

Shedding Light on



Departing for home from Martha's Vineyard, I knew that combining the expected headwinds with the lateness of the day would have me arriving at the Columbia County Airport (1B1) after dark. I was prepared, having already checked that all the lights (position, anti-collision, landing/taxi, and cockpit) were working, and ensured that the batteries in all three of my flashlights were fresh.

The visibility on the westbound flight was difficult at first with the sun directly in my eyes, but, as the sun sank lower and lower on the horizon, the sky went through a glorious kaleidoscopic transformation: Reds, pinks, salmons, magentas, blues, purples...a vast variety of color filled the windscreen.

Mooney photo

Night Flight

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Soon my Global Positioning System (GPS) automatically switched from “day” display to “night” display, signaling official sunset and thus reminding me to turn on the airplane’s position lights. Though it was still quite light aloft, the shadows on the ground had lengthened and disappeared in darkness, and now the lights of houses and vehicles on the ground were starting to appear. Whereas the sun was just approaching the horizon from my perspective at 6,500 feet mean sea level (MSL), for the folks who found themselves ground bound it had indeed set.

The estimated time en route (ETE) to the 1B1 as displayed on my GPS said I should be there in another 35 minutes. As I thought ahead to my

arrival and landing, I considered whether I would be able to log it as a night landing. This led to wondering how much of the total flight I would be able to log as “night” flight. At least I knew the answer to when to turn on the position lights, as I had already correctly completed that task. But as I approached my home base, it became evident that not all pilots can answer some questions relative to flying at night.

Turn on the Lights!

When I was about 15 miles to the southeast of the airport, with the airport beacon in sight, I cancelled flight following and switched to the Common Traffic Advisory Frequency (CTAF) to monitor any activity. I soon heard the pilot of a Mooney announce departure from runway

21, “remaining in the pattern,” followed by a Decathlon pilot calling downwind. “Shouldn’t be any separation issues there,” I thought, as I strained to see if I could pick them out visually. “Don’t try to see them straight ahead, Stewart, pick them up in your peripheral vision,” I reminded myself, remembering that the visual scanning techniques for “see and avoid” are different at night.

As the Decathlon pilot announced turning final for a touch-and-go, the Mooney reported a mid-field downwind leg. It sounded as if these two pilots were doing a good job keeping each other informed as to where they were in the pattern. From my vantage point of about 12 miles to the southeast

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and at an altitude of 3,500 feet, I could see the landing light of the Decathlon as it touched down, rolled out, and then took off.

I was having a heck of a time picking out the Mooney. Apparently, I wasn’t the only one as the Decathlon pilot announced, “Hey Mooney, your position lights sure aren’t very bright. In fact, I’m having a hard time finding you.”

“Oops...how’s this?” replied the Mooney pilot as not only the position lights, but also the anti-collision lights of his airplane suddenly appeared. “Guess I forgot. Thanks for the heads up,” he added. (Sometimes it’s nice to know that I am not the only one who succumbs to CRM—Can’t Remember Much.)

When Does “Night” Start?

This is a good time to review what the regulations say about night flight, especially since we are at that time of the year when many of us are most likely to have occasion to fly at night. It is interesting to note that the regulations refer to three different periods of time in relation to night operations: One for equipment, one for currency, and one for logging night operations.

Let’s start by looking at the definition of night found in Title 14 Code of Federal Regulations (14 CFR) part 1: “Night means the time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the *American Air Almanac*, converted to local time.”

When referring to the *Almanac*, we find that the period of civil twilight changes relative to geographic position as well as the time of year. Thus, it might be 15 or 20 minutes long, it could be almost an hour, or any time in between. So the only flight time that can be logged as night flight is flying that takes place during the period of time defined as “night” in 14 CFR part 1.

Night Flying Currency

But, what about those takeoffs and landings that have to be made in order to carry passengers? Does the same time period apply? No, it doesn’t. If we refer to 14 CFR section 61.57, Recent Flight Experience: Pilot In Command, we find that, in order to carry passengers “during the period beginning one hour after sunset and ending one hour before sunrise,” the pilot in command must have made at least three takeoffs and three landings to a full stop, between the hours of one hour after sunset to one hour before sunrise, within the preceding 90 days. The regulations also state that the pilot be the sole manipulator of the controls, which means that, if you are a Certificated Flight Instructor (CFI) conducting night training, the takeoffs and landings that your client makes do not count towards your own night currency.

Under the regulations, the landing that the Decathlon pilot made would not count towards his night currency for two reasons. One, the landing was a touch-and-go and not a full-stop landing.

For More Information

Risk Management for VFR Flight at Night

http://www.faa.gov/library/manuals/pilot_risk/media/4.0%20Night%20VFR.pdf

“N.I.G.H.T.” FAA Aviation News, November/December 2005

http://www.faa.gov/news/aviation_news/2005/media/novdec2005.pdf

AOPA Air Safety Foundation’s Night VFR Checkup

<http://www.aopa.org/asf/hotspot/checkup.html>



The other reason was because, although it was dark at the time as civil twilight had definitely ended, it still wasn't an hour after sunset.

Night Lights

We've reviewed what the rules say about logging night flight and recency of experience, but what about the rules relative to those lights on the airplane? It is here that the rules might seem contradictory. In 14 CFR section 91.205 (c) Visual Flight Rules (night), it states that for VFR (visual flight rules) flight at night (let's remember the definition discussed above) one needs all the daytime instruments and equipment, plus approved position lights, an approved anti-collision light system, and an adequate source of electrical power.

Let's discuss the issue of anti-collision lights a little further. I used to try and convince myself that I didn't need an anti-collision light on my PA-12 using the argument that it was grandfathered from the requirement. However, I was wrong since 14 CFR section 91.205 states specifically that: "Anti-collision light systems initially installed after August 11, 1971, on aircraft for which a type certificate was issued or applied for before August 11, 1971, must at least meet the light standards... that were in effect on August 10, 1971, except that the color may be either aviation red or aviation white." (Yes, I installed a flashing beacon on the top of the wing-root fairing to comply with the regulation.) Continuing to read 14 CFR section 91.205, we see that a landing light is not required unless the airplane is being flown for hire. This regulation could lead to believing that you only need those lights between the end and beginning of evening and morning civil twilight, as the regulation states: "For VFR flight at night..."

But, reading just a little further in the regulations we find 14 CFR section 91.209 Aircraft Lights, which says that: "No person may: (a) during the period from sunset to sunrise... (1) Operate an aircraft unless it has lighted position lights." (Please, all you Alaska pilots, don't get upset if I don't mention the exceptions to the rules.) It was this regulation that ended my flying day when I used to ferry a non-electric Champ

from Massachusetts to Florida every fall. With no position lights on that airplane, I had to be on the ground by the time the sun had set. The rule makes it clear that, if an aircraft is not equipped with position lights, it will turn into a figurative pumpkin with the setting of the sun and it should not be flown again until the sun rises.

Review

So, as we find ourselves at that time of the year with the least daylight, remember the three different time periods we need to be aware of:

- Sunset to sunrise for having the lights turned on.
- That period of time between the end of evening civil twilight and the beginning of morning civil twilight for logging our flight as "night."
- One hour after sunset to one hour before sunrise for logging takeoffs and landings for recent experience currency.

Oh, by the way, did I mention that by the time I was tying the airplane down the full moon was casting sharp shadows on the ground? I didn't need my flashlight at all as I reflected on a wonderful flight at night. Whether you fly at night or not, may you be blessed with...blue...errr, uhhh...clear skies and tailwinds!

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