



FOUNTAIN-GLO LOW VOLTAGE LIGHTING SYSTEM (MR16 Bulb Type)

Owner's Manual

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**WARNING:** PHYSICALLY disconnect the unit and lights from their electrical source before entering, wading in or swimming in the water in which they are installed.

## Fountain Glo Low Voltage Lighting System- Specifications

There are two different Fountain-Glo Low Voltage Lighting Systems available, High Intensity and Standard. Both use 12 volt MR16 Type Bulbs, corrosion resistant thermoplastic light housings and stainless steel mounting brackets.

#### High Intensity Low Voltage Lighting System

The High Intensity Low Voltage Lighting System has a transformer mounted in a junction box which is installed on the unit. This allows for longer cable runs since the 12 volts is transformered at the unit. The controls consist of overcurrent protection, GFCI and 24 hour timer (controls are an option with 50Hz systems).

Lights per Set	Total Wattage*	Total Candlepower*	Line Voltage Volts/Hz/Amps	Max Cable Run (ft)**
2	130	8000	115/60/1.13	1275
3	195	12000	115/60/1.7	850
4	260	16000	115/60/2.26	640
2	130	8000	220/50/0.6	4600
3	195	12000	220/50/0.9	3100
4	260	16000	220/50/1.2	2300

<sup>\* 12</sup> volt, 65 watt, 25 degree spread MR16 Type Bulbs (4000 Candlepower Each)

**WARNING:** The 65W light must be fully submerged underwater during operation in order to disipate the heat properly. Failure to do this may result in damage to the light and voids the Warranty.

#### Standard Low Voltage Lighting System

The Standard Low Voltage Lighting System has a shore mounted transformer/timer. This limits the cable runs since the 12 volts is transformered at the shore. This system does not have a junction box but rather a plastic wire junction to distribute power to each light. The controls consist of a transformer/timer module (controls are not supplied with 50Hz systems).

<sup>\*\*</sup> This is for reference purposes only and may vary depending on the actual voltage at the site.

<sup>\* 12</sup> volt, 20 watt, 40 degree spread MR16 Type Bulbs (700 Candlepower Each)

<sup>\*\*</sup> This is for reference purposes only and may vary depending on the actual voltage at the site.

#### **Installation**

Unpack and inspect your light system, report any damage to your delivery carrier. Verify you have received the following:

- 1. Light system verify you received the correct number of lights and proper length of main power cord.
- 2. Junction Box Mounting Kit (High Intensity Lights Only) verify all parts are included in the kit as described on the following pages. There will be one kit per light set.
- 3. Light Fixture Mounting Kit-verify all parts are included in each kit as described on the following pages. There must be one mounting kit per light fixture. **Note:** This kit varies depending on the type of the aerator.

The Fountain Glo Low Voltage Light System installation consists of connecting the junction box/wire junction and fixtures to the aerator and completing the electrical hook up to the control panel.

To install your lighting system, proceed to the proper section pertaining to your aerator model (Concept<sub>3</sub>, Concept<sub>2</sub>, 10 HP or Instant Fountain).

#### **Color Lens Installation**

Color Lens' snap into the legs on the outside of the light ring. Color lens' can be easily added, removed or changed without having to disassemble nor removed the light fixture. Color Lens' come in a kit (P/N 12-0085) which contains one of each color; blue, red, yellow, green.

**NOTE:** Remove protective plastic from color lens before using.

#### **Junction Box (High Intensity Lights)**

- **A.** Mount the four brackets (Item#1) to the threaded mounting holes in the junction box lid using a philips panhead screw (Item#3), a flat washer (Item#4), and a split lock washer (Item#5) for each as shown in Figure 1a. NOTE: The power and light cords are not shown in order to simplify the figures.
- **B.** Place the band clamp (Item #2) lossely around the brackets as shown in Figure 1a.
- C. Lay the unit upside down being careful not to damage the top of the pump chamber. Placing blocks or wood under the float will help prevent this damage. NOTE: Pump chamber and float not shown in Figure 1b.
- **D.** Place the junction box onto the unit as shown Figure 1b and tighten the band clamp so there is approximately a 1/2 inch gap between the bottom of the motor housing and the top of the junction box.

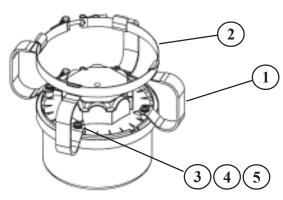


Figure 1a

Item No	Description	Qty	Part Number
1*	S/S Mounting Bracket	4	40-0116
2*	S/S Mounting Band Clamp	1	46-0129
3*	M6x12 S/S Panhead Screw	4	24-0019
4*	M6 S/S Flat Washer	4	28-0020
5*	M6 S/S Split Lock Washer	4	28-0021

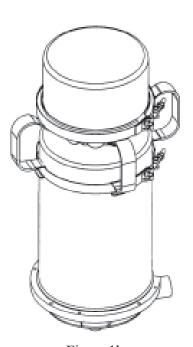


Figure 1b

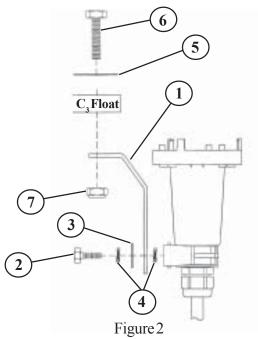
#### Wire Junction (Standard Lights)

**A.** Secure (strain relief) the main power cord to the unit with the ty-raps provided as close to the plastic wire junction as possible. The plastic wire junction will be held in place when each lights cord is secured with ty-raps.

<sup>\*</sup> Junction Box Mounting Kit, P/N 12-0100

#### **Light Fixtures**

- **A.** Refer to the Figure 2 and table below. Check that all hardware and parts are included with each kit.
- **B.** The Concept<sub>3</sub> float has light mounting pockets. The light fixtures are designed to be mounted in either of the holes in the float pockets. The lights may also be mounted in the holes around the perimeter of the float. Each fixture is mounted with the bracket on the underside of the float. Secure each bracket to the float using items 5, 6, and 7. Install it with the float between the flat washer and bracket. Snug nut, overtightening will crush the float.
- C. The brackets will already be mounted to the light fixtures at the factory. For 65W lights, adjust each fixture by loosening the bolt (Item #2) and sliding it in the slot of the bracket so that the light is fully submerged underwater during operation to prevent overheating (as close to the surface of the water as possible in order to maximize light output). It may be necessary to move the light to the other slot depending on the HP of the unit. For 20W lights, adjust each fixture so that the top of it is out of the water in order to maximize light output (overheating is not a concern with the 20W lights).
- **D.** Secure (strain relief) all of the cords with the ty-raps provided especially the main power cord to the unit.



Item No	Description	Qty per Light	Part Number
1	S/S Light Bracket	1	40-0100
2	1/4"-20x5/8" S/S Hex Bolt	1	24-0017
3	1/4" S/S Flat Washer	1	927-000
4	1/4" S/S External Star Washer	2	28-0013
5*	1/4" S/S Fender Washer	1	28-0001
6*	1/4"20x1-1/2" S/S Hex Bolt	1	24-0016
7*	1/4"-20 S/S Nylon Locknut	1	C2-112
8*	Ty-Rap (not shown)	2	GP5008

<sup>\*</sup> Light Mounting Hardware Kit, P/N GP-110

#### **Junction Box (High Intensity Lights)**

- **A.** Place the aerator on a flat surface with the float down. Remove one of the support arms from your aerator by removing the two 1/4" flange nuts (Item A) at the brass mounting ring and the 5/16" bolt, washer and nut (Item B) from the support arm brace. Tip the arm outward. (See Figure 3)
- **B.** Slide the junction box under the two remaining support arms and place on the motor housing. It may be necessary to feed one or two of the light housings and cable through the arms above the motor housing.
- C. Reinstall the support arm removed in step A, by re-attaching it with the two 1/4" flange nuts and the 5/16" bolt, washer and nut.
- **D.** Place the Spacer (Item #1) between the junction box and the support arm brace. Secure the junction box to the unit using a M6x12 S/S Hex Bolt (Item #2), a M6 Flat Washer (Item #3) and a M6 Split Lock Washer (Item #4) through the center hole of the support arm brace and spacer, and tighten to the center threaded hole of the junction box.

NOTE:

Tighten 5/16" bolts to 15 ft-lbs (20 N-m), 1/4" flange nuts and M6 Screw to 10 ft-lbs (13 N-m).

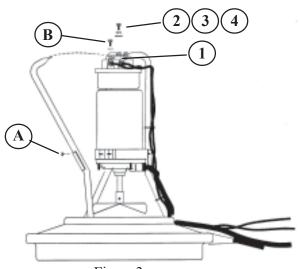


Figure 3

Item No	Description	Qty	Part Number
1*	Plastic Junction Box Spacer	1	41-0134
2*	M6x30 S/S Hex Bolt	1	22-0029
3*	M6 S/S Flat Washer	1	28-0020
4*	M6 S/S Split Lock Washer	1	28-0021

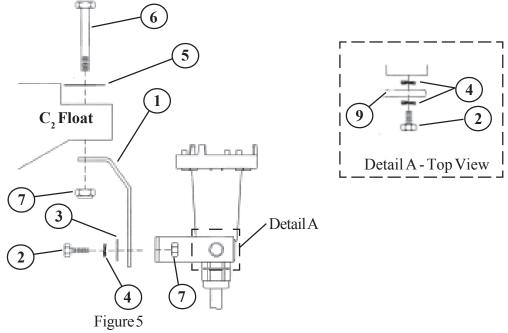
<sup>\*</sup> Junction Box Mounting Hardware Kit, P/N 12-0101

#### **Wire Junction (Standard Lights)**

**A.** Secure (strain relief) the main power cord to the unit with the ty-raps provided as close to the plastic wire junction as possible. The plastic wire junction will be held in place when each lights cord is secured with ty-raps.

#### **Light Fixtures**

- **A.** Refer to the Figure 5 and table below. Check that all hardware and parts are included with each kit.
- **B.** The Concept<sub>2</sub> float has twelve 1/2" holes in the outer rim of the float. The light fixtures are designed to be mounted in any of these holes. Each fixture is mounted with the bracket on the underside of the float. Secure each bracket (Item #1) to the float using items 5, 6, and 7. Install it with the float between the flat washer and bracket. Snug nut, overtightening will crush the float.
- C. The "L" brackets will already be mounted to the light fixtures at the factory. Mount each light fixture to a bracket using items 2, 3, 4, and 7 as shown in Figure 5. For 65W lights, adjust each fixture by loosening the bolt (Item #2) and sliding it in the slot of the bracket so that the light is **fully submerged underwater** during operation to prevent overheating (as close to the surface of the water as possible in order to maximize light output). It may be necessary to move the light to the other slot depending on the HP of the unit. For 20W lights, adjust each fixture so that the top of it is out of the water in order to maximize light output (overheating is not a concern with the 20W lights).
- **D.** Secure (strain relief) all of the cords with the ty-raps provided especially the main power cord to the unit.



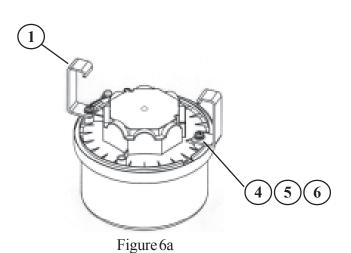
Item No	Description	Qty per Light	Part Number
1	S/S Light Bracket	1	40-0100
2	1/4"-20x5/8" S/S Hex Bolt	2	24-0017
3	1/4" S/S Flat Washer	1	927-000
4	1/4" S/S External Star Washer	3	28-0013
5	1/4" S/S Fender Washer	1	28-0001
6	1/4"20x2-3/4" S/S Hex Bolt	1	FR103
7	1/4"-20 S/S Nylon Locknut	2	C2-112
8	Ty-Rap (not shown)	2	GP5008
9	S/S "L" Light Bracket	1	40-0105

Light Mounting Hardware Kit, P/N GP-110 Bracket/Hardware Kit, P/N 12-0098

#### **Installation on a 10HP Unit**

#### **Junction Box (High Intensity Lights)**

- **A.** Open all plastic packets and check that all hardware is supplied with your unit.
- **B.** Mount the two brackets (Item#1) to the threaded mounting holes in the junction box lid using a philips panhead screw (Item#4), a flat washer (Item#5), and a split lock washer (Item#6) for each as shown in Figure 6a. The brackets must be positioned as shown in Figure 6a. NOTE: The power and light cords are not shown in order to simplify the figures.
- C. Referring to Figure 6b below, place the aerator on a flat surface with the float down. If a screen assembly option was ordered with your unit install it now. Assemble two of the larger hose clamps (Item #2) and one of the smaller clamps (Item #3). This large clamp assembly will now fit around the housing of the unit. Repeat for the remaining three hose clamps. Place the clamps over the bottom of the unit and leave loose.
- **D.** Mount the junction box to the unit by sliding the "hook like" turns in each bracket behind the previously installed hose clamps. **Note: Mount the junction box opposite the power connection.** Tighten the fasteners on the clamps to secure.



Item No	Description	Qty	Part Number
1*	S/S Mounting Bracket	2	40-0008
2*	S/S Band Clamp, Large	4	CP4070
3*	S/S Band Clamp, Small	2	MP2100
4*	M6x12 S/S Panhead Screw	2	24-0019
5*	M6 S/S Flat Washer	2	28-0020
6*	M6 S/S Split Lock Washer	2	28-0021

Combine 2 large clamps (Item #2) and 1 small clamp (Item #3) to secure J-box in 2 locations. (2 required)

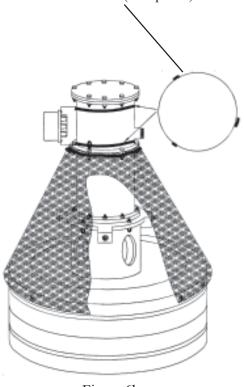


Figure 6b

#### **Wire Junction (Standard Lights)**

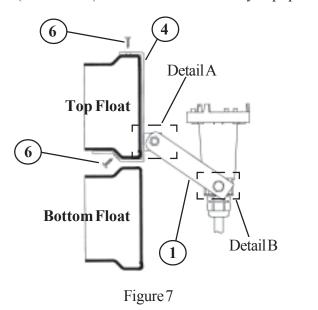
**A.** Secure (strain relief) the main power cord to the unit with the ty-raps provided as close to the plastic wire junction as possible. The plastic wire junction will be held in place when each lights cord is secured with ty-raps.

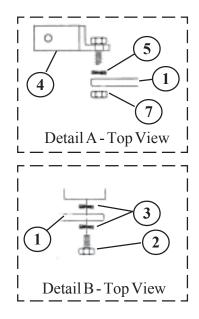
<sup>\*</sup> Junction Box Mounting Hardware Kit, P/N 12-0102

#### **Installation on a 10HP Unit**

#### **Light Fixtures**

- A. One mounting kit is supplied for each light fixture. Verify all parts were shipped with your kit.
- **B.** Attach the light float bracket (Item#4) to the top float of your unit. Turn the unit over so the unit is setting with the floats up. **Note:** It may be easier to attach the brackets if you first remove the float retaining ring and lifting the float off and away from the unit. Secure the brackets so they are evenly spaced around the float using two self tapping screws (Item#6). If float was removed, it should be installed back on the unit at this time.
- C. The light brackets (Item#1) will already be mounted to the light fixtures at the factory. Mount the light fixtures to each light float brackets using hex bolt that is welded to the bracket, a star washer (Item#5) and a nylon lock nut (Item #7). For 65W lights, adjust each fixture to desired angle so that the light is fully submerged underwater during operation to prevent overheating (as close to the surface of the water as possible in order to maximize light output). For 20W lights, adjust each fixture so that the top of it is out of the water in order to maximize light output (overheating is not a concern with the 20W lights). Tighten the nylon locknut.
- **D.** Secure (strain relief) all of the cords with the ty-raps provided especially the main power cord to the unit.





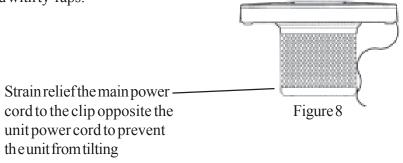
Item No	Description	Qty per Light	Part Number
1	S/S Light Bracket	1	40-0108
2	1/4"-20x5/8" S/S Hex Bolt	1	24-0017
3	1/4" S/S External Star Washer	2	28-0013
4*	S/S Light Float Bracket	1	40-0007
5*	5/16" S/S External Star Washer	1	28-0006
6*	#10 x 3/4" S/S Screw	2	BP2803B
7*	5/16"-18 S/S Nylon Locknut	1	GP1208
8*	Ty-Rap (not shown)	3	GP5008

<sup>\*</sup> Light Mounting Hardware Kit, P/N 12-0015

#### **Installation on an Instant Fountain Unit**

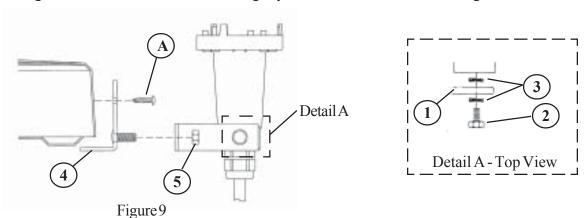
#### Wire Junction (Standard Lights)

**A.** Secure (strain relief) the main power cord of the wire junction to the unit (See Figure 8) with the ty-raps provided as close to the plastic wire junction as possible. The plastic wire junction will be held in place when each lights cord is secured with ty-raps.



#### **Light Fixtures**

- **A.** Lights are mounted on the side of the float shell using one of the six screws securing the two float shell halves together. To mount the lights, remove two or three of the screws (Item A) as shown. If two lights are being installed, it is recommended for them to be placed 180 degrees apart, three lights 120 degrees apart.
- **B.** Install the L-bracket as shown using the screws removed in Step A.
- ${\bf C.}$  The light brackets will already be mounted to the light fixtures at the factory. Install each light fixture to each L-bracket using the 5/16" nut supplied.
- E. The light fixture can be tilted or rotated slightly for the best effect. Secure the light cords with the ty-raps provided.



Item No	Description	Qty per Light	Part Number
1	S/S Light Bracket	1	40-0105
2	1/4"-20x5/8" S/S Hex Bolt	1	24-0017
3	1/4" S/S External Star Washer	2	28-0013
4*	S/S "L" Light Bracket	1	FR704
5*	5/16"-18 S/S Nylon Locknut	1	GP1208
6*	Ty-Rap (not shown)	2	GP5008

<sup>\*</sup> Light Mounting Hardware Kit, P/N 12-0086

## **Light Fixture Parts Breakdown - Figure 10**

Item No	Description	Qty	Part Number
1	Cord Assy, H/I Light Set Cord Assy, Std Light Set	1 (1)	08-0050 08-0042
2*	Clamp Assy, MR16 Plastic Light	1	10-0066
3*	Nylon Washer, MR16 Light	1	29-0005
4	Bulb, 65W, H/I Light Set Bulb, 20W, Std Light Set	1 (1)	31-0143-065 31-0143-020
5*	Socket, MR16 Bulb	1	31-0144
6*	Liquid -Tight Cord Connector	1	33-0032
7*	Housing, MR16 Plastic Light	1	42-0029
8*	Ring, MR16 Plastic Light	1	42-0030
9*	Lens, Glass, MR16 Plastic Light	1	47-0004
10*	O-Ring, MR16 Plastic Light	1	49-0020
11*	Crimp Connector (not shown)	2	33-0028-001
12*	Potting Compound, 3M Scotchcast 2112 (not shown)		52-0003

<sup>\*</sup> These parts are common to both H/I and Std Light Sets

#### NOTES:

- 1. Apply silicone to the threads of the Cord Connector (Item #6) when installing into the Housing (Item #7). Make sure the Nylon Washer (Item #3) is on the Cord Connector before installing. Do not overtighten, may cause damge to the Housing. **Note:** Items #1, 2, 3, 5, 6, 7, 11, 12 can be purchased as a potted assembly (P/N 09-0026 for H/I Lights & 09-0027 for STD Lights) and items #2, 3, 6, 7 can be purchased as an assembly (P/N 09-0015).
- 2. Do not touch bulb or inside of reflector with bare hands, may damage glass and/or reduce bulb life.
- 3. The potting compound is used to sealed the light housing and electrical connections. This is the same potting compound used in the plastic junction boxes.

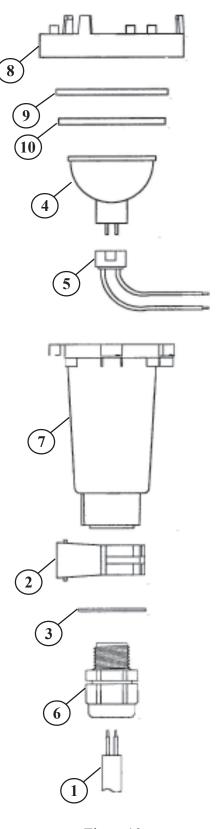


Figure 10

## **Light Bulb Replacement**

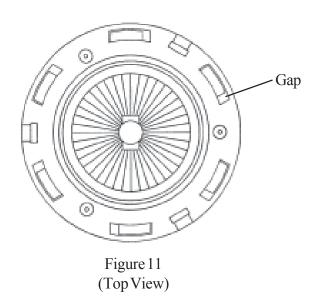
In the event that the light bulb requires replacement, follow these steps.

- **A.** Physically disconnect the power from the unit and the light set. Allow lights to cool to avoid skin burns.
- **B.** Remove the light fixture(s) from the float and from the water. Dry excess water off of the light fixture.
- C. Remove the light ring from the housing by twisting it counter-clockwise and lifting it off.
- **D.** Remove the glass lens and o-ring.
- **E.** Remove the bulb by pulling it straight out of the socket.
- **F.** Install the new bulb by pushing it straight into the socket. Verify that the new bulb is the same wattage as the old bulb.

NOTE: The socket will be damaged if the bulb is not pulled out and pushed in straight. When installing or inspecting the bulb do not touch the inside of the reflector or the bulb itself with bare hands. This may cause premature failure or shorten bulb life.

**G.** Reinstall the glass lens and the o-ring onto the top of the housing. Place the light ring on top of the housing so it rests in the tabs and twist it clockwise until it snaps into place.

NOTE: If the light ring is on the housing properly, there will be approximately a 1/8" gap to the right of each tab on the housing when looking from the top (See Figure 11). If this gap is not present, the light ring is not on properly and needs to be twisted more clockwise.



- **H.** Reinstall the light fixture(s) to the float.
- **I.** Reconnect power to the unit and the light set. Reset timers if necessary.

#### **Electrical Installation**

#### ALL ELECTRICAL WORK MUST BE COMPLETED BY AQUALIFIED LICENSED ELECTRICIAN.

Make sure that all electrical work conforms with local and national electrical codes for underwater lighting.

**CAUTION:** Light controls supplied by Otterbine contain GFCI (RCD) protection; if you have purchased your system without a factory control system, the use of a GFCI (RCD) is REQUIRED.

#### High Intensity Light Set (65W Bulbs)

- **A.** Connect the light power cable (and sequencer cable if a sequencer set) to the terminal blocks in the power control center.
- **B.** After all electrical connections have been made, place the aerator/fixture in the water and apply power. Position cable to prevent any possible damage. If adjustment of any fixture is required, disconnect power and refer to the appropriate installation instructions and diagrams.
- C. In the power control center, adjust the light timer to operate the lights as desired (See next page for timer operation instructions).

**NOTE:** The light controls go through the auxiliary contact of the motor starter. Therefore, the lights can only come on if the unit is running. If the light controls are in a separate enclosure the auxiliary contact will be shipped loose with it. It must be installed onto the motor starter and connected to the auxiliary contact terminal block in the light control PCC with 12awg wire. The auxiliary contact should only be bypassed for service by simply placing a jumper across the auxiliary contact terminal block in the light control PCC.

#### Standard Light Set (20W Bulbs)

- **A.** Plug the timer/transformer into a 115V waterproof outlet or connect it into the unit power control center. Connect the light power cable to the 12V output on the bottom of the timer transformer.
- **B.** After all electrical connections have been made, place the aerator/fixture in the water and apply power. Position cable to prevent any possible damage. If adjustment of any fixture is required, disconnect power and refer to the appropriate installation instructions and diagrams.
- C. Adjust the timer to operate the lights as desired (See inside lid of timer/transformer for timer operation instructions).

**WARNING:** PHYSICALLY disconnect the unit and lights from their electrical source before entering, wading in or swimming in the water in which they are installed.

#### **Sequencer Operation Instructions**

- 1. The sequencer controls will be pre-wired in your PCC at the factory. If this is not the case, have your sequencer controls installed by a qualified electrician.
- **2.** Program the correct time of day and desired hours of operation into the light timer. Refer to the timer instructions provided in this manual.
- **3.** The 4 position dip switch (See Figure 12, Item #1) allows you to set how long each sequence step will last or how long the lights will be illuminated during each step. Set to desired duration according to the following chart.

Time Inter	val per Step	Switch Numbers and Positions
	3.5 seconds	All OFF
	11 seconds	#1 ON
	20 seconds	#2 or #3 ON
	27 seconds	#1 and (#2 or #3) ON
	35 seconds	#2 and #3 ON
	45 seconds	#1, #2 and #3 ON
1 minute	20 seconds	#4 ON
1 minute	30 seconds	#1 and #4 ON
1 minute	40 seconds	#4 and (#2 or #3) ON
1 minute	45 seconds	#1, #4 and (#2 or #3) ON
2 minute	15 seconds	AllON

**NOTE:** There is a 20% variance in these times due to electronic tolerances.

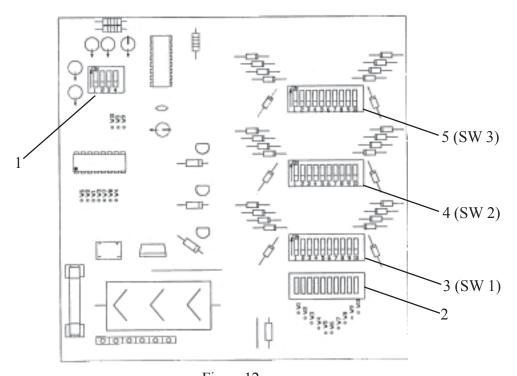


Figure 12

**4.** Select which lights you want illuminated at any given step by using the three 10 position dip switches (See Figure 12, Items #3, #4, #5). Each 10 position dip switch controls a light or a set of lights. Each dip switch within a row is equal to the time length programmed in Step 3. Therefore, the total program length is equal to this time step multiplied by 10 since there are 10 dip switches within each row. Determine the desired program, and turn each dip switch ON or OFF accordingly. The LED lights (See Figure 12, Item #2) indicate which step you are in or which row of switches are activated.

EXAMPLE:		Dip Sv	vitch Sett		
	LED's	SW1	SW2	SW3	
	1	ON	OFF	ON	Assume SW1 controls a red light,
	2	OFF	ON	ON	SW2 controls a blue light, SW3
	3	ON	ON	ON	controls a green light
	4	OFF	OFF	ON	
	5	OFF	ON	ON	When Step 1 (Row 1) is activated (ie
	6	ON	ON	OFF	- LED #1 is ON) the Red and Green
	7	OFF	OFF	ON	lights will be ON and the Blue light will
	8	OFF	ON	ON	be OFF. This follows for each step in
	9	ON	ON	OFF	the sequence.
	10	OFF	OFF	ON	-

#### **SEQUENCER PROGRAMS**

The following are two of the most popular programs used with sequencing light sets. Use the light sequencer instructions to program the three 10 position dip switches as referenced below.

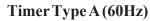
	Dip Sw	Dip Switch Settings			Dip Switch Settings			
	Progra	m#1			Prograi	m#2		
LED's	SW1	SW2	SW3		SW1	SW2	SW3	
1	ON	ON	OFF		ON	OFF	OFF	
2	OFF	ON	ON		OFF	ON	OFF	
3	ON	OFF	OFF		OFF	OFF	ON	
4	ON	ON	ON		ON	OFF	OFF	
5	ON	OFF	ON		OFF	ON	OFF	
6	ON	OFF	OFF		OFF	OFF	ON	
7	OFF	ON	ON		ON	OFF	OFF	
8	ON	OFF	ON		OFF	ON	OFF	
9	OFF	ON	OFF		OFF	OFF	ON	
10	ON	OFF	ON		ON	OFF	OFF	

Please note these are only two of many programs that you may select. YOUR IMAGINATION IS YOUR LIMIT!!

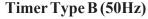
**NOTE:** When the unit is turned on, it is normal for more than one LED indicator to go on until the unit warms up. It takes approximately three time intervals to warm up. The white wire is used as common, green is ground, red is SW1, black is SW2 and orange is SW3.

## **Timer Operation - H/I Light Controls**

**Note:** There are two types of the timers used depending on the voltage and frequency of your unit. Refer to the appropriate timer instructions.



- 1. Push in (towards center) all of the tripper pins on the timer dial.
- **2.** Pull **out** all of the tripper pins on the dial that are between the times you want the unit to run. Example: If you want the unit on from 7:00AM 5:00PM, you would then pull out all of the tripper pins between those times. When the dial rotates to a tripper pin that is in, it will turn off.
- **3.** Turn the dial clockwise to set the time of day. Close the panel and apply power. In case of power failure, reset timer.



- 1. Set the timer trippers to the desired run time. Light colored tripper turns the unit on, Dark colored tripper turns the unit off. To move the trippers, loosen the set screw by hand and adjust
- 2. Turn the dial counter clockwise and align the actual time of day with the time tab point located off of the center of the face and pointing down. To manually operate the timer move the manual selector switch to the on or off position. Close panel and apply power. In case of power failure, reset timer.



Timer Type A

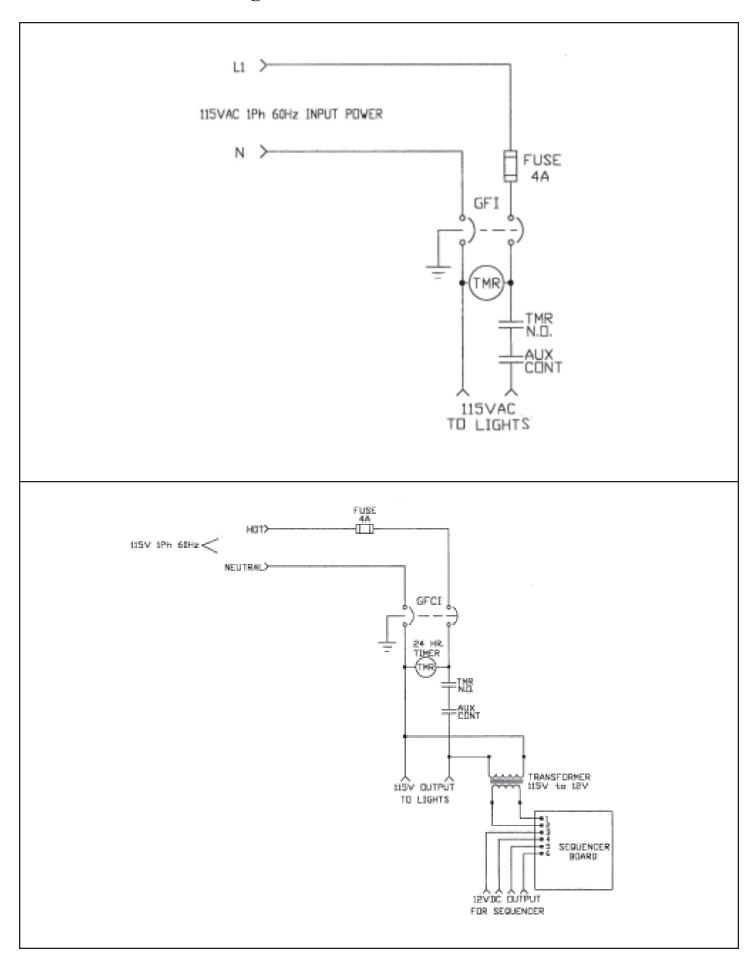


Timer Type B

#### Maintenance

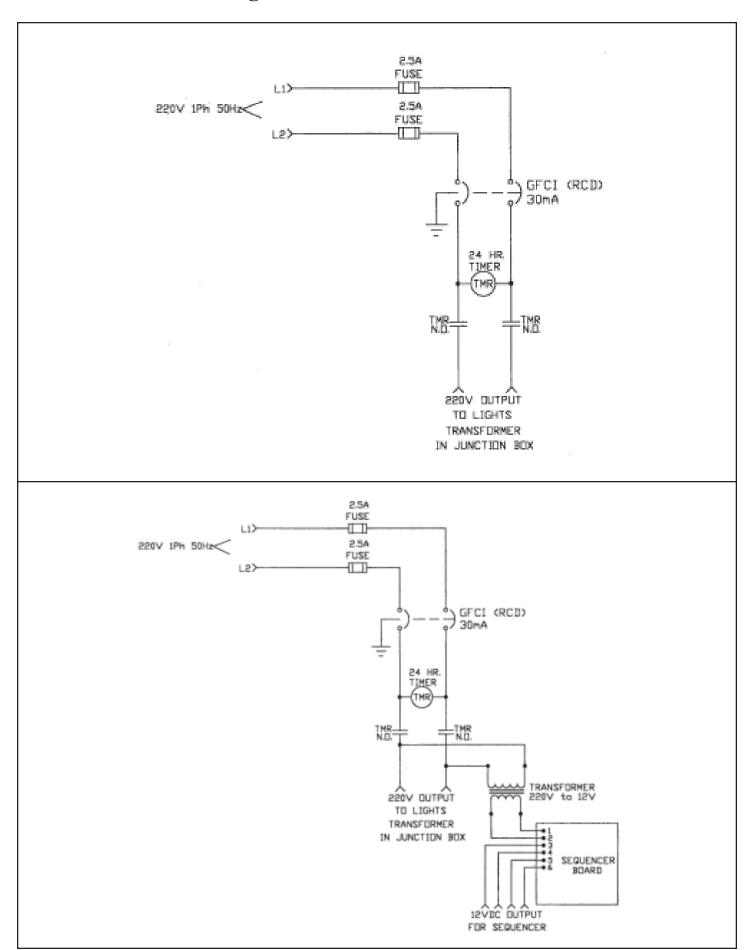
Your Otterbine light light set is designed for years of dependable service. Periodically clean the glass lens of any debris and check the cords for any damage.

# **H/I Light Controls Schematics - 60Hz**



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# H/I Light Controls Schematics - 50Hz



# Limited 1 Year Warranty Otterbine® Product

**WARRANTY:** Barebo, Inc 3840 Main Road East, Emmaus Pennsylvania 18049, U.S.A. hereby warrants, subject to the conditions hereinbelow set forth, that should the **OTTERBINE** product prove defective by reason of improper workmanship or materials at any time during the warranty period the Purchaser at retail will be guarantee that **BAREBO** will repair or replace the said **OTTERBINE** product as may be necessary to restore it to satisfactory operating condition, without any charge for materials or labor necessarily incident to such repair or replacement, provided that:

- a) The enclosed Warranty Registration Card should be mailed to **BAREBO** within fifteen (15) days of the original receipt by the Purchaser at retail in order to avoid delays:
- b) The **OTTERBINE** product must be delivered or shipped, prepaid, in its original container or a container offering an equal degree of protection, to **BAREBO** or a facility authorized by **BAREBO** to render the said repair or replacement services or, if purchased from an authorized **OTTERBINE** dealer, to such dealer;
- c) The **OTTERBINE** product must not have been altered, repaired or serviced by anyone other than **BAREBO**, a service facility authorized by **BAREBO** to render such service, or by an authorized **BAREBO** dealer, and the serial number of the **OTTERBINE** product must not have been removed or altered: and
- d) The **OTTERBINE** product must not have been subjected to lightning strikes and other Acts of God, vandalism, freezing-in, accident, misuse or abuse, and must have been installed in conformance with applicable electrical codes (including proper electrical protection), and also installed, operated and maintained in accordance with guidelines in the Owner's Manual shipped with the Otterbine product.

No implied warranties of any kind are made by **BAREBO** in connection with this **OTTERBINE** product, and no other warranties, whether expressed or implied, including implied warranties of merchantability and fitness for a particular purpose, shall apply to this **OTTERBINE** product. Should this **OTTERBINE** product prove defective in workmanship or material, the retail Purchaser's sole remedy shall be repair or replacement as is hereinabove expressly provided and, under no circumstances, shall **BAREBO** be liable for any loss, damage or injury, direct or consequential, arising out of the use of, or inability to use, the **OTTERBINE** product, including but not limited to retail Purchaser's cost, loss of profits, goodwill, damages due to loss of product or interruption of service, or personal injuries to Purchaser or any person.

Reference Information						
# of Lights:	2	3	4			
Wattage:	20	65				
Sequencer:	Yes	No				
Lights Serial #						
Power Cord Length Power Cord Gage						
Options:						



# **Water Works With Otterbine!**

Otterbine Barebo, Inc. 3840 Main Rd. East Emmaus, PA. 18049 U.S.A.

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