



# Otterbine Service Manual

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Fountain Glo™ MR16 Low Voltage Light Systems  
LED (6.5W) & Halogen (50W & 20W)



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# MR16 LOW VOLTAGE LIGHTS

## Light Fixture Service & Bulb Replacement (Halogen/LED)

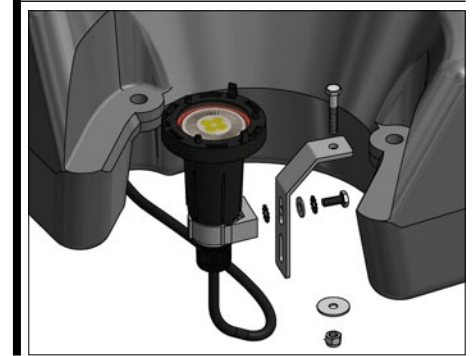
In the event that the light fixture requires service or bulb replacement, follow these steps.

**! CAUTION: ALWAYS WEAR PROTECTIVE SAFETY GLASSES WHEN PERFORMING ANY OF THE FOLLOWING PROCEDURES!**

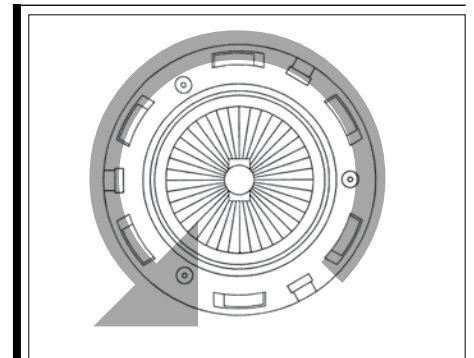
- A. Physically disconnect the power from the unit and the light set. Allow lights to cool to avoid skin burns.
- B. Remove the light fixture(s) from the float and from the water. (See Fig. 1) Dry the excess water off of the light fixture. (Reference “[Service Tips](#)” section for MR16 LED Light Fixture/Clamp Assembly – for removing a light fixture for servicing)
- C. Remove the light ring (P/N: 42-0030) from the housing by twisting it counter-clockwise and lifting it off. (See Fig. 2)
- D. Remove the glass lens and O-ring. (Discard the old O-ring)

**NOTE: ALWAYS INSTALL A NEW REPLACEMENT O-RING, WHEN SERVICING THE LIGHT FIXTURE OR CHANGING OUT BULBS. (REFERENCE TECHNICAL BULLETIN #112)**

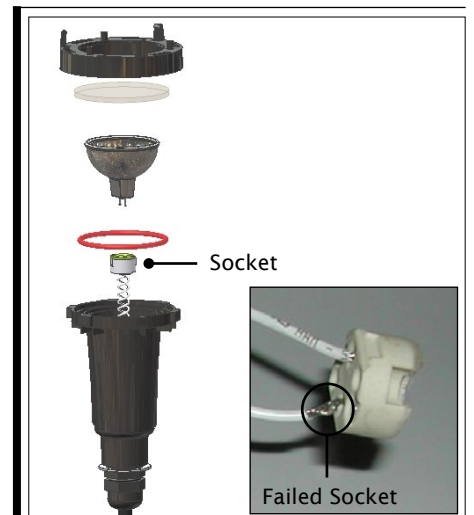
- E. In the event that water is found inside of the light fixture, follow these steps: (*If no water present Go to step F*)
  - a) Dry out the fixture.
  - b) Remove the bulb by pulling it straight out of the socket.
  - c) Inspect the light socket component; if damaged replace the entire light housing assembly P/N: 09-0029. (See Fig. 3) (Reference [Technical Bulletin # 103](#))
  - d) Before installing the new O-ring (P/N: 49-0014) make sure to clean both the O-ring groove and the glass lens, removing all debris from these critical contact points.  
(Go to step G)



*Fig. 1 | Remove light fixtures from float and water.*



*Fig. 2 | Remove the light ring from the housing by twisting it counter clockwise and lifting off*



*Fig. 3 | Inspect light socket component, if damaged replace entire light housing assembly P/N 09-0029.*

- F. In the event that you are replacing a bulb, remove the bulb by pulling it straight out of the socket. Inspect the light socket component; if damaged replace the entire fixture P/N: 09-0029. (See Fig. 3) ([Reference Technical Bulletin # 103](#))

**NOTE:** *BEFORE INSTALLING THE NEW O-RING ON THE EXISTING HOUSING ASSEMBLY; MAKE SURE TO CLEAN BOTH THE O-RING GROOVE AND THE GLASS LENS, REMOVING ALL DEBRIS FROM THESE CRITICAL CONTACT POINTS.*

- G. 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.*

- H. Reinstall the glass lens and the new replacement 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. (Reference “Service Tips” section for MR16 LED Light Fixture/Plastic Light Ring - if you experience difficulty installing the light ring)

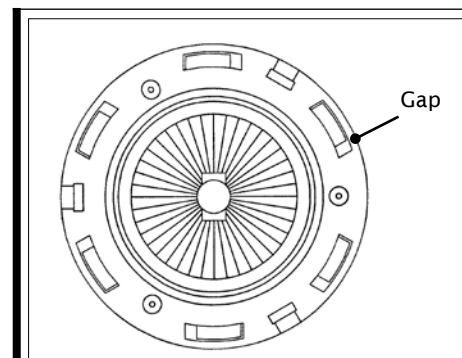
**NOTE:** *IF THE LIGHT RING IS ON THE HOUSING PROPERLY, THERE WILL BE APPROXIMATELY A 1/8” GAP TO THE RIGHT OF EACH TAB ON THE HOUSING WHEN LOOKING FROM THE TOP (See Fig. 4) IF THIS GAP IS NOT PRESENT, THE LIGHT RING IS NOT ON PROPERLY AND NEEDS TO BE TWISTED MORE CLOCKWISE.*

- I. Reinstall the light fixture(s) to the float. (Reference “[Service Tips](#)” section for MR16 LED Light Fixture/Clamp Assembly – Installation)
- J. Reconnect power to the unit and the light set. Reset timers if necessary.

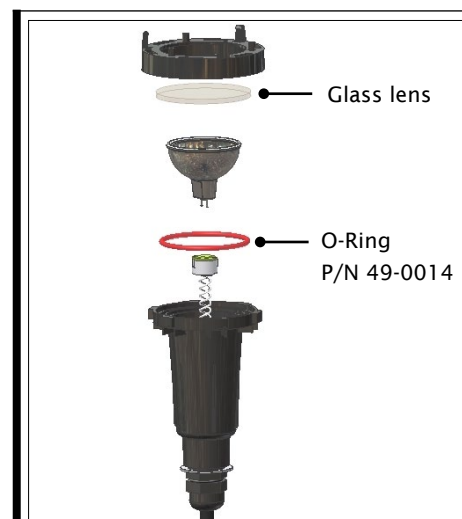
## Maintenance

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

**NOTE:** *ALWAYS INSTALL A NEW REPLACEMENT O-RING P/N: 49-0014, WHENEVER CHANGING OUT BULBS.* (Reference [Technical Bulletin # 112](#))



*Fig. 4 | When light ring is properly installed a 1/8in (3.2mm) gap will be to the right of each tab*



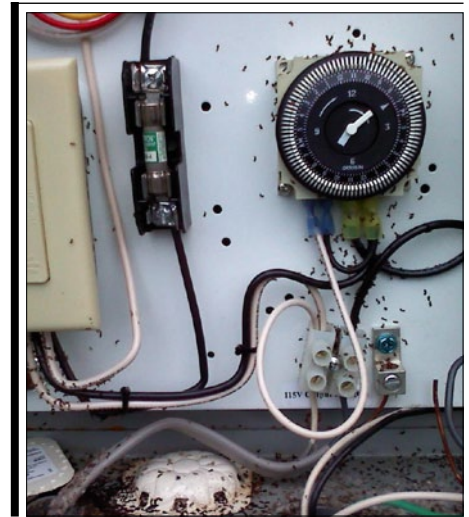
*Fig. 5 | Inspect light socket component, if damaged replace entire light housing assembly P/N 09-0029.*

Once a Year:

- 1) Inspect the power control center, be sure it is clean and free of any debris (small rodents and insects may have seek refuge in the panel) (See Fig. 6)
- 2) Test the light controls inside the PCC (GFCI/Timer)
- 3) Disconnect the fountain/light set from the power source.
- 4) Check all power cables for breaks, cuts or bite marks. Replace/repair as needed.
- 5) Check all cable strain reliefs. Be sure that if the cable is pulled for any reason that the main splice or quick disconnect will not be damaged.
- 6) Inspect the light sets physical integrity. Make sure that all hardware, bolts and nuts are secure.
- 7) Clean glass lens.

**NOTE:** *SHOULD THE LENS BE REMOVED THE O-RING SHOULD BE REPLACED.*

- 8) In the event that water is found inside of the light fixture, follow these steps:
  - a. Dry out the fixture.
  - b. Remove the bulb by pulling it straight out of the socket.
  - c. Inspect the light socket component; if damaged replace the entire light housing assembly P/N: 09-0029. (See Fig. 3) ([Reference Technical Bulletin # 103](#))
  - d. Before installing the new O-ring (P/N: 49-0014) make sure to clean both the O-ring groove and the glass lens, removing all debris from these critical contact points.



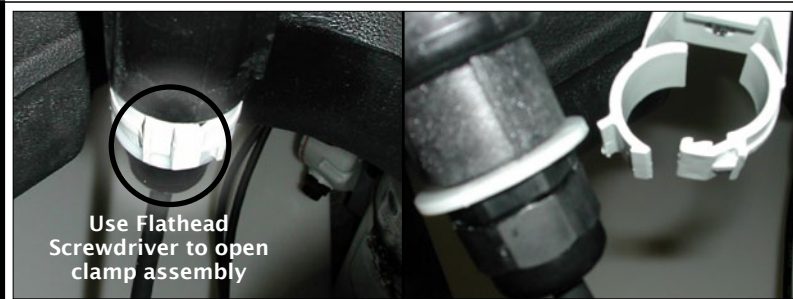
*Fig. 6 | Ants in PCC: Inspect power control center, be sure it is clean and free of debris (small rodents, insects)*



# SERVICE TIPS:

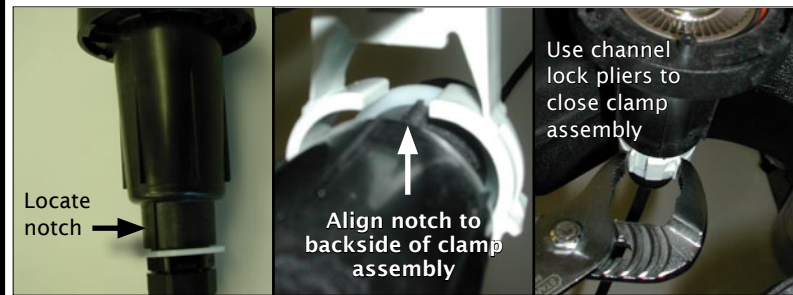
## MR16 LED Light Fixture/Clamp Assembly – Installation

- A. To remove a light fixture for servicing, simply open the clamp assembly  
P/N: 10-0066, with use of a flathead screwdriver.
- B. To reinstall, locate the notch on the light fixture, and install the notch facing towards the backside of the clamp assembly. (If the notch is not aligned correctly the clamp assembly will not close).
  - a) Clamp assembly close with use of a channel lock pliers. (V-Jaw style pliers provides more point contact on round stock)



Use Flathead Screwdriver to open clamp assembly

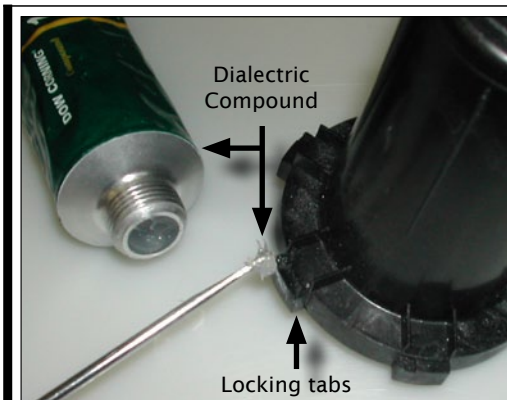
Remove Clamp Assembly



Locate notch → Align notch to backside of clamp assembly

Re-Install Clamp Assembly

## MR16 LED Light Fixture/Plastic Light Ring - Installation



TIP: Use Dielectric Compound in locking tabs to ease installation of light ring

The new style O-ring P/N: 49-0014 offers a higher compression value, creating an improved seal within the light housing assembly. The higher compression ratio will sometimes make it more difficult to install the Plastic Light Ring P/N: 42-0030.

- A. To aid with the installation process of the Light Ring, apply a same amount of dielectric grease to the backside of the fixture locking tabs, prior to installing the Light Ring.
  - Everyone should have dielectric grease readily available when working in the field, therefore it will provide a quick remedy should you encounter difficulty with the Light Ring installation process.

**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. IF THIS GAP IS NOT PRESENT, THE LIGHT RING IS NOT ON PROPERLY AND NEEDS TO BE TWISTED MORE CLOCKWISE.

# EXPLODED VIEWS

## MR16/LED Light Fixture Exploded View



**Light Fixture Exploded View (P/N 09-0029\*)**

P/N	Description
09-0030-020	Halogen 20W Bulb & O-Ring
09-0030-050	Halogen 50W Bulb & O-Ring
09-0030-006	LED 6.5W Bright White Bulb & O-Ring
09-0030-007	LED 6.5W Warm White Bulb & O-Ring
42-0030	Plastic Light Ring
47-0004	MR16 Clear Glass Lens
49-0014	MR16 Light O-Ring

\*P/N 09-0029 Includes everything EXCEPT the bulb

**Entire Fixture is P/N: 09-0029:** Includes 5.5ft (1.7m) 16/2 light cable and all items shown in illustration EXCEPT the bulb.

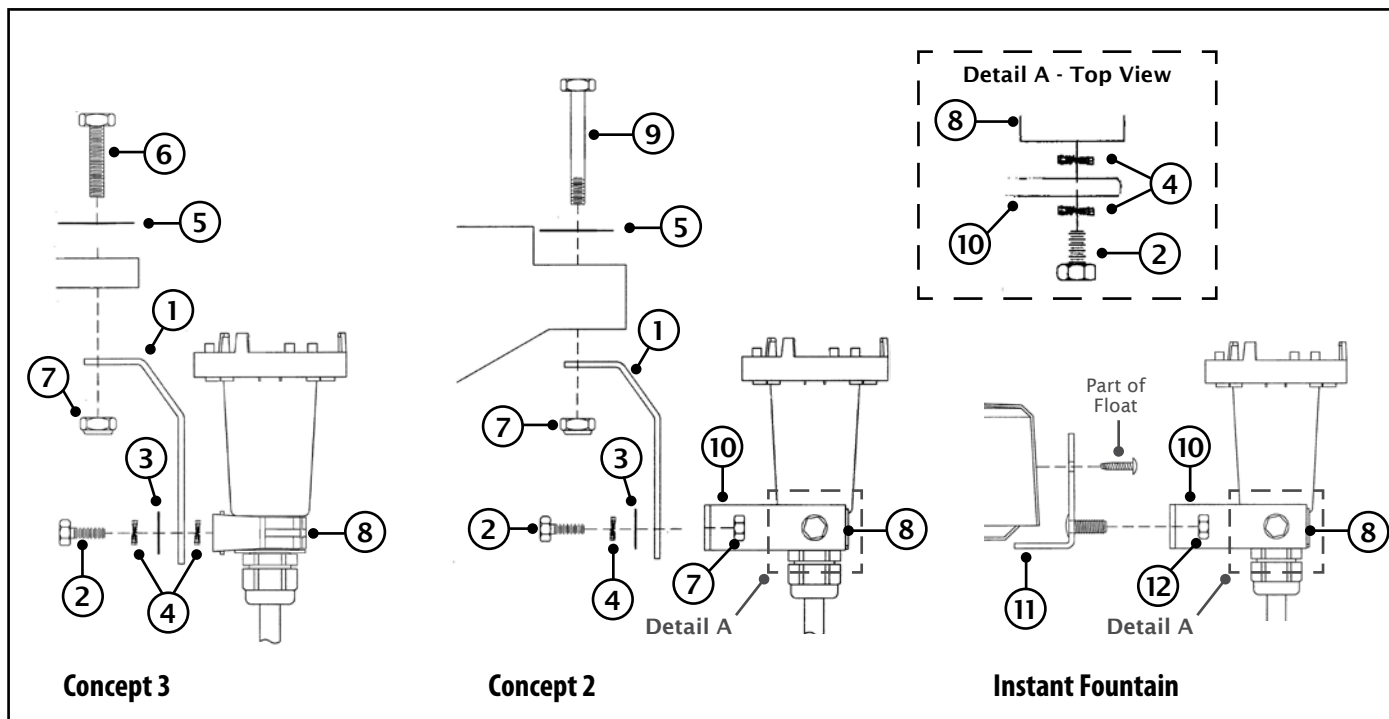
**Clamp Assembly:** P/N 10-0066 (not shown) is ordered separately.

**Splice Kit 16/2 MR16 Housing:** P/N 12-0049 (not shown) is ordered separately.

(Kit can also be used to splice a 12/3 to a 16/2 cable)

**NOTE:** THE NEW STYLE O-RING P/N: 49-0014 OFFERS A HIGHER COMPRESSION VALUE, CREATING AN IMPROVED SEAL WITHIN THE LIGHT HOUSING ASSEMBLY  
(Reference [Technical Bulletin # 112](#))

## MR16/LED – Light Fixture Mounting Hardware Exploded View & Parts List



Item #	Description	P/N	Qty. Per Light (C3)	Qty. Per Light (C2)	Qty. Per Light (Instant Ftn.)
1*	S/S Light Bracket	40-0100	1	1	
2*	1/4"-20 x 5/8" S/S Hex Bolt	24-0017	1	2	1
3*	1/4" S/S Flat Washer	927-000	1	1	
4*	1/4" S/S Star Washer	28-0013	2	3	2
5 <sup>◇</sup>	1/4" S/S Fender Washer	28-0001	1	1	
6 <sup>◇</sup>	1/4"-20 x 1-1/2" S/S Hex Bolt	24-0016	1		
7** <sup>◇</sup>	1/4"-20 S/S Nylon Locknut	C2-112	1	2	
8	Clamp Assembly	10-0066	1	1	1
9 <sup>◇</sup>	1/4"-20x 2-3/4" S/S Hex bolt	FR103		1	
10	S/S Bracket Fixture C2 & IF	40-0105		1	1
11 <sup>Ⓒ</sup>	S/S Bracket Instant Fountain	FR704			1
12 <sup>Ⓒ</sup>	5/16"-18 S/S Nylon Locknut	GP1208			1
13 <sup>◇Ⓒ</sup>	Ty-Rap (not shown)	GP5008	2	2	2

★ **C3/C2 Bracket/Hardware Kit:** P/N: 12-0098

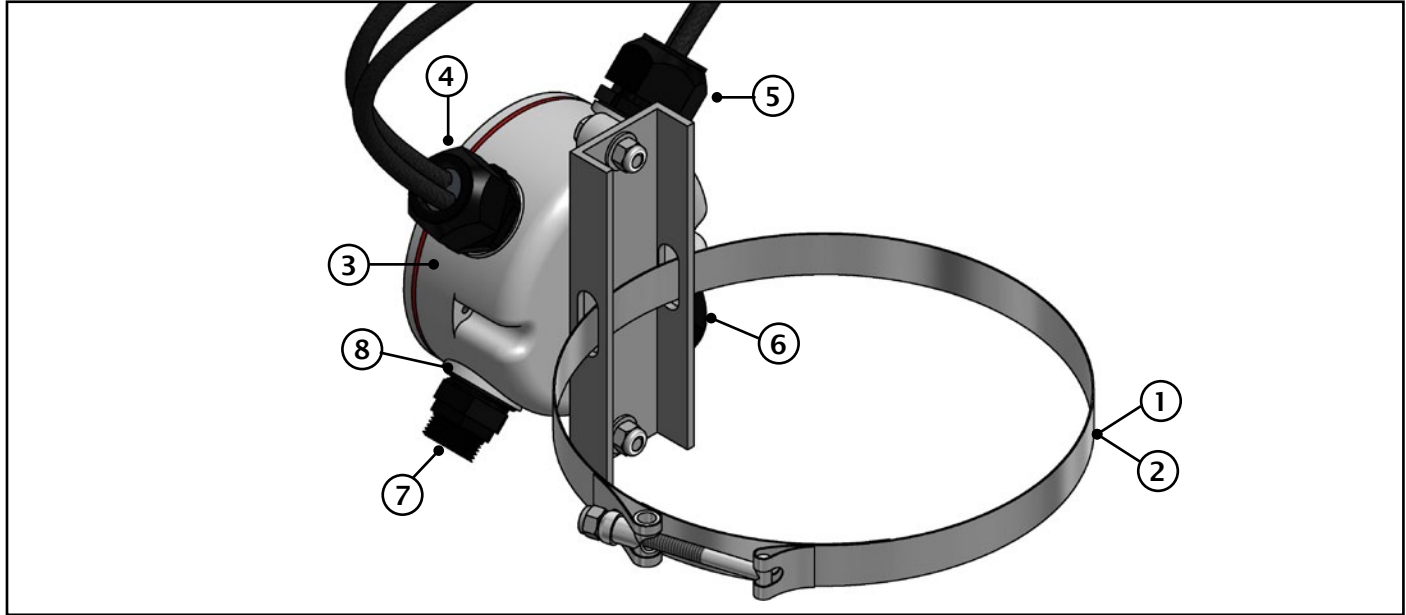
◇ **C3/C2 Light Mounting Hardware Kit:** P/N GP-110

Ⓒ **Instant Fountain Mounting Hardware Kit:** P/N 12-0086

**NOTE:** LED EQUIPPED FIXTURES CAN BE INSTALLED ABOVE THE WATERLINE. (50W & 20W MR16 EQUIPPED FIXTURES MUST BE FULLY SUBMERGED UNDERWATER DURING OPERATION TO PREVENT OVERHEATING.)



## LED Junction Box Mounting Hardware Exploded View & Parts List



Item #	Description	P/N	Details
1	5-1/2" T-Bolt Clamp	46-0066	Used on Fractional Series Aerators
2	8" T-Bolt Clamp	46-0129	Used on Concept 3 Series
3	Round Junction Box	32-0105	Does not include connectors
4	2-Hole Connector	33-0070	Used on 4 & 6 Light Sets
5	1-Hole Connector	33-0071	Used on 2 Light Sets (and Hardwired Lights)
6	Plug Connector	33-0072	Plug for unused holes in lid
7	2-Pin Bulkhead	35-0013	Used with Quick Disconnect Cable Systems
8	O-rings for J-Box Connectors	49-0057	One is used for every Connector/Bulkhead

## DC Power Supply | LED Light Systems



LED / DC Power Supplies are mounted in the Power Control Center and replace the traditional transformer/junction box found in the MR16 configuration. (See Fig. 7)

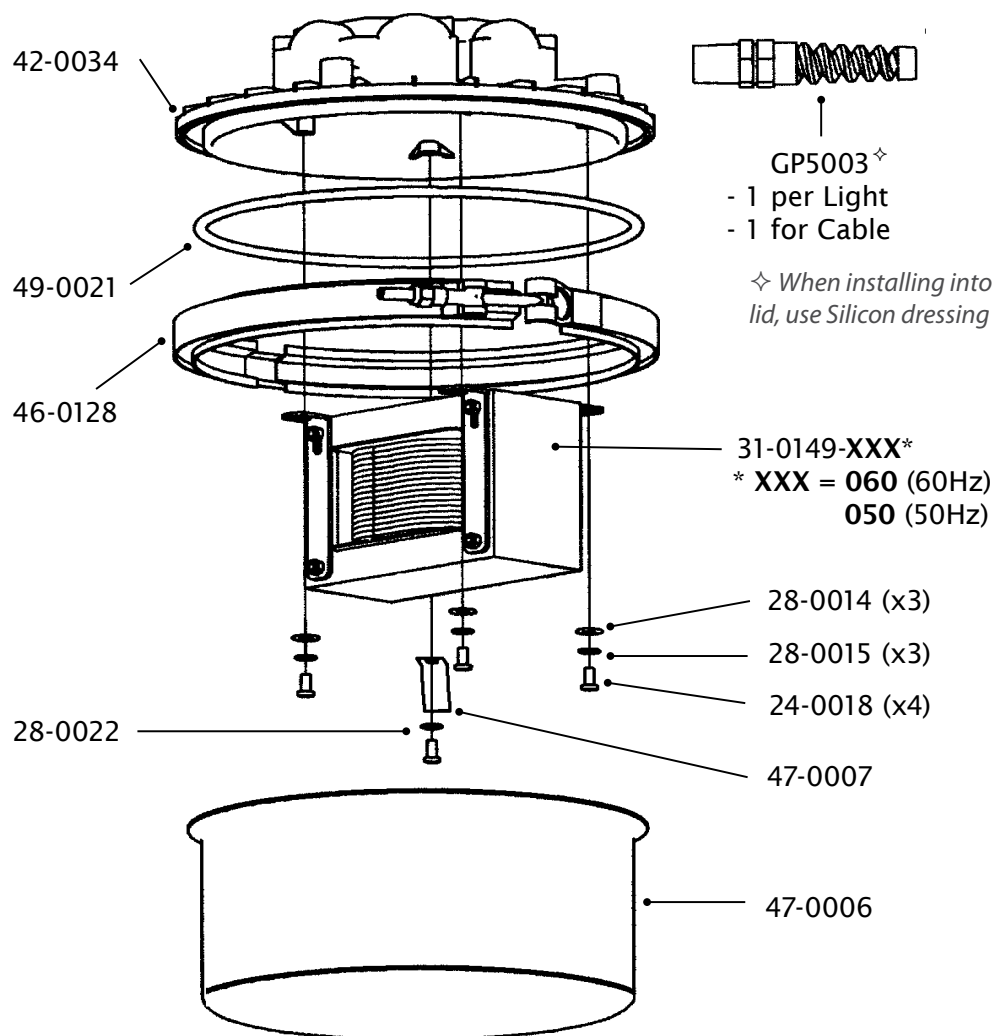
Depending on the light set configuration, there are (3) DC Power Supplies which have been defined.

Light Set	DC Power Supply	P/N
2 LED Light Set	30W Power Supply @ 15VDC	31-0270
4 & 6 LED Light Set	60W Power Supply @ 15VDC	31-0271
8 LED Light Set	100W Power Supply @ 15VDC	31-0272



*Fig. 7 | DC Power Supply/LED Light Controls mounted in PCC with a 3HP 230V/3Ph unit with Phase Monitor.*

## MR16/Halogen 50W/65W Junction Box Exploded View & Parts List



Item #	Description
24-0018	S/S Pan Screw M4x10
28-0014	Washer Flat S/S M4
28-0015	Washer Split Lock S/S M4
28-0022	Washer Int Star /S M4
31-0149-050	Transformer 360VA 50Hz J-Box
31-0149-060	Transformer 360VA 60Hz J-Box
42-0034	Lid J-Box MR16 Halogen Lights
46-0128	V-Band Clamp S/S Junction Box
47-0006	S/S Housing J-Box
47-0007	Ground Clip MR16 Halogen J-Box
49-0021	O-Ring MR16 S/S J-Box
GP5003	Strain Relief J-Box Jumper
52-0003	Potting Compound ( <i>not shown</i> )
46-0131	Connector Plug - for unused holes ( <i>not shown</i> )
MP6510	3-Pin Bulkhead - for Quick Disconnect Option ( <i>not shown</i> )

## MR16/Halogen 50W/65W Junction Box Mounting Kit Parts List

Item #	Description	P/N	Qty. Per J-Box
1	S/S Mounting Bracket	40-0116	4
2	S/S Mounting Band Clamp	46-0129	1
3	M6 x 16 S/S Pan Head Screw	24-0019	4
4	M6 S/S Flat Washer	28-0020	4
5	M6 S/S Split Lock Washer	28-0021	4

All items above are included with J-Box Mounting Kit P/N 12-0100

