

# NexPump Ai Users Manual

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<p>NexPump, Inc. Phone: 630-365-4NEX (4639) Fax: 630-365-6919 Email: <a href="mailto:support@nexpump.com">support@nexpump.com</a> Web Address: <a href="http://www.nexpump.com">www.nexpump.com</a></p>	<p>Users Manual 4.00.0002 NexPump is a Registered Trademark of NexPump, Inc. Copyright © 2003-2013 NexPump, Inc., All Rights Reserved Patent Pending</p>
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# **NexPump Users Manual**

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The NexPump Ai is the World's Most Reliable Sump Pump

## **Box Contents**

Qty. 1 - NexPump Ai System Unit

*(AN - Phone Notification Module Installed)*

*(ANi – Wired Internet Notification Module Installed)*

*(ANiw – Wireless Internet Notification Module Installed)*

### **Model Ai Single**

Qty. 1 - High Capacity Pump w/Adapter

### **Model Ai Dual**

Qty. 2 - High Capacity Pumps w/Adapters

### **Model Ai Jet**

Qty. 1 - Ultra Capacity Pump w/Adapter

### **Model Ai Turbo**

Qty. 1 - High Capacity Pump w/Adapter

Qty. 1 - Ultra Capacity Pump w/Adapter

### **Model Ai Rage**

Qty. 2 - Ultra Capacity Pumps w/Adapters

- Qty. 1 - Gray Sensor with SS mounting clamp (Sensor 1)
- Qty. 1 - Black Sensor with SS mounting clamp (Sensor 2)
- Qty. 1 - Battery Extension Cable
- Qty. 1 - Surge Protector (Supplied With Phone Line Notification)
- Qty. 1 - Owners Manual

Purchased Separately: (Required to operate)

1 - Deep-Cycle Marine Battery (See Appendix for more information)

You will also need to supply for installation:

1-1/2" or 2" rigid PVC pipe and fittings

PVC cement and primer

Check Valves (if applicable)

Please take a moment and review this manual before starting installation or powering up your NexPump Ai System.

## **SAFETY INSTRUCTIONS:**

**SAVE THESE INSTRUCTIONS** - This manual contains important safety and operating instructions for the NexPump. Follow these important safety precautions. Failure to follow safety precautions can result in personal injury or damage to the NexPump.

**CAUTION** - To reduce the risk of injury, charge only lead type rechargeable batteries. Other types of batteries may burst causing personal injury and damage.

Do not expose the NexPump System Unit to rain or snow.

Do not install the NexPump System Unit where temperatures will be below freezing (32 degrees Fahrenheit).

Do not charge a battery that may be frozen. Allow battery to sit at room temperature before connecting to the NexPump.

If an extension cord must be used, make sure

- A: That the pins on the plug or extension cord are the same number, size and shape as those of the plug on the NexPump System Unit.
- B: That the extension cord is properly wired and in good electrical condition.
- C: That the wire size is large enough for the AC ampere rating of the NexPump System Unit.

Do not operate the NexPump System Unit if it has received a sharp blow, been dropped, or otherwise damaged in anyway; take it to a qualified serviceman.

Do not operate the NexPump System Unit with a damaged cord or plug – have them replaced or repaired immediately.

Do not disassemble the NexPump System Unit; take it to a qualified serviceman when service or repair is required. Disassembly may result in a risk of electric shock or fire and void the warranty.

Never pull directly on any wiring connected to pumps, battery, AC power or sensor. Disconnect by pulling on connectors only.

Never force the connectors out of place, they should disconnect and connect easily. Some connectors have safety latches, so make sure they are depressed.

Never attempt any maintenance and/or cleaning with the NexPump powered up. Risk of electric shock may result.

**WARNING - RISK OF EXPLOSIVE GASES WORKING IN THE VICINITY OF A LEAD-ACID BATTERY CAN BE DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION.**

**FOR THIS REASON, IT IS OF THE UTMOST IMPORTANCE THAT EACH TIME BEFORE USING YOUR NEXPUMP CONTROL UNIT YOU READ THIS MANUAL AND FOLLOW THE INSTRUCTIONS EXACTLY.**

Be sure the area around the battery is well ventilated.

**A SPARK NEAR THE BATTERY MAY CAUSE AN EXPLOSION.**

## **PERSONAL PRECAUTIONS:**

If LEAD-ACID Battery is used

Someone should be within range of your voice and/or close enough to come to your aid when you work near a lead-acid battery.

Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing or eyes.

Wear complete eye protection and clothing protection. Avoid touching your eyes while working near the battery.

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

When the battery fluid level is low, add distilled water in each cell until the level reaches the indicator on each cell. Do not overfill.

### **Precautions for all Batteries:**

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

Be extra cautious to reduce the risk of dropping a metal tool onto the battery. It might spark or short-circuit the battery or another electrical part that may cause an explosion.

Remove personal metal items such as rings, bracelets, necklaces and/or watches when working with a battery. A battery can produce a short-circuit current high enough to weld a ring (or the like) to metal, causing a severe burn.

When Cleaning the battery terminals. Be careful to keep corrosion from coming in contact with eyes.

Do not use the system unit for charging Dry-Cell batteries, that are most commonly used with household appliances. These batteries may burst and cause injury to persons and damage to property.

## **NEXPUMP PRECAUTIONS:**

### **NexPump SYSTEM Unit Location**

Locate the NexPump System Unit as far away from the battery as the DC cables permit.

Do not operate the NexPump System Unit in an area with restricted ventilation.

Do not set a battery on top of the NexPump System Unit.

Do Not allow the NexPump System Unit to sit on top of the battery.

Do not block NexPump System Unit ventilation in any way. Allow at least 6 inches of free space from the fan exhausts on the right side of the NexPump Unit.

Do not install the NexPump System Unit where temperatures will be below freezing (32 degrees Fahrenheit).

Do not install the NexPump System Unit where it will be exposed to outside elements.

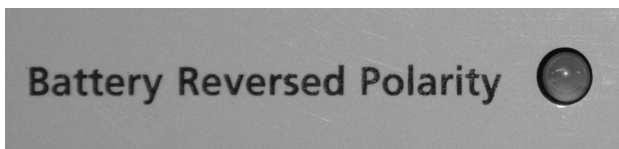
## **DC CONNECTION PRECAUTIONS**

The NexPump Unit requires a connected marine type deep-cycle battery for proper operation. You must assure the battery is connected while the NexPump Unit is operating.

When attaching the battery cables to the battery posts, secure them to insure a good connection.

The BLACK wire from the NexPump System Unit connects to the NEGATIVE (-) post of the battery. The RED wire from the NexPump System Unit connects to the POSITIVE (+) post of the battery.

The 'REVERSE POLARITY LED' will illuminate if the battery connections are reversed.



## **AC POWER REQUIREMENTS**

The NexPump System Unit must be operated from 120 volt household current from the AC outlet.

## **GROUNDING AND AC CORD INSTRUCTIONS**

The NexPump System Unit should be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

### **DANGER**

Never alter the AC cord or plug provided – if it will not fit the outlet, have a proper outlet installed by a qualified electrician. Improper connection can result in a risk of an electric shock.. An adapter should not be used with this NexPump System Unit.

### **Important Safe Guards:**

Never allow other items that discharge into the sump pit to be unsecured. Unsecured items such as garden hoses, laundry hoses and other medium used to discharge water may interfere with the NexPump pumps or sensors. Be sure to secure all items that may be used to discharge water into the sump pit and verify that secured items will not interfere will any NexPump operations.

## **INSTALLATION PROCEDURES:**

Installing the NexPump does require some plumbing expertise. You can use the installation diagrams at the end of this document as a reference for proper installation. For a Dual Pump NexPump System, separate discharges are recommended for maximum discharge rates and multiple output paths. If a Dual Pump NexPump System is installed as a Backup, then you can use a WYE, however install one NexPump Pump on the straight through of the WYE and your normal electric pump on the 45 degree of the WYE. The remaining NexPump Pump should be installed as a separate discharge. You can install all the pumps in a multiple wye configuration, however this type of installation may reduce the total discharge capacity about fifteen (15%) percent at high discharge rates.

Below are some important points for a proper installation.

Tighten hose clamps on check valves if applicable.

Tighten pump adapters securely.

Install separate discharges for maximum discharge rate.

**IMPORTANT: When using a check valve a small 1/8" hole must be drilled in the vertical discharge pipe of each pump. DO NOT DRILL INTO THE PUMP OR THE ELBOW. The hole should be drilled at a 45 degree downward angle to prevent water spraying upwards and position the hole about 2" above the Top of the Elbow.**

**Note: For very narrow sump pits, pumps can be stacked on top of each other. Pump 1 must be the lowest pump.**

**Note: Make sure the RED filter screen is securely attached to each pump.**

**IMPORTANT: Ai Turbo NexPump. Pump One (1) must be the pump with the RED WIRE LOOM.**

**IMPORTANT: REVIEW ALL SAFETY PRECAUTIONS AND INSTRUCTIONS BEFORE PROCEEDING!**

## **Finishing Installation:**

### **Step 1: Positioning the Sensors:**

Sensor 1 is the main sensor and will turn on the pump(s) when the water rises above the sensor. The Gray Sensor should be used for Sensor 1. Sensor 2 does not operate exactly like Sensor 1 however, functions as a backup and high water alarm. (See Sensor Operations). The Black Sensor should be used for Sensor 2. Attach the sensors to any discharge pipe securely with the supplied stainless steel clamps (float side down, sensor cable up, mounting bracket up, remove any shipping tape). Float on each sensor should move freely up and down.

Position the sensors as described below.

#### **Sensor 1 (Left Sensor Receptacle):**

##### NexPump in Backup Mode:

Position Sensor 1 approximately 4 - 6 inches above the activation level of the Main pump. If not, the NexPump may show the pumps have been activated prematurely.

##### NexPump in Primary Mode (Only Sump Pump):

Position Sensor 1 approximately 2 - 4 inches above the pumps.

##### NexPump in Primary Mode (With Electric Sump Pump):

Position Sensor 1 above the level of the NexPump pumps and below the level that the AC pump will turn on.

#### **Sensor 2 (Right Sensor Receptacle):**

Sensor 2 is used as a backup and alert for high water. When activated the NexPump will begin operation in a special emergency mode and with 'Auto Notification' will alert immediately. Position sensor 2 about 6 inches above all other trigger points.

**IMPORTANT : If a vent hole is drilled in the discharge pipe make sure a sensor or sensor clamp does not block the vent hole. Do not position the sensor on the side of the discharge pipe facing the drain tile or any incoming rush of water.**

**Be sure the sensor is positioned vertically with the mounting bracket at the top. Verify the sensor is not tilted in any way.**

### **Step 2: Secure Wires:**

Secure the pump and sensor wires to discharge pipes with nylon wire ties.

**IMPORTANT : Make sure the wire ties or wires do not interfere with the operation of the sensor.**

### **Step 3: Position Battery and System Unit:**

Place the battery in a battery box (if used) on the floor or on a secure shelf, rack or ledge. Position the NexPump System Unit in a secure place ideally above the floor. The pump wires and sensor wires should be long enough to position the NexPump System Unit approximately 3-4 feet above the floor. Be sure the power cord will reach the AC power socket. Secure the electrical power cord as needed. **Do not plug in at this time.** Make sure battery cables will reach battery. **Do not connect battery cables at this time.**

### **Step 4: Pump and Sensor Connections:**

**IMPORTANT: Ai Turbo NexPump. Pump One (1) must be the pump with the RED WIRE LOOM.**

Plug the pump connectors into the NexPump System Unit. If both pumps are not on the bottom of the pit then Pump 1 must be the lowest pump. Plug in the Sensors. Primary Sensor (Sensor 1) to bottom receptacle. Backup Sensor (Sensor 2) to top receptacle. The sensor connectors plug in with the security latch to the right of the NexPump System Unit. Verify the sensor connectors are securely attached.

**IMPORTANT: Ai Turbo NexPump. Pump One (1) must be the pump with the RED WIRE LOOM.**

**IMPORTANT: To disconnect a pump connector, slightly depress the security latch on the bottom of the connector and pull out the connector.**

**To disconnect a sensor connector, slightly depress the security latch on the right side of the connector and pull out the connector.**

### **Step 5: Connecting the AC Power Cord:**

**IMPORTANT: Make sure that the AC outlet is a grounded outlet.**

Plug in the NexPump's AC power cord and verify a secure connection. The display will illuminate and 'Operating Status' Green LED should be blinking.

**Note: An Alarm may sound at this time because the battery is not connected.**

### **Step 6: Connect Battery:**

Attach the battery cables to the battery, the BLACK wire to the NEGATIVE(-) post, the RED wire to the POSITIVE (+) post and tighten securely.

**IMPORTANT: Check the 'Battery Reverse' LED on the NexPump System Unit and if it is illuminated the connections are reversed.**

### **Step 7: Check Your NexPump:**

All alarms should be off at this time. Set your preferred mode setting (See Mode Selection). The NexPump will schedule an automatic self-test approximately two minutes after power up. If there are any alerts they will be displayed on the LCD display and an alarm will sound.

### **Step 8: Secure Battery Boxes:**

If Battery Boxes are used, place each Battery in the Battery Box.

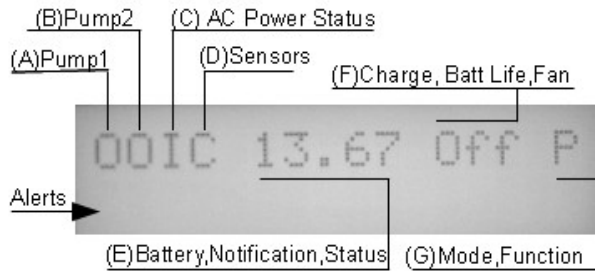
### **Step 9: Set Battery Amp Hours and Enable Charger:**

Refer to Quick reference or Function Button section to set battery amp hours and enable the charger.

**Note: Always perform this step when installing new batteries.**

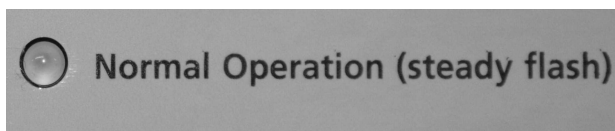
**Your NexPump is ready for use!!**

## NEXPUMP DISPLAY STATUS:



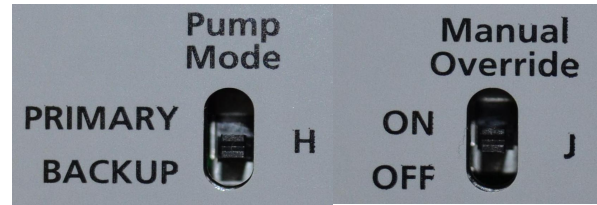
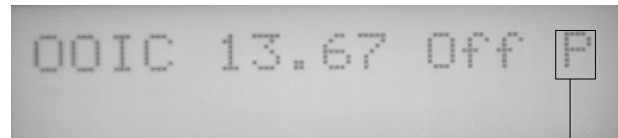
Display Note: Alert messages will display on second line of display. They will display one alert at a time, however will let you know how many there are in the format of “Alert X of X”, followed by the alert message.

## SYSTEM OPERATING STATUS:



The ‘Normal Operation’ LED must be blinking to indicate the NexPump Unit is operating. In addition, the mode location (last digit on display) will also be blinking with the mode the NexPump is in. If both of these are NOT blinking then there may be problem with the NexPump Unit.

## MODE SELECTION:



**Primary Mode** - Used when pump is the primary pump

- o Mode switch in up position. The letter ‘P’ will be blinking in the mode position on display.
- o NexPump WILL NOT display or sound an alarm if pump(s) are activated.

**Backup Mode** - Used when pump is a backup pump

- o Mode switch in down position. The letter ‘B’ will be blinking in the mode position on display.
- o NexPump WILL display and sound an alarm if pump(s) are activated. Indicated by ‘A’ in the corresponding pump location.

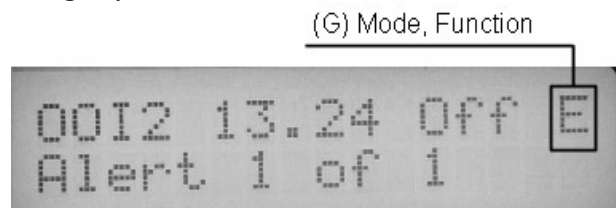
**Manual Mode** – Used to manually turn on both pumps

- o Switch in up position manual mode is ON and in down position manual mode is OFF.
- o The letter ‘M’ will be blinking in the mode position on display.
- o When operating on battery power the NexPump will not calculate Battery Life Remaining.
- o Clog or Vapor Lock detection is disabled.
- o Pumps will turn off for 5 seconds each minute to clear possible Vapor Lock Conditions.
- o Auto Self-Test is disabled

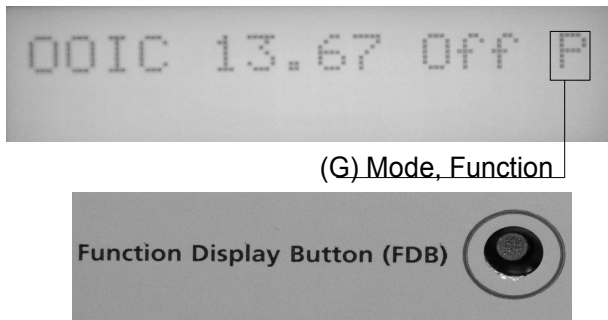
**Emergency Mode** – Automatically selected

- o The letter ‘E’ will be blinking in the mode position on display.
- o Alarm will sound with display indicating the reason NexPump went into the Emergency mode.

**Note:** The Emergency mode is automatically selected if the NexPump detects certain conditions. Below is an example of the display when operating in the Emergency Mode.



## **FUNCTION BUTTON:**



The Function Button is used to access Menu items. The Display Digit (G) will display an alpha character and change about every 3 seconds as you press and hold the FDB, in addition you will hear a beep each time the character changes. Release the function button when the display reads the function you would like to run.

The following are a list of functions:

**‘C’** – Clears alerts - Clears alerts. If there are no alarms currently active then NexPump will display that there are no alarms to clear.

**Note: When you clear alarms, the notification system will automatically set a counter so notifications will not occur for about one to two hours to prevent repetitive notifications.**

**‘S’ or ‘U’**– Silence or Un-Silence Alarm – Can ONLY be used during AC Power Loss or Pumps have been Activated Do this if you do not want to hear the alarm. Automatically clears after 24 Hours

**‘U’** – Un-Silence alarm  
Re-Enables Alarm that was already Silenced

**‘T’** – Run Manual Test.

**‘K’** – Runs Configuration Menu

**‘I’** - Runs Stats Information Menu

**‘D’** - Disable Alarm – This will totally disable the alarm in the NexPump Unit. Notifications will still occur during the time the alarm is disabled. Automatically clears after five (5) Days

**‘E’** - Re-Enable Alarm after being disabled.

**‘-’** - Function End, NO Other Menu Items Available

## **Function 'I' (Statistics):**

This will display statistics, information and configuration setting:

**Unit Serial Number**

**Unit Model**

**Pump Hours and Type**

P1=xxxxxH (xx) (Pump Hours)

Type = 'H' (Pump Type)

**Power Up Time**

CPU=xxxxx Day(s) (Current Power Up)

TPU=xxxxx Day(s) (Total Power Up)

**Number of Auto and Manual Tests**

Auto Tests=xxxxx (Number of Auto Self-Tests)

Man Tests=xxxxx (Number of Manual Tests)

**Battery and Monitor Configuration**

LM=On/Off (LAN Monitor.)

PM=On/Off (Phone Monitor)

BA=xxxA/H (Battery Amp Hours)

E/S=On/Off (Empty Sump Function)

Batt=Wet/AGM (Battery Type)

**Replace Battery In: xxxx Days**

**Network Information (W/Installed Network Module)**

**Disp Alert History? (Displays Last 10 Alerts)**

## **ALERTS:**

### **Normal Alerts:**

Pump Activations

AC Power Loss

Notifications: After Approximately thirty (30) Minutes

*Special Note: Pump Activations let you know there may be an issue with your Main Pump. If you find you have a problem with your Main Pump you can switch the NexPump Mode to 'Primary' until the Main Pump problem is corrected.*

### **Critical Alerts:**

All Other Alerts

Notifications: After Approximately five (5) Minutes, except a High Water Alert which is Approximately one (1) Minute.

### **Silencing or Un-Silencing the Alarm:**

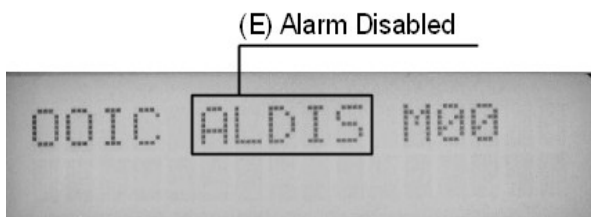
The Alarm can be Silenced for Normal Alerts Only. Use Function 'S' to silence or Function 'U' to Un-Silence Alarm. A Silenced Alarm clears automatically after 24 Hours.

**Note: When the alarm is silenced the identifiers will blink to notify which conditions are in the alarm state.**

### **Disabling or Enabling the Alarm:**

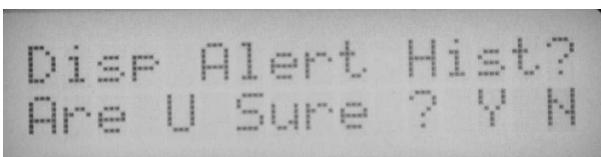
The alarm can be disabled if needed. When disabled, the alarm will not sound for any reason. The alarm will be disabled for five (5) days and automatically enabled after that time. You can Enable the Alarm before the five (5) Day period with Function 'E'. The Display will toggle 'ALDIS' with the (E) Battery Status anytime the Alarm is Disabled.

**Note: All Notifications will take place while the alarm is disabled, disabling the alarm simply turns off the sound.**



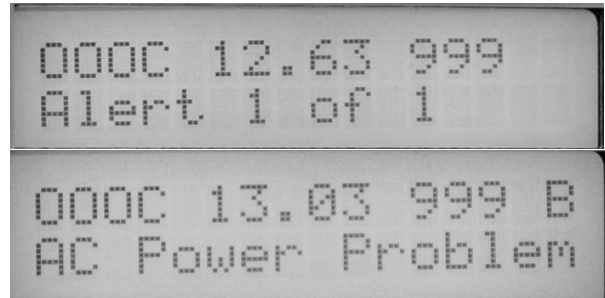
### **Alert History:**

Using Function 'I' you can Retrieve the History of the Last ten (10) Alerts Registered. Press and hold Function Button at this menu screen, cursor will toggle between 'Y' and 'N'. Release at desired position.

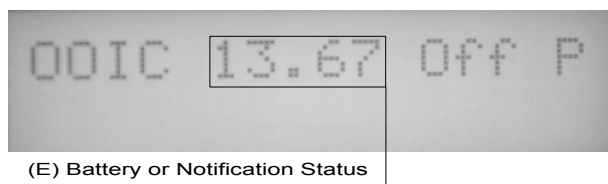


### **Displaying Alerts:**

Below are two (2) examples of what the display will look like when there are alerts on the NexPump. Line two (2) of the display will show you each alert approximately every 3 seconds. The first example let's you know the number of alerts and the current number it's will be displaying. The format will be 'Alert x of x'. The second example is the actual alert that follows the first example.



## **BATTERY STATUS:**



### **Battery Status:**

**'XX.XX'** Battery voltage

*Normal readings '12.40-13.20' (Charger Off)*

**'Disc'** Battery disconnected

*Displays when Battery is disconnected or Battery voltage is below 1.50 volts*

**'Rep\_'** Replace Battery

(The '\_' indicates the reason for failure "numeric value")

See (Battery Troubleshooting)

### **If Notification is Installed:**

Notification will occur on a Battery Disconnected or Low Battery or Battery Replacement Alert after approximately five (5) Minutes. After an AC Power Outage when running on Battery, Notification will occur after approximately thirty (30) Minutes.

### **Clear Battery Alerts:**

Only Battery Replacement Alerts can be cleared. To Clear a Battery Replacement Alert, use Function 'C'

### **Testing:**

Battery is tested on 12 Hour Self-Tests or Manual Tests.

Exceptions: Charge System is Active, Battery Disconnect, Battery Replacement Alert is Active.

## **Menu Options for Battery Operations:**

### **Function 'K' Battery Operations:**

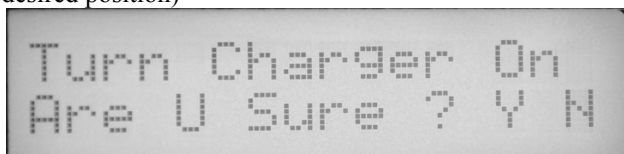
#### **Menu Item to set or reset Battery Amp Hours:**

(Set Total Amp Hours of Batteries Connected. Press and hold Function Button at this menu, number will increment by 5. Release at desired amount. Defaults to 105 AH)



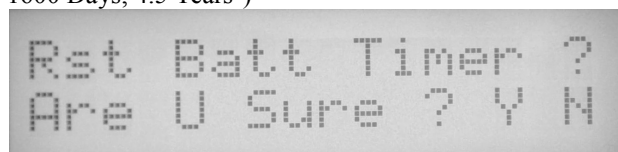
#### **Menu Item to turn on Battery Charger:**

(Turn on Charger when system is first installed or when replacing Batteries. Press and hold Function Button at this menu, cursor will toggle between 'Y' and 'N'. Release at desired position)



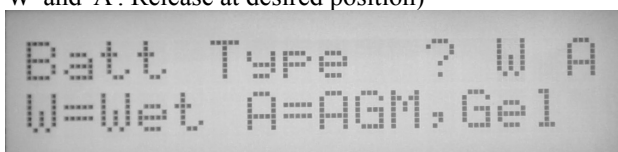
#### **Menu Item to reset Battery Life Timer:**

(Batteries have a lifespan and should be replaced when the NexPump reports this time frame has expired. This should also be reset when replacing batteries. Defaults for battery type selected. WET = '1300 Days, 3.5 Years', AGM = '1600 Days, 4.5 Years')



#### **Menu Item for Battery Type:**

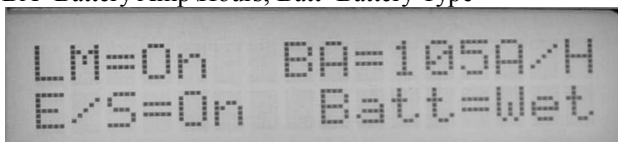
(Select Battery Type to type installed. Press and hold Function Button at this menu, cursor will toggle between 'W' and 'A'. Release at desired position)



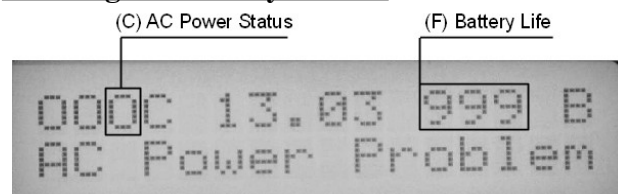
### **Function 'I' Battery Operations:**

#### **Info Item to check Battery Amp Hours and Type:**

BA=Battery Amp/Hours, Batt=Battery Type



### **Running On Battery Power:**



Location '(C) AC Power Status' above indicates an AC Power Loss 'O'. If the alarm is silenced this location will be blinking to indicate the alarm is silenced. Location '(F) Battery Life' will indicate the Battery Life in Hours Remaining when AC Power fails. '999' Hours is the maximum number displayed. The Battery Life Monitor calculates the remaining life about 4 times an hour. When running on battery power you should closely monitor the Battery Life when the Hours Indicated are ten (10) or below. Fluctuating pump(s) times, battery condition and battery state before going to battery power will affect the calculated time throughout the power loss, in addition this number may not be accurate if the Battery Amps Hours are not set correctly before the Power Outage began. The alarm will also sound from the loss of electric power, which may silenced by performing a Function 'S'. Once AC power is restored the display will again display a normal status. A charge cycle may also be enabled at the time AC Power is restored.

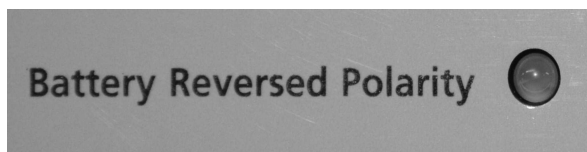
**IMPORTANT:** When the Battery Life is calculated at two (2) Hours or below, a 'Low Battery' Alarm will sound, in addition a Notification will take place if this is the only Critical Alert. When zero (0) Hours are calculated, the pump(s) will no longer operate to prevent total battery discharge.

**Note:** If Battery Life is LOW and Battery Power is still needed you should connect a replacement battery at this time.

### **Battery Connected Improperly:**

If the battery cables are connected to the wrong posts, the 'Reversed Polarity' Red LED will illuminate and an Alarm will sound for 'Battery Problem'

**Correct by reversing the battery cables.**



### **Battery Maintenance:**

Check Fluid levels, if applicable for each installed Battery at least once every 6 months. To Fill Fluid Levels:

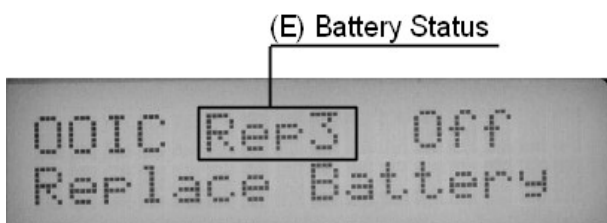
*Remove the cell caps of battery. Add distilled water to each cell. If distilled water is not available, tap water with a low mineral content may be used. NEVER ADD MORE ACID. Fill the battery cell so water is just below the fill cap.*

Clean Battery Posts as needed with a 50/50 solution of water and baking soda or a wire brush. Do not allow any cleaning solution to enter the Battery. Thoroughly dry the terminals and apply petroleum jelly to terminals as needed.

### **Battery Replacement:**

#### **Display Indicating Battery Replacement:**

(The NexPump is constantly monitoring the Battery State and will fail a Battery if any one of several tests are not passed within tolerance.



**IMPORTANT:** Review the safety instructions before proceeding to replace the Battery or Batteries

1. . Disconnect each Battery, you DO NOT need to power off the NexPump System Unit.
2. Remove each Battery and dispose of properly.

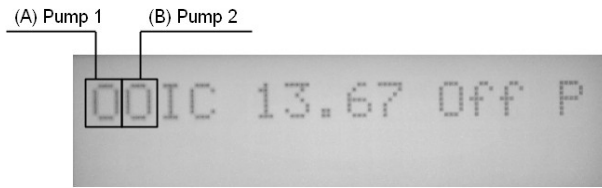
3. Connect each new Battery, Attach the battery cables to the battery - the BLACK wire to the NEGATIVE(-) post, the RED wire to the POSITIVE (+) post and tighten securely.

**IMPORTANT:** Verify the 'Battery Reverse' LED is NOT illuminated. If so, reserve connections.

5. Verify Battery Amp Hours, Function 'K'

6. Turn ON Charger, Function 'K'

## PUMP OPERATIONS:



### Pump Identifiers:

- 'O' Pump is off
- 'I' Pump is on
- 'A' or 'a' Pump was activated – Backup mode only  
Note: If identifier is blinking, alarm is silenced
- 'F' or 'f' Pump Problem
- 'P' or 'p' Possible Plumbing Clog Alert
- 'V' or 'v' Possible Vapor Lock
- 'X' or 'x' Suspected Clog Alert
- 'Y' or 'y' Suspected Vapor Lock
- 'R' or 'r' Pump is over hour lifespan
- 'Q' Pump Driver Problem

### If Notification is Installed:

Notification will occur on all Pump Alerts after approximately five (5) Minutes, with the exception of 'A' or 'a' (Pump Activation) which will occur after approximately thirty (30) Minutes.

### Clear Pump Alerts:

To Clear any Pump Alert, use Function 'C'

### Testing:

Pumps are tested on 12 Hour Self-Tests or Manual Tests.  
Exceptions: Pump Problem

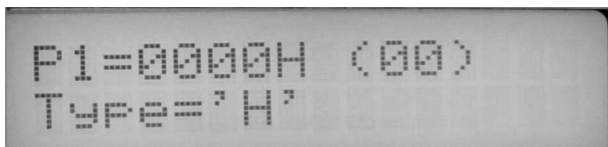
## Menu Options for Pump Operations:

### **Function 'K' Pump Operations: *NONE***

### **Function 'I' Pump Operations:**

#### **Info Item to check Pump Hours and Type:**

(Pump 1 and Pump 2 (Dual Pump Version Only) Hours, with corresponding Type. 'H' = High Capacity, 'U' = Ultra Capacity)



## Pump Troubleshooting:

### Pump Codes:

**Important: The Ai Turbo has a mixed Pump Type. Pump 1 should be the Pump with the RED wire loom.**

**Important: Use NexPump OEM equipment ONLY.**

'F' or 'f' - Pump Failure, followed by a corresponding 'H' or 'L' to indicate the failure type. Replace Pump

'P' or 'p' - Plumbing Clog. This alert indicates a possible clog in the plumbing discharge. Verify the discharge is clear of obstructions. In the winter it may indicate a frozen discharge pipe.

'V' or 'v' - Vapor Lock Condition. This alert indicates there may be air trapped in the discharge plumbing. It may also indicate Sensor 1 is stuck in the up position. If a check valve is used, check for a proper vent hole in the pump discharge pipe or check if the vent hole is clogged.

'R' or 'r' - Pump has reached it's operational life-span. The pump may still be operational, however the pump should be replaced as soon as possible. Contact NexPump for a replacement pump.

'X' or 'x' - 'Clog Suspect Mode'. Check information above for 'P' or 'p' - Plumbing Clog.

'Y' or 'y' - 'Vapor Lock Suspect Mode'. Check information above for 'V' or 'v' - Vapor Lock Condition

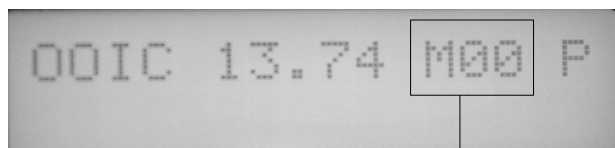
'Q' - Pump Electronic Circuitry Problem. Call Support.

'A' or 'a' - Pump Activated (Backup Mode Only). In the Backup Mode you want to know if any of the NexPump Pumps needed to operate. This may indicate a failure of the Primary Pump or the Primary Pump could not operate due to an AC Power Outage or the Nexpump Pumps were needed for additional capacity. You will most likely be able to determine this if an event has or has NOT moved through your area. You can silence this alert by performing a Function 'S'. If this identifier is blinking the alarm is in the silence mode. You can also move the Mode Switch to the upper position to put the NexPump in the Primary Mode so the NexPump will not alarm for Pump Activation.

### Pump Replacement:

'R' or 'r'. Pump has reached it's life span. Pump may still be operational, however should be replaced at this time.

## **CHARGER OPERATIONS:**



(F) Battery Charge

### **Charger Status**

Note: The 'xx' indicates charge rate

'Off' Charger is OFF, battery is fully charged

'Fxx' Indicates the Full charge mode

'Txx' Indicates the Trickle charge mode.

'Mxx' Indicates the 'Maintain Mode'

'Dis' Charger is disabled. *Disables for disconnected battery, Input power is off, both pumps are in use.*

'ttS' The count in seconds when the charge system will start. This allows time for the battery to be reconnected before the charger starts again.

'FL1' or 'FL2' Charger System Problem:

### **If Notification is Installed:**

Notification will occur on all Charger System Alerts after approximately five (5) Minutes.

### **Clear Charge System Alerts:**

To Clear a Charger System Alert, use Function 'C'

### **Testing:**

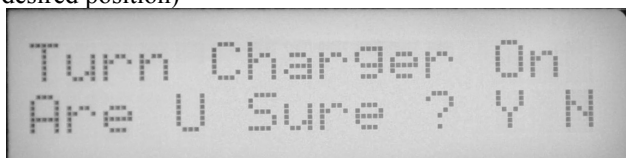
Charger System is tested on 12 Hour Self-Tests or Manual Tests. Exceptions: Full or Trickle Charge is currently active, AC Power is Off or Battery is Disconnected.

## **Menu Options for Charger Operations:**

### **Function 'K' Charger Operations:**

#### **Menu Item to turn on Battery Charger:**

(Turn on Charger when system is first installed or when replacing Batteries. Press and hold Function Button at this menu, cursor will toggle between 'Y' and 'N'. Release at desired position)



### **Function 'I' Charger Operations: NONE**

### **Charger System Operation:**

Charge Rate:

Ai Extreme, Ai Dual – 20 Amps

Ai Single – 10 Amps

The charging circuit is disabled anytime the battery or

electric power is disconnected or if both pumps are operating. The charge states can be 'Off', 'Full', 'Trickle' and 'Maintain Mode'. When the charge is started the display will show 'Fxx', where the 'xx' is the actual charge rate in amps. The charge is automatically monitored at all times. After a full charge is complete the NexPump unit will go into a trickle charge mode. The display will show 'Txx' where the 'xx' is the charge rate. When the Trickle mode is complete, the NexPump will go into the 'Maintain Mode'. In the 'Maintain Mode' charge rates can be very low and may even display 'M00' for extended times. It is normal for the 'Maintain Mode' to run for multiple days.

## **Charging System Troubleshooting:**

### **Charger Problem:**

'FL1' or 'FL2' - Charger System Problems may also be a result of an AC Power Failure while a Charger System Test was active. In that case use Function 'C' to clear alert. If that is not the case it may indicate a problem with the Charger System.

**Note: If the Battery is completely discharged the NexPump may display the battery disconnected then count down from 5 seconds. This may cycle until the battery is at a sufficient level to start the full charge mode. This prevents an overload to the charge system or battery.**

## **SENSOR OPERATIONS:**



### **Sensor Identifiers:**

- 'C' - Sensors are connected & operating normally
- '1' - Sensor 1 is disconnected
- '2' - Sensor 2 is disconnected
- 'H' - Sensor 2 is activated (High Water Alert)(45 seconds)
- 'D' - Both Sensors are disconnected

### **If Notification is Installed:**

Notification will occur on all Sensor Alerts after approximately five (5) Minutes, with the exception of 'H' (High Water Alert) which will occur in approximately one (1) Minute.

### **Clear Sensor Alerts:**

Sensor Alerts will clear automatically when condition is corrected.

### **Testing:**

Sensors are Continually Monitored.

### **Menu Options for Sensor Operations:**

**Function 'K' Sensor Operations: *NONE***

**Function 'I' Sensor Operations: *NONE***

### **Sensor Operation:**

Sensor 1 operates each pump independently. Sensor 2 DOES NOT operate the same as Sensor 1. An Active Sensor 2 will Double-Beep for approximately sixty (60) seconds before a High Water Alert is Triggered. You can test the operation of Sensor 1 by lifting the float and verifying Pump 1 turns on. Sensor 2 can be tested by lifting the float and verifying a Double-Beep from the NexPump System Unit.

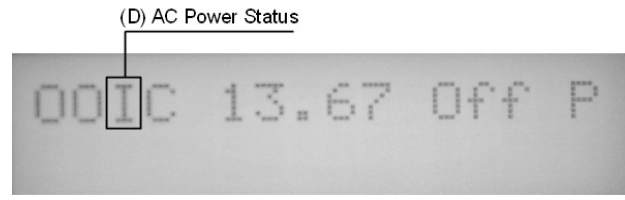
**Note: The Black Sensor should be used for Sensor 2, while the Gray Sensor should be used as Sensor 1.**

### **Sensor Troubleshooting:**

#### **Sensor Displaying Disconnected:**

Verify the sensors are plugged in and wires are attached to each connector. If the sensors are connected correctly, the sensor may be defective.

## **AC POWER:**



### **Input Power Identifiers:**

- 'O' AC Power is Off
- 'I' AC Power is On

**Note: If identifier is blinking, alarm is in the silence mode**

### **If Notification is Installed:**

Notification will occur on AC Power Loss after approximately thirty (30) Minutes.

### **Clear AC Power Alerts:**

AC Power Alerts will clear automatically when condition is corrected.

### **Testing:**

AC Power is Continually Monitored.

### **Menu Options for AC Power Operations:**

**Function 'K' AC Power Operations: *NONE***

**Function 'I' AC Power Operations: *NONE***

### **AC Power Operation:**

During an AC Power Outage the NexPump will automatically switch to battery power. The NexPump will display 'O' for the input power and sound its alarm. If the alarm is in the silence mode the display digit will be blinking. When power is restored the alarm will turn off automatically and an 'I' should be displayed for the input power.

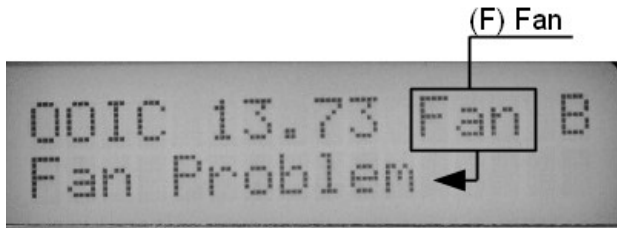
### **Input power troubleshooting:**

#### **AC Power Loss:**

If the NexPump is alerting about an AC Power Loss and there is not an issue with the AC Power in your household, you should check the Electrical Outlet that the NexPump AC Power Cord is plugged into with a portable device to check if the Electrical Outlet is live. If the Electrical Outlet is live then there may be an issue with the Internal Power Supply

**IMPORTANT: The power supply is not field serviceable. Do not attempt to disassemble the NexPump or power supply.**

## INTERNAL COOLING FAN :



**‘Fan’** - Indicates an Internal Fan Problem

### If Notification is Installed:

Notification will occur on any Fan Alerts after approximately five (5) Minutes.

### Clear Fan Alerts:

To Clear any Fan Alert, use Function 'C'

### Testing:

The Fan is testing during it operation, on self-tests and during manual tests.

## Menu Options for Fan Operations:

**Function 'K' Fan Operations:** *NONE*

**Function 'I' Fan Operations:** *NONE*

### Fan Operation:

The internal Fan does not run continually and is only in use when the charging system is active, any pump is in use or it is in the test mode, however the Fan will continue to run for some time after any pump has run.

### Fan troubleshooting:

### Fan Problem:

A Fan Problem usually means that the Fan is defective and must be repaired.

## INTERNAL ELECTONICS :

### Primary VRef Alert:

A ‘Primary VRef Problem’ indicates an internal hardware problem. This will display as a 'VRef Problem' in the alert line of the display. The NexPump automatically switches over to it's backup VRef if this alert is detected.

### If Notification is Installed:

Notification will occur on a Primary VRef Alert after approximately five (5) Minutes.

### Clear Primary VRef Alerts:

Primary VRef Alerts will clear automatically when condition is corrected.

### Testing:

The Primary VRef is Continually Monitored.

## EMPTY SUMP:

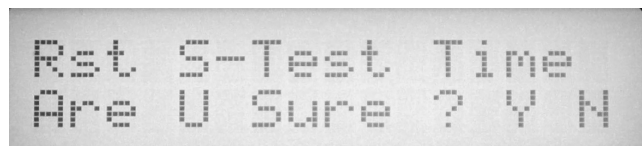


If the Empty Sump is enabled after each 12 Hour Self-Test the NexPump will pump the water out of the sump pit. This is useful so no standing water is left in the pit especially when the NexPump is a Backup Pump for another pump that could corrode. This is accessed from the Function 'K' menu and once on this Screen, Press and hold the Function Button, the cursor will toggle between 'Y' and 'N'. Release at desired position)

## TESTING:

The NexPump schedules an automatic Self-Test every 12 hours. A Manual Test can be done by using Function 'T'.

To Reset the Self-Testing Time you can perform a Function 'K' and 'Rst S-Test Time' by selecting 'Y' on the following screen or can be performed with Command Console on Internet Versions. Resetting should be performed at the time you want the Self-Test to begin.



Once reset the Automatic Self-Test will start at the new time.

## **APPENDIX:**

### **Battery Specifications:**

The NexPump Requires a Deep-Cycle Marine Battery. A **105 Amp Hour** or greater rating is required. This is usually a Group 27 or Group 31 Deep-Cycle Marine Battery.

#### **Some Popular Models:**

Staab

ST-105 Group 27M DC 105 A/H  
ST-130 Group 27M DC 130 A/H  
ST-145 Group 31 DC 145 A/H  
UB121100 Group 31 DC AGM 110 A/H

Walmart

EverStart 27DC-6 Group 27M DC 115 A/H  
EverStart MAXX-29 Group 29HM DC 125 A/H

Sears

DieHard #27582 Group 27M DC 105 A/H  
DieHard #27524 Group 29 DC 115 A/H

InterState

SRM-27B Group 27 DC 105 A/H  
SRM-29 Group 29HM DC 120 A/H

### **Multiple Batteries:**

Two Batteries may be connected in PARALLEL to increase time on battery power. This configuration is highly recommended.

**IMPORTANT: DO NOT CONNECT BATTERIES IN SERIES. CONNECTING MULTIPLE BATTERIES IN SERIES WILL DAMAGE THE UNIT AND VOID THE WARRANTY.**

### **NexPump Specifications:**

#### **Maximum Input/Output Levels:**

Input: AC

Ai Extreme, Ai Dual

Full Load 115 Volts AC @ 8.5 amps

Standby Load 115 Volts AC @ 0.17 amps

Ai Single

Full Load 115 Volts AC @ 4.5 amps

Standby Load 115 Volts AC @ 0.17 amps

#### **Charge Output:**

Ai Extreme, Ai Dual – 20 Amps

Ai Single – 10 Amps

#### **Operating Temperature:**

9°C~38°C (48°F~100°F)

#### **Storage Temperature:**

0°C~38°C (32°F~100°F)

## NexPump Code Chart (V4.xx)

### A - Pump 1, B - Pump 2

'O' Pump Off  
'I' Pump On  
'A' or 'a' Pump Activated – Backup Mode Only  
'F' or 'f' Pump Problem  
'P' or 'p' Possible Plumbing Clog  
'V' or 'v' Possible Vapor Lock  
'X' or 'x' Suspected Clog  
'Y' or 'y' Suspected Vapor Lock  
'R' or 'r' Pump Life Exceeded  
'Q' Pump Driver Problem

### C - AC Input

'O' - Input Power Off  
'I' - Input Power On

### D - Sensors

'C' - Sensors Connected (Normal Operation)  
'1' - Sensor1 Disconnected  
'2' - Sensor2 Disconnected  
'H' - Sensor2 Activated (High Water Alert)  
'D' - Both Sensors Disconnected

### E - Battery Status

'XX.XX' Battery Voltage in Volts  
Normal Readings '12.60-13.20' (Charger Off)  
'Disc' Battery disconnected  
Battery disconnected or Voltage below 1.5 volts  
'Rep\_' Replace Battery

### E - Alarm Disabled

'ALDIS' Alarm Disabled (Resets in 5 days)

### F - Charge Status

'Off' Charge Off  
'Fxx' Full Mode  
'Txx' Trickle Mode.  
'Mxx' Maintain Mode  
'Dis' Charge Disabled  
'ttS' Seconds Until Charge System Starts.  
'FI\_' Charge System Failed, '\_' indicates the alert code

### F - Battery Life

Time Remaining (Hours) on Battery Power

### F - Fan Problem

'Fan' Case Fan Problem

### G - Mode

'P' Primary Mode  
'B' Backup Mode  
'M' Manual Mode  
'E' Emergency Mode

### G - Function Button

'C' – Clear Alarm  
'S' or 'U'– Silence or UnSilence Alarm (Resets in 24 Hours)  
'T' - Manual Test  
'K' – Configuration Menu  
'I' - Stats Info  
'D' or 'E' - Disable or Enable Alarm (Resets in 5 days)

### H - Pump Mode

Primary Mode - Switch in UP position, Display Blinking 'P'  
Backup Mode - Switch in DOWN position, Display Blinking 'B'

Emergency Mode – Automatically Selected, Display Blinking 'E'

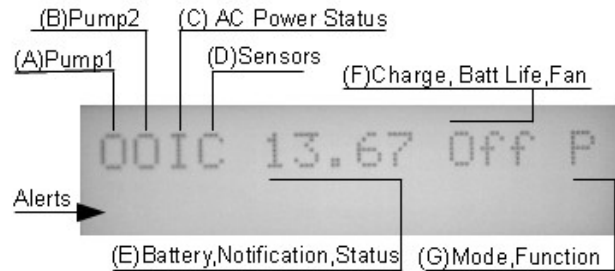
### J - Override

On - Switch UP - Manual Mode Pump(s) On  
Off - Switch DOWN - Auto Mode Pump(s) Off (Normal Position)

### Alerts

Alerts are Displayed on Second Line of Display

### Nexpump Display Legend



## **Quick Reference Guide:**

### **Power OFF:**

1. Disconnect Battery
  - a. Disconnect (+) Positive Cable (Red)
  - b. Disconnect (-) Negative Cable (Black)
2. Unplug NexPump's AC Power Cord

### **Power ON:**

1. Plug in NexPumps AC Power Cord
2. Connect Battery
  - a. Connect (-) Negative Cable (Black)
  - b. Connect (+) Positive Cable (Red)
  - c. Verify Battery Reverse Indicator

### **Override Mode:**

1. Set Override switch to up position
2. Pump(s) should turn on.
3. Battery Life will not be calculated
4. Clog or Vapor lock detection is disabled.
5. Set Override switch to down position to turn pump(s) off and return to normal.

### **Clear Alarm(s):**

1. Press Function Button Until 'C' appears (1 second).
2. Release Function Button.
3. Display shows 'Alarm Cleared' if there are Alarms that can be cleared, otherwise displays 'No CLR Alarms'.

### **Silence Alarm:**

1. Press Function Button Until 'S' appears (3 seconds).
2. Release Function Button.
3. Display shows 'Alarm Silenced'

*Note: Automatically cleared after 24 Hours*

*Alarm will only silence for 'Pump Activated' and 'Electricity Failure' Alarms*

### **UnSilence Alarm:**

1. Press Function Button Until 'U' appears (3 seconds). (A 'U' will only appear if the alarm is silenced already)
2. Release Function Button.
3. Display shows 'Alarm UnSilenced'

### **Manual Test:**

1. Press Function Button Until 'T' appears (6 seconds).
2. Release Function Button.
3. Manual Test is scheduled.

### **Retrieve Serial Number:**

1. The NexPump serial number is located on the rear unit or proceed to step 2.
2. Press Function Button Until 'K' appears (9 seconds).
3. Release Function Button.
4. Display shows SN

### **Retrieve Firmware Revision:**

1. Press Function Button Until 'K' appears (9 seconds).
2. Release Function Button.
3. Display shows Firmware Revision number

### **Phone Monitor:**

1. Press Function Button Until 'K' appears (9 seconds).
2. Release Function Button.
3. Wait for 'Ph-Monitor ? Y N' screen.
4. Depress and hold Function Button, display will toggle between 'Y' and 'N', release when at correct setting.

### **LAN Monitor:**

1. Press Function Button Until 'K' appears (9 seconds).
2. Wait for LAN Monitor Screen 'LANMonitor ? Y N'.
3. Depress and hold Function Button, display will toggle between 'Y' and 'N', release when at correct setting.

### **Battery Reset:**

1. Press Function Button Until 'K' appears (9 seconds).
2. Release Function Button.
3. Wait for 'B-Amps ? xxx AH'.
4. Enter Battery Amp Hours by Pressing and holding the Function Button. Amp Hours will increment by 5. The range is 105 – 440. Release button on correct setting.
5. Wait for 'Turn Charger ON', Press Function Button to toggle 'Y', 'N' and select 'Y'

### **Stats Information:**

1. Press Function Button Until 'I' appears (15 seconds).
2. Release Function Button.
3. Display will toggle through NexPump statistics.

### **Disable Alarm:**

1. Press Function Button Until 'D' appears (18 seconds).
2. Display shows 'Alarm Disabled'.
3. Use Function Button to toggle 'Y', 'N' and select 'Y'
4. Alarm remains disabled for 5 days then automatically re-enabled

### **Enable Alarm:**

1. Press Function Button Until 'E' appears (18 seconds).

## **LIMITED WARRANTY:**

This NexPump, Inc. product is warranted against defects in workmanship and materials. If any failure of these components, resulting from a defect in either workmanship or material shall occur under normal use within THREE YEARS (3) from the original date of purchase for Ai Extreme Series Pumps and Ai Dual or under normal use within TWO YEARS (2) from the original date of purchase for the Ai Single, such failure shall be corrected free of charge to the original purchaser by repair or, at NexPump's sole option, replacement of the defective part or parts.

No charge shall be made for labor or services performed during the said warranty period providing the defective product is sent prepaid to our Authorized Service Station. NexPump, Inc. will either repair or at its sole option, replace any such part except for fuses, circuit breakers under normal and proper use. This warranty does not cover High Capacity pumps that have exceeded 2500.0 hours of operating time or Ultra Capacity pumps that have exceeded 1200.0 hours of operating time and does not cover equipment, which had been tampered with in any way, or to damage caused by accident, negligence, alteration, misapplication or natural disasters.

This product must be returned transportation prepaid, properly packed and insured. NexPump, Inc. bears transportation cost of the repaired product back to the purchaser. This warranty applied only to the original purchaser.

NO OTHER WARRANTIES ARE EXPRESSED OR IMPLIED. NEXPUMP, INC. IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES.

EXCEPT AS SET FORTH HEREIN, THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO NEXPUMP PRODUCTS. NEXPUMP, INC. EXPRESSLY EXCLUDES AND DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND ANY WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, APPLICATION OR USE. UNDER NO CIRCUMSTANCES WILL THE COMPANY BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER SUCH DAMAGES ARE SOUGHT IN CONTRACT, IN TORT (INCLUDING BUT NOT LIMITED TO NEGLIGENCE AND STRICT LIABILITY) OR OTHERWISE, AND THE COMPANY'S LIABILITY SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE NEXPUMP PRODUCTS ON WHICH SUCH LIABILITY IS BASED.



Diagram A  
Ai Turbo or Ai Dual Installed as only pump  
(Operating in Primary Mode)

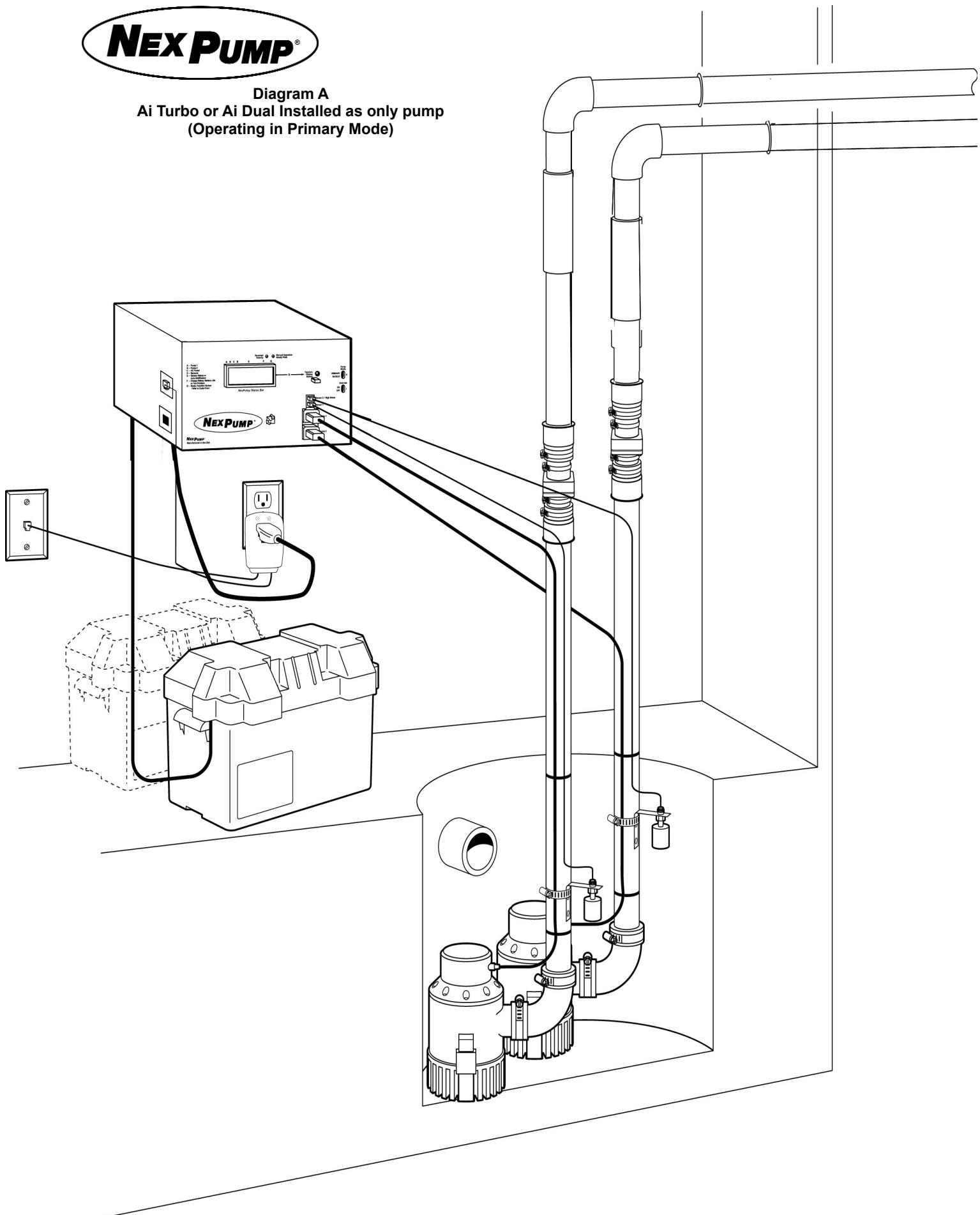




Diagram B  
Ai Rage, Ai Turbo or Ai Dual Installed with existing pump  
(Operating in Primary or Backup Mode)  
(Recommended Configuration)

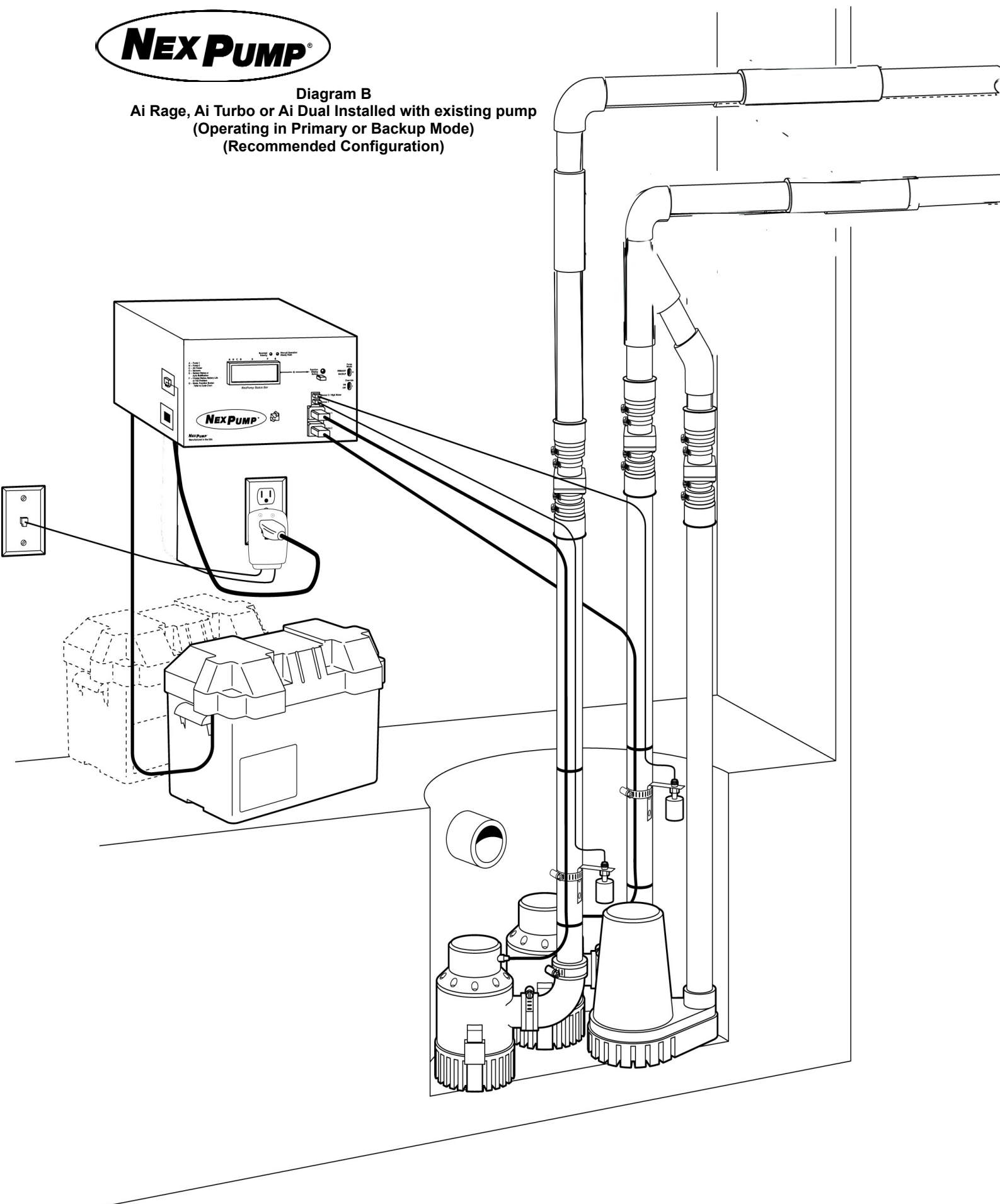




Diagram C  
Ai Single or Ai Jet Installed with existing pump  
(Operating in Backup Mode ONLY)

