

# Maintenance Section

## Quick Check Maintenance Guide

### Monthly Inspection

**SPECIAL NOTE:** As of December 1994 Anthony Tuckunder Liftgates are "Service-Free". This means that newer liftgates have lubrication-free bushings at the major pivot points which, of course, do not require lubrication. Consequently these liftgates do not have grease zerks.

1. Make sure the liftgate operates freely and smoothly throughout its entire range of movement.
2. Check for damage to the liftgate such as bent or distorted members, or any cracked weld which may have resulted from overload or abuse. Check for excessively worn parts. Replace bushings and pins if extremely worn.
3. Check all pins and pivot points. Make sure they are secured with proper retainers.
4. Make sure platform is angled upward from truck bed 0 to 3/4 inch when raised to bed height. See Platform Adjustment for a shimming procedure.
5. Make sure all electrical wires, switches, and connections are in good working condition and operate properly.
6. 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.
7. Check reservoir oil level.
  - a. Place liftgate in the fully raised, the oil level should be within 1/2 inch of the top of the reservoir.
  - b. Fill as required with Penzoil AWX Automatic Transmission Fluid or equivalent.
8. Check the fluid level of the vehicle battery. Fill as required.
9. Examine all Warning, Capacity, and Operational Decals. If they are not readable they should be replaced. Decals may be obtained from Anthony Liftgates, Inc.
10. Oil the roller wheel and make sure it spins freely.

### ***IMPORTANT NOTICE***

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

# Maintenance and Troubleshooting Procedures

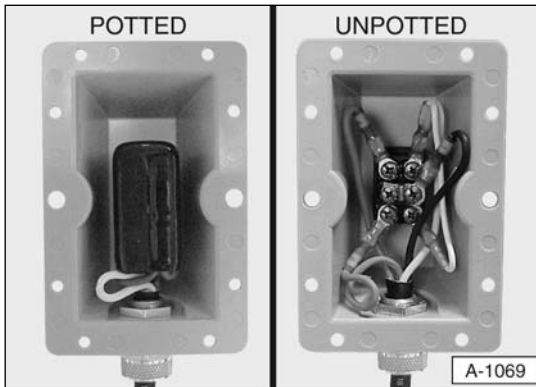
## Checking Battery Cable

To check for a bad battery cable, run the motor directly from a spare battery using jumper cables.

1. Remove the battery connection to the motor.
2. Connect the negative jumper cable (ground) directly to the liftgate. Connect the positive cable to the terminal on the motor start solenoid.
3. Depress the switch, if the motor operates, the battery cable is bad and should be replaced.


## 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.

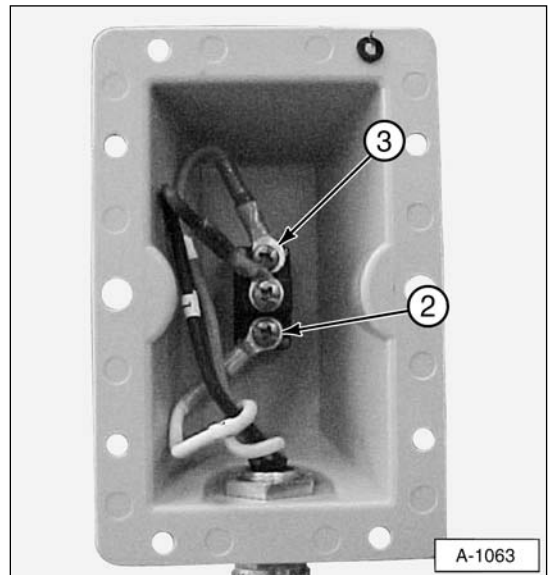
**⚠ CAUTION**



**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)

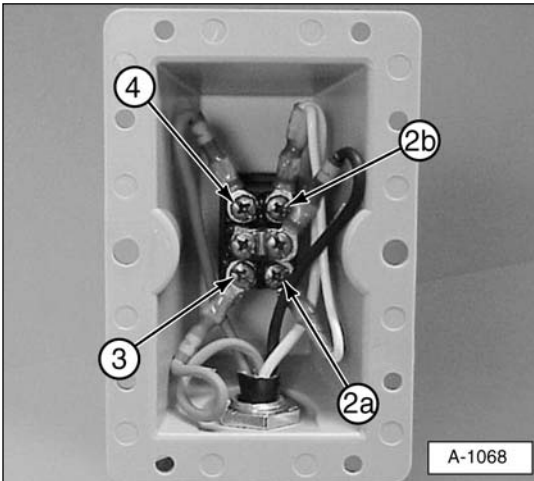
1. Connect one end of a continuity tester to either top terminal (3) or bottom terminal (2).
2. Connect the other end of the continuity tester to a chassis ground or the body ground.



Inside of gravity down control switch.

- 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.
- Repeat the procedure for the other terminal.
- If the switch is bad, replace it.

### Power Down Models (unpotted)



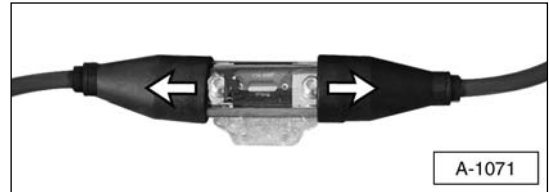
Inside of power down control switch.

- Connect one end of a continuity tester to terminal [2 (a or b), 3, or 4].
- Connect the other end of the continuity tester to a chassis ground or the body ground.
- 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.
- Repeat the procedure for the other two terminals.
- If the switch is bad, replace it.

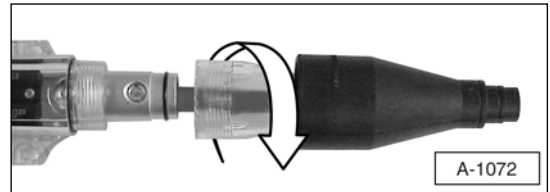
## Replacing the Fuse

To replace a fuse:

- Pull back the rubber boots from the fuse holder.

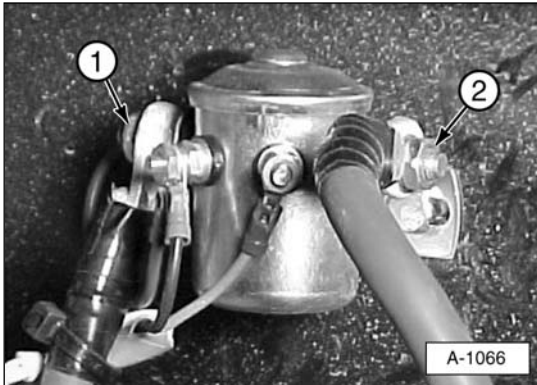
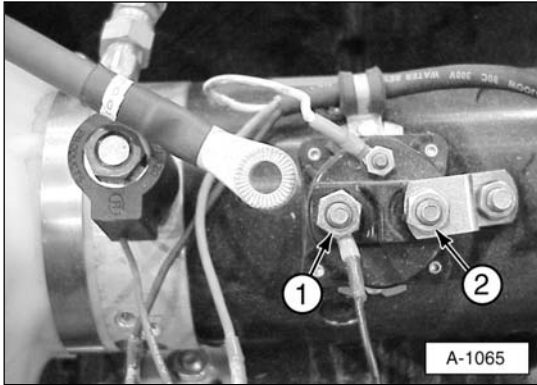


- Unscrew the fuse holder ends from the fuse holder body and pull it apart.



- Slide the fuse holder body one direction (left or right) to expose the blown fuse.
- 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.
- Re-assemble the fuse in reverse order. Be sure the rubber boots are sealed around the fuse holder and cable.
- Re-connect power after you are certain liftgate area is clear.

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

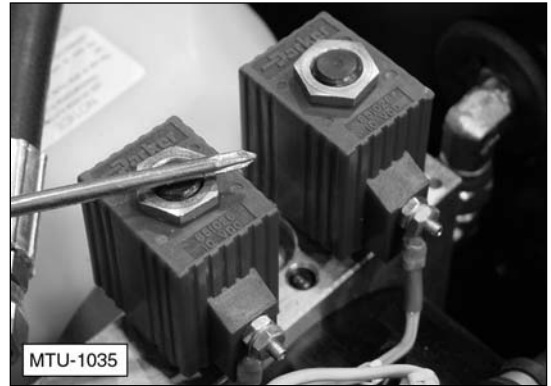


Both the motor start solenoid and power cut-off solenoid can be checked by bypassing the solenoid itself.

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.

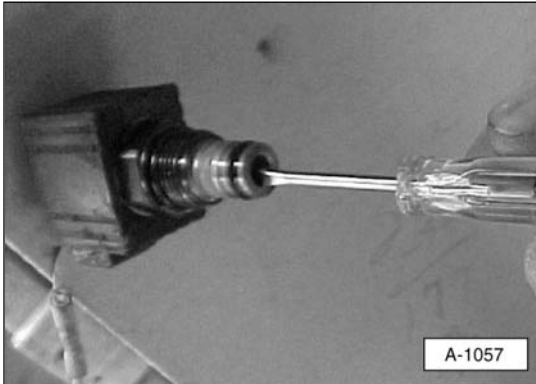
## Checking Lowering Valve Cartridge and Solenoid

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



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 cartridge valve.
5. Remove the solenoid from the valve assembly.
6. Remove the valve cartridge from the pump body.
7. Clean the 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 spool inside the cartridge. If the spool moves freely, the cartridge is good. If it does not move, replace the cartridge, because the spool could be bent, pitted, or damaged in some other way.



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

### Piston Rod Seals (Power Down)

1. Check the lowering valve. Make sure it is operating correctly and the valve is not sticking or dirty.
2. If the lowering valve is operating properly, then the drifting is most likely caused by worn piston seals. Rebuild the cylinder and replace the piston seals.

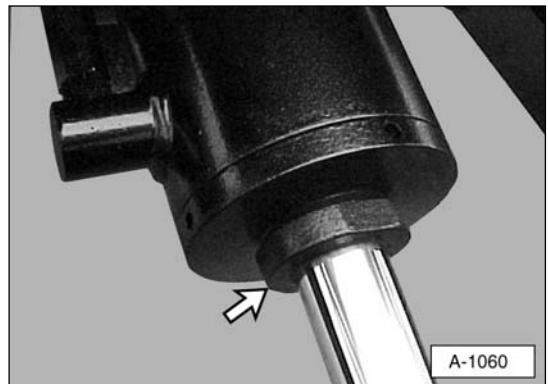
If the cylinder is under warranty, do not rebuild. In these cases the complete cylinder will be replaced.

## Packing Gland Nut

On newer model cylinders, purchased after Spring of 2003, there is no packing seal adjustment. If a leak is found, rebuild the cylinder with a new seal kit.

On older models, if the packing seals are leaking and oil is flowing down the cylinder piston, 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 of a turn at a time.



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

### **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.*

## Checking and Adjusting System Pressure

Power down models have two relief valve settings; one for raising the platform (power up) and one for lowering the platform (power down).

To check the “power up” pressure setting:

1. Place the liftgate on the ground and remove the pressure hose from the power up port of the pump.
2. Install a tee (customer supplied) into the power up port.
3. Connect a pressure gauge and reconnect the hydraulic hose.

The pressure gauge must be rated above the maximum pressure of the liftgate. For example, use a 4000 psi pressure gauge on a 3000 psi maximum capacity liftgate.

### **⚠ DANGER**



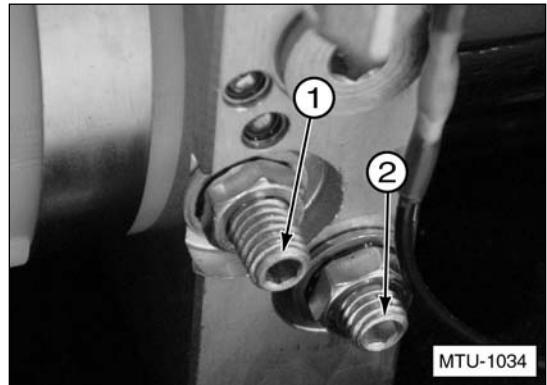
Do not stand or work in the platform's work area while operating the liftgate. Place the pressure gauge so it can be read while operating the liftgate from a safe location. Serious injury or death could result if this action is not followed.

4. Raise the liftgate and check the pressure. If the pressure is low, adjust the power-up pressure relief valve (1).

5. With the liftgate on the ground, loosen the locknut. Use an Allen wrench and turn the pressure adjustment screw counterclockwise to increase pressure and clockwise to decrease the pressure.

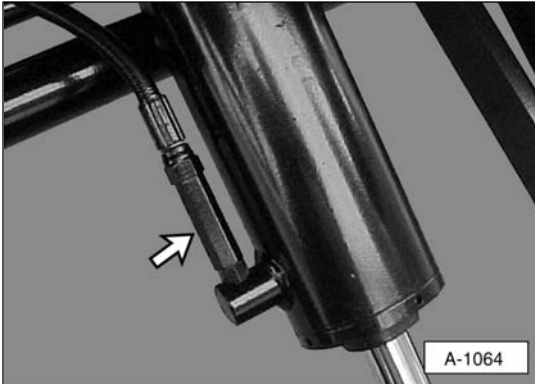
If the appropriate pressure cannot be reached, replace the pump.

6. 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.



7. Check the power down relief valve pressure (2) in the same way as the gravity down system by installing a tee and gauge.
8. The power-down pressure should not exceed 400 psi. Turn the adjusting screw counterclockwise to decrease the pressure and clockwise to increase the pressure.

## Flow Control Valve



If the cylinders do not operate or operate slower than normal, remove the flow control valves and hook the hydraulic hoses directly to the cylinders. If the cylinders operate properly, replace the flow control valves.

### **DANGER**



Do not operate the liftgate without the flow control valve. Serious injury or death could result if this action is not followed.

# Safety Section

## Safety

### Safety is Your Responsibility

It is the responsibility of the installer/operator to understand and perform 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 Danger, 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. 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.

## **⚠ DANGER**



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.



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 shield 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.

## **⚠ DANGER**



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**



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



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 liftgate.



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

## **⚠ WARNING**



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. 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 drivers' steps 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.



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 Penzoil AWX Automatic Transmission Fluid or equivalent in the power unit reservoir. Do not use brake fluid.*