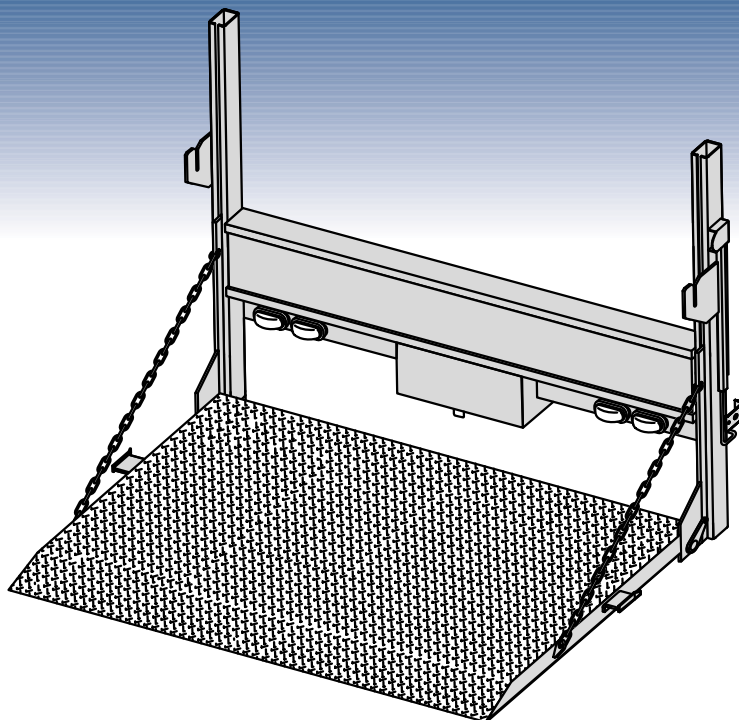


ANTHONY LIFTGATES, INC.

# INSTALLATION AND OPERATION MAINTENANCE & TROUBLESHOOTING

**For Medium RailTrac™ Hydraulic Liftgates**



## MODELS

AR-1200  
AR-1200-AB  
AR-1200-AB-DT  
AR-1200-DT  
AR-1800  
AR-1800-AB  
AR-1800-AB-DT  
AR-1800-DT  
AR-1800-RT  
AR-1800-RT-AB  
AR-2500  
AR-2500-AB  
AR-2500-GB\*  
AR-2500-GB-AB\*  
AR-2500-RT  
AR-2500-RT-AB  
  
HCR-3000  
HCR-3000-AB

*\* See page 1 for details.*

**ANTHONY**  
**LIFTGATES, INC.®**

Anthony Liftgates, Inc.  
1037 W. Howard Street • P.O. Box 615 • Pontiac, IL 61764-0615  
Ph: 815.842.3383 • Fax: 815.844.3612 • Toll Free: 800.482.0003  
[www.anthonyliftgates.com](http://www.anthonyliftgates.com)

KEEP IN VEHICLE WITH LIFTGATE

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# General Information Section

## Introduction

Congratulations on selecting an Anthony Medium RailTrac Liftgate. Anthony liftgates are among the finest liftgates available on the market today. To ensure your liftgate will perform to your expectations, we have designed this manual to furnish you with the necessary instructions and safety precautions to properly install and operate your Anthony Medium RailTrac Liftgate. A Parts Manual is provided separately.



Typical Anthony Liftgates Medium RailTrac Liftgate.

The Medium RailTrac Liftgate provides up to 56 inches of total lift height. On trucks with bed heights that are below typical dock heights, the above bed liftgate allows the cargo to be loaded from the bed of the truck and then raised to a higher dock height. Above bed models of this liftgate, in some cases, can raise a load 18 inches above the truck bed height.

The lifting capacity of the Medium RailTrac Liftgates ranges from 1200 to 3000 pounds, depending on the model.

The Medium RailTrac Liftgates work best on truck bodies with “roll-up” style doors. The liftgate can be installed on “swing-type” doors, but may require modification to the truck body due to interference between the liftgate rails and the location of door latches and hinges. The Medium RailTrac Liftgate can also be installed on flat bed trucks.

With the proper tools and two installers, the Medium RailTrac Liftgate can be installed in one to two hours.

This Installation, Operation, and Maintenance manual will provide you with easy to follow instructions, along with photos and illustrations. We have included a series of Tips, which will facilitate the installation process. All Safety precautions have been clearly identified and detailed throughout each section.

In addition to the installation instructions, a complete explanation of the safety words and rules are included in the Safety section of this manual. Please turn to the safety section and read it thoroughly before proceeding to the next page.

At the bottom of each page is the Anthony Liftgates Inc. Product Support phone number. If you are unclear about any of the instructions, please phone Anthony Liftgates' Product Support.

All Anthony Medium RailTrac model liftgates are factory assembled, tested, and energized to ensure the highest quality performance standards. The AR and HCR model liftgates ship completely assembled for fast, clean, and easy installation.

**Even though the following goes without saying, we feel compelled to state:**

Anthony Liftgates should only be installed by those with sufficient skills to understand the installation and operation of the liftgate, along with the equipment required to install the liftgate. The installation instructions in this manual are intended to give typical installation instructions to the installer for both the operation and what we believe to be the most desirable sequence of installation. These instructions cannot replace a qualified person, or clear thinking and the basic knowledge that must be possessed by the installer.

We urge the installer (or anyone else) to call us if they have any questions. We have qualified personnel at our Pontiac, Illinois, plant to answer any questions that you may have. Sometimes, a detailed discussion on the phone can be far more satisfactory than a detailed written explanation.

It has been our experience that a knowledgeable journeyman following these installation instructions and observing the operation of the liftgate will have sufficient comprehension of the liftgate to enable this person to troubleshoot and correct all normal problems that may be encountered.

However, again we urge you to call us at our Pontiac, Illinois, plant if you find the liftgate is not operating properly or if you do not know how to make the necessary repair.

If you have any doubts or questions, call us at:

**Anthony Liftgates, Inc.**

**1037 West Howard Street**

**Pontiac, Illinois 61764**

**(815) 842-3383**

**Web: [www.anthonyliftgates.com](http://www.anthonyliftgates.com)**

**Email: [Sales@anthonyliftgates.com](mailto:Sales@anthonyliftgates.com)**

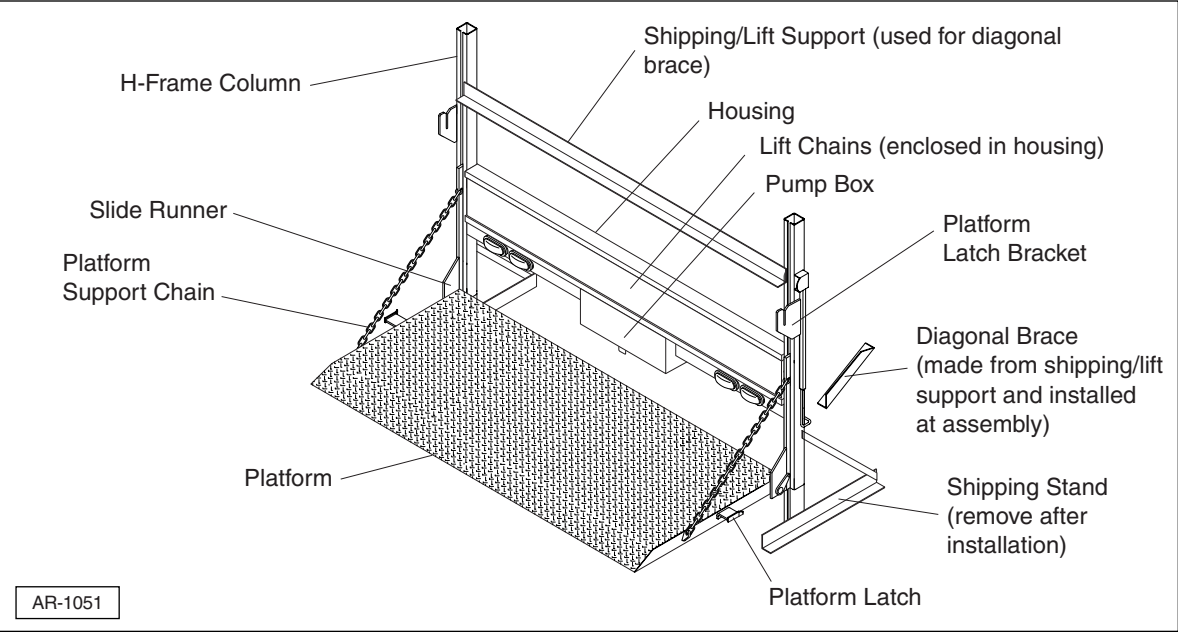
## **! DANGER**



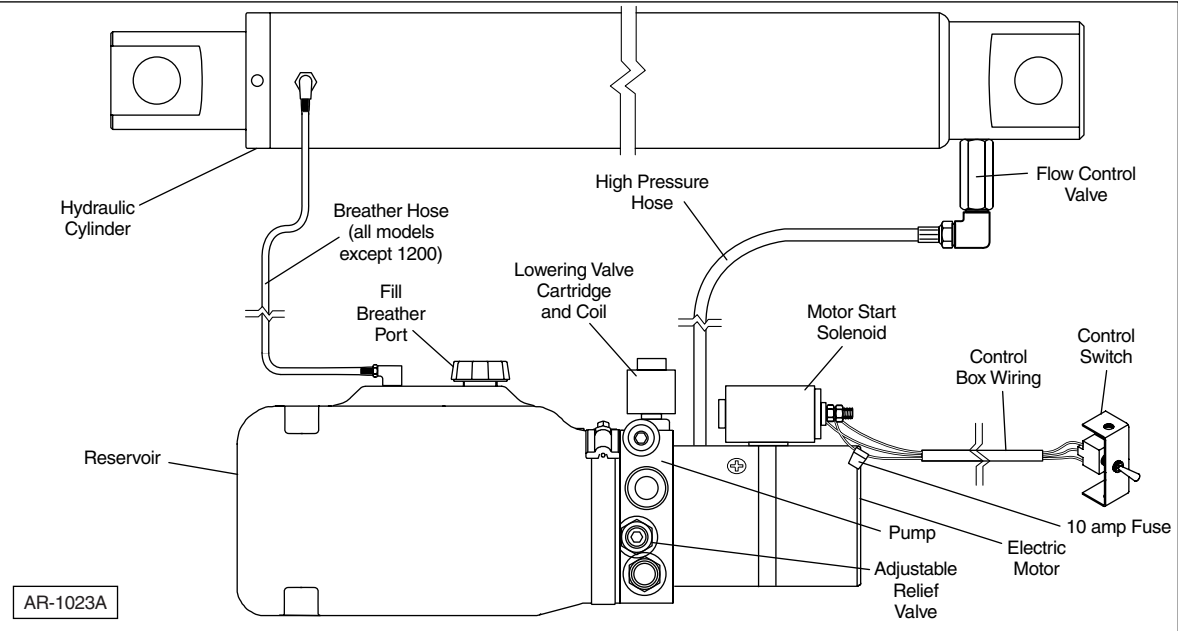
**The success or failure of this liftgate to properly and efficiently operate will depend on a thorough and proper installation. Failure to read, understand, and follow the installation instructions and safety recommendations in this manual before installing the liftgate can result in serious injury or death. Also read and understand the operating instructions in the Operation section.**

**When installed, this liftgate must not alter nor prevent vehicle compliance to any existing state or federal standards, and especially FMVSS 105. Each chassis manufacturer's recommendations should be consulted for compliance. Also, make sure the weight of the liftgate and its load will not overbalance the truck, possibly raising the front wheels off the ground.**

# Nomenclature



Liftgate nomenclature.



Power unit nomenclature.

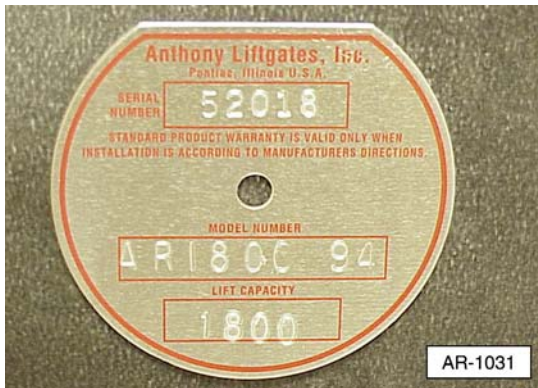
# General Information

## Warranty

### IMPORTANT NOTICE

*The liftgate must be installed according to the installation instructions or the warranty will be void. Unauthorized modifications of the liftgate may cause it to improperly operate or cause other unforeseen problems or dangers. If any deviation is deemed necessary, written permission must first be obtained from Anthony Liftgates.*

Before calling for warranty or other product information, have the serial number, model number, and lift capacity of your liftgate, which is stamped into the identification plate on the streetside of the liftgate near the tail light cutouts.



Identification plate.

## Decals



Safety decals provide a vital role in helping to reduce injuries and/or possibly even death. To ensure the greatest level of safety, all decals must be in place and legible at all times. Remember, it is the users responsibility to maintain these decals. For a complete part number list and illustration of the decals used on the Medium RailTrac Liftgate, refer to the Decals section in the Parts manual.

For decal placement, refer to the Decals section in this manual.

For replacement decals contact:

**Anthony Liftgates, Inc.**

**1037 West Howard Street**

**Pontiac, Illinois 61764**

**(815) 842-3383**

**Web: [www.anthonyliftgates.com](http://www.anthonyliftgates.com)**

**Email: [Sales@anthonyliftgates.com](mailto:Sales@anthonyliftgates.com)**

## Ordering Parts

We manufacture a quality liftgate that requires very little maintenance or repair. However, should a part break, become damaged, or worn, our knowledgeable staff can make sure you receive the part(s) to put your liftgate back into operation.

For questions or to order parts, contact:

**Anthony Liftgates, Inc.**

**1037 West Howard Street**

**Pontiac, Illinois 61764**

**(815) 842-3383**

**Web: [www.anthonyliftgates.com](http://www.anthonyliftgates.com)**

**Email: [Sales@anthonyliftgates.com](mailto:Sales@anthonyliftgates.com)**

## Tooling Required

The following is a list of suggested tools that should be used to install the Medium RailTrac liftgate.

- Overhead Crane or Forklift
- Mig or Stick Welder
- Heavy-Duty C-Clamps
- Tape Measure
- Level (small, magnetic)
- Cutting Torch
- Chain Link-Pin Removal Tool  
(above bed height models only)
- Two pieces of 12" angle iron or channel

# Installation Section

## General Installation Information

### Basic Mounting Information

1. The bed height is measured from the ground to the floor of the truck body. The AR-1200 liftgate fits on trucks with bed heights between 28" and 52". The AR-1800, AR-2500, and HCR-3000 liftgates fit on trucks with bed heights between 28" and 58".

**Tip:** All minimum bed height dimensions are measured with the truck loaded to full capacity. All maximum bed height dimensions are measured with the truck empty. Standard Medium RailTrac Liftgate models, not having the above bed feature, lift to the floor of the truck bed only.

2. The Medium RailTrac Liftgate models covered by this manual can be installed on trucks or trailers with "Swing-Type" doors, but modification to the truck body will be required. Any type of door which would interfere with the installation of this liftgate will require modification of the truck body by the installer.
3. The following Platform Travel Height chart provides the maximum travel height for the AR-1200, AR-1800, and AR-2500 and HCR-3000 liftgates depending on the truck bed height.

Platform Travel Height for "Above Bed" (AB) Models Only	
Truck Bed Height	Platform Travel Height
40 to 58"	58"
39"	57"
38"	56"
37"	55"
36"	54"
35"	53"
34"	52"
33"	51"
32"	50"
31"	49"
30"	48"
29"	47"
28"	46"

**Tip:** The maximum travel height for the AR-1200 is 52".

**Tip:** Standard Medium RailTrac Liftgate models, not having the above bed height feature, lift to the floor of the truck bed only.



4. If your truck bed height is 31 inches or less it will be necessary to trim the bottom of the rails according to the chart below, **before mounting liftgate**. Cut rails **after** installation if bed height is higher than 31 inches, according to the chart below.

Rail Length Chart		
Truck Bed Height	Cut Off Bottom Of Rails	Move Pump And Pump Box
28 inches	16 inches	Yes
29 inches	15 inches	Yes
30 inches	14 inches	Yes
31inches	13 inches	Yes
32 inches	12 inches	Yes
33 inches	10 inches	Yes
34 inches	9 inches	No
35 inches	8 inches	No
36 inches	7 inches	No
37 inches	6 inches	No
38 inches	5 inches	No
39 inches	4 inches	No
40 inches	3 inches	No
41 inches	2 inches	No
42 inches	1 inches	No
43 to 58 inches	0 inches	No

**Tip:** “Bed height - (minus) 12 inches = length of rails from bottom of rails to top of liftgate housing.” This formula maintains a 12 inch ground clearance.

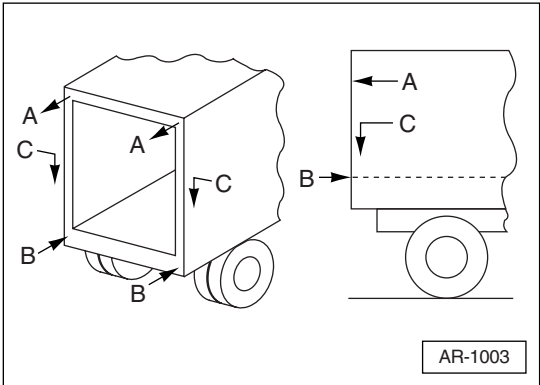
5. The Medium RailTrac Liftgates mount directly to the rear corner posts of the truck body. Before installing the liftgate, make sure the corner are capable of supporting the load placed on them.

AR-1200 (each side wall & corner post)  
 Tension . . . . . 2000 lbs.  
 Compression . . . . . 2000 lbs.  
 Shear . . . . . 2000 lbs.

AR-1800 (each side wall & corner post)  
 Tension . . . . . 2200 lbs.  
 Compression . . . . . 2200 lbs.  
 Shear . . . . . 2200 lbs.

AR-2500 (each side wall & corner post)  
 Tension . . . . . 2700 lbs.  
 Compression . . . . . 2700 lbs.  
 Shear . . . . . 2700 lbs.

HCR-3000 (each side wall & corner post)  
 Tension . . . . . 3200 lbs.  
 Compression . . . . . 3200 lbs.  
 Shear . . . . . 3200 lbs.



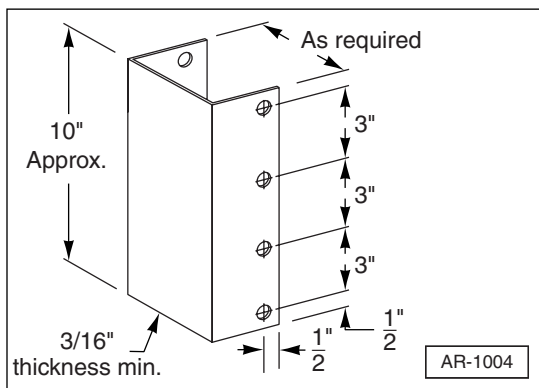
Locations of load.  
 (A) Tension. (B) Compression. (C) Shear.

6. If the truck body corner posts are made from aluminum, six steel mounting brackets must be fabricated and installed on the corner posts.

**⚠ DANGER**

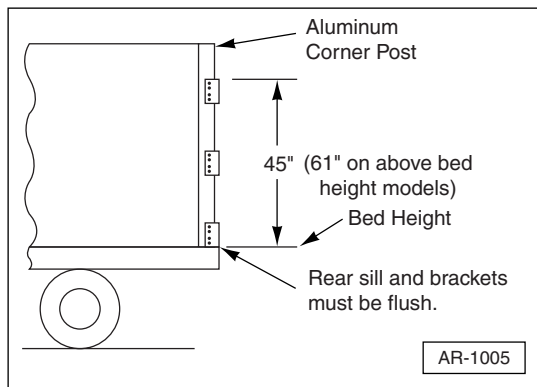
It is the responsibility of the installer(s) to make sure the steel mounting brackets will safely hold the liftgate onto the truck. If these brackets fail, possible injury or death may result.

- a. The mounting brackets should be made from at least 3/16" thick steel plate. The eight mounting holes should be for 1/4" bolts or larger. Make the brackets similar to the example shown in the following drawing.



Dimensions for steel mounting plates.

- b. Mount the steel brackets to the aluminum corner posts at the locations shown below. The sill of the truck bed may also require shims to make sure the surface of the mounting brackets and the sill are flush.

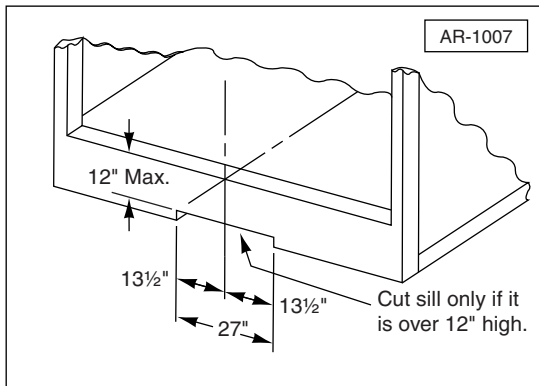


Mounting locations for steel mounting brackets.

7. If the truck bed height is 31" or less, the H-frame columns of the liftgate must be cut off prior to mounting. Cut the H-frame columns enough to allow the liftgate housing to be mounted flush with the truck bed. The final cutting of these columns will be completed in the installation procedure.

**Tip:** If the truck bed height is less than 34", the installer may want to consider moving the pump box from its factory installed location. Relocation is only necessary if ground clearance is a problem.

8. If the sill of the truck body is over 12" high, it will be necessary to cut the sill to provide clearance for the pump box or the pump box can be unbolted and relocated to eliminate cutting the truck body. Modify the rear sill, if necessary.

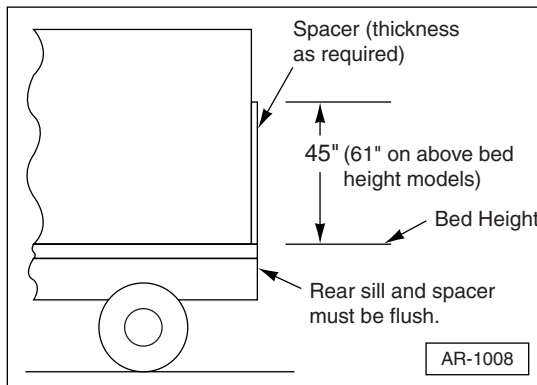


Cut the sill to provide clearance if the sill is over 12" high.

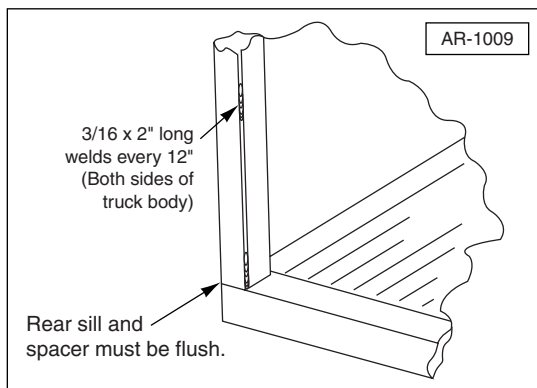
## ⚠ DANGER

If the sill of the truck must be cut, it is the responsibility of the installer(s) to make sure the structure of the truck has not been weakened. Failure to follow this recommendation may result damage to the truck body, causing possible injury or death to the liftgate operator.

9. Make sure the corner posts are flush with the rear sill. If they are not flush, add spacers as shown in the illustration.



Add spacers to make the corner posts flush with the rear sill.




Weld spacers to the corner post using 3/16 x 2" long welds every 12".


**Tip:** An alternative to one long spacer is using 3" long plates spaced 9" apart. Make sure the last plate is located 45" or 61" above the bed height, depending on the liftgate model being installed.

## 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.

1. Place the truck on a flat, level surface. Block the wheels to prevent possible truck movement during liftgate installation.

**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).

2. Remove the banding securing the liftgate. Remove the loose parts from the pump box.

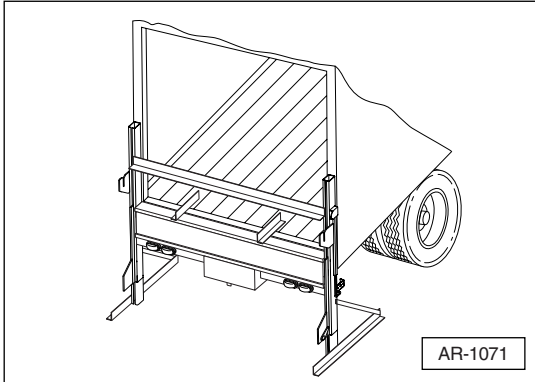
**Tip:** The power unit box should contain plastic tie wraps for the power cable, one fuse assembly power cable, and one package containing decals and manuals.



3. Make sure the bumper of the vehicle does not interfere with pump box. The pump box is bolted onto the liftgate and can be relocated if necessary.
4. Remove all obstructions from the rear of the truck that would interfere with the operation or installation of the liftgate. Obstructions may include, dock bumpers, ICC bumpers, tail lights, or any other protrusion.

# Installation Procedure

**Tip:** Tack weld two pieces of angle iron or channel, approximately 12" long, to the housing. This allows the liftgate to hang from the truck body and positions the liftgate flush with the truck's floor. Do not remove the lifting device at this time.



Tack weld two pieces of angle iron to the housing. (Platform not shown for illustration purposes.)

## ⚠ CAUTION

The tack welds must be strong enough to hold the weight of the liftgate. Insufficient welds may not hold the liftgate in place, resulting in bodily harm.

## Step 1

Measure and determine the centerline of the liftgate. Mark this point.



Illustration 1. Mark the centerline of liftgate.

## Step 2

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



Illustration 2. Find and mark the center of truck's rear sill.

## Step 3

Lift and center the liftgate on the truck's rear sill. Make sure the top of the liftgate's housing is flush with the truck floor. The 12" pieces of angle iron should keep the liftgate flush with the floor of the truck.




Illustration 3. Place the liftgate into position.

## Step 4

Clamp the liftgate to the frame of the truck using heavy-duty C-clamp(s) on each side. (Do not remove the lifting device at this time.)



Illustration 4. Clamp the liftgate to the truck body side rails.



**⚠ DANGER**

**To avoid personal injury, do not work under the platform during installation. Work so that you would not be in the way if the lifting device, clamps, welds, etc. should fail.**

**Tip:** Make sure the liftgate is centered side-to-side by measuring between the liftgate H-frame columns and truck body side rails.

## Step 5

- Tack weld the liftgate's H-frame columns to the truck's side rails and the housing to the truck's rear sill. Make sure the tack welds can hold at least 800 pounds. If the liftgate cannot be welded to the truck body, refer to Step 5b and 5c.



Illustration 5a. Tack weld the H-frame columns and the housing to the rear sill.

- b. If the truck's rear sill is not weldable, the housing must be bolted onto the truck. Remove the housing cover and drill four evenly spaced holes for 3/8 inch diameter bolts through the inside of the housing and into the rear sill. Make sure the bolt heads will not interfere with the operation of the liftgate.

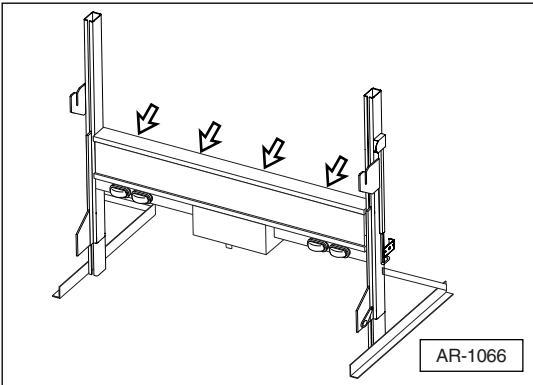


Illustration 5b. Drill four evenly spaced holes. (Platform not shown for illustration purposes.)

- c. Weld the H-frame columns to the truck by installing steel mounting brackets as shown in Step 5 of the "General Installation Information" section in this manual.

## Step 6

Temporarily connect the liftgate motor to the truck's battery and check the operation of the platform. When using a temporary battery connection make sure all safety precautions are followed. Make sure the platform folds and unfolds smoothly and easily without binding. Also make sure the up and down movement of the platform works smoothly, without binding.

## Step 7

Recheck the position of the liftgate and completely weld it to the vehicle.

- Verify that the liftgate is still centered on the truck body.
- Make sure the H-frame columns are tight against the truck body side rails, brackets, or spacers.
- Make sure the housing is flush with the floor and tight against the rear sill.
- Put 2" x 3/16" welds every 12" across the housing. Use approximately seven welds.
- Put 2" x 3/16" welds every 12" on the inside and outside of the liftgate H-frame columns. Use approximately ten welds on each column.

**Tip:** When welding, be careful not to burn through the H-frame columns, because it can cause the internal aluminum slide rails to bind during operation.



## Step 8

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.

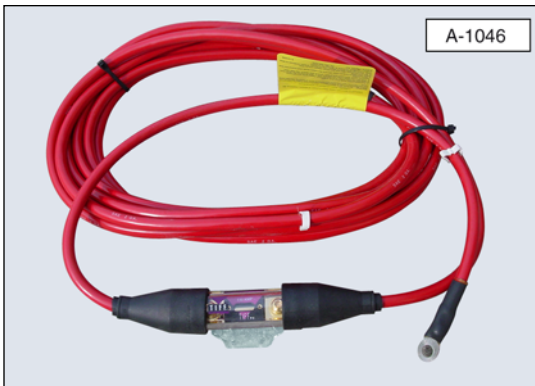


Illustration 8. Power cable and fuse assembly.

## 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 9

### 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.

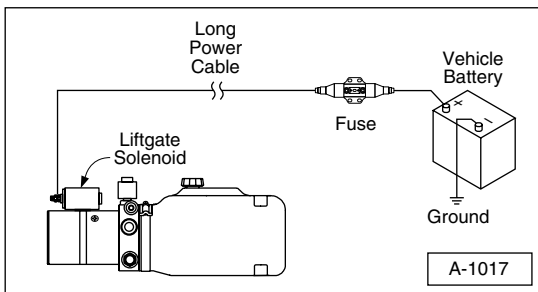
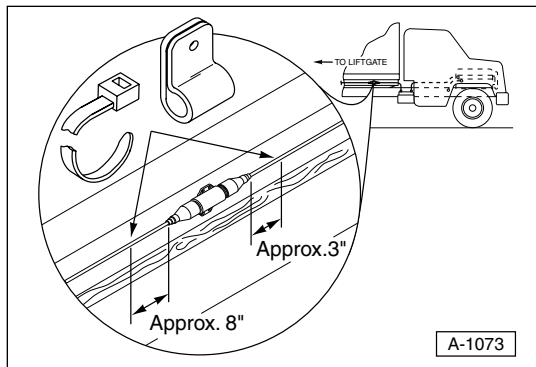


Illustration 9. Power cable connected to power unit and battery.

- Position the fuse assembly near the battery so the short cable end will reach the positive terminal.
- 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.

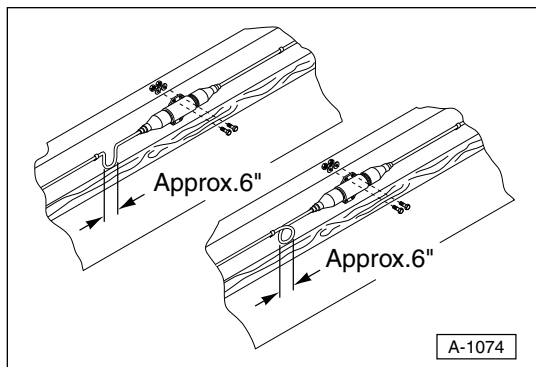
#### Method A



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.

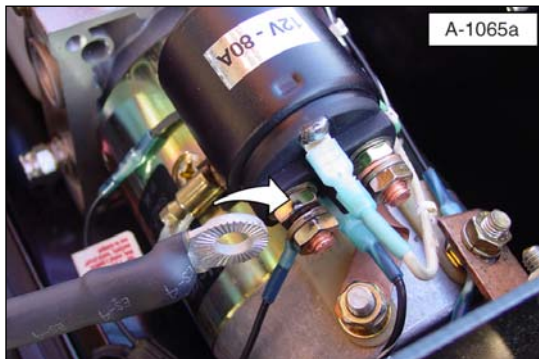


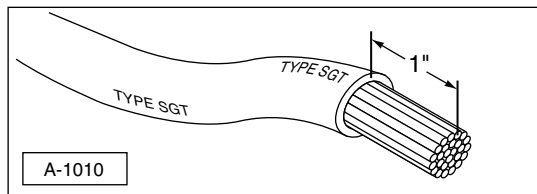
Illustration 9c. Connect power cable to motor solenoid.

- 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.

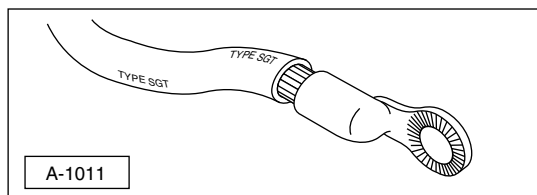
## Cable Lug Installation

- 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).

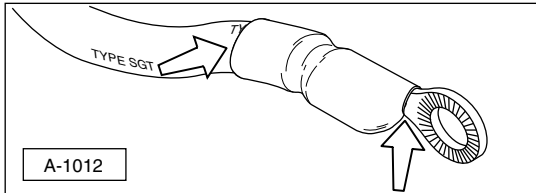


Install cable lug.

## 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 10

### 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.

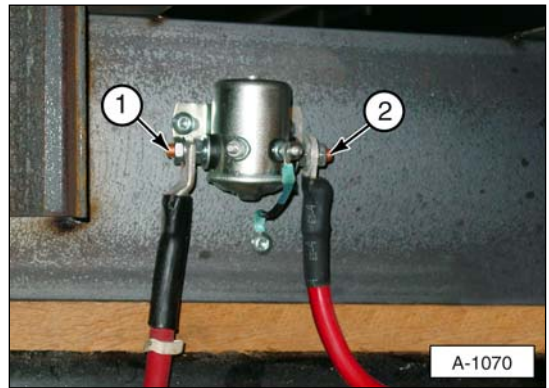


Illustration 10. Cut-off solenoid installed between battery and fuse assembly.

(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.

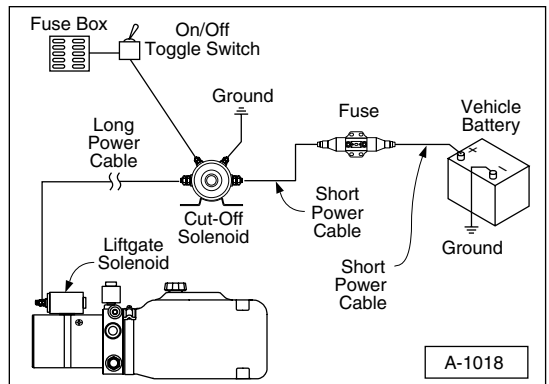


Illustration 10a. Wiring diagram with cut-off solenoid.

## Step 11

### 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.

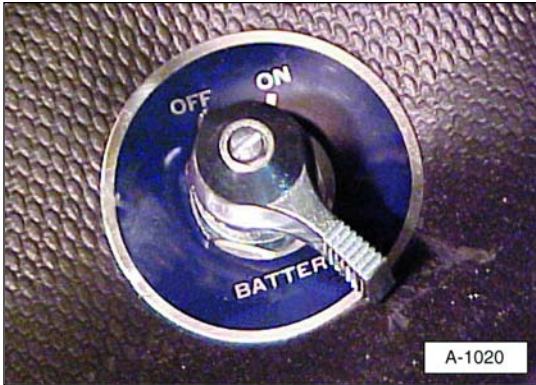


Illustration 11. Cut-off switch mounted in cab of truck.

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

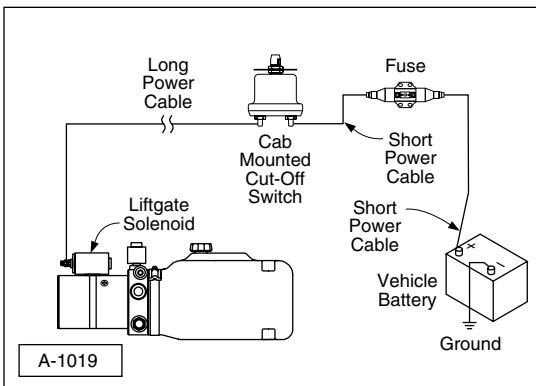


Illustration 11a. Wiring diagram with cab cut-off switch.

## Step 12

Measure and cut off the excess H-frame column.

- Lower the liftgate platform to the ground.
- Measure, dimension A, from the top of the slide runner to the bottom of the H-frame column.

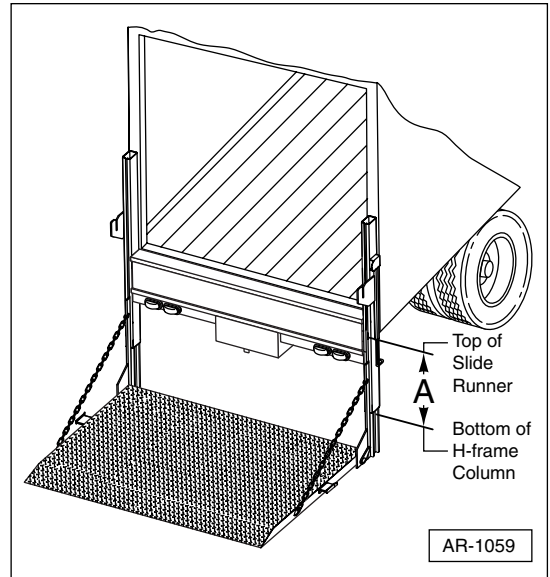


Illustration 12b. Cut the H-frame column to dimension A.  
1200 and 1800 models (a minimum of 18").  
2000, 2500, and 3000 models (a minimum of 21").

### IMPORTANT NOTICE

*For smooth operation and long liftgate life, the H-frame column should remain as long as possible. On 1200 and 1800 models the **minimum** distance between the top of the slide runner and the bottom of the H-frame column should be 18". On 2000, 2500, and 3000 models the **minimum** distance should be 21".*

- c. Cut off the excess H-frame column, leave as much as possible and still maintain adequate ground clearance.
- d. Grind the bottom of the columns smooth and flat. Make sure the inside and outside edges are rounded to remove any burrs or slag.

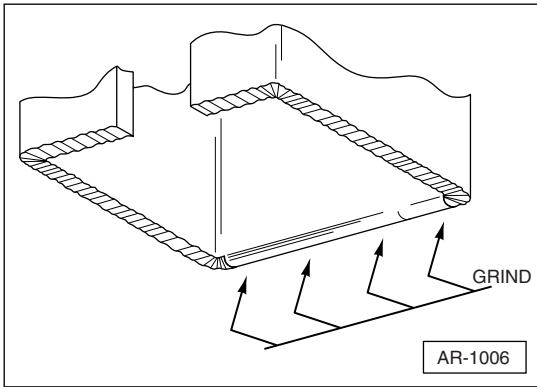


Illustration 12d. Grind the cut end of the columns smooth and radius the edges as shown.

## Step 13

### **CAUTION**

**For safety purposes when using a cutting torch, be careful not too cut the wiring leading to the battery box. Also cover any other parts that could be damaged by the cutting torch.**

Cut off shipping stands (1) and angle strap (2) from both sides of the liftgate if not removed in Step 12. Remove any sharp edges or burrs from the columns after cutting and paint the bare metal areas to prevent rust and corrosion.

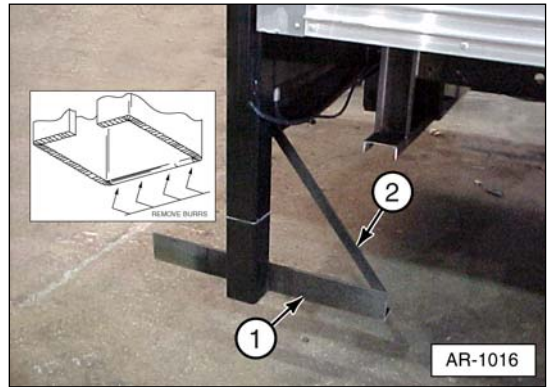


Illustration 13. Cut off shipping stands (1) and angle strap (2).

## Step 14

Remove the shipping/lift support. Do not cut into or damage the H-frame columns. This will weaken the structure of the liftgate.



Illustration 14. Remove shipping/lift support.



## Step 15

Cut a diagonal support brace and weld it to each H-frame column.

**Tip:** *The diagonal support brace can be made from the angle iron used as the shipping/lift support or from a steel plate which is at least 1/4" thick.*

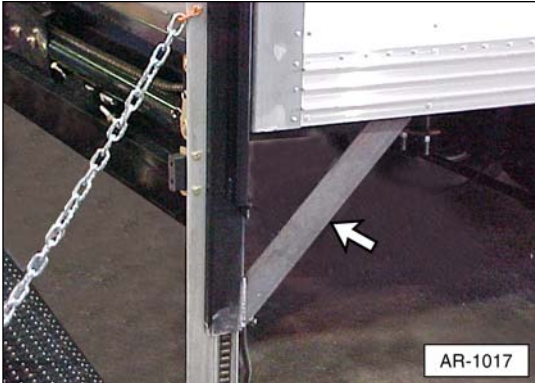


Illustration 15. Install diagonal support brace.

## Step 16

For above bed models, refer to the "Chain Adjustment Procedure for Above Bed RailTrac Models" for the procedure to cut the lift chain to length and make final adjustments.

## Step 17

Raise and lower the platform to make sure it operates smoothly without binding. The platform should be flush with the truck floor when in the fully raised position (bed height models only).



Illustration 17. Make sure the platform operates smoothly.

## Step 18

Install lights or other electrical components, if needed. The RailTrac Liftgate has "knock outs" for the tail lights and backup lights. Simply remove the steel plug(s) and install the light(s). Also install a license plate holder.

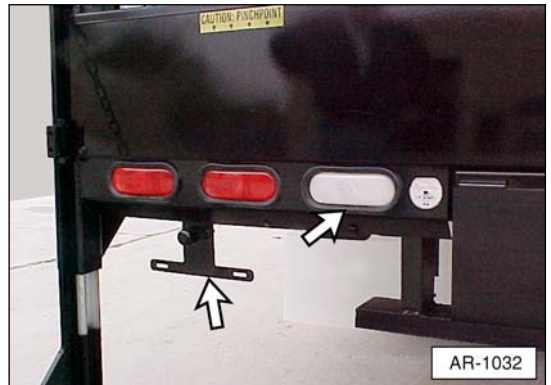


Illustration 18. Install the lights and license plate holder.

## Step 19

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 up and then lower into a stored position, and latch. The liftgate must fold smoothly and freely.

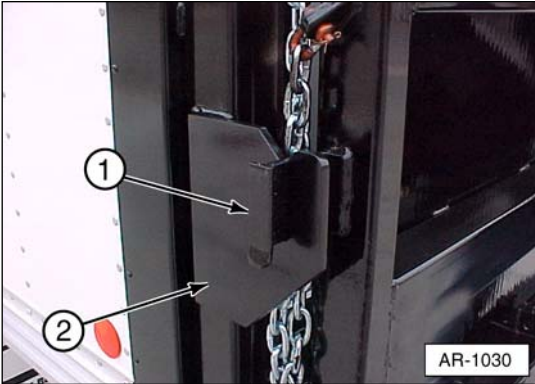


Illustration 19b. The platform latch (1) is correctly positioned in the latch plate (2), ready for transit.

## Step 20

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

## Step 21

Make sure all the operating functions of the liftgate are working properly.

### **⚠ CAUTION**

**Make sure the area in which the platform will open and close, and move up and down is free of obstructions before operating the liftgate.**

- a. Push the “Up” control to raise the platform latches out of the latch brackets.
- b. Manually open and close the platform to make sure it opens and closes smoothly.
- c. Make sure the spring mechanism is properly assisting the platform in opening and closing.
- d. With the platform open, operate the liftgate up and down several times to make sure the Up/Down controls work properly.
- e. Make sure the platform stops flush with the truck bed and is even with the floor across the width of liftgate (bed height models only).
- f. Make sure the platform moves smoothly the full length of travel. (Lubricate the slide runners if necessary).
- g. Make sure the platform spring-assist will hold the platform in a vertical position.

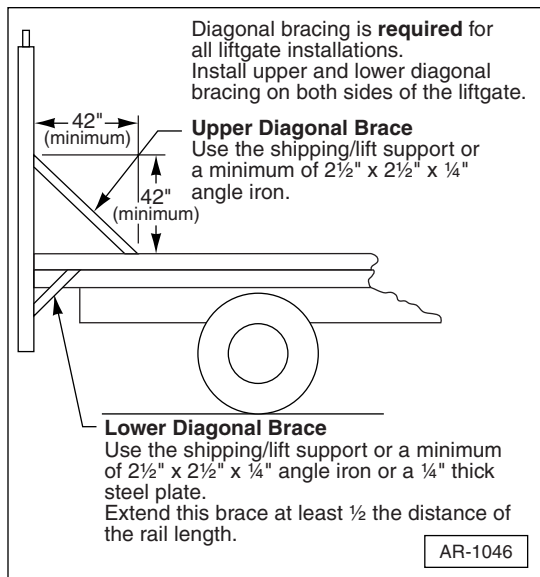
**Tip:** To increase spring tension, shims can be welded behind the long spring leg. **DO NOT EXCEED 1/2” thick shim, otherwise over-torquing of the spring may occur.**

## Step 22

Complete the Final Inspection Checklist section.

## Installation of RailTrac Liftgates on Flatbed Trucks

Described below is the installation requirements for the diagonal bracing used on flatbed truck bodies. Two sets of diagonal braces (two upper and two lower) are required. Diagonal braces can be made from the shipping/lift supports or other recommended materials.



1. Weld or bolt the liftgate to the truck bed. Refer to the normal installation procedure for recommendations and safety precautions.
2. Weld an upper diagonal brace between the H-frame column and the truck bed on each side. The ends of the diagonal brace should be a minimum of 42" above the truck bed and a minimum of 42" from the end of the truck bed.
  - a. Cut two upper diagonal braces from the shipping/lift support or from 2 1/2 x 2 1/2 x 1/4" thick angle iron.
  - b. Weld each diagonal brace to the H-frame column and to the top of the truck bed.
3. Weld a lower diagonal brace between the H-frame column and the truck bed on each side. The lower diagonal brace or gusset should extend at least one half the length of the H-frame column. For example, if the H-frame column extends 20" below the truck bed, the ends of the diagonal brace should extend at least 10" downward and 10" inward from the end of the truck bed.
  - a. Cut two lower diagonal braces from the shipping/lift support or from 2 1/2 x 2 1/2 x 1/4" thick angle iron. A gusset (support plate) can also be made from a 1/4" thick steel plate.
  - b. Weld each diagonal brace or gusset to the liftgate H-frame column and to the bottom of the truck bed.

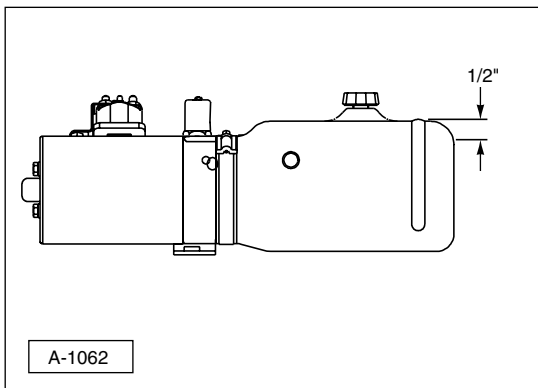


# Final Inspection Checklist

## **⚠ 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. The fluid level should be 1/2" from the top of the reservoir when the liftgate platform is on the ground.



Make sure the hydraulic tank is filled to within 1/2 inch from the top of the tank with the liftgate platform on the ground.

- ☐ Install the cover on the 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 and Down) 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 all decals are in place and legible.
- ☐ Make sure the license plate bracket is properly installed, as required by law.
- ☐ Make sure the truck and/or trailer meet all local, state, and federal regulations; including, but not limited to those required for bumpers, lighting, and reflectors.
- ☐ Make sure the optional cab cut-off switch or power cut-off solenoid is installed.
- ☐ Put the Installation, Operation, and Maintenance manual and Parts manual in the glove compartment of the vehicle.

# Decals



Safety decals provide a vital role in helping to reduce injuries and/or possibly even death. To ensure the greatest level of safety, all decals must be in place and legible at all times. Remember, it is the users responsibility to maintain these decals. For a complete part number list of the decals used on the Medium RailTrac Liftgates, refer to the Decals section in the Parts manual.

For replacement decals contact:

**Anthony Liftgates, Inc.**

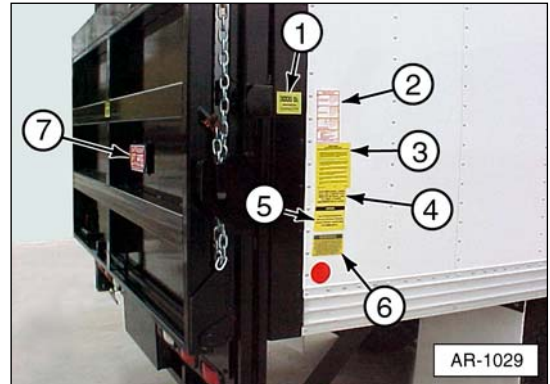
**1037 West Howard Street**

**Pontiac, Illinois 61764**

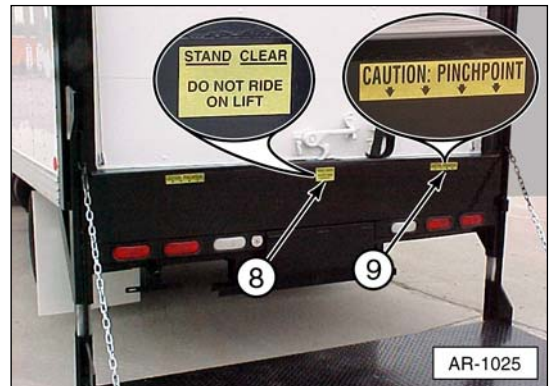
**(815) 842-3383**

**Web: [www.anthonyliftgates.com](http://www.anthonyliftgates.com)**

**Email: [Sales@anthonyliftgates.com](mailto:Sales@anthonyliftgates.com)**



1. Maximum Capacity Decal
2. Operating Instructions Decal (AR-18-89)
3. Urgent Warning Decal (Q-003013)
4. After Using Liftgate Decal (ATU-141)
5. Notice Decal (A-150238)
6. Lift chain—Inspect, lubricate, and replace (A-171448)
7. Anthony Hydraulic Lift Gate Label (998420)



8. Stand Clear Do Not Ride On Lift (ATU-146)
9. Caution: Pinchpoint (AR-18-76)

## 1. A-131015

**1800 lb.**  
**MAXIMUM**  
**CAPACITY**

A-131015

### IMPORTANT NOTICE

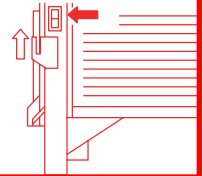
*Make sure the proper "maximum capacity" decal goes on the appropriate liftgate. For example, the "1800 Maximum Capacity" decal goes on AR-1800 models only. Do not put a higher rated decal (3000 pound) on a smaller liftgate (model 1800); this could result in liftgate damage or possibly personal injury.*

## 2. AR-18-89

### ANTHONY MEDIUM RAILTRAC OPERATING INSTRUCTIONS

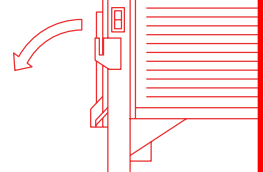
1

ACTIVATE CONTROL SWITCH "UP" TO RAISE PLATFORM OFF OF LATCH PLATES



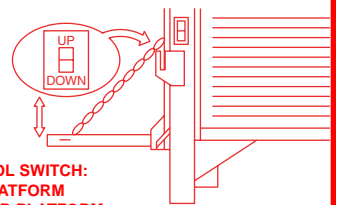
2

UNFOLD PLATFORM TO HORIZONTAL POSITION



3

ACTIVATE CONTROL SWITCH:  
"UP" TO RAISE PLATFORM  
"DOWN" TO LOWER PLATFORM



4

- TO CLOSE UNIT:
- RAISE UNIT IN HORIZONTAL POSITION, UP TO TRUCK BED LEVEL
  - FOLD PLATFORM UP TO VERTICAL POSITION
  - PRESS "DOWN" BUTTON TO SET PLATFORM LATCH PLATES INTO SLOTS ON CATCH PLATES MAKING CERTAIN BOTH SIDES ARE SECURELY IN SLOTS

**ANTHONY LIFTGATES, INC.**

1037 WEST HOWARD ST., PONTIAC, IL 61764

### 3. Q-003013

#### **URGENT WARNING** **ELEVATING GATE INSTRUCTIONS**

##### **Before Operating Lift, Be Sure You Understand the Following.**

1. Improper operation of this lift can result in serious personal injury. Do not operate unless you have been properly instructed and 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 lessor, as appropriate, before you attempt to operate the lift.
2. Be certain the vehicle is properly and securely braked before using the lift.
3. Always inspect this lift for maintenance or damage before using it. If there are signs of improper maintenance, damage to vital parts, or slippery platform surface, do not use the lift. Do not attempt your own repairs, unless you are specifically trained.
4. Do not overload. See 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 within the edges of the platform as near as possible to the center of the platform side to side, and as close to the truck sill as possible.
6. Never stand in or move through or allow anyone else to stand in or move through the area in which the lift may operate or into which an upset load might fall.
7. This is not a passenger lift. This liftgate is intended for loading and unloading of cargo only. Do not use this liftgate for anything but its intended use.

Anthony Liftgates, Inc.

6/95

Q-003013

#### 4. ATU-141

**AFTER USING LIFTGATE, SECURE LATCH AND, IF EQUIPPED WITH POWER CUT-OFF SWITCH, TURN OFF POWER TO PREVENT UNAUTHORIZED USE OF LIFTGATE**

#### 5. A-150238

### **NOTICE**

**THIS LIFTGATE IS PROTECTED WITH AN ELECTRICAL OVERLOAD CIRCUIT BREAKER, LOCATED NEAR THE POWER SUPPLY.**

A-150238

#### 6. A-171448

### **WARNING**

**INSPECT, LUBRICATE AND REPLACE LIFTGATE DRIVE CHAIN ACCORDING TO MANUFACTURERS RECOMMENDATIONS. FAILURE TO FOLLOW THESE MANUFACTURERS RECOMMENDATIONS MAY RESULT IN SERIOUS BODILY INJURY. FOR INFORMATION CONTACT YOUR NEAREST ANTHONY LIFTGATE DISTRIBUTOR OR ANTHONY LIFTGATES, INC., PONTIAC, IL. 61764**

7. A-131035



8. ATU-146

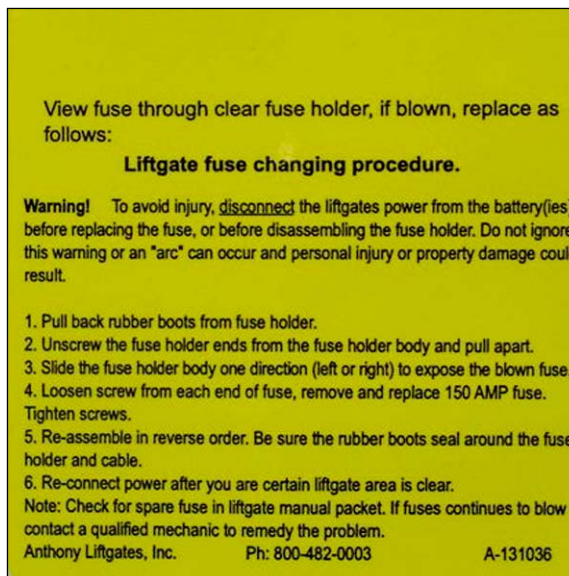


9. AR-18-76



10. A131038

This decal is attached, at the factory, to the power cable/fuse assembly.



# Operation Section

## General Safety Operating Instructions

### **DANGER**



**Do not stand in the platform's work area while operating the liftgate. Serious injury or death could result if the load shifts or is unstable on the platform.**

The following is a list of **Do's** and **Don'ts** for the operation of the liftgate.

#### ✓ **Do's**

- ✓ Read and follow warning decals, operating decals, and owners manual(s).
  - ✓ Keep all decals in place and legible and retain the owners manual in the vehicle or all Warranties are void.
  - ✓ Make sure the vehicle is properly and securely braked before using the liftgate.
  - ✓ Keep yourself clear of all moving parts.
  - ✓ Make sure the area in which the platform will travel is clear before opening, closing, raising, or lowering the platform.
  - ✓ Make sure the platform area, including the area in which loads may fall from the platform, is clear before, during, and at all times while operating the liftgate.
- ✓ Always place the load as close to the center of the platform as possible. Also, position the load as close to the center of the truck's rear sill as possible.
  - ✓ Make sure the slide runners move smoothly inside the H-frame columns with no unusual noise or vibration.
  - ✓ Only operate the liftgate with the Up/Down control mounted on the H-frame column or using an optional, hand-held remote control.
  - ✓ Check the oil level in the hydraulic tank monthly. Change the oil with Mobil DTE-13 oil or Penzoil AWX Automatic Transmission Fluid if it is contaminated or dirty.
  - ✓ Visually inspect your liftgate frequently and keep it properly adjusted.
  - ✓ Visually inspect the lift chains and replace them if signs of wear or damage are present.
  - ✓ Repair any damage to the liftgate to prevent accidents.
  - ✓ Place the liftgate into the storage position with the platform latch and latch bracket when the liftgate is not in use.

## ✗ Don'ts

### **DANGER**

**Never place more than the rated load onto the platform. Lifting more than the maximum capacity will result in serious injury, or even death.**

- ✗ Do not overload the platform. The maximum rated capacity is based on an evenly distributed load on the platform's flat surface.
- ✗ Do not ride on the liftgate. Always stand clear of the liftgate when it is operating.
- ✗ Do not allow children to play around or operate the liftgate.
- ✗ Do not allow your liftgate to be used by persons not familiar with its operation.
- ✗ Do not use your liftgate if it shows signs of abuse or fails to operate freely and smoothly.
- ✗ Do not allow the motor/pump to run after the liftgate is fully raised and has stopped moving.
- ✗ Do not use brake fluid in the hydraulic reservoir.
- ✗ Do not bounce the platform by pushing and releasing the control button/switch abruptly.
- ✗ Do not use the liftgate for anything other than its intended use of loading and unloading cargo.
- ✗ Do not operate lift trucks on or over any part of the platform.
- ✗ Do not stand under or place any object under the liftgate work area.
- ✗ Do not operate the liftgate with the housing cover removed.
- ✗ Do not drive the truck unless the liftgate is in the stored position and the platform latches are secured inside the latch brackets.



# Operating Instructions

## Opening and Closing the Liftgate

### Step 1

Push the control switch Up, on the H-frame column, to raise the platform out of the latch plates.

### Step 2

Unfold the platform to a horizontal position. The platform is spring loaded to help the operator lower it to a horizontal position, however care should be taken when lowering the platform.

### Step 3

Push the control switch to Down to lower the platform and/or push the control switch to Up to raise the platform.

### Step 4

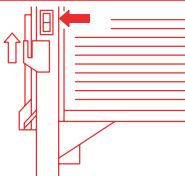
To close the liftgate and secure it into a stored position:

- a. With the platform in a horizontal position, raise the platform to the truck bed level.
- b. Lift the platform into a vertical position.
- c. Push the control switch down to lower the platform latches into the latch plates.
- d. Make sure both platform latches are securely seated into the latch plates.

**ANTHONY MEDIUM RAILTRAC  
OPERATING INSTRUCTIONS**

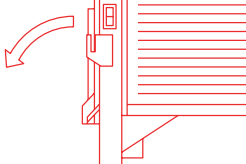
1

ACTIVATE CONTROL SWITCH "UP" TO RAISE PLATFORM OFF OF LATCH PLATES



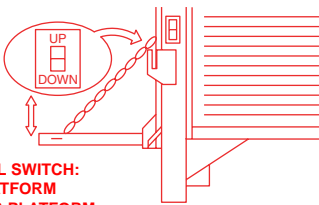
2

UNFOLD PLATFORM TO HORIZONTAL POSITION



3

ACTIVATE CONTROL SWITCH:  
"UP" TO RAISE PLATFORM  
"DOWN" TO LOWER PLATFORM



4

TO CLOSE UNIT:  
— RAISE UNIT IN HORIZONTAL POSITION, UP TO TRUCK BED LEVEL  
— FOLD PLATFORM UP TO VERTICAL POSITION  
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**ANTHONY LIFTGATES, INC.**  
1037 WEST HOWARD ST., PONTIAC, IL 61764

# Maintenance Section

## Quick Check Maintenance Guide

### Monthly Inspection

The following inspection and maintenance operations should be performed at the recommended intervals or at any time the unit shows signs of abuse, and/or improper or abnormal operation. Adherence to these guidelines will help ensure the maximum operator safety and satisfaction with your Anthony Liftgate through preventive maintenance.

1. Make sure the liftgate operates freely and smoothly throughout its entire range of movement. Make sure there is no unusual noise or vibration during operation and that the slide runners move smoothly and evenly in the H-frame columns.
2. Check for damage to the liftgate such as bent or distorted slide runners or any cracked weld which may have resulted from overload or abuse. Check for excessively worn parts such as the lift chains or platform support chains. Replace bushings and pins if worn.
3. Check for excessive wear or damage in the following areas:
  - All bearings, pins, and sprockets. Bearings inside of sprockets should be checked for wear and replaced if worn.
  - Slide runners.
  - Platform retainer.
  - Platform hinge.
4. Check the platform chains, make sure they are in good shape and the ends are connected properly.
5. Inspect the entire length of both lift chains and replace them if they show any damage or wear beyond the tolerance specifications. Refer to the "Lift Chain Inspection" section to determine if the chain requires replacement. Replace only with Anthony approved chains.
6. Check all connecting links in the lift chain to make sure they are properly secured with cotter pins.
7. Make sure the platform is level when raised to bed height.
8. Inspect the platform latches and latch brackets for cracks or damage. Make sure the platform locks securely in place for transit.
9. Check the torsion spring assist mechanism, make sure the securing screws are tight.
10. Make sure all electrical wires, switches, and connections are in good working condition and operate properly.
11. Check for oil leaks in these areas:
  - a. Hydraulic lift cylinder.
  - b. Hydraulic hoses. Replace if they show signs of leakage or excessive abrasion of the covering.
  - c. Check all hydraulic fittings for damage or leaks. Tighten fittings to stop leaks or replace if damaged.

12. Check the power unit reservoir oil level.
  - a. With the platform on the ground, the oil level should be within 1/2 inch of the top of the reservoir.
  - b. Fill as required with Mobil DTE-13 oil or Penzoil AWX Automatic Transmission Fluid or equivalent.

### **IMPORTANT NOTICE**

*Use only Mobil DTE-13 or Penzoil AWX Automatic Transmission Fluid or equivalent in the power unit reservoir. Do not use brake fluid.*

13. Use a 30W motor oil to lubricate the following areas.
  - a. Oil inside of the housing where the sprocket shoe travels when the hydraulic cylinder moves.
  - b. Completely oil the inside of the entire length of both H-frame columns. This helps to prevent oxidation on inside column surfaces.
  - c. Oil the entire length of both the lift chains. This includes all chain inside the H-frame columns, cylinder housing, and rails.
  - d. Oil the platform hinge points.
  - e. The sprocket bearings are self lubricating and do not need to be lubricated.
14. Check the fluid level of the vehicle battery. Fill as required.
15. Examine all Warning, Capacity, and Operational Decals. If they are not readable they should be replaced. Decals may be obtained from Anthony Liftgates, Inc.

## **Semi-Annual Inspection**

Inspect the pump and motor.

1. Disconnect the power cable from the battery.
2. Remove the motor's end cover.
3. Examine the armature brushes for wear. Brushes should be replaced if they are less than 1/8 inch long.
4. Clean out any dirt or debris from inside of the motor housing.
5. Apply several drops of lightweight machine oil to the armature shaft bearing in the motor end cover and reassemble the motor.
6. If the oil in the hydraulic tank is dirty, drain the oil and flush the entire system. Refill the system with the recommended oil.

# Maintenance and Troubleshooting Procedures

## Lift Chains

The following section covers the maintenance and repair of the Medium RailTrac lift chains. Make sure you read and follow all the recommendations and safety issues before working on or adjusting the lift chain.

### **DANGER**

**Lift chains will break if misused or abused.**

**NEVER splice lift chains. Always replace the entire length of both lift chains in the event of breakage, damage, or wear.**

**You may be seriously injured if you attempt to install lift chains on equipment when it is connected to a power source. Before attempting installation, place the platform on the ground and shut OFF the power.**

**DO NOT use spring clips to retain the chain link plates when making chain end connections. Use only the recommended cotter pins, described in this section.**

## Lift Chain Replacement

If a lift chain breaks or needs replacing, replace the complete length of chain. **Do Not** splice in new sections to old sections. We also recommend replacing both lift chains and all sprockets at the same time. Do not run one old lift chain and one new lift chain as undue wear on the new chain will occur.

## Master Links

Do not use a master link with a spring retaining clip. Only use Anthony approved master links.

### **CAUTION**

**Do not use ordinary commercial cotter pins in the Medium RailTrac lift chain master links because they will not provide equal service.**

The cotter pins used in lift chains are special cotter pins which are heat-treated and formed to remain under compression. This will minimize movement in the pin hole when inserted into the master link. After insertion, the prongs should not be spread more than a 90 degree included angle. **The cotter pins are hardened for high retention life, and should not be reused once removed.**

# Sprocket Replacement

When a lift chain becomes worn and needs replacement, inspect the sprockets for worn, hooked, or deformed teeth. Running a new chain on worn sprockets can lead to shortened chain life and chain failure.

Also, do not run old chain on new sprockets. A good fit between the lift chain and sprocket is essential for a smooth running liftgate.

# Cleaning Lift Chains

Only use kerosene or mineral spirits to clean the lift chain. NEVER USE GASOLINE OR OTHER HIGHLY VOLATILE SOLVENTS. Re-oil the chain with 30W motor oil after cleaning.

# Lift Chain Inspection

After each 90 days of operation, (more often in hostile environments), the lift chains should be inspected and lubricated. The inspection should focus on the following:

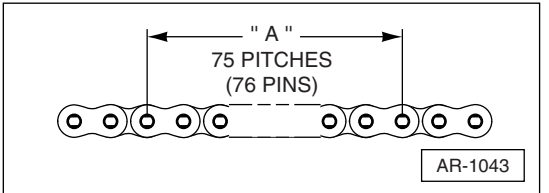
## Elongation

**CAUTION**

Do not repair lift chains by splicing new links or new sections of chain into used sections of chain. This will cause uneven loads and undue wear resulting in lift chain failure. Both lift chains must be replaced at the same time.

When a length of chain has elongated from wear more than 2% of the pitch, it should be discarded and replaced.

Elongation (A) of the lift chains may be checked by measuring a length of chain. Measure 75 pitches of the chain, or from the center of one pin to the center of the 76th pin. This length should be less than dimension “A” in the Chain Elongation chart. If the dimension is greater than the chart value, replace both chains.

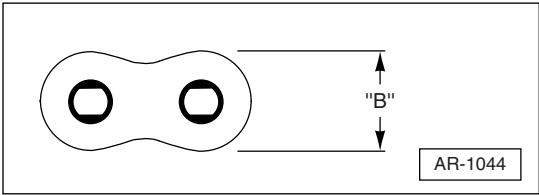


Chain Elongation		
Model	Chain Pitch	Dimension “A”
AR-1200	5/8	47 13/16
AR-1800	5/8	47 13/16
AR-2000	5/8	47 13/16
AR-2500	3/4	57 3/8
HCR-3000	5/8	47 13/16

**Tip:** Measure a section of lift chain that flexes over a sprocket, because this area will be worn the most. Make all measurements with the platform on the ground, so there is no load on the lift chain.

### Edge Wear

Check the lift chain for wear on the link plate edges (B) caused by running back and forth over the sheaves. Measure the height (or depth) of the chain link (using a micrometer or calipers) in an area that runs over a sheave. Compare the result to Dimension “B” in the Edge Wear chart. If the chain measures less than the specified dimension, replace the chains.



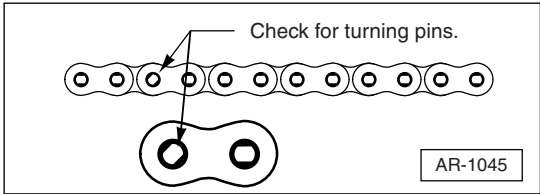
Edge Wear		
Model	Chain Pitch	Dimension “B”
AR-1200	5/8	N/A
AR-1800	5/8	N/A
AR-2000	5/8	0.564”
AR-2500	3/4	N/A
HCR-3000	5/8	0.564”

### Protruding or Turning Pins

The pin head rivets in the lift chain should be examined to determine if the flats of the V-heads are still in correct alignment.

Highly loaded chain, operating with inadequate lubrication, can cause forces that result in pin rotation. When the chain is allowed to operate in this condition, a pin(s) can begin to twist out of a chain link, resulting in failure.

Chain with rotated or displaced heads and/or abnormal pin protrusion should be replaced immediately. Turned pins occur in the areas of the chain that ride over sheaves, so inspect these areas carefully. Any wear pattern on the pin heads or sides of the link plates indicates misalignment in the system. This condition damages the chain and should be corrected.



### Cracked Link Plates

If any crack is discovered in the chain link plates, the chain should be completely replaced.

### Chain Anchors and Sheaves

An inspection of the chain system also includes a close examination of chain anchors and sheaves. Make certain all fasteners are in place and secure.

Check chain anchors for wear, breakage, and cracks. Anchors with worn, broken, or cracked fingers should be replaced.

Sheaves with badly worn flanges and outside diameters should be replaced. Bearings within the sheaves can be replaced separately. If replaced, the bearing should be staked and/or held in place with Lock-tite.

## Lift Chain Lubrication

The most important consideration in field maintenance of lift chains is **lubrication**.

Maintaining an oil film on all chain surfaces will:

- Minimize joint wear (chain stretch).
- Prevent corrosion.
- Reduce the possibility of pin turning.
- Minimize tight joints.
- Promote smooth, quiet chain action.
- Lower chain tension by reducing internal friction in the chain system.

Properly lubricated lift chain joints may acquire a “paste-like” build-up, made of oil and dirt, but joint wear will still be much less than if the chain is allowed to run dry with metal-to-metal contact.

Using 40W motor oil is an excellent chain lubricant. Generally, the heaviest (highest viscosity) oil that will penetrate the joint is the best. Apply oil to chains with a paint brush, flooding the entire length of chain every inspection period.

## Replacing the Fuse

### **WARNING**

**To avoid injury, disconnect the liftgates power from the battery(ies) before replacing the fuse, or before disassembling the fuse holder. Ignoring this warning can cause an electrical “arc”, resulting in personal injury or property damage.**

To replace a fuse:

1. Pull back the rubber boots from the fuse holder.

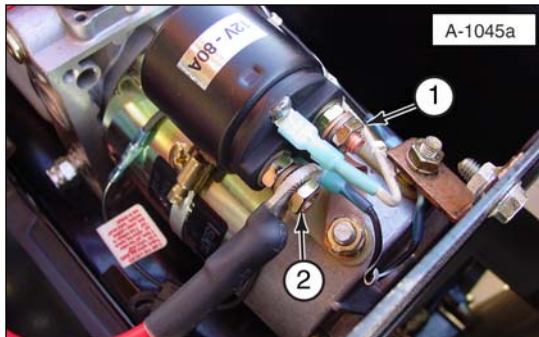


2. Unscrew the fuse holder ends from the fuse holder body and pull it apart.

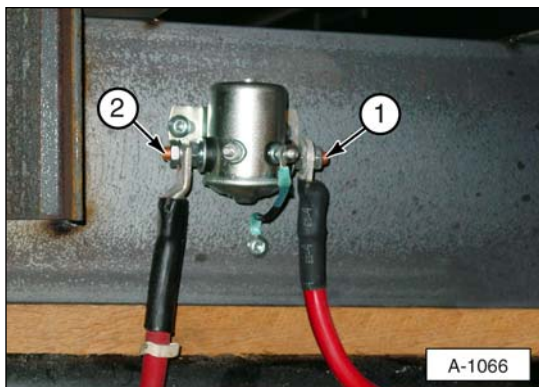


3. Slide the fuse holder body one direction (left or right) to expose the blown fuse.
4. Loosen the screws from each end of the fuse and remove it. Replace the fuse with the same size (Amperage) fuse as the one removed. If you are unsure of the replacement fuse amperage, contact Anthony for your specific size fuse. Retighten the screws.
5. Re-assemble the fuse in reverse order. Be sure the rubber boots are sealed around the fuse holder and cable.
6. Re-connect power after you are certain liftgate area is clear.

## Checking Motor Start Solenoid and Power Cut-off Solenoid



Motor start solenoid.



Power cut-off solenoid.

Both the motor start solenoid and power cut-off solenoid can be checked by bypassing the solenoid itself.

1. Use jumper cables for this test.
2. Connect one jumper cable to the battery side (2) of the solenoid. Connect the other cable to the motor side (1) of the solenoid.
3. If the liftgate is activated, the solenoid is bad and should be replaced.

## Testing Power Cables

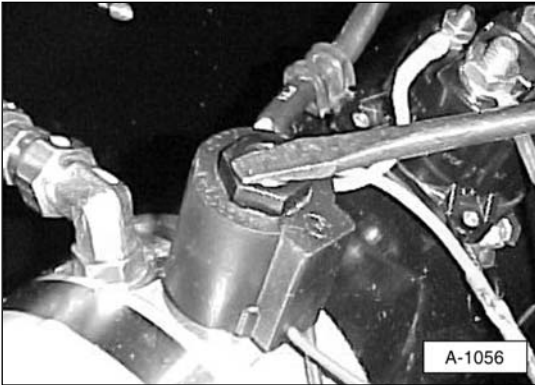
To test the continuity of power cables, connect a voltage meter between the power cable and a ground on the vehicle.

1. Attach the positive clip of the voltage meter to the power cable on the motor start solenoid.
2. Attach the negative clip of the voltage meter to a ground on the chassis of the vehicle.
3. The voltage reading should indicate a minimum of 12 Volts.
4. If the voltage meter indicates less than 12 Volts, check the following:
  - a. Make sure power to the liftgate is turned ON.
  - b. Make sure all connections are clean and tightly connected.
  - c. Make sure the power source (battery) is fully charged and operational.
5. If the Voltage is still below 12 Volts after completing Step 4, replace the power cable.



## Checking Lowering Valve Cartridge and Coil

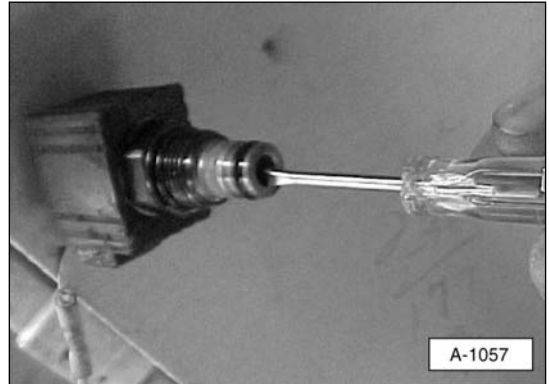
1. Place the platform on the ground in the open position.
2. Place a steel screwdriver over the top of the lowering valve cartridge coil.



Place a screwdriver over the lowering valve cartridge stem.

3. Momentarily activate the control switch in the DOWN position. The screwdriver should be attracted to the magnetic field created by the coil.
4. If no magnetic pull is produced, the coil is bad and should be replaced. If the coil is good, check the lowering valve cartridge.
5. Remove the coil from the lowering valve cartridge assembly.
6. Remove the lowering valve cartridge from the pump body.
7. Clean the lowering valve cartridge and blow it dry with compressed air (not greater than 30 psi). Also, blow out the pump body.

8. Use a small screwdriver and carefully press on the poppet inside the lowering valve cartridge. The poppet is spring loaded and should move when it is pressed. If the poppet does not move, then the lowering valve cartridge should be replaced.



Push poppet to check for free movement.

## Checking Cylinder Piston Seals (drifting - caused by seal leakage)

### Piston Rod Seals

1. Remove the breather hose (if so equipped).
2. Raise the platform all the way up and hold the switch in the "ON" position while checking for oil coming out of the breather port to the cylinder.
3. If a continuous flow of oil comes out of this port (while the platform is all the way up and the switch is held "ON"), then the piston seals are leaking and the cylinder should be rebuilt or replaced.

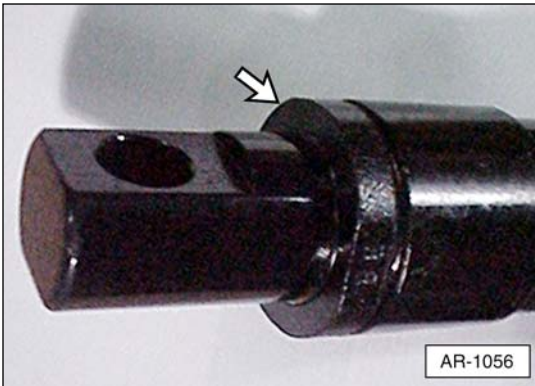
If the cylinder is under warranty, do not rebuild. In these cases the cylinder will be replaced.

## Packing Gland Nut

(A-130120 or A-150344 Cylinder, Model AR-1200 only)

If the packing gland seals are leaking, oil will flow out of the gland nut and down the cylinder rod. This leakage can be stopped in most cases by tightening the gland nut.

1. Place the platform on the ground.
2. Use a pipe wrench or other suitable wrench to tighten the gland nut 1/4 to 1/2 of a turn. Do not tighten the nut more than 1/2 a turn at a time.



Packing gland nut.

3. If the packing gland nut continues to leak, tighten the nut again, rebuild the cylinder using a new seal kit, or replace the cylinder.

### IMPORTANT NOTICE

*Do not overtighten the packing gland nut. If the cylinder does not extend or extends very slowly, the packing gland nut may be too tight. If the leak cannot be stopped by tightening the packing gland nut, rebuild the cylinder and replace the packing gland seal or replace the cylinder.*

## Checking and Adjusting System Pressure

For Medium RailTrac Liftgates there is only one relief valve for setting pressure.

To check the pressure setting:

1. Place the platform on the ground and remove the pressure hose from the port on the pump.
2. Install a tee (customer supplied) into the port.
3. Connect a pressure gauge to the tee (with a capacity rating of 4000 psi or above) and reconnect the hydraulic hose. The pressure gauge should be connected to a hose that allows the mechanic to read the gauge without being under the platform.

### DANGER

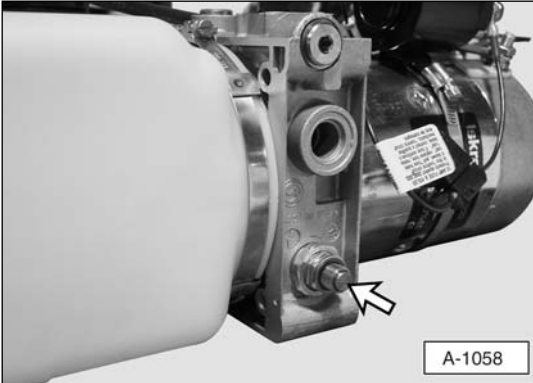


**Do not stand or work in the platform's work area while operating the liftgate. Place the pressure gauge so it can be read while operating the liftgate from a safe location. Serious injury or death could result if this action is not followed.**

4. Raise the platform and check the pressure. If the pressure is low, adjust the pressure relief valve. A low pressure threshold is listed for each model in the following chart.

Low Pressure Threshold Chart	
Model	Low Pressure Threshold
AR-1200	2300 psi
AR-1800	2300 psi
AR-2500	3000 psi
HCR-3000	3000 psi

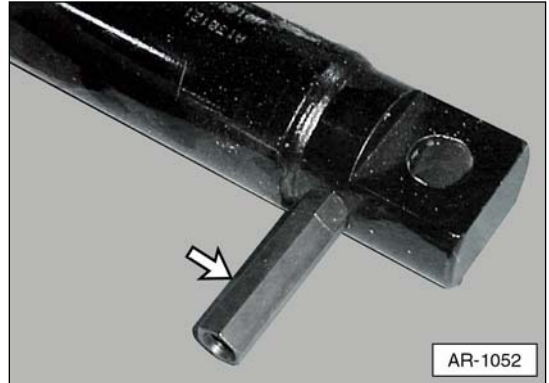
5. Remove the protective cap, if equipped. With the platform on the ground, loosen the locknut. Turn the pressure adjustment screw counter-clockwise to increase pressure and clockwise to decrease the pressure.



Relief valve adjustment for gravity down systems.

6. If the appropriate pressure cannot be reached, replace the pump.
7. After the pressure is set, hold the valve adjustment screw in place and tighten the locknut. This method will prevent the adjustment screw from turning when the locknut is tightened.

## Flow Control Valve



Flow control valve.

### **DANGER**

**Do not operate the liftgate without the flow control valve because the platform may lower too rapidly under heavier loads. Serious injury or death could result if this action is not followed.**

The flow control valve is designed to keep the liftgate from lowering too rapidly under a heavier load.

1. Test the flow control valve by comparing the lowering speed with and without a load.
2. If the lowering speed varies by more than 10 percent:
  - a. Clean the H-frame columns and slide runners.
  - b. Replace the flow control valve and run the test again.

**Tip:** *The lowering speed of the liftgate can be affected by dirt and debris in the H-frame columns and slide runners.*

## Chain Adjustment Procedure for Above Bed RailTrac Models



Above Bed RailTrac.

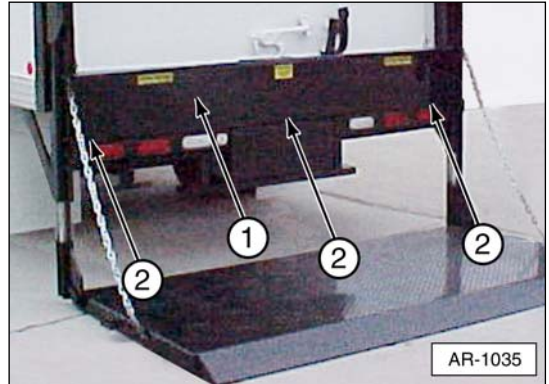
The lift chains must be cut to a specified length to allow the platform to raise to its full height above the bed.

**Tip:** When cutting lift chain, it is better to leave it too long and repeat the procedure to shorten it, than to cut the chain too short. A lift chain that is cut too short must be replaced. Never splice lift chains.

To adjust the length of the lift chains, follow these steps.

1. Lower the platform to ground.

2. Remove three housing cover screws (2) and then remove housing cover (1).



Remove three housing cover screws (2) to remove housing cover (1).

3. Calculate the proper length of chain to be removed (if any) using the formula below, if the truck bed is between 28" and 49". If the truck bed is between 50" and 58", no chain removal is required.

### Formula:

56" – (minus) truck bed height = length of chain to be removed.

**Example:** With a 40" truck bed height.

56" – 40" = 16" of chain to remove.

**Example:** With a 30" truck bed height.

56" – 30" = 26" of chain to remove.

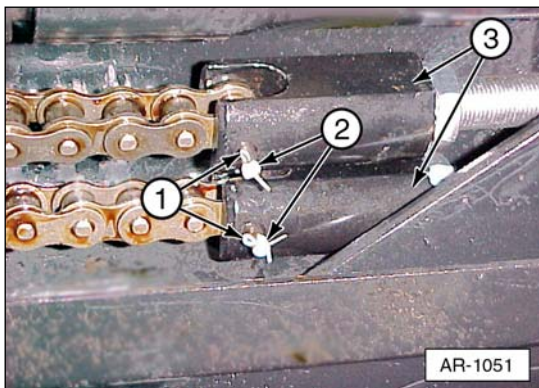
**Tip:** When cutting a lift chain to length, it is better to cut it too long and recut it again to the correct length, because a lift chain that is cut too short must be replaced.

4. Push the control switch to the Down position and push the cylinder rod into the cylinder (retract) to loosen the chain. Determine the length of chain to be removed and push the cylinder rod in by least one half of that length.
5. Disconnect the power to the liftgate.

## ⚠ DANGER

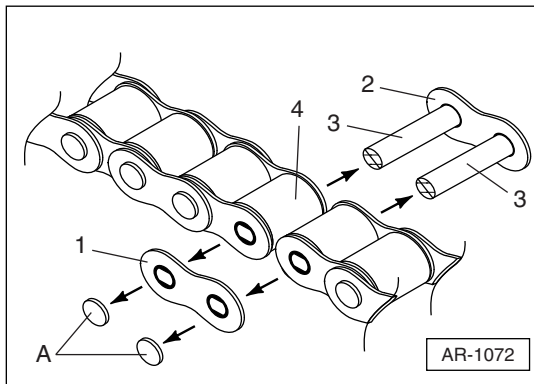
**When the platform is on the ground, the cylinder rod is in the retracted position. Turn OFF or disconnect power to the liftgate to prevent the cylinder rod from extending. Failure to disconnect the power could result in personal injury.**

6. Remove cotter pins (1) from chain anchor pins (2). Remove the chain anchor pins from chain anchors (1) and remove both chains.



Remove cotter pins (1) and chain anchor pins (2) from chain anchors (3).

7. To remove extra links from the chain use the following steps.
  - a. Measure and mark the location of the length of lift chain calculated using the formula in Step 3.
  - b. Remove a full link nearest to the required length of chain.
  - c. Make sure equal lengths are removed from both chains.



Grind heads (A) from chain link pins (3). Remove front link (1) and push rear link (2) with chain link pins (3) out.

- d. Carefully grind heads (A) off of the two chain link pins (3) and remove front link (1).



Grind off chain link pin heads.



- e. Push the rear link and pins out. Remove the excess length of chain.



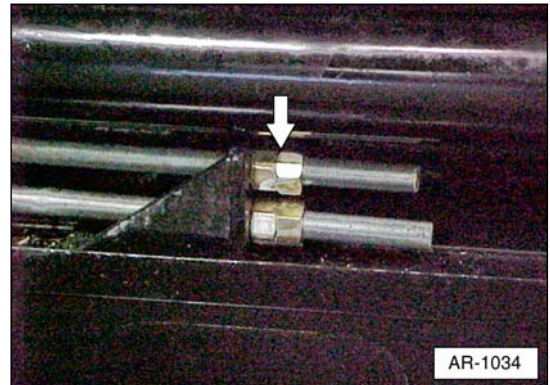
Remove rear chain link.

**Tip:** Using a chain link removal tool will greatly reduce the time spent removing these links. These tools are normally available at motorcycle shops or other chain component suppliers.

**Tip:** Some liftgate models may use leaf chains instead of roller chains, however, the same procedures will apply for removing chain links.

8. Reconnect the chain ends to the chain anchors with the chain anchor pins and **new** cotter pins.
9. Reconnect power to the liftgate. Raise the platform to bed height and check the level of the platform from side-to-side. The platform should be parallel with the truck floor.

10. If adjustments are necessary, lower the platform to the ground and adjust the platform leveling nuts.



Platform leveling nuts.

11. Recheck the side-to-side levelness of the platform to the truck bed. Re-adjust the platform leveling nuts, as necessary.

### IMPORTANT NOTICE

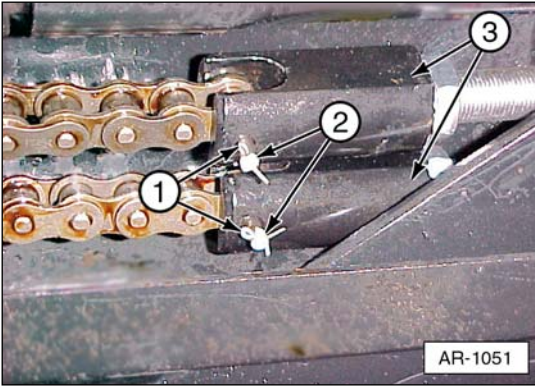
*Make sure the two platform leveling nuts (jam nuts) on each of the threaded rods are tightened against each other to prevent loosening. If the jam nuts loosen, the platform can go out of adjustment.*

12. Replace the housing cover and secure it with three housing cover screws.

## Lift Chain Replacement

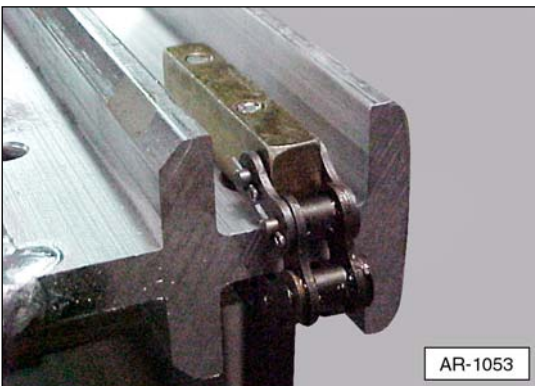
1. Lower the platform to the ground.
2. Disconnect power to the liftgate.
3. Remove the housing cover.

4. Remove the chain from the chain anchor inside the housing. Remove the cotter pins from the chain anchor pins and then remove the chain anchor pins.



Remove cotter pins (1) and chain anchor pins (2) from chain anchors (3) to remove both chains.

5. Remove the chain from the bottom of the slide runner.
  - a. Remove the two bolts holding the chain anchor to the slide rail.
  - b. Remove both cotter pins from the master link.
  - c. Remove the front chain link from the master link.
  - d. Remove the master link.



Chain anchor on slide runner.

6. Determine the length of the old chain by counting the number of links. Measuring the chain does not accurately determine the length of the chain because of elongation (stretching) of the old chain.
7. On above bed lifts, if necessary, cut the new chain to the same length (same number of links) as the old chain.
8. Reattach the new chain to both chain anchors. Only use new master links and cotter pins.

### IMPORTANT NOTICE

*Do not reuse cotter pins and do not use a master link with a spring retaining clip. Only use Anthony approved cotter pins and master links.*

### DANGER

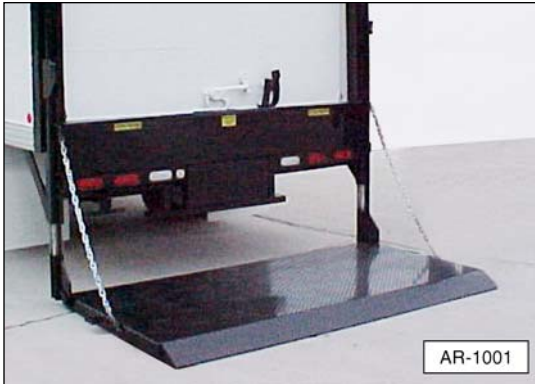


**Never work under a liftgate in the raised position. Make all lift chain adjustments with the platform on the ground or with wooden blocks under each corner. Serious injury or death can result if this action is not followed.**



# Torsion Bar and Spring Replacement

1. Unfold the liftgate platform.



2. Remove the double nuts from the bolt that secures the platform hinge pin assembly.



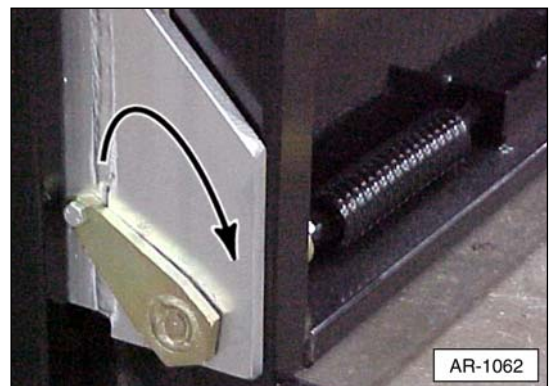
## **DANGER**

**Remove the nuts only. Do not remove or attempt to remove the bolt. Bodily injury can occur, if the bolt is removed with the platform in the unfolded position.**

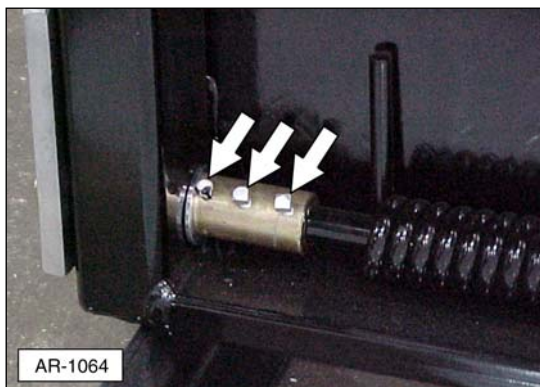
3. Close the platform and lower it into the latch plates. This will prevent the platform from opening or falling. There is also the least amount of preset tension on the spring(s) when the platform is in the closed position.



4. Using a large adjustable (crescent) wrench or pipe wrench, and with a firm grip, twist the platform hinge pin assembly slightly to release the tension from the bolt and remove the bolt. Slowly, rotate the platform hinge pin the opposite direction until no tension remains on the spring(s).



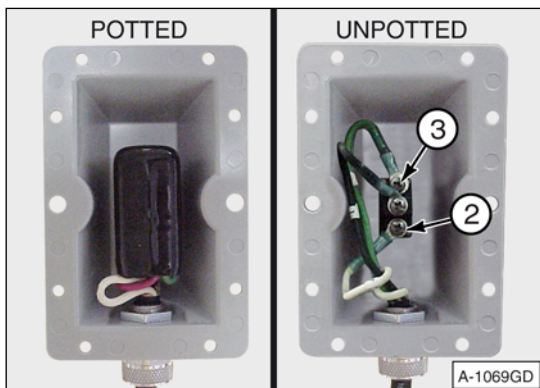
5. Loosen any setscrews that secure the spring, then remove the spring and torsion bar.



6. Replace any worn or damaged parts.
7. To reassemble the torsion bar and spring, reverse Steps 1 through 5. Be sure the setscrews tighten against the flat spot on spring or spring pin, to keep it from rotating in the platform hinge pin.

## Checking the Control Switch

Newer control switches, shown on the left side of the photo, are permanently sealed (potted) and cannot be checked. If these switches are not working properly, replace them.



The older unpotted switch can be checked to make sure it is operating properly.

**⚠ CAUTION**

**Stand clear of the liftgate when checking the control switch. It is possible for the liftgate to activate when testing the switch, which could lead to personal injury.**

### Gravity Down Models (unpotted)

1. Connect one end of a continuity tester to either top terminal (3) or bottom terminal (2).
2. Connect the other end of the continuity tester to a chassis ground or the body ground.
3. Once connected, flip the switch for that function (up or down). If the switch is good, the tester will light to indicate good continuity. If the tester does not light, then that function of the switch is bad.
4. Repeat the procedure for the other terminal.
5. If the switch is bad, replace it.

# Safety Section

## Safety

### Safety is Your Responsibility

It is the responsibility of any individual who installs, maintains, or operates this equipment to fully understand and follow proper operating procedures.

Be aware of the inherent dangers in the use of this product and the tools used to install it.

Read and understand all Dangers, Warnings, Cautions, and Important Notices in this manual and on the liftgate or truck.

### Safety Signal Words

A signal word or words call attention to the safety sign and designate a degree or level of hazard seriousness. The signal words for Anthony Liftgates' product safety signs are DANGER, WARNING, CAUTION, and IMPORTANT NOTICE.

#### **DANGER**

**DANGER:** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations.

#### **WARNING**

**WARNING:** Indicates a 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. It may also be used to alert against unsafe practices.

#### **IMPORTANT NOTICE**

*Indicates that equipment or property damage can result if instructions are not followed.*

## Safety Rules

### **DANGER**



To avoid personal injury or death, carefully read and understand all instructions pertaining to the Anthony Liftgates product.

### **DANGER**

Do not attempt to install, operate, or maintain our product without fully understanding all our instructions and safety precautions. Do not operate or work on a truck or liftgate unless you read and understand the instructions and warnings in the Installation, Operation, and Maintenance manual. If any doubt or question arises about the correct or safe method of performing anything found in this or other Anthony Liftgates' manuals, contact your Anthony Liftgates' dealer or call the Inside Sales and Service representatives at our main headquarters. Proper care is your responsibility.

To prevent injury, the liftgate should only be installed by a qualified installer having knowledge and skill in using welding equipment and a cutting torch.

### **DANGER**



Always weld in a well ventilated area and, if in an enclosed area, vent the fumes to the outside. Breathing welding smoke and paint fumes can cause serious injury.



Always follow all State and Federal health and safety laws and/or local regulations when using an arc welder, mig welder, or cutting torch. Also, follow all manufacturer's safety guidelines. If other people are present during the installation of the liftgate, make sure the welding area is shielded from their view. This will help prevent serious eye injury from the bright light.



To avoid eye injury during welding, always wear a welding helmet with the proper lens to shield your eyes from the bright light.



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).

## **⚠ DANGER**



To prevent injury, make sure all decals are attached to the liftgate and/or truck and are legible at all times.



To prevent serious bodily injury, keep sparks, lighted matches, and open flames away from the top of the battery, because battery gas can explode. Always follow all the manufacturers' safety recommendations when working around the truck's battery.



Take precautions to avoid sparks coming into contact with the truck's fuel tank, brake lines, or other flammable components. Sparks can cause an explosion of combustible materials, resulting in serious injury or death.



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.

## **⚠ WARNING**



To avoid personal injury, do not work under the platform. Failure to safely secure the liftgate to the truck body during installation could result in serious personal injury. Do not remove the lifting device(s) until the liftgate is completely welded onto the truck.



To prevent personal injury, clean up any spilled fluids immediately.



To avoid tripping, do not leave tools or components laying around in the work area.



Do not place hands or feet in pinch points.



Do not ride on the platform.



Do not place your feet under the platform.



Always use/set the truck's parking brake before operating the liftgate. Failure to follow this recommendation can result in injury.



Most accidents involving the operation, maintenance, or repair of products made by Anthony Liftgates occur because the installer/owner/operator failed to observe basic safety rules or operating instructions.

## **! WARNING**

Accidents can often be avoided by being alert and recognizing potentially hazardous situations. Any individuals installing, operating, maintaining, or repairing products manufactured by Anthony Liftgates should have the necessary training, skills, and tools required to perform these functions properly and safely. The safety information in this manual serves as a basic guide in an attempt to prevent injury or death.

Anthony Liftgates cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and on the product itself are, therefore, not all inclusive. If tools, procedures, work methods, or operating techniques that are not specifically mentioned by Anthony Liftgates are used, you must satisfy yourself that they are safe for you and for others. Make sure the liftgate or truck it is mounted onto will not be damaged or made unsafe by any operation, lubrication, maintenance, or repair procedures that you choose.

**DO NOT** proceed, if any doubt arises about the correct or safe method of performing anything found in this or other Anthony Liftgates' manuals. Seek out expert assistance from a qualified person before continuing.

## **! CAUTION**

Many liftgate models provide steps for drivers as a convenience feature. When steps are present, customer-supplied grab handles and other ingress/egress items should be installed.

Even though the Anthony liftgate is easy to install, the installation should be done with at least two people.

## **! CAUTION**



Take precautions to avoid welding sparks or the flame from a cutting torch coming into contact with the truck bed's wooden floor or other flammable components.

Tack welds must be strong enough to hold the weight of the individual components being held in place. Insufficient tack welds may not hold the parts in place, resulting in possible bodily harm.

## **IMPORTANT NOTICE**

*Use only Mobil DTE-13 oil or Penzoil AWX Automatic Transmission Fluid or equivalent in the power unit reservoir. Do not use brake fluid.*

# Troubleshooting Section

## Troubleshooting Guide

Troubleshooting Chart		
Problem	Possible Cause	Possible Solution
Motor does not run when control switch is activated.	Cab cut-off switch.	Turn switch to ON position.
	Dead or low battery.	Make sure battery is fully charged. Check for loose or corroded battery connections. Replace or recharge battery.
	Main power cable circuit protection tripped or blown.	Replace fuse or reset breaker.
	Control cord fuse (10 Amp) inside power unit box is blown.	Replace, if fuse is blown. If problem continues, check for shorts in the electrical system.
	Defective control box switch.	Check switch, replace if defective. See Maintenance section.
	Motor start coil.	Check coil. See Maintenance section. Replace if defective.
	Power cut-off solenoid, if so equipped.	Check coil. See Maintenance section. Replace if defective.
	Defective power cable.	Check power cable for continuity. See Maintenance section.
	Defective motor.	If the motor is determined to be bad, it should be replaced. Bad motors are often caused by loose connections, corrosion, a poor ground, or low voltage (which is a result of weak batteries).
	If liftgate is installed on a semi trailer make sure the power cable leading to the battery is two gauge or heavier. Smaller wires can reduce the voltage, resulting in motor failures.	
	If the motor does not operate in freezing conditions, make sure the motor housing does not contain water.	
Platform raises slowly, sticks, or shakes.	Dirty or worn lift chain and sprockets.	Clean and oil all parts. Replace chain, sprockets, or sprocket bearings if necessary.
Platform opens too quickly.	Platform assist spring is weak or broken.	Check for broken or weak platform assist spring and replace as necessary.



Troubleshooting Chart (continued)		
Problem	Possible Cause	Possible Solution
Motor runs, but liftgate will not lower to the ground.	Structural damage. Check lift chains, sprockets, and slides.	Fix damage. Replace worn parts.
	Defective control switch.	Check the control switch. Is it operating correctly?
	Defective lowering valve coil.	Check the coil using the procedure in the Maintenance section.
	Defective lowering valve cartridge.	Check, remove, and clean valve cartridge using the procedure in the Maintenance section.
	Defective flow control valve.	Replace the flow control valve. See the flow control valve section.
Motor runs, but platform will not raise, will not raise rated capacity, or raises but drifts down when control switch is released.	Load capacity has been exceeded.	Verify load capacity and adjust load weight.
	Structural damage.	Replace damaged parts.
	Low fluid level.	Fill reservoir (with the platform completely lowered to the ground).
	Low Voltage.	Inspect the battery connection terminals and check the battery's Voltage (9 Volts minimum).
	Dirty or defective lowering valve.	Coil or cartridge may need cleaning or replacement. See Maintenance section.
	Bad piston seals.	See Maintenance section for Checking Cylinder for Leakage.
	Pump relief valve needs adjusted.	See Maintenance section for Checking and Adjusting System Pressure.
	Hydraulic pump is worn.	Replace hydraulic pump.
Sagging platform.	Bushing wear where slides connect to platform.	Replace bushings.
	Structural damage.	Replace worn parts.
	Platform support chains.	Replace.

Troubleshooting Chart (continued)		
Problem	Possible Cause	Possible Solution
Foaming oil.	Air in the hydraulic hose(s).	Check oil level in reservoir.
	Broken or loose fluid return tube. (Does not apply to AR-1200 with 2" cylinders.)	Remove the oil reservoir and make sure the return tube is below the oil level. If the tube has turned or fallen out, reinstall it into the pump housing. Use a center punch to "stake" the tube into position.
Hydraulic fluid is leaking from packing gland.	Loose packing gland nut. (Only on AR-1200 with 2" cylinders.)	See Maintenance section for Checking Cylinder for Leakage.
Liftgate will not open.	Platform operating area is not clear.	Clear platform operating area.
	Platform is still in the latch brackets.	Activate the "UP" switch. Raise the liftgate out of the latch plates.
Platform lowers extremely slow.	Improper oil in hydraulic reservoir.	Change it to multi-viscosity hydraulic fluid. See Monthly Inspection section.
	Damaged or kinked hydraulic hose.	Repair or replace.
	Cylinder rod is scored, pitted, or bent.	Repair or replace.
	Defective flow control valve.	Replace the flow control valve. See the flow control valve section.
	Slide runners are dirty, damaged, or need oil.	Clean columns and oil slide runners with 30W motor oil. Replace slide runners if they are bent or damaged.
	Defective lowering valve.	Coil or cartridge may need cleaning or replacement. See Maintenance section.
	Chains and sprockets are dirty.	Clean chains and sprockets with kerosene or mineral spirits and re-oil with 30W motor oil.
Platform raises partially and stops.	Load capacity has been exceeded.	Verify load capacity and adjust load weight.
	Structural damage.	Replace damaged parts (lift chains, sprockets, slides, cylinder, etc.).
	Low Voltage.	Recharge battery (if less than 9 volts).
	Low pressure.	Refill reservoir. Check pump and motor.
Platform will not lower.	Platform operating area is not clear.	Clear area.
	Structural damage.	Replace damaged parts (lift chains, sprockets, slides, etc.).
	Low Voltage.	Recharge battery (if less than 9 volts).
	Defective lowering valve.	See Maintenance section.
	Defective hydraulic pump and motor.	Replace power unit.

**Notes**



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