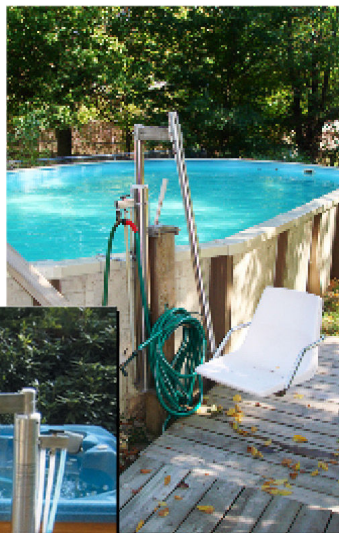




Aquatic Access[®] Inc.

1921 Production Drive
Louisville, Kentucky 40299-2110 USA
Toll Free: 800.325.5438
Phone: 502.425.5817
Fax: 502.425.9607

Lift Models for Above-Ground Pools/Spas



**Installation Guide
Instruction Manual**



Contact:

Aquatic Access Inc.
1921 Production Drive
Louisville, KY USA 40299-2110
Toll Free 800.325.5438 Phone 502.425.5187
Fax 502.425.9607 info@AquaticAccess.com

Table of Contents

Installation.....	1
Lift Placement for Spas with Benches of Various Heights	1
Installation for Concrete Decks	1
Installation for Wooden Decks	2
Installation for Post Mounts	2
Above-Ground Lift Assembly Instructions	3
Water Connections	4
Operation of Lift	4
General Safety Precautions	5
Safety Procedures.....	5
Service and Maintenance	5
Routine Inspection	5
Disassembly of Lift	6
Replacement of Piston Seal.....	6
Replacement of Piston and/or Top Guide	7
To Reassemble the Unit	8
Before Using the Lift Again	8
Troubleshooting	9
Representative Label for Aquatic Access Lifts	10
Addendum A: Technical Specifications of Above-Ground Pool Lifts ...	11

Visit us online at AquaticAccess.com.

ABOVE-GROUND POOL LIFT INSTRUCTIONS

The AG (Above-Ground) Series includes the previously designated SL (SpaLift) Series.

LIFT PLACEMENT FOR SPAS WITH BENCH SEATS OF VARIOUS HEIGHTS

It is recommended that the lift be installed at the deepest area of the spa. If seat goes all the way around, then the lift should be positioned so that the seat comes down on the deepest seat. It is important that the seat ends up deep enough in the water for the seat occupants natural buoyancy assist in moving to and from the seat in the spa.

Once placement has been determined, then one of the two installation techniques below will apply.

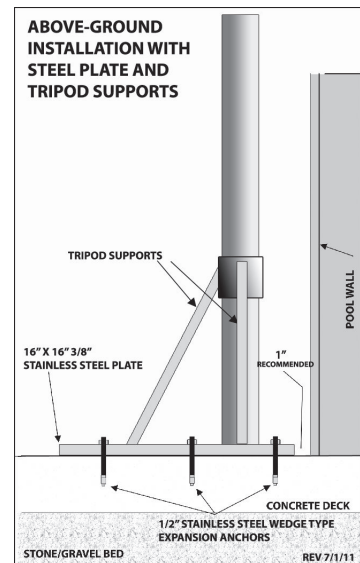
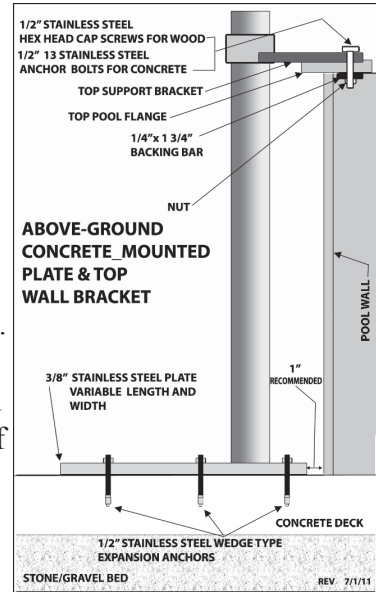
INSTALLATION FOR CONCRETE DECKS

1. Place your lift in the desired location against the side of the spa, tub, or pool (referred to simply as pool in remaining instructions), leaving a gap of 1" or less between the plate and the side of the pool.

2. If a top wall support bracket is provided with your assembly (and not pre-installed on cylinder), remove the four bolts from the top of the cylinder assembly and position the top support bracket around the cylinder and on the top edge of the pool. Reinstall top cylinder bushing and bolts. If there is access below the pool/spa wall or cavity, drill holes in the pool wall's flange (for wooden cabinet) to accommodate 1/2" bolts. Attach with the bolts, placing the included strongback underneath the flange. Use 1/2" concrete expansion bolts for concrete walls. Verify with a level below the top wall bracket that the cylinder is vertical before bolting the base plate.

3. Use the base plate as a template for the location of the holes to be drilled.

4. When wedge-type expansion anchor bolts are included, drill holes with a hammer drill, one at a time, and blow out dust and residue. With lift in position, drive in anchor bolt, complete with nut, before proceeding to the next hole. With all expansion anchor-bolts installed, but not tightened, verify with a level that the cylinder is vertical. Shim if necessary as you tighten bolts to be certain the cylinder remains vertical as you tighten the anchors.

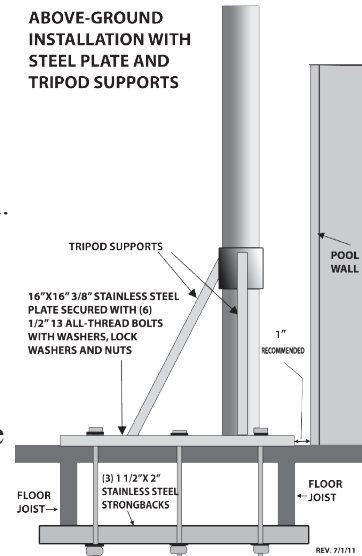


SAFETY ITEM: Aquatic Access recommends that the lift be installed at a location where the concrete slab is at least 4" thick. Verify that the slab is sufficiently thick when drilling holes.

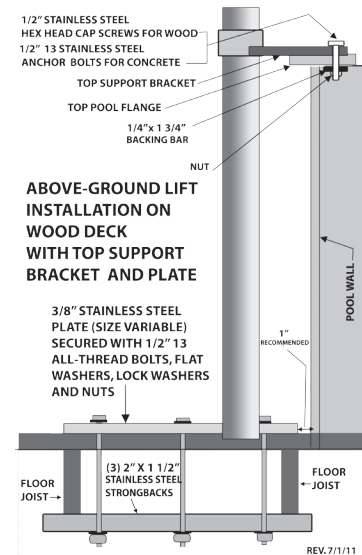
INSTALLATION FOR WOODEN DECKS

1. Place your lift in the desired location against the side of your spa, tub or pool (referred to simply as pool in remaining instruction), leaving a gap of 1" or less between the plate and the side of the pool.
2. If a top wall support bracket is provided with your assembly (and not pre-installed on cylinder) remove the four bolts from the top of the cylinder assembly and position the stainless steel top support bracket around and on the top edge of the pool. If there is access below the pool/spa wall or cavity, drill holes in the pool wall's flange (for wooden cabinet) to accommodate 1/2" bolts. Fasten the strongback (if included) with the bracket underneath the pool's flange or cavity. Attach with 1/2" bolts, placing the strongback under flange. Use 1/2" concrete expansion bolts for concrete walls.
3. Use the base plate as a template for the location of the holes to be drilled.
4. Mark and drill holes for the following types of wood mounting: For applications where there is access below the deck, use 1/2" stainless steel all-thread bolts with nuts and washers going through the deck and stainless steel strong backs installed perpendicular to floor joists underneath. Some applications may require additional blocking underneath each side of the plate. Stainless steel supports are available from Aquatic Access for purchase.

ABOVE-GROUND INSTALLATION WITH STEEL PLATE AND TRIPOD SUPPORTS

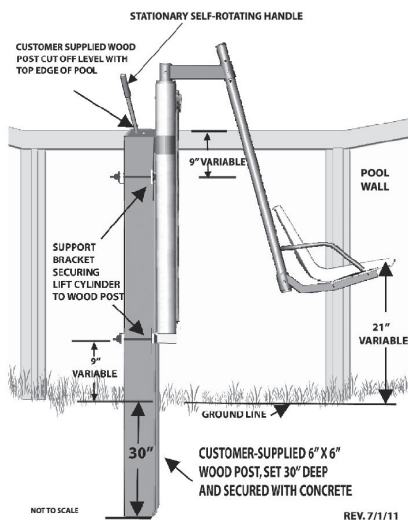


ABOVE-GROUND LIFT INSTALLATION ON WOOD DECK WITH TOP SUPPORT BRACKET AND PLATE



INSTALLATION FOR POST MOUNTS

ABOVE-GROUND POOL LIFT WOOD POST MOUNT



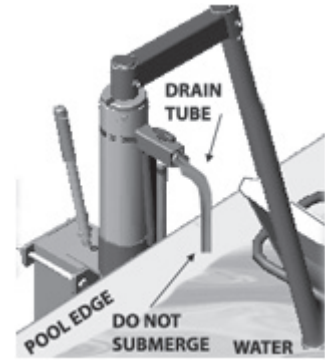
1. Start by determining the lift's location in an ideal area for transferring onto the seat. Dig a hole 30" deep and at least 12" in diameter beside the pool to accommodate a 6" x 6" wood post. For sandy or loose soil, a deeper and wider hole is recommended. Be sure to maintain at least a 2"- 2 1/2" space between the post and pool wall.

2. Set post in the hole square to the pool wall and top edge. Use concrete to fill the hole. Check with a level to be certain that the post has remained absolutely vertical. Allow the cement to set for 24 hours before proceeding.

3. Cut the post even with the top of the pool wall or _____ above the pool wall as specified by Aquatic Access.

4. Position the lift on the right side of the post, facing the pool, Hang the lift on the post by the top plate and install the supplied brackets.

5. Position the drain tube across the top of the pool wall with the outlet pointed down.



ABOVE-GROUND ASSEMBLY INSTRUCTIONS

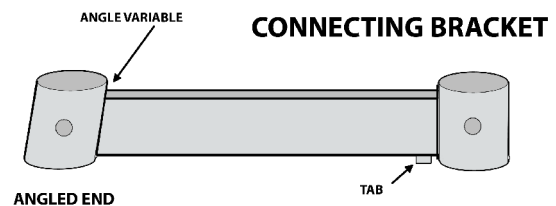
Your new lift has been factory-assembled and tested. Examine the illustration and become familiar with the parts and their names. A reinforced garden hose connection to the nearest water source is required for your lift to function. Installation of an adjacent water connection for the lift is desirable in new construction.

When you unpack your lift, you will find:

Carton #1 (the long carton) contains the lift cylinder, seat tube, connecting bracket, mounting hardware, the instruction packet and any accessories.

Carton #2 (the square carton) contains the seat assembly.

Carton #3 (round cardboard tube) contains the seat tube. In some cases, the seat tube is packed in Carton #1.



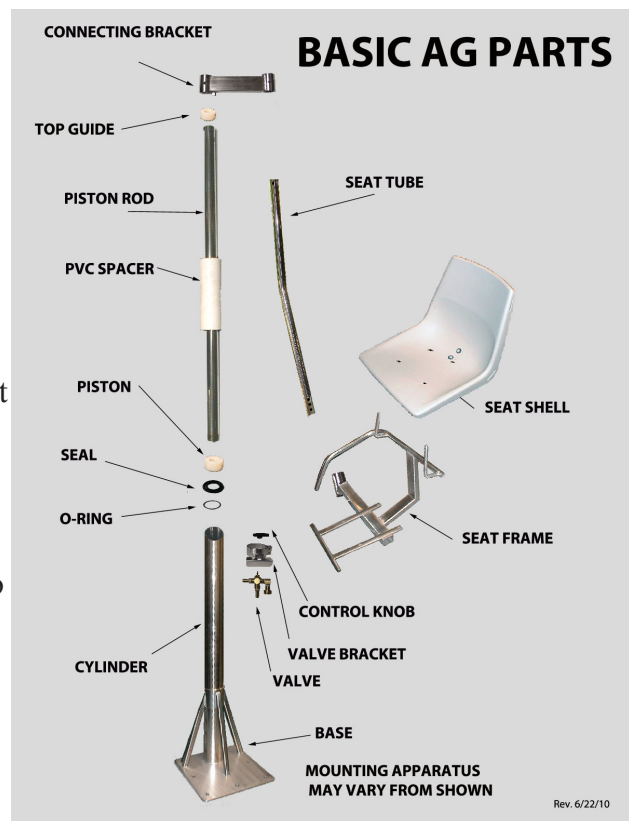
1. Install the main cylinder per instructions for installation in concrete or wooden deck.

2. Slide the connecting bracket over the piston rod on top of the lift with the tab pointing down. Insert the bolt and tighten the nut securely.

3. Insert the seat post end with three holes in the angled end of the connecting bracket. Insert the bolt and tighten the nut securely.

4. Install and position the drain tube across the top of the pool wall with the discharge pointing down, allowing the water to drain into the pool. The end of the drain tube should not be submerged.

5. Slide the seat assembly over the seat tube, line up holes and insert the bolt and tighten the nut securely.



6. Connect the water hose to the valve and turn on the water supply. Do not leave the pressure on constantly. This may cause plastic components to swell.

WATER CONNECTIONS

The pool lift operates using normal household water pressure. If water pressure is excessively low, a booster pump may be needed. Pressures above 70 PSI (static water pressure) could damage lift components. If your static water pressure is over 70 PSI, a reducer valve should be installed between the hose bib and the hose. No electricity is required to operate your Aquatic Access lift. In most situations a reinforced garden hose is adequate to operate the lift. Some customers prefer to run a dedicated line to the lift. If so, the connection should be placed on the same side of the lift as the water inlet and valve fittings.

OPERATION OF THE LIFT

1. Connect lift to water source.
2. Before allowing anyone to use the lift, purge air from the water lines by running the lift completely up and down several times. To raise the lift, turn the valve handle clockwise; turn the handle counter-clockwise to lower seat into the water. Placing the valve handle in the middle position will stop the seat's motion.
3. Once the air has been purged from the system, the lift is ready for use.

Note: Purge the air from the lift every day. Air in the system may cause the seat to lower several inches suddenly. Make sure that the air has been purged from the system before allowing anyone to use the lift.

4. Raise the seat to the UP position. Be certain to align the holes for the pushpin*(see note at the end of this section).
5. Insert the push pin*(see note) through the piston rod. This will prevent the lift from accidentally rotating into the pool while a person is transferring into the lift's seat. (If there is no push pin, there is a key located underneath the connecting bracket that fits into the top of the cylinder during transfer).
6. Once the person using the lift is seated comfortably, has fastened the seat belt, and is ready to enter the water, remove the push pin* (see note), turn the valve to raise the person in the seat, and gently rotate the lift until the person is over the water, and then release the valve.
7. When ready to lift the person from the water, use the push pin* (see note) to hold the seat still until the person using the lift is comfortably seated on lift with seat belt fastened (if one is provided) and is ready to get out of the pool. Then remove the pin*(see note) and engage the water pressure by rotating the valve handle, thus lifting the person from the water. Rotate seat over the deck and secure with pushpin*(see note below) before transferring from the lift seat.

***NOTE: Some units are equipped with a safety stop to limit immersion depth. Units equipped in this way will not have a pushpin on the water-side of the lift.**

GENERAL SAFETY PRECAUTIONS

SAFETY PROCEDURES

ALWAYS wait until the occupant of the chair is situated in seat and ready to move before operating the lift.

ALWAYS instruct facility personnel on use of the lift.

ALWAYS have an attendant present in case of emergency.

ALWAYS purge the air from the system before operating the lift.

ALWAYS drain water from cylinder before lift is stored in or exposed to temperatures below freezing.

NEVER allow anyone to hang on or play on the lift.

NEVER allow anyone to dive or jump from the lift.

NEVER allow water pressure to the lift to exceed 70 PSI.

NEVER use any sort of oil or petroleum-based product on the inside of the cylinder; it will damage the piston and seal.

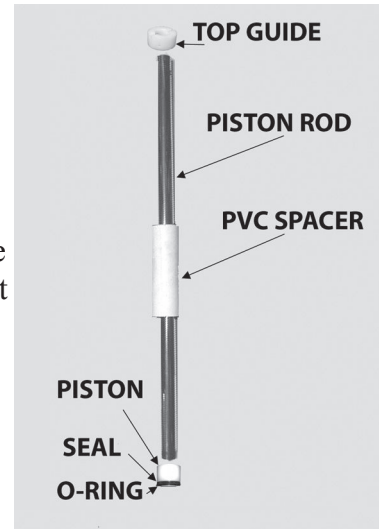
SERVICE AND MAINTENANCE

ROUTINE INSPECTION

1. It is recommended that the unit be inspected at least every six months for damaged parts or excessive wear.
2. Check the screws, nuts, bolts, and hose clamps to be sure all are snug. Replace any parts that have corroded or show wear.
3. Chemicals or pollution in water or air may cause discoloration of the stainless steel if it is not protected by wax. If water does not bead on the surfaces, then a coat of wax is needed for maximum protection. If the stainless steel has become discolored from chemical additives in the pool water or from a corrosive atmosphere, it can be cleaned using a soft Scotchbrite® pad. Never use steel wool pads to clean the lift. After cleaning with the Scotchbrite® pad, apply a car wax to maintain the lifts bright appearance.
4. If the lift is installed on a wood deck, check the deck for any signs of decay. Replace any worn or damaged decking.

DISASSEMBLY OF LIFT

1. Turn off the water and disconnect the supply hose. Remove the bolt from the seat bracket. Slide the seat bracket off the end of the piston rod.
2. Remove the connecting bracket and seat tube from the top of the piston rod by removing the bolt and nut. Lift the connecting bracket and seat tube off the piston rod.
3. Mark the alignment notches on the top bushing with a pen in relation to the pool and to other components of the lift. This procedure will help with the reassembly the lift.



4. Remove the four bolts from the top of the cylinder. Grasp the end of the piston rod and lift the entire piston rod assembly out of the top of the cylinder. Remove the top guide with notches and the white plastic spacer tube from the piston rod. Some water may spill out of the cylinder as the top guide and seal are removed. Place this assembly and its parts on a clean surface only. Any dirt and debris that it picks up will adversely affect the lift's performance. Handle the piston rod carefully. Any scratches on its surface could cause a leak.
5. Inspect the inside of the cylinder to make sure it is clear of any dirt or debris. Formula 409® can be used to clean the inside of the cylinder and seal. Wrap a soft bath towel around a broom handle and push it through the unit, taking care not to scratch the inside of the cylinder wall. Rinse out the cylinder with clean water. Never use any oil or petroleum-based product inside the cylinder as it will damage the piston and seal.
6. To remove the seal, first remove the black o-ring from the bottom of the piston with your fingers. Then pull the seal off the piston.
7. Clean the seal with a damp cloth and lightly clean the edges with a Scotchbrite® pad. Do not use steel wool or other abrasives on this or any other component of your Aquatic Access lift. Inspect the seal for any tears or cuts by bending the seal to stretch the outside lip. If there is no damage, put the seal back on the piston, followed by the o-ring. It is easier to seat the seal when the inside surface of the cylinder is damp with either Formula 409® or water. If there is any damage, replace the seal with a new one. The seal should be soft and rubbery, not hard and stiff.

REPLACEMENT OF PISTON SEAL

1. Turn off the water and disconnect the supply hose. Remove the bolt from the connecting bracket.
2. Slide the connecting bracket and seat assembly off the end of the piston rod and set aside.

3. Mark the alignment notches on the top guide with a pen in relation to the pool and to other components of the lift. This procedure will help with the reassembly the lift.

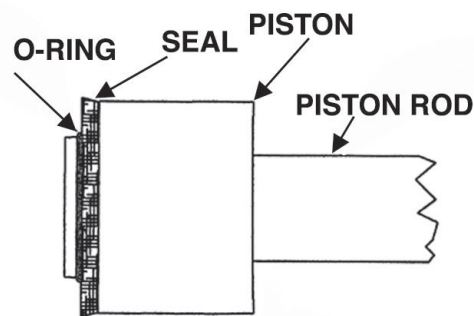
4. Remove the four bolts from the top of the cylinder. Grasp the end of the piston rod and lift the entire piston rod assembly out of the top of the cylinder. Remove the top guide with notches and the white plastic spacer tube from the piston rod. Some water may spill out of the cylinder as the top guide and seal are removed. Place this assembly and its parts on a clean surface only. Any dirt and debris that it picks up will adversely affect the lift's performance. Handle the piston rod carefully. Any scratches on its surface could cause a leak.

5. Inspect the inside of the cylinder to make sure it is clear of any dirt or debris. Formula 409® can be used to clean the inside of the cylinder and seal. Wrap a soft bath towel around a broom handle and push it through the unit, taking care not to scratch the inside of the cylinder wall. Rinse out the cylinder with clean water. Do not use any oil or petroleum-based product inside the cylinder because it will damage the piston and seal.

6. To remove the seal, first remove the black o-ring from the bottom of the piston with your fingers. Then pull the seal off the piston.

7. Clean the seal with a damp cloth and lightly clean the edges with a Scotchbrite® pad. Do not use steel wool or other abrasives on this or any other component of your Aquatic Access lift. Inspect the seal for any tears or cuts by bending the seal to stretch the outside lip. If there

is no damage, put the seal back on the piston, followed by the o-ring. It is easier to seat the seal when the inside surface of the cylinder is damp with either Formula 409® or water. If there is any damage, replace the seal with a new one. The seal should be soft and rubbery, not hard and stiff.



DETAIL OF PISTON

REPLACEMENT OF THE PISTON AND/OR THE TOP GUIDE

Follow directions for Replacement of Piston Seal, steps 1-4.

Remove piston from end of piston rod using a block of wood placed against piston and then striking it with a rubber or plastic mallet. Go to step 5 of this section if you are only replacing the piston and not replacing the top guide.

Remove old top guide and replace with new top guide. Note that the threaded holes in the top guide are off center. The holes need to be positioned so that they are towards the bottom of the lift. Clean spacer if it is dirty. Install spacer on piston rod.

Install piston on end of piston rod using a rubber or plastic mallet. Hit bottom of piston until piston is firmly seated. Piston should be able to rotate freely after being attached.

TO REASSEMBLE THE UNIT

When replacing the plastic parts and seals on the piston rod, check to determine that all parts are completely clean and not damaged in any way. Be certain to install the parts in the correct order and direction.

1. Put the seal back on the piston by pressing the seal into the piston's channel with fingers to allow clearance for o-ring. Install the o-ring to piston's groove and press with fingers to lock the seal to the piston.
2. Grasp the piston rod just above the piston and push the seal's lip into the cylinder. Be careful not to cut the seal on the cylinder's edge. Push the piston rod in until it rests on the bottom of the cylinder. It is easier to seat the seal when the inside surface of the cylinder is damp with either Formula 409® or water.
3. Slide the spacer tube over the piston rod and let it drop into the cylinder.
4. Slide the top guide onto the piston rod and locate the guide in its original position using the marks you have made.
5. Align the holes and screw the bolts into the plastic guide, taking care not to over-tighten.

PLASTIC THREADS WILL STRIP WHEN TOO MUCH TORQUE IS APPLIED TO THE BOLT.

6. Slide the connecting bracket and seat tube onto the piston rod. Align the holes and tighten the nut and bolt securely.
7. Slide the seat assembly onto the seat tube. Align the holes and fasten the nut and bolt.

BEFORE USING THE LIFT AGAIN

Operate the lift to raise it about one-fourth of its travel, and then lower completely. Repeat until a steady stream of water flows from the discharge hose, signaling that all air has been purged from the system. Air trapped in the cylinder will cause the motion of the seat's up and down travel to jerk and sometimes will cause a sudden drop of the last few inches in the seat's downward travel. Whenever you turn off the water supply, an air pocket will form inside the hose and you will need to bleed the air out of the system again after the water supply is turned on.

TROUBLESHOOTING

Symptom	Cause	Remedy
Seat bounces on descent	Air in the cylinder	Purge air out by running the lift up and down two or three times. See operating label.
Air in Cylinder Every Day	Air entering hose or cylinder if seat is left in the down position and the water is shut off.	Purge air out by running the lift up and down two or three times. See operating label.
Lift rises slower than normal	Low Water Pressure (Heavier than usual swimmer on lift; defective hose, dirt in valve could also cause) Lift kept under pressure.	None. Fluctuations in city water pressure are not unusual. (Replace defective part or clean valve) Turn off water each night.
Waters squirts from top of cylinder	Large amounts of water are getting past the seal.	Often this corrects itself. If not, then clean or replace the seal.
White, gray or brown chalky deposit.	High pH, high total alkalinity, high calcium content (hard) water	Clean unit with soft cloth or Scotchbrite pad, apply car wax to protect finish.
Corrosion of Metal Parts	Low pH, low total alkalinity, low calcium content (soft) water.	Clean unit with soft cloth or Scotchbrite® pad, was with car wax to protect finish.
Water leakage from top of valve	Seal around valve stem defective	Replace defective part.
Chair doesn't come up all the way	Deposits or dirt in valve, malfunction of valve	Clean or replace valve.
Electrolysis	Improper grounding of unit	Add a ground to unit.

REMEMBER

Be sure to mail back your unit's warranty card to Aquatic Access Inc., 1921 Production Drive, Louisville, Kentucky 40299. You may want to make a note of your lifts serial number on the next page and store these instructions in a safe place for future reference.

Model _____ **Serial Number** _____

Date of Purchase _____ **Purchased from** _____

Representative Lift Label

SERIAL NUMBER

MODEL NUMBER

WEIGHT CAPACITY

This illustration is of a generic Aquatic Access label and is here only to provide location of pertinent numbers found on every Aquatic Access label.

Please refer to the label attached to your lift for important information and instructions for your Aquatic Access lift.

You will find a label similar in style to this one on every Aquatic Access lift cylinder.

Please do not remove that label from your lift. You will need the serial number should you ever require replacement parts for your lift.

The label on the lift cylinder also contains instructions for use and safety procedures.

AQUATIC ACCESS

POOL LIFT MODEL #

Serial # _____ US Patent Number _____

MAXIMUM WEIGHT CAPACITY

VARIABLE AT 55/65 PSI/ 3.8-4.5 BAR

WATER PRESSURE NOT TO EXCEED 70 PSI/4.8 BAR
OR DAMAGE TO LIFT WILL RESULT. USE A REDUCER
BETWEEN WATER SOURCE AND LIFT IF NECESSARY.

BEFORE USE BY A SWIMMER

1. In seat-down position, mount lift into deck socket.
2. Turn control knob to down position.
3. Connect supply hose and turn on water.
4. With water supply on, rotate Pool Lift control knob to move seat several strokes up and completely down. If the pump does not move in either direction, repeat this step until the lift is in the Air Tight position. Air must be removed for safe operation.

INSTRUCTIONS FOR OPERATION

1. Turn control knob to the UP position, which will automatically raise the seat.
2. Insert seat into the lift cylinder for unloading.
3. Seat the swimmer in the seat. The seat will place feet on footrest. Swimmer's feet must be on footrest or injury may result.
4. Remove seat in an emergency by turning the control knob to DOWN position. The seat turns automatically to the top of travel.
5. Reverse the control knob to swimmer's feet.

NOTE: Speed of seat travel should be controlled by turning control knob to the UP or DOWN position. If pressure is very high, seat may move too fast. Experiment to find the best settings for your water pressure.

When lift is in the UP position for 8 minutes or longer, turn off water and seat will automatically return to raised position. Insert pump control knob to the DOWN position. When ready to lift a swimmer, turn on water and purge air from the lift cylinder. Consider the weight listed above (#4 in Before Use by a Swimmer).

TO REMOVE LIFT

1. Remove seat and lift to the DOWN position.
2. Turn off water and disconnect supply hose.
3. Lift out the lift cylinder from the deck socket.

DO NOT STORE IN BELOW-FREEZE ENVIRONMENTS.

IMPORTANT SAFETY WARNINGS

1. Never allow more than one person on the lift at a time.
2. Keep fingers, toes, loose clothing away from moving parts.
3. Do not hang towels or clothes on any time.
4. Do not allow people to climb on or around the lift.
5. Do not allow children to play on or around the lift.
6. Do not use the lift.
7. Turn water supply OFF and seal with push pin when lift is to be unused for eight hours or longer.
8. Always bleed air out through several cycles of raising and lowering the seat. This bleeds air out of the lift cylinder which could cause unexpected movement.
9. Be certain swimmer is seated in the seat before operation.
10. Always use swimmer's feet on footrest.
11. Never allow seat to be submerged beneath water.
12. Do not exceed weight limits.
13. Do not use during a storm or high wind.
14. Always seal water cylinder before exposing lift to atmosphere.
15. Never use any solvent or petroleum-based products in the lift. This will damage the piston.

REV.10/6/10

1921 Production Drive Louisville, KY 40299-2110 USA
800.325.5438 (LIFT) 502.425.5817

AquaticAccess.com

Rev. 10/6/10

Sample Label to Indicate Location of Numbers Only

Addendum A: Technical Specifications: Above-Ground (AG) Models

LIFTING CAPACITY	300 lb. @ 55-65 PSI / 136 KG @3.8-4.5 BAR
OPERATION	Standard city water pressure will generally provide plenty of pressure for normal operation. A pump can be used to raise pressure if required, but it is important to utilize the right type of pump. Do not use a high volume pump. The correct pump would be three to five gallons (US) per minute at 40 (2.8 BAR) to 70 (4.8 BAR) PSI maximum pressure.
ROTATION	Manual 360 Degree Turn
MATERIALS	304 & 316L Stainless, UHMW plastic, Brass and Rubber
RANGE OF MOTION	Each lift is designed to provide required amounts of travel for customer-provided specifications.
HEIGHT	Varies with application
BASE WIDTH	Varies with type of installation
BASE LENGTH	Varies with type of installation
PORTABILITY	Lift can be removed by unbolting base plate or lifting out of custom-socket mount.
WARRANTY	The AG pool lift offers a 6 year Limited Warranty on all structural components and a 2 year Limited Warranty on the valve and all plastic and rubber components.

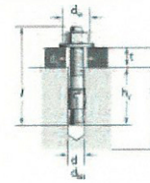
Aquatic Access AG Instructions Revised 7/29/13

INSTALLATION SPECIFICATIONS

Mechanically Galvanized Carbon Steel Power-Stud

Dimension	Anchor Diameter, <i>d</i>				
	1/2"	5/8"	3/4"	7/8"	1"
ANSI Drill Bit Size, d_{bit} (in.)	1/2	5/8	3/4	7/8	1
Fixture Clearance Hole, d_h (in.)	9/16	11/16	13/16	15/16	1-1/8
Thread Size (UNC)	1/2-13	5/8-11	3/4-10	7/8-9	1-8
Nut Height (in.)	7/16	35/64	41/64	3/4	55/64
Washer O.D., d_w (in.)	1 1/16	1 3/4	2	2 1/4	2 1/2
Wrench Size (in.)	3/4	15/16	1 1/8	1 5/16	1 1/2
Tightening Torque, T_{inst} (ft-lbs)	60	90	175	250	300

Tightening torque is listed for anchors installed in normal-weight concrete. Consult performance data tables for other base materials.



Nomenclature

- d = Diameter of anchor
- d_{bit} = Diameter of drill bit
- d_h = Diameter of fixture clearance hole
- d_w = Diameter of washer
- h = Base material thickness.
The minimum value of h should be $1.5h_v$ or $3"$ whichever is greater
- h_v = Minimum embedment depth
- l = Overall length of anchor
- t = Fixture thickness

Type 304 and Type 316 Stainless Steel Power-Stud

Dimension	Anchor Diameter, <i>d</i>							
	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	
ANSI Drill Bit Size, d_{bit} (in.)	1/4	3/8	1/2	5/8	3/4	7/8	1	
Fixture Clearance Hole, d_h (in.)	5/16	7/16	9/16	11/16	13/16	15/16	1-1/8	
Thread Size (UNC)	1/4-20	3/8-16	1/2-13	5/8-11	3/4-10	7/8-9	1-8	
Nut Height (in.)	7/32	21/64	7/16	35/64	41/64	3/4	55/64	
Washer O.D (304 SS), d_w (in.)	5/8	13/16	1 1/16	1 3/4	2	2 1/4	2 1/2	
Washer O.D (316 SS), d_w (in.)	5/8	7/8	1 1/4	1 1/2	1 3/4	2	2	
Wrench Size (in.)	7/16	9/16	3/4	15/16	1 1/8	1 5/16	1 1/2	
Tightening Torque, T_{inst} (ft-lbs)	8	28	60	90	175	250	300	

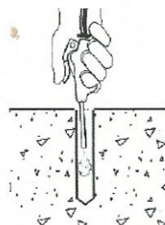
Tightening torque is listed for anchors installed in normal-weight concrete. Consult performance data tables for other base materials.

INSTALLATION PROCEDURES

Threaded Stud Version



Using the proper diameter bit, drill a hole into the base material to a depth of at least 1/2" or one anchor diameter deeper than the embedment required. The tolerances of the drill bit used must meet the requirements of ANSI Standard B212.15



Blow the hole clean of dust and other material. Do not expand the anchor prior to installation



Position the washer on the anchor and thread on the nut. Drive the anchor through the fixture into the anchor hole until the nut and washer are firmly seated against the fixture. Be sure the anchor is driven to the required embedment depth



Tighten the anchor by turning the nut 3 to 5 turns past finger tight or by applying the guide installation torque from the finger tight position.