
MAINTENANCE & REPAIR FOR POOL UNDERWATER LIGHTS

INTRODUCTION

Is your underwater light in your pool safe? Has it been installed properly and following code? Following are some guidelines to help you check and make sure that your family is safe when they enter the pool and the lights are on:

In 1975 the National Electric Code (NEC) mandated that GFCI's must be used with underwater lights unless the voltage of the light does not exceed 15 volts. It also mandates that flush junction boxes are allowed only when the lights are 15 volts or less — 1971 NEC. The boxes must also be filled with an approved potting compound and located not less than four (4) feet from the inside pool wall.

Deck boxes being used as junction boxes for other equipment are not allowed.

Circuits supplying underwater lights must be isolated — a requirement of the 1962 NEC. 1962 NEC also required bonding - which is a problem on older installations. Remedies for problems associated with older installations include:

- Adding G.F.C.I. protection
- Rerouting extraneous circuits
- Electrician waterproofing old deck boxes
- Adding G.F.C.I. to convenience receptacles within 20 feet of water

If any items other than the following need replacing, Ultra Modern Pool and Patio recommends replacing the entire unit:

- Light bulb
- Gasket
- Light Lens
- Frame

The Pac Fab light will replace most old units. Adapter rings are available to adapt most light niches to Pac

Fab.

12 volt units have a transformer and a large cord and use 300 watt bulbs. 120 volt units require a G.F.C.I. and has a small cord and uses 300, 400 and 500 watt bulbs with a medium base. In the Wichita area we have mostly 120 volt light fixtures.

MAINTENANCE & REPAIRS

The maintenance of underwater lights falls into two general categories: 1) emergency repairs or maintenance because of the failure of a light, and 2) maintenance that is done on a seasonal basis. Emergency repairs are made when the pool or spa and the lights are in use. Seasonal repairs are made when the pool or spa is being opened or closed.

Electrical shock is a hazard when working with electricity near water. Make certain to take proper precautions when undertaking repairs, and to check equipment for proper grounding and bonding.

CHANGING BULBS

The most common repair job on underwater lights is relamping because of bulb failure. Most of the bulbs used in wet-niche type fixtures have a rated life of 800 to 1,000 hours. However, some of the more recent lighting fixtures have quartz-iodine bulbs, which have a rated life of 2,000 to 4,000 hours.

Disassembly and Repair — when the light fails to work and it is clear that you must relamp, cut off all power to the light. Throw circuit breakers or physically remove fuses before removing the light from the niche. Wet-niche lighting fixtures are designed to be relamped by lifting the lighting fixture to the deck without having to lower the level of the pool water. All lighting fixture manufacturers supply sufficient cord with the light so that it can be lifted to the deck without having to disturb any electrical connections in the junction box. In removing old lamp cords on existing installations, you can assist removal by pouring a liquid dishwashing or clothes detergent such as

“Wisk” down the deck junction box while stretching the cord. Some of the older cords expand due to a build-up of corrosion in the three wires in the light cord, as well as to an expansion of the jute.

After the fixture is on the deck, it can be disassembled. Before actually loosening the screws or bolts that keep the fixture assembled, observe and note down the relationship between the lens and the front ring to make sure that they are reassembled in proper fashion. If the lens is not reinstalled in its proper orientation with respect to the front ring, the beam or “throw” of the light may not be correct.

While the light is on the deck and is disassembled, carefully inspect it to see if any other parts need replacement:

1. Clean the lens and, if badly scratched, replace it. Since the 8-3/8” lens has been standard throughout the years, it is sometimes possible to have a new light shell added if both the front and rear rings are sent back to the original light manufacturer.
2. It is always advisable to replace the lens gasket or gaskets whenever the light is relamped. When replacing light gaskets, a product similar to G.E. silicone can be wiped on the gasket to obtain a better seal. These gaskets form a permanent, watertight compression seal because of the heat and compression while in the fixture.

Inspect as much of the cord as possible for any cuts in the outer insulation.

Testing and Re-assembly — after the new bulb is installed, but before the fixture is reassembled, make sure that the bulbs and the connections are good by reinstalling the fuses or reactivating the circuit breakers and throwing the switch to see if the bulb lights. Test for no more than a few seconds. During this test someone should be in the vicinity of the light to check the bulb but should not touch or handle the fixture. As soon as the bulb is checked, take the fuses out once

again and then reassemble the fixture. Take care to tighten all the screws or bolts evenly.

Before reinserting the light into its niche, test it for water-tightness by placing the lighting fixture in a bucket of water and reactivating the circuit. If the fixture is not completely watertight, a stream of bubbles will emerge from the point of the leak. If any leaks are noted, the fixture must be disassembled and again reassembled to make sure that the unit is watertight. At all times, while the fixture is being handled, the power should be cut off and the fuses physically removed. Since this type of light is designed to be cooled by the water of the pool, if it is burned out of water, the build-up of heat in the housing will melt the gaskets in a relatively brief period and may also shatter the lens. When reinstalling the light fixture into the niche, coil the excess cord around the light so that it is not crushed by the lighting fixture.

CHANGING THE LENS

Another type of emergency repair is changing a broken lens in the lighting fixture. As soon as you know that the lens of a lighting fixture has broken, cut off all power in the lighting circuit and remove the fuses.

The repair of the light is essentially the same as that described above. However, before any work can be done, you must thoroughly dry the fixture, preferably by allowing the fixture to be air-dried over a period of several days.

Do not light the bulb in the fixture with the lens and front ring removed. The heat build-up within the fixture enclosure might be sufficient to melt the resins which encapsulate the wiring connections in the base of the light.

After the fixture has been dried, replace the lens and follow the re-assembly procedure described above. Since the fixture is already open, the customer or the service technician should also decide whether or not to change the bulb, depending upon an estimate of the useful life left in the bulb.

WATER ENTERING FIXTURE

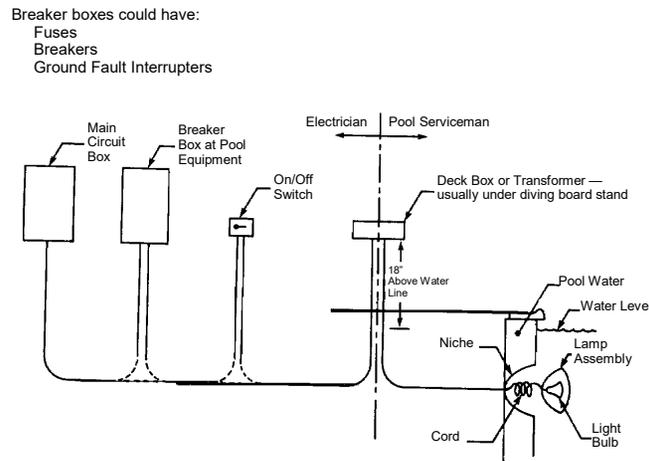
Infrequently, emergency service is required when a lighting fixture fails because of water entry into the fix-

ture. It is difficult to spot this type of trouble during the swimming season unless it is accompanied by bulb failure. Otherwise, only a swimmer with a face mask could notice the accumulation of water within the fixture. This type of failure is much more easily detected during seasonal maintenance. We recommend you call a pool professional if this occurs. Ultra Modern Pool & Patio's service department can help you with this problem. Call 722-4311 for more information.

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NOTE: Always follow label directions and manufacturer's instructions for each product used. Conditions may vary from pool to pool. Ultra Modern Pool & Patio does not assume any responsibility or liability for the results that may be obtained through utilization of this or any other program, procedure or product.

Typical Pool Lighting Circuit



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