

## Chapter One

should be periodically used to evaporate moisture. Fix any exhaust leak immediately, both for your own safety as well as to reduce the potential for corrosion. Periodically check the battery and fuel vent lines to be sure they're open and have a free flow of fresh air. Use a fluid, thin film coating spray penetrant on screws, rivets, and joints where practical to get rid of moisture, stop electrolysis, and inhibit corrosion.

### AIRCRAFT LIGHTING

In the earliest days of flying, there was no need for any type of aircraft lighting. As aircraft became more practical to use, intrepid aviators began penetrating the night sky to go further and get more work done. But it wasn't until the 1920s that there was enough nighttime air traffic to begin to cause concern about seeing other aircraft. It was then that aircraft engineers turned once again to the sea to carry over some traditions to the sky.

Aeronautical position lighting took on the characteristics of its nautical cousin. The port wingtip was marked with a red lamp, the starboard with a green lamp, and the tail with white. They were clear, six-candlepower bulbs dipped in red or green lacquer as appropriate and, because in those days aircraft had no electrical systems, a 6-volt auto battery was carried onboard to power the lights.

#### Position Lights

Today, the descendants of those red, green, and white position lights are required by current regulations whenever operating during the period of sunset to sunrise. The requirement is somewhat different when operating in Alaska. There, position lights must be illuminated during the period when a prominent unlighted object cannot be seen from three statute miles or the sun is more than 6 degrees below the horizon. This same regulation also covers taxiing or parking aircraft and requires that the area be illuminated well, the area be marked by obstruction lights, or the aircraft have lighted position lights.

According to FAR Part 23.1385, which deals with position light system installation, the forward red and green lights should be spaced as far apart as practicable, typically on each wingtip. The lights face forward, with the red light on the left side and the green light on the right from the pilot's point of reference. The rear-position white light should be mounted as far aft as practicable, usually on the tail, though some aircraft have aft-facing white wingtip lights instead. The purpose of position lights is not simply to be seen at night. They also help the pilots of other aircraft determine your direction of travel, so position light field-of-coverage is carefully specified in the regulations.

The visible vertical pattern must be 180 degrees centered on the horizontal centerline, as illustrated in Figure 1-3. The horizontal pattern for the red and green lights is 110 degrees of coverage each, from the centerline, and 140 degrees for the white light. The phrase used by many pilots to help remember the proper orientation is "red, right, return," which means if you see an airplane with a red light showing to your right side, then it is traveling toward (returning to) you.