

Homework 13: User Manual

Team Code Name: _____ Skinny Dippers _____ Group No. __15__

User Manual Outline:

- Brief (marketing-style) product description
- Product illustration annotated with callouts for each control/display
- Product setup instructions
- Product use instructions
- Product troubleshooting instructions

Evaluation:

SCORE	DESCRIPTION
10	Excellent – among the best papers submitted for this assignment. Very few corrections needed for version submitted in Final Report.
9	Very good – all requirements aptly met. Minor additions/corrections needed for version submitted in Final Report.
8	Good – all requirements considered and addressed. Several noteworthy additions/corrections needed for version submitted in Final Report.
7	Average – all requirements basically met, but some revisions in content should be made for the version submitted in the Final Report.
6	Marginal – all requirements met at a nominal level. Significant revisions in content should be made for the version submitted in the Final Report.
*	Below the passing threshold – major revisions required to meet report requirements at a nominal level. Revise and resubmit.

* Resubmissions are due within **one week** of the date of return, and will be awarded a score of “6” provided all report requirements have been met at a nominal level.

THE SKINNY DIPPER

USER MANUAL

Congratulations on your purchase of The Skinny Dipper! The Skinny Dipper contains a fully equipped Chlorine and pH regulator that automatically maintains safe water conditions in your pool so that you don't need to worry about constantly sanitizing the pool yourself. It can also regulate temperature and comes with an in pool thermometer. With its easy to use settings, The Skinny Dipper can be programmed for use in any sized pool.

Additional features:

Chemical Level Sensors

- Chlorine and pH are measured within 5% of actual level.
- Calibration system is included in order to keep the sensors accurate.

Programmable on Control Unit or a Personal Computer

- Control unit is connected to computer via Ethernet.
- Parameters can be easily customized. These parameters are pool volume as well as desired Chlorine, pH, and temperature levels.
- Calibration will occur on a 24 hour schedule as well as by means of a manual calibration button

Web Server Backup

- Chlorine and pH level data can be easily accessed on a web server for analyzing the status of pool upkeep and more.

Alarm system

- If dangerous levels of chemicals are detected, the LCD on the control unit will display a warning in order to alert pool users to stay away from the water until The Skinny Dipper has controlled the problem.

HAZARD WARNINGS



WARNING: Use caution when entering pool in case of overheating of water.



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CAUTION: RISK OF ELECTRICAL SHOCK. Do not tamper with control system of unit. Call manufacturer for electrical problems.



CAUTION: RISK OF POISONING. Do not ingest contents of chemical bottles or re-use bottles for home use. If unsafe amount of acid or Chlorine is swallowed, call American Association of Poison Control Center at 1-800-222-1222 or 911 for further instruction.

SETTING UP THE SKINNY DIPPER

The Skinny Dipper consists of two units. The control unit commands the entire product, and the dispensing unit administers sanitizing chemicals into the pool water. The units are pre-built. Chemicals are not included in the same packaging.

The chemicals for each unit are packaged separately and require manual installation.

Required Chemicals:

4.0 Ph Buffer Solution

7.0 Ph Buffer Solution

Certol International Acid Magic

Champion Pool Shock Liquid Chlorinator

Spa Guard Balancer pH Increaser (6 tsp /cup)

To install control unit Chemicals:

1. Place 4.0 buffer solution in left slot in control unit
2. Place 7.0 buffer solution in right slot of control unit
3. Insert input hose of left 2 pumps into their corresponding buffer solution bottles (See pump labels not pictured)
4. Place input hose of 3rd pump into main water source
5. Place output of all 3 hoses into testing chamber (not pictured white PVC pipe located in right side of enclosure)



To install dispensing unit Chemicals:

1. Place input hoses of pumps into corresponding chemicals (see pump labels)
2. Place output hoses of pumps into main water source

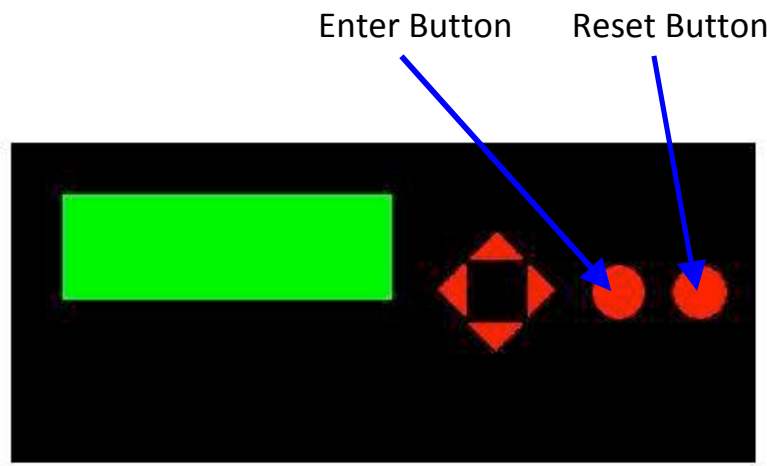
PRODUCT USE INSTRUCTIONS

After turning on the control unit, the operating parameters must be set. They will be originally set at defaults. The parameters are temperature, chlorine level, pH level, and pool volume in gallons. These parameters can be set at the unit or over the Ethernet. Other functions can be accessed through the menus as well including: calibration and auto shock.

Pool unit instructions:

The menus can be scrolled through by using the left and right arrows. Parameter values are increased by pushing up and down arrows. Reset parameter values to previous value with left reset button. Enter currently displayed value with center Enter button.

For other functions, scroll with left and right arrows to reach function desired, and press enter to confirm.



Ethernet instructions:

Enter values into the corresponding fields.

PRODUCT TROUBLESHOOTING INSTRUCTIONS

Problems	Possible Causes	Solutions
<p>Pool water is cloudy, green, or algae growth is visible.</p> <p>Skin and scalp feel dry and itchy after having used the pool.</p>	<p>Low Chlorine / High pH levels due to:</p> <ol style="list-style-type: none"> 1. Incorrect sensor measurements. 2. Dispenser pumps not running. 3. Dispenser pumps out of Chlorine or pH lowering chemicals. 4. Pump for pH raising chemical continuously runs. 	<ol style="list-style-type: none"> 1. Manually set the sensors to recalibrate and allow The Skinny Dipper to dispense Chlorine. Use a test strip to check accuracy of sensors. If sensors are accurate and problem persists, select the shock command on the unit in order to super chlorinate the pool. 1. and 2. If the sensors are not accurate after a second calibration or if the dispenser pumps are not operational send product back to manufacturer if under warranty. 3. Add Chlorine or pH lowering chemical to container in the dispensing unit. 4. Stop use of unit immediately and send product back to manufacturer if under warranty.
<p>Pool water is a pink/red tint.</p> <p>Skin and scalp feel dry and itchy after having used the pool.</p> <p>Metal pipe corrosion happens.</p>	<p>Low pH levels due to:</p> <ol style="list-style-type: none"> 1. Incorrect sensor measurements. 2. Dispenser pumps not running. 3. Dispenser pumps out of pH raising chemicals. 4. Pump for pH lowering chemical continuously runs. 	<ol style="list-style-type: none"> 1. Manually set the sensors to recalibrate and allow The Skinny Dipper to dispense Chlorine. Use a test strip to check accuracy of sensors. If sensors are accurate and problem persists, select the shock command on the unit in order to super chlorinate the pool. 1. and 2. If the sensors are not accurate after a second calibration or if the dispenser pumps are not operational send product back to manufacturer if under warranty. 3. Add pH raising chemical to container in the dispensing unit. 4. Stop use of unit immediately and send product back to manufacturer if under warranty.
<p>Web server cannot be accessed.</p>	<ol style="list-style-type: none"> 1. Ethernet not connected properly 	<ol style="list-style-type: none"> 1. Make sure Ethernet connection is good.

Control Unit doesn't turn on.	1. Power not connected. 2. Circuit protecting fuse is blown.	1. Make sure power plug is connected. 2. Replace fuse.
LCD not turning on.	1. Hardware failure	1. Check wiring and connections for breaks or disconnections 2. Send product back to manufacturer if under warranty
LCD screen is stuck on a setting.	1. Software Malfunction	1. Press the reset button located on the circuit board.
Control Buttons not working.	1. Software Malfunction 2. Buttons are Jammed	1. Press the reset button located on the circuit board. 2. Send product back to manufacturer if under warranty.