

Aqua Shock Solutions_{LLC}
Backpack Shocker

Model AS3
Manual

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******* Important *******

Do not switch the voltage type or amount under load.

Read and adhere to all safety recommendations.

Inspect equipment before each use.

Contact Information:

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Operation of AS3

User Controls:

Main Power: Turns the unit on and off.

Mode AC DC: Select AC or DC output. Do not adjust during loading.

Voltage Dial: Select voltage output. Do not adjust during loading.

Annunciator: Turn loading beep on/off.

Timer/AH Reset: Reset loading time and amp-hours to zero. Hold during power on to disable over-current warning. This buzzer status will display during power on.

Fuse Reset: Reset the fuse after waiting 1 minute.

Inverter SW: Select inverter module. Both operate the unit the same. Do not change while the unit is on.

Case Displays and Annunciators:

Anode/Cathode Labels: Polarity of outputs in DC mode.

Loading Light/Buzzer: Light and continuous beep indicate unit is outputting.

30 Amp Buzzer: Currents greater than 30 amps warn of over-current.

Display: Displays battery voltage, battery current, amp hours and load time.

Extra Parts in Manual Binder:

Fuses: Can also be found at most automotive stores.

Hoop Screws: Can also be found at most hardware stores.

Extra Pole Button: Spare button and sleeve. See "Button replacement."

Example of Use: The following procedure is an example for a general application using the unit to sample fish.

1. Inspect the unit and poles for any sign of damage.
2. Dress in accordance with the safety recommendations outlined in the safety section.
3. Lay the shocker on its back to allow for proper battery installation.
4. Place the battery on the tray and secure it. The plugs ensure against reverse polarity.
5. Test the connection and unit readiness by powering on the unit and observing a voltage of at least 13.0 Volts. If less, your battery might not be fully charged. A resting DC current of around .5 to 1.3 amps is considered normal.
6. Power the unit off.
7. Stand the unit upright and set the voltage mode and amount to the desired level.
8. Mounting the unit first is sometimes easier without the poles attached. Once mounted, have an assistant plug in the poles.
9. Once in the water, power the unit on and test its operation by pressing the button with the poles in the water. You should observe:
 - A: An audible click
 - B: The LED “load” light will illuminate
 - C: The annunciator will sound (If turned on)
 - D: The current will show an increase based on the voltage setting
10. Begin in accordance to local surveying methodology and crew assistance safety discussed in the safety section. Monitor your current usage.
11. Current usage exceeding 20 amps will inefficiently use up your battery and currents above 30 amps will deploy fuses and faults, requiring resets. over-current buzzer/display will activate at currents greater than 30 amps.
12. The unit’s battery will no longer provide the necessary current when it falls below 11.5 volts under “no-load” conditions.
13. The load timer can be reset anytime by pressing the reset button.
14. When finished, power off the unit first before removing the battery or unplugging the poles.
15. Unplug the poles and store in upright non-kinked position.
16. Remove the battery and use the charger in accordance with the lithium safety section included in this manual.
17. Store the unit in a dry, room-temperature environment.
18. Do not use any chemicals besides soap for cosmetic cleaning.

Safety Information

General Statement: It is generally known that water and electricity don't mix. Though there are several safety features incorporated into these units, there remains a respectable danger when simple rules are ignored. Proper clothing and daily inspections of the units will also limit the amount of "leak current" felt within the radius of a unit during its use. Below are some safety guidelines. They are not in order of importance. The "user" is defined as the person operating the shocker, and the "crew" is anyone within 10 meters who is assisting the user. "Hot" is defined as electrically active and capable of producing a shock hazard.

1. Clothing/apparel for the user and crew:
 - a: Non-leaking waders, preferably the chest type for deep applications.
 - b: Latex or rubber gloves for any persons within 10 meters of operational units.
 - c: Boots with excellent traction to reduce the chances of falling into "hot" water.
 - d: Dry clothing under the protective layers. This minimizes the overall danger.
2. Use the annunciator at all times to keep the crew alert to the application of current to the water.
3. Never use the poles to move or transfer objects to persons without the clothing specified in #1.
4. Communicate intentions to begin shocking to keep the crew in tune.
5. Immediately stop shocking if the user, or any crew, comes into raw contact with the water or appears to have lost stability or footing.
6. Crews assisting a user should always be behind the user, such that the current potency is minimized should an accident occur.
7. Electrode pole wires or shocker unit wires with any worn insulators should be taped.
8. Do not touch the Electrode pole ends together during loading.
9. If any leak current is felt, check apparel and dry clothing.
10. Do not assume the pole "metal" sections are only conductive. The entire pole can become "hot" when in use.
11. Do not allow any portion of the shocker box to come in contact with the water.
12. Assume that when the unit is powered on, the water is "hot."
13. Perform equipment inspections on dry land and with the unit powered off.

Lithium Battery Safety

General Statement: The choice to use the most recent battery technology comes with an increased responsibility of understanding lithium battery safety. With proper care, your batteries should last for at least 5 years. The following rules and statements should be fully understood and observed.

***** Improper usage could result in fire and property loss *****

1. Do not leave batteries unattended during the charging process unless:
 - a. The battery and charger are set on a concrete or metal surface.
 - b. There is at least 2 meters of space around and above the battery during charging effort.
 - c. The ambient temperature is between 0 C and 40 C.
2. Do not store or operate the batteries in temperatures > 40 C.
3. Blunt damage or visual stress should warrant immediate replacement.
4. There is no diagnostic process for these batteries since they have internal circuitry that regulates the current flow.
5. The batteries should never feel more than warm to the touch. Should this not be the case, discontinue use and replace.

Warranty and Service Information

Obligation: Aqua Shock Solutions LLC warrants only to the original end user that the backpack shocker, on the final bill of sale, will be free from defects in material and workmanship for 5 years, this period beginning on product delivery date to the end user. Poles and batteries are warranted for 2 years. Aqua Shock Solutions LLC is also liable for all shipping expenses within the warranty period, and a FedEx shipping account will be used.

What May Void the Warranty. This Limited Warranty shall be null and void in the following circumstances:

1. Modification or repair of any units or parts by the end user or any non-authorized Aqua Shock Solutions LLC personnel.
2. Improper use or blunt trauma by accident.
3. Failure of the end user to provide basic weather protection or evidence of prolonged water exposure.
4. Failure by the end user to follow the return service procedure outlined below.

What to ship:

The AS3 top case can be removed from the backpack by unscrewing the four nuts. This will make shipping/handling more cost effective vs. sending the entire backpack. If the frame or battery tray assembly is being serviced, you can keep your top case with you or store it.

Servicing procedure and obligations within the warranty period:

1. Contact Aqua Shock Solutions LLC.
2. A FedEx shipping label will be emailed.
3. Return equipment to LLC Shock Solutions using the FedEx label provided.
4. Once equipment arrives at the service location, the return/service date will be communicated based on the level of service required.
5. Repaired, replaced, or refurbished equipment returned to user/customer.

Servicing procedure outside the warranty period:

1. Contact Aqua Shock Solutions LLC for return shipping address.
2. Package your equipment securely and ship to address provided
3. A quote for the service and return shipping will be issued at this time.
4. All serviced equipment will be returned via FedEx ground.
5. Customer is issued an invoice for repair costs, as well as shipping costs.

Basic Troubleshooting

Normal Sounds:

1. **A hum coming from the main box during all operations.**
2. **A fan noise during “load” or idle.**
3. **A fading beep/chirp when powering off/on.**
4. **Chirping/cricket beeper indicating currents greater then 30 amps.**

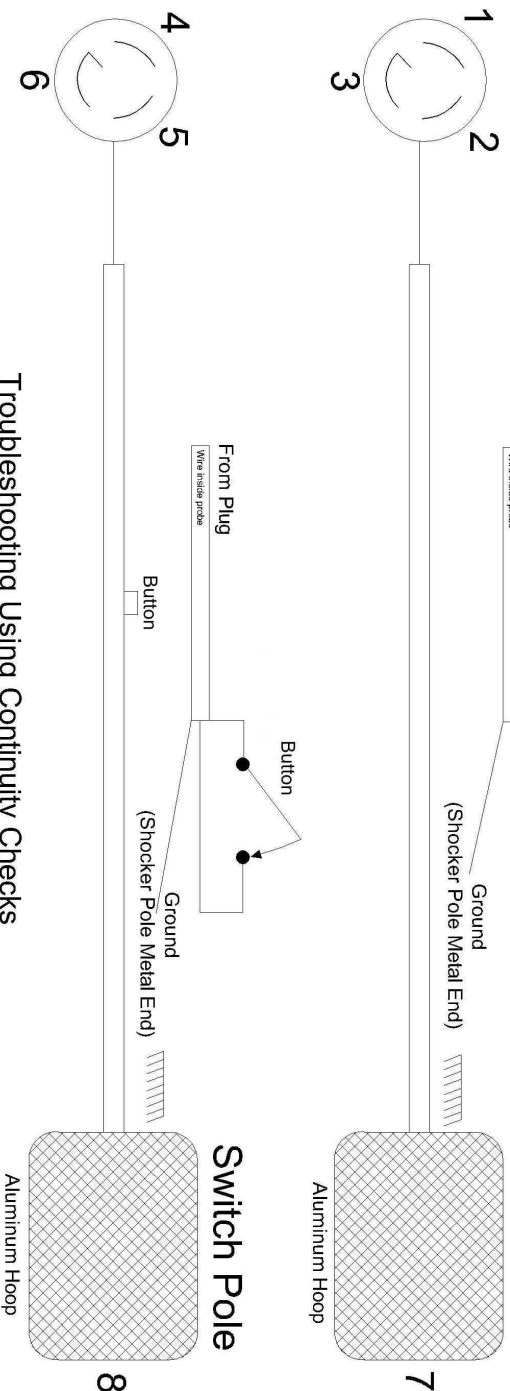
Fuses and your 1st diagnostic starting point:

The 2A thermal breaker on the main case will pop out during overload requiring a manual reset. The unit will be on, but will not load until this is done. Your voltage setting is too high for your water conditions. A 50-amp fuse on the battery pack allows a break to occur given a DC short or thermal fuse-fail. A blown battery fuse can easily be checked by opening the rubber fuse holder. A blown battery fuse will render everything inoperable, and nothing will power on.

Other Scenarios:

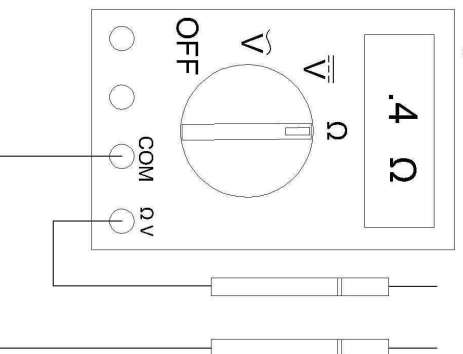
1. **The Shocker will not power on. The display is not lighted.**
 - a.) Check battery connection and battery fuse.
 - b.) Try another battery. Batteries below 10.5V will power off internally.
 - c.) Swap inverter modules using the switch. If this resolves the problem, then one inverter has failed and can no longer be used.
2. **The shocker will power on but will not load or “click” when switched.**
 - a.) Make sure 2A thermal breaker on right side is reset by pressing it in.
 - b.) Test with another set of poles to quickly rule out the shocker. If another set of poles works, then you know it’s not the shocker.
 - c.) If poles are found faulty, perform electrode pole diagnostics.
 - d.) If multiple sets of poles still won’t “load” the unit, service may be required.
 - e.) Power off the unit. Swap inverter modules using the switch. If this resolves the problem, then one inverter has failed and can no longer be used.
3. **Beep sounds not related to the load annunciator or over-current warning.**
 - a.) Beeps while not being able to load the unit indicates an over-current shut down. Deep water or high conductivity is the likely cause. Power off the unit and reduce your voltage. You should target currents less than 20A for maximum efficiency. Use the 30A over-current warning to help guide voltage selection. Above 30 amps, your unit will begin to overload, deploying fuses and faults.
 - b.) A constant beep that may come and go under loading indicates low battery. Most situations involving a low battery can directly be observed using the meter. This constant alarm will activate around 10.8 VDC. The unit may power off completely during this situation, warranting battery replacement.

Electrode Pole Continuity Diagnostics - Switch side does not matter



Troubleshooting Using Continuity Checks

1. Unplug poles from shocker box
2. Set voltmeter to Ohms and compare to "Nominal" column
3. Place voltmeter probes at numbered plug terminals and correlate "nominal" results using table below



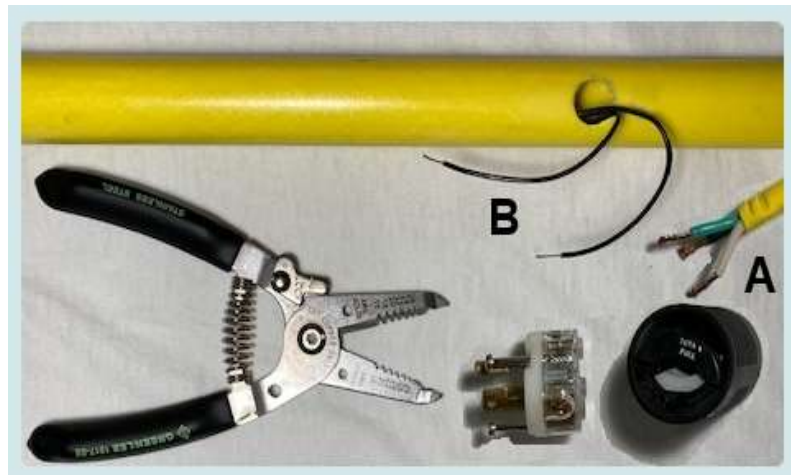
Red Tip	Black Tip	Lever Pressed	Nominal	Abnormal Reading?
1	2	Not applicable	< 10	Rewire jumper inside plug to restore continuity
1	3	Not applicable	OL	Incorrect wiring or short
2	3	Not applicable	OL	Incorrect wiring or short
3	7	Not applicable	<10	Rewire to probe metal housing at hoop connector
4	5	No	OL	Button is stuck in closed position or short, rewire
4	5	Yes	< 50	Button malfunction
4	6	No	OL	Incorrect wiring or short
5	6	No	OL	Incorrect wiring or short
6	8	Not applicable	< 10	Rewire to probe metal housing at hoop connector

OL is defined as an open circuit or little continuity($R > 100K$ Ohms)

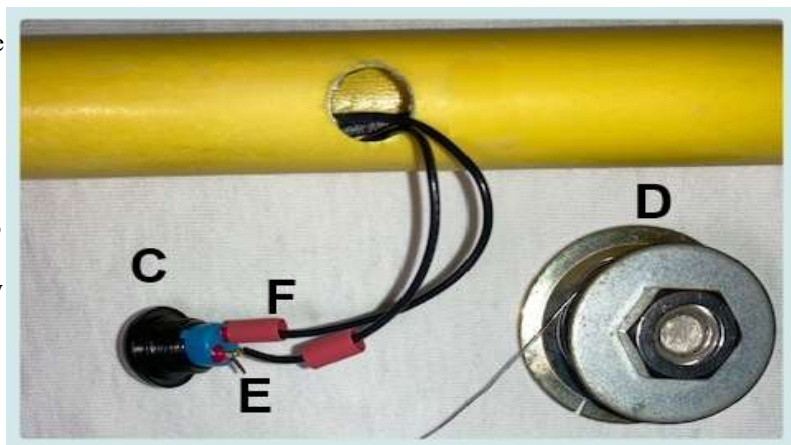
Button Replacement

The button can be quickly replaced in the field if necessary by simply swapping it and taping a new one in place without the sleeve. This guide ensures the best connection and longevity.

- 1.) Disassemble the plug (A) from the yellow wire to allow for the new sleeve.
- 2.) Carefully cut away the old sleeve and any tape.
- 3.) Remove button and cut wires as close to the button as possible. Use wire strippers to expose 1/2" of wiring (B).
- 4.) Inspect all connections and wiring for damage. Damaged pole wiring will require service.



- 5.) Cut two 1/2" pieces of small shrink wrap and slide one on each wire first. Don't use more, or the button won't fit in the hole.
- 6.) Feed newly exposed wires through lugs (E). Twist around the lugs and ensure its tight.
- 7.) Use solder (D) to secure wires onto button (C).
- 8.) Slide shrink over connections fully up onto button. Shrink should completely cover junctions (F) and any exposed wire. If not, redo connections. Use a lighter to shrink.



- 9.) Carefully work button and wiring into hole. Tape the button in place using electrical tape or any robust tape.
- 10.) Slide the sleeve (H) over the button and align it with the sleeve hole. Use a lighter to shrink the sleeve onto the pole. Be careful not to apply too much heat, or it will tear.
- 11.) Assemble the plug (G) onto the wire. The green wire goes to "3" L terminal. White and black can be attached to either "1" or "2."

