

User's Manual

# PoolDoc™

Watts Water



Contact Information  
Ph: 1-800-752-5582  
[www.PoolDoc.net](http://www.PoolDoc.net)

**WARNING:**  
IMPORTANT SAFETY INSTRUCTIONS INSIDE.  
FAILURE TO READ OR COMPLY WITH THESE  
INSTRUCTIONS MAY RESULT IN PERSONAL INJURY.

**WATTS®**



## IMPORTANT SAFETY INSTRUCTIONS

Before attempting to use this product it is important to read this manual, all labels and all reagent information.

Certain reagents may be classified as hazardous substances. Please read all Material Data Safety Sheets (MSDS) before use. MSDS can be downloaded from the PoolDoc web site at ***www.PoolDoc.net***.

Keep this device and reagents out of reach of children and pets.

Do not dispose of reagents in pool or spa.

Manufacturer is not liable for misuse, modification or failure to follow all instructions.

Dispose of batteries properly.

### **About this manual:**

Every effort has been made to ensure the accuracy of this manual. Due to the continuous development and improvement of the product, there may be slight differences between this manual and the product received. Therefore, no legal claims can be made against any discrepancies herein. A current manual can be downloaded from ***www.PoolDoc.net***.



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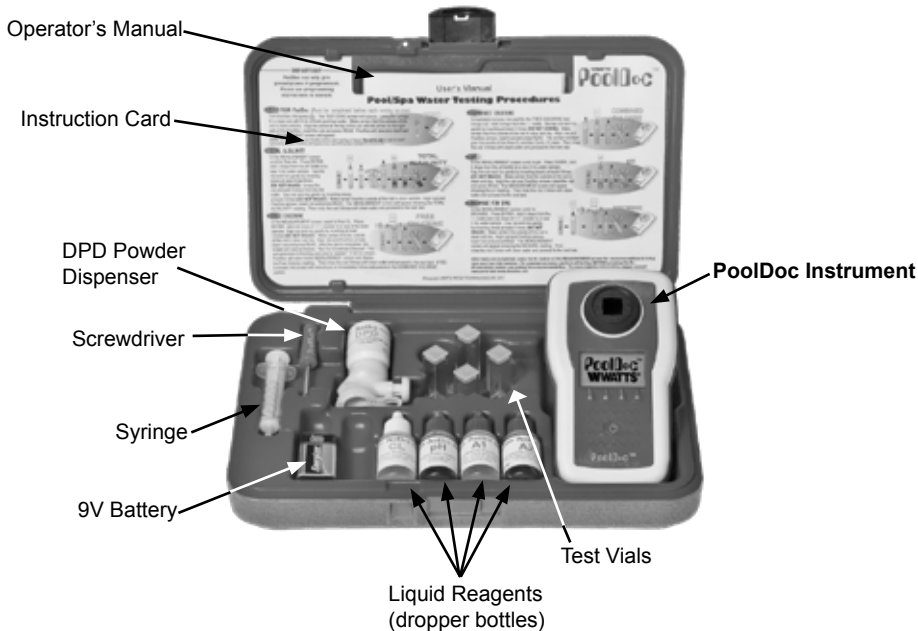


## 1.0 Introducing Your New PoolDoc

Your PoolDoc will assist you in maintaining the desired quality of your pool & spa water from the comfort of your own home. The convenient carrying case is designed to hold your PoolDoc and all of the solutions required to test **Free** and **Combined Chlorine**, **pH**, **Total Alkalinity** and **Bromine**. If your pool or spa water is out of balance, PoolDoc will give you a **Rx** "prescription" for the addition of standard pool chemicals to bring your water to a safe and comfortable condition.

PoolDoc makes water testing easy and accurate...*for your comfort.*

The PoolDoc is designed to supplement the water testing and consultation that you receive from the professionals at your local pool store. Always consult a professional before making **major** changes to your pool's chemistry.



## Your PoolDoc Features & Controls

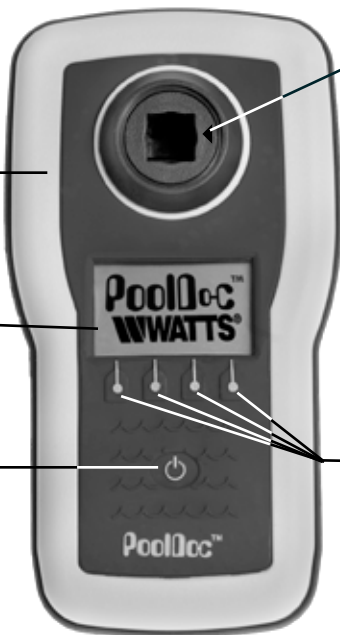
PoolDoc's screen will display easy to follow instructions on how to use the instrument. Carefully follow these instructions while testing. For your convenience, simplified zeroing and testing instructions are also included on the inside of the PoolDoc storage case cover.

### PoolDoc Water Resistant Case.

PoolDoc should not be immersed in water. See the Frequently Asked Questions (FAQ) section on page 21 of this manual if water gets into the test well or PoolDoc is dropped into water.

LCD Screen

ON/OFF Button 



### PoolDoc Test Vial Well.

Note that the Well has an arrow on the right side. This arrow must be aligned with the test vial arrow when performing tests.

### Control Buttons (4).

Each button function is explained in the text or symbol displayed on the LCD screen above it. The center two buttons are used for scrolling and to locate, highlight, and change various settings.



## Unpacking the PoolDoc and Accessories

You should find the following items with your tester.

Item	Quantity
PoolDoc Instrument	1
9V Alkaline Battery	1
Carrying Case	1
Reusable Plastic Test Vials with Caps	4
Reusable Syringe	1
Screwdriver	1
DPD Powder Dispenser - Free Chlorine	1
Chlorine Developing Solution - Combined Chlorine (CL)	1
pH Indicator Solution (pH)	1
Total Alkalinity Acid Solution (A1)	1
Total Alkalinity Indicator Solution (A2)	1

Remove PoolDoc from the packing sleeve. Carefully inspect all items to ensure that no solutions have leaked or any visible damage has occurred. If the items you received do not match the chart above, please immediately contact the store where you purchased the item or the Watts Customer Service Department at 1-800-752-5582.

### IMPORTANT:

**Extra care should be taken when handling the test vials: surface scratches, finger smudges, stains or water on the outside of the test vial surface may cause measurement errors. Test vials have two lightly frosted sides. Handle by the frosted areas or by the cap and bottom only.**

**DO NOT TOUCH THE CLEAR SIDES.**



## 2.0 Hints and Tips for Best PoolDoc Readings

### Collecting a Water Sample

Immerse a clean uncapped plastic bottle, glass, or cup upside down 12 to 18 inches below the water surface. Invert it allowing it to fill with water and remove it from the pool or spa.

### Test Vial Care and Information

1. Test vials have two clear sides and two lightly frosted sides. Handle vials only by the top, bottom or the frosted areas. **Do not touch the clear sides.**
2. Test vials have an arrow on one of the clear sides. This arrow must be aligned with the arrow on the PoolDoc Test Well when testing.
3. Test vials *and caps* should be rinsed thoroughly at least 3 times with clean water after each use or test to prevent chemical carryover from test to test.
4. Wipe test vials with a very soft, absorbent cloth to avoid scratching.

### Using the Syringe

If properly cared for, the syringe will last a very long time. It should be used only to transfer pool or spa water to the test vials. It is the most convenient way to measure the correct amount of pool water; exactly 3ml. It may take some practice to use. Be certain to empty and dry the syringe after each use.

### Transferring a Water Sample to a Test Vial

Fill a clean test vial with exactly 3 ml of pool water using the supplied syringe.

#### Note:

**Use exactly 3ml using the syringe. The fill line on the cuvette is not 3ml.**  
Carefully wipe any water from the outside of the test vial.

### Using the Dropper Bottles (liquid reagents)

**WARNING: Please read all safety instructions, product labels and Material Safety Data Sheets (MSDS) before using reagents.**

Proper use of the dropper bottles (fig. 2.1) involves uncapping and inverting the dropper bottle over the test vial and squeezing gently. For proper drop size, it is important to hold the dropper bottle as vertical as possible.

It is normal for dropper bottles to develop excess reagent around the nozzle. Simply use a paper towel to blot this excess reagent.



fig. 2.1

**Note:**

Some reagents such as the pH and the A2 can stain hands and furniture. It is recommended to work over an old towel or newspaper to avoid damage.

All reagents have a limited shelf life. Be sure you are using fresh chemicals and replace any that have passed their expiration date. The expiration dates are listed on the bottle and dispenser labels.

**Dosing Test Chemicals**

Remove bottle cap and clean nozzle. Vertically align bottle directly over the test vial and gently squeeze until the correct number of drops are introduced into the test vial water. Recap the bottle and return it to the storage case.

**Using the Powder Pop Dispenser**

Fig. 2.2 shows a DPD Powder Dispenser. The Powder Dispenser provides convenient and accurate doses of DPD reagent for chlorine and bromine measurements.

To use the dispenser, flip the protective cap out of the way, invert the dispenser, shake gently, place directly over the top of the test vial (as shown) then firmly depress the dispenser button once to deliver the reagent. The protective cap must be replaced after each use to keep the powder dry. Never let the dispenser or the powder inside get wet.

**fig. 2.2****Mixing the Test Chemicals in the Test Vial**

After chemicals have been added to test vial water, recap the test vial and place your fingers at the top and bottom of the vial. Gently invert at least three times (**DO NOT SHAKE**). Air bubbles can cause errors but can usually be removed by slowly inverting the vial.

**Note:**

The DPD powder may not dissolve completely. This is normal.

### 3.0 Getting Started With PoolDoc

**IMPORTANT! BEFORE USING YOUR POOLDOC YOU MUST READ THIS SECTION CAREFULLY AND FOLLOW ALL DIRECTIONS. IF YOU FAIL TO DO SO, YOU WILL NOT BE ABLE TO GET CORRECT RECOMMENDATIONS FOR THE CONTROL OF YOUR POOL/SPA.**

#### Battery

PoolDoc is shipped without the battery installed. On the underside of PoolDoc, remove the two screws retaining the battery cover with the provided screwdriver. The battery fits under the cover (fig. 3.1). The polarity is printed on the battery compartment. Match the polarity of the battery compartment with the polarity of the battery. Replace the cover and tighten screws for a watertight seal.



**fig. 3.1**

Dropping or jarring PoolDoc during use may cause the battery contacts to bend slightly resulting in a loss of firm contact with the battery. If the instrument fails to turn on after being dropped or jarred, open the battery compartment and ensure there is adequate contact between the metal contacts and the battery.

PoolDoc is a precision instrument that will give an accurate **Rx** “prescription” based on local desired levels and individual characteristics of your pool/spa. The size of your pool in Gallons/Liters, the specific types and concentrations of chemicals that will be used to adjust your pool/spa’s water balance, and the desired levels for your local areas **must be entered into PoolDoc** for it to provide an accurate **Rx** “prescription”. Complete the table on page 7 of this manual under the column “**My Pool**”. If unsure of the information/settings, the professionals at your pool supply store should be able to help you. PoolDoc “Factory Settings” have been preset but some or perhaps all settings will have to be changed using your pool/spa water data that you have collected in this table. This data will remain in PoolDoc even in the event of battery failure or replacement. Only after your PoolDoc has “learned” your pool size and all other entries are completed accurately, are you ready to test!

#### **NOTE:**

It is important that the **concentration** of the chemicals that are being used in PoolDoc match the manufacturer’s concentration. Check the chemical’s packaging to determine the specific concentrations as this may vary among manufacturers. If you are unsure of these settings, your pool professional can assist you with the completion of the chart.

## PoolDoc Set-Up Table

Settings	My Pool	Factory Settings
Desired Total Alkalinity Range		80-120 ppm
Desired Free Chlorine Range		2.0-4.0 ppm
Desired pH Range		7.4-7.6
Desired Bromine Range (if used)		2.0-4.0 ppm
Pool size (in Gallons/Liters)		0 gallons
Chlorinator		No
Total Alkalinity Chemicals - Up		Baking Soda, 100%
Total Alkalinity Chemicals - Down		Dry Acid, 100%
Free Chlorine Chemicals - Up		Liquid Chlorine, 12%
Free Chlorine Chemicals - Down		Neutralizer, 100%
pH Chemicals - Up		Soda Ash, 100%
pH Chemicals - Down		Muriatic Acid, 31%

PoolDoc has factory settings that show common **DESIRED LEVELS** for a pool's chemical balance and commonly used maintenance **CHEMICALS** and their **CONCENTRATIONS**. You will need to confirm that the factory settings are correct or change them to those that are recommended by pool professionals in your area for **your** pool/spa. The pool/spa size, chemicals, ranges and concentrations, taken from the data in the above table will provide PoolDoc with the correct references that enable it to give you accurate measurements and recommendations. Settings that may need to be changed are:

**A. POOL SIZE B. USE OF A CHLORINATOR C. DESIRED LEVELS D. CHEMICALS USED AND CONCENTRATIONS.**

**WARNING: Failure to properly set-up PoolDoc and follow instructions may result in improper chemical balance , personal injury and /or property damage.**

### Easy-To-Follow Data Entry Examples

Several step-by-step illustrated examples follow that will quickly familiarize you with PoolDoc's easy set-up. You will notice that PoolDoc's screen shows prompts to assist you in many areas. Putting your data in PoolDoc is easy. Here's how.

## Entering Your Pool Size Data

The very first time you turn PoolDoc on, a **PLEASE READ** screen will be displayed alerting you to go through the set up to allow PoolDoc to base its recommendations on your pool size, desired levels and chemicals (fig. 3.2). Press **MENU** and the **MENU** screen will appear with the **POOL INFORMATION** line highlighted (fig. 3.3). Press **ENTER**.

The **POOL INFO** screen will appear with the **Pool Size** line highlighted and showing the factory setting of **0** gallons. To set PoolDoc to use metric units (Liters) scroll down to highlight the **Metric Units** line. Press **ENTER** to highlight the word **NO**, press the **UP ARROW (▲)** to change the word to **YES** and then press **ENTER**. **You must then press MENU and then press ENTER to commit the change.** Please refer to the **Pool Size Calculator** on page 23 to assist in determining the size of your pool in Gallons (or Liters). Press **ENTER** to highlight the number of Gallons/Liters (fig. 3.4). Use the **PLUS (+)** button until the number of Gallons/Liters of your pool/spa is reached. Press **ENTER** to add that number to PoolDoc memory. Your pool/spa size is now set into PoolDoc memory.

Press the **DOWN ARROW (▼)** to highlight the **Chlorinator** line and press **ENTER**. Use the **UP ARROW (▲)** or **DOWN ARROW (▼)** to indicate if you are (**YES**) or are not (**NO**) using an automatic chlorinator. Press **ENTER** to enter your selection into PoolDoc memory.

### Note:

If you are setting PoolDoc up for a spa, set the **Chlorinator** to **YES** (fig. 3.5). PoolDoc assumes you are using an automatic chemical feeder with spas and will not give a recommendation with the Chlorinator set to **NO**. Press **MENU** to return to the **MENU** screen.

The maximum pool size that can be entered into PoolDoc is 100,000 Gallons/Liters. For larger pools, the **Rx** "prescription" will need to be calculated. Set PoolDoc for 100,000 Gallons/Liters and perform your tests normally. Divide your pool size (in Gallons/Liters) by 100,000 and then multiply the **RX** "prescription" by the result. For example, if the **RX** "prescription" is to add .5 (½) gallon muriatic acid and your pool size is 250,000 gallons, the resulting calculation would be:  $250,000 \div 100,000 = 2.5$  then  $2.5 \times .5 = 1.25$  gal muriatic acid.

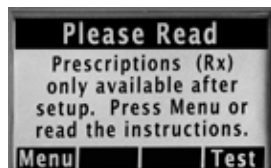


fig. 3.2



fig. 3.3

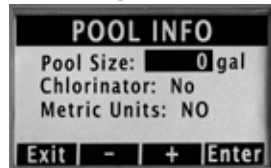


fig. 3.4

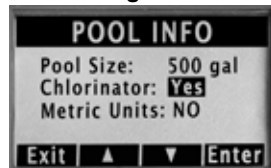


fig. 3.5

## Adjusting Pool CHEMICALS and CONCENTRATIONS

As an example, let's look at **TOTAL ALKALINITY**. It is very important to program PoolDoc with the chemicals and concentrations you are using. PoolDoc has "Factory Defaults" that are easily adjusted. You will need to enter your pool size in gallons and the chemicals and concentrations you are using before PoolDoc will give a proper **Rx** "prescription" based on **your** pool or spa. If any of the "Factory Defaults" correspond to the chemicals and concentrations that you are already using, just skip to the next setting without making changes. **It's easy. Here's how.**

Press **MENU** and the **MENU** screen will be displayed with the **POOL INFORMATION** line highlighted. Press the **DOWN ARROW (▼)** to highlight the **CHEMICALS** line and press **ENTER** (fig 3.6).

The **CHEMICALS** screen will appear with the **TOTAL ALKALINITY** highlighted.

Press **ENTER** and the screen will appear with the **UP: BAKING SODA** line highlighted (fig. 3.7). Press **ENTER** and **BAKING SODA** will be highlighted (fig. 3.8). Use the **UP (▲)** or **DOWN ARROW (▼)** to scroll to the chemical you are using to increase your **TOTAL ALKALINITY LEVEL**. When the chemical you are using is highlighted, press **ENTER** to place that chemical into PoolDoc memory.

If you need to change the **CONCENTRATION** shown, push the **DOWN ARROW (▼)** to highlight the **CONCENTRATION** line. Press **ENTER** to highlight the % (percentage) (fig. 3.9). Use the **PLUS (+)** or **MINUS ARROW (-)** until the desired concentration % is reached. Press **ENTER** to place the new percentage into PoolDoc memory.

To complete the **TOTAL ALKALINITY** data, you now need to tell PoolDoc which **CHEMICAL** is being used to **LOWER** the Alkalinity level in your pool.



fig. 3.6

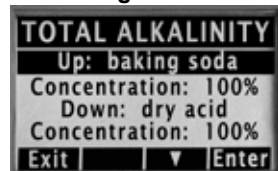


fig. 3.7

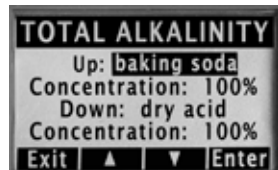


fig. 3.8

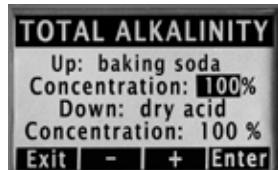


fig. 3.9

Press the **DOWN ARROW (▼)** to highlight the **DOWN: DRY ACID** line (fig. 3.10). Press **ENTER** to highlight the chemical shown (dry acid). Use the **UP (▲)** or **DOWN ARROW (▼)** to scroll until the chemical you are using is highlighted. When the chemical you are using is displayed, press **ENTER** to store that chemical in PoolDoc memory.

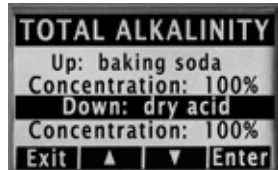


fig. 3.10

If you need to change the **CONCENTRATION %** (percentage) of the chemical just entered, press the **DOWN ARROW (▼)** to highlight the **CONCENTRATION %** line. Press **ENTER**. The % value will be highlighted (fig. 3.11). Use the **PLUS (+)** and **MINUS (-)** buttons to enter the new % (percentage) and when the proper % is displayed press **ENTER** to place the new value into PoolDoc memory. Press **EXIT** to return to the **CHEMICALS** screen.

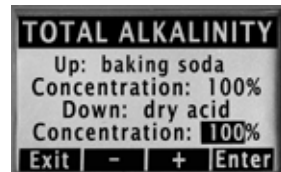


fig. 3.11

You have now entered the **Chemicals** you are using and their concentrations for **TOTAL ALKALINITY** to increase (**UP**) or lower (**DOWN**) the Total Alkalinity level of your pool or spa.

At the **CHEMICALS** screen, you can now follow the same easy procedures to highlight, select and modify the Factory Preset values for **FREE CHLORINE**, **pH**, and **BROMINE** as may be necessary.

#### **Note:**

The pool size, desired levels, use of a chlorinator, chemicals and their concentrations can be entered or changed **at any time** including during testing **or when viewing a Rx** "prescription". If a change is necessary at any time, press the **MENU** button to enter the new information into PoolDoc memory and PoolDoc will recalculate the **Rx** "prescription" based on the new settings.

Proceed to **Adjusting Desired Levels on page 12.**



## The following chemicals are available in the pool information set-up screens:

### Total Alkalinity (Up):

- Baking Soda (factory setting) 100%
- Sodium Bicarbonate 100%

### Total Alkalinity (Down):

- Dry Acid (factory setting) 100%
- Hydrochloric Acid 31%
- Muriatic Acid 31%
- Sodium Bisulfate 100%

### Free Chlorine (Up):

- Liquid Chlorine (factory setting) 12%
- Lithium Hypochlorite 35%
- Sodium Hypochlorite 12%
- Trichlor 90%
- Bleach 12%
- Calcium Hypochlorite 65%
- Dichlor 55%

### Free Chlorine (Down):

- Neutralizer (factory setting) 100%
- Sodium Metabisulfite 100%
- Sodium Sulfite 100%
- Sodium Thiosulfate 100%

### pH (Up):

- Soda Ash (factory setting) 100%
- Sodium Carbonate 100%
- Sodium Hydroxide 50%
- Caustic Soda 50%

### pH (Down):

- Muriatic Acid (factory setting) 31%
- Sodium Bisulfate 100%
- Dry Acid 100%
- Hydrochloric Acid 31%

### Bromine:

Because bromine is rarely dosed directly into spas, a mechanical brominator is commonly used. To raise or lower bromine levels follow the manufacturers instructions. For PoolDoc to give a **Rx** "prescription", the use of a **Chlorinator** must be set to **Yes** in the **POOL INFO** screen (see page 8)

## Adjusting DESIRED LEVELS

Press **MENU** and the **MENU** screen will be displayed with the **POOL INFORMATION** line highlighted (fig. 3.12). Use the **DOWN ARROW (▼)** button to scroll to **DESIRED LEVELS**.

With the **DESIRED LEVELS** line highlighted in the **MENU** screen press **ENTER**. The **DESIRED LEVELS** screen will now appear (fig. 3.13) with the **TOTAL ALK** (Alkalinity) line highlighted.

Press **ENTER**. The **TOTAL ALK LEVEL** screen will appear (fig. 3.14). The **Max** (maximum) and **Min** (minimum) **LEVELS** will be shown with the **Max** level highlighted. To change the **Max** level number for **TOTAL ALK** press **ENTER**. The **Max** level stored in PoolDoc will be highlighted (fig. 3.15). Adjust that number using the **PLUS (+)** or **MINUS (-)** buttons until the desired number is displayed. Press **ENTER** to store that number in PoolDoc memory. If you are finished, press **EXIT**.

If you need to change the **Min LEVEL**, use the **DOWN ARROW (▼)** button to highlight the **Min** level line and then press **ENTER** to highlight the value stored in PoolDoc. Adjust that number using the **PLUS (+)** or **MINUS (-)** buttons until the desired number is displayed. Press **ENTER** to store the desired number in PoolDoc memory.

Once you are satisfied with the values, press **EXIT** to return to the **DESIRED LEVELS** screen. Follow the same simple procedures described above to adjust the **DESIRED LEVELS** of any setting (**FREE CHLORINE**, **pH** or **BROMINE**) that requires new levels to accommodate your pool/spa requirements.



fig. 3.12

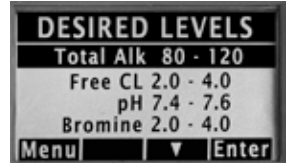


fig. 3.13

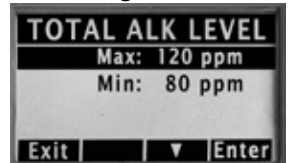


fig. 3.14

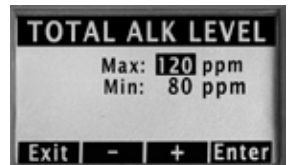


fig. 3.15

## 4.0 Taking a PoolDoc Reading (Example: Free Chlorine)

Turn PoolDoc on and it will go to the **TEST ZERO** screen (fig. 4.1). Fill a test vial with **exactly** 3ml of fresh pool water using the supplied syringe and recap vial. Carefully dry any water on outside of vial.

Align the test vial and PoolDoc arrows (fig. 4.2) and insert vial into the PoolDoc well. Press **Read**. PoolDoc has now set any existing color in the test sample to “zero”. Use this sample for the next step.

Using the down button highlight **Free CL** (fig. 4.3) and press Enter. PoolDoc will then prompt you on test sample preparation.

Using the DPD dispenser supplied, add one dose of DPD powder by flipping the cap out of the way, gently shaking, inverting and placing directly over the top of the cuvette as shown (fig. 4.4). Depress the button once to dispense, then recap the dispenser. Recap the vial and gently invert at least three times. Pool water will change color if free chlorine is present. Dry any water on test vial. If you notice air bubbles on the inside of the test vial, slowly invert to remove them.

Align test vial and PoolDoc well arrows and insert vial into PoolDoc test well. Press **READ**.

*If your Free Chlorine value is below 8.0 ppm\**, PoolDoc will ask if you want to test for **COMBINED CHLORINE** (fig. 4.5). Press **Yes** to test for **COMBINED CHLORINE** or press **No** to go to the measurement screen (PoolDoc will briefly show the **Free CL** reading before going to the measurement screen). You can press **Rx** “prescription” at this point and PoolDoc will display a brief **Rx** “prescription” for chemical additions or press the **UP (▲)** or **DOWN ARROW (▼)** to go to the next test.

\*If the Free Chlorine value is above 8.0 ppm, PoolDoc will **not** ask if you want to test **COMBINED CHLORINE** (see explanation on Page 15).

**Note:**

**For greatest accuracy, complete entire testing session before pressing Rx “prescription” to obtain recommendations.**

**Congratulations!**

**You have completed your first PoolDoc reading.**

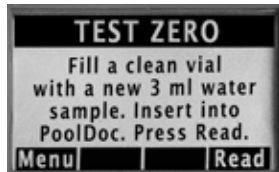


fig. 4.1



fig. 4.2

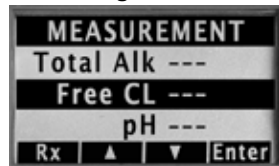


fig. 4.3



fig. 4.4

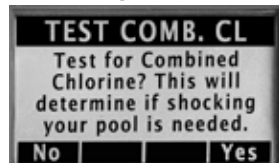


fig. 4.5

## 5.0 Pool Water Tests

### Taking a Zero Measurement

PoolDoc uses color changes in the sample to perform its calculations. Zeroing the instrument eliminates any influences caused by color in the original pool water as well as fingerprints or debris on the test vials. **There is no need to zero before each reading as long as you use the same test vial for each reading.** PoolDoc will turn itself off automatically after 30 minutes of no use. If PoolDoc is turned off, it will request a new zero. To zero, simply fill a clean test vial with 3ml of pool or spa water, insert the test vial in the sample well and then press the **READ** button. This water sample can be used for the next test only. A fresh 3ml water sample will be required for each additional test.

### Total Alkalinity

When total alkalinity is in the correct range, pH is buffered and generally will remain stable. Low Total Alkalinity can be harmful to pool surfaces causing deterioration and staining as well as damage to fittings. High Total Alkalinity can promote the buildup of scale and cause staining. **In most instances the total alkalinity should be adjusted before attempting to adjust any other chemicals.**

Measuring Total Alkalinity requires that two liquid reagents be added to a **fresh** pool water sample. Using the syringe, add exactly 3ml of pool water into a test vial. Add three drops of the A1 reagent. Cap and invert the sample at least 3 times. **Do not shake.** Then uncap and add three drops of the A2 reagent. Again, cap and invert the sample at least 3 times. Place the test vial into the sample well of the PoolDoc and press the **READ** button.

### Free Chlorine

Free Chlorine is sometimes called Available Chlorine, because it is a measure of the chlorine that is available to disinfect the pool. Low chlorine levels can lead to the growth of algae and bacteria, which can cause a health risk and can make the pool look bad. High chlorine levels can lead to certain types of stains, irritation, strong odors and increases the disinfection costs associated with your pool.

To measure Free Chlorine, the DPD reagent will be added to a water sample with the DPD Powder Dispenser. Review section 2.0 on the proper use of the Powder Dispenser.

Using the syringe, add 3ml of pool or spa water to a fresh water sample. Invert the Powder Dispenser and place on top of the test vial. Press the button once to dispense the powder and recap the dispenser. Immediately cap and agitate the vial by inverting 3 or 4 times. **DO NOT SHAKE.**

**Note:**

**It is not important that all the reagent powder is fully dissolved. It is normal for some powder to remain in the bottom of the test vial. Rinse the test vial at least 3 times after use.**

Place the test vial into the PoolDoc sample well making sure to align the arrows on the test vial and the PoolDoc test vial well. Press the **READ** button. PoolDoc will read the sample, then ask if you want to test for Combined Chlorine (if the Free Chlorine level is less than 8.0 ppm). Press **NO** to go to the next test or **YES** to continue to the Combined Chlorine screen. Do not discard this mixed solution after testing if you are going to measure the Combined Chlorine.

**Note:**

PoolDoc will not ask if you want to test for Combined Chlorine if your Free Chlorine level is above 8.0 ppm. See explanation under Combined Chlorine below.

**Combined Chlorine**

The purpose of this test is to determine the Combined Chlorine Level, which is an indication whether you should shock your pool.

**Using the water sample from the previous Free Chlorine Test**, add two drops of the CL liquid reagent. Cap and agitate by inverting at least 3 times. Place the test vial into PoolDoc's sample well and press the **READ** button. If your Combined Chlorine value is greater than 0.3 ppm, you should consider shocking your pool. Follow the instructions on your favorite pool shock. Rinse the test vial at least 3 times after testing.

When your chlorine level is high (above 8.0 ppm), bleaching of the DPD reagent can occur which often results in inaccurate results. PoolDoc will not prompt you to do a Combined Chlorine test with a chlorine level above 8.0 ppm. To lower the chlorine level below 8.0 ppm either add the chemical you are using for **Chlorine Down** or let the level drop naturally through exposure to sunlight or other means.

**pH**

pH is a measure of the acidity of the water. There are three main reasons for measuring pH:

1. Economical use of chlorine. Chlorine is more effective between a pH of 7.0 and 8.0.
2. Comfort. A pH below 7.0 is too acidic for comfort.
3. Protecting pool surfaces and equipment. Keeping the pool water in the correct range prevents pool surfaces and equipment from premature deterioration.

To measure pH, start with 3ml of **fresh** pool water in a test vial. Add two drops of the liquid pH reagent, Cap and agitate by inverting at least 3 times (**do not shake**). Place the test vial into PoolDoc's sample well and press **READ**.

## Bromine

If you are setting PoolDoc up for a spa, on the **POOL INFO** screen set the **Chlorinator** to **YES** (see page 8 under setting your pool size). PoolDoc assumes you will be using an automatic chemical feeder with spas and will not give a **Rx** “prescription” with the Chlorinator set to **NO**.

Bromine is a common method of disinfection in spas. This measurement would be used in place of the chlorine measurements on page 13.

Add 3ml of **fresh** spa water into a test vial. Invert the DPD Powder Dispenser and place over the test vial. Press the button one time to dispense the reagent and recap the dispenser. Immediately cap the test vial and agitate by inverting at least 3 times. **DO NOT SHAKE**. Place the test vial into the PoolDoc test well. Press **READ**.

### Note:

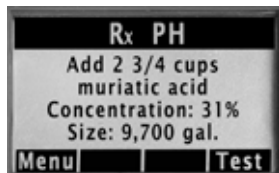
It is not important that all the reagent powder is fully dissolved. It is normal for some powder to remain in the bottom of the test vial.

Because bromine is rarely dosed directly into spas, a mechanical brominator is commonly used. To raise or lower bromine levels follow the manufacturer’s instructions.

**CAUTION: Dispose of all tested water down the drain. Do not dispose of test water in the pool/spa. Keep away from children or pets. Not for human consumption!**

## 6.0 Rx “prescriptions”

One of the most important features that distinguishes PoolDoc from other pool and spa test kits is its ability to display a **Rx** “prescription” that will bring your pool or spa’s chemistry back into balance that is based on **your pool or spa’s size, the chemicals you are using and their concentration as well as the desired levels for your area**.



Once you have finished all the tests you plan to perform, press the **Rx** button and PoolDoc will display a **Rx** “prescription” **if needed** to bring your pool’s chemistry back into balance. PoolDoc will take into consideration all the tested values and provide a **prioritized Rx** “prescription” based on all the tested values. As an example, if your Alkalinity is Low, Chlorine is High, and pH is High, PoolDoc will give a **Rx** “prescription” to adjust only the Alkalinity since Alkalinity affects the other readings and is the highest priority. After the Alkalinity has been “successfully adjusted”, PoolDoc will give a **Rx** “prescription” to adjust the pH if necessary (after retesting) since it is the test with the next highest priority. After the pH is “successfully adjusted” (see page 17), PoolDoc will then give a **Rx** “prescription” to adjust the Chlorine if necessary (after retesting).

PoolDoc will give all dry chemical **Rx** “prescriptions” in cups (i.e. add 8 cups dry acid) or mL if using metric units. To convert cups/mL to lbs/grams, use the following conversions:

Baking Soda / Sodium Bicarbonate	1 cup = 0.50 lbs.	100 mL = 216 grams
Dry Acid / Sodium Bisulfate	1 cup = 0.69 lbs.	100 mL = 212 grams
Neutralizer / Sodium Thiosulphate	1 cup = 0.90 lbs.	100 mL = 170 grams
Soda Ash / Sodium Carbonate	1 cup = 0.52 lbs.	100 mL = 250 grams
Sodium Metabisulfate	1 cup = 0.77 lbs.	100 mL = 148 grams
Sodium Sulfite	1 cup = 0.73 lbs.	100 mL = 156 grams

As an example: 4 cups of Baking Soda would equal 2 lbs. (**4 cups X .50 lbs = 2.0 pounds**)

\*“Successfully adjusted” means that the **Rx** “prescription” has been followed (chemical added, etc.), the proper time interval has passed before retesting (your pool water has had time to cycle through a full water turnover), and after retesting-the adjusted test is within the desired level.

## 7.0 Accessories

The items shown below are recommended accessories and replacement parts for the PoolDoc.

To order any accessory or replacement part, please contact the Customer Service Department.  
1-800-752-5582



### PoolDoc Replacement Reagent Kit

#### Catalog# 10486

- Contains
- 1 - Reagent bottle for Combined Chlorine - CL
  - 1 - Reagent bottle for pH
  - 1 - Reagent bottle for Total Alkalinity - A1
  - 1 - Reagent bottle for Total Alkalinity - A2
  - 1 - DPD Reagent Dispenser
  - 4 - Test Vials with caps
  - 1 - Syringe

## 8.0 Specifications

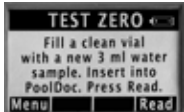
Measurement Range	Total Alkalinity: 0 - 330 (ppm) Free Chlorine: 0 - 20 (ppm) Combined Chlorine: 0 - 8 (ppm) pH: 5.9 – 8.4 Bromine: 0 - 9.9 (ppm)
Resolution	Free Chlorine: $\pm 0.1$ ppm pH: $\pm 0.1$ Total Alkalinity: $\pm 5$ ppm Bromine: $\pm 0.1$ ppm
Accuracy*	Free Chlorine: $\pm 0.1$ ppm pH: $\pm 0.1$ Total Alkalinity: $\pm 5$ ppm Bromine: $\pm 0.1$ ppm
Screen	Graphic Liquid Crystal Display (LCD)
Operating Temperature Range	0°C - 50°C (32°F - 122°F)
Sample Temperature Range	0°C - 50°C (32°F - 122°F)
Battery	Single 9V Battery. The battery life is approximately 1000 readings using a standard 9V alkaline battery

\*Accuracy is often limited by resolution



## 9.0 Troubleshooting

<p>I have completed all the tests but PoolDoc does not give a <b>Rx</b> “prescription”.</p>	<ol style="list-style-type: none"><li>1. Pool size is still set for 0 gallons/liters in the Pool Information Setup. Press Menu to go to the Pool Information screen. Press enter to go to the Pool Info screen and enter your pool/spa size.</li><li>2. One or more tests are over or under range.</li></ol>
<p>PoolDoc will not turn on.</p>	<ol style="list-style-type: none"><li>1. Be sure to push and <b>hold</b> the on/off switch.</li><li>2. Make sure the battery is installed correctly. It may be necessary to remove the battery and inspect the contacts to ensure they are making proper contact with the battery.</li><li>3. If PoolDoc has been dropped or jarred, the battery contacts may not be making good contact with the battery. Remove the battery and inspect the contacts to make sure they are not bent and are making adequate contact when the battery is replaced.</li></ol>
<p>When I shake the PoolDoc, I hear a rattling sound as if something might be loose inside.</p>	<p>PoolDoc has a small desiccant installed that may sound like a loose part when shaken. This is normal.</p>
<p>I am getting a blinking or solid battery icon in the upper right of my screen.</p>	<p>← The battery icon will blink when the battery is getting weak and should be changed soon. If the battery icon is solid (not blinking) the battery is very low and should be replaced immediately.</p>
<p>PoolDoc will not function and has a large battery icon in the middle of the screen.</p>	<p>PoolDoc’s battery is dead and must be replaced.</p>



## 10.0 On Screen Messages

Reading too high for a Rx. Please see manual.	
<b>Rx</b> “prescription” only available after setup. Press Menu or read the instructions.	1. Pool size is still set for 0 gallons/liters in the Pool Information Setup. Press Menu to go to the Pool Information screen. Press enter to go to the Pool Info screen and enter your pool/spa size (see page 8 of this manual).
Reading is too low for a <b>Rx</b> “prescription”. Please see manual.	1. If the Total Alkalinity reading is below 50, you should stop testing and consult your pool professional. There may be metals present in the pool water and PoolDoc does not test for metals.

## 11.0 Frequently Asked Questions (FAQ)

### **How can I tell when my reagents need to be replaced?**

On the back of the reagent kit is an expiration date for the kit and there is an expiration date listed on each of the reagent bottles. See page 17 to order a reagent replacement kit.

### **Why is testing of my pool/spa so important?**

Proper water balance is important, not only for the health and safety of the pool user, but also for the pool/spa itself. Improper water balance can lead to skin discomfort, burning eyes and the growth of bacteria and algae. It can also lead to corrosion of pool finishes, staining, damage to pool equipment and higher maintenance costs.

### **What if my PoolDoc gets wet?**

The housing of the PoolDoc is water resistant but should not be immersed in water. If water gets into the PoolDoc optics (sample well), incorrect readings may result until the water is removed or dried. Use a paper towel to blot out as much water as possible and then allow the instrument to air dry. If the PoolDoc is accidentally dropped into the pool, it will float, but should be removed and dried immediately. After drying the outside, remove the battery cover and battery and check for water. Blot out any water and allow to air dry **before turning on**.

### **Where is the best place to store my PoolDoc?**

The PoolDoc should be stored in its case in a climate controlled area, preferably indoors. Sudden changes in temperature can cause condensation inside the instrument and prolonged high temperatures may have a negative effect on the longevity of the reagents.

### **How often should I change the battery?**

The PoolDoc battery should last for the entire pool season. When the battery gets low, you will see a battery icon in the top right hand corner. When the battery gets very low, the icon will start blinking. At this time readings may be inaccurate.

### **I have done a set of tests and the Rx shows a chemical I am not using, do I need to start over?**

No, you can go back and change the chemicals you are using, their concentrations, the desired levels and pool size **at any time** and PoolDoc will recalculate it's **Rx** "prescription" based on the new values without having to retest.

### **How do I clean the PoolDoc?**

The outside of the PoolDoc can be cleaned with a soft cloth and either water or a standard ammonia-free window cleaner.

### **Can I use other manufacturer's reagents with my PoolDoc?**

No, other manufacturer's reagents are not designed to the PoolDoc's specifications and will not function the same as the original PoolDoc reagents.

**If PoolDoc gives a Rx “prescription”, how long should I wait before retesting?**

The time interval before retesting will vary depending on the test being performed. 12 to 24 hours normally will give the pool time to react to the last adjustment.

**Do I need to perform all the tests?**

While it is always best to perform all the tests, PoolDoc will test and give a **Rx** “prescription” for a single parameter. Certain recommendations can be dependent upon more than one test. To get the most accurate results, perform as many tests as possible.

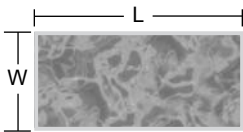
**How often should tests be performed?**

As a general rule, pools should be tested once per week. If you are making a chemical correction to your pool, you may want to retest after the normal time interval to ensure your pool's chemistry is back in balance. Under normal conditions, PoolDoc comes with enough reagents to last one year.

## 12.0 Approximate Volume Calculations for Common Pool Shapes

Calculation units below (L, W, N, and AD) must be in Feet!

### Rectangular Pools



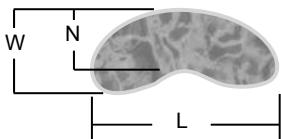
Determine the average depth by adding the depth at the deep end to the depth at the shallow end and dividing by two.

Formula for calculating Rectangular Pool Volume in Gallons/Liters:

**Length x Width x Average Depth x 7.5 = Total Gallons (Feet)**

**Length x Width x Average Depth X 1000 = Total Liters (Meters)**

### Free Form Pools



Determine the average depth by adding the depth at the deep end to the depth at the shallow end and dividing by two.

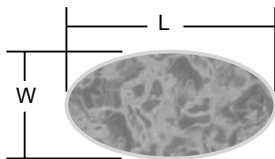
For the average width, add the narrowest point (N) to the widest point (W) and divide by two.

Formula for calculating Free Form Pool Volume in Gallons/Liters:

**Average Width x Length x Average Depth x 5.9 = Total Gallons (Feet)**

**Average Width x Length x Average Depth x 785 = Total Liters (Meters)**

### Oval Pools



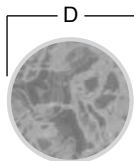
Determine the average depth by adding the depth at the deep end to the depth at the shallow end and dividing by two.

Formula for calculating Oval Pool Volume in Gallons/Liters:

**Length (L) x Width (W) x Average Depth x 5.9 = Total Gallons (Feet)**

**Length (L) x Width (W) x Average Depth x 785 = Total Liters (Meters)**

### Circular Pools



Determine the average depth by adding the depth at the deep end to the depth at the shallow end and dividing by two.

Formula for calculating Circular Pool Volume in Gallons/Liters:

**Diameter (D) x Diameter (D) x Average Depth x 5.9 = Total Gallons (Feet)**

**Diameter (D) x Diameter (D) x Average Depth x 785 = Total Liters (Meters)**

## 13.0 Limited Warranty

The manufacturer warrants to the original purchaser of this product that it will be free of defects in material and workmanship, under normal use and service, for a period of one year from the date of original shipment. The manufacturer's obligation under this warranty is limited to, at its option, replacing or reconditioning at its factory, the product or any part thereof. Parts, which by their nature are normally required to be replaced periodically, consistent with normal maintenance, specifically reagents, test vials, caps, syringes and batteries, are excluded. Also excluded are accessories and supply type items.

**Disclaimer of Warranty. THE WARRANTY SET FORTH HEREIN IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY THE MANUFACTURER WITH RESPECT TO THE PRODUCT. THE MANUFACTURER MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE MANUFACTURER HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

**Limitation of Liability.** The remedy described in the first paragraph of this Limited Warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Manufacturer shall not be responsible for any incidental, special or consequential damages, including without limitation, the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, accident, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Manufacturer has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation of the product or defects resulting from repairs or alterations made by any person not authorized by the Manufacturer.

Original purchaser is responsible for return of the product, or parts thereof, to the manufacturer's factory. This includes all freight charges incurred in shipping to the manufacturer's factory.

Upon receipt of the product, manufacturer will perform a thorough and careful inspection. If any damage is found, immediately notify the seller. The manufacturer cannot be responsible for damage in shipment.

No agent is authorized to assume for the manufacturer any liability except as set forth above.

**Some States do not allow limitations on how long an implied warranty lasts, and some States do not allow the exclusion or limitation of incidental or consequential damages. Therefore the above limitations may not apply to you. This Limited Warranty gives**

you specific legal rights, and you may have other rights that vary from State to State. You should consult applicable state laws to determine your rights. SO FAR AS IS CONSISTENT WITH APPLICABLE STATE LAW, ANY IMPLIED WARRANTIES THAT MAY NOT BE DISCLAIMED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL SHIPMENT.

### **Waterproof Seal**

Opening PoolDoc's enclosure (excluding the battery compartment) will void the warranty.

### **Chemical Reagents**

PoolDoc reagents are intended specifically for use with the PoolDoc product. Use of other manufacturer's reagents with PoolDoc will lead to inaccurate results and will void the warranty.

## **13.0 Precautions**

Chemicals used in the process of keeping your pool in balance can be dangerous and should be handled and stored with extreme care. Always refer to manufacturer's instructions.

### **CALIFORNIA PROPOSITION 65 WARNING**

**WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

(California law requires this warning to be given to customers in the State of California.)

For more information: [www.watts.com/prop65](http://www.watts.com/prop65)

### **ADVERTENCIA DE ACUERDO CON LA PROPOSICIÓN 65 DE CALIFORNIA**

**ADVERTENCIA:** Este producto contiene químicos que el Estado de California considera que causan cáncer y defectos de nacimiento u otros daños durante la gestación.

(La ley del Estado de California requiere que se proporcione esta advertencia a los clientes de dicho estado.)

Para más información: [www.watts.com/prop65](http://www.watts.com/prop65)

### **AVERTISSEMENT SUR LA PROPOSITION 65 DE LA CALIFORNIE**

**AVERTISSEMENT:** Ce produit contient des produits chimiques reconnus par l'état de Californie comme étant cancérigènes et pouvant causer des malformations congénitales et d'autres dommages au système reproducteur.

(La loi californienne exige que cet avertissement soit fourni à tous les clients de l'état de la Californie.)

Pour obtenir plus d'informations: [www.watts.com/prop65](http://www.watts.com/prop65)

