Sump Systems LLC

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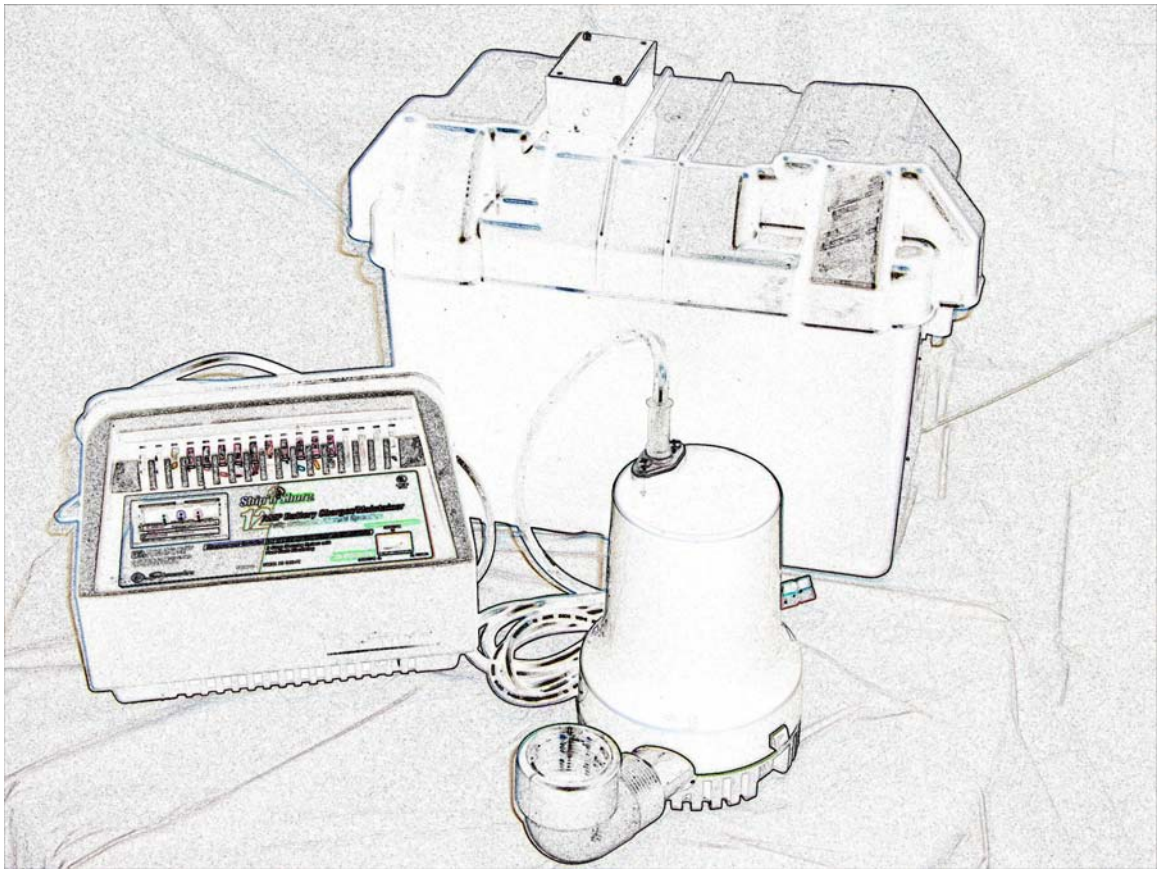


Installation/Operation/Parts
For more information e-mail
info@sumpsystems.com

Owners Manual & Safety Warnings

Battery Backup System

Read and follow all safety instructions

Warning! Battery Acid is corrosive. Do not spill on skin or clothing; do not short across battery terminals. Connect and disconnect battery terminals only after removing charger from AC power outlet.

Warning! Hazardous Voltage! Can cause fatal or severe electrical shock.

Never reach into sump pit while main or backup units are plugged into AC outlet. Never stand on wet floor or in water while plugging main or backup systems into AC outlet. Use only one hand to plug AC cord into outlet.

Caution! Risk of flooding!

- Use system only as a backup system to the main AC pump.
- Follow all electrical and plumbing codes for your area.
- Do not lift pump by electrical cord.
- Do not run pump dry: this could cause pump failure.
- Do not allow bottom float switch to be lower than backup sump pump.
- Test main and backup pump regularly.
- Check battery condition and water level at least once per month.

General Information:

The battery backup sump pump system is intended as a backup system to your main sump pump system only. It is not designed to permanently replace an AC powered system but to temporarily take over or supplement your main system in the event of AC power loss or main sump pump degradation. The system is designed to pump clear water only, this does not include Grey water.

The Charger and Control Unit must be kept dry and away from direct moisture.

The system is designed to use wet cell, low maintenance/lead acid deep cycle style marine batteries between 130-150 Amp Hour. During an extended power outage a fully charged automobile battery may be substituted in place of the depleted Marine Deep/Cycle Battery but is not recommended for normal operation. To frequently discharge an automobile style battery will cause degraded performance and early battery failure.
Use of Sealed Lead Acid batteries or Gel Cell batteries is not recommended for this system.

This system uses a unique 2 stage float switch system that is easy to install and adjust to virtually any sump pit. The top float switch activates the backup sump pump while the bottom float switch shuts off the backup sump pump. If you decide you would like to allow water to rise higher in the sump pit, simply slide the top clip up. If you would like to remove water closer to the bottom of the sump pit slide the bottom clip closer to the bottom of the sump pit. No guessing as to when the pump will turn on and shut off, or having to worry about a tethered float switch getting caught on a side wall.

LIMITED WARRANTY

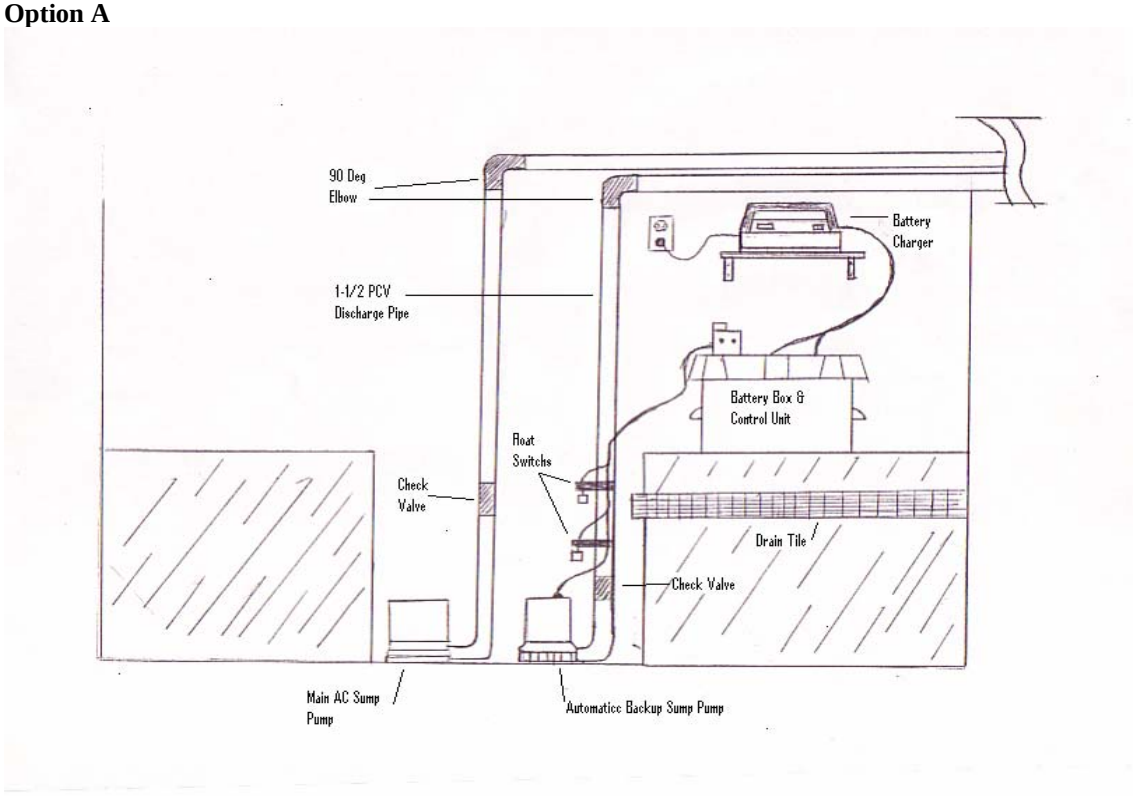
Sump Systems Limited Warranty

Sump Systems LLC, warrants to the original purchaser that its Battery Backup Sump Pump System is free from defective materials and workmanship for a period of two years from the date of purchase. If any component of the system fails to operate due to a manufacturing defect within a two year period, Sump Systems LLC will repair or replace the item free of charge. Proof of date of sale must accompany all returns.
Exceptions to the above limited warranty include Dialers or other alarming/notification devices that Sump Systems LLC sells will have a limited Ninety (90) Day warranty. Also excluded are Lead Acid Deep Cycle Marine 150ah batteries which will have a one year limited warranty.
Please contact Sump Systems LLC for complete information about warranty service at 319-721-7688.

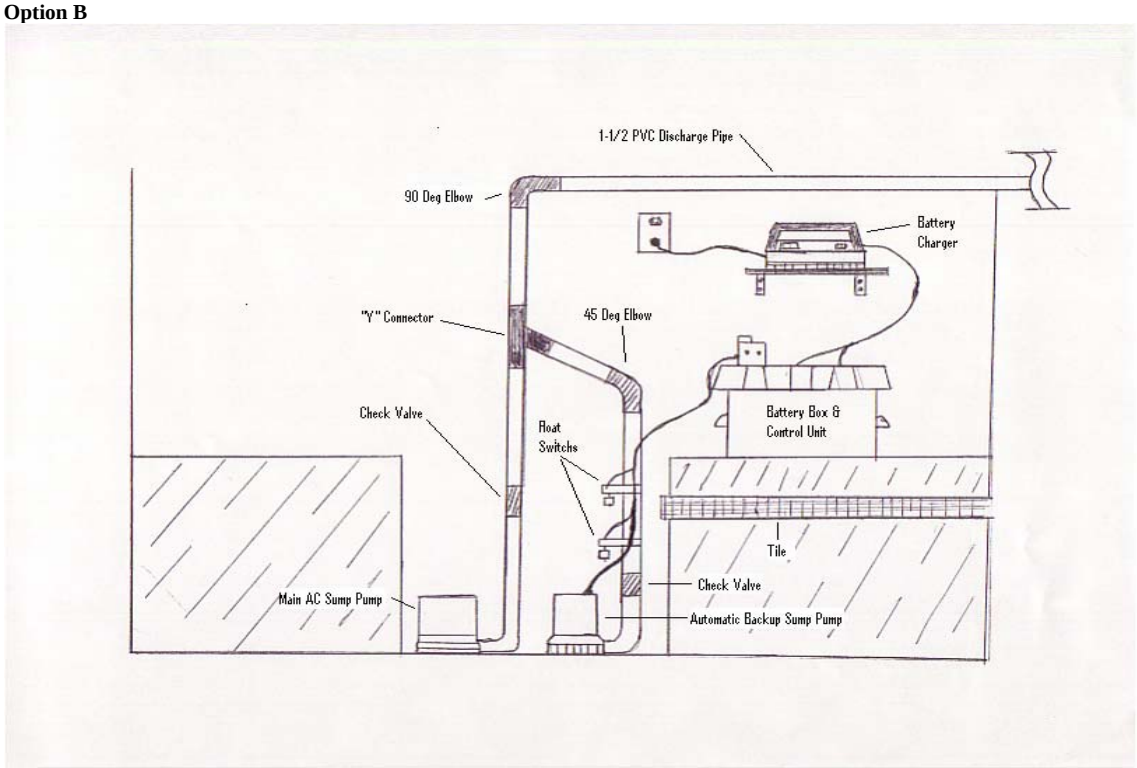
General Terms and Conditions
Purchaser must pay all labor and shipping charges necessary to replace the product covered by this warranty. This warranty shall not apply to acts of God, nor shall it apply to products which, in the sole judgment of Sump Systems LLC, have been subject to negligence, abuse, accident, misapplication, tampering, alteration; nor due to improper installation, operation, maintenance or storage; nor to other than normal applications, use or service, including but not limited to, operational failures caused by corrosion, rust or other foreign materials in the system, or operation at pressures in excess of recommended maximums.
Requests for service under this warranty shall be made by returning the product to the retail outlet or Sump Systems LLC as soon as possible after the discovery of the alleged defect. Sump Systems LLC will subsequently take the corrective action as promptly and as reasonably possible. No requests for service under this warranty will be accepted if more than 30 days after the term of the warranty.
This warranty sets for Sump Systems LLC, sole obligation and purchaser's exclusive remedy for defective products.
SUMP SYSTEMS LLC SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, OR CONTINGENT DAMAGES WHATSOEVER.
THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SHALL NOT EXTEND BEYOND THE DURATION OF THE APPLICABLE EXPRESS WARRANTIES PROVIDED HEREIN.
Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Sump Systems LLC, 190 Landau Street, Robins, IA, 52328

Option A



Option B



Installation

Battery Backup System Installation and Operation

Tools and materials needed:
Flashlight or other good light source
5/16 nut driver
Tape measure
Pencil or marker
Hacksaw or similar to cut PVC
PVC Pipe cleaner and Glue
Tape measure
1-1/2 inch PVC Pipe 4-8feet
Channel lock
Rags or old towels
Group 27-31 Marine Deep Cycle Battery
Other optional items:
Extra plastic wire ties
Brick or small block to put pump on

WARNING! Personal injury or Flood Hazard.

Do not turn on backup pump until all fittings have been double checked Possible flood hazard

Preparing for installation

WARNING! Electrical shock hazard!

Electrical shock can burn or kill you. Do not touch water in sump pit; remove any other devices or accessories that are in the sump pit area before proceeding.

Locate and mark on the existing pipe with a felt tip pen were the float switch for the main pump activates. (turns on the pump).

Remove as much water as possible from the sump pit by activating the main pump using non conductive material to activate the float switch.

Verify that water flow into the sump pit is at minimal to allow you to complete the installation of the back up system with the main system disabled.

Above (option A and B) are the recommended installation scenarios of the Automatic Battery backup system.

Installation of Pump and Pipe

Option A) Separate outlet pipe with direct discharge outside the home

1) Cut a four-foot section of the main discharge rigid PVC pipe and attach it to the pump (check-valve included) using hose clamp provided.
2) Secure the pump wire so it doesn't fall into the sump pit, use duct tap or similar to secure.
3) Place the pump with the 4 foot section of PVC attached into the sump pit next to the main AC pump. If the bottom of the pit is uneven place pump on a brick.
4) Attach a rubber union to the top of the 4 foot section of pipe.

Routing of the rest of the discharge pipe will vary depending on your particular installation. Keep in mind that the more turns (PVC elbows) used in the installation decreases the pumping efficiency. It is important to check all your joints to make sure they have been properly glued and secured. Make sure pipe is secure using proper means so it does not move around in the sump pit and seal the hole in the wall where the pipe exits the building.

Option B) Connecting to main pipe

1) If no check valve exists on the main AC pump install one now, then install the Y connection above that check valve. (prevents water from re-circulating back into the sump pit)
2) Cut a four-foot section of 1-1/2" rigid PVC pipe and attach it to the pump(check-valve included) using hose clamp provided.
3) Secure the pump wire so it doesn't fall into the sump pit, use duct tap or similar to secure.
4) Place the pump with the 4 foot section of PVC attached onto the sump pit floor

next to the main AC pump. If the bottom of the pit is uneven place pump on a brick. Do not attach to existing pipes.

5) Attach (don't glue yet) a 45 degree elbow at the top of the 4' section of pipe.
6) Make necessary cuts in existing main discharge PVC pipe to allow for Y connector and dry fit Y connector.
7) When satisfied with fit of all connections, disassemble and glue all PVC joints and tighten all hose clamp connections.

Control Unit and Float switch hookup

The float switch system consists of two float switches that are easy to install and adjust. There are two float switches; one is labeled Top Float Switch and the other labeled Bottom Float Switch. Both simply clip onto your 1-1/2 inch PVC pipe. The float switches can then be adjusted along the pipe allowing you to adjust when the pump starts and stops simply by sliding the clips up and down the pipe as necessary. Once positioned secure the wires with wire ties. *Note: Once the Float switches are positioned it is important to make sure no wires or other obstructions interfere with the backup float switches, or the main pump float switch.*

During a power failure or other failure that causes the main AC pump to fail; The water will rise above the bottom float switch and continue to rise until the top float switch is activated. Once the top float swtich has been activated the automatic backup sump pump will begin pumping water out of the sump pit and will continue to pump until the water level drops below the activation point of the bottom float switch. It is important to make sure that the top and bottom float switches are oriented properly for proper operation.

Closer look at float switch markings

1) Position control unit were the float switches will reach down into the sump pit and the AC cord of the charger can reach an outlet.

2) Positions the bottom float switch at the level were you would like your automatic backup sump pump system to shut off.

Note:
Never position the bottom float switch below the bottom strainer of the backup system. This would prevent the system from shutting off and would damage the seals of the pump.

3) Position top float switch where you would like to have the backup sump automatically start pumping water.
Note: Both the top and bottom float switches must be positioned vertically making sure they will not get caught on the sump wall or are not in the direct stream of the water coming out of the tile.

Pump Connection

1) Both pump connector and control unit connectors are identical and are colored black and red.

2) Simply grasp each connector and match the colors (Red & Black and push together

Connecting the Battery and charger
Read and follow all instructions that come as a separate document with your battery charger

WARNING! Electrical shock hazard or Battery explosion!

Electrical shock or battery explosion can cause serious injury or death. Wear eye protection when working around Lead Acid Batteries. Do not smoke or allow sparks or flame to be in area of battery. Use extreme caution when using metal tools around battery, do not allow tools or other metal objects to short across positive and negative posts of the battery.

1) Place 130-150 Amp Hour Deep Cycle Marine battery into Battery box.
2) Connect the red wire of control unit to the positive + post and the black wire to the negative post.

3) Connect the Battery charger to battery by placing Red/Black striped wire to the Red + positive screw terminal of the battery and the black wire to the
- negative screw terminal of the battery. Attach and tighten wing nuts to secure wires to the battery.
4) Place top of battery box with control unit mounted on top and route wires so they do not get pinched.

5) Mount charger on shelf or elsewhere above floor and away from water or moisture.
6) Plug charger into AC outlet. It is recommended that the AC outlet for the backup system be different (also on a different branch circuit) than the one your main AC system runs on.

Normal Operation

This system is not intended as a primary sump pump systems and should not be used in this manner. Its purpose is to assist or temporarily replace your main AC powered system if it should fail due degraded pumping ability, mechanical or AC power failure. This system is equipped with a 120 db siren to let the user know that the backup pump has been activated letting you know the main pump has failed.

The control unit for the automatic backup sump pump system consists of a push to test button, pump running LED indicator, alarm silence switch and 120 db siren.

The system uses a dual float switch configuration that allows the user to precisely determine when the automatic backup sump pump will turn on and shut off.

The top float switch turns the pump on after water has risen to the point were the magnet reed switch system activates.
At this point the pump begins to run and will continue to run until the water level drops below the activation point of the bottom float switch. Once water has reached this point the pump shuts off.

Note: If the bottom float switch is not activated the top float switch will not turn on the pump.

Note: The push to test button will only activate the pump if the bottom float switch is activated (submerged in water).
This prevents dry running of the pump which can damage the seals.

During normal operation the Alarm switch located on the side of the control unit should be placed in the on position. The alarm/120 db siren will activate any time the pump is activated and will stop when the pump stops. If desired you can silence the siren by moving the switch to the off position. Don't forget to place it back in the on position when outage event or testing scenario is complete. *Note. The siren is very loud, (120db) when testing the control unit place hand over the siren located on the top of the unit or place the switch in the off position to suppress the sound.*

Front view of control unit with push to test button and pump active LED visible

Side view of control unit showing Alarm switch. Note: middle position silences alarm.

12 Volt DC 12amp Automatic Deep/Cycle Marine charger/maintainer

The 12 Amp Charger provides power to the battery and will maintain it automatically as well as restore power to the battery after the sump pump has been run due to AC power loss. Care should be taken to read through the provided charger manual. Typical operation of the automatic backup sump pump using a low maintenance, Deep Cycle Marine Battery, will have the 3 position switch located in the "conventional and low maintenance battery" mode as indicated below. You will note the switch is in the far left position. Read full safety and operating instructions for battery charger that are provided.

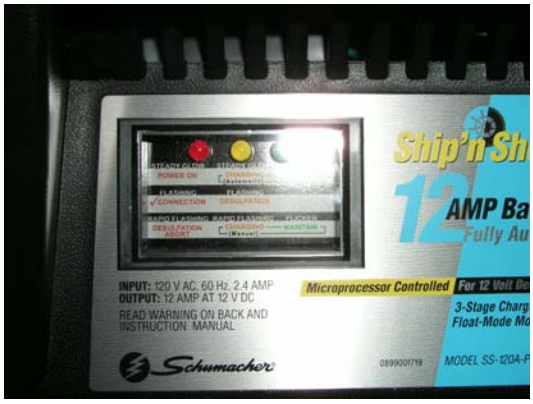
The control unit is equipped with a 20 amp min auto style fuse available in most convenience stores or any auto parts store. This protects the control unit and pump. Should the fuse be blown during operation replace it with the same style 20 amp fuse (do not use a higher rated fuse). If the fuse blows again replace pump.
Back of control unit showing 20 amp mini auto style fuse.

Three position switch show in Automatic conventional and low maintenance mode

When the charger is first connected to the battery the red LED may flash several times then should go to a steady Red state.

Charge indicator yellow LED will be lit when charging the battery. This is normal operation and may take several hours do complete if the battery has been run down.

Other normal conditions are indicated by glowing green LED indicating that the battery is fully charged.



Note: If the charger runs (charges) for over 24 hours the sytems will go into a automatic standbye mode and must be reset, make sure if the battery is deeply dischargerd that the system is checked over a period of a day or two to make sure the battery has come back up to full charge and system is in float mode indicatd by red led and green leds on steady.

Recommended inspection and maintenance procedure for Automatic Backup Sump Pump.

WARNING! Electrical shock hazard!

Electrical shock can burn or kill you. Do not touch water in sump pit.

WARNING! Electrical shock hazard or Battery explosion!

Electrical shock or battery explosion can cause serious injury or death. Wear eye protection when working around Lead Acid Batteries. Do not smoke or allow sparks or flame to be in area of battery. Use extreme caution when using metal tools around battery, do not allow tools or other metal objects to short across positive and negative posts of the battery.

1) Verify your main AC pump is operating properly
2) Verify when you activate the float switches the pump(s) run as expected (once per week in rainy season). Verify alarm is armed and will turn on when pump comes on (backup system).
3) Verify charger is plugged in and system is charged.
4) Check the level of your low maintenance Marine/Deep Cycle battery (add distilled water if low). Once every 3 months.*
5) Check with a hydrometer the quality of your battery or take it to an auto shop at least once per year after the first season or two to have them load test the battery.
6) Check battery cables for corrosion and inspect all wires for problems at least once every 3 months.
7) At least once per season, unplug AC Sump Pump and run backup sump pump on battery alone (don't forget to plug your AC pump back in)!

Replace battery every 3-5 years. If you are unsure about the battery, remove it and have a load test done on it at your local battery store.

*It is important that battery water levels and maintenance be maintained over the life of your battery. This helps prevent sulfation of the battery plates, the primary reason for battery degradation.