

Let there be light

Think you need a bigger battery to run the lights on your boat? Changing to LEDs could lower your power consumption and mean that you never have to buy another light bulb

On the average small boat one of the largest, if not the largest, consumers of electrical power is lighting. Keeping all the lights on when you're tied up at the dock and connected to shore power is not a problem, but conserving power becomes a priority when you're sitting at anchor in some remote location. Preventing your batteries from going flat means either running the engine regularly or being stingy with the use of the interior lights.

The desire to conserve battery power while still making more-reasonable use of my lights prompted me to look at the alternatives to the standard incandescent bulbs. Not long ago, LEDs—light-emitting diodes—were very expensive and had a very low light output. This made them ideal for use as panel warning lights, but the amount of light they generated was unsuitable for general illumination.

Recently, however, technology has

LEDs are available in a variety of colors. Their low current draw makes them ideal for use on sailboats where there is a finite amount of battery power. Although they do get progressively weaker over time, their useful life span of 50,000 hours means they will never need replacing.

advanced and prices have dropped. Second- and third-generation LEDs that have a very high light output and a cost that compares very favorably with that of a standard bulb are now

available. Although still not suitable for every application, LEDs have distinct advantages over standard bulbs: they generate little or no heat, have an almost indefinite life span of about 50,000 hours, and—important for the average boatowner—use a tiny

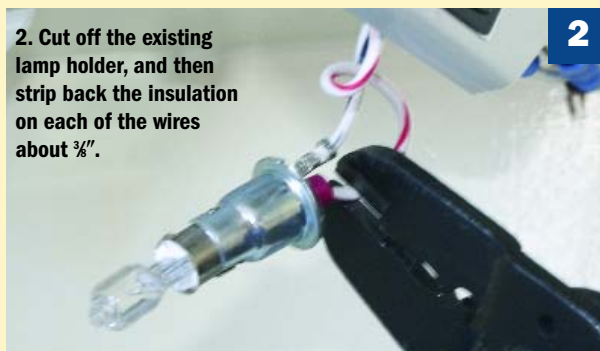
fraction of the power needed for a standard bulb.

A standard 10-watt bulb consumes almost 1 amp, and a 25-watt bulb consumes almost 2.5 amps. Thus, if you have several lights on in the cabin, the power drain is significant. The

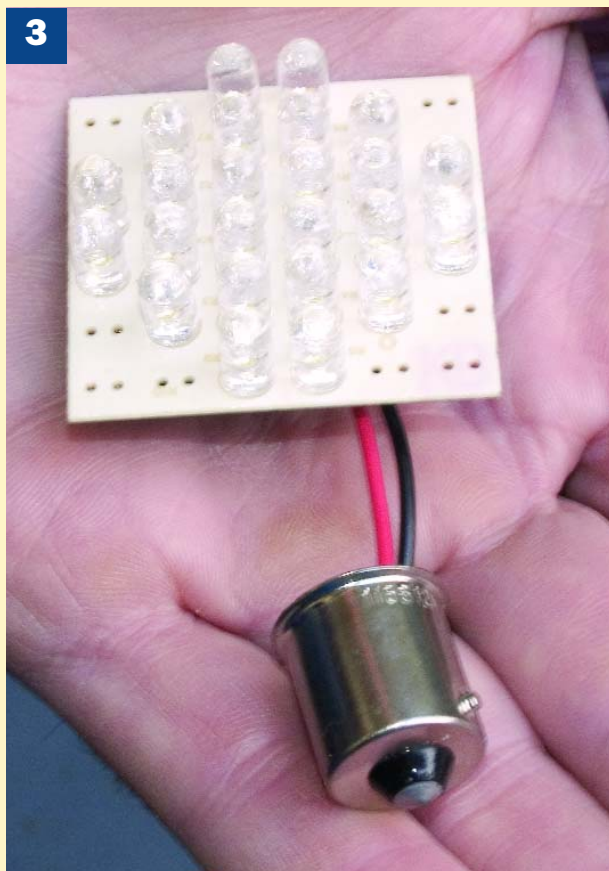
most frequently used lights on my boat are those on either side of the companionway, the one over the chart table, and the one above the stove. These lights had been fitted with 10-watt bulbs, and I changed them for a printed circuit board containing 24



1. Remove the cover of the light and pull out the existing bulb, noting which wire is the positive (normally red) and which is the ground (normally black).



2. Cut off the existing lamp holder, and then strip back the insulation on each of the wires about 3/8".



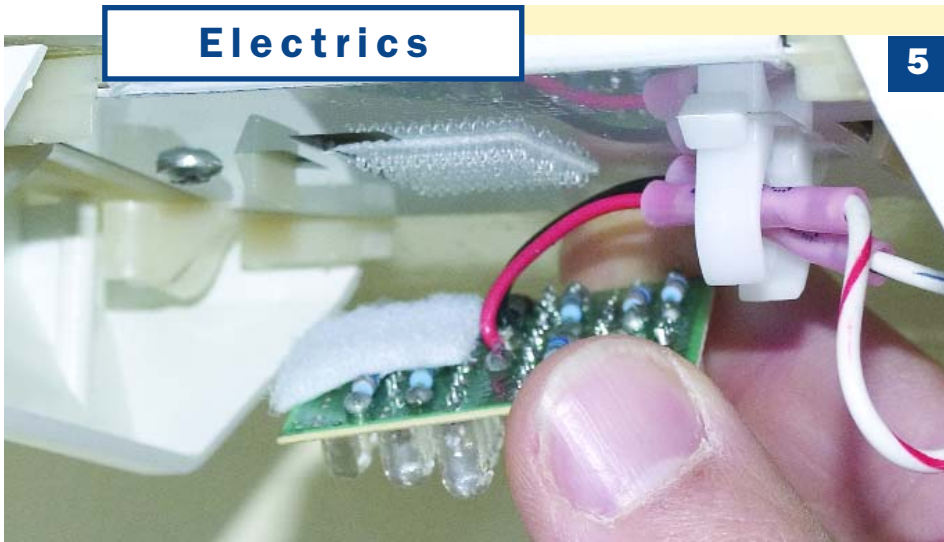
3. The LEDs came with a bayonet connector, so I cut this off and stripped back the insulation on the wires.



4. Make sure the wires are connected the right way round before you crimp the wires to the lighting fixture.

Electrics

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5. Use double-sided tape or Velcro to hold the printed circuit board in place. The heat output is so low that this is quite safe.

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6. The light above the chart table also incorporates a red light for night use. I swapped the incandescent bulb for a bulb of similar overall dimensions containing six red LEDs (left).

Resources

Super Bright LEDs, Inc., St. Louis, MO
63031; www.Superbrightleds.com,
314-972-6200
West Marine, P.O. Box 50070,
Watsonville, CA 95077;
www.westmarine.com,
800-262-8464

super-bright LEDs. These yield a similar amount of light but use only 85 milliamps—about a tenth of the power consumption of the original bulbs. Each 24-LED array costs \$15 plus shipping.

Changing the lights was easy. I did it using crimped connections. You can read about this in more detail on the next page. □

Other options



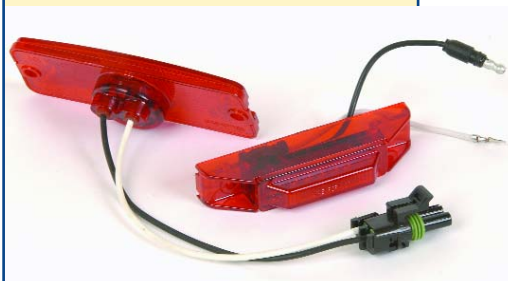
Battery-powered lights

These battery-powered LED navigation lights could be used as a backup to the main lights or on a dinghy. Powered by four AA batteries, they meet all Coast Guard requirements for small boats less than 36 feet in length.



Bayonet

The simplest of all replacements is with this type of bayonet bulb; simply screw out the original and install this in its place. Although the initial cost of around \$6 may seem high, it is a fit-and-forget item and, like the other LEDs, should never need replacing.



I picked up these LED lights in an automotive parts store. Meant for use on a trailer, they make an easy-to-install and high-output red light for chart table illumination.