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Night Flight in Older Aircraft

Such missions pile risk upon risk. Here's how to manage it.

There are no two ways about it: Flying at night not only adds several risk factors; it also reduces our risk mitigation options. Suitable landing locations for emergencies are harder to see. Overall visibility is reduced in most cases also. Even when the flight is technically VFR, in many places where darkness rules the night—such as big bodies of water, large expanses of trees or desert, and mountains—a pilot is pretty much navigating IFR.

The use of electrical systems at night takes on a significantly more prominent importance than it might in the daytime if a pilot encounters a

failure of an electrical system.

While many modern aircraft include a redundant battery or even alternator systems, for those of us who fly older aircraft with a single alternator and battery system, a loss of an alternator or electrical system at night can leave us with much-reduced options. The good news is that some of these worst-case scenarios can be mitigated by a little planning ahead and carrying a couple of key tools with us.

EFFECTS OF LOSS OF ELECTRICAL SYSTEMS AT NIGHT

In most general aviation aircraft, when an engine-driven alternator goes down,

the engine will keep running, but a loss of an alternator in many older single-engine aircraft leaves the pilot reliant on a single battery for electrical power until that battery is drained. A good practice if this is encountered is to shed electrical load by turning off any unnecessary electrical equipment and proceeding to the nearest suitable airfield for a landing.

One of the main reasons the nighttime loss of electrics can be critical is at most airports, the pilot keys on the lights on a CTAF frequency. This is even the case at many towered airports when the tower has closed for the evening. If a pilot takes too long to get to a diversion airport or decides to proceed to a destination in spite of an electrical power failure, they may find themselves with insufficient power to turn on lights using the onboard aircraft radio to see a runway for a landing.

Not being able to turn the lights on to land at an airport leaves a pilot attempting to make a landing without sufficient lighting to determine where the runway alignment lies. Or worse,



trying to land somewhere other than a runway, such as a dark space that *might* be a field, though it could also be a lake or stand of trees.

MITIGATE THE LACK OF LIGHTS RISK WITH A HANDHELD RADIO

The good news is there is a relatively cheap way to mitigate the risk of a dead alternator and battery at night. Carry a handheld aviation radio. It's that simple.

A handheld radio is a relatively cheap insurance plan to get the lights on in a pinch. It may not be the greatest for communication in a noisy aircraft, but the ability to go ahead and click that CTAF frequency five to seven times and get those lights on in an electrical failure scenario is pretty welcome.

A word of caution: Make sure that the handheld radio that has been in your flight bag, seat pocket or truck for the last two years has good batteries before heading off on that night flight.

It is such an important safety tool that you should make the check of the radio a part of your preflight activities when making those night flights.

KNOWING WHERE THE LIGHTS WILL BE ON

It sounds like a simple question, but it is one that is regularly answered incorrectly or with a look of confusion when I ask it on practical tests I administer.

"At what airports would the lights be on if you found yourself flying at night and unable to activate pilot-controlled lights due to an alternator/battery failure?" I many times follow up, fishing to see if they can come up with some additional answer to the question.

Many pilots do not know and have never thought about this potential scenario.

The best things to know are that the lights will likely be on at an airport that has an operating control tower, to name one option. Knowing, or being able to find, the operating hours of towered fields can lead you to an option to which you could proceed at night.

Sure, they would prefer you to have radio communication with them ahead of time. But they would also prefer you don't crash. Proceeding to an airport with a tower and the lights on, entering

the traffic pattern normally and keeping an eye out for other traffic, and landing on a lighted runway is a good option. If it happens to be an airport with radar services, they will likely see you as a "primary radar target," and if you aren't talking with them, assume you are encountering some sort of emergency. Especially if it looks like you are proceeding to enter the traffic pattern normally for a landing. While you may not be able to talk with them, they will be taking note of your activity and trying to keep other traffic with whom they are talking clear.

Do you remember that "L notation on many airport boxes on the sectional charts? It means that "lighting restrictions" apply. In most cases, it means that the airport lights are "pilot controlled." Where there is no little star ("*"), it offers a good hint that it might be an airport where the lights are left on throughout the night for emergency scenarios such as this.

Some airports do leave their lights on so pilots have an option in an emergency. To find out, refer to the sectional chart and then verify the information in the FAA Chart Supplement. The lights are noted at Holland, Michigan's West Michigan Regional Airport as "HIRL Rwy 08-26 preset low ints." This indicates the lights at this airport are on at low intensity all night and don't require the pilot to activate them to get to at least the lowest setting. Sure, you might want

them to be brighter, but low lighting is better than none, right?

IFR AT NIGHT?

Many pilots choose to limit their IFR operations at night for added safety considerations. A couple of major factors at night for IFR that add risk are the lack of ability to see cloud layers and the added challenge of reduced visibility when breaking out on an approach at night. Sure, some choose to do this willingly; others do not.

What would you do? Well, it might be somewhere in the middle. You might increase your personal minimums, change what you are willing to do depending on local weather conditions or if you are highly familiar with a particular airport. No matter what, the risk of operating IFR is something you might choose to consider carefully and make changes to your personal flight activities as a result.

Not all of us have the fortune of flying brand-new aircraft with multiple redundant systems. If we are actively flying at night in older aircraft with more traditional options, we might need to think critically about how we mitigate some of the risks. There are ways to mitigate some of them if we think ahead and plan accordingly. Ultimately, there may even come times where our decision might be to mitigate the risk by waiting until the flight can be completed in daylight conditions where we have fewer risks and more options. **PP**

