

Lighter and Brighter

By Kevin Crozier

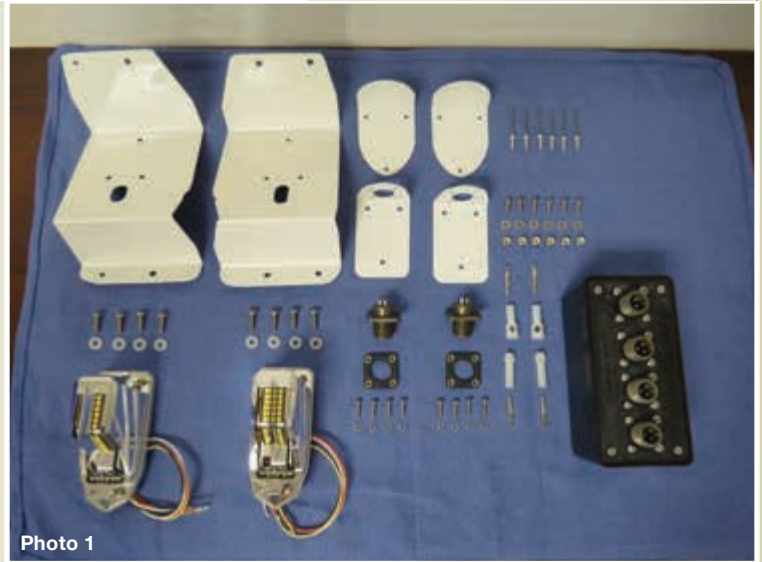


Photo 1

As the caretaker of a 38-year-old 1981 A36 Bonanza, I am always looking to keep its systems operating safely and efficiently. In addition, I am constantly on a quest to remove weight wherever I can – especially with an air conditioning upgrade planned for later this year. My latest project involved increasing the safety and efficiency of the lighting system in terms of both brightness and power, while removing weight. I did this by installing LED navigation and strobe lights.

Why LED? As we have all “seen,” LEDs have become increasingly brighter and more powerful in recent years. LEDs consume substantially less power than the less-bright incandescent bulbs and conventional strobes. Finally, LEDs have a nearly infinite lifespan, so they can be left on all the time, helping to increase aircraft visibility in all conditions. With all of those compelling reasons, LEDs seem like an obvious choice. They do have the downside of cost, with each light retailing at nearly \$600. But for me, the benefits outweigh the cost.

One of the first projects I completed when I brought my Bonanza home was replacing the ineffective and power hungry (more than 5 amps) Whelen flashing beacon on the tail with a Whelen LED beacon that consumed less than 0.5 amps. This beacon has performed flawlessly for the last nine years. The best part is that I never have to worry about burned out bulbs and getting up on the tail to replace them.

Additionally, over the years I have replaced the taxi light with a Whelen Parmetheus LED and the landing light with a Knots2U HID (High Intensity Discharge) unit. HID is a completely different technology than LED – also featuring low power consumption and being extremely bright. The only non-LED lights left on my A36 were the navigation and strobe lights, but until recently there had not been any good choices to replace these. A couple of years ago, Whelen introduced the Orion series, which includes the OR500 combination position light/anti-collision strobe for the tail cone and OR650E combination navigation light/anti-collision strobe for the wing tips. The Orion units allowed me to solve two problems at once. Installing these lights would further reduce the power consumption and allow me to remove the big heavy strobe power supply that resides under the baggage compartment floor.

During my last annual, I worked with David Landreth at Riverside Aviation in Tulsa, Oklahoma, to install the Whelen Orion position light and strobe system. David has done several of these installations and has built a complete kit to make installation quick and easy. The contents of the kit are shown in **Photo 1**. It includes




Photo 2

cover plates for the old navigation lights, mounting brackets for the new lights, connectors, a custom 3D printed electrical junction box, and all the required hardware.

Installation starts by removing the existing strobe and position lights from the wing tips and tail cone. The new units are mounted on the brackets and the wires from the lights are run to the connectors. The existing wiring and connectors in the wing tips and tail cone are reused, saving the labor and cost of running new wiring. Then the new lights are mounted in the wing tips using the existing strobe mounting nut plates, and in the tail cone. Finally, the navigation/position light cover plates are riveted into the wing tip using the existing holes.

Next, the weight removal. The now-unneeded high voltage strobe power supply (LED strobes use power directly from the aircraft electrical system) is accessed by removing the baggage compartment floor. This unit is replaced with a much lighter, custom 3D printed electrical junction box that allows the reuse of all of the airplane's existing wiring and connectors, again saving money on labor and parts. This junction box is shown in **Photo 2**.

The final installation can be seen in **Photo 3**. The installation looks great and the lights are very bright. The total power consumption of the navigation light system drops to 0.4 amps. The strobe power consumption dropped from 5 amps to 1 amp, and my Bonanza lost nearly six pounds. In addition, I now have the peace of mind knowing that I can run my lights all the time and I will never have to worry about changing a bulb or a strobe tube again.

If you are interested in this upgrade, please reach out to David Landreth at Riverside Aviation. If you would like additional light in your wing tips, Wilco (www.wilcoaircraftparts.com) has developed a kit and just been granted an STC for adding Whelen LED recognition lights and the Orion LED units to your wing tip. 

Kevin Crozier is an A36 caretaker, BPPP CFI, and software DER. He is the owner of Ktronics Aero Services located near Austin, Texas.



Photo 3

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