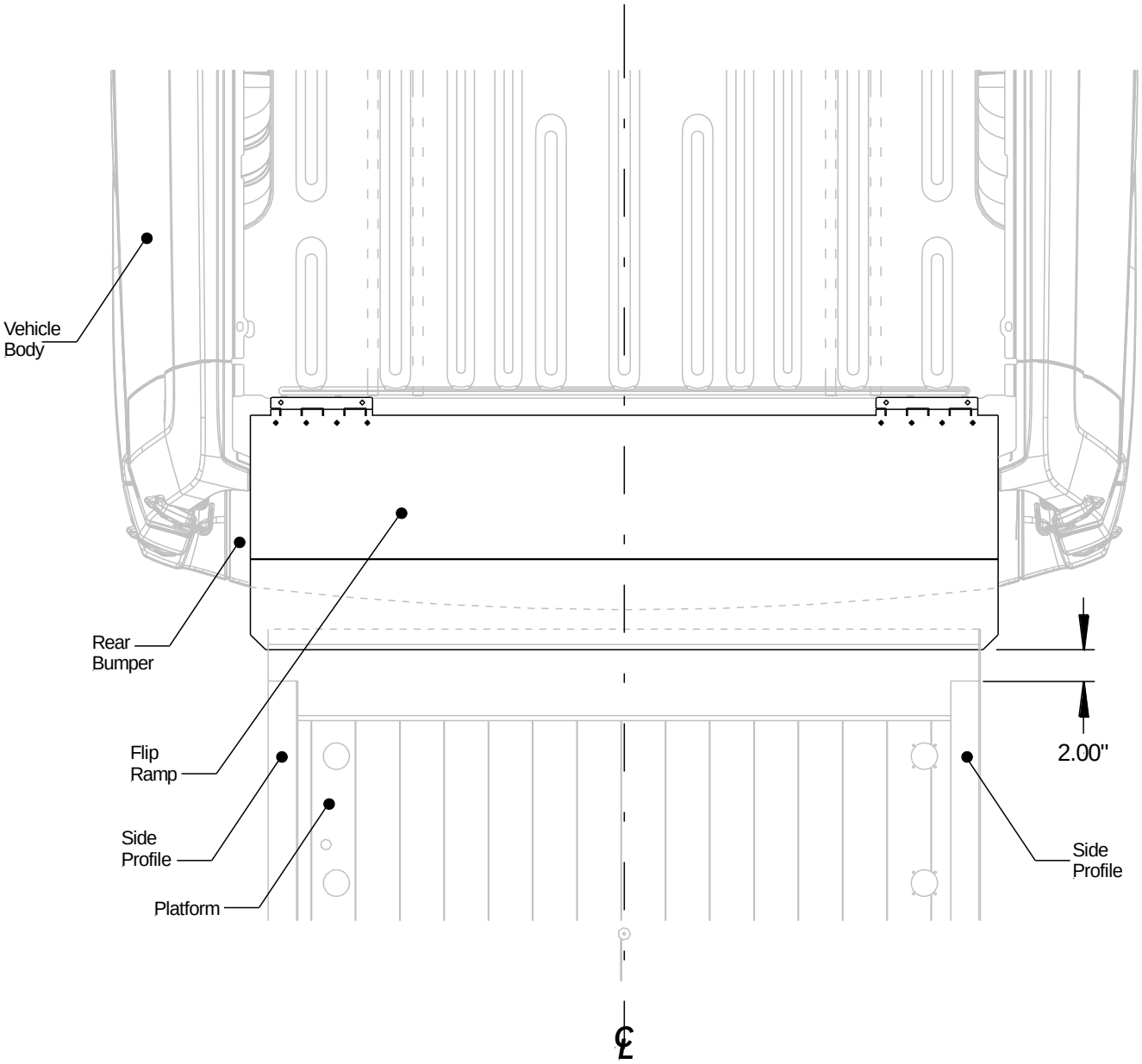






9.9 Flip Ramp Installation

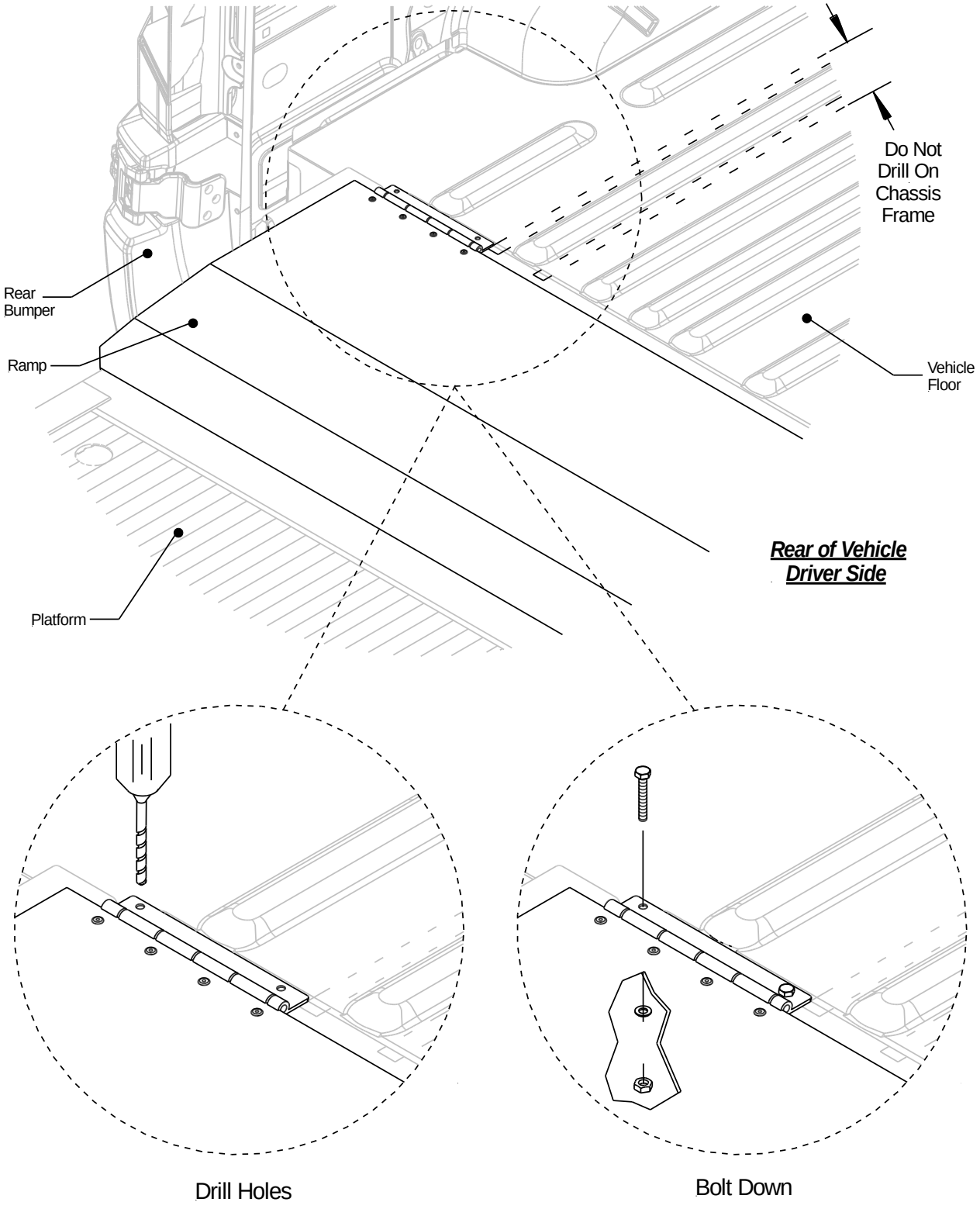
1. Position the ramp in the vehicle directly behind the closed doors. Leave a 2.00” gap between the end of the flip ram and the side profiles.



Rear of Vehicle
Top View

2. Drill four holes (two per hinge) thru the vehicles floor. Secure the flip ramp hinges using the hardware provided.

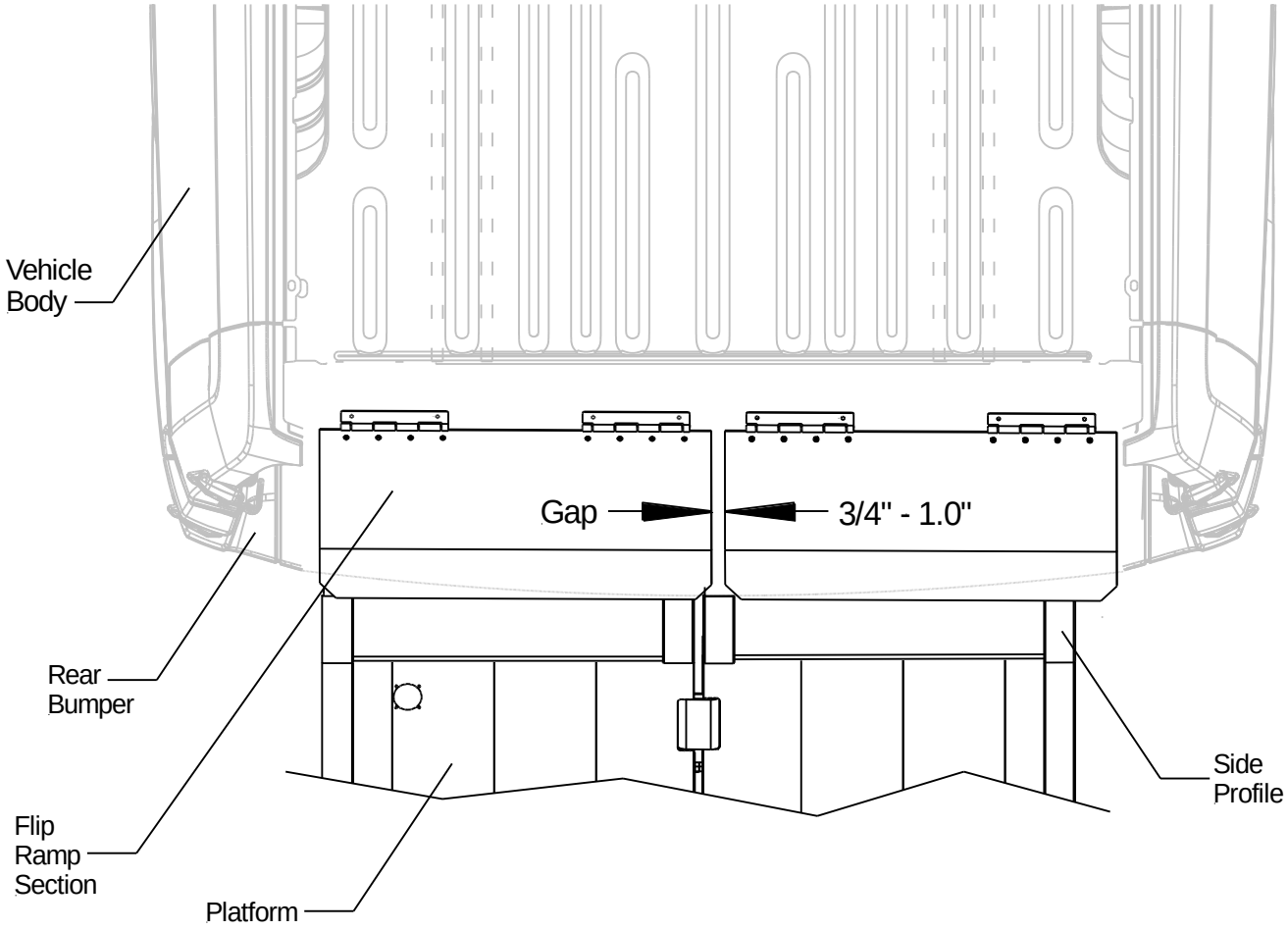
NOTE: Use the hinges bolt holes as a drilling template for precise drilling.



Two-Piece Platform Adjustment.

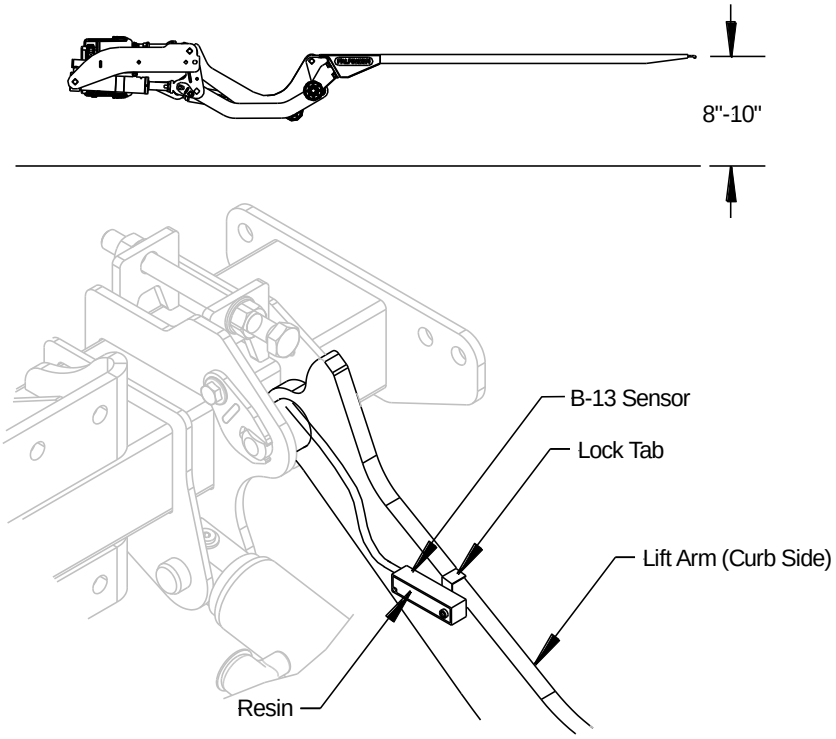
Follow Steps 1-2 from Section 9.9.

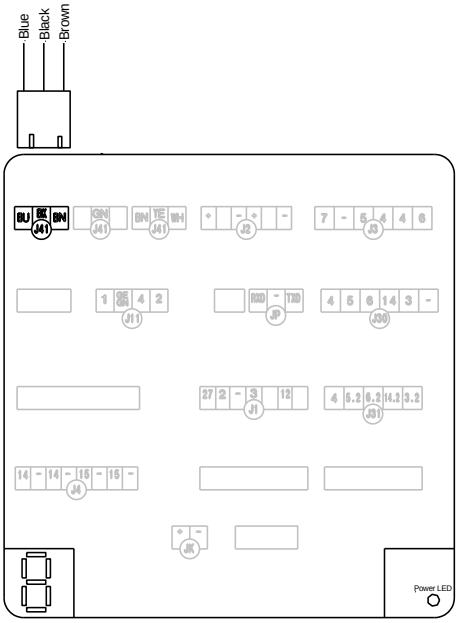
NOTE: Vehicles rear opening may vary from manufacture to manufacture, in some instances the ramps might not be centered to the liftgate platform.



9.10 Setting of B-13 Sensor

1. Lower the platform to about 8”-10” above the ground and set the switch B-13 on the lift arm in a horizontal position. Verify the resin side of the B-13 sensor is facing the street side of the vehicle.
2. Loosen the M6 adjustment bolt, retighten after setting at the correct position and bend the metal clip to fix position of the switch.
3. Route the harness to the control board and plug into J41 Port.

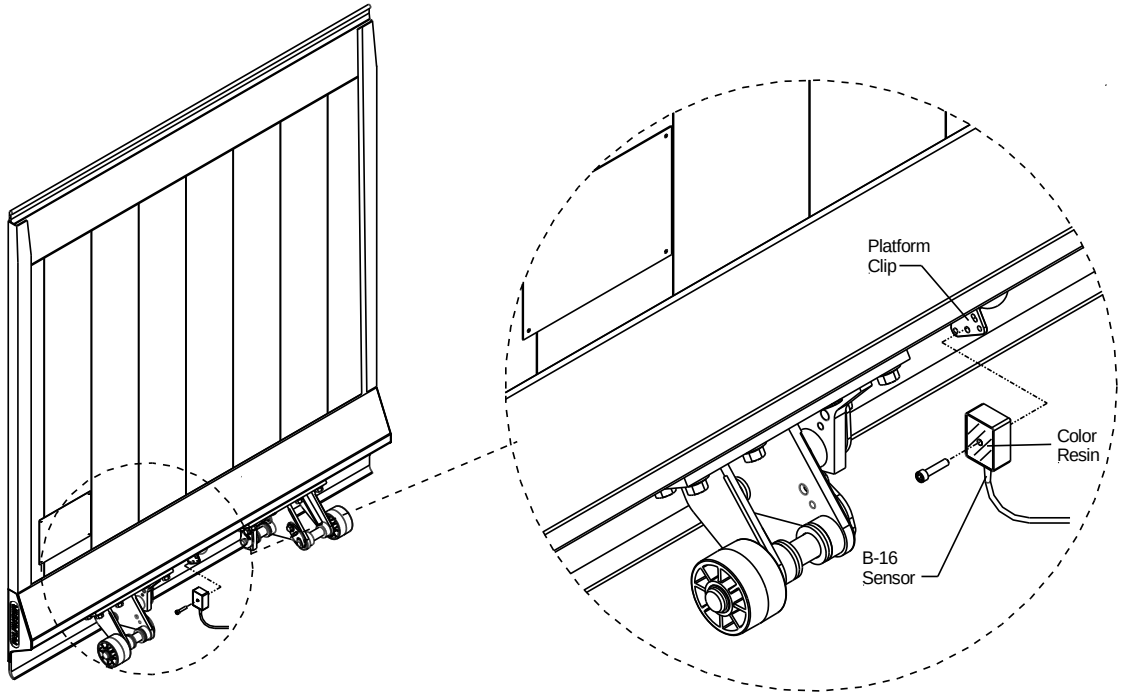


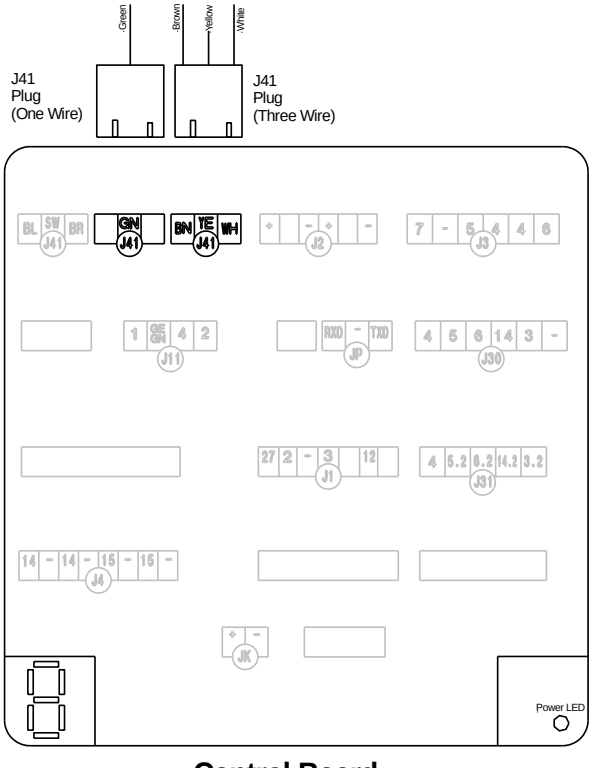


Control Board

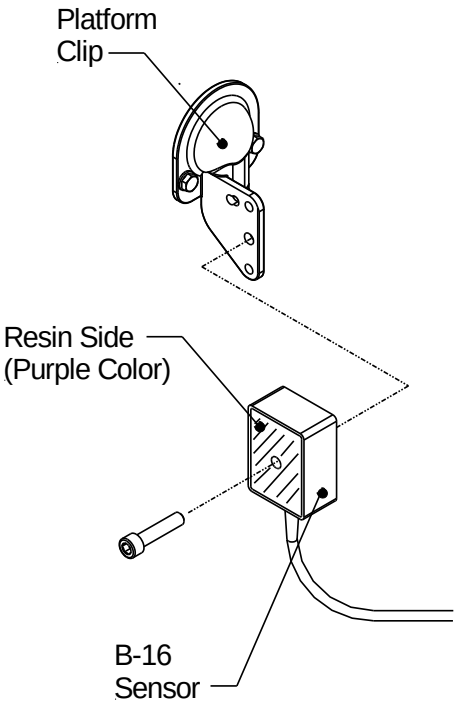
9.11 Setting of B-16 Sensor

1. Mount the platform sensor B-16 to the platform clip. The sensor should be installed as shown with the color resin side of the sensor facing the street side of the vehicle.
2. Route the harness to the control board and plug to the J41 Ports.



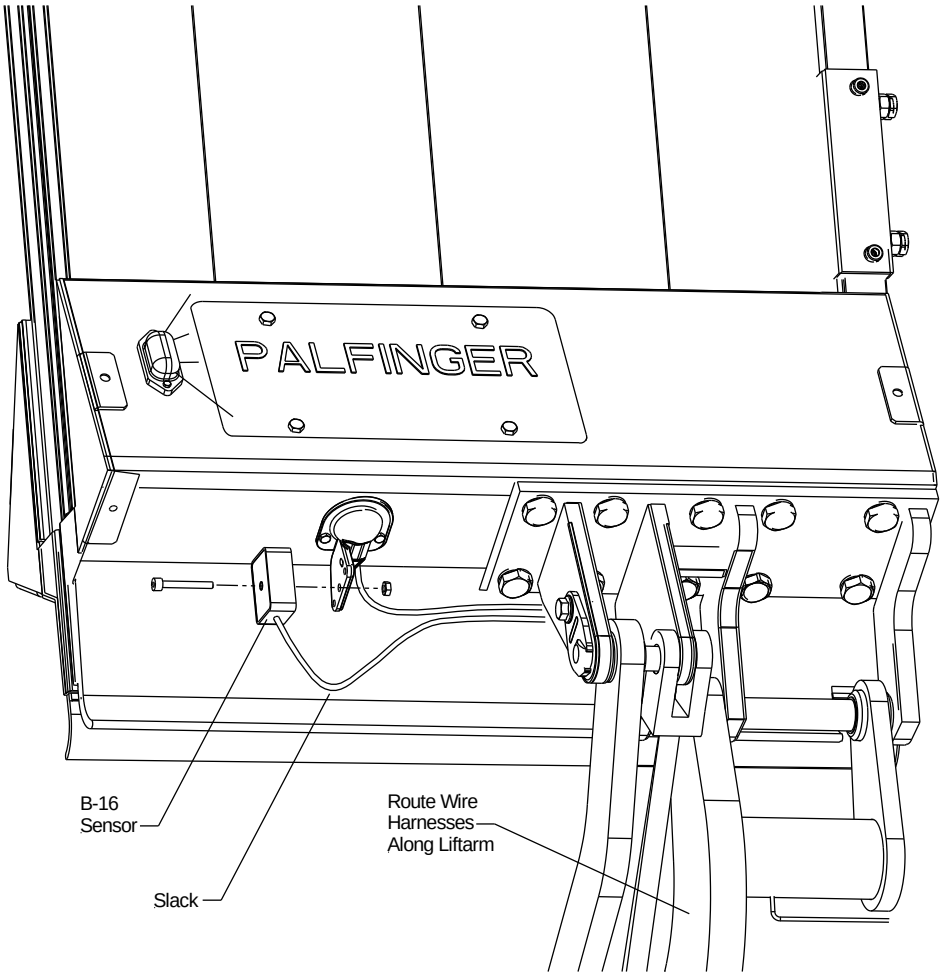


Control Board



Two Piece Platform B-16 Sensor

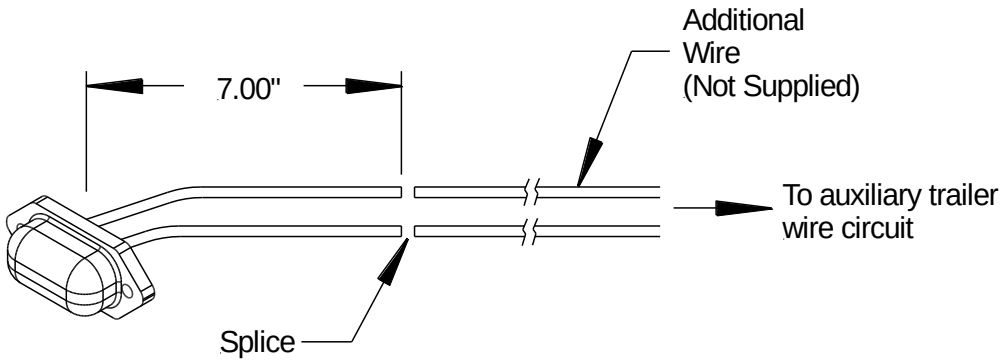
Route and mount the sensor as shown below.
Follow the steps above from 9.11 to orient and connect the sensor.



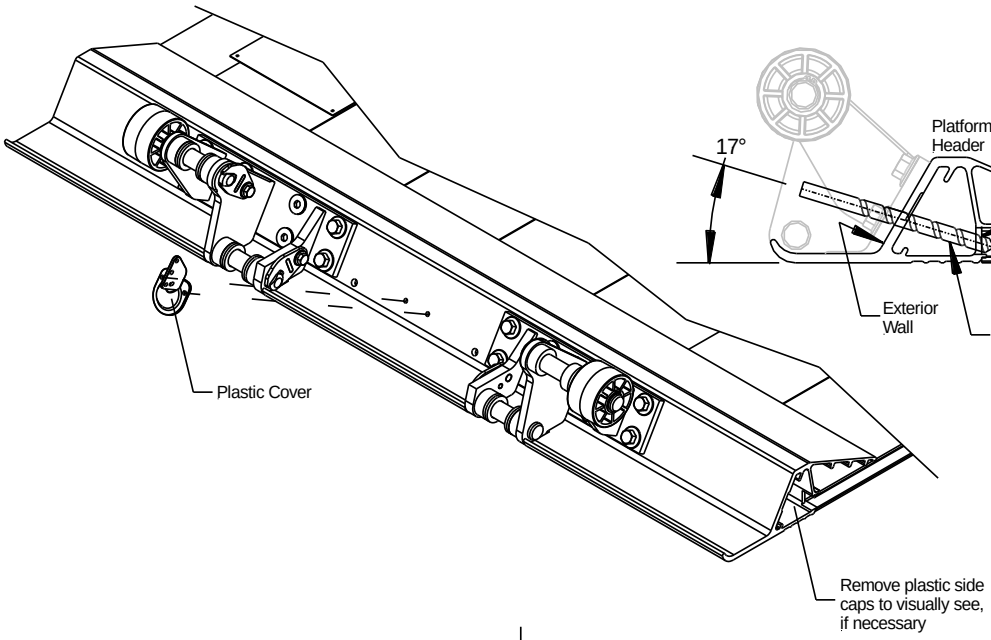
9.12 License Plate Light

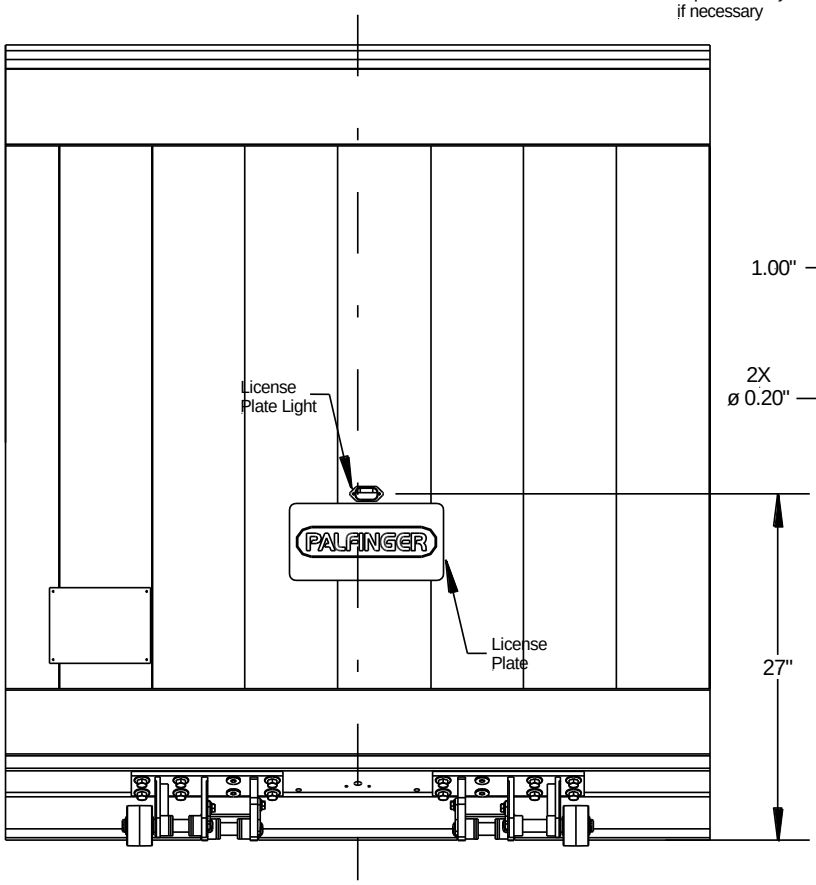
NOTICE Observe local and federal regulations.

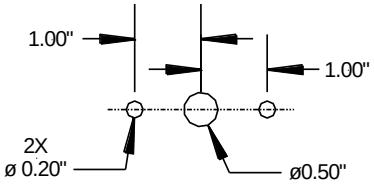
1. Depending on the vehicle, determine how much additional wire is necessary to reach the tail lights of the vehicle. Splice one end of the additional wire to the 7” LED light wire leads, splice and seal all connections.



2. Remove the plastic cover. Drill through the headers exterior wall and through the headers interior wall to be able to route the LED light wires out of the platform. To mount the LED light, drill three holes per the mounting hole pattern shown below. Feed the LED light harness through the ½" hole and route the harness down the platform and out. Secure the LED light to the platform using the provided sheet metal screws. Reinstall the plastic cover.



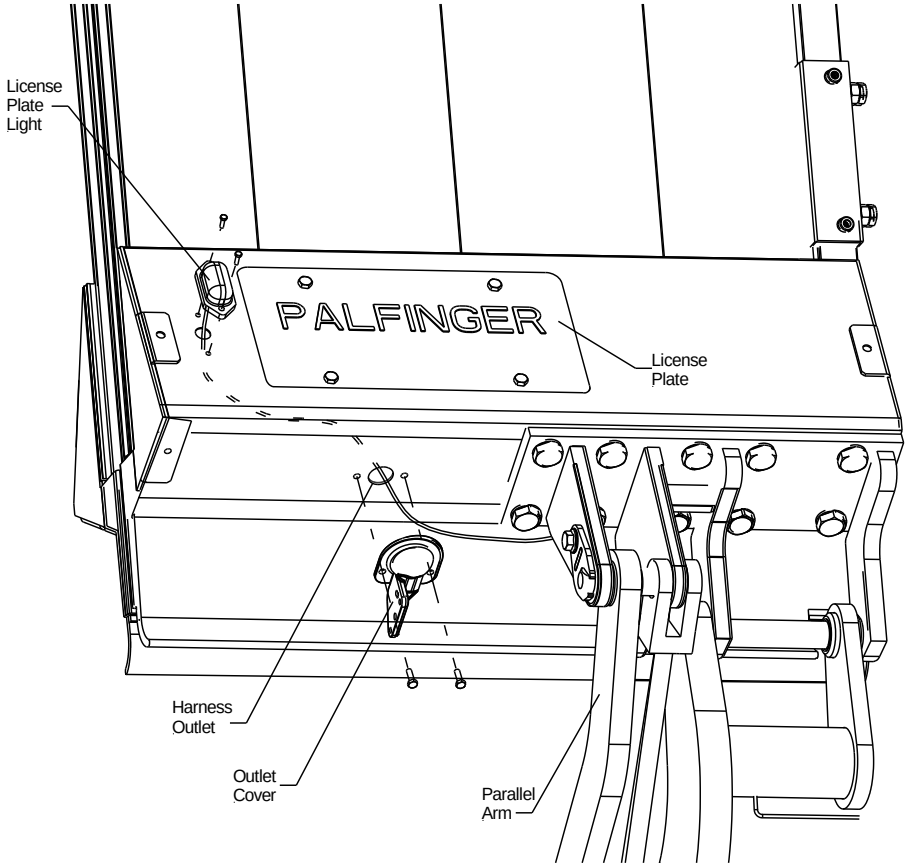


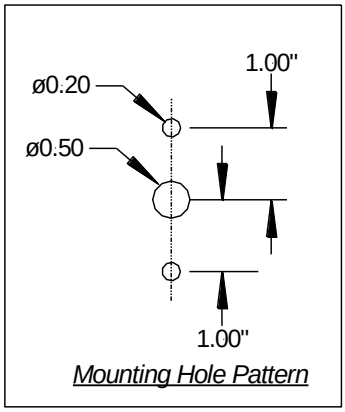


Mounting Hole Pattern

Two Piece Platform License Plate Light

Install the license plate in the approximate location shown on the platform's header. Use the mounting hole pattern to install the license plate light. Route the wire to the outlet drilled on the platform header.

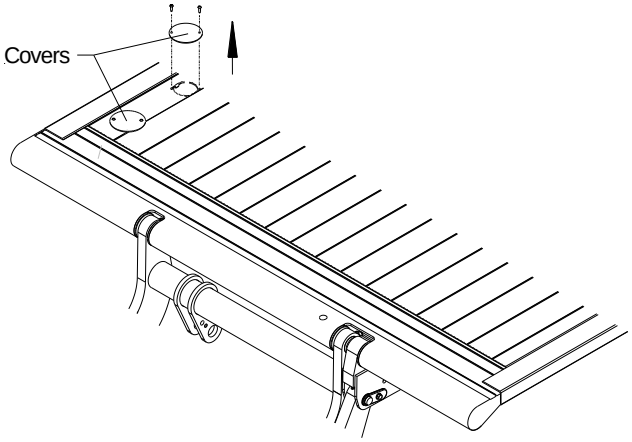




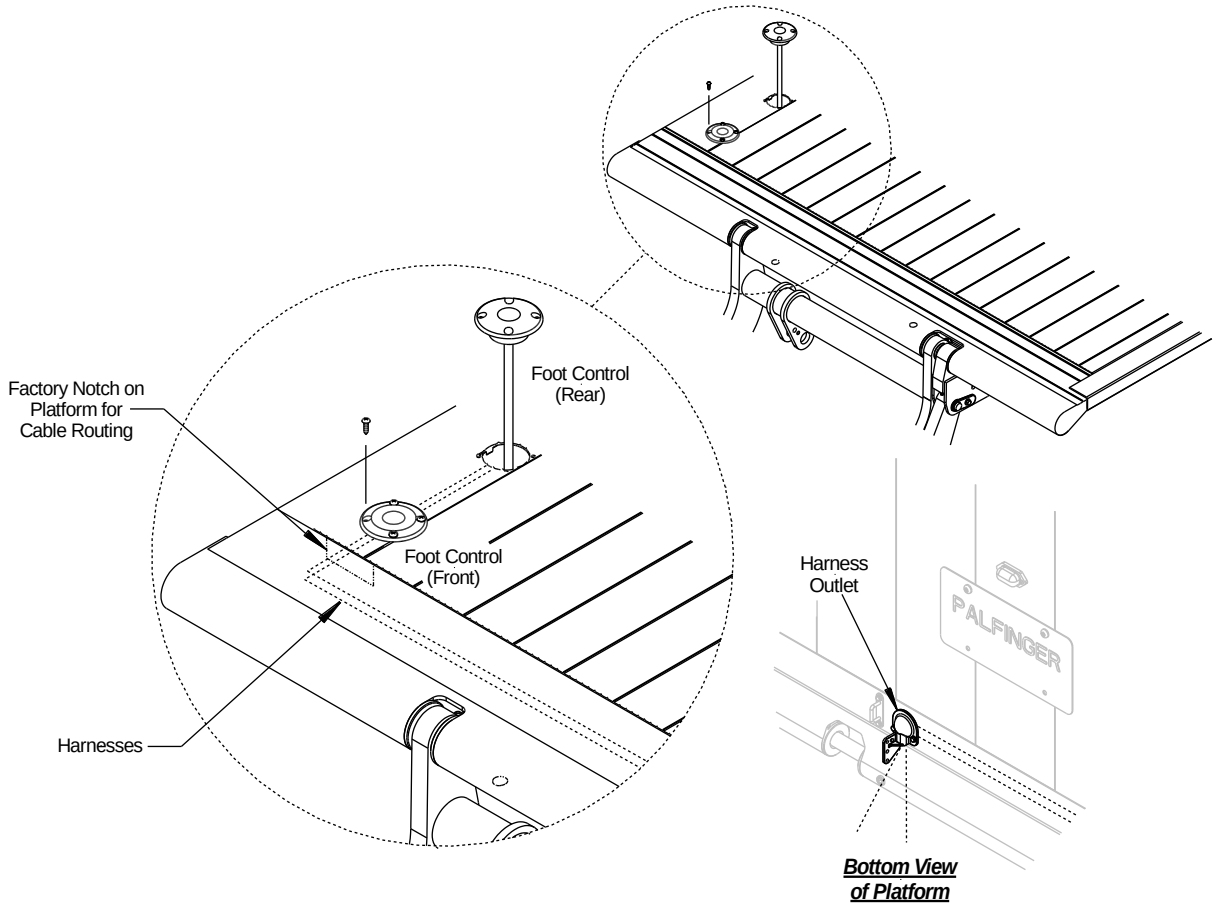
Mounting Hole Pattern

9.13 Foot Control Installation (Optional)

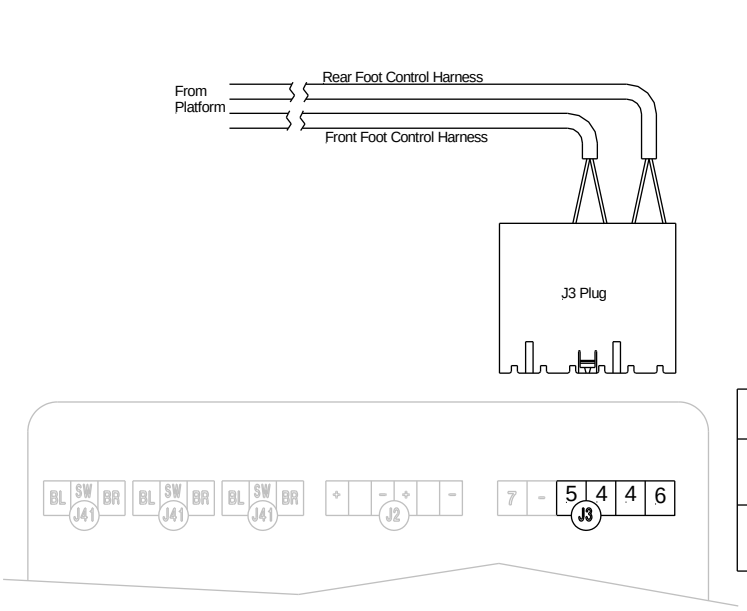
1. Unscrew the covers to expose the slots for each foot control module. Remove the side covers from the platform by unscrewing the four screws.



2. Mark or label each foot control harness to avoid confusion after the harnesses have been routed. The platform is designed with internal notches for routing harnesses. Feed each harness through each foot control slot on the platform and route each harness to the outlet located at the bottom the platform, as shown.

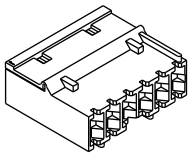


3. Route harnesses to the control board and connect the Front Foot Control Harness to pins 5, 4 on J3. Connect Rear Foot Control Harness to pins 4, 6 on J3.



Crimp Terminal
P/N: EK3371

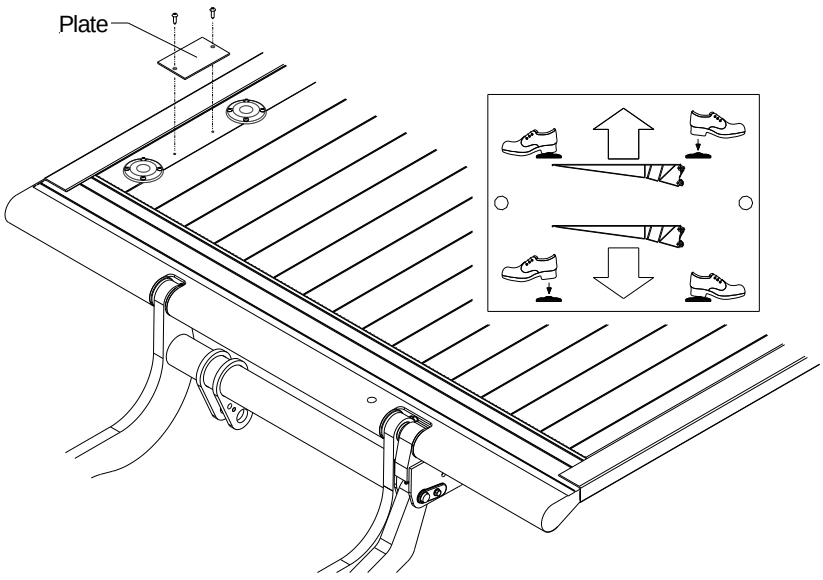
J3 Plug
P/N: P-1358710



Wiring Table

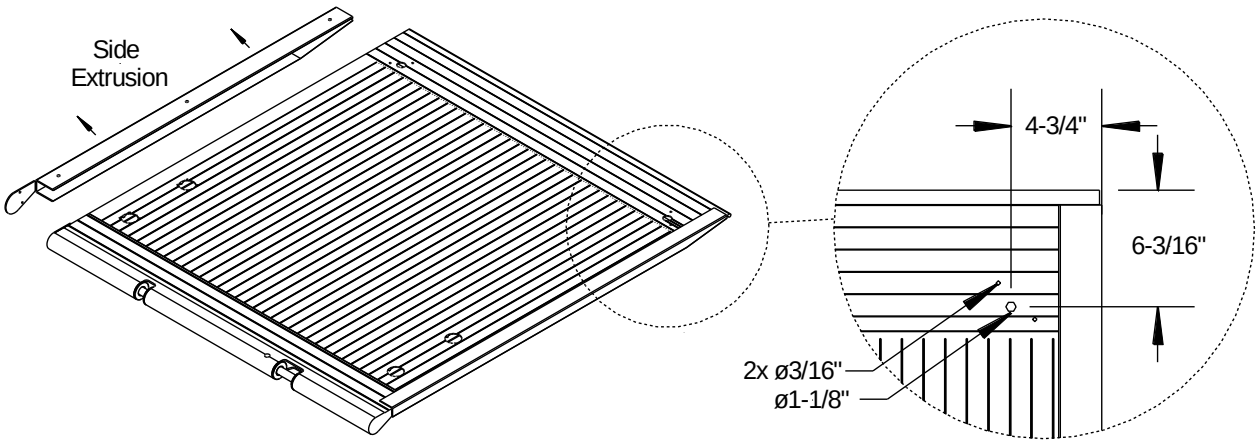
	Pin/Color	Pin/Color
Front Foot Control Harness	4 (Hot)/Blue	5 /Brown
Rear Foot Control Harness	4 (Hot)/Blue	6 /Brown

4. Test functionality of each foot control. Follow the steps below.
   DOWN
   Step on the front foot control and hold – wait between one and three seconds before you step on the rear foot control.
   UP:
   Step on the rear foot control and hold – wait between one and three seconds before you step on the front foot control.
   IF BOTH SWITCHES ARE NOT ACTIVATED BETWEEN ONE TO THREE SECONDS, START OVER.
5. Once operation has been verified, check all connections and verify that all screws are properly fastened. Finally, install the operation plate and make sure the arrows on the plate match the foot control operation.

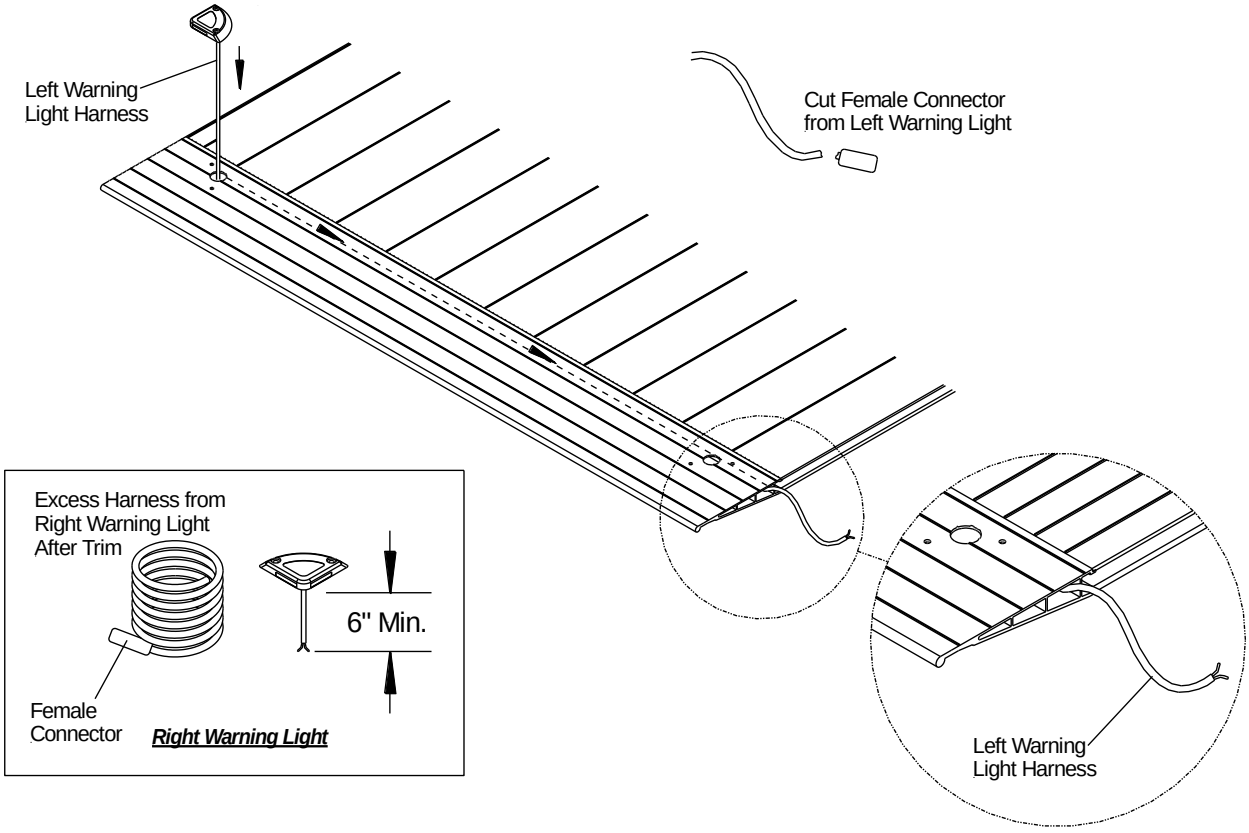


9.14 Warning Lights Installation (Optional)

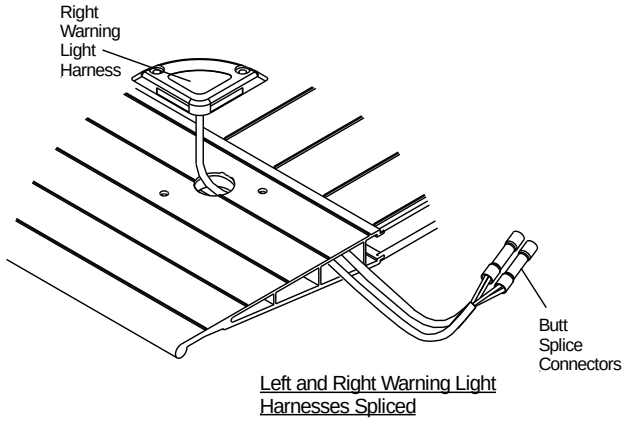
1. Remove the side extrusions by removing the three screws. Drill holes to mount the warnings light using dimensions below.



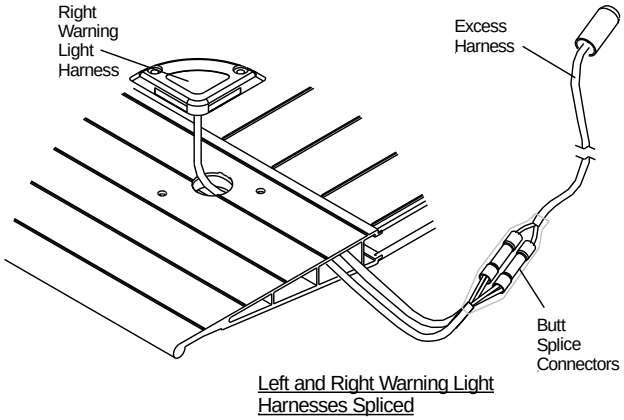
2. Cut the female connector at the end of the harness. Feed the left warning light harness into the slot and route the harness through the inside of the platform and out of the right side. For the right warning light, trim and leave a minimum of 6” of harness attached to the right warning light. Do not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



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

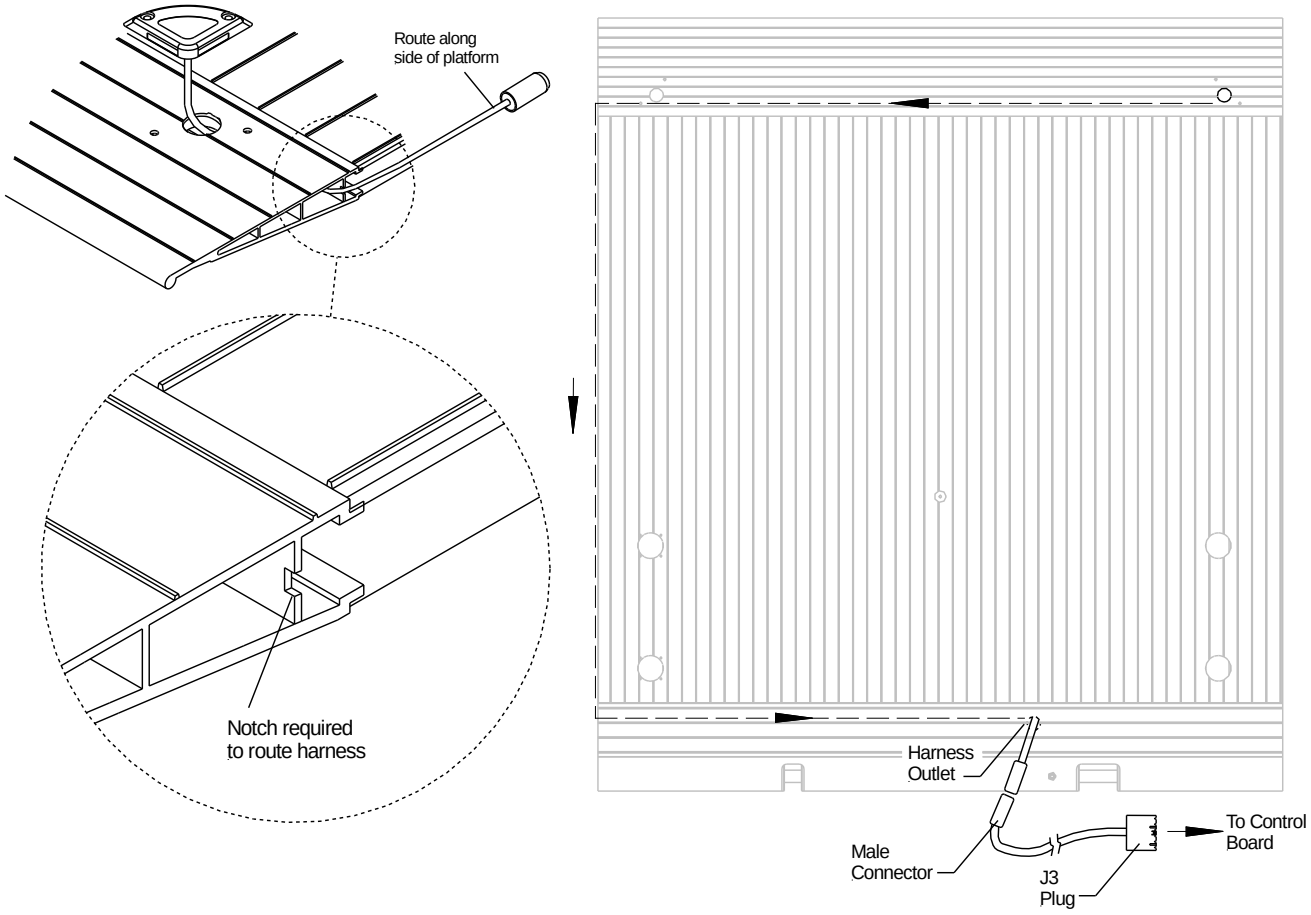


Left and Right Warning Light Harnesses Spliced

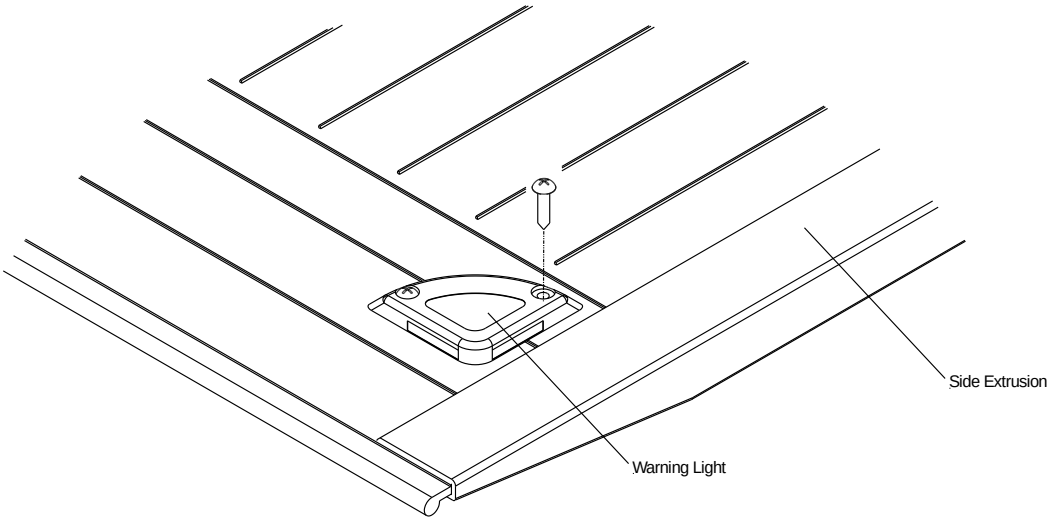


Left and Right Warning Light Harnesses Spliced

4. Notch the end of the extrusion to allow the harness to be routed along the side of the platform and to prevent the harness from being crushed after re-installing the side extrusions. Route the crimped harness to the harness outlet on the platform. Plug the male connector onto the female connector. Reinstall the side extrusion (from step 1) on the platform and secure it with the screws.



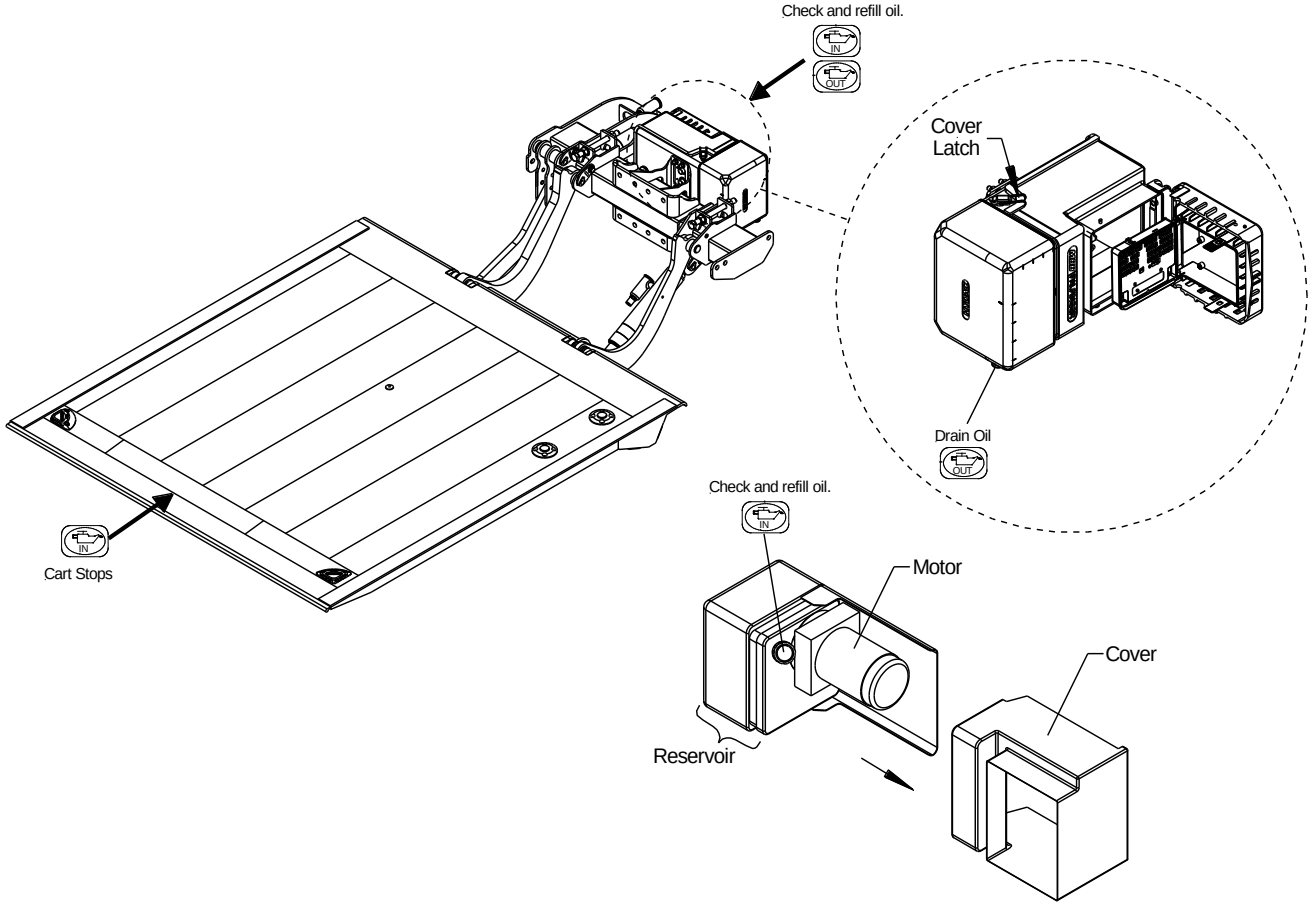
5. Secure the lights to the platform with the provided screws.



9.15 Lubrication

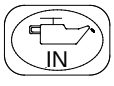
9.15.1 Minifix Liftgate – Single Piece Platform

1. Lower the platform to the ground.
2. Remove red protector caps from each component. Lubricate, grease, and oil as shown 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.



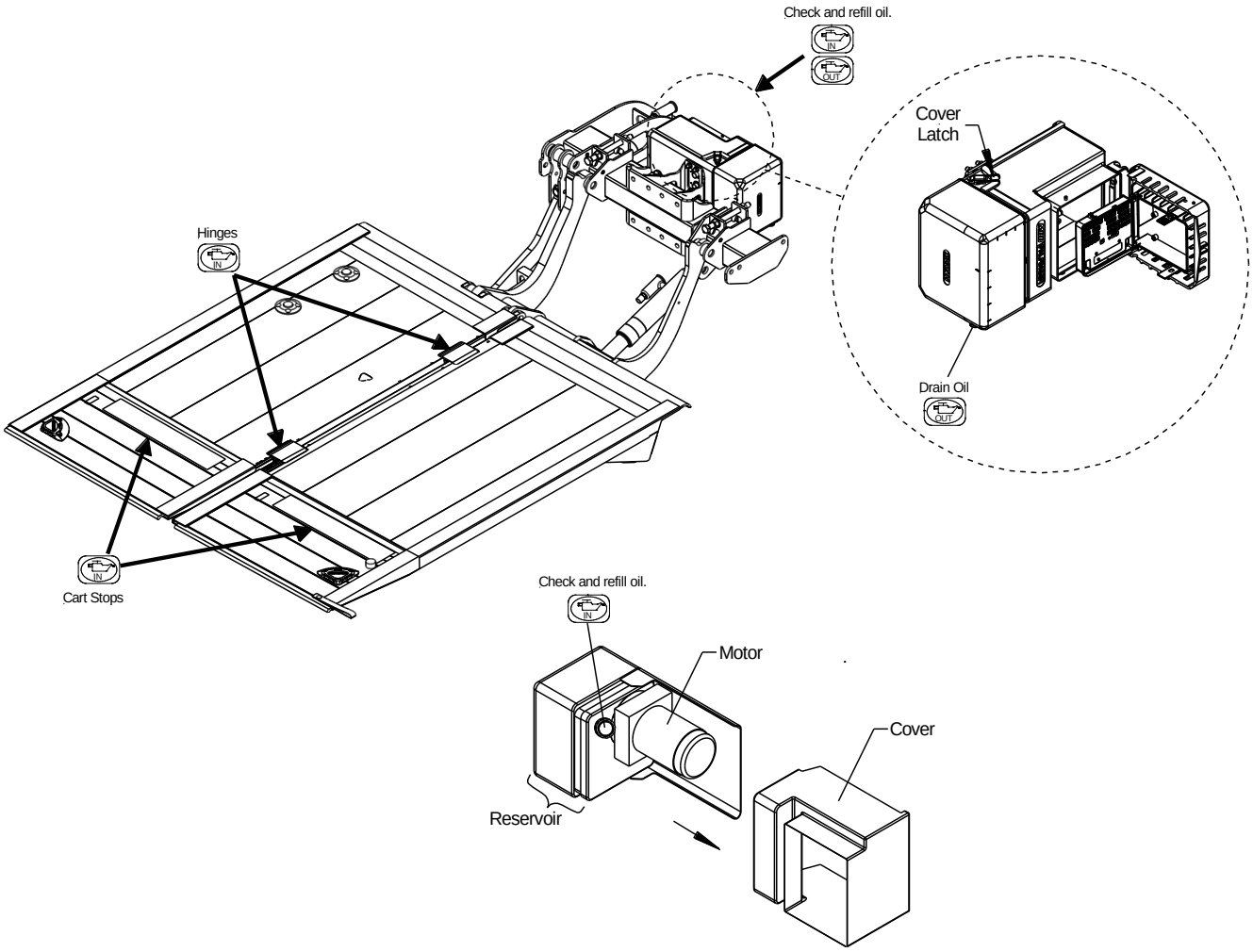
 Grease: Location of Grease Zerks

Oil: Oil Level in the power pack tank



Lubrication: Cart Stops (use WD-40 spray for lubrication).

9.15.2 Minifix Liftgate – Two-Piece Platform



Grease: Location of Grease Zerks

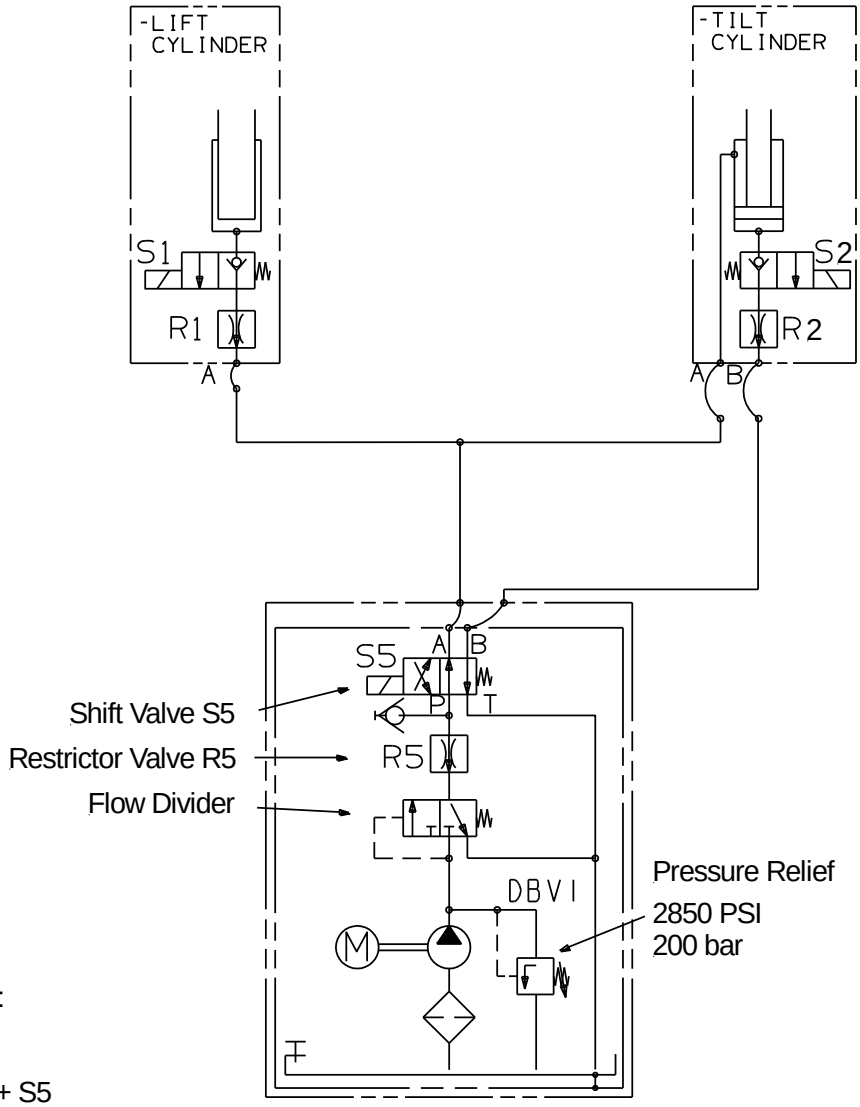
IN
OUT
Oil: Oil Level in the power pack tank

IN
Lubrication: Cart Stops (use WD-40 spray for lubrication).

10 Hydraulic Schematic

Functions:

S1 = Release Valve for lowering function
S2 = Release Valve for tilt down function
R1 = Flow Restrictor located inside hose adaptor on lift cylinder
R2 = 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

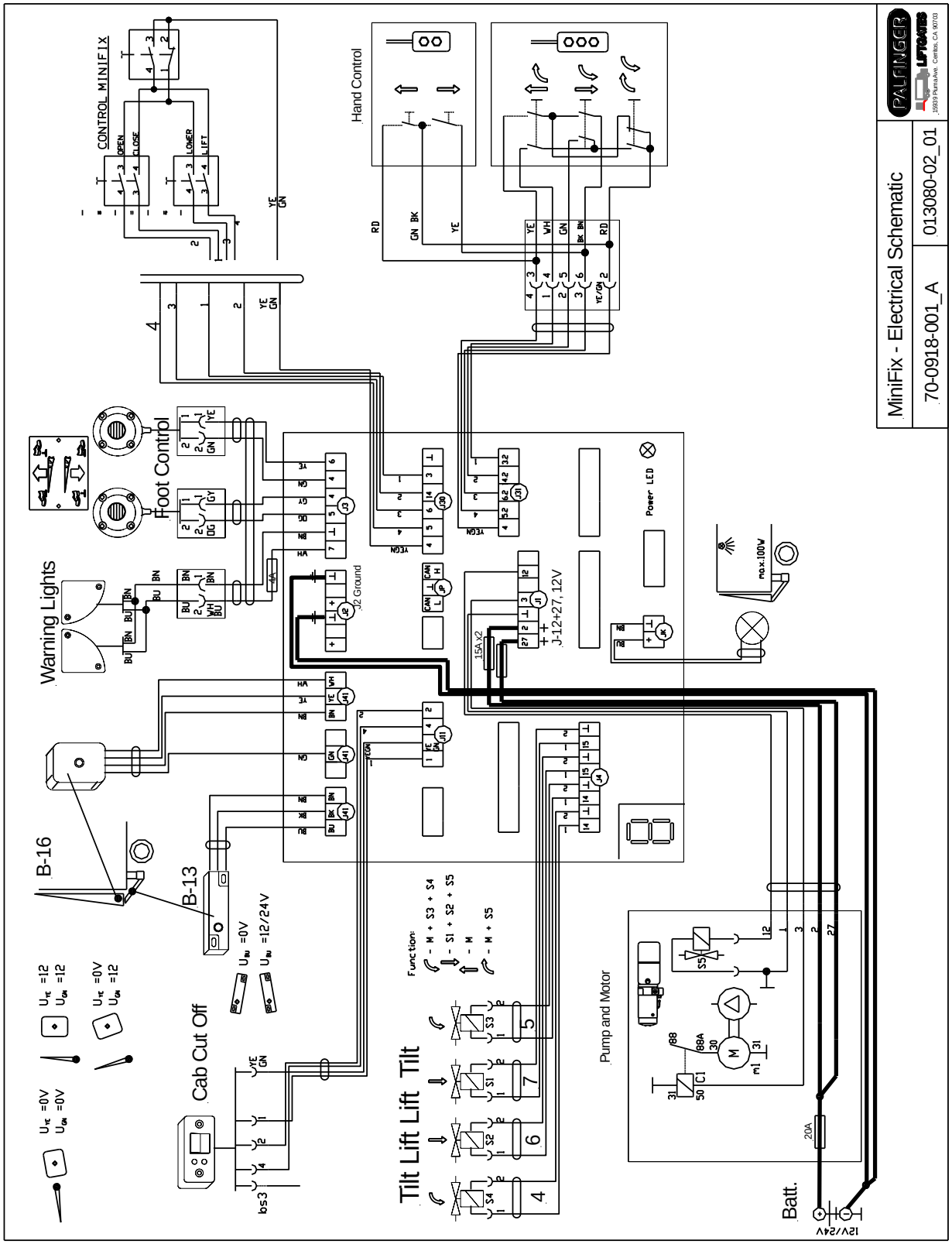


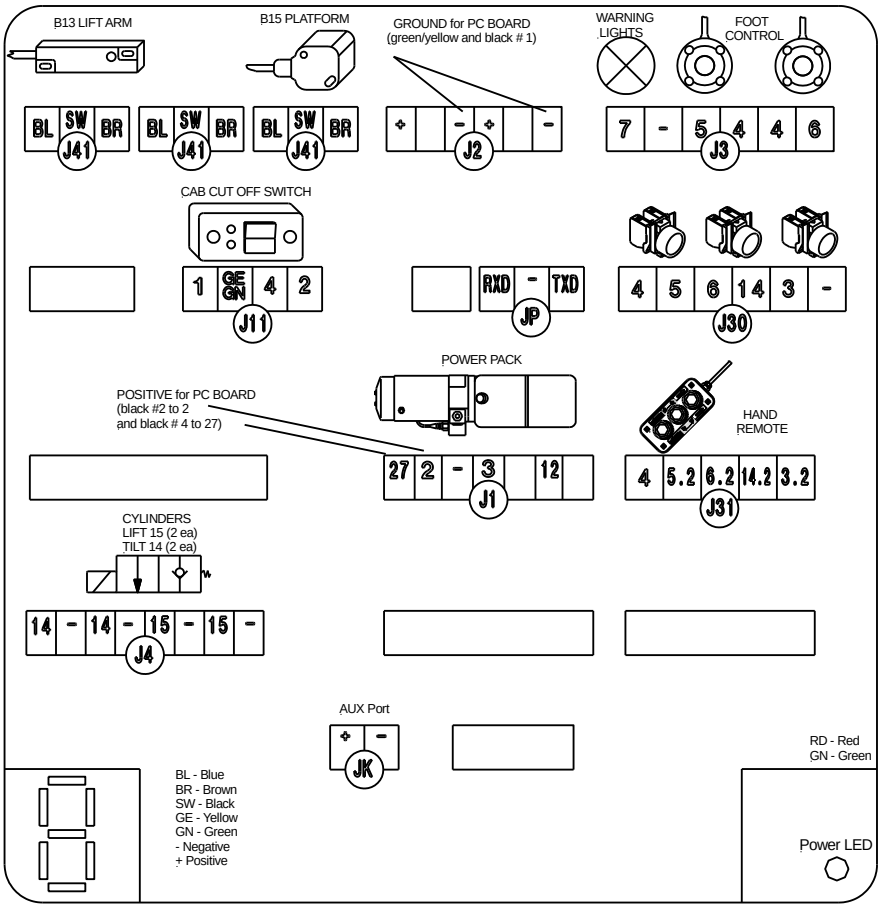
Functions:

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

MiniFix - Hydraulic Schematic		PALFINGER LIFTGATES 15939 Piuma Ave. Cerritos, CA 90703
70-0918-000_A	013080-02_01	

11 Electrical Schematic





Control Board Codes:

Code	Description	Reset
0	System ok / Cab switch off, (or missing bridge J11/2<->4)	
1	System ok / Cab switch on, (or bridge J11/2<->4)	
2	Low Voltage	Cab switch: off/on (or disconnect bridge J11/2<->4)
3	Missing tilt switch B-13 at lift arm or defective.	Automatically when the valves are back to normal
4	Missing tilt angle sensor B-15 at lift platform or defective	Automatically when the valves are back to normal
5	Missing tilt angle sensor B-15 at platform or defective	Automatically when the valves are back to normal
6	Warning lights shorted	Cab switch: off/on (or disconnect bridge J11/2<->4) or close tail lift
7	Short in cab switch/on-off switch or aux port	Cab switch: off/on (or disconnect bridge J11/2<->4) or close tail lift
8	General short in electrical wiring	Cab switch: off/on (or disconnect bridge J11/2<->4) or voltage interruption MBB control
9	Defect at motor solenoid detected during lifting	Automatically when the valves are back to normal
A	Voltage V02 (J1 pin 2) is missing, defective fuse	Replace the fuse
b	Defect at opening, valve (S3/S4) or motor relay detected during opening	Automatically when the valves are back to normal
c	S5 valve detected during closing or motor solenoid defective	Automatically when the valves are back to normal
d	S5 valve detected or defect at lowering valve (S1/S2)	Automatically when the valves are back to normal
E	Emergency program (all sensors are bypassed). Activation by: Press Open+Lower>10 seconds	Cab switch: off/on (or disconnect bridge J11/2<->4)
P	Diagnosis mode activated	Removing service connector

12 Decal Placement and Inspection

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

IMPORTANT: Never remove, modify, or paint over any decal.

Decal Kit			
Decal	**Qty.**	**Part No.**	**Description**
1	1	ML85-0922-000	Operating Instructions
2	1	ATG-URGWA	Urgent Warning: Elevating gate instructions
3	2	ATG-WLH	Warning: liftgate can crush
4	2	ATG-PLAT	Warning: Always stand clear of platform area
5	1	ATG-RESET	Circuit Breaker Protection
6	1	ATG-BKR	Circuit Breaker Reset (must be located at the circuit breaker location)
7	1	ATG-OPENILD	Notice For Open And Close
8	1	ATG-CAB	Liftgate Shut-Off (located next to shut-off switch in cab)
9	1	ATG-FT	Notice for Foot Control (if applicable)
10	2	ATG-XXXX	Capacity (Liftgate capacity can be found on serial number plate located on the liftarm)
11	1	ML2038837	Palfinger Logo (Yellow)

1

OPERATING INSTRUCTIONS

Read and Understand all Decals and Owner's Manual before operating liftgate

Open

Raise

Lower

Close

- To operate this liftgate read and understand the operating decals and manuals.
- Make certain the platform is clear before operating the liftgate.
- Liftgate shutoff switch must be turned off when liftgate is not in use.
- Keep platform in horizontal position when loading and unloading.
- Do not overload, refer to capacity decals.

24"

Max Capacity on Platform

Platform

For questions regarding operation call (888) 774-5844

2

URGENT WARNING

BEFORE OPERATING LIFT, BE SURE YOU UNDERSTAND:

1. Improper operation of this lift gate can result in serious personal injury. Do not operate unless you have been properly instructed, have read, and are familiar with, the operating instructions. If you do not have a copy of the instructions please obtain them from your employer, distributor or lesser, as appropriate, before you attempt to operate the lift gate.
2. Be certain the vehicle is properly and securely braked before using the liftgate.
3. Always inspect this lift gate for maintenance or damage before using it. If there are signs of improper maintenance, damage to vital part, or a slippery platform surface, do not use the lift gate. Do not attempt your own repairs, unless you are specifically trained.
4. Do not overload. See the Mfg. Literature and/or Rating Label on the unit for the rated load. Remember that this limit applies to both raising and lowering operations.
5. Each load should be placed in a stable position as near as possible to the center of the platform.
6. Never allow yourself, a helper, or a bystander to stand in a position where an unstable load might fall on them. Do not allow any part of your or your helper's body to be placed under, through, or around any portion of the moving lift gate, or in a position that would trap them between any parts when the lift gate is operated.
7. This lift gate is intended for loading and unloading of cargo only. Do not use this lift gate for anything but it's intended use. The lift gate is not equipped with a back up system to prevent falling in the event of a failure.

3

⚠WARNING

LIFTGATE HAZARDS CAN RESULT IN CRUSHING OR FALLING

KEEP HANDS AND FEET CLEAR OF PINCH POINTS

IF RIDING LIFTGATE MAKE SURE LOAD IS STABLE AND FOOTING IS SOLID

READ AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS BEFORE USE.

4

⚠WARNING

ALWAYS STAND CLEAR OF PLATFORM AREA

5

NOTICE

ELECTRICAL SYSTEM IS PROTECTED BY A RESETTABLE CIRCUIT BREAKER. SEE OWNER'S MANUAL AND DECAL LOCATED AT THE BATTERY.

6

NOTICE

ELECTRICAL SYSTEM PROTECTED BY RESETTABLE CIRCUIT BREAKER

TO RESET - PUSH RESET TAB IN

7

NOTICE

OPEN AND CLOSE LIFTGATE WITH PLATFORM FULLY RAISED

8

NOTICE

LIFT GATE SHUT-OFF

TO BE TURNED OFF WHEN LIFT IS NOT IN USE

9

OPERATING INSTRUCTIONS

Read all Decals and Owner's Manual before operating liftgate

DOWN:
Step on switch 1 and hold - wait between one and three seconds before you step on switch 2.

UP:
Step on switch 2 and hold - wait between one and three seconds before you step on switch 1. The platform will tilt up to preset position before raising

2 1

If both switches are not activated within three seconds start over.

10

⚠CAUTION

MAXIMUM LOAD CAPACITY

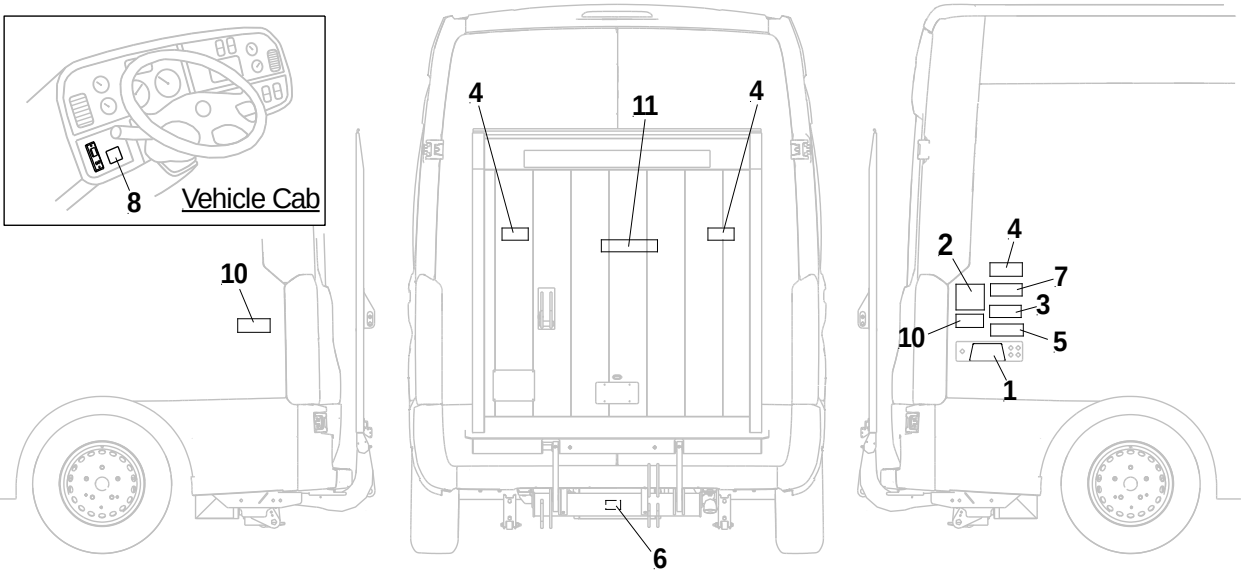
1100 LBS

[500 KG]

CENTER LOAD ON PLATFORM TO AVOID PERSONAL OR PROPERTY DAMAGE

11

PALFINGER



Driver Side of Vehicle

Rear of Vehicle

Curb Side of Vehicle

13 Technical Data

13.1 Torque Specifications

Imperial Fasteners

Fastener Size	Grade 2 Torque (ft-lbs)		Grade 5 Torque (ft-lbs)		Grade 8 Torque (ft-lbs)	
	Coarse	Fine	Coarse	Fine	Coarse	Fine
¼"	4	4.7	6.3	7.3	9	10
5/16"	8	9	13	14	18	20
3/8"	15	17	23	26	33	37
7/16"	24	27	37	41	52	58
½"	37	41	57	64	80	90
9/16"	53	59	82	91	115	129
5/8"	73	83	112	128	159	180
¾"	125	138	200	223	282	315
7/8"	129	144	322	355	454	501
1"	188	210	483	541	682	764

Metric Fasteners

Fastener Size	Class 8.8 Torque (Nm)		Class 10.9 Torque (Nm)		Class 12.9 Torque (Nm)	
	Coarse	Fine	Coarse	Fine	Coarse	Fine
M5	5.75	-	8.1	-	9.7	-
M6	9.9	-	14	-	16.5	-
M7	16.5	-	23	-	27	-
M8	24	-	34	-	40	-
M8x1	-	25	-	35	-	42
M10	48	-	67	-	81	-
M10x1.25	-	49	-	68	-	82
M12	83	-	117	-	140	-
M12x1.25	-	88	-	125	-	150
M14	132	-	185	-	220	-
M14x1.5	-	140	-	195	-	235
M16	200	-	285	-	340	-
M16 x1.5	-	210	-	295	-	350
M18	275	-	390	-	470	
M18 x1.5	-	305	-	425	-	510
M20	390	-	550	-	660	-
M20x1.5	-	425	-	600	-	720
M22	530	-	745	-	890	-
M22 x1.5	-	570	-	800	-	960
M24	675	-	960	-	1140	-
M24x2	-	720	-	1000	-	1200

14 Final Inspection Check List

⚠ WARNING

Liftgate failure or malfunction could result in property damage, personal injury or death if you fail to check each of the following items listed. DO NOT USE the liftgate if any of the following points are NOT verified and checked. Installation is NOT complete, and all WARRANTIES are VOID if you have not checked and verified all items listed on this inspection sheet. Inspection sheet is to be filled out at the facility where the liftgate was installed and must be sent to Palfinger Liftgates for warranty activation.

Structural Inspection

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

Electrical Inspection

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

Operational Inspection

- ❑ All decals are in place and legible per instructions.
- ❑ All pivot points are lubricated per instructions and zerk fittings (if applicable) have been capped.
- ❑ Platform travels up and down smoothly and freely, without any hesitation or unusual noises.
- ❑ Platform is flush with the floor when raised completely.
- ❑ Platform rests on the ground evenly when lowered completely.
- ❑ Platform raises and lowers properly and at correct speed. (2 to 4 inches per second)
- ❑ Liftgate is clean all around. Cylinders are clean and rubber & plastic caps are in place.
- ❑ The liftgate serial number and model number are documented on the Owner's Manual, as well as the installation manual in the space provided. (pg. 5)
- ❑ Owner's Manual is in the vehicle's glove box.
- ❑ Supervisor has demonstrated the instructions in the Owner's Manual to the customer/driver upon delivery.

Inspection Information (Please Print):

Name:_____Signature:_____

Completed by: _____

Title: _____Date:_____

Liftgate Model:_____ Liftgate Serial Number:_____


PALFINGER
LIFTGATES