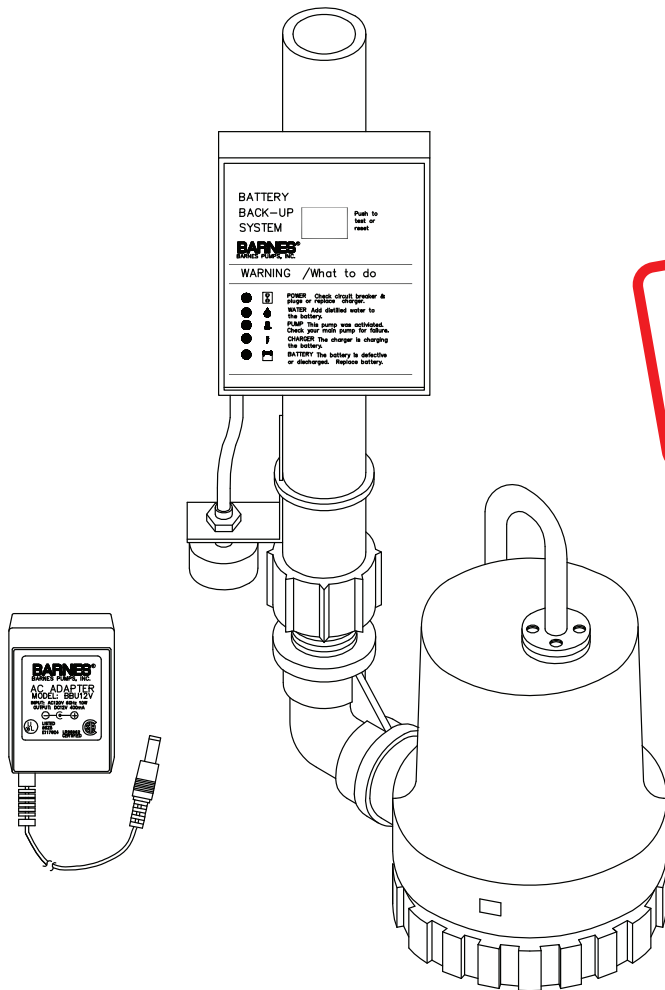


# BARNES®

## INSTALLATION and OPERATION MANUAL Battery Backup Sump Pump

Series: **BUS**



**DISCONTINUED**  
Parts may  
NOT be available

### IMPORTANT!

*Read all instructions in this manual before operating pump.  
As a result of Crane Pumps & Systems, Inc., constant product improvement program,  
product changes may occur. As such Crane Pumps & Systems reserves the right to  
change product without prior written notification.*

**CRANE**®

A Crane Co. Company

**PUMPS & SYSTEMS**

420 Third Street  
Piqua, Ohio 45356  
Phone: (937) 778-8947  
Fax: (937) 773-7157  
www.cranepumps.com

83 West Drive, Bramton  
Ontario, Canada L6T 2J6  
Phone: (905) 457-6223  
Fax: (905) 457-2650



Form No. 1806006-Rev. F

## Table of Contents

### Important Safety Instructions

General	
AC Power Requirements	2
Personal Precautions	2
Preparing to Charge	2
DC Connection Precautions	2
<b>Introduction</b>	
Items Included in System	3
Additional Items Needed	3
<b>Pump &amp; Pipe</b>	
Installation Instructions	
Direct Discharge to Outside	4,5
Hookup to Existing Storm Sewer	6,7
<b>Control Unit Hookup</b>	
Mounting the Control Unit	8
Positioning the Float Switch	8
Installing the Battery Fluid Sensor	8
Hooking Up the Pump	8
Hooking Up the Battery	8
<b>Understanding the Warning Lights and Alarms</b>	
Power	9
Water	9
Pump	9
Replacing the Pump	9
Charger Operating	9
Battery	10
Cable or Terminal Problems	10
Replacing the Battery	10
Test Button	10
Testing the Float Switch	10

### Important Safety Instructions

#### General

Do not expose the control unit to rain or snow.

Do not use an attachment not recommended by the manufacturer.

Pull the plug rather than the cord when disconnecting the control unit.

An extension cord should not be used unless absolutely necessary. If an extension cord must be used, be sure the plug has the same configuration as the plug on the control unit.

To reduce the risk of electric shock, unplug the control unit and disconnect the cables from the battery before attempting any maintenance or cleaning.

Do not disassemble the control unit.

#### AC Power Requirements

The controller must receive 115 volts AC +/- 5% from the AC outlet. Any voltage lower than this will cause the power failure alarm to activate. Lower voltages can be caused by utility company brown outs or heavy power draw from other appliances on the same circuit.

#### Personal Precautions

Wear eye protection and avoid touching your eyes while working near the battery.

If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention.

Never smoke or allow a spark or flame in the vicinity of the battery.

Remove personal metal items such as rings, bracelets, watches, etc. when working with a lead-acid battery.

#### Preparing to Charge

Use the Barnes control unit for charging LEAD-ACID batteries only. Do not use the control unit for charging dry-cell batteries that are most commonly used with home appliances.

Be sure the area around the battery is well ventilated. Gas can be forcefully blown away by using a piece of cardboard or other *nonmetallic* material as a fan.

Clean the battery terminals. Be careful to keep corrosion from coming in contact with your eyes.

#### DC Connection Precautions

Connect and disconnect the battery cable rings only after removing the charger cord from the electric outlet. *Never allow the rings to touch each other.*

Coat the terminals with a thin coat of petroleum jelly to retard corrosion.

Attach the rings to the battery posts and secure them with wing nuts to insure a good connection.

Follow these steps when the battery is installed. A spark near the battery may cause a battery explosion. To reduce the risk of a spark near the battery:

Check the polarity of the battery posts. The POSITIVE (POS, P, +) battery post usually has a larger diameter than the NEGATIVE (NEG, N, -) post.

Connect the large ring on the POSITIVE (BLACK) wire from the control unit to the positive (+) post of the battery. Connect the small ring on the NEGATIVE (WHITE) wire from the control unit to the NEGATIVE (-) post of the battery.

When disconnecting the control unit, disconnect the charger, then remove the rings from the battery terminals.

**DISCHARGE** ..... 1¼" NPT, Female, Vertical  
**LIQUID TEMPERATURE** ..... 150°F (66°C) Continuous  
**PUMP HOUSING** ..... Non-corrosive, may be used in fresh or salt water (resulting from water softener residue).  
**MOTOR** ..... Totally submersible, water cooled for longer life

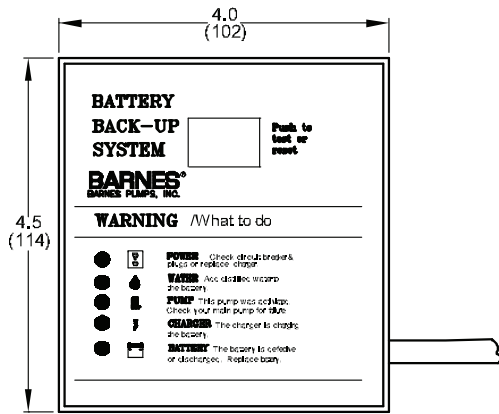
The BUS can provide added protection for your home when installed.

With the battery backup sump pump system your pumping power is never interrupted. The BUS switches automatically to battery power when the power fails, and it pumps along with your primary pump when there is more water coming into your sump than your main pump can handle.

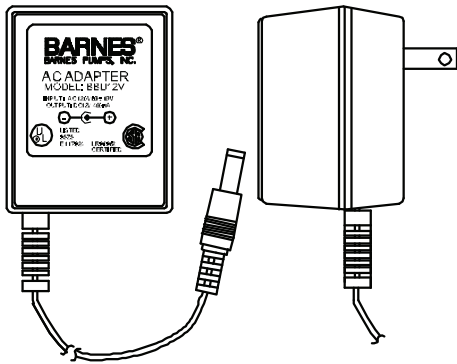
The BUS recharges automatically when power is restored and monitors battery and power conditions constantly. It will also detect irregularities, sounds an alarm and pinpoints problems and solutions on the control panel.

The alarm will sound to these potential problems;

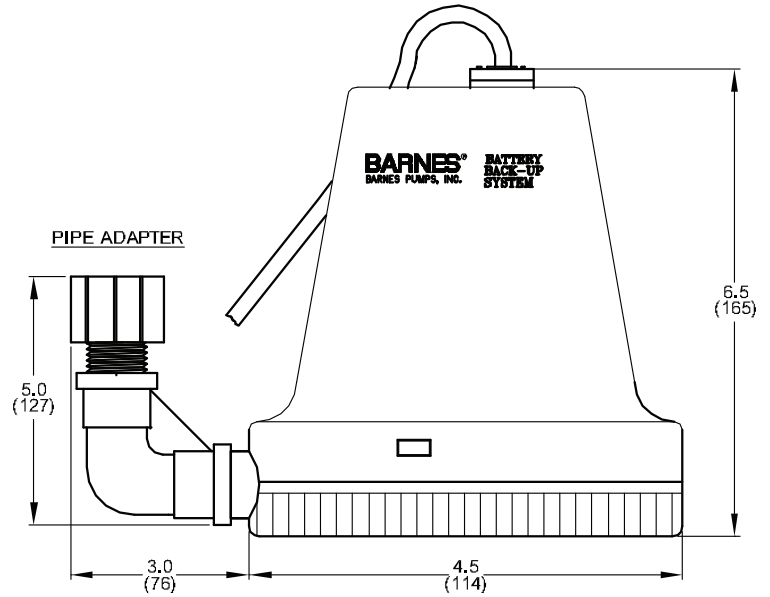
- Battery needs water
- Battery is old and needs to be replaced
- Battery is discharge
- Battery is defective
- Power plug is out of wall
- Power is out
- Charger needs to be replaced
- Pump has been activated



CONTROL UNIT



BATTERY CHARGER



MODEL NUMBER	BUS
PART NUMBER	100940
PUMPING CAPACITY	1000 GPH @ 10 feet
POWER DRAW: NOTE: The lower the AMP draw, the longer the pump will run on the battery.	6 Amps @ 12 Volts
CHARGER STRENGTH: NOTE: The higher the AMPS, the faster the charger will recharge the battery.	0.4 Amps
Approx. time to recharge a fully discharged battery.	48 Hours
Approx. continuous pumping with recommended battery	6 - 12 Hours
A 12 Volt Deep Cycle Marine Battery is recommended (Not Supplied)	

## Introduction

The Barnes Battery Back-up System is a battery-operated sump pump. It is designed as an emergency back-up system to support your regular AC sump pump, and it will automatically begin pumping if your main AC pump fails. Should any malfunction or emergency occur that involves the sump pump, the battery, or the AC power, your battery back-up system will sound an alarm and indicate the nature of the problem and the solutions by means of a lighted display on the control panel.

## The Back-up Sump Pump System includes:

- 1 Control unit with a float switch and a battery fluid level sensor.
- 1 Pump with 1-1/4" PVC pipe adapter.
- 2 Plastic wire ties for mounting the controller and the float switch.
- 1 Battery cap for the sensor.
- 1 Battery charger.

## You will also need to supply:

A deep cycle marine battery (**Do not use a sealed or maintenance free battery.**)

1-1/4" & 1-1/2" PVC pipe and fittings depending on the installation method you choose

PVC cement and primer

A rubber union with hose clamps or a "Y" connector and two (2) check valves depending on the installation method you choose.

## For narrow sump pits you will need some additional parts:

An "L" bracket at least 5 inches long. (Preferably one that will not rust.)

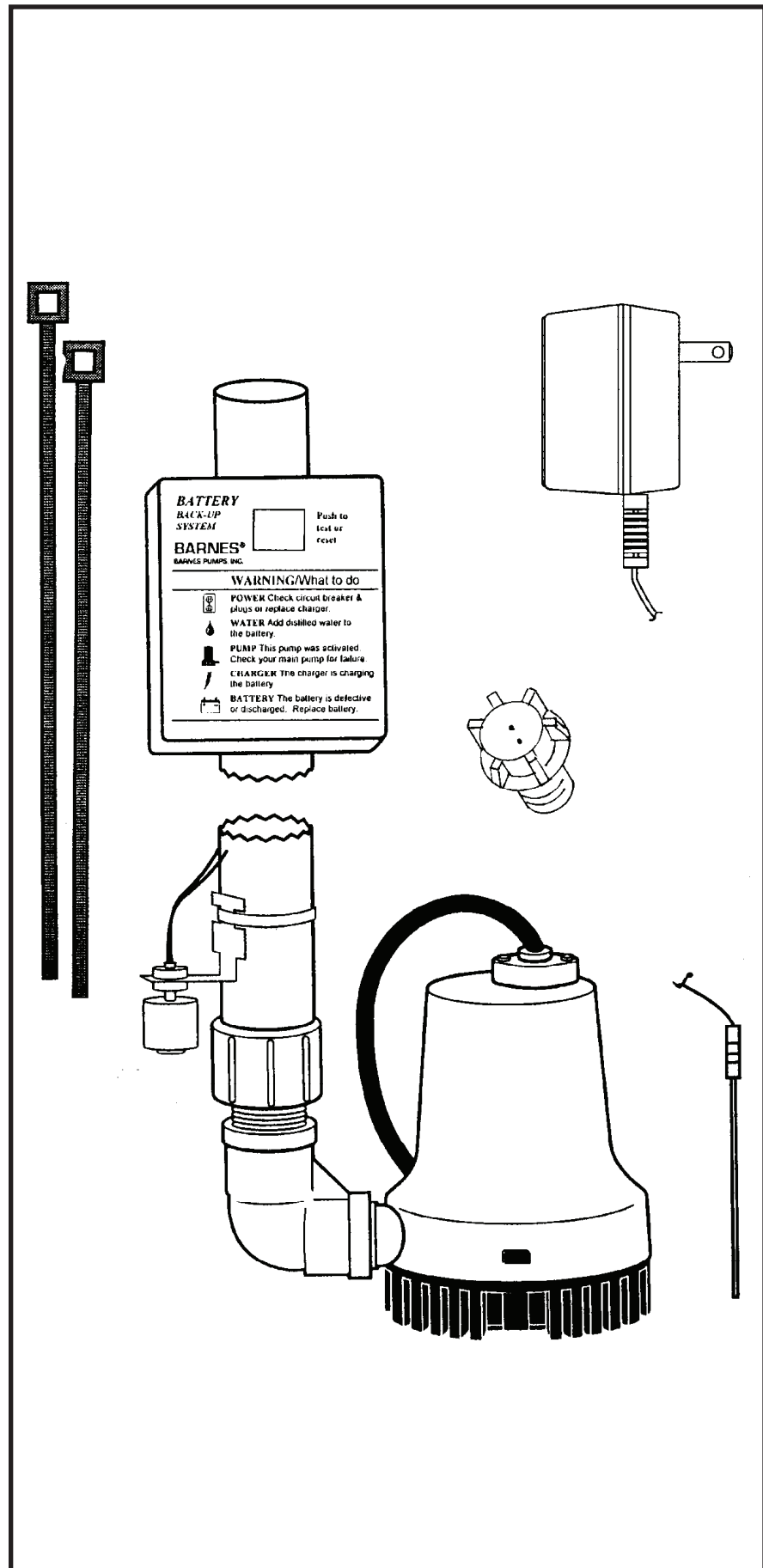
Two (2) stainless steel hose clamps

One (1) stainless steel screw (#8-32 x 1/4"), a matching washer & nut

## Pump & Pipe Installation

### Instructions (Direct Discharge to Outside)

There are two basic methods that can be used to install the pump, (A) a direct discharge to the outside of the building, or (B) a hookup to an existing storm sewer line.



Whenever possible, install your Battery Back-up System with a direct discharge to the outdoors. By using this method, there will always be an outlet for the water from the sump. During times of very heavy rain, many storm sewers fill up. If your pump is trying to discharge water into a full sewer, there is nowhere for the water to go. This defeats the purpose of the back-up system. By discharging directly outdoors, there is always an outlet for the water that is pumped out of the sump.

There are two options for installing your sump pump with a direct discharge to the outside. If you have a sump pit wide enough to place the backup pump next to the main pump, use Method A. If your sump pit is too narrow, the pump may be mounted above the main pump. In this instance use the instructions for **Method Aa**.

**METHOD A:  
DIRECT DISCHARGE TO THE  
OUTSIDE OF THE BUILDING  
FOR WIDE SUMP PITS (Diagram A)**

1. Cut a four foot (4') piece of 1-1/4" rigid PVC pipe and cement it to the threaded fitting that is attached to the elbow on the pump.
2. Secure the pump wire so that the plug on the end will not fall into the sump. Attach the wire to the pipe with a piece of tape.
3. Place the pump with the 4' PVC pipe attachment on the bottom of the sump floor next to the main AC pump.

**Do not mount the pump to any existing pipes.** It should be placed on the floor of the sump. A brick may be placed under the pump if there are rocks or other debris on the sump floor.

4. Attach a rubber union (not included) to the top of the 1-1/4" pipe. This will allow the pump to be removed easily, should the need arise.

The path of the rest of the pipe and the details of each installation will vary. Using sound plumbing practices, try to route the discharge pipe to an exterior wall via the shortest path with the fewest turns. The pipe section exiting the building should be on a downward slope so that the water in the pipe will exit outside rather than return to the sump. Extend the discharge pipe outside the building as far as possible to avoid the return of discharged water to the sump.

Be sure to seal the hole in the wall where the pipe exits and cement or clamp all connections securely to prevent leaking. No check valve is needed with this method of installation, as long as you use **less than 20 feet** of pipe.

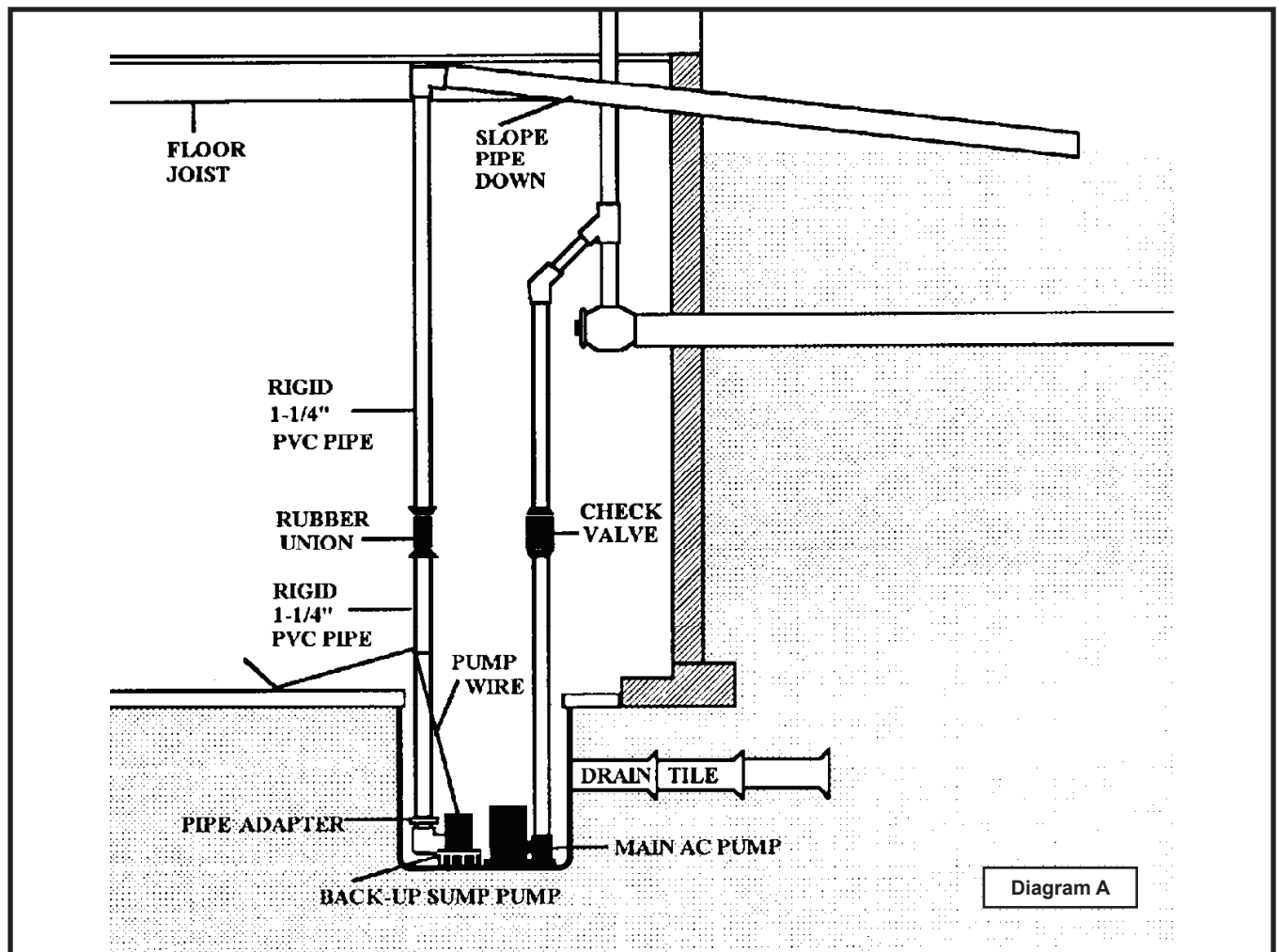


Diagram A

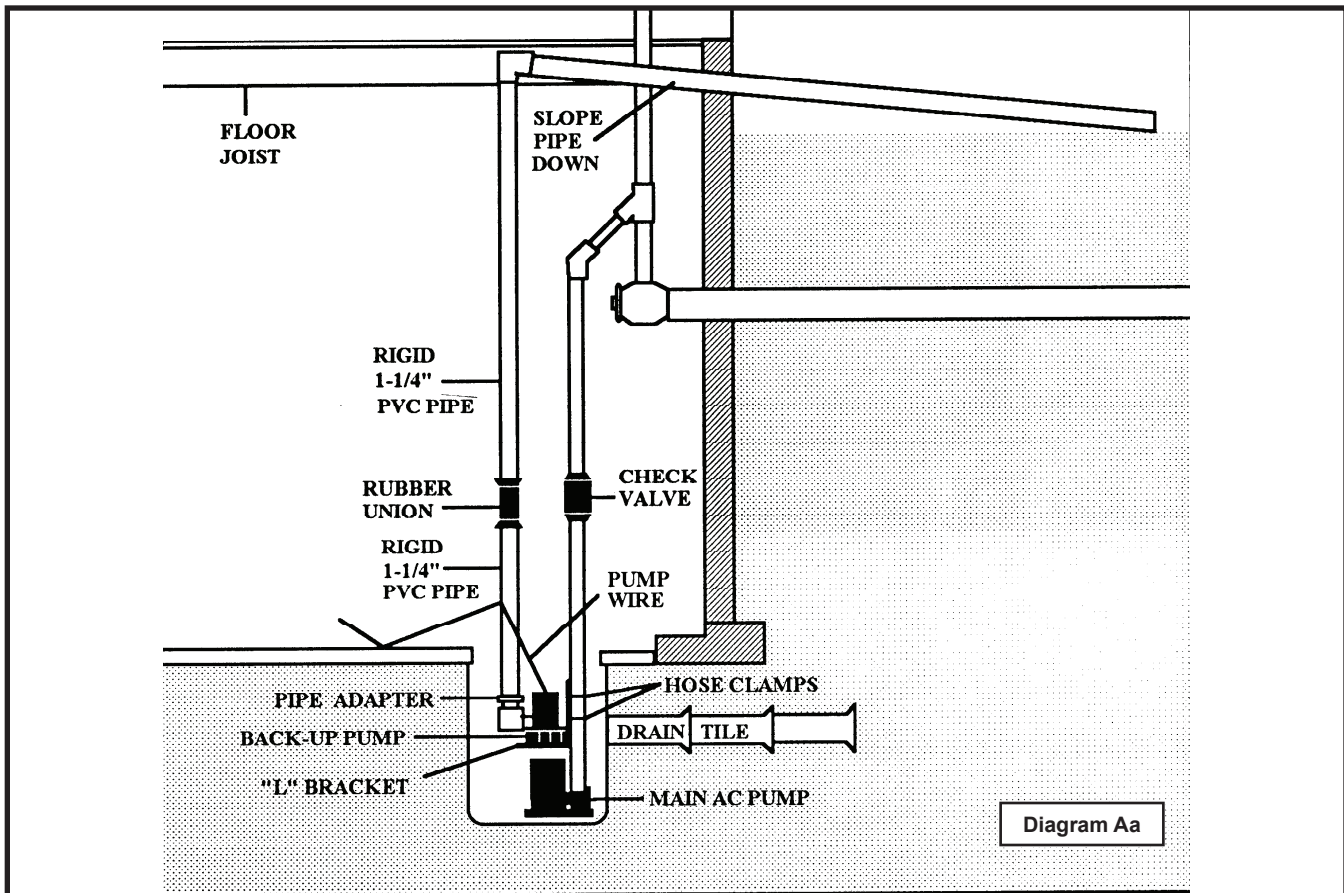
**Pump & Pipe  
Installation Instructions**  
(Direct Discharge to Outside)

**METHOD Aa:  
DIRECT DISCHARGE TO THE OUTSIDE OF THE  
BUILDING FOR NARROW SUMP PITS** (Diagram Aa)

1. Attach an "L" bracket to the discharge pipe of the main AC pump with two (2) stainless steel hose clamps. Position the bracket so the bottom of the "L" is just above the top of the main pump, and out of the way of any float switch on the main pump.
2. (a) Remove the black bottom strainer of the back-up pump by pressing in the two tabs on the strainer. There are holes suitable for mounting on the bottom of the strainer. (b) Using a #8-32 x 3/4" stainless screw, washer & nut, attach the strainer to the "L" bracket. (c) Once the strainer is attached, simply press the pump body onto the mounted strainer.
3. Cut a three foot (3') piece of 1-1/4" rigid PVC pipe and cement it to the threaded fitting that is attached to the elbow on the pump.
4. Secure the pump wire so that the plug on the end will not fall into the sump. Attach the wire to the pipe with a piece of tape.
5. Attach a rubber union (not included) to the top of the 1-1/4" pipe. This will allow the pump to be removed easily, should the need arise.

The path of the rest of the pipe and the details of each installation will vary. Using sound plumbing practices, try to route the discharge pipe to an exterior wall via the shortest path with the fewest turns. The pipe section exiting the building should be on a downward slope so that the water in the pipe will exit outside rather than return to the sump.

Extend the discharge pipe outside the building as far as possible to avoid the return of discharged water to the sump. **Be sure to seal the hole in the wall where the pipe exits and cement or clamp all connections securely to prevent leaking.** No check valve is needed with this method of installation, as long as you use **less than 20 feet** of pipe.



**Pump & Pipe  
Installation Instructions**

(Hookup to Existing Storm Sewer)

If the direct discharge method (Method A) is not possible, the Barnes Battery Backup System can be hooked up to the same storm sewer line as your AC sump pump by installing a "Y" connector and two check valves.



**Check your local plumbing codes. Some municipalities prohibit the discharge of sump water into the sewer system.**

If you have a sump pit wide enough to place the backup pump next to the main pump, use Method B. If your sump pit is too narrow, the pump may be mounted above the main pump. In this instance use the instructions for Method Bb.

**METHOD B:  
HOOKUP TO AN EXISTING STORM SEWER LINE  
FOR WIDE SUMP PITS** (Diagram B)

1. Cut a four foot (4') piece of 1-1/4" rigid PVC pipe and cement it to the threaded fitting that is attached to the elbow on the pump.
2. (a) Install a check valve on the PVC pipe on the back-up sump pump. (b) **IMPORTANT: WHEN A CHECK VALVE IS USED, DRILL A 1/8" HOLE IN THE 1-1/4" PVC PIPE THREE INCHES (3") ABOVE THE CONNECTION TO THE BACK-UP SUMP PUMP.** Drill the hole at a 45° angle toward the bottom of the sump to avoid splashing water outside the sump pit.
3. If there is no check valve on the main AC pump, one must be installed at this time. Then install a "Y" connector above the check valve on the discharge pipe for the main AC pump.
4. Secure the pump wire so that the plug on the end will not fall into the sump. Attach the wire to the pipe with a piece of tape.
5. Place the pump with the 4' PVC pipe attachment on the bottom of the sump floor, next to the main AC pump. **Do not mount the pump to any existing pipes.** It should be placed on the floor of the sump. A brick may be placed under the pump if there are rocks or other debris on the sump floor.
6. Connect a 1-1/2" diameter discharge pipe above the check valve of the back-up sump pump, and attach a 45° elbow to that pipe. Extend another piece of pipe to reach the "Y" connector you have inserted above the check valve on the discharge pipe of the main pump.
7. Cement or clamp all connections securely to prevent leaking.

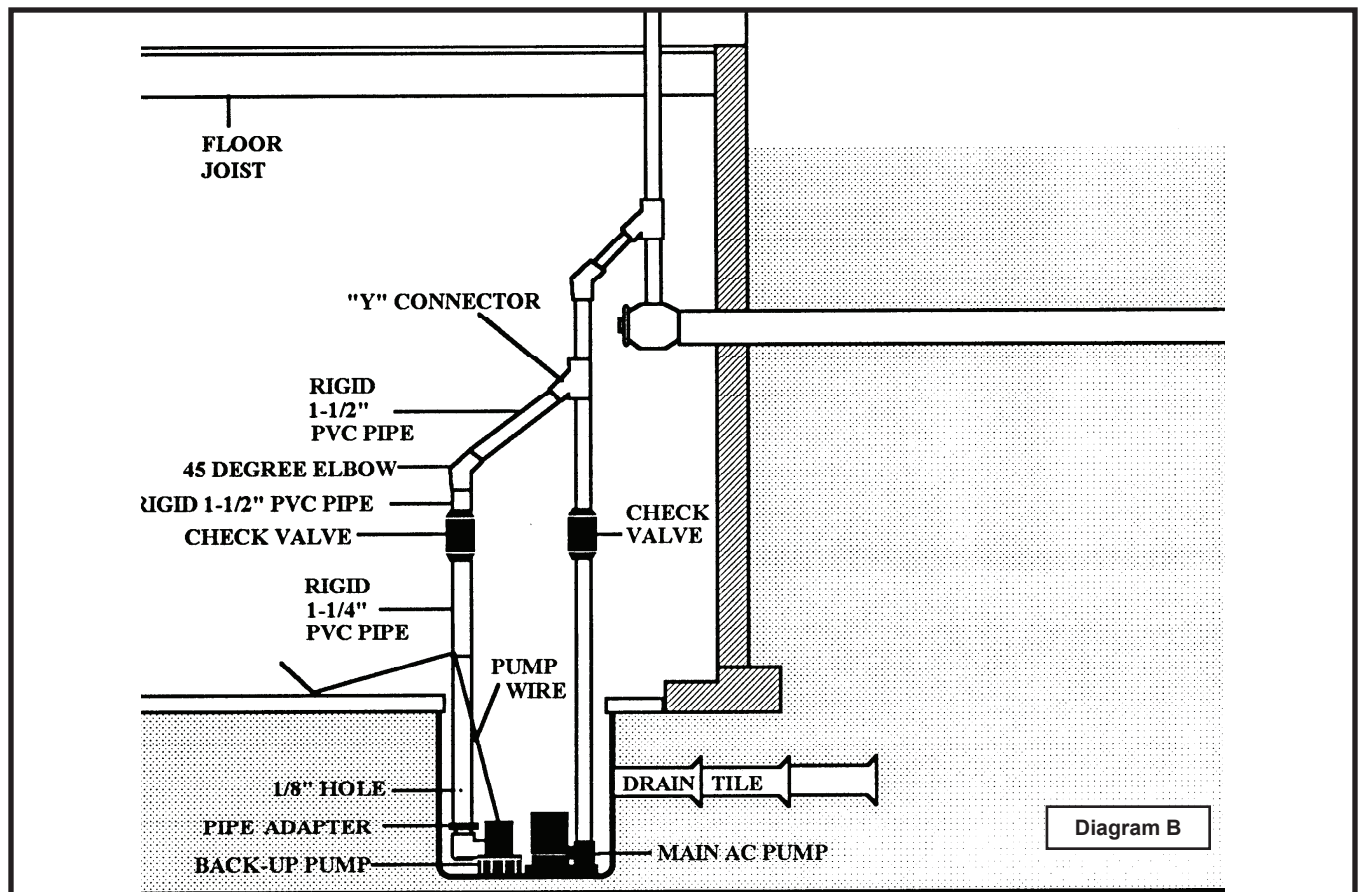


Diagram B

**Pump & Pipe  
Installation Instructions**

(Hookup to Existing Storm Sewer)

**METHOD Bb:  
HOOKUP TO AN EXISTING STORM SEWER LINE  
FOR NARROW SUMP PITS** (Diagram Bb)

1. Attach the "L" bracket to the discharge pipe of the main AC pump with two (2) stainless steel hose clamps. Position the bracket so the bottom of the "L" is just above the top of the main pump, and out of the way of any float switch on the main pump.
2. (a) Remove the black bottom strainer of the back-up pump by pressing in the two tabs on the strainer. There are holes suitable for mounting on the bottom of the strainer. (b) Using a #8-32 x 3/4" stainless screw, washer and nut, attach the strainer to the "L" bracket. (c) Once the strainer is attached, simply press the pump body onto the mounted strainer.
3. Cut a three foot (3') piece of 1-1/4" rigid PVC pipe and cement it to the threaded fitting that is attached to the elbow on the pump.
4. (a) Install a check valve on the PVC pipe on the back-up sump pump. (b) **IMPORTANT: WHEN A CHECK VALVE IS USED, DRILL A 1/8" HOLE IN THE 1-1/4" PVC PIPE THREE INCHES (3") ABOVE THE CONNECTION TO THE BACK-UP SUMP PUMP.** Drill the hole at a 45° angle toward the bottom of the sump to avoid splashing water outside the sump pit.
5. If there is no check valve on the main AC pump, one must be installed at this time. Then install a "Y" connector above the check valve on the discharge pipe for the main AC pump.
6. Secure the pump wire so that the plug on the end will not fall into the sump. Attach the wire to the pipe with tape.
7. Connect a 1-1/2" diameter discharge pipe above the check valve of the back-up sump pump, and attach a 45° elbow to that pipe. Extend another piece of pipe to reach the "Y" connector you have inserted above the check valve on the discharge pipe of the main pump.
8. Cement or clamp all connections securely to prevent leaking.

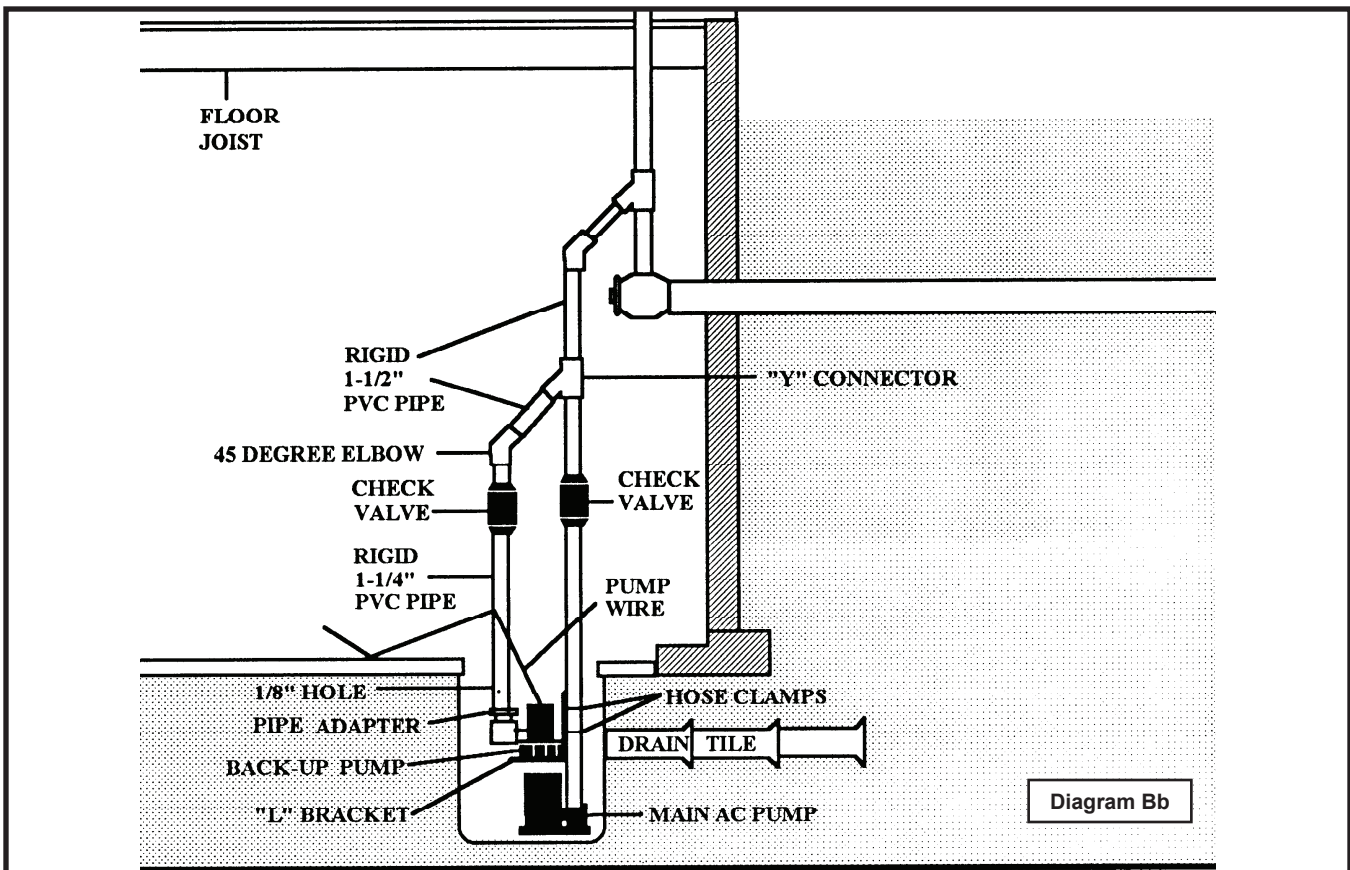


Diagram Bb



## Control Unit Hookup

When you position the control unit, be sure the charger cord will reach the AC power outlet and the pump cable and the float switch will reach the bottom of the sump. Position the unit in a well ventilated area. (Diagram C)

### 1. Mounting the control unit:

(a) Thread the plastic wire tie through the two mounting brackets on the back of the control unit. (b) Secure the control unit to the discharge pipe of the main pump by wrapping the tie around the pipe and pulling it tight.

### 2. Positioning the float switch:

The float switch will turn on the pump when the water rises to the top of the switch. The switch should be mounted six inches (6") above the activation level of the main AC pump. Attach the float switch very securely to the discharge pipe or the elbow of the back-up pump with the plastic wire tie. **Be sure the switch is positioned vertically with the mounting bracket at the top. Do not tilt the switch. Do not position the float switch on the side of the discharge pipe facing the drain tile or any incoming rush of water!**

### 3. Installing the battery fluid sensor:

Replace the battery cap that is 2nd from the POSITIVE (+) post of the battery with the sensor cap that is provided in the back-up sump pump package. There are two holes in the sensor cap. Insert the fluid sensor in the hole that is off-center on the top of the cap. **Do not glue the sensor into the cap.** If your battery will not accommodate the enclosed cap, you cannot use the battery fluid sensor, however you must attach the sensor to the POSITIVE (+)

post of the battery or the alarm will sound continuously. The Battery Back-up System will not warn you if the fluid level is low in this configuration. You will need to check your battery monthly to see if it needs water.

### 4. Hooking up the pump:

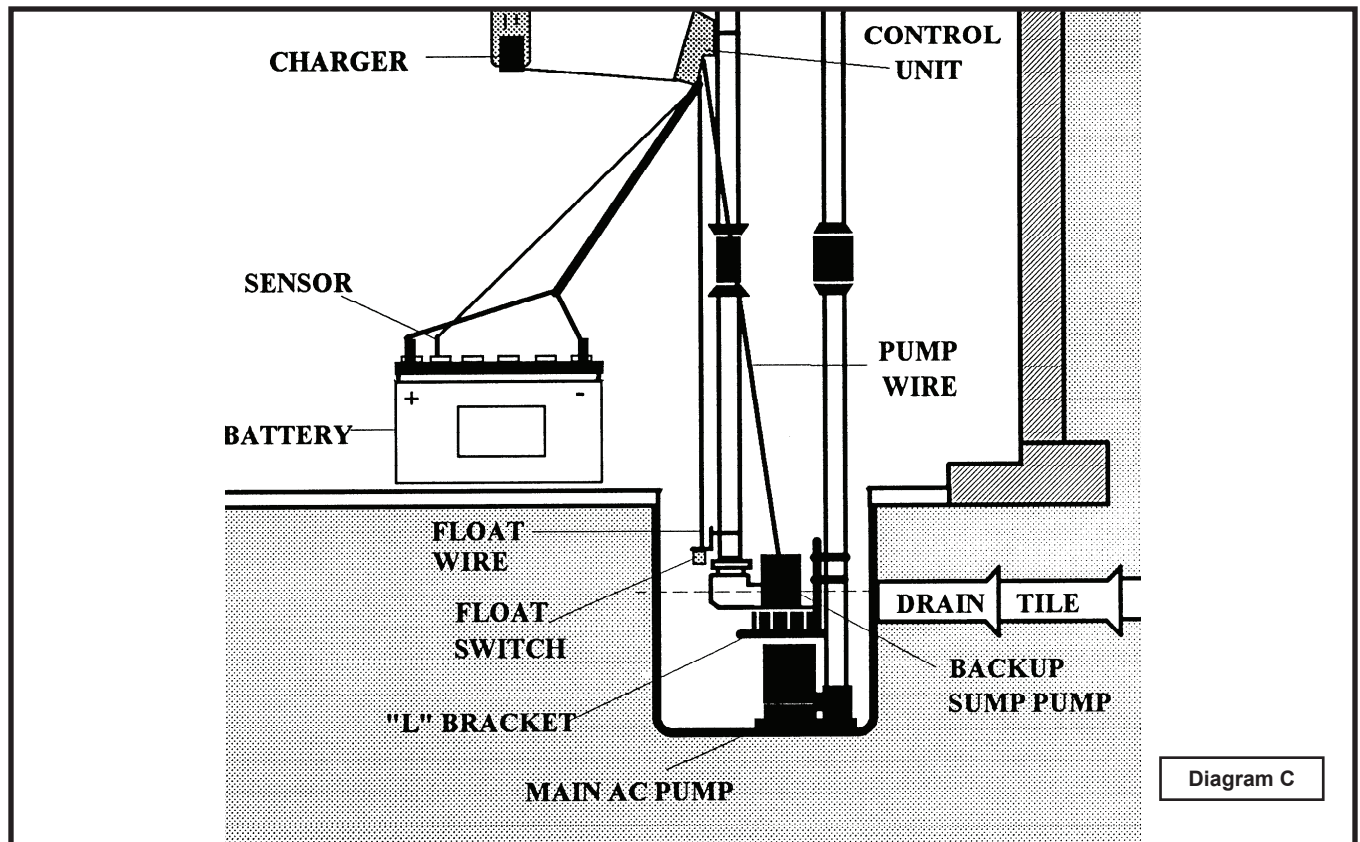
Plug the pump wires into the pump connector on the back of the control unit.

### 5. Hooking up the battery:

Coat the terminals with a little petroleum jelly to prevent corrosion. Attach the battery cables to the battery. The BLACK wire to the POSITIVE (+) post, the WHITE wire to the NEGATIVE (-) post.

### 6. Immediately plug the charger into the charger hole on the back of the control unit and into an AC outlet on the wall.

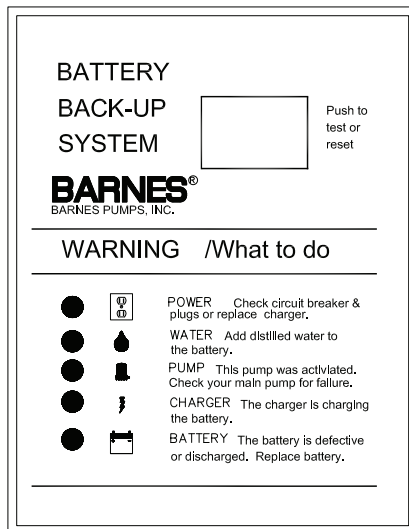
**The Back-up Sump Pump System is ready to use!**



## Understanding the Warnings & Alarms

The battery back-up control unit features a series of warning lights that pinpoint potential problems. In addition, an alarm sounds to alert you to the problem. In some cases, the lights and alarm will go off automatically when the problem has been solved. In others, the "RESET" button must be pushed to silence the alarm. Refer to the table below for a quick review of the features and their corresponding alarm status.

<b>WARNING</b>	Alarm shuts off automatically when problem is corrected.
<b>POWER</b>	Yes
<b>WATER</b>	Yes
<b>PUMP</b>	No, must push "RESET" button.
<b>BATTERY</b>	Yes



### POWER ALARM

There are several causes for power failure. The most common is a power outage by your electric company.

During this emergency, our battery back-up system will automatically switch to battery power and protect your basement from flooding.

If the power is on in the rest of the house, check the home circuit breaker or fuse box for failure, and correct the problem.

Check the charger. Make sure it is securely plugged into the wall outlet.

Check the charger plug that fits into the rear panel of the control unit. Make sure it is securely plugged into the control unit.

The control unit must receive 115 volts AC +/- 5% from the AC outlet. Any voltage lower than this will cause the power failure alarm to activate. Lower voltages can be caused by utility company brown outs or heavy power draw from other appliances on the same circuit.

If all the connections are secure and the wall outlet is operating, but the "Power" warning light is still lit, replace the charger.

### WATER ALARM

If this warning light and alarm are on, you need to add distilled water to the battery.



**IMPORTANT; REVIEW THE SAFETY INSTRUCTIONS BEFORE YOU PROCEED.**

The warning light will turn off automatically when the battery is refilled.

### PUMP ALARM

The "Pump" warning stays on to alert you to the fact that the back-up system was used to empty water from the sump. Try to determine what caused the system to operate. Check the main pump for failure. Another possibility is that the power was out while you were away and the back-up system automatically pumped the water out of the sump. Or, if the incoming water was more than your AC sump pump could handle, then the backup system automatically pumped the water out of the sump. It is also possible that your check valve is stuck and needs to be replaced.

After determining the source of the problem, push the "RESET" button to silence the alarm.

### REPLACING THE PUMP

1. Unplug the pump from the back of the control unit.
2. Release the rubber union or check valve and remove the pump and the rigid PVC pipe section from the sump.
3. Unscrew the pipe and fitting from the old pump and screw them into the new pump.

4. Lower the pump into the sump and reconnect the rubber union or check valve.

5. Plug the pump wires into the back of the control panel.

### CHARGER OPERATING

This green light should always be flashing. It indicates that the charger is operating and that all connections are intact. If for any reason the AC power is interrupted, or a plug comes loose, this light will go off, the RED "Power" light will appear, and an alarm will sound.

Check the charger. Make sure it is securely plugged into the wall outlet.

Check the charger plug that fits into the rear panel of the control unit. Make sure it is securely plugged into the control unit. If all connections are secure and the wall outlet is operating, but the "Power" warning light is still flashing, replace the charger unit. The alarm will continue until the power is restored.

### BATTERY ALARM

This light and alarm will go on when the control unit senses that the battery has approximately 1/2 hour of pumping energy left. This could occur when the pump has been running for many hours and is reaching the last half hour of operating power, or it could occur because the battery is getting old and should be replaced.

The alarm can also be triggered by corrosion on the battery cable and the battery terminals. Clean and tighten the battery terminals as described below. If this warning goes on while the pump is running, you will have a minimum of 1/2 hour to replace the battery. (In most cases, the pump does not run continuously, and therefore, you actually have much longer. In a severe emergency, if a replacement battery is not available, you could temporarily use your car battery.)

Once the AC power is restored, the battery will recharge, unless it is old or damaged. The alarm will go off when the AC power is restored and the pumping energy reaches 1/2 hour or more.

In the event that your battery back-up system has been called on to pump for extended periods of time, the battery can become very depleted.

In this condition, when the AC power is returned to the unit, a "Battery" alarm will continue to sound. The battery may need a longer period to recharge.

For a fast recharge, an automotive or marine battery charger can be used to recharge the battery. When another charger is used, disconnect the controller from the battery.

### **TO CHECK FOR CABLE OR TERMINAL PROBLEMS**



**IMPORTANT; REVIEW THE SAFETY INSTRUCTIONS BEFORE YOU PROCEED**

1. Unplug the charger cord from the wall outlet.
2. Remove the battery cables and clean the battery posts with a battery post terminal cleaner or a wire brush and a 50/50 solution of water and baking soda. Do not allow the soda water to enter the battery. Thoroughly dry the posts and apply a thin coat of petroleum jelly or another terminal protective material.
3. Clean the corrosion off of the connectors on the end of the battery wires. Use a stiff brush or sand paper.

4. Replace the battery cables, BLACK to the POSITIVE (+) post, and WHITE to the NEGATIVE (-) post.
5. Plug the charger into the wall outlet.
6. You may have to press the "RESET" button to silence the pumping alarm.

### **REPLACING THE BATTERY**



**IMPORTANT: REVIEW THE SAFETY INSTRUCTIONS BEFORE YOU PROCEED.**

1. Unplug the charger from the wall outlet.
2. Remove the battery cables from the battery posts.
3. Coat the new battery terminals with petroleum jelly and replace the battery cables, BLACK to the POSITIVE (+), post and WHITE to the NEGATIVE (-) post.
4. Plug the charger into the wall outlet.
5. You may have to press the reset button to silence the pumping alarm.

### **TEST BUTTON**

The TEST button may be used to check the pump and system. Push the TEST button. This will activate the pump for as long as you hold the button.

### **TESTING THE FLOAT SWITCH**

Lift the float up and let go. This will activate the pump. The control unit will run the pump for approximately 40 seconds so it can empty all the water in the sump pit. If there is no water in the sump, the pump can run dry for this amount of time. The alarm will sound and the pump light will go on. After the pump has stopped, push the reset button to silence the alarm. If the RESET button is pressed before the pump has stopped, the alarm will go off temporarily. Wait for the pump to stop pumping, then push the RESET button to completely silence the alarm.

**IMPORTANT!  
WARRANTY REGISTRATION**

Your product is covered by the enclosed Warranty.  
Complete the Warranty Registration Form and return to  
Crane Pumps & Systems, Inc. Warranty Service Group

If you have a claim under the provision of the warranty, contact your local  
Crane Pumps & Systems, Inc. Distributor.

**RETURNED GOODS  
RETURN OF MERCHANDISE REQUIRES A "RETURNED GOODS AUTHORIZATION".  
CONTACT YOUR LOCAL CRANE PUMPS & SYSTEMS, INC. DISTRIBUTOR.**



**Products Returned Must Be Cleaned, Sanitized, Or Decontaminated As Necessary  
Prior To Shipment, To Insure That Employees Will Not Be Exposed To Health Hazards  
In Handling Said Material. All Applicable Laws And Regulations Shall Apply.**

## Limited 2 Year Warranty

We warrant that products of our manufacture will be free of defects in material and workmanship under normal use and service for twelve (12) months after notice of owner's acceptance, but no greater than twenty-four (24) months after receipt of shipment, when installed and maintained in accordance with our instructions.

This warranty gives you specific legal rights, and there may also be other rights which vary from state to state. In the event the product is covered by the Federal Consumer Product Warranties Law (1) the duration of any implied warranties associated with the product by virtue of said law is limited to the same duration as stated herein, (2) this warranty is a LIMITED WARRANTY, and (3) no claims of any nature whatsoever shall be made against us, until the ultimate consumer, his successor, or assigns, notifies us in writing of the defect, and delivers the product and/or defective part(s) freight prepaid to our factory or nearest authorized service station. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. **THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY AND ALL WARRANTIES WITH RESPECT TO ANY PRODUCT SHALL BE TO REPLACE OR REPAIR AT OUR ELECTION, F.O.B. POINT OF MANUFACTURE OR AUTHORIZED REPAIR STATION, SUCH PRODUCTS AND/OR PARTS AS PROVEN DEFECTIVE. THERE SHALL BE NO FURTHER LIABILITY, WHETHER BASED ON WARRANTY, NEGLIGENCE OR OTHERWISE.** Unless expressly stated otherwise, guarantees in the nature of performance specifications furnished in addition to the foregoing material and workmanship warranties on a product manufactured by us, if any, are subject to laboratory tests corrected for field performance. Any additional guarantees, in the nature of performance specifications must be in writing and such writing must be signed by our authorized representative. Due to inaccuracies in field testing if a conflict arises between the results of field testing conducted by or for user, and laboratory tests corrected for field performance, the latter shall control. **RECOMMENDATIONS FOR SPECIAL APPLICATIONS OR THOSE RESULTING FROM SYSTEMS ANALYSES AND EVALUATIONS WE CONDUCT WILL BE BASED ON OUR BEST AVAILABLE EXPERIENCE AND PUBLISHED INDUSTRY INFORMATION. SUCH RECOMMENDATIONS DO NOT CONSTITUTE A WARRANTY OF SATISFACTORY PERFORMANCE AND NO SUCH WARRANTY IS GIVEN.**

This warranty shall not apply when damage is caused by (a) improper installation, (b) improper voltage (c) lightning (d) excessive sand or other abrasive material (e) scale or corrosion build-up due to excessive chemical content. Any modification of the original equipment will also void the warranty. We will not be responsible for loss, damage or labor cost due to interruption of service caused by defective parts. Neither will we accept charges incurred by others without our prior written approval.

This warranty is void if our inspection reveals the product was used in a manner inconsistent with normal industry practice and/or our specific recommendations. The purchaser is responsible for communication of all necessary information regarding the application and use of the product. **UNDER NO CIRCUMSTANCES WILL WE BE RESPONSIBLE FOR ANY OTHER DIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST INCOME, LABOR CHARGES, DELAYS IN PRODUCTION, IDLE PRODUCTION, WHICH DAMAGES ARE CAUSED BY ANY DEFECTS IN MATERIAL AND/OR WORKMANSHIP AND/OR DAMAGE OR DELAYS IN SHIPMENT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

No rights extended under this warranty shall be assigned to any other person, whether by operation of law or otherwise, without our prior written approval.





**IMPORTANT!**  
**WARRANTY REGISTRATION**

Your product is covered by the enclosed Warranty.  
Complete the Warranty Registration Form and return to  
Crane Pumps & Systems, Inc. Warranty Service Group

If you have a claim under the provision of the warranty, contact your local  
Crane Pumps & Systems, Inc. Distributor.

FOLD HERE AND TAPE, DO NOT STAPLE

.....

**\*\* IMPORTANT! \*\***

**WARRANTY REGISTRATION**

**CUSTOMER'S NAME** \_\_\_\_\_ **DATE INSTALLED** \_\_\_\_\_

**ADDRESS** \_\_\_\_\_

**CITY** \_\_\_\_\_ **STATE** \_\_\_\_\_ **ZIP** \_\_\_\_\_

**PHONE #** \_\_\_\_\_ **FAX #** \_\_\_\_\_

**DEALER'S NAME** \_\_\_\_\_

**CITY** \_\_\_\_\_ **STATE** \_\_\_\_\_ **ZIP** \_\_\_\_\_

**MODEL NO.** \_\_\_\_\_ **SERIAL NO.** \_\_\_\_\_

**PART NO.** \_\_\_\_\_ **BRAND** \_\_\_\_\_

FOLD HERE AND TAPE, DO NOT STAPLE

---

PLACE  
STAMP  
HERE

**CRANE PUMPS & SYSTEMS, INC.  
WARRANTY SERVICE GROUP  
420 THIRD STREET  
PIQUA, OHIO  
45356 - U.S.A.**