

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. Models manufactured previous to December 1994, with grease zerks, require routine lubrication at major pivot points.

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 1/2 to 3/4 inch when raised to bed height. See Platform Adjustment for 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. Gravity down models - With the platform on the ground, the oil level should be within 1/2 inch of the top of the reservoir.
 - b. Power down models - Place liftgate in the fully raised, the oil level should be within 1/2 inch of the top of the reservoir.
 - c. Fill as required with Mobil DTE-13 oil or Penzoi AWX Automatic Transmission Fluid or equivalent.

IMPORTANT NOTICE

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

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 free of charge from Anthony Liftgates, Inc.
10. Oil the roller wheel and make sure it spins freely.

Maintenance and Troubleshooting Procedures

Platform Adjustment (adding shims)

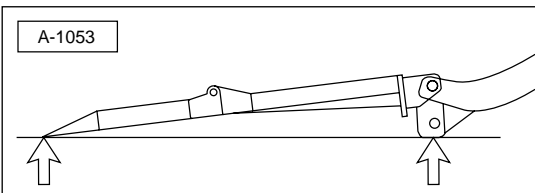
The ramp (outboard) end of platform should be 1/2 to 3/4 inches higher than truck floor. If the outboard end of the platform is sagging, add shims as described below, to raise the end. Shimming is a normal procedure as the liftgate ages and the parts become worn.

1. Position the necessary amount of "shim plates" in the contact area between the cam plates and platform.



Add shims to this area to eliminate sagging.

2. Weld the steel shim plates to the blocks on platform.
3. When the platform is lowered to the ground, it should touch at the lift arm end and at the ramp end.



Liftgate should contact the ground at these two locations.

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.



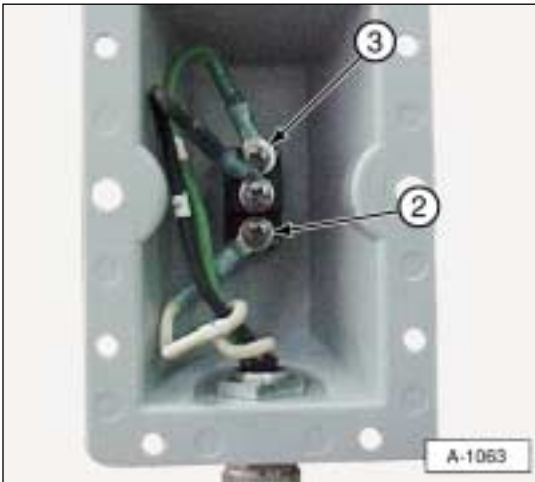
The older unpotted switch can be checked to make sure it is operating properly.

⚠ 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)

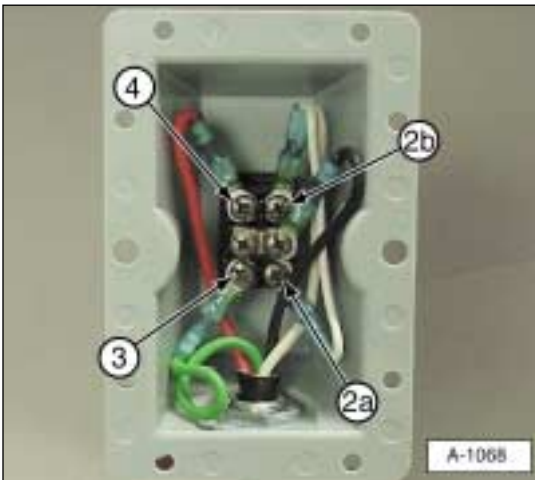
1. Connect one end of a continuity tester to either top terminal (3) or bottom terminal (2).
2. Connect the other end of the continuity tester to a chassis ground or the body ground.



Inside of gravity down control switch.

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.

Power Down Models (unpotted)



Inside of power down control switch.

1. Connect one end of a continuity tester to terminal [2 (a or b), 3, or 4].
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 two terminals.
5. If the switch is bad, replace it.

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.

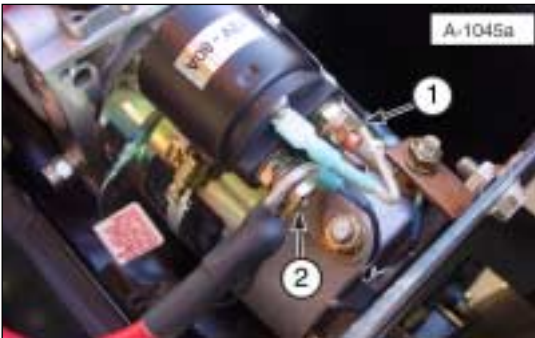


2. Unscrew the fuse holder ends from the fuse holder body and pull it apart.



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.

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. If the motor operates, the battery cable 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 solenoid.



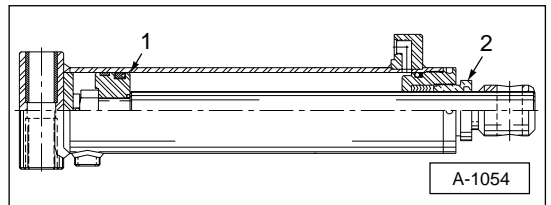
Place a screwdriver over the solenoid.



Push spool to check for free movement.

3. Momentarily activate the control switch in the DOWN position. The screwdriver should be attracted to the magnetic field created by the solenoid.
4. If no magnetic pull is produced, the solenoid is bad and should be replaced. If the solenoid 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 (1) and packing gland nut and seals (2).

Piston Rod Seals (Gravity Down)

1. Remove the breather hose (gravity down models only).
2. Raise the liftgate all the way up and hold the switch in the "on" position while checking for oil coming out of the cylinder's breather port.
3. If a continuous flow of oil comes out of this port (while the liftgate 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.

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 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.



Packing gland nut.

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

For gravity down systems there is only one relief valve (power up) for setting 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:

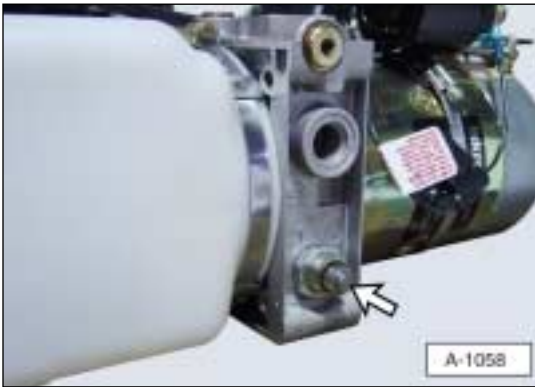
1. Place the liftgate on the ground and remove the pressure hose from the power up port of the pump.
2. Install a tee (customer supplied) into the power up port.
3. Connect a pressure gauge and reconnect the hydraulic hose.

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 pressure relief valve.

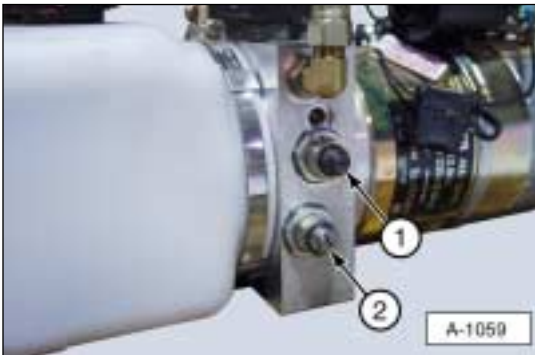


Relief valve adjustment for gravity down systems.

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



Relief valve adjustment for power down systems. (1) Power-up adjustment. (2) Power-down adjustment.

7. Check the power down relief valve pressure 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 or clockwise to increase the pressure.

Flow Control Valve



Flow control valve.

If the cylinder does not operate or operates slower than normal, remove the flow control valve and hook the hydraulic hose directly to the cylinder. If the cylinder operates properly, replace the valve.

⚠ DANGER	
	<p>Do not operate the liftgate without the flow control valve. Serious injury or death could result if this action is not followed.</p>