

# Installation Section

## General Installation Information

### Fabricated Tooling

**Tip:** The lifting jig, shown in the illustrations, can reduce installation time when installing more than one Anthony Tuckunder liftgate. A forklift or overhead crane can also be used with a bolt and chain.



Sample lifting jig.

The photo shows a sample lifting jig. This lifting jig must be made specifically for the type and design of your particular forklift. Remember, the materials used to construct the lifting jig must be capable of lifting and supporting the Anthony liftgate being installed. The lifting jig must also contain a retaining method to hold the lifting jig in place on the forklift. The construction of this lifting jig must satisfy the user to be safe and properly constructed.



Lifting jig attached to liftgate. Lifting jig must support liftgate in a level position, as shown.

### DANGER



**The construction of the lifting jig must satisfy the user to be safe and properly constructed. Failure to use the proper materials or material thickness can result in serious injury or death to the user(s).**

- Make the lifting jig from tubular steel at least 0.25 inches thick or thicker.
- Make the lifting bolt from a 5/8 inch threaded eyebolt. Use a washer and nut to fasten the lifting jig to the liftgate.
- Make the lifting jig wide enough to support the liftgate and to accommodate the width of the forks on the forklift.
- The lifting bolt should be long enough to go through the lifting hole in the liftgate and allow the lifting jig to remain level.

## Prior To Installation

**Tip:** Check the OEM vehicle manual for any special requirements prior to welding on the truck. If required, disconnect the battery cable before welding on the truck.

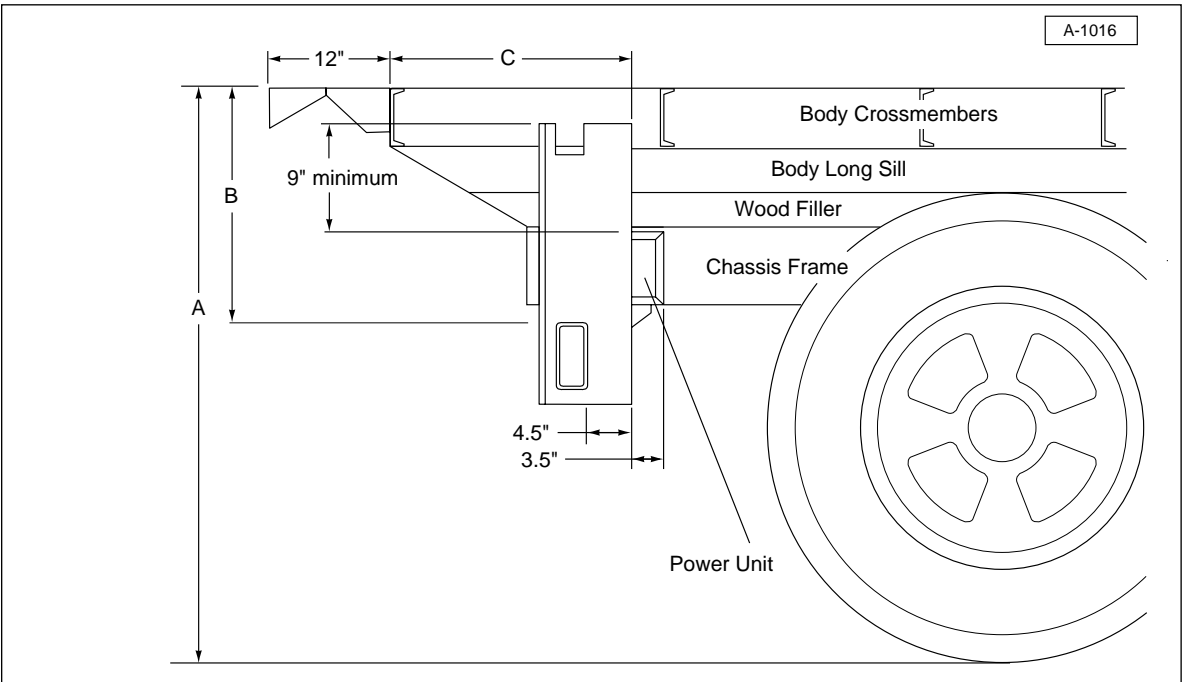
If installing multiple liftgates, consider making a lifting jig as shown in the Fabricated Tooling section of this manual.

1. Place the truck on a flat, level surface. Block the wheels to prevent possible truck movement during liftgate installation.
2. Use the Mounting Requirements illustration and chart to make sure there is enough clearance to properly install the liftgate.

Mounting Requirements		
A Bed Height Floor Extension	B Bed to top of Tube Assembly	C Mounting Plate
36" - 41"	15-3/4"	29"
42" - 49"	19"	24-1/4"
50" - 51"	20"	23-3/4"
52" - 53"	21"	23-1/4"
54" - 55"	22"	22-5/8"
56" - 57"	23"	22-1/2"

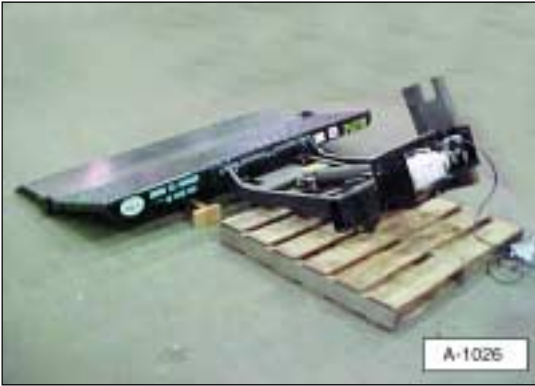
**DANGER**

Failure to prevent the truck from moving during the installation of the liftgate could result in serious personal injury or crushing of the installer(s).



Mounting requirements. Refer to the Mounting Requirements chart for dimensions.

3. Remove the banding securing the liftgate and loose parts to the pallet. Remove the curbside and streetside mounting plates from the liftgate frame. Unfold the liftgate, as shown.



Unband and unfold the liftgate.

## Installation Procedure

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### Step 1

Remove the cover from the power unit box. Remove all the parts and installation instructions from inside the box. Replace the plug in the power unit reservoir with supplied breather cap.

*Tip: The power unit box should contain plastic tie wraps for battery cable, two stop brackets, one latch plate, one fuse assembly/power cable, and one package containing decals, shims, and manuals.*



Illustration 1. Remove all loose parts and installation package.

### Step 2

Cut off or extend the chassis frame, wood filler, and body long sill, as shown in Illustration 2. The frame must be flush to 12 inches forward of the rear of the truck body.

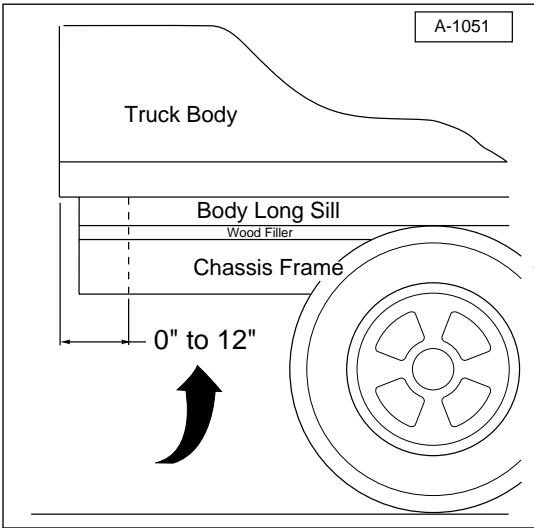


Illustration 2. Cut off or extend the body long sill and chassis frame to the dimensions shown in the illustration if the chassis frame is not within the 0 to 12" dimension shown above.

**Tip:** Before modifying the truck chassis, make sure the extensions meet the specifications of the truck manufacturer and that altering the frame will not void the truck warranty.

### Step 3

Measure and determine the center of the truck's rear sill. Mark this point.



Illustration 3. Find and mark the center of truck's rear sill.

**Tip:** Two men are used in the welding process to reduce the time.

### Step 4

Install the floor extension.

- a. Align the "Center Mark" of the floor extension assembly with the center of the truck body. Tack weld the assembly in three places (left, center, and right) level with the floor of the truck. The tack weld must hold the weight of the floor extension, approximately 200 pounds.



Illustration 4a. Align floor extension with mark.

<b>⚠ CAUTION</b>	
	<p><b>Tack welds must be strong enough to hold the weight of the extension and the dock bumpers. Insufficient welds may not hold the truck extension in place, resulting in bodily harm.</b></p>

- b. Make sure the floor extension is level and parallel to the truck's rear sill.



Illustration 4b. Level the floor extension.

- c. Tack the brackets under the floor extension to the truck body.



Illustration 4c. Tack weld floor extension brackets.

- d. Finish welding the floor extension to the truck body. Weld between the white dots painted on the floor extension (approximately 2 inches each).
- e. Weld the gussets under the floor extension to the truck body on both sides of the gusset.

## Step 5

Lift and position the liftgate.

**⚠ WARNING**



Use extreme caution if working under the liftgate. Failure to safely secure the liftgate to the floor extension could cause serious personal injury. Do not remove the lifting device(s) until the liftgate is completely welded onto the truck.

- a. Attach a lifting device to the liftgate. A lifting jig is shown in the installation photos, however any lifting device capable of safely lifting and holding the liftgate can be used.



Illustration 5a. Use a forklift or overhead crane to lift the liftgate.

**Tip:** The lifting jig shown in Illustration 5a and 5b is not required for installation, but can reduce installation time when installing more than one liftgate. A forklift or overhead crane can also be used with a bolt and chain.

- b. Position the liftgate level with the floor extension and centered on the truck's rear sill. The outer edge of the liftgate should be 1/2 to 3/4 inches higher than the edge against the floor extension, as shown in Illustration 5c.



Illustration 5b. Align the center mark of the liftgate platform with the center mark on the floor extension.

- c. The position of the outer edge of the liftgate should be  $1/2$  to  $3/4$  inches higher than the edge against the floor extension, as shown in Illustration 5c.

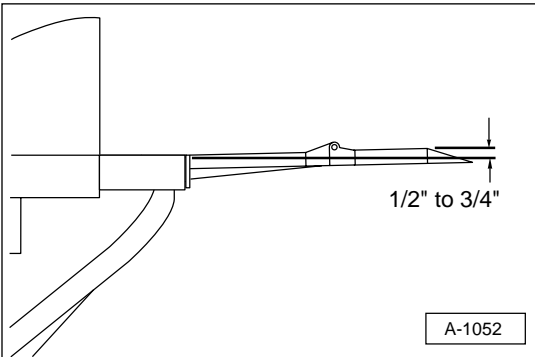


Illustration 5c. Raise the outer edge  $1/2$ " to  $3/4$ " above the edge against the floor extension.

## Step 6

Clamp the liftgate onto the floor extension.

**DANGER**

**To avoid personal injury, do not work under the liftgate or floor extension while installing or painting the liftgate. Work so that you would not be in the way if the clamps, weld, etc. should fail.**

- a. Use two large C-clamps, as shown below, to hold the liftgate in place.



Illustration 6a. Clamp liftgate onto floor extension.

- b. An alternate method of holding the liftgate is using two, 3 to 4 feet long pieces of heavy-duty angle iron. The size of the angle iron should be  $3 \times 3 \times 1/4$  inch minimum.

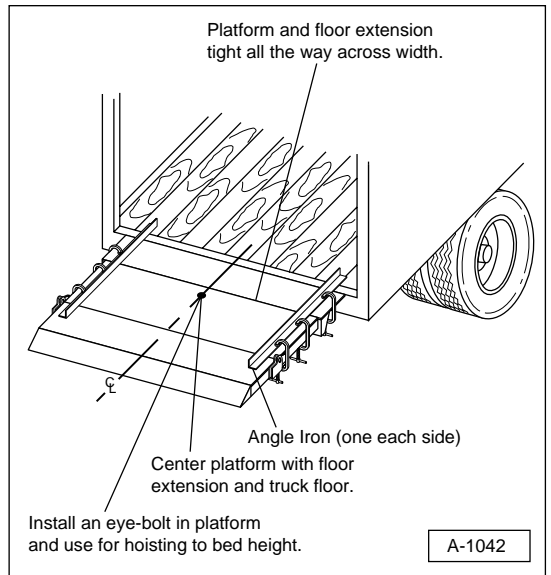


Illustration 6b. Use two pieces of angle iron clamped to liftgate to hold it in position.

## Step 7

Route the supplied power cable (with attached fuse assembly) from the battery to the liftgate power supply using one of the following procedures:

### Step 8 - Direct Battery Connection (not recommended)

### Step 9 - Cut-Off Solenoid Connection

### Step 10 - Cut-Off Switch Connection

Only one method is required to complete the wiring installation.



Illustration 7. Power cable and fuse assembly.

## ⚠ DANGER



Never secure the power cable to anything which allows it to contact sharp edges, other wiring, fuel tank, fuel lines, brake lines, air lines, exhaust system, or any other object that could cause the power cable to wear or be damaged. A cut battery cable can cause sparks resulting in loss of vehicle control, serious injury, or even death.

## ⚠ DANGER

Anthony Liftgates strongly recommends the installation of a power cut-off solenoid or cab cut-off switch. Allowing power to the liftgate when unattended can result in serious injury or death.

## ⚠ WARNING

The liftgate must be properly grounded. A ground wire, the same gauge or larger as the liftgate power cable, must be connected from the negative post of the battery or batteries to the truck's frame. Some trucks may have a properly sized ground wire from the battery to the frame and would require no change. If, however, there is no ground wire or it is undersize, add the correctly sized ground wire.

If this Warning is not followed, damage to the truck chassis may occur. Improper grounding can cause the electrical current to travel through brake lines, steel braided power steering hoses, or other chassis wiring causing failure to these components! Failure of these components could result in loss of vehicle control.

## Step 8

### Direct Battery Connection (not recommended)

#### IMPORTANT NOTICE

*Using the standard wiring hookup is not recommended because it does not cut off power to the liftgate when the truck is left unattended. A cut-off switch or cut-off solenoid will disable the use of the liftgate when the truck is not in use.*

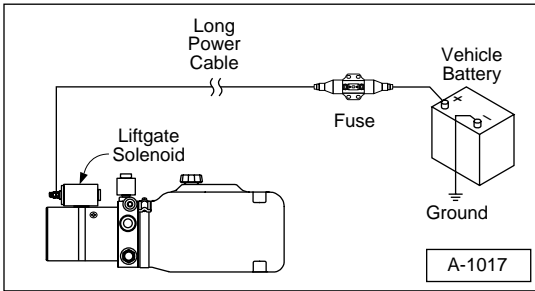
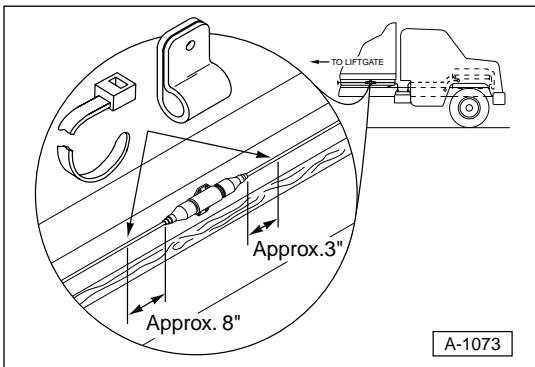


Illustration 8. Power cable connected to power unit and battery.

- a. Position the fuse assembly near the battery so the short cable end will reach the positive terminal.
- b. Attach the fuse holder to the truck body long sill using either Method A or B, shown in this step.

**Tip:** There are several options for attaching the power cable from the plastic fuse assembly. It can be fastened using plastic tie wraps or wire clips. The fuse assembly can also be bolted directly onto the body long sill, if desired.

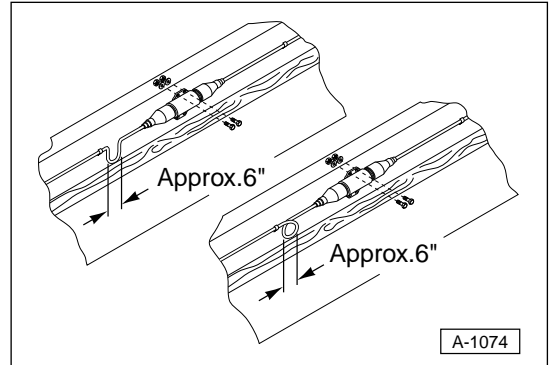
### Method A



Fasten the power cable to the truck body. Locate one fastener (battery side) within 3 inches of the end of the fuse assembly. Locate the other fastener (power unit side) within 8 inches of the fuse assembly.

Using this method does not require the fuse assembly to be attached to the long sill.

### Method B



Attach the fuse holder to the truck body long sill using #10 or #12 self-tapping screws or bolts, washers, and self-locking nuts. Fasten the power cable, as needed, to properly hold it in place. Using this method requires an extra length of cable on one side of the fuse assembly to permit removal of the fuse.

- c. Run the long end of the power cable from the fuse to the motor solenoid. If the power cable is longer than required, cut it to the desired length and attach a cable lug according to instructions listed below.



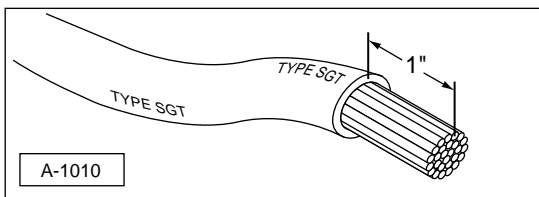
Illustration 8c. Connect power cable to motor solenoid.

- d. Connect the power cable to the motor solenoid. Make sure the power cable is connected to the correct motor solenoid post (one not connected to the motor housing with a metal strap or wire cable).
- e. Connect the short end of the power cable to the positive post of the battery.
- f. The power unit should now be operational.
- g. Coat all terminal ends, studs, and nuts with a Teflon lubricant, grease, or other electrical connection sealant to prevent corrosion.

*Tip: Do not apply undercoating to power cable or fuse holder! The power cable should be clean near the fuse holder to ensure easy removal of the rubber boot seals if fuse needs to be replaced. For fuse replacement, see the instructions in the Maintenance section of this manual.*

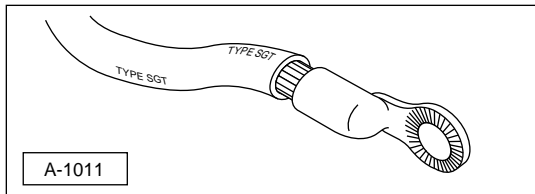
### Cable Lug Installation

- 1). Strip insulation one inch back from the end of the cable to expose the copper wire.



Remove one inch of insulation.

- 2). Position the cable lug on the exposed wire, as shown. Crimp the cable lug using a cable crimping tool (hydraulic or manual).

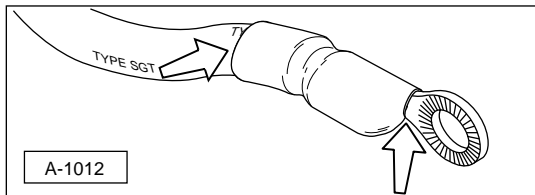


Install cable lug.

### IMPORTANT NOTICE

*Proper wire connections are crucial to the life of the liftgate's power unit. DO NOT smash the cable lug with a hammer to secure it to the cable. Poor connections can result in low voltage, and any attempt to operate below the minimum required voltage could cause system failure.*

- 3). Use the supplied heat shrink tube to insulate the new connection. Heat the shrink tubing using a heat gun or propane torch until it shrinks around the cable insulation and cable lug, leaving only the mounting hole exposed. Do not overheat the heat shrink tubing.



Put heat shrink tubing over connection.

## Step 9

### Cut-Off Solenoid Connection

The installation of a cut-off solenoid is a recommended option, by Anthony Liftgates, for all 12 Volt electric liftgates. Installing a cut-off solenoid will help to prevent accidental or unauthorized use of the liftgate.

The optional A-133036 Cut-Off Solenoid Kit can be used in any truck, but is essential for tilt cab applications because it requires only a light weight wire running to the cab—not a large cable as required by the cut-off switch.

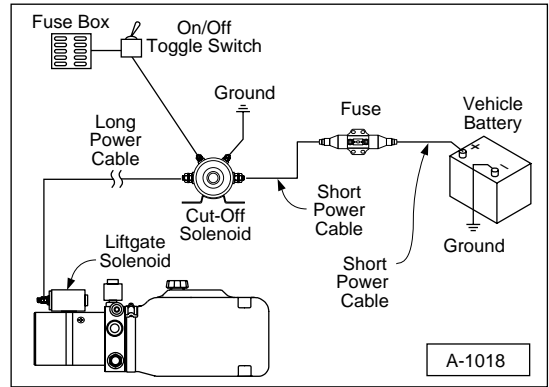


Illustration 9a. Wiring diagram with cut-off solenoid.



Illustration 9. Cut-off solenoid installed between battery and fuse assembly.

(1) Short cable, part of solenoid kit. (2) Short end of power cable leading to fuse.

- a. Follow the installation directions on the Installation Instruction sheet that comes with the kit.

## Step 10

### Cut-Off Switch Connection

The installation of a cut-off switch is also a recommended option, by Anthony Liftgates, for all 12 Volt electric liftgates. Installing a cut-off switch will help to prevent accidental or unauthorized use of the liftgate.

- a. Follow the installation directions on the Installation Instruction sheet that comes with the kit.



Illustration 10a. Cut-off switch mounted in cab of truck.

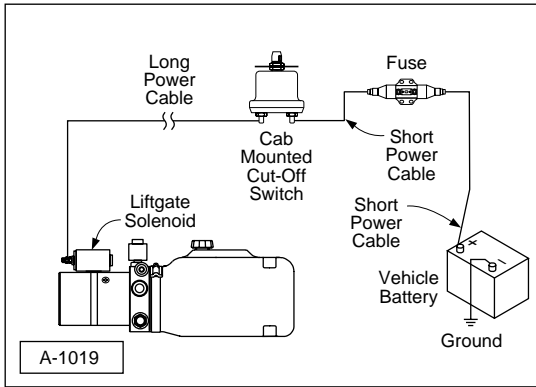


Illustration 10b. Wiring diagram with cab cut-off switch.

## Step 11

Place a floor jack under the wheel arm, as shown. Raise the wheel arm until the adapter frame is almost perpendicular to the truck frame, as shown in Illustration 12.



Illustration 11. Raise the tube assembly into place.

**Tip:** To ensure the lifting platform will remain level with the floor extension after normal wear, tilt the mounting plates and adapter frame tube slightly towards the cab of the truck until about 1/4 inch of the cylinder rod chrome is extended.

## Step 12

Slide the mounting plates into position on the 3" x 6" adapter frame tube on each side and tack weld in place. Place tack welds at the locations marked "X" (each weld should be a 3/8" fillet, 1 inch long). The angle on the plate should face the rear of the truck, as shown.



Illustration 12. Put mounting plates into position. Put 3/8" fillet by 1 inch long tack welds at locations marked "X".

## Step 13

Remove the C-clamps, angle iron (if this method was used), lifting device, and jack.

## Step 14

Standing on the curbside of the truck, away from the platform, actuate the DOWN button/switch to lower the platform to the ground and the UP button to raise the platform back to truck bed height. If the platform lowers to the ground and raises flush to the floor extension, finish welding the mounting plates. If the platform does not make a complete cycle, adjust the mounting plates, as necessary.

## ⚠ CAUTION



**For safety purposes, weld the liftgate while the platform is on the floor, not in a raised position. Cover the cylinder rod to prevent weld spatter from damaging it.**

### Step 15

With the liftgate on the ground, completely weld the mounting brackets onto the chassis frame and tube assembly.

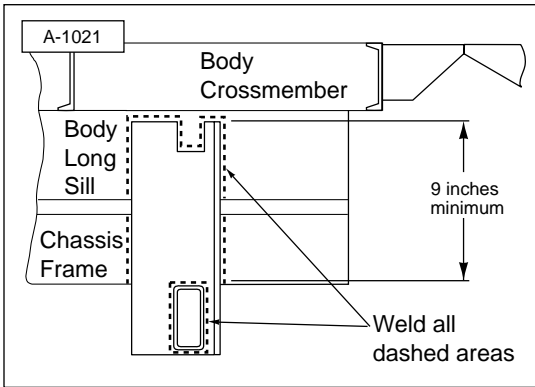


Illustration 15. Weld mounting plates to body long sill and chassis frame.

### Step 16

Cut the chassis frame and body long sill, as shown in Illustration 16. After making the cut out, make sure the liftgate operates properly without hitting the chassis frame or body long sill.

Chassis Frame Length			
Bed Height Floor Extension	B	C	E
36" - 41"	15-3/4"	13-1/2"	3-3/4"
42" - 49"	19"	14-3/4"	4-1/4"
50" - 51"	20"	14-1/4"	5-1/8"
52" - 53"	21"	13-3/4"	5-3/4"
54" - 57"	22"	13-1/8"	6-1/4"

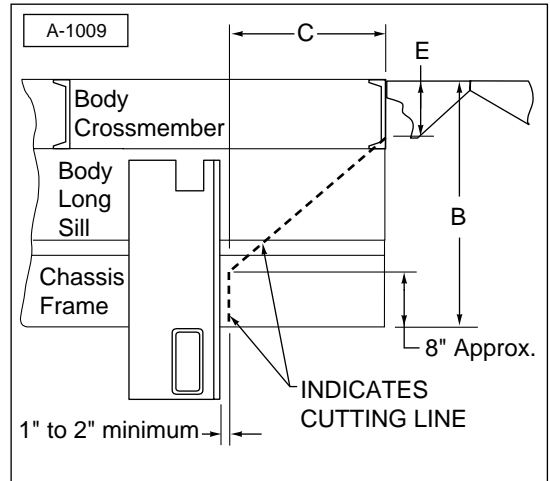


Illustration 16. Cut the body long sill and chassis frame.

### Step 17

Position the liftgate and weld the platform supports in place as follows:

- a. Fold the liftgate into the storage position. Using the up and down switch, position the liftgate until there is a 1/2" gap between the cylinder body and liftgate.



Illustration 17a. Adjust liftgate until there is a 1/2" gap between the cylinder and the liftgate.

- b. Position and tack weld the platform supports 1/16" to 1/8" from the platform on each side. If the liftgate operates properly, weld them in place on all three sides.



Illustration 17b. Weld platform supports into place on each side.

### IMPORTANT NOTICE

*The latch pin is only for in-transit locking of the liftgate. DO NOT slide the latch pin into the latched position when the platform is unfolded and raised. If this occurs, serious damage to the liftgate can occur when the liftgate is lowered.*

## Step 18

Attach the locking plate to the radius arm as follows:

- a. Raise the liftgate to the stored position and slide the latch pin across the radius arm.
- b. Position the locking plate on the street-side radius arm, as shown. There should be a 1/16" gap between the radius on the locking plate and the latch pin.

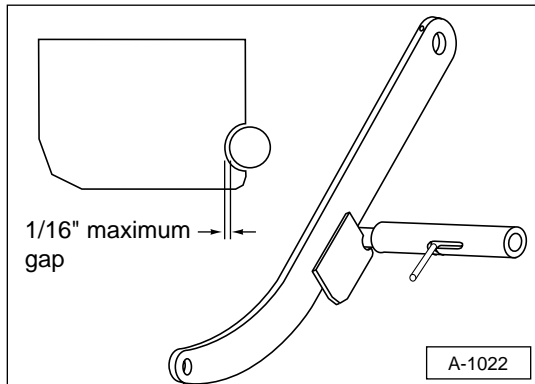


Illustration 18b. Position locking plate with 1/16" maximum gap.

- c. Weld the locking plate in two places with 3/8" fillet welds, as shown.

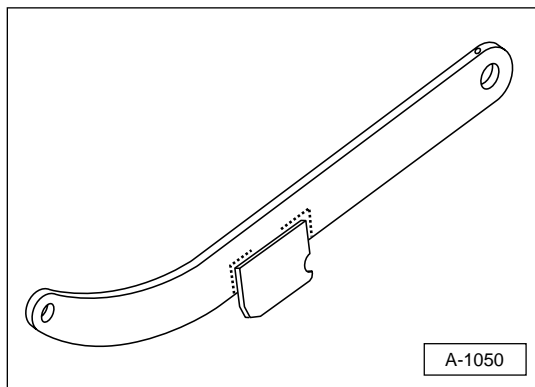


Illustration 18c. Weld locking plate to radius arm.

## Step 19

Mount the control switch to truck's rear curbside post so it can be reached while standing at the curbside of the truck away from the liftgate platform.

**Tip:** *Mount the switch box before attaching the dock bumpers. This allows routing of the switch box wire through the slot in the dock bumper.*



Illustration 19. Install the control switch.

## Step 20

Weld both the streetside and curbside dock bumpers onto the floor extension.

- a. If necessary, route the control cable through the curbside dock bumper.
- b. Place the dock bumper corners in place and tack weld into position.



Illustration 20b. Tack weld dock bumpers.

- c. Weld the dock bumper corners continuously to the floor extension and the truck body.



Illustration 20c. Correctly welded floor extension and dock bumper corners.

**Tip:** Place a wet shop towel or rag around the switch box control cable when welding the curbside dock bumper to prevent burning or melting the control cable.

## Step 21

Weld the side gussets to the dock bumper corners and the steel side member of the truck body or the cross-members of the truck body.

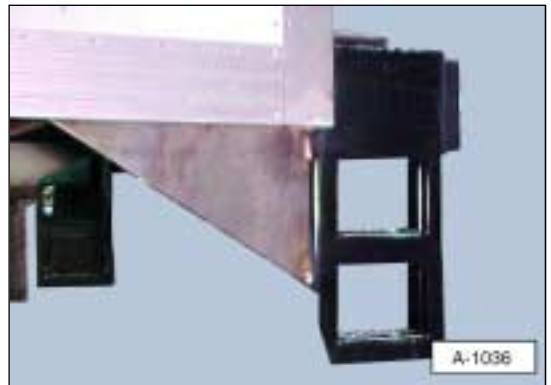


Illustration 21. Weld side gussets in place.

- a. The recommended method of attaching side gussets, is welding the gusset to the steel side member of the truck body.

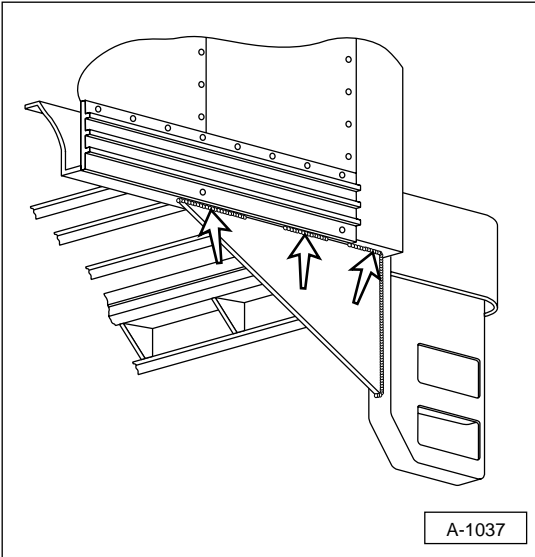


Illustration 21a. Side gusset welded to truck body.

- b. The alternate method of attaching the side gussets is to weld the gusset to the steel cross-members of truck body. Make sure gusset straddles at least three cross members. Weld both sides of each gusset.

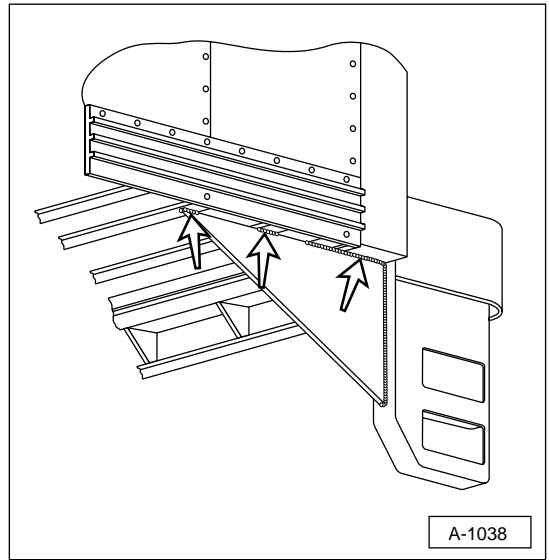


Illustration 21b. Side gusset welded to cross-members.

## Step 22

Install lights or other electrical components, if needed.

## Step 23

Install grab bars or hand rails, as may be necessary. Also, install license plate holder, as necessary.

## IMPORTANT NOTICE

*Some models of Anthony liftgates may be provided with step devices to assist in the ingress or egress of the rear of the truck or trailer. These devices are NOT to be considered all inclusive of any requirements or guidelines regarding proper ingress or egress of trucks and trailers. These items are provided only as an added feature for installers to help simplify the meeting of possible ingress or egress requirements. As there are many variables in truck sizes and shapes, it is the installers responsibility to determine proper ingress and egress requirements, such as steps, hand grips, grab bars, etc. for each vehicle receiving an Anthony liftgate.*

## Step 25

Attach all decals, as shown in the Decal section of this manual.

## Step 26

Complete the Final Inspection Checklist section.

## Step 24

Make a final operation check.

- a. Make sure the platform will travel through a complete cycle, up and down, smoothly and freely, with the platform completely open.
- b. Make sure the platform will fold and tuck under the truck in a stored position, and latch. The liftgate must fold smoothly and freely.
- c. Make sure hydraulic hose fittings are tight and hydraulic hose does not rub against the liftgate or other parts while cycling up, down, open, and closed. Adjust as necessary by loosening fittings and adjusting the position of the hose(s). Retighten fittings.

# Final Inspection Checklist

## DANGER



**Do not use the liftgate if any of the items in the Final Inspection Checklist are not checked and verified. If you have any questions, contact your nearest Anthony distributor, or the Anthony Liftgates main office.**

- Check all welds to make sure they are done properly.
- Make sure all pins are in place and held with proper retainers.
- Make sure the power unit reservoir is filled.



Fill hydraulic tank to within 1/2 inch from the top of the tank.

For **Gravity Down** models: the fluid level should be 1/2" from the top of the reservoir when the liftgate platform is on the ground.

For **Power Down** models: the fluid level should be 1/2" from the top of the reservoir when the liftgate platform is in the fully raised position.

- Install cover on power unit box. Make sure it is secured with a padlock, lock pin, or wire (customer supplied).
- Operate the liftgate through its entire operational cycle (Up, Down, Open, Close) several times. Make sure the liftgate operates evenly, freely, and smoothly throughout the entire operating range and that there is no unusual noise or vibration while operating the liftgate.
- Make sure the platform is adjusted properly (1/2 to 3/4 inch rise) with the necessary shims.
- Make sure all decals are in place and legible.
- Make sure license plate bracket is properly installed, as required by law.
- Make sure lights are installed and operating properly, per FMVS 108.
- Make sure reflectors are re-installed, if any.
- Make sure grab handles and other ingress/egress items are properly installed as may be necessary.
- If rubber dock bumper pads are required, bolt them in place to dock bumper corner caps.
- Make sure the optional cab cut-off switch or power cut-off solenoid is installed.
- Put Installation, Operation, and Maintenance manual and Parts manual in the vehicle.