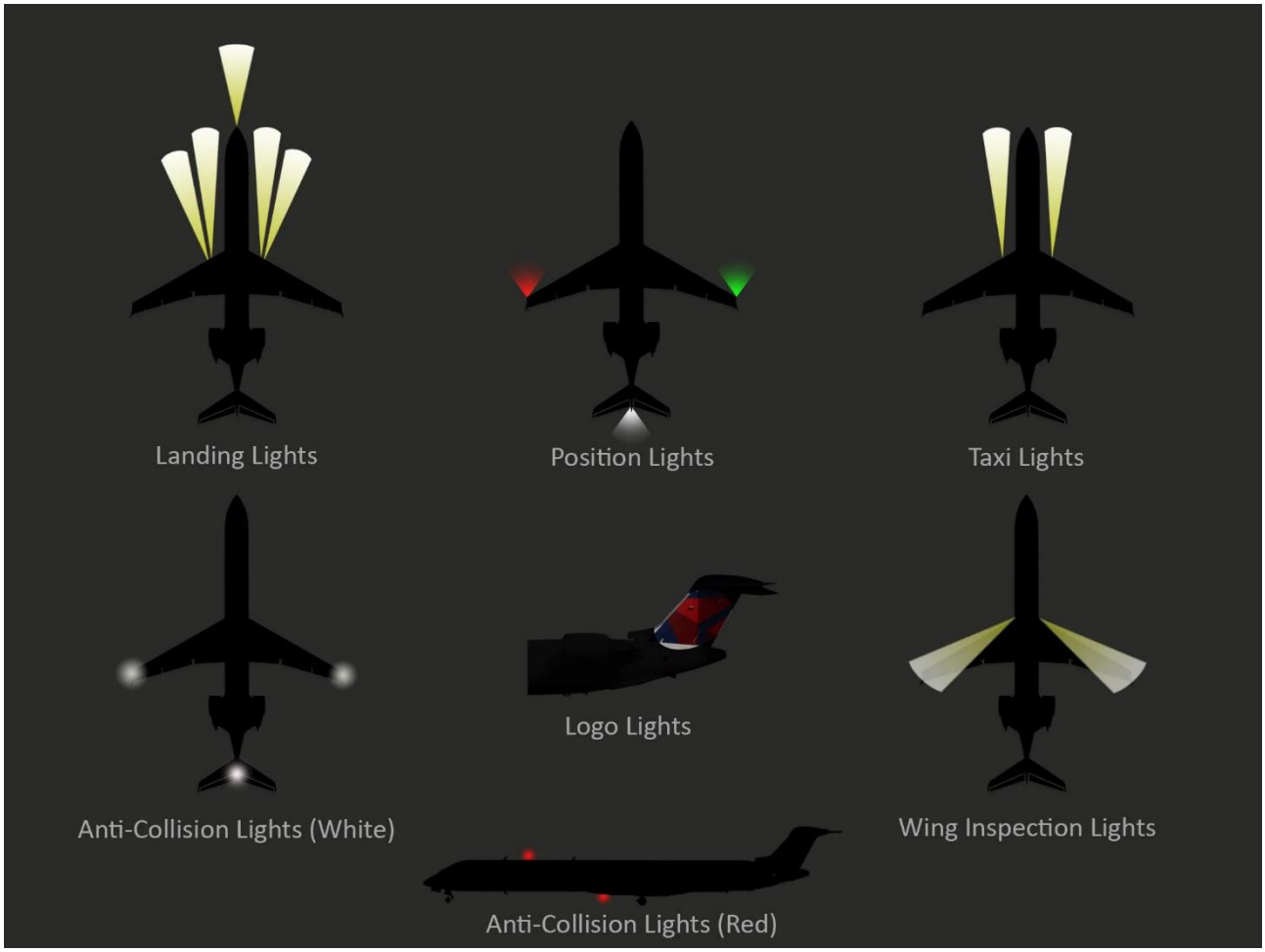
ANTI-COLLISION LIGHTS ON AIRCRAFT

Anti-collision lights on aircraft (lights to prevent collisions) consist of rotating or flashing lights: red, orange or white. These lights are used to supplement position lights in cases where there is a possibility of encountering another aircraft, as well as for visual communication with the airport during descent. The cycle of switching on and off is from 40 to 100 cycles per minute. In order not to visually disturb the crew, they are installed approximately in the middle of the hull on the bottoms and/or tops.



Strobe lights are flashing white lights on the furthest left, right and, on larger aircraft and some smaller ones, back points of an aircraft. They are the brightest lights on the aircraft, and are used to signal that an aircraft is entering or approaching an active runway, or for visibility in dark, clear sky. They are sometimes turned off incloud or fog, as they can further obscure the pilot's sight outside of the aircraft by reflecting off water particles. Beacon lights are flashing red lights fitted on the top and bottom fuselageof an aircraft usually on larger passenger aircraft. Their purpose is to alert ground crew and other aircraft that an engine is starting up, running orshutting down, or that the aircraft is about to start moving. Some spin to produce the flashing effect, increasing the chance they will be noticed.
Beacon lights are bright enough to be seen from the ground, and can be used to identify aircraft from the ground in dark or overcast conditions where the plane itself isn't completely visible.

ANTI-COLLISION LIGHTS ON DRONES

There are great advantages to using anti collision lights for recreational drones security and commercial operations. It increases security and gives greater flexibility to operations.
Not all lights are anti-collision. We have to distinguish them from navigation lights, because they are different things, although it is not impossible that they overlap.
Anti collision lights are intended to help the pilot determine the location of the drone. They are usually white colors and light flashing about once per second. Most of these lights are white, but they are red variants also available to reduce glare.

On the other hand, the main purpose of navigation lights is to help drone pilots maintain their sense orientation even when flying in the dark. To achieve this, the navigation lights are of different colors placed on the left and right side of the drone. A pair of navigation lights can also be added by one anti-collision light located elsewhere in the drone's body.

The FAA mandates that anti-collision lighting be visible from at least 3 statute miles when impacting with a frequency of 40-100 times per minute. The FAA has not prescribed the color, which can lead to confusion as to whether is the color choice appropriate. The choice must be in accordance with the awareness of other pilots working in the same airspace. If they see blue, yellow or green, they will think they should avoid something, but they would understand white or red stroking as anti-collision, so those two are usually chosen colors.

There are 4 basic time zones according to drone flights.

- Daylight is defined as;30 minutes before official sunrise up to 30 minutes after official sunset, local time.
- Morning civil twilight is generally defined as beginning about half an hour after sunset of the sun and ending about half an hour before sunrise.
- Evening civil twilight is generally defined as beginning about half an hour after sunset of the sun and ends one hour after sunset.
- Night is defined as the;time between the end of evening civil twilight and the beginning morning civil twilight. Night flying under Part 107 has strict requirements for anti collision lights.

Based on these time zones, the FAA requires users to have their anti collision lights on to your drone both during dusk and during the night. These lights are optional during the day, but it is safer option to have them if the drone flies under low visibility (smog, fog, clouds, etc.).
More anti-collision lights can be turned on. In addition, they can also be equipped with navigation lights lights, and some anti collision lights for drones have the ability to change their patterns, which means that it is easy to reach the navigation lights from the collision lights.
The features of anticolison light:

- Strength - due to wind, heat and humidity under which drones have to fly, anti collision the lights must be of suitable strength.
- Versatility and number of LEDs-to achieve the necessary 3 mile radius that the FAA demands, more LEDs will help.
- Weight-balance is extremely important for a drone. The lights should be so light that they do not affect flight performance at all. If we want to save weight, we will choose lights without casing.
- Power - most anti collision lights come with built-in batteries, but some options lights can draw power directly from the drone's battery, which can cause reducing flight time. Battery life is also very important, due to the necessary charging.

They are either portable or built-in. There are lights that can be mounted on different ways (tape, belts, special carriers, etc.).
Flying a drone at night means accepting more responsibility. Without proper lights for collision prevention, the risk of the drone falling on an invisible obstacle increases. It also exists the fact that other nearby drones or manned aircraft may be endangered.