

Night Flying 101

By: Bob Beswetherick

As a member of a southern Tennessee R/C club, I have been night flying with other members for 3 years now. We night fly sometimes till the wee hours of the morning as we explore the thrill and relaxation of flying after dark. We urge each other to try things with our planes at night that some pilots wouldn't try during the day. We mainly enjoy each other's company whether we're flying, trying something new, or just talking. There are many benefits to flying during the "after hours". The skies are not quite as crowded. The fundamentals take on a whole new thrill. There is always something new to try. And, after all is said and done, stick time is stick time. The primary benefit though is your overall flying WILL improve.

I have found through trial and error that there are some basic principles to night flying. I have seen that following these principles will provide an introduction to a safe and enjoyable night flying experience. You might call this "A beginners guide to night flying". It is geared toward the first time night flyer. The principles are fairly simple and after you try them, I think you'll see that they all apply quite dramatically.

- 1) **Aircraft selection**
- 2) **Simplicity and reliability of setup**
- 3) **How to "light it up"**
- 4) **Know your surroundings**
- 5) **Take it easy**
- 6) **Enjoy yourself**

1) **Aircraft selection.** When you first started flying, you started on some kind of a trainer didn't you? Why? A trainer is typically stable. When you got into trouble, you needed a plane that was stable and could easily get out of tight spots. No ailerons here, not when you can let gravity and dihedral keep the wings level. All you had to do was steer it around the sky and that was a handful at the time. You needed a simple, stable airframe that didn't require you to point

it correctly all the time. Flying up, down, right and left was more than enough to keep up with. You needed an airframe that was, in a word forgiving. This same principle applies to beginning night flying. Also remember that the slower your plane will fly, the easier it will be to keep up with after dark. When night flying, just the lights on the plane and your experience on the sticks keep you happily cruising around the sky.

Get used to how the airplane flies during the day like "normal" or "sane" people. When you're comfortable with how it flies, takes off, and lands, get it out just before dusk and fly while the sunlight is fading. Before long, you will notice that you are no longer looking at the outline of the plane to the sky, but looking at the outline that you have created with the lights.

Most of my clubs' night fliers fly the GWS Slow Stick. It's a stable, reliable airframe that is easily upgraded. It also helps that spare parts are readily available for the instance that you push the envelope a little too far... oops... "*Fly like Bob*" (I have been known to push that darned envelope all the way to the ground on several occasions). A good quality receiver is an absolute MUST. There is likely to be a little more onboard interference due to the lighting system, and you don't want your prize night bird to fly off into the sunset, now do you? A slow flyer is a good primary choice because you want something that you can keep in fairly close and see easily. The further the plane gets away, the harder it is to see. "Them lights get mighty small, mighty quick if your plane don't fly slow"! (A word to the wise!)

2) Simplicity and Reliability of setup means just that... Keep it simple! Remember, you do all preflight, takeoff, flying, landing, and post flight WITHOUT sunlight. Get my drift? You got it! Simple is better. However, it must also be reliable. By reliable I mean a setup that will work ALL the time, EVERY time, with little or no "*tweaking*". If you can do your complete preflight (connecting battery, checking controls, etc.) reliably with just moonlight, the lights on the plane, and the occasional flashlight, then you have a simple enough setup. The night fliers in my club all fly electric planes regardless of what they fly during the day. This ensures that when you plug in the battery, on come the lights. I use tape to hold the lights on my airframe, and a Velcro strap to hold my battery in place. Doing this results in a simple and effective setup. The setup must also be reliable enough to keep all parts of the plane together during whatever kind of flying you are going to do. Remember, a battery pack slung off an airplane after dark can be

VERY hard to find. Ask me how I know... Been there, done that. Now I use a Velcro strap as well as a Velcro pad (fly and learn).

3) **Lighting it up** is a matter of personal preference. Night birds create their own orientation by type of light(s) used, color of light(s), and light(s) placement. There are many types of illumination out there. I have seen and used everything from glow wire (Glowwire.com) to L.E.D. (light emitting diode) lighting, to chemical glow sticks (quarter gumball machine at Wal-Mart). They all have their merit. Glow wire is great for outlining the airframe but it does give off some interference. This is why we use a high quality receiver. Glow wire was my first successful setup for night flying and I still have that first setup. Glow wire is Excellent for outlining the airframe, and for giving good feedback to the pilot regarding what the plane is doing.

Now my personal preference is L.E.D. lighting. I get my lights from "Lights by Phil"(e-mail at lightsbyphil@multipro.com). L.E.D. lighting requires less current; therefore I get more flight time for the same battery. The downside is not outlining the airframe the way that glow wire does. Color, quantity, and placement of the L.E.D. lights require more planning. Also, the further out I fly, the more difficult orientation is. I have become accustomed to this and usually keep it in close (Did I say "usually"? There goes that darn envelope again!). There also seems to be a wider variety of colors and intensities available using L.E.D. lighting. L.E.D.s' also offer the choice to have landing lights. Personally, I think having landing lights really adds to the cool factor!

The only time I have really seen chemical glow sticks used with any success at all lately is on an IFO (Indoor Flying Object). The pilot that uses them is very familiar with flying his I.F.O. and even then, it makes for a very "interesting" time. It is also interesting to note that I had the opportunity to go to a contest in Canada in the 1970's and saw glow sticks used very effectively on some night flying sailplanes.

4) **Know your surroundings.** Is there anything that your plane can make contact with that will leave it in ruin? Are there any trees, maybe a fence, a building, etc.? You know what I mean... Anything that can reach out and grab your plane? During the day you wouldn't think

twice about these obstacles. However, at night, when you can't see obstacles plainly, they seem to reach out and get a lot grabbier than during the day. Ask me how I know... Well, those same trees are there at night, oops! I even trashed a perfectly good LiPo battery all cause I got too far out (that orientation thing), and a darned tree reached up and grabbed my plane. I couldn't get it out till next morning when my friends and I could see in the woods better. Please understand that the lights stayed on until I disconnected the battery about 8 hours later. Oh well, live & learn.

5) **Taking it easy** is just that, flying for the sheer fun of it. This is the time to cruise around the sky for the sheer joy of cruising around the sky. Try doing touch and go's by moonlight for a few battery packs. See just how slow that "Slow Stick" will go. Low, slow flybys become a thing of beauty with lights. The simple touch and go takes on a whole new meaning when there are multiple glowing planes all in a traffic pattern low to the ground, lightly touching their wheels as they pass by. Believe me, these fundamentals are a whole new thrill after dark. They will improve while you're flying along, relaxing with your friends. After you have enough experience, take it up a notch or two with aerobatics. When you are really comfortable with the whole night flying experience, crank it up to full-on nighttime 3d. I can tell you from my own experience, flying 3d aerobatics by moonlight is WILD!!!

6) **ENJOY!!!** This night flying thing isn't hard to do and the quality time spent with friends is now extended. All you need is the correct airframe for your level of experience, some type of illumination, and the desire to "do it in the dark". If you choose to use a GWS Slow Stick to start with, when the time comes, you would be amazed how it can be modified to perform well beyond what I'm sure the designer(s) intended. If it can be done, then typically one of my club's night fliers has done it, or is planning to do it right now. I have seen brief hovers, Blenders, extended inverted flight WITHOUT ailerons, and more. So remember that it just depends on your imagination and willingness to experiment. Soon, nighttime flying will be second nature to you.

Hope this little bit helps you decide to give the night flying thing a try. If you enjoy it like we do, get with others and help them get started. I spent a lot of batteries just cruising along doing touch and goes by myself before there was much interest. Now, I wouldn't trade the night flying for anything in the world. Don't be afraid to experiment either. That's something my night flying group does best. Now on Friday and Saturday nights, weather permitting, we usually have a pretty good turnout of pilots and their Significant Others with almost as many planes in the air after dark as during the day. The term "multi-colored fireflies" usually applies.

Always remember, HAVE FUN!!!