

Chapter One

so great it can easily cause short-term blindness of pilots in nearby aircraft. And there is still a problem with strobes reflecting off of airframe components, especially off the back of props. If you have strobes on your aircraft, it is a good idea to paint the back of propellers, nacelles, and wing surfaces with nonreflective black paint. If you do this, check it on the ground, at night, the first time you fly the airplane to be sure there are no surprises in flight. Strobes present still more potential problems.

Some systems cause communication and navigation radio interference. The problem is strobe lights function as a result of capacitor discharge, which can cause radio frequency interference (RFI), especially in low-frequency equipment such as ADF and LORAN C. It can also cause an audible clicking sound in the speaker and headphones. None of this affects the signal, but it can be very annoying to listen to it for an extended period of time. If your aircraft suffers from this malady, it is almost always the result of poor installation technique. Typically it can be reduced, and even eliminated, with cable shielding. Don't confuse that problem with the normal "wheeeep...pop" tone of the strobes' power supply, which is audible when the engine is shut down; that's a normal condition.

As always, an ounce of prevention is worth a pound of cure. You're better off paying a little more and having a strobe system installed by someone with a lot of experience. They will make sure never to locate a strobe power supply closer than 3 feet from any antenna, especially a low-frequency one. Also, the lamp-unit wiring should never cross or lay next to nav/comm wiring; bundling wires is a major cause of interference. And something as simple as ensuring that the power supply case and shielding around the wires are properly grounded to the airframe makes a major difference.

Other Required Lighting

The only other exterior aircraft light required by regulations is an icing light for aircraft certified for flight into known or forecast icing conditions. It is an incandescent light installed in the fuselage or on an engine nacelle, which illuminates the wing's leading edge to monitor icing in the dark. Contrary to popular belief, landing lights are not required unless the aircraft is operated for hire at night either VFR or IFR.

Lighting Preventive Maintenance

There are three types of position light bulb replacements available. The first is a 21-watt bulb, which simply won't meet minimum intensity requirements at typical line voltage and should not be used. The second is a 26-watt bulb, which requires 13.2 volts at the light assembly to comply with the FAR intensity requirements. Unfortunately, this does not allow for plastic enclosures, such as an enclosed wingtip. Plastic enclosures over position lights alter the light's output from 5% to 30%, depending on the clarity and the radius of the curve through which the light is projected, making it all too easy to drop below minimum intensity requirements. The third is a 37-watt bulb that will comply with the 12.5-volt system capability and provide a much brighter light than required at normal line voltage.