HAYWARD®


HAYWARD
GOLDLINE
Aqua Rite
Salt Chlorine Generator
Diagnostics
Super Chlorinate
Auto
Off
Desired Output %
Power
Generating
Super Chlorinate
Remotely Controlled
No Flow
Check Salt
High Salt
Inspect Cell
Cell
HAYWARD
Turbo Cell
T-CELL-9
Turbulent Flo-Chamber
For pools
up to 25,000 gallons
15 ft. cable
www.haywardnet.com

Table of Contents

Product Overview

Components

➢Main Control Box

➢T-Cell-15
➢Flow Switch & Tee
➢T-Cell Unions

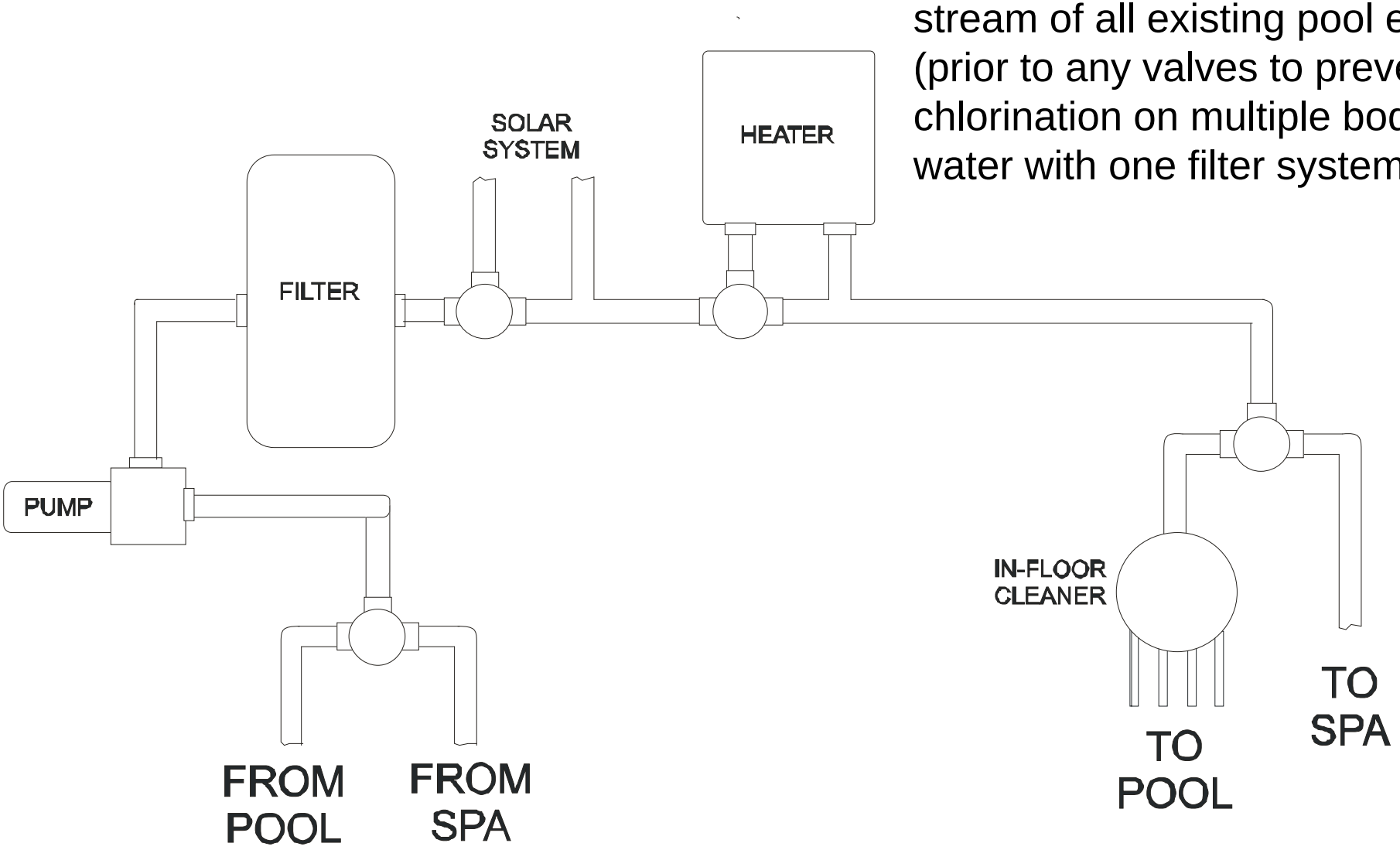
Plumbing Installation

Installation

Pool Equipment Compatibility

- Stainless Steel Pool Filters – Not Recommended
- Copper Plumbing – Pool Chemistry is Critical
- Heaters
  - Older designs had some issues with dissimilar metals
  - Newer models no problems
- Anchors
  - Aluminum not recommended
  - Bronze or plastic are ok
- Pool Finishes ok
- Automatic pool covers or winter covers
  - Periodically open cover to let gases out
  - Chlorine demand will go down

Installation

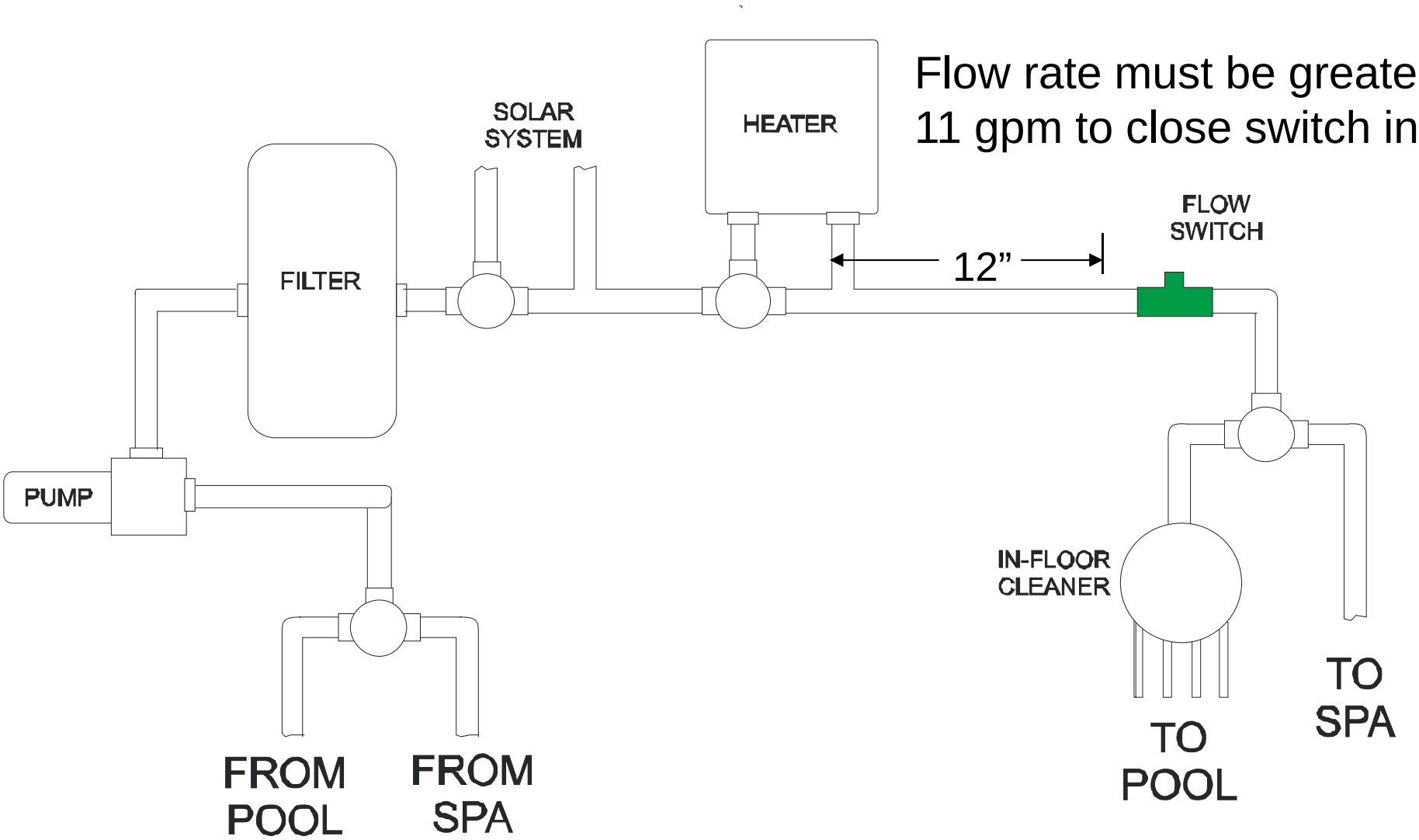


Install cell and flow switch down stream of all existing pool equipment. (prior to any valves to prevent partial chlorination on multiple bodies of water with one filter system)

Installation

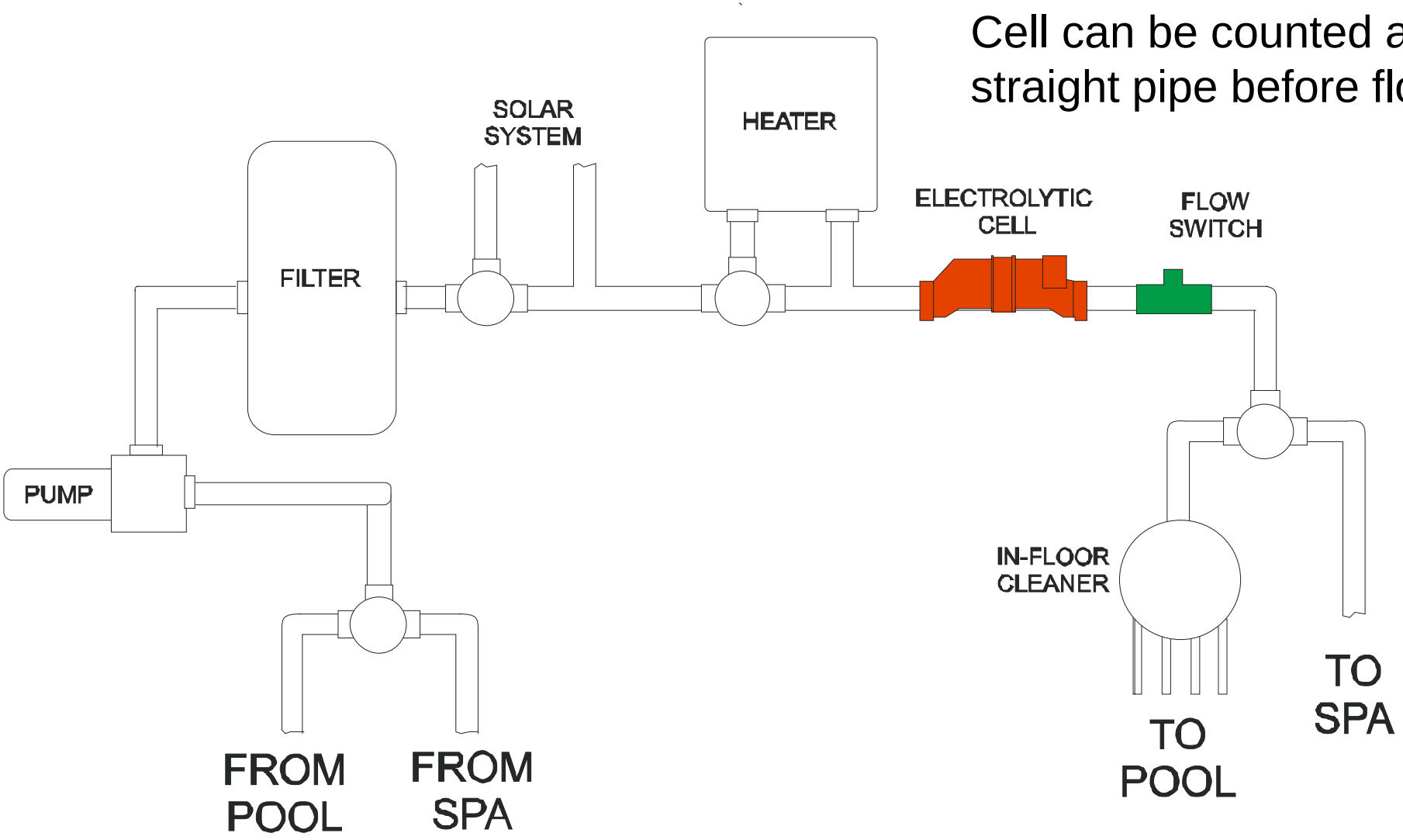
Flow switch requires 12” of straight pipe before the mounting “T” .

Flow rate must be greater than 11 gpm to close switch in 2”pipe.



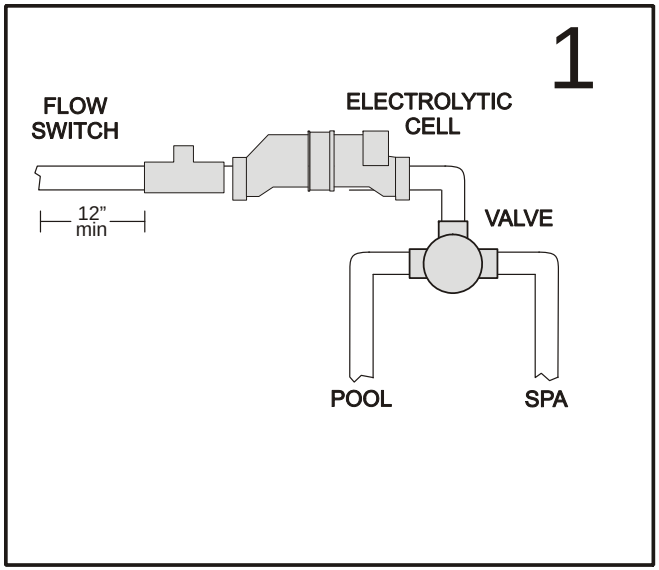
Installation

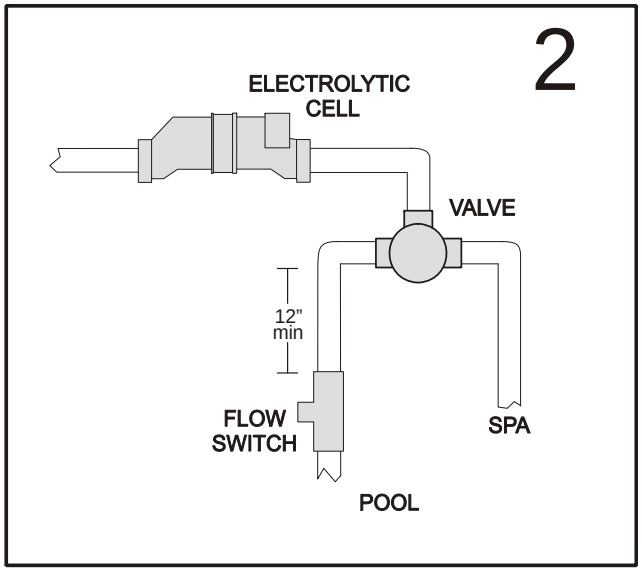
Cell can be counted as 12” of straight pipe before flow “T”.

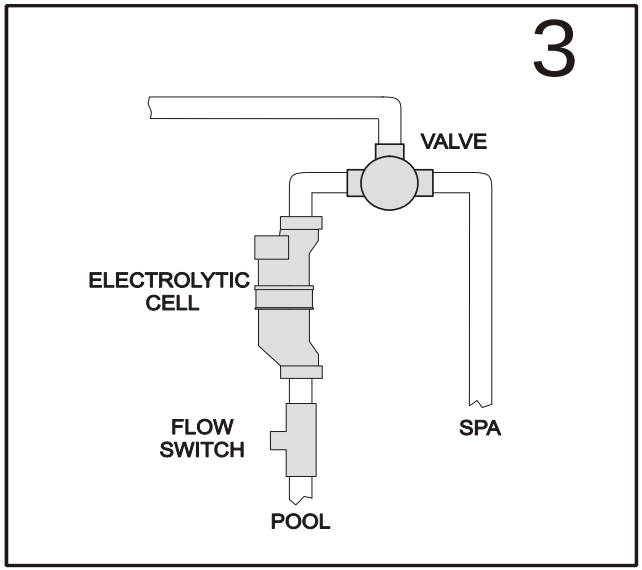


Installation

Alternate configurations:



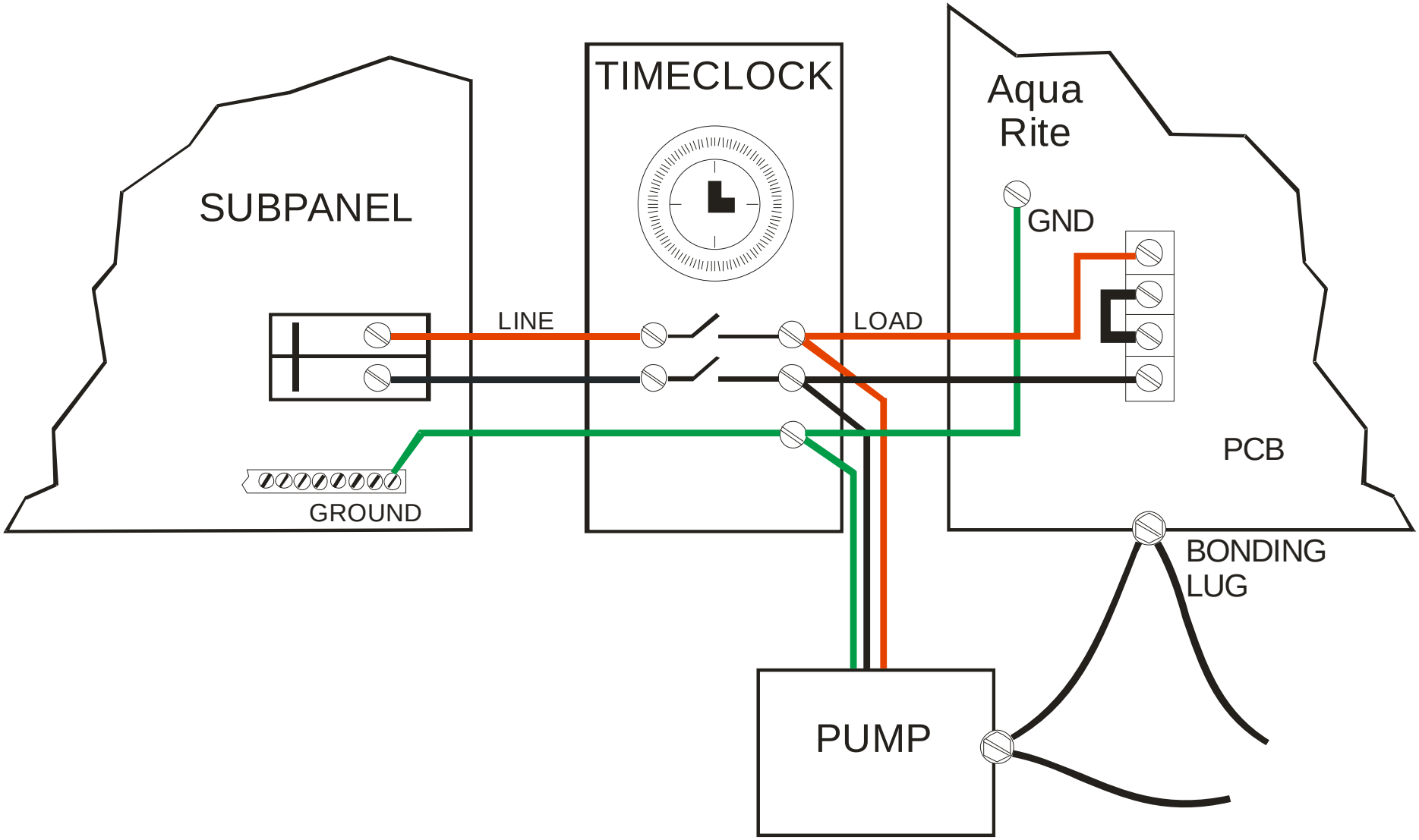




- Flow Switch location is critical
- Plumbing the flow switch on the pool return will prevent the possibility of over chlorinating the spa
- DO NOT PLUMB THE CELL ON THE POOL RETURN WITHOUT THE FLOW SWITCH

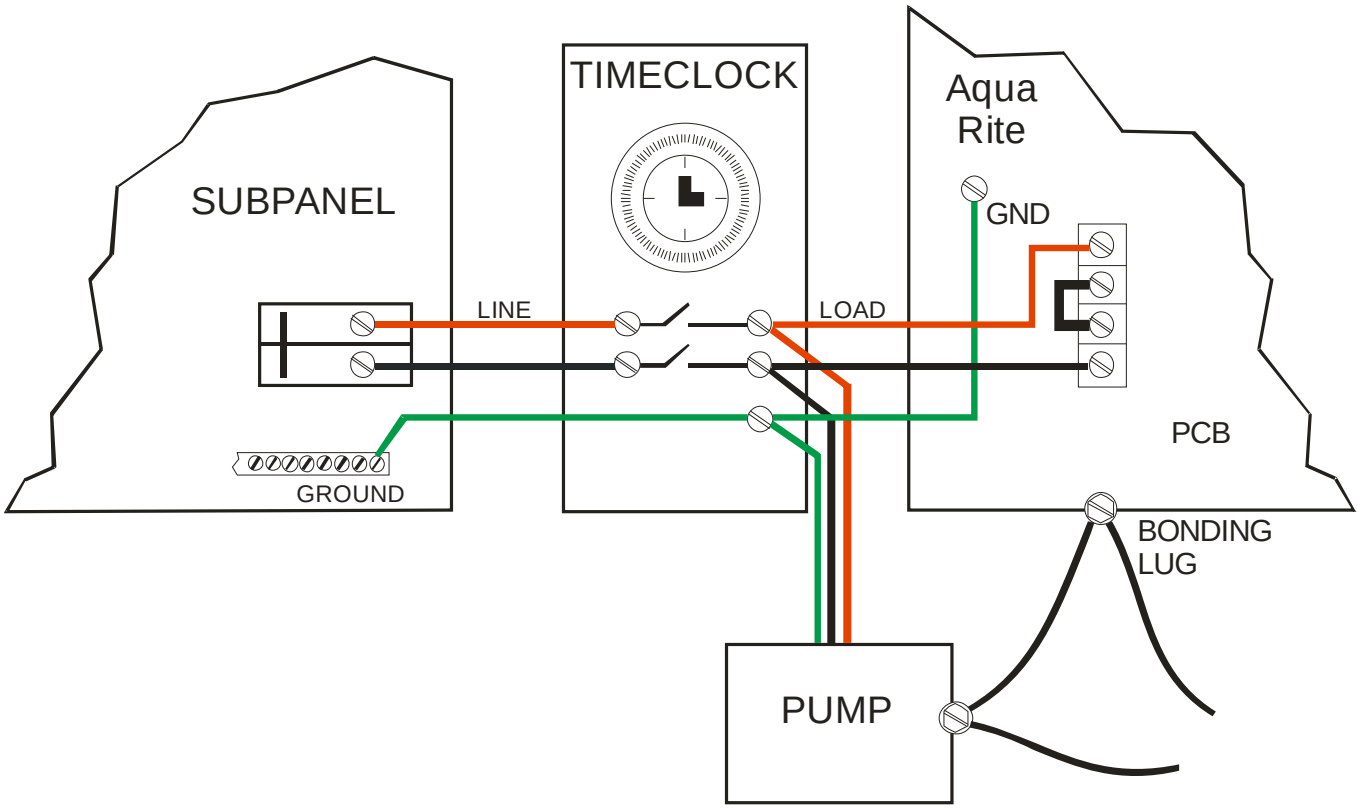
Electrical Installation

TYPICAL 240 VAC WIRING

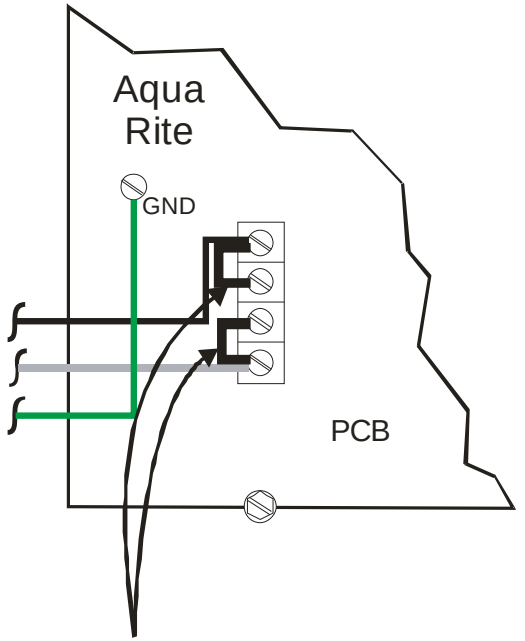


Note: Wire the pump to the time clock: DO NOT USE THE AQUA RITE AS A JUNCTION BOX

TYPICAL 240 VAC WIRING



120 VAC

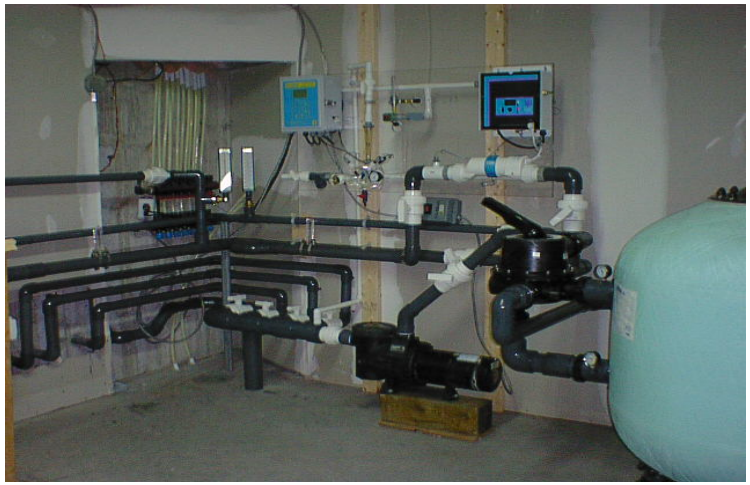


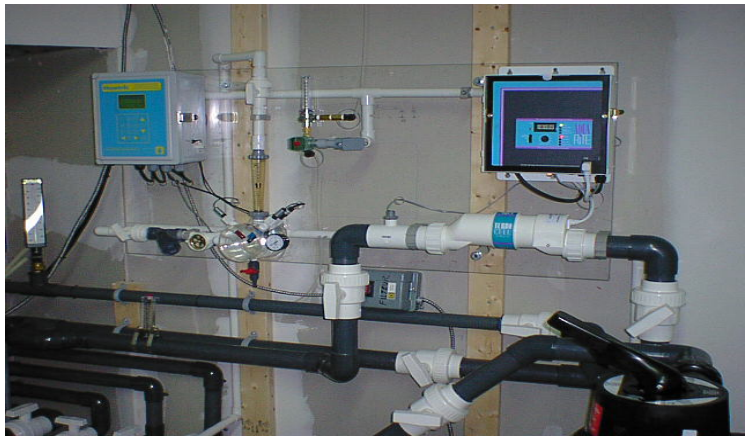
IMPORTANT:
MOVE JUMPERS
TO POSITIONS SHOWN

Commercial Installations

Commercial Installations

- Aqua Rite is NSF certified, check local requirements
- Sizing Pool: 1 Aqua Rite for every 25,000 gallons
- Sizing Spa: 1 Aqua Rite for every 3,000 gallons
- Cell installation
  - 1 required for each Aqua Rite
  - Install cells on bypass loop
  - Use isolation valves
  - Series or parallel or combination
  - Maximum 5 in series
  - Parallel is best when ORP control is being used (minimizes ORP noise problems)
- Flow Switch
  - 1 required for each Aqua Rite
  - Install in same line as cell
- See Commercial Addendum





Commercial Installation

- **Health Codes**
  - Check with and abide by all regulations from your local and/or state health authority. It is always a good idea to check the latest version of the actual codes.
- **Safety Approvals**
  - The Aqua Rite Electronic Chlorine Generator is certified by NSF (visit www.nsf.org) and has also been approved my many state and local health authorities. In addition the Aqua Rite is UL Listed (file E70511).

Commercial Installation

- Pools with backup system meeting code requirements
  - Most states allow systems to follow these sizing guidelines provided that an approved supplemental chlorine device (tablet erosion feeder or similar device) is installed.

Gallons of Pool Water	Number of Devices
0 – 25,000	1
25,000 – 50,000	2
50,000 – 75,000	3
75,000 – 100,00	4
100,000 – 125,000	5

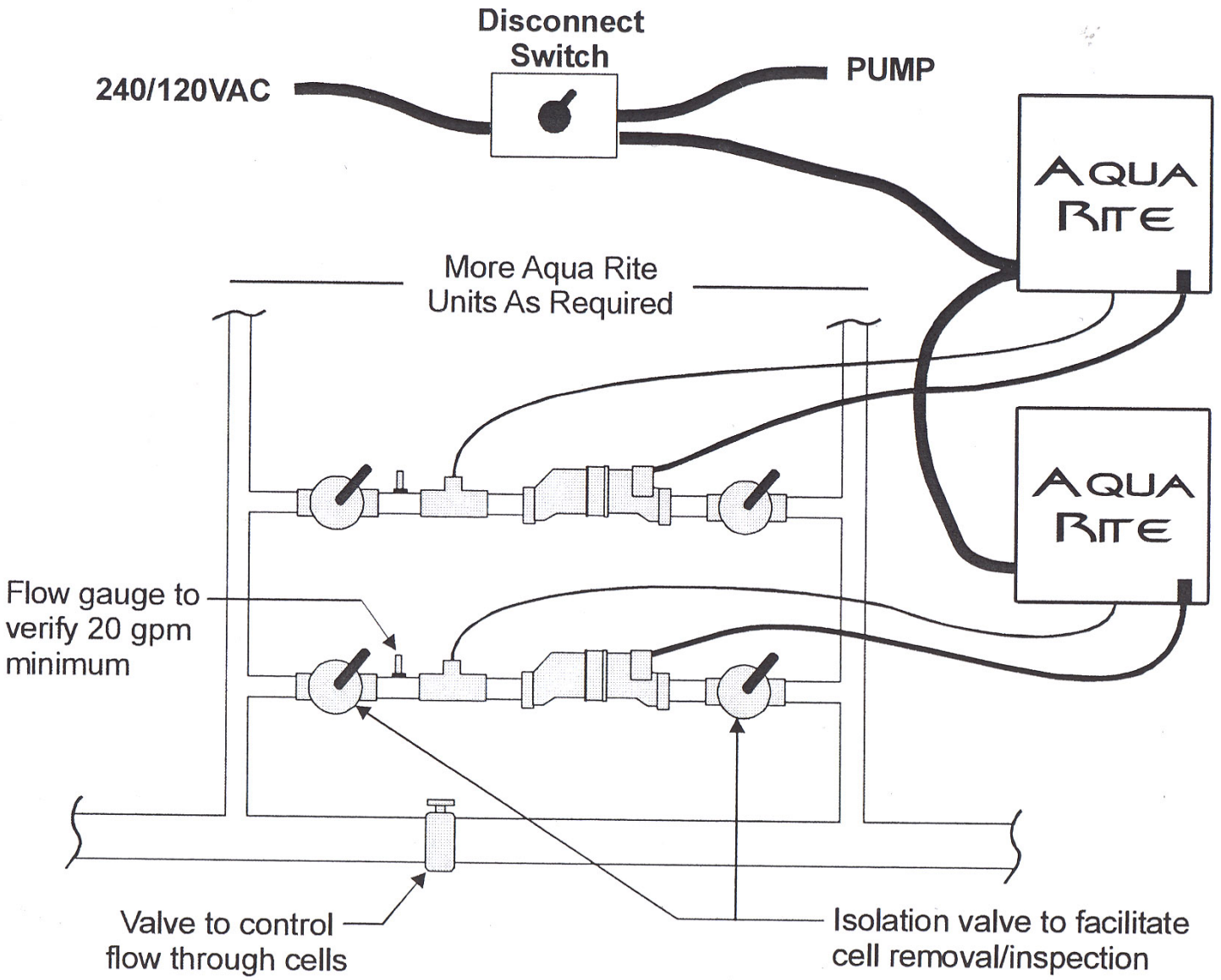
Commercial Installation

- Pools without backup system meeting code requirements
  - Multiply the pool size by the code requirement to determine the required daily production. Then divide this number by 1.45 lbs (the amount of chlorine the Aqua Rite produces each day) to determine the number of Aqua Rite units required.
    - Example: A 56,000 gallon pool which requires 1.5 lbs of chlorine for every 10,000 gallons.
      - 56,000 gal. x (1.5 / 10,000) = 8.4 lbs of chlorine per day
      - 8.4 lbs / (1.45 lb) = 5.8 Aqua Rite units (always round up, 6 units are required)

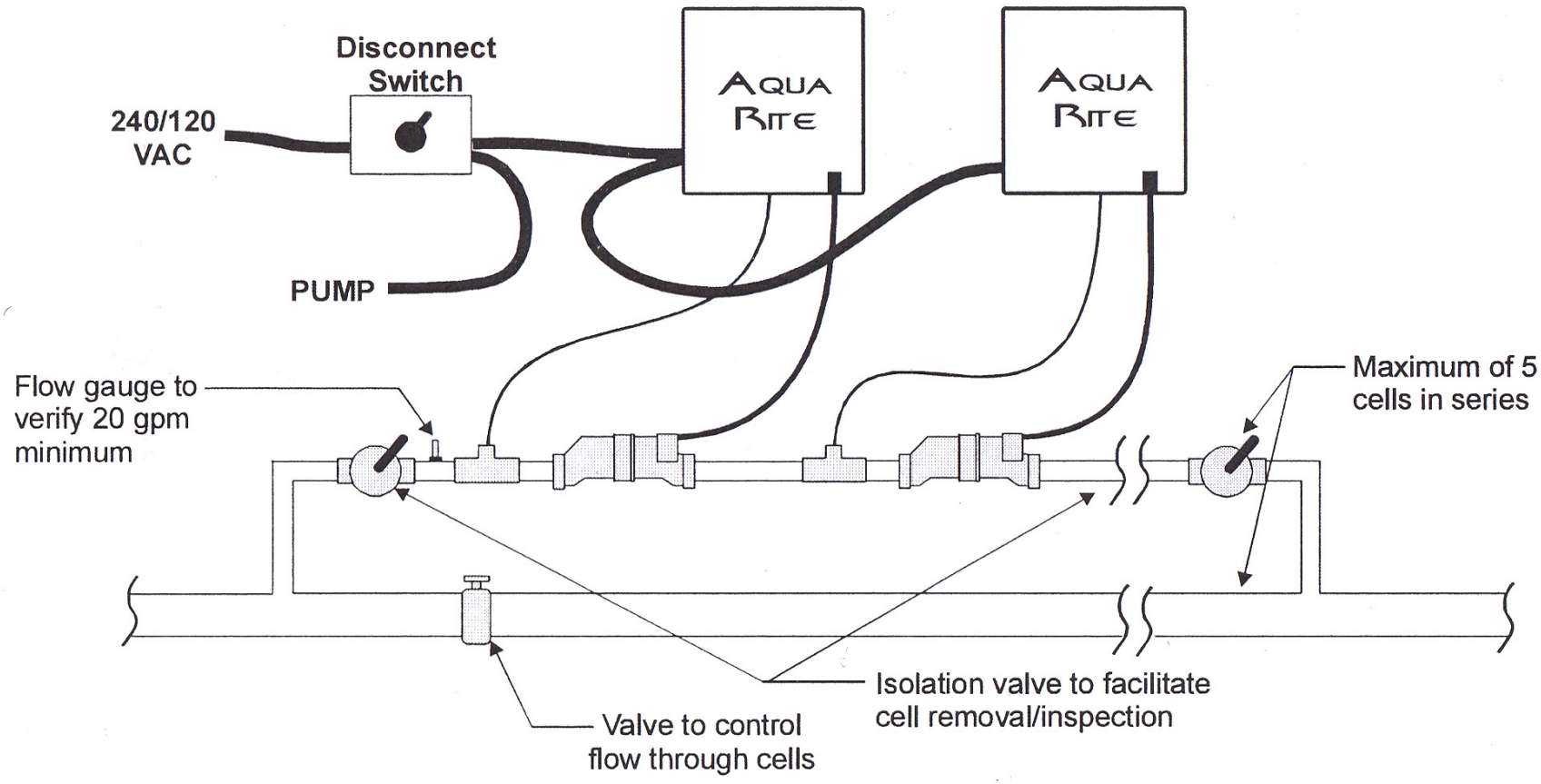
Commercial Installation

- When multiple Aqua Rite units are used in a single installation they should be installed in a bypass loop (side stream installation).
- Each cell should have a flow switch.
- The cells may be installed in parallel (see page 19) or up to 5 cells may be installed in series (see page 20).
- Aqua Rite cells can also be installed in a series/parallel combination

Typical Installation – Cells in Parallel



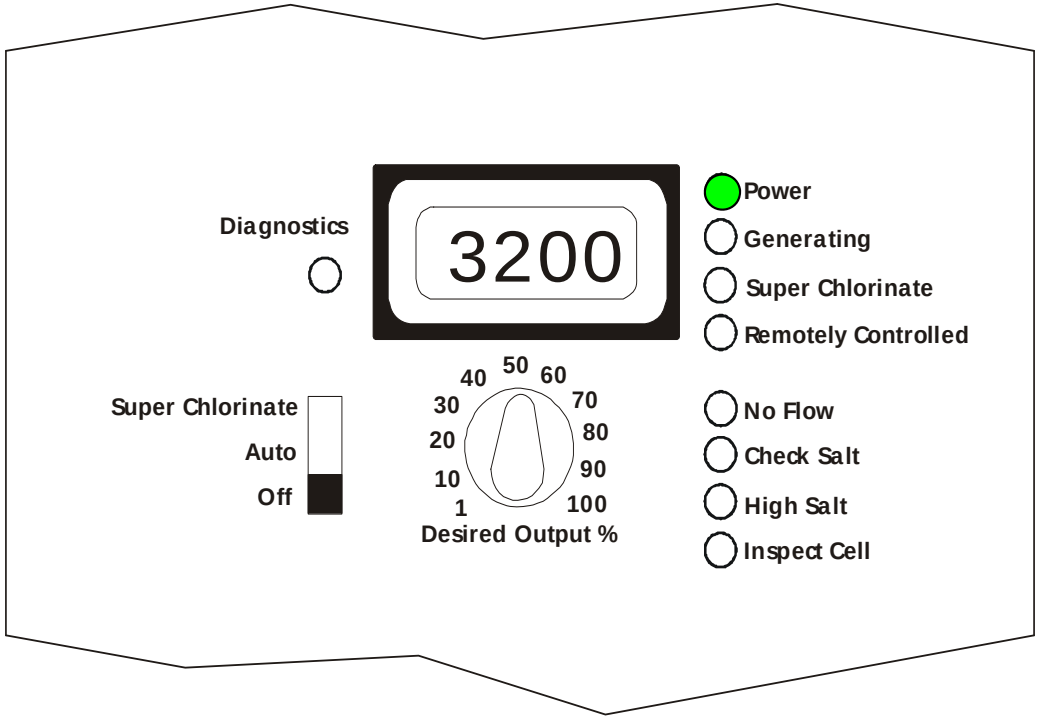
Typical Installation – Cells in Series



Operation

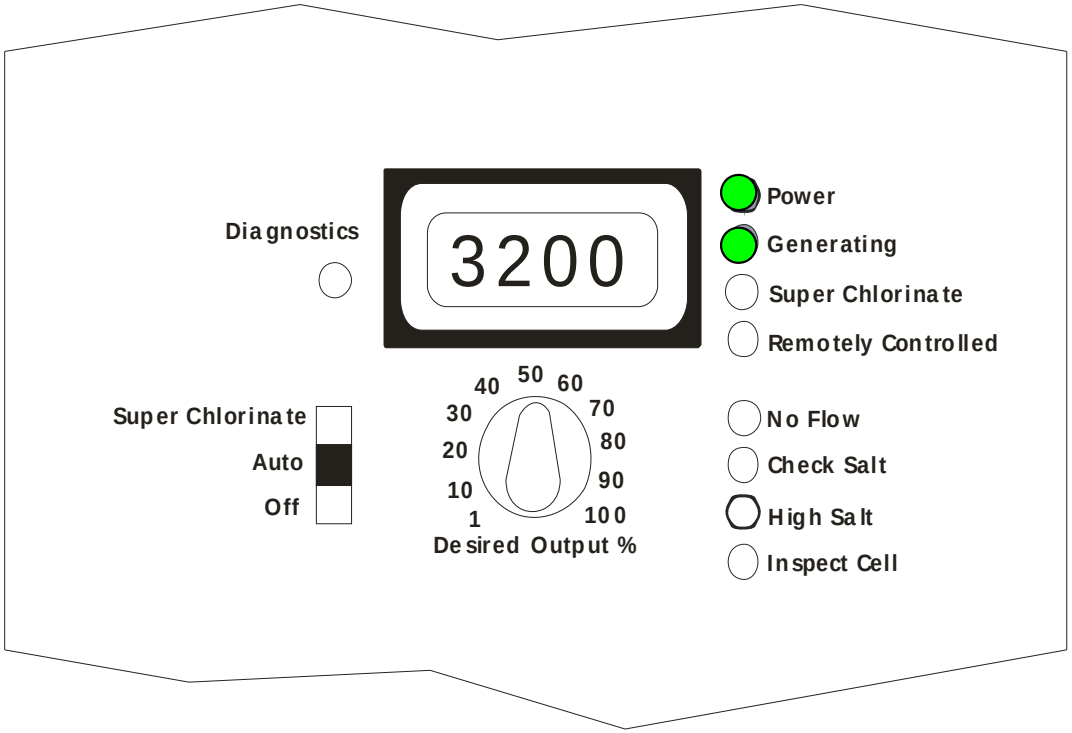
Operation

- **Switch**
  - **OFF**
    - **Only the Power LED will be ON**
    - **No Chlorine will be generated**



Operation

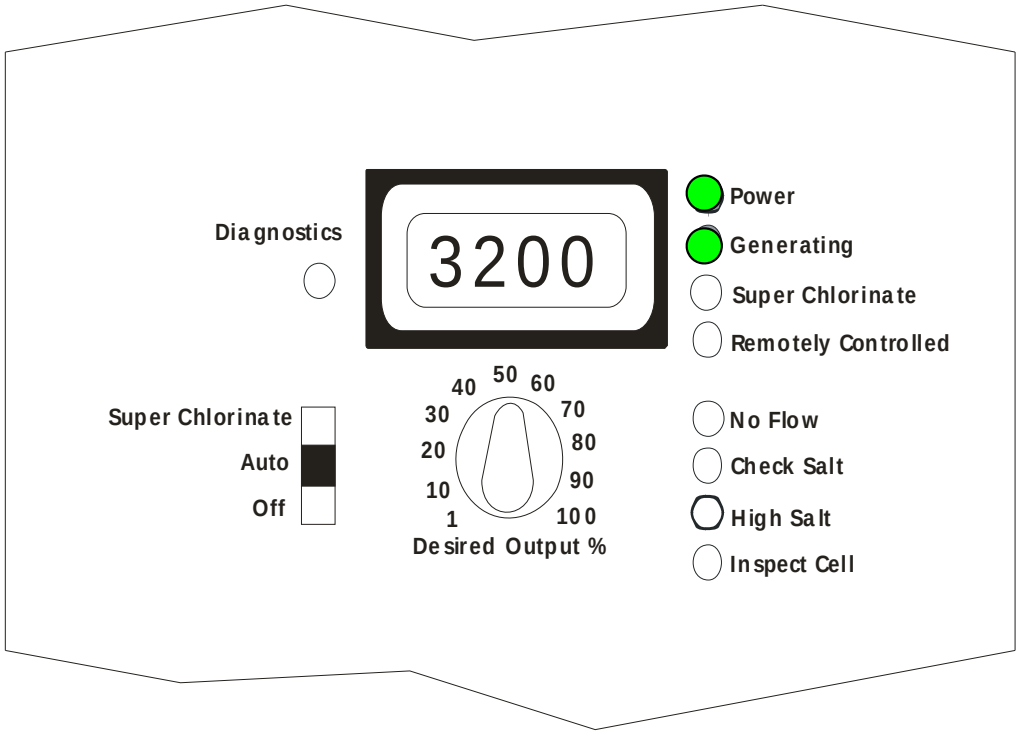
- **Switch**
  - **AUTO**
    - **Power & Generating LED's will be ON**
    - **Chlorine will be generated**



- **Reverses Polarity every 2 hours**

Operation

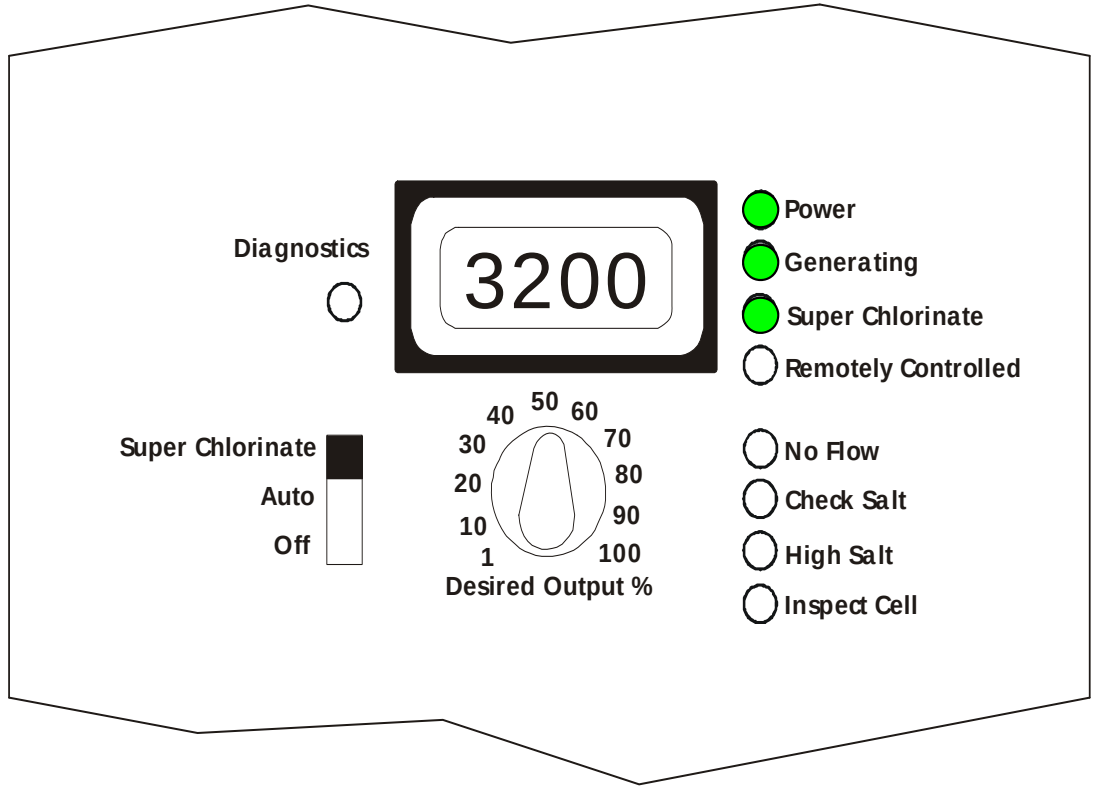
- **Desired Output Dial**
  - **1 to 100% sets the level of chlorine production**
  - **50% generates for 60 minutes, then will be off for 60 minutes**



- **Generating LED stays ON**

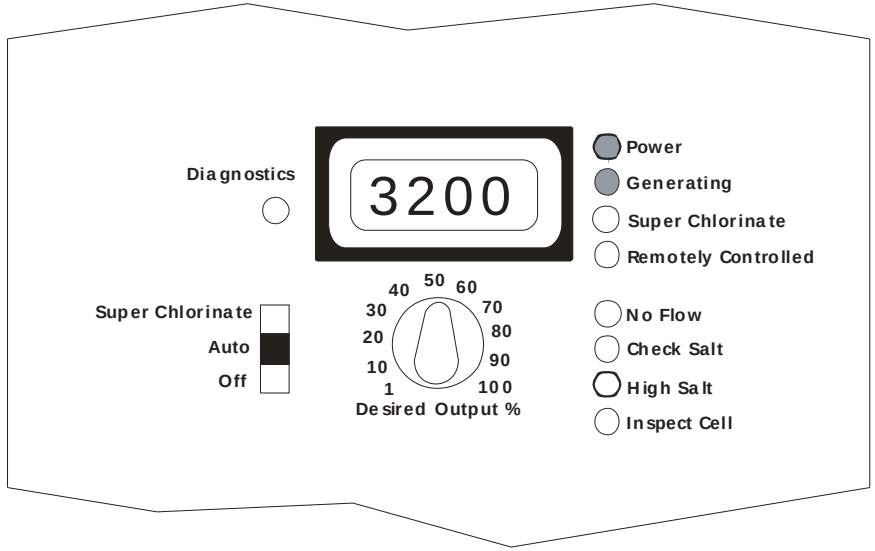
Operation

- **Switch**
  - **Super Chlorinate**
    - **Power, Generating, & Super Chlorinate LED's will be ON**
    - **Overrides Desired Output Dial**
    - **100% Output**
    - **Activated for 24 hours or the balance of the pump cycle, whichever occurs first**



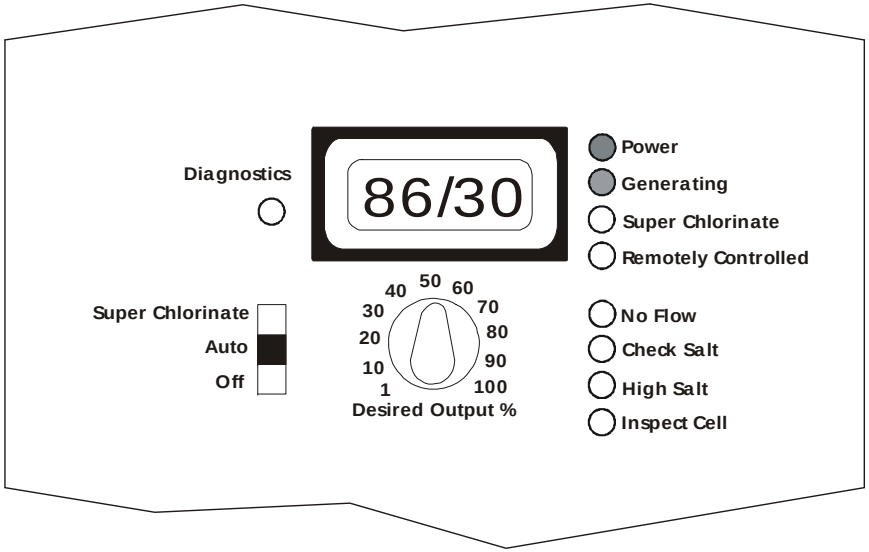
Operation - Diagnostics

- **Average Salt**
  - **Default Display**
  - **Factory set to ppm, can be set to g/L**
  - **Operating range 2700ppm to 3400ppm**



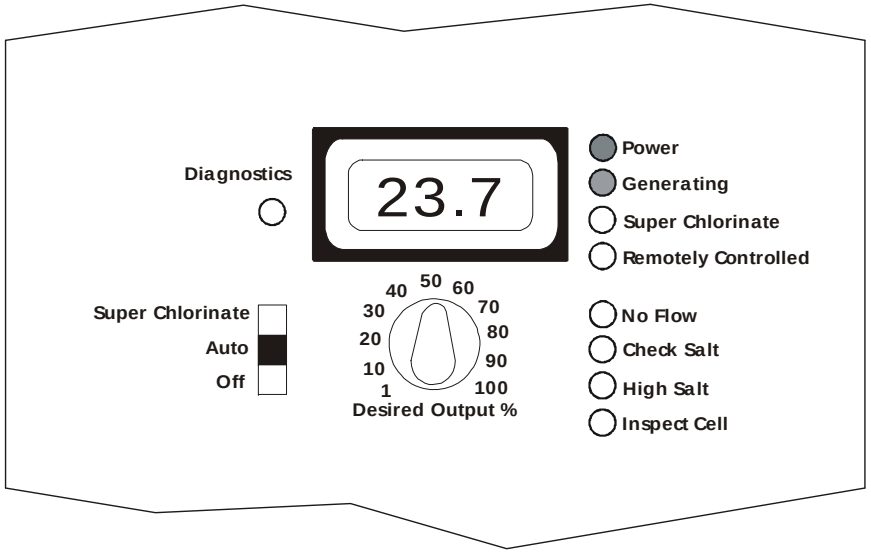
Operation - Diagnostics

- **Water Temperature**
  - **Factory set to Fahrenheit; can be set to Celsius**
  - **Operating Range: 50° to 104°**
  - **Scale back to 20% occurs at 60° and shuts down at 50°**



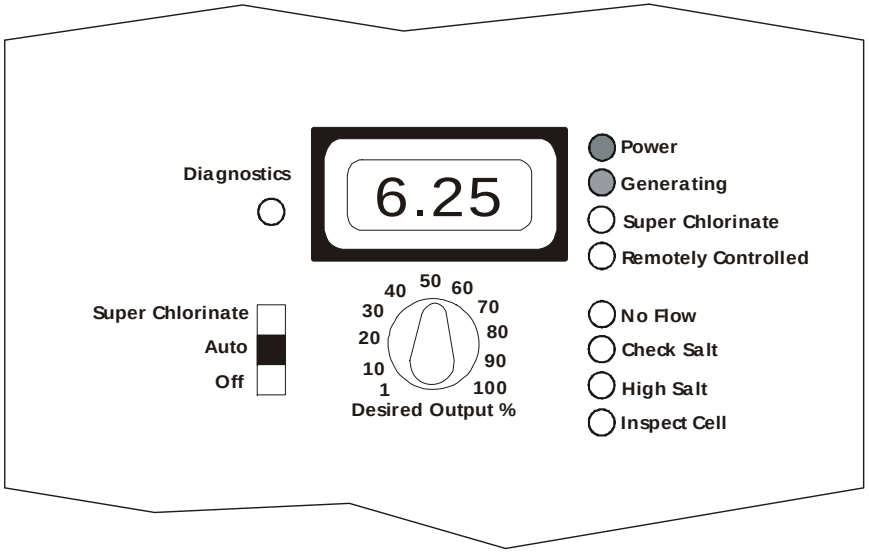
Operation - Diagnostics

- **Cell Voltage (DC)**
  - **Operating Range 22.0 - 26.0**
  - **Off Cycle 30.0 – 33.0**



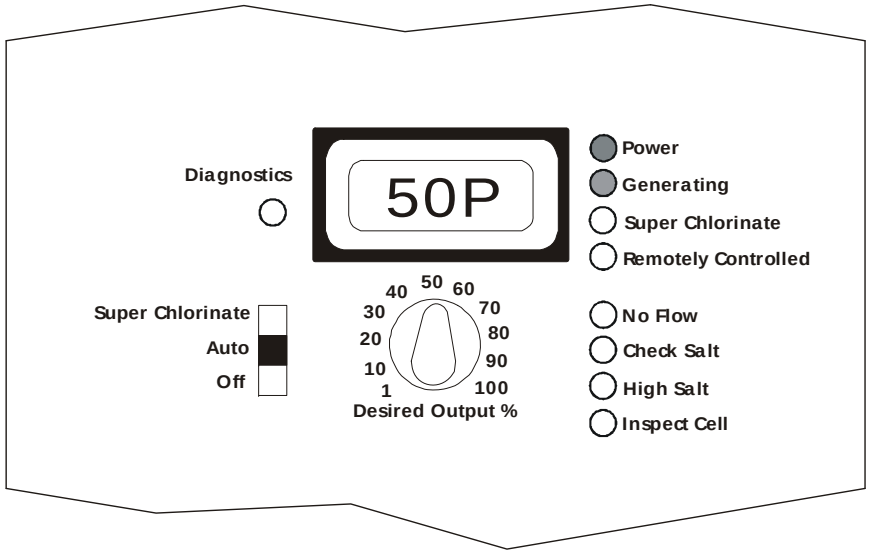
Operation - Diagnostics

- **Cell Amps**
  - **Operating Range 4.80 – 7.90**
  - **Off Cycle 0.0 – 0.1**



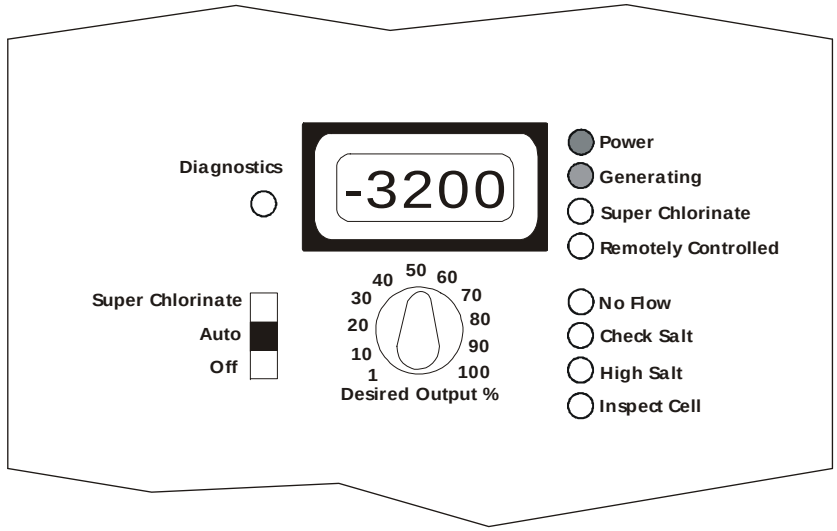
Operation - Diagnostics

- **Desired Output**
  - **5P – 100P**
  - **Rotate Dial to adjust**



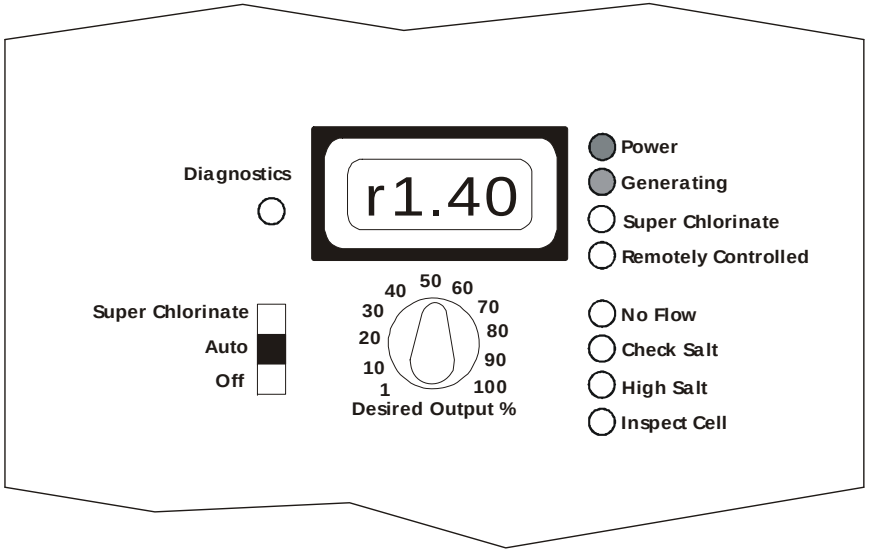
Operation - Diagnostics

- **Instant Salt**
  - **Calculated value**
  - **Displayed as a negative number**
  - **Lock in Instant Salt value by moving the switch from Auto > Super Chlorinate > Auto**



Operation - Diagnostics

- **Software Revision**
  - **r1.02 to r1.40**

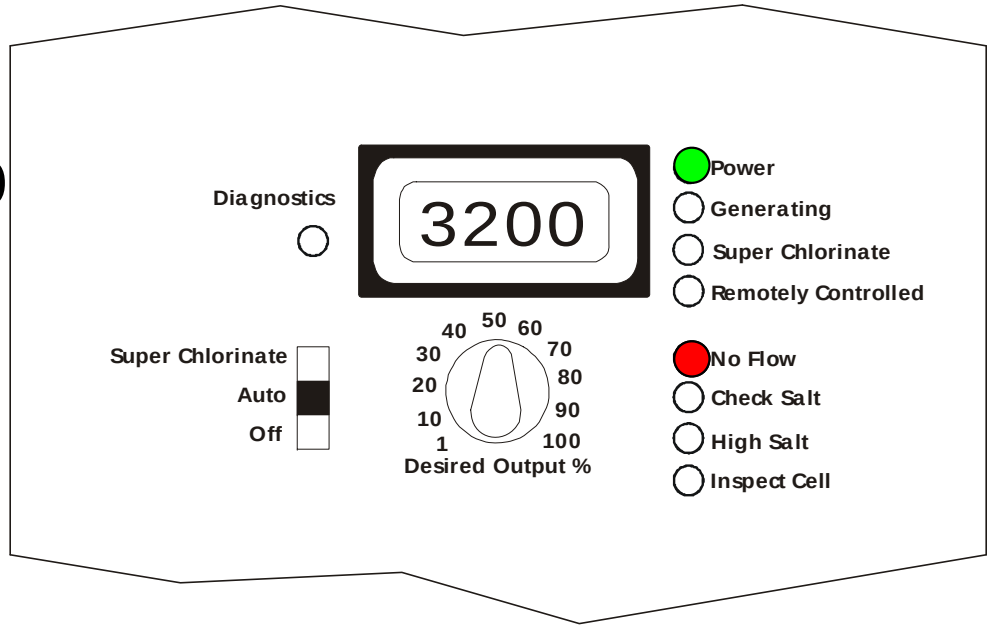


Software Revision Summary

Revision	Release Date	Description	Comments	Upgrade Recommended
1.02	5/31/2000	Original Release	Must use Revision C PCB	**YES**
1.03	7/6/2000	Improved Jandy Interface	Must use Revision E PCB	**YES**
1.04	8/2/2000	Improved Salt Display Accuracy FasterSalt Display Response Ability to Lock In Instant Salt Reading	Must use Revision E or F PCB	**NO**
1.05	3/23/2001	Added Mineral Spring Capability	Must use Revision E or F PCB	**NO**
1.06	4/3/2001	Transformer Independent Salt Calculation	Must use Revision E or F PCB	**NO**
1.08	7/11/2001	Added SplashClear Capability	Must use Revision E or F PCB	**NO**
1.09	8/6/2001	Improved ESD Protection	Must use Revision E or F PCB	**NO**
1.10	12/1/2001	Raised "Low Salt" Threshold Inspect Cell LED Flashes After 500 Hours Connect Multiple Units to 1 Jandy	Must use Revision G PCB or higher	**NO**
1.11	4/1/2002	Added Aqua Trol Return Jet	Must use Revision G PCB or higher	**NO**
1.12	1/9/2003	Added Stuck Relay Detection	PCB shown on display. All RED LEDs Flash	**NO**
1.13	2/3/2003	Changed Stuck Relay Detection	PCB shown on display. All RED LEDs ON solid	**NO**
1.20	5/6/2003	Increased cycle time from 100 to 120 minutes Added SmartPure and Naturesoft (Shasta)	Must use Revision G PCB or higher	**NO**
1.21	6/13/2003	Enhanced Primary/Secondary Operation	Must use Revision G PCB or higher	**NO**
1.30	7/3/2003	Improved Jandy Interface (Salt Reading)	Must use new PCB 066012 Rev. A	**NO**
1.32	8/7/2003	Improved Jandy Interface (Wireless)	Must use PCB 066012 Rev. A	**NO**
1.33	8/16/2004	Improved Factory Testing	Must use PCB 066012 Rev. A	**NO**
1.40	5/24/2005	Re-established Jandy Interface	Set to AL-5 Must use new PCB 066012 Rev. C	**NO**

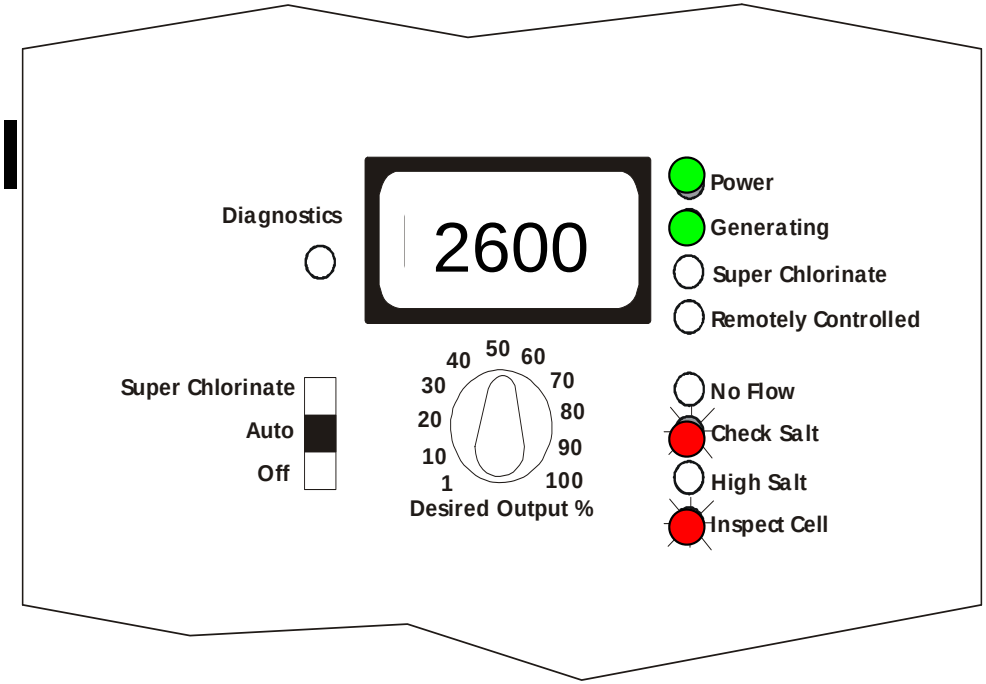
Operation-LED Status Indicators

- **No Flow**
  - **Flashes for up to 60 seconds during start up**
  - **Solid indicates a flow problem**
  - **Generation stopped**



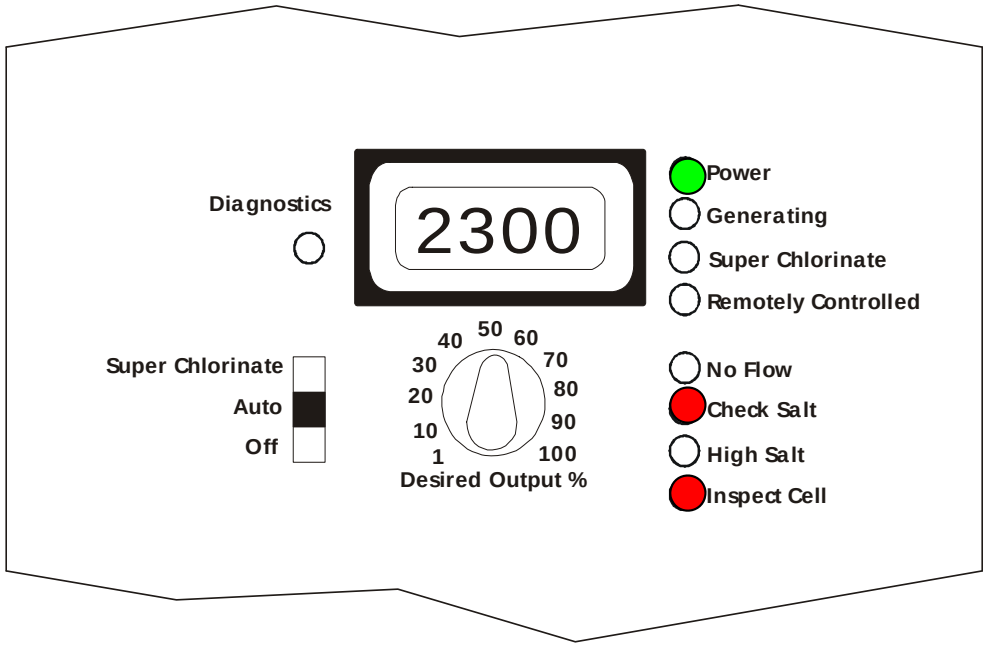
Operation-LED Status Indictors

- **Check Salt/Inspect Cell**
  - **Flashes at 2600**
  - **Still generating**



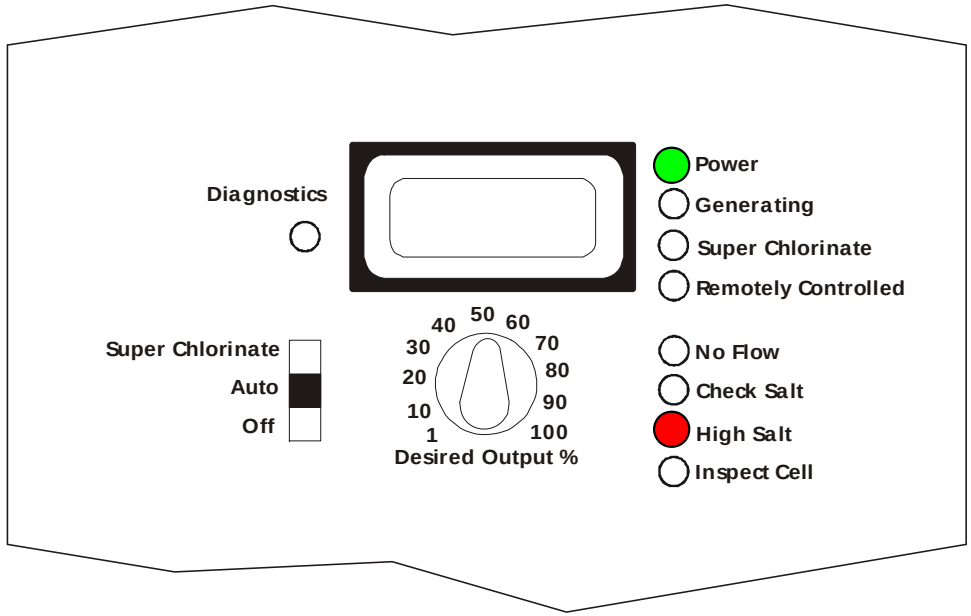
Operation-LED Status Indicators

- **Check Salt/Inspect Cell**
  - **Solid at 2300**
  - **Generation stopped**



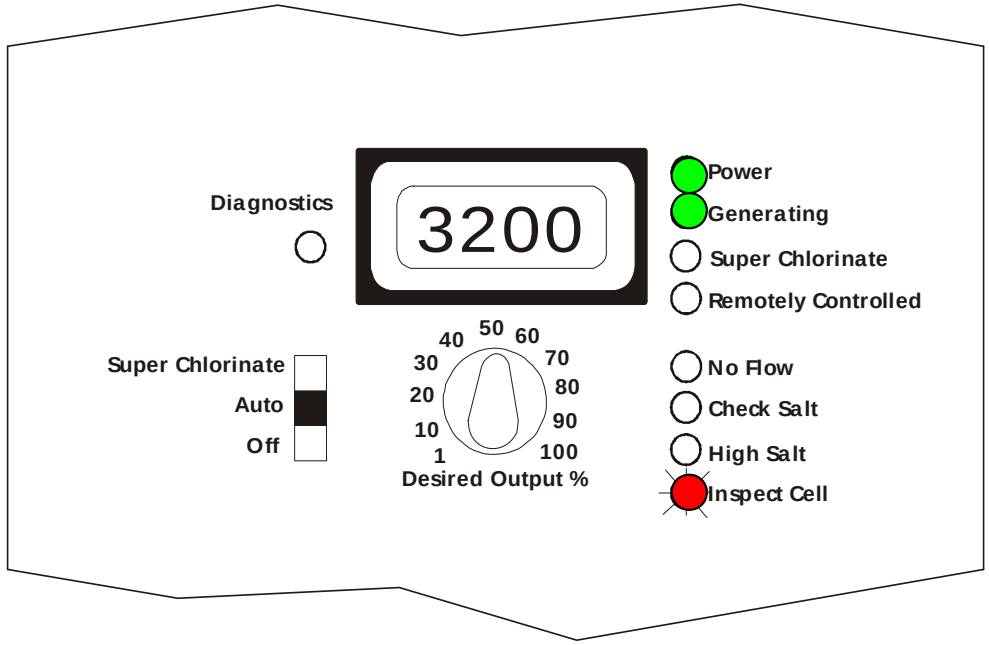
Operation-LED Status Indicators

- **High Salt**
  - **Solid when Cell amperage reaches 8.0**
  - **Generation Stopped**



Operation-LED Status Indicators

- **Inspect Cell**
  - **Flashes every 500 operational hours as a reminder to inspect the cell**
  - **Press and hold the Diagnostic button 3 seconds to reset**



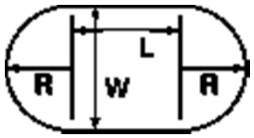
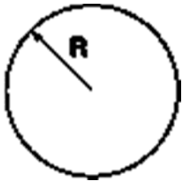
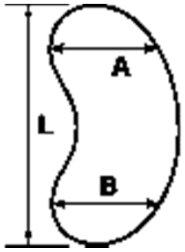
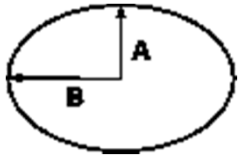
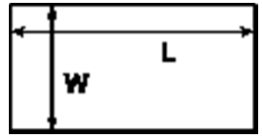
System Start-up Procedure

System Start-up Procedure

- Start with a clean and balanced pool
- Test salt and stabilizer for correct levels
- Existing pools
  - Add metal remover
  - If biguanide—follow manufacturers recommendations to remove
- Initial factory default salt display is 2600 ppm
  - Run pump 24 hours
  - Accurate salt reading
- Initial Aqua Rite settings:
  - Desired Output: 50%
  - Mode Switch: Auto
- Test chlorine level every 2-3 days and adjust accordingly

Salt

- **How to determine Pool Capacity**

				
Area = (L x W) (R x R x 3.14) **Gallons** = area x average depth x 7.48 **Liters** = Gallons x 3.785	**Area** = R x R x 3.14 **Gallons** = area x average depth x 7.48 **Liters** = Gallons x 3.785	**Area** = (A + B) x L x 0.45 **Gallons** = area x average depth x 7.48 **Liters** = Gallons x 3.785	**Area** = A x B x 3.14 **Gallons** = area x average depth x 7.48 **Liters** = Gallons x 3.785	**Area** = L x W **Gallons** = area x average depth x 7.48 **Liters** = Gallons x 3.785

- Always test salt and stabilizer
  - -Especially on existing pools
  - -Even on new pools
  - -1 lb of stabilizer for every 50 lb of salt

Salt

Pounds (Kg) of Salt required for 3200 ppm

Current Salt Level (ppm)	Gallons and (Liters) of Pool/Spa Water																
	8,000 (30,000)	10,000 (37,500)	12,000 (45,000)	14,000 (52,500)	16,000 (67,500)	18,000 (67,500)	20,000 (75,000)	22,000 (82,500)	24,000 (90,000)	26,000 (97,500)	28,000 (105,000)	30,000 (112,500)	32,000 (120,000)	34,000 (127,500)	36,000 (135,000)	38,000 (142,500)	40,000 (150,000)
0	213 (97)	267 (121)	320 (145)	373 (170)	427 (194)	480 (218)	533 (242)	587 (267)	640 (291)	693 (315)	747 (339)	800 (364)	854 (388)	907 (412)	960 (436)	1013 (460)	1067 (484)
200	200 (91)	250 (114)	300 (136)	350 (159)	400 (182)	450 (205)	500 (227)	550 (250)	600 (273)	650 (295)	700 (318)	750 (341)	800 (363)	850 (385)	900 (408)	950 (430)	1000 (453)
400	187 (85)	233 (106)	280 (127)	327 (148)	373 (170)	420 (191)	467 (212)	513 (213)	560 (255)	607 (276)	653 (297)	700 (318)	747 (339)	793 (360)	840 (382)	887 (403)	933 (424)
600	173 (79)	217 (98)	260 (118)	303 (138)	347 (158)	390 (177)	433 (197)	477 (217)	520 (236)	563 (256)	607 (276)	650 (297)	693 (317)	737 (337)	780 (358)	823 (378)	867 (398)
800	160 (73)	200 (91)	240 (109)	280 (127)	320 (145)	360 (164)	400 (182)	440 (200)	480 (218)	520 (236)	560 (255)	600 (273)	640 (291)	680 (310)	720 (328)	760 (346)	800 (364)
1000	147 (67)	183 (83)	220 (100)	257 (117)	293 (133)	330 (150)	367 (167)	403 (183)	440 (200)	477 (217)	513 (233)	550 (250)	587 (267)	623 (283)	660 (300)	697 (317)	733 (333)
1200	133 (61)	167 (76)	200 (91)	233 (106)	267 (121)	300 (136)	333 (152)	367 (167)	400 (182)	433 (197)	467 (212)	500 (227)	533 (243)	567 (258)	600 (274)	633 (289)	667 (304)
1400	120 (55)	150 (68)	180 (82)	210 (95)	240 (109)	270 (123)	300 (136)	330 (150)	360 (164)	390 (177)	420 (191)	450 (205)	480 (218)	510 (232)	540 (246)	570 (259)	600 (263)
1600	107 (48)	133 (61)	160 (73)	187 (85)	213 (97)	240 (109)	267 (121)	293 (133)	320 (145)	347 (158)	373 (170)	400 (182)	427 (195)	453 (207)	480 (219)	507 (231)	533 (243)
1800	93 (42)	117 (53)	140 (64)	163 (740	187 (85)	210 (95)	233 (106)	257 (117)	280 (127)	303 (138)	327 (148)	350 (159)	373 (169)	397 (180)	420 (190)	443 (201)	467 (211)
2000	80 (36)	100 (45)	120 (55)	140 (64)	160 (73)	180 (82)	200 (91)	220 (100)	240 (109)	260 (118)	280 (127)	300 (136)	320 (145)	340 (154)	360 (163)	380 (172)	400 (181)
2200	67 (30)	83 (38)	100 (45)	117 (53)	133 (61)	150 (68)	167 (76)	183 (83)	200 (91)	217 (98)	233 (106)	250 (114)	267 (121)	283 (129)	300 (137)	317 (144)	333 (152)
2400	53 (24)	67 (30)	80 (36)	93 (42)	107 (48)	120 (55)	133 (61)	147 (67)	160 (73)	173 (79)	187 (85)	200 (91)	213 (98)	227 (104)	240 (110)	253 (117)	267 (123)
2600	40 (18)	50 (23)	60 (27)	70 (32)	80 (36)	90 (41)	100 (45)	110 (50)	120 (55)	130 (59)	140 (64)	150 (68)	160 (73)	170 (77)	180 (81)	190 (86)	200 (90)
2800	27 (12)	33 (15)	40 (18)	47 (21)	53 (24)	60 (27)	67 (30)	73 (33)	80 (36)	87 (39)	93 (42)	100 (45)	107 (48)	113 (51)	120 (54)	127 (57)	133 (60)
3000	13 (6)	17 (8)	20 (9)	23 (11)	27 (12)	30 (14)	33 (15)	37 (17)	40 (18)	43 (20)	47 (21)	50 (23)	53 (24)	57 (26)	60 (27)	63 (29)	67 (30)
3200	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal
3400	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
3600+	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute

Salt

- **How to add salt**
  - Determine pool size
  - Test salt level
  - Add salt to the pool; keep 1-2 bags in reserve
  - Brushing the salt around will speed up dissolving
  - Do not allow the salt to sit in a pile at the bottom
  - Run the filter pump for 24 hours to evenly distribute salt
- **When to add salt**
  - Vinyl or Fiberglass – No waiting period
  - New Plaster - Wait 30 days for plaster to cure

Salt Testing

- Tasting salt
  - Everybody's taste threshold is different
- Salt strips
- Titration Kits (LaMotte or Taylor)
  - Technique, time consuming
- Conductivity (Goldline or Myron)
  - Calibration for salt (not "442")
  - pH and hardness issues
  - Periodic battery replacement
- **No Absolute Answer**

Stabilizer

Pounds and (Kg) of Stabilizer (Cyanuric Acid) for 80 ppm

Current Stabilizer Level (ppm)	Gallons and (Liters) of Pool/Spa water																
	8,000 (30000)	10,000 (37500)	12,000 (45000)	14,000 (52500)	16,000 (60000)	18,000 (67500)	20,000 (75000)	22,000 (82500)	24,000 (90000)	26,000 (97500)	28,000 (105000)	30,000 (112500)	32,000 (120000)	34,000 (127500)	36,000 (135000)	38,000 (142500)	40,000 (150000)
0 ppm	5.3 (3.6)	6.7 (4.3)	8.0 (3.6)	9.4 (4.3)	10.7 (4.9)	12.0 (5.4)	13.4 (6.1)	14.7 (6.7)	16.0 (7.3)	17.3 (7.9)	18.7 (8.5)	20.0 (9.1)	21.3 (9.7)	22.7 (10.3)	24.0 (10.9)	25.3 (11.5)	26.7 (12.0)
10 ppm	4.7 (3.2)	5.8 (3.7)	7.0 (3.2)	8.2 (3.7)	9.4 (4.3)	10.5 (4.8)	11.7 (5.3)	12.9 (5.9)	14.0 (6.4)	15.2 (6.9)	16.4 (7.4)	17.2 (8.0)	18.7 (8.5)	19.8 (9.0)	21.0 (9.5)	22.2 (10.0)	23.3 (10.5)
20 ppm	4.0 (2.7)	5.0 (3.2)	6.0 (2.7)	7.0 (3.2)	8.0 (3.6)	9.0 (2.2)	10.0 (4.5)	11.0 (5.0)	12.0 (5.4)	13.0 (5.9)	14.0 (6.4)	15.0 (6.8)	16.0 (7.2)	17.0 (7.7)	18.0 (8.1)	19.0 (8.6)	20.0 (9.0)
30 ppm	3.3 (2.3)	4.2 (2.7)	5.0 (2.3)	5.9 (2.7)	6.7 (3.0)	7.5 (3.4)	8.4 (3.8)	9.2 (4.2)	10.0 (4.5)	10.8 (4.9)	11.7 (5.2)	12.5 (5.6)	13.3 (6.0)	14.2 (6.3)	15.0 (6.7)	15.8 (7.1)	16.7 (7.5)
40 ppm	2.7 (1.8)	3.3 (2.1)	4.0 (1.8)	4.7 (2.1)	5.4 (2.4)	6.0 (2.7)	6.7 (3.0)	7.4 (3.3)	8.0 (3.6)	8.7 (3.9)	9.3 (4.2)	10.0 (4.5)	10.7 (4.8)	11.3 (5.1)	12.0 (5.4)	12.7 (5.7)	13.3 (6.0)
50 ppm	2.0 (1.4)	2.5 (1.6)	3.0 (1.4)	3.5 (1.6)	4.0 (1.8)	4.5 (2.0)	5.0 (2.3)	5.5 (2.5)	6.0 (2.7)	6.5 (2.9)	7.0 (3.2)	7.5 (3.4)	8.0 (3.6)	8.5 (3.9)	9.0 (4.1)	9.5 (4.3)	10.0 (4.5)
60 ppm	1.3 (.91)	1.7 (1.1)	2.0 (.91)	2.3 (1.1)	2.7 (1.2)	3.0 (1.4)	3.3 (1.5)	3.7 (1.7)	4.0 (1.8)	4.3 (2.0)	4.7 (2.1)	5.0 (2.3)	5.3 (2.4)	5.7 (2.6)	6.0 (2.7)	6.3 (2.8)	6.7 (3.0)
70 ppm	0.7 (.45)	0.8 (.54)	1.0 (.45)	1.2 (.54)	1.4 (.64)	1.5 (.68)	1.7 (.77)	1.8 (.82)	2.0 (.91)	2.2 (1.0)	2.3 (1.1)	2.5 (1.2)	2.7 (1.2)	2.8 (1.3)	3.0 (1.3)	3.2 (1.4)	3.3 (1.5)
80 ppm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

- **Salt and stabilizer levels tend to drop together**
- **If you have to add salt then you will have to add stabilizer**

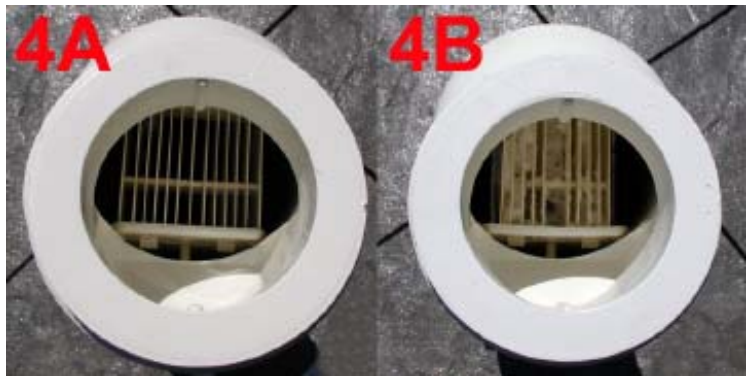
Maintenance

Turbo Cell Maintenance

TURN POWER OFF
Turn off the filter pump and input power to control.

DISCONNECT CELL CABLE
Open cover and unplug the cell cable from the control

REMOVE CELL FROM POOL PLUMBING
Remove the cell from the pool plumbing by loosening both unions with your hands. Never tighten or loosen unions with tools.



INSPECT CELL FOR CALCIUM DEPOSITS
Inspect for white deposits on the plates inside of the cell and around studs. If no deposits are found (Fig. 4A), the cell does not require cleaning and can be re-installed. Reverse steps 1-3.

Turbo Cell Maintenance

SPRAY CELL WITH HIGH PRESSURE

Spray high pressure water from a garden hose into one end of the cell and then the other end. The cell deposits should now be removed, re-install by reversing steps 1-3.

If the deposits cannot be removed by spraying, go to step 6.

Turbo Cell Maintenance

OR

- **SOAK IN WATER & MURIATIC ACID SOLUTION**
  2 parts water, 1 part muriatic acid
  ALWAYS ADD ACID TO WATER, NEVER WATER TO ACID.
- **Let the water acid mixture remain in the cell until the foaming action stops (typically 5 to 15 minutes)**
- **Once the foaming action stops, empty the cell**
- **Re-inspect cell. Repeat cleaning procedure if necessary**
- **Rinse cell with fresh water and replace in plumbing line. Hand tighten unions before restoring power to filter pump**
- **May re-use the water acid mixture multiple times**
- **Follow chemical manufacturers recommendations when storing or disposing of the water acid solution**

Aqua Rite Quick Reference Guide

- Installation
  - Plumbing
  - Electrical
  - Communication
- Operation
  - Remote Control
  - Main Switch
  - Desired Output Dial
  - Diagnostics Button
  - Led Indicators

- Water Chemistry
- Salt Chart
- Pool Sizing
- Saturation Index
- Stabilizer Chart

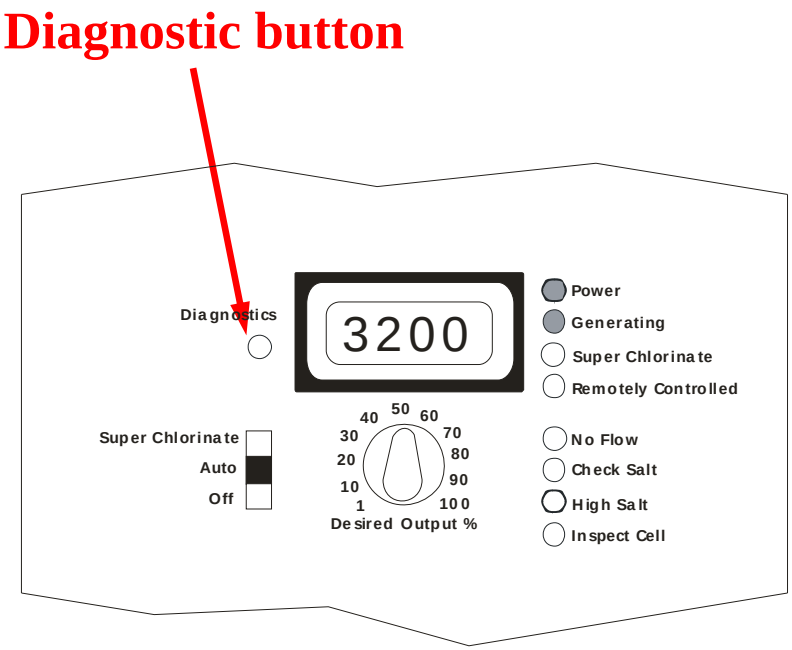
Troubleshooting

Troubleshooting

- Diagnostics menu **Typical values**

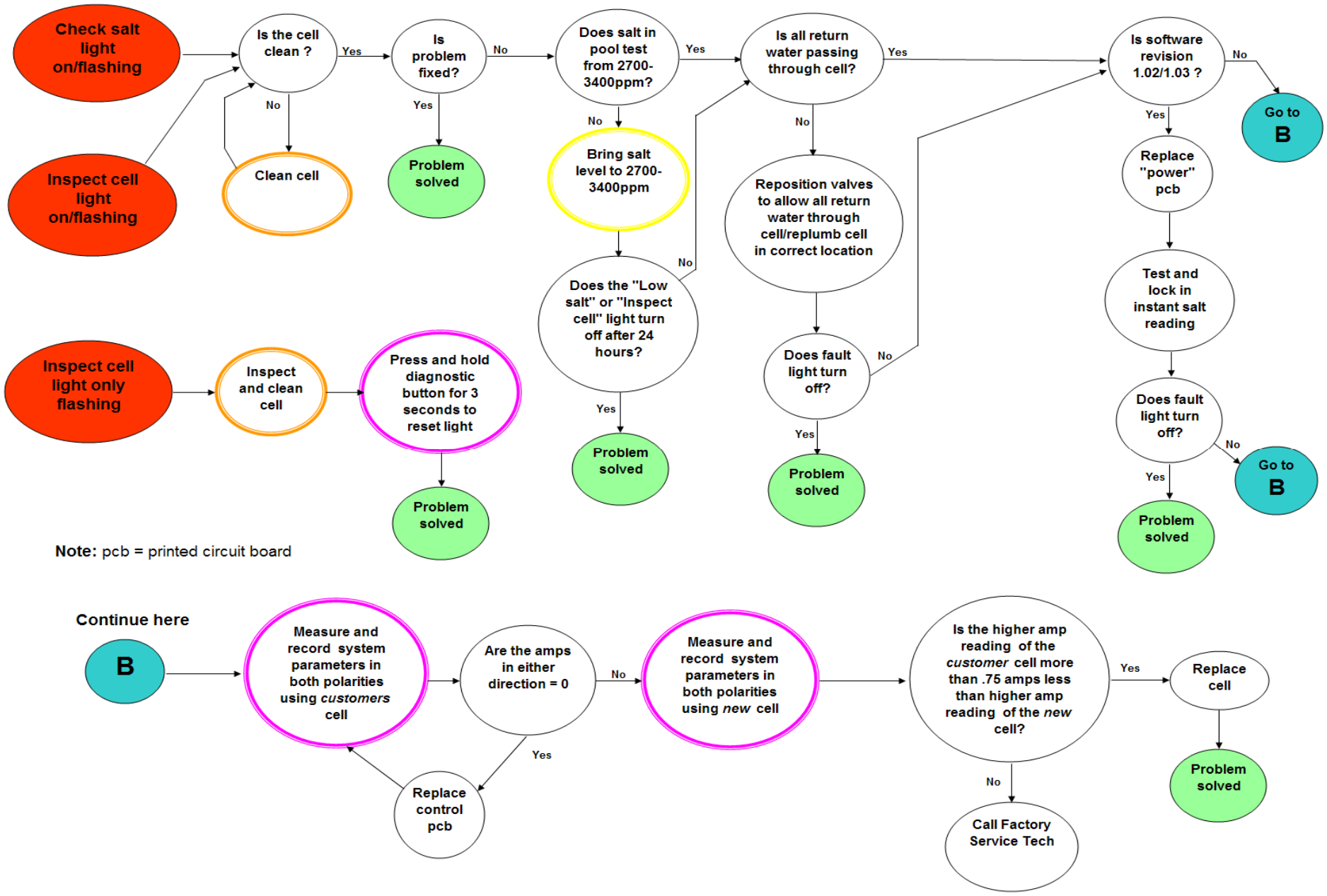
Default Salinity PPM (default display) ……. 2700 - 3400

1. Water temp …….. 50 - 104
2. Cell voltage …….. 22.0 - 26.0
3. Cell current …….. 4.80 - 7.90
4. Desired Output %…….. 5P - 100P
5. Instant salinity PPM (shows as negative) 2700 - 3400
6. Product name (used with Remote Control AL-0 - AL-5
7. Software revision …….. r1.02 - r1.40



- Check Aqua Rite in both polarities
  - Cycle “Mode” switch **Auto → Off → Auto**
  - Wait approx. 5 seconds for Aqua Rite to start generating
  - Wait another 20-30 seconds for readings to stabilize

Refer to color coded help sheets corresponding to boxes with colored outlines for more details.



Low salt light on, Inspect cell light on Troubleshooting chart

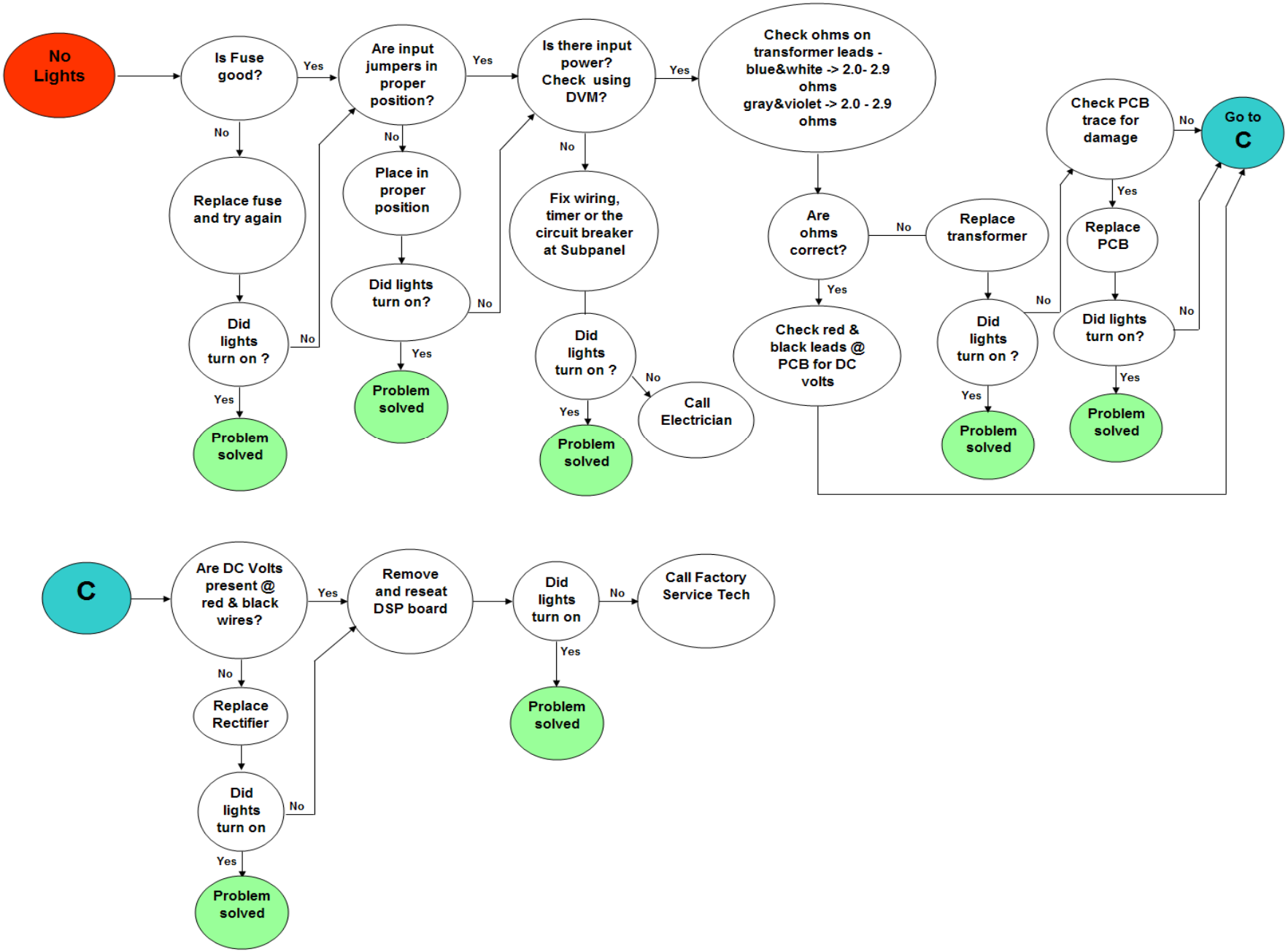
Rev 2.10

No Flow light on Troubleshooting chart

Rev 2.10

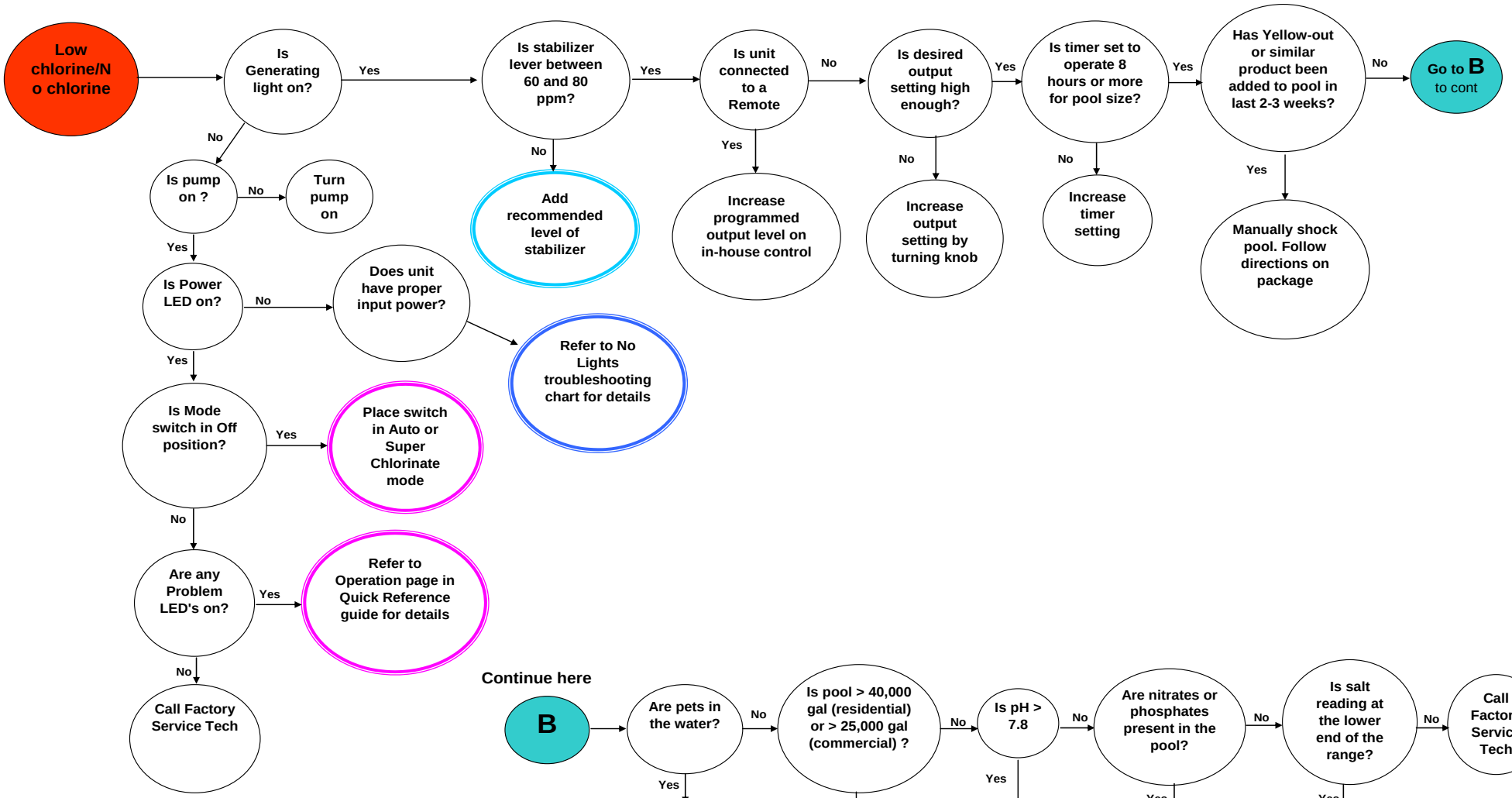
No Lights on Troubleshooting chart

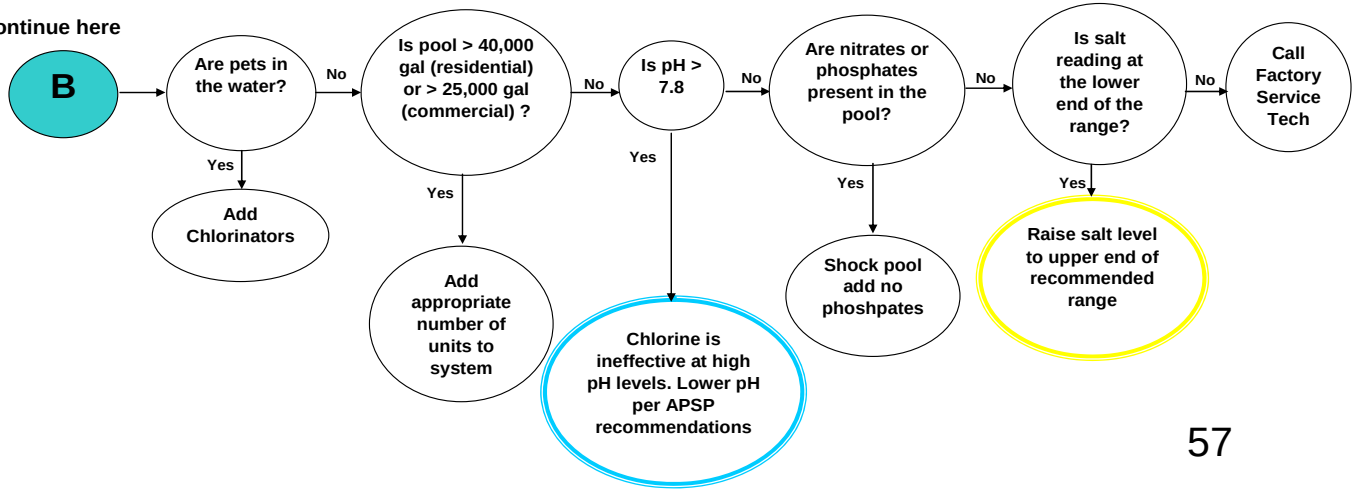
Rev 2.10



Low/No Chlorine Troubleshooting chart

Rev 2.05



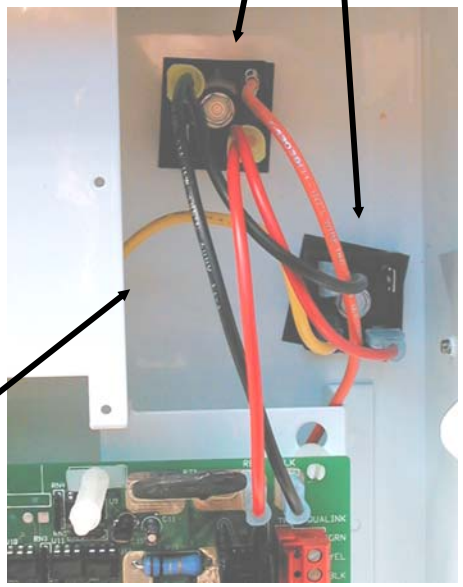


Recommendations:

1. Determine cause
2. Fix problem
3. Place Mode Switch in Super Chlorinate mode and run filter pump for 24 hours
4. Monitor and adjust Desired Output level for recommended chlorine output levels

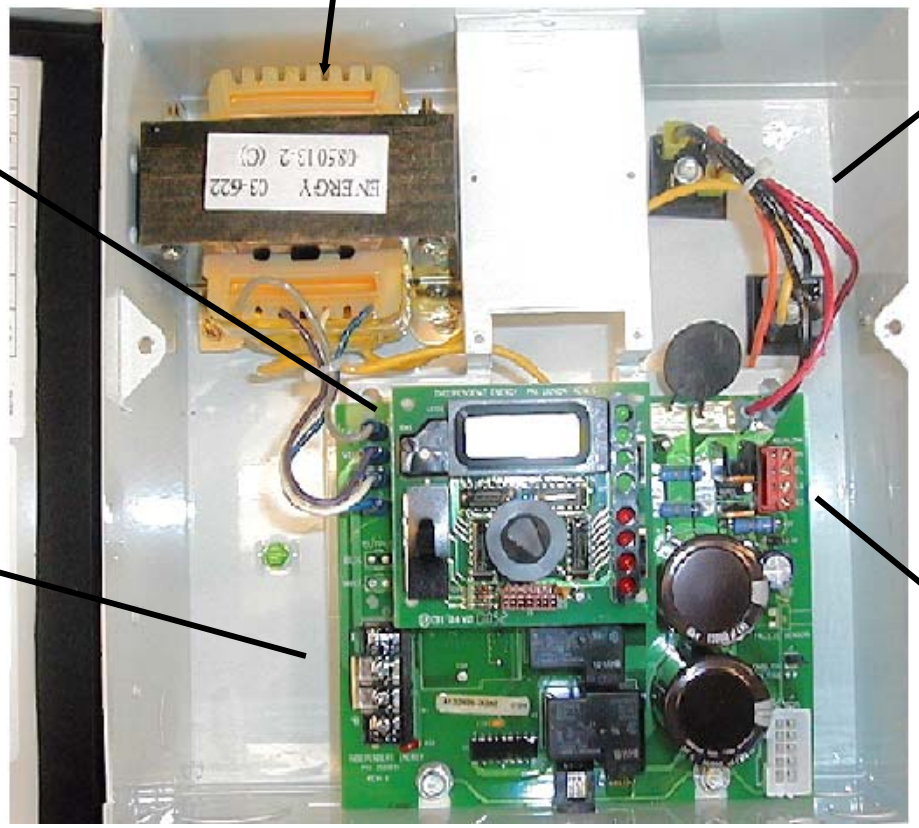
Electronic Components

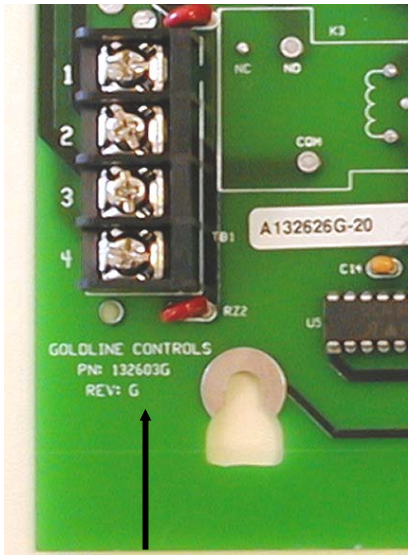
Rectifiers



Jumpers for rev G PCB only
(located under Display PCB)
- Master/Slave
- T-Cell-5/15

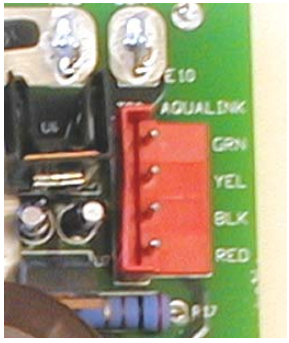
Transformer





PCB revision

Remote Control Connector

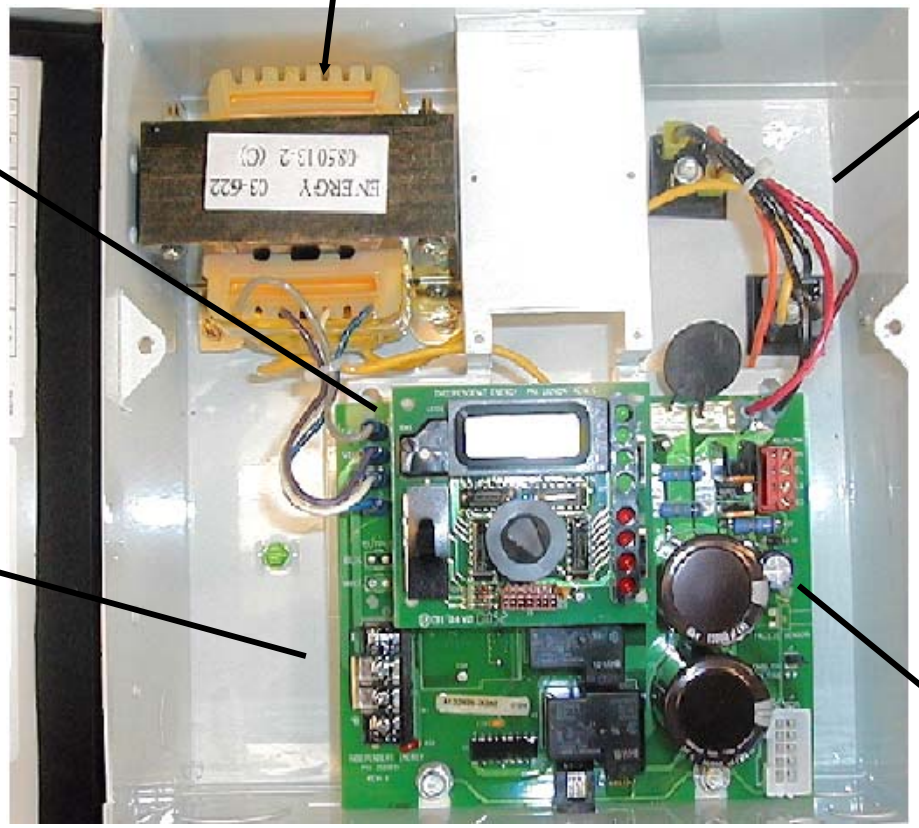


Fuse

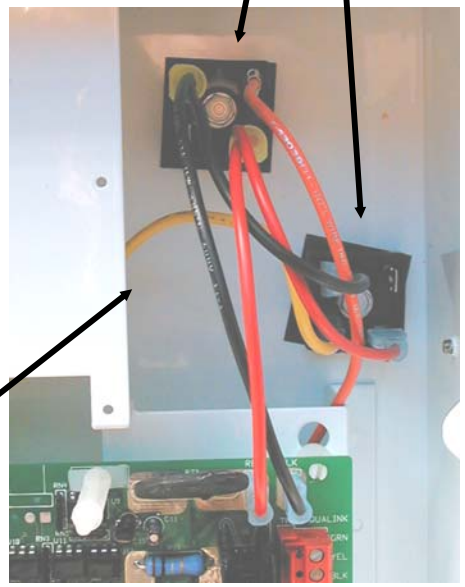
Electronic Components

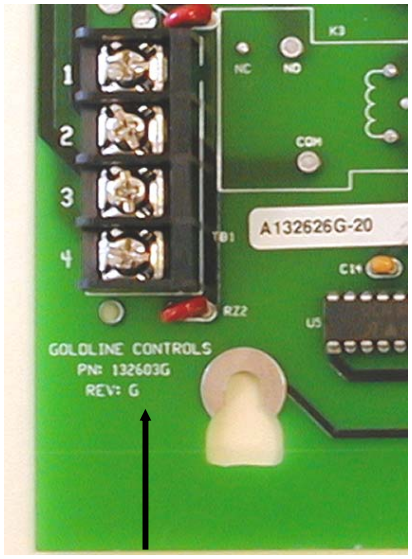
Jumpers for rev G PCB only
(located under Display PCB)
- Master/Slave
- T-Cell-5/15

Transformer



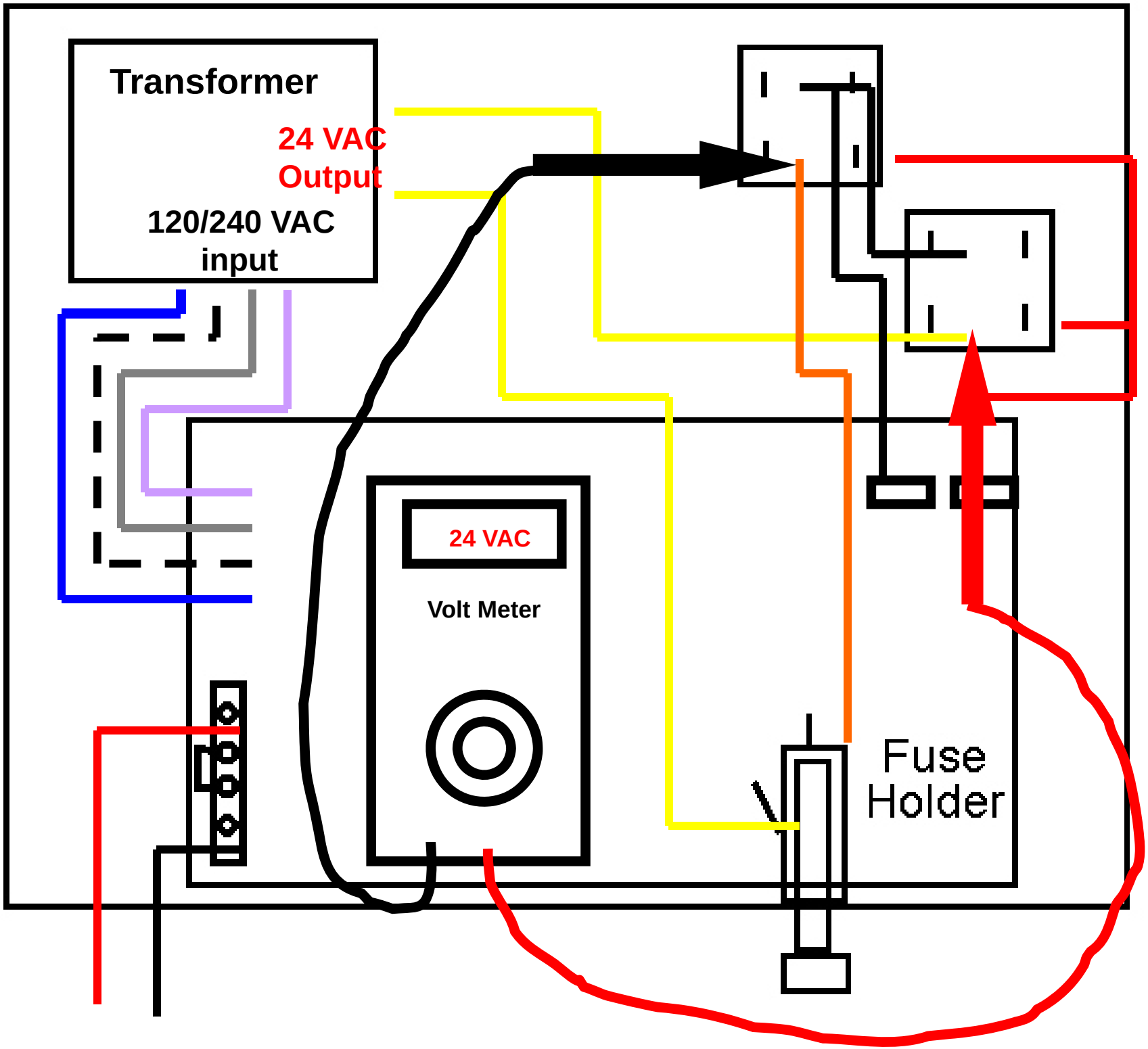
Rectifiers

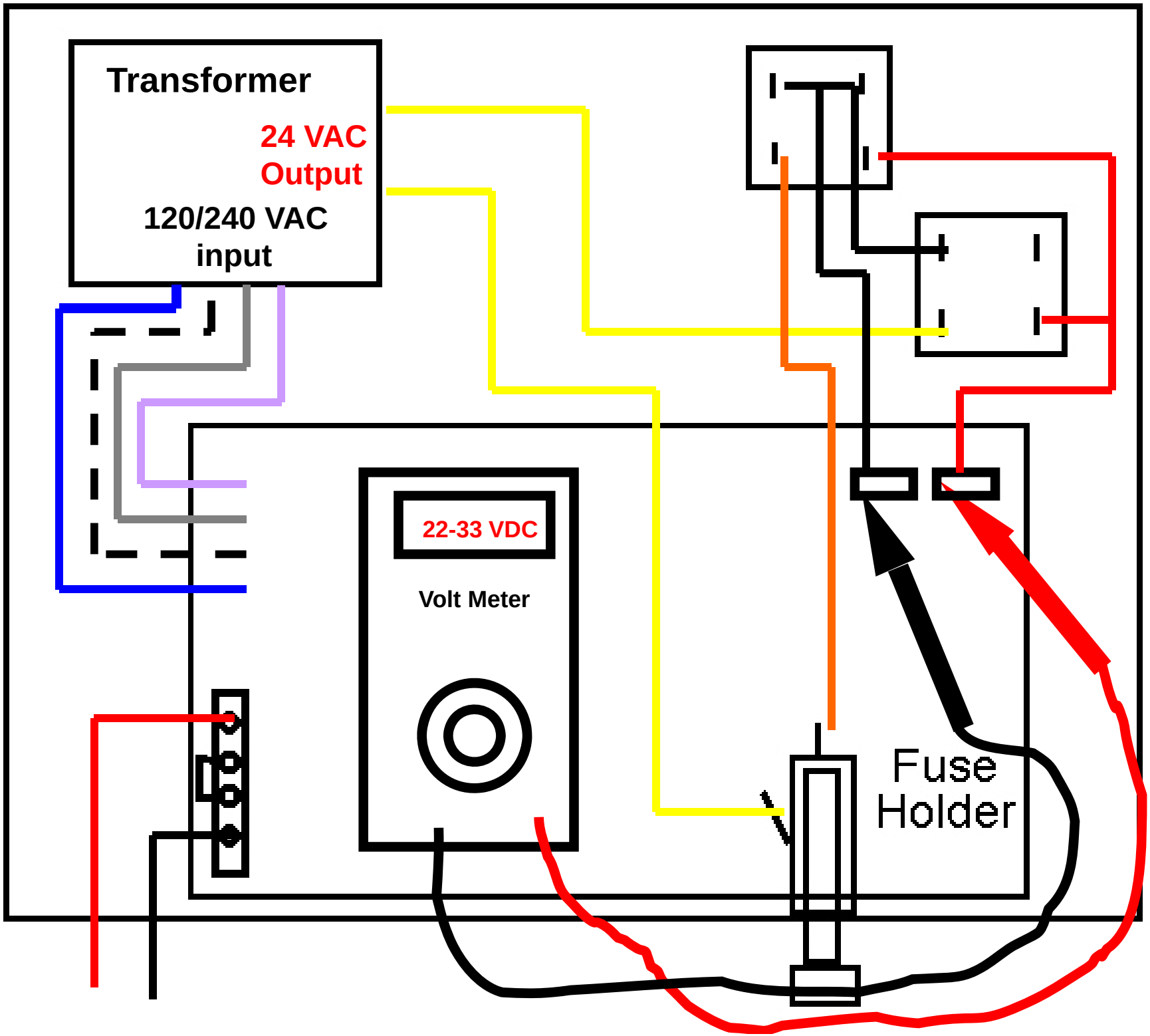


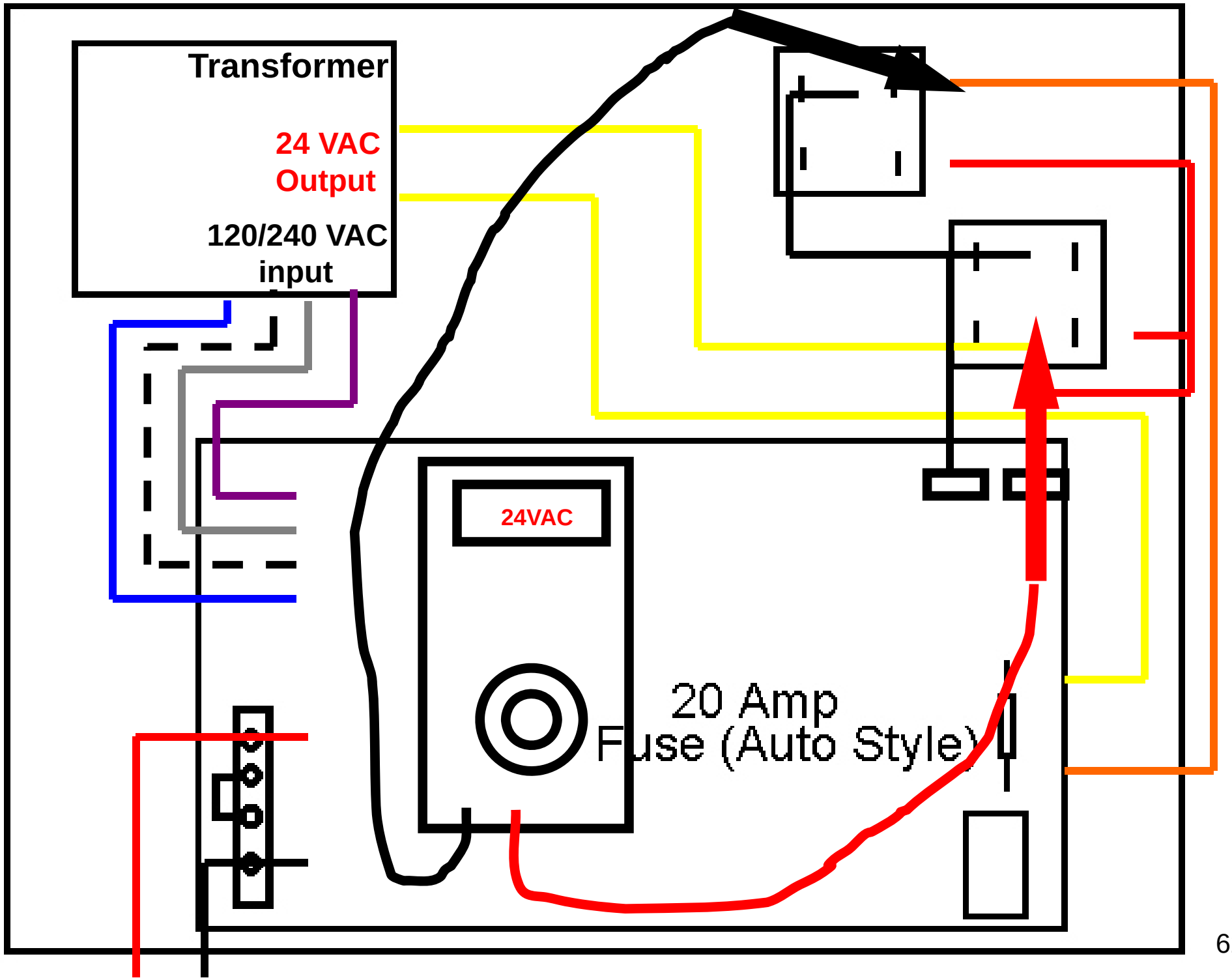


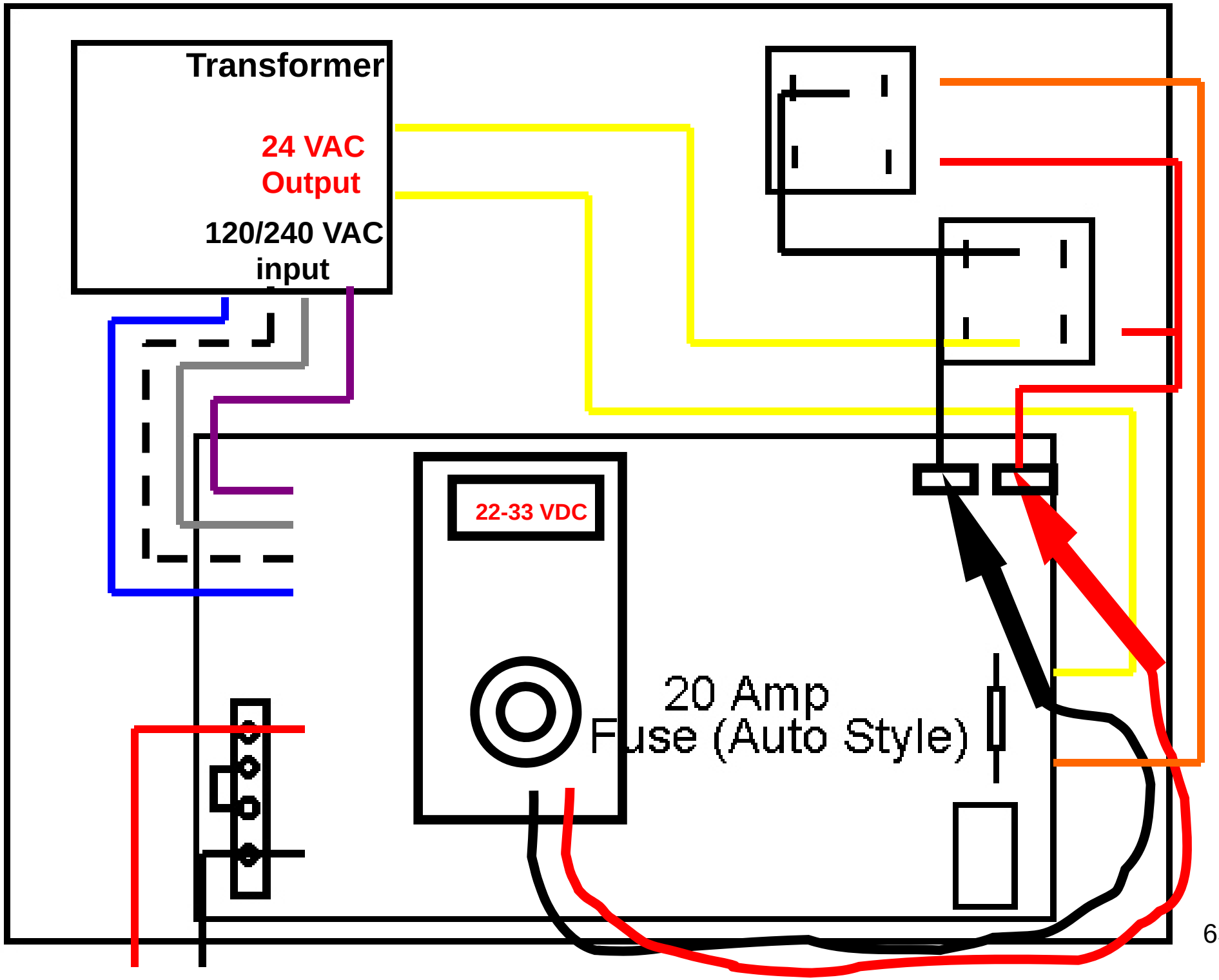
PCB revision

“New” 20 Amp Fuse


Transformer
24 VAC
Output
120/240 VAC
input
24 VAC
Volt Meter
Fuse
Holder


Transformer
24 VAC
Output
120/240 VAC
input
22-33 VDC
Volt Meter
Fuse
Holder


Transformer
24 VAC
Output
120/240 VAC
input
24VAC
20 Amp
Fuse (Auto Style)


Transformer
24 VAC
Output
120/240 VAC
input
22-33 VDC
20 Amp
Fuse (Auto Style)

Summary

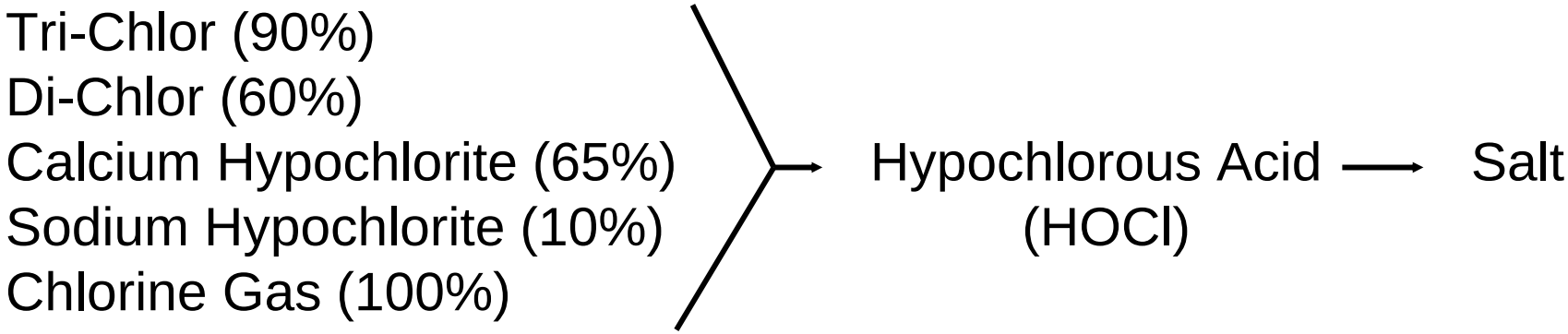
- Ensure System is installed properly
- Use the Manual
- Follow the Troubleshooting Charts, especially when testing cells
- Validate proper water chemistry

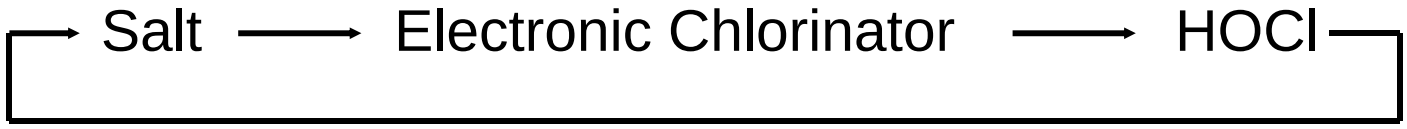
Salt & Water Chemistry

How Salt Works

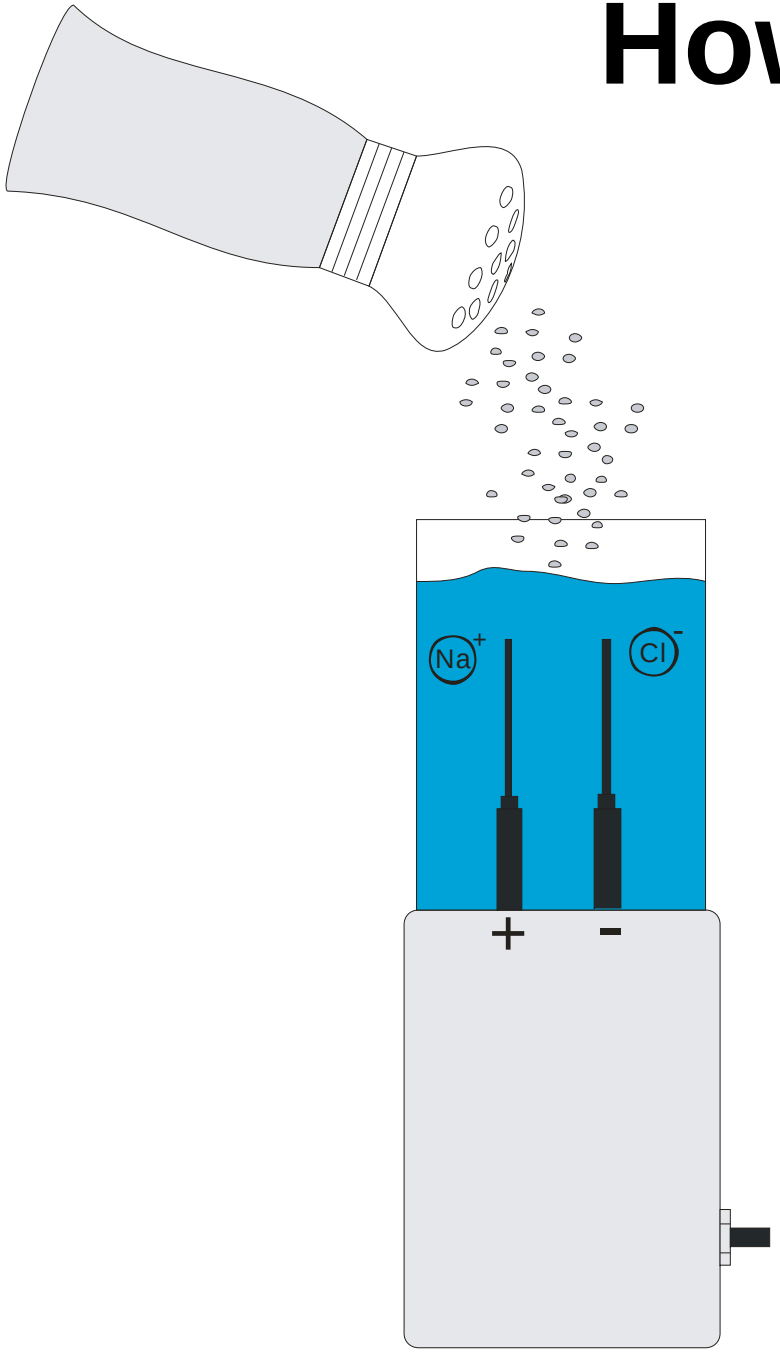
- Converting Common Table Salt into Chlorine

sodium chloride ➔ hypochlorous acid
(NaCL) (HOCL)



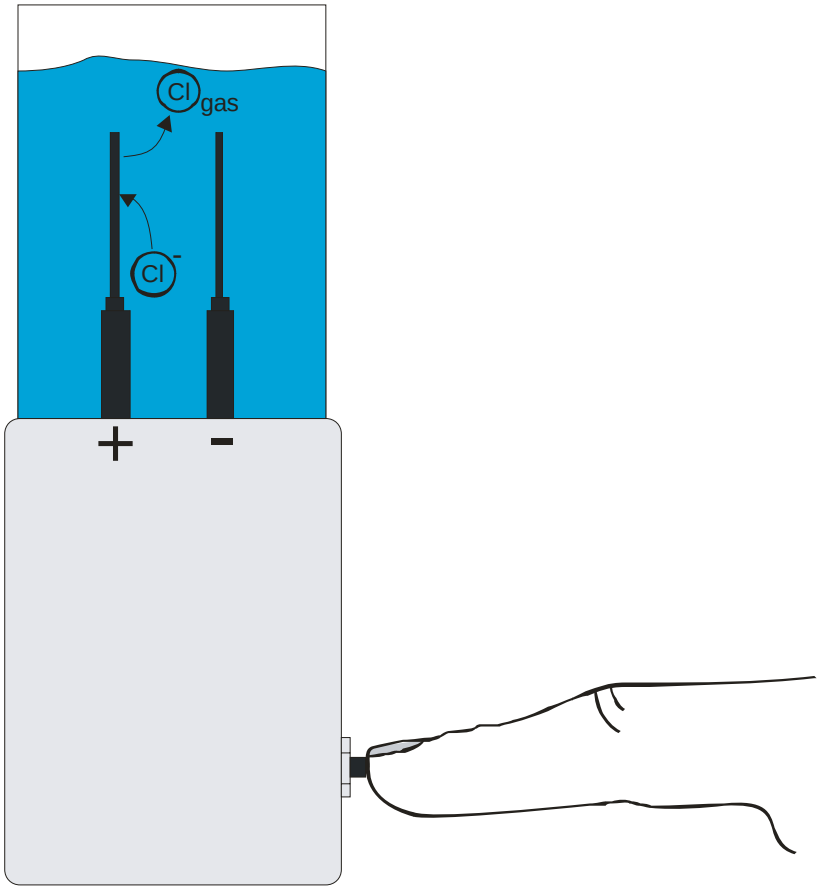


How Salt Works



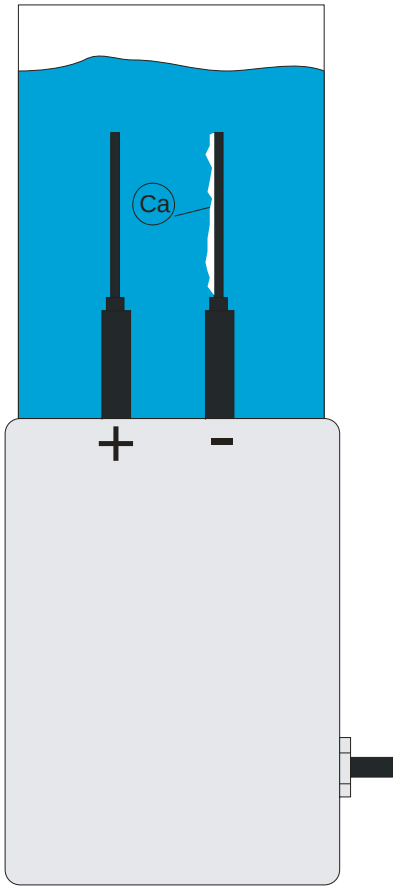
- Salt (Sodium Chloride - NaCl) added to the water

How Salt Works



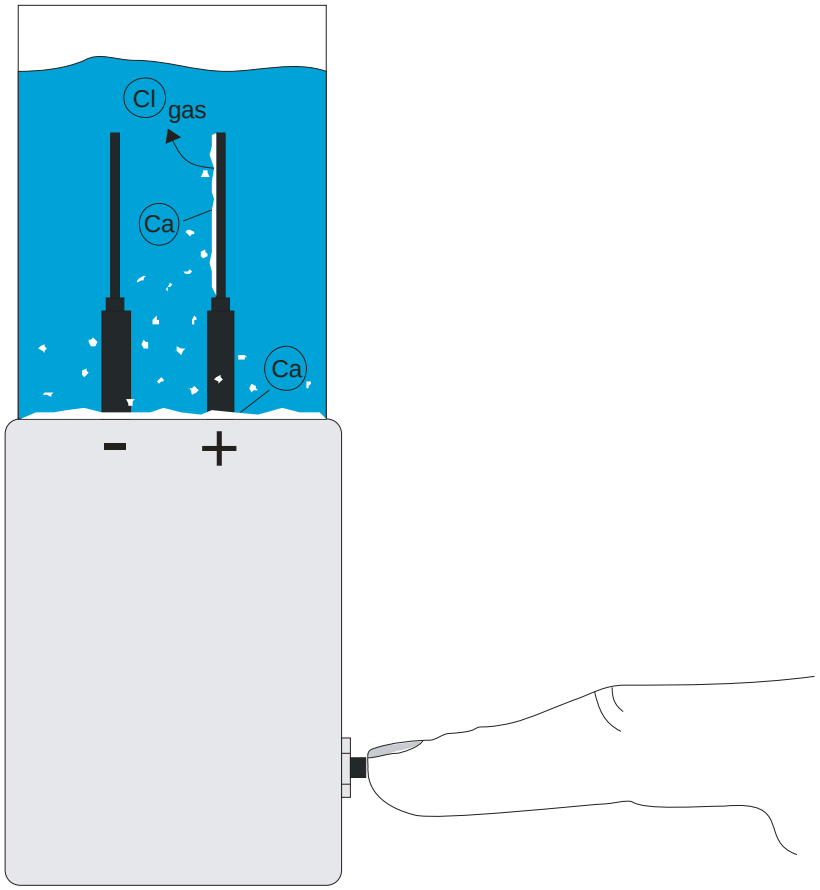
- Voltage is applied which starts current flow
- Chloride ion is released as a gas
- Combines with the water and forms hypochlorous acid (HOCL)

How Salt Works



- Calcium collects on the negative plate

How Salt Works



- Reversing polarity causes the calcium to be returned to the water

Water Chemistry

- **APSP Standards**
  - **Chlorine** — **1.0 - 3.0 ppm**
  - **pH** — **7.2 - 7.8**
  - **Total Alkalinity** — **80 - 120 plaster**
    125 - 150 vinyl/fiberglass
  - **Calcium Hardness** — **200 - 400 plaster**
    175 - 225 vinyl/fiberglass
  - **Salt** — **2700 - 3400 ppm**
  - **Stabilizer** — **60 - 80 ppm**

Water Chemistry Recommendations

- Maintain the Alkalinity at 80-90 and the pH at 7.2 -7.4
  - Minimizes cell scaling
  - Helps to control pH drift
- Stabilizer/Conditioner should be maintained at 60-80
  - Retains chlorine residual
- Saturation Index of -0.2 to +0.2 is ideal
  - Greater than +0.2 can cause excessive cell scaling

Water Chemistry Recommendations

- Phosphates should be as close 0 ppb as possible
  - Added by municipalities
  - Food for algae

- Nitrates should be 0 ppb
  - Increases chlorine demand
  - Fertilizer and Lawn chemicals

Salt

- Types of Salt - NaCl
  - Course Solar Salt
  - Non Iodized Food Grade Salt
  - Water Softening Salt
  - Morton Swimming Pool Salt
  - Potassium Chloride – KCl*

- Beware of Anti-Caking Agents such Yellow Prussiate of Soda or Sodium Ferrocyanide
  - May cause staining
  - Must be 99% pure

***** Must use 17% more than NaCl