

FOUNDATIONS OF FLIGHT

LONG SPOTS, INTRODUCTION—DEFINITION AND FACTORS

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The ability to travel a great distance under parachute is an important skill that allows skydivers to return to the DZ and pass over undesirable terrain. While there is no defined distance for what constitutes a “long spot,” Advanced Exercises—Jump 5 in Skydivers Information Manual Section 6-11, Advanced Canopy Piloting Topics, requires jumpers to exit an aircraft at 5,000 feet AGL at least 1.5 miles upwind of the landing area. The purpose is to have jumpers try a variety of drills to improve the glide of their parachute systems and develop the visual acuity to assess if they will make it back to their intended landing areas.

Being located upwind of a target already improves a jumper’s glide ratio (as covered in “Foundations of Flight—Navigation,” July 2022 *Parachutist*). Though geographical distance from a target provides one definition of “long spot,” due to a variety of factors jumpers can find themselves in a disadvantaged position that prevents them from reaching their target when significantly less than 1.5 miles away. Therefore, the term “long spot” in the next installments of this column refers to a distance where a jumper must actively and effectively stretch the glide of their system to reach their destination. The key lies in understanding how to create the optimal lift-to-drag ratio for a given situation. This requires a nuanced approach that includes a technical understanding of pilot input on performance, how to use visual feedback to determine range potential, knowledge of how winds aloft affect ground speed and what to consider if a target is unreachable.

While most long spots are unintentional, they are more likely to happen on movement jumps (like tracking, angle flying and wingsuiting) and on high pulls and balloon jumps, just to name a few. Other potential causes include exiting too far from the DZ (aka “bad spot”), not accounting for freefall drift, insufficient altitude after deployment, encountering a strong headwind or unexpected wind shear under canopy and poor technique to increase glide efficiently. When a jumper is unable to make it back to the DZ, they must know how to “land out” (land in a place other than the predetermined area) safely. Making informed decisions early and having the skill to land softly in tight spaces is crucial. Accuracy is an important skill set best learned and refined early in the learning progression with a slower moving parachute.

How to return from long spots is always a hot topic because skydivers have access

only to anecdotal evidence collected for their own unique situations. Manufacturers don’t publish official performance charts because there are simply too many variables, unique to each pilot, that affect glide. Not only are there many different types of parachutes on the market, each with a specific performance range, but construction options like size, fabric, aspect ratio, foil thickness, cell design, taper and line type—not to mention the condition of the gear—also contribute to a wing’s overall performance. Auxiliary equipment such as collapsible pilot chutes and sliders, removable deployment systems and risers (which vary in thickness) are all modular and highly customizable. Then there is the pilot, who’s suspended weight, choice in clothing, body position, range of motion, strength, stamina and application of inputs heavily influences performance.

Because of this, each parachute system and pilot have their own optimum configuration and angle of attack that will provide them with their best glide. For some wings that might be at trim speed, while others better

benefit from the application of rear risers, while others yet from some brakes. Even if you compare two wings of the same size and model, no two parachutes are truly identical. This means replicating specific performance statistics with identical inputs will yield slightly different results. In essence, every skydiver is a test jumper who needs to investigate what their individual capabilities are.

The next installment will address how a canopy pilot can calibrate their eyes to better gauge their glide ratio using a simple visual trick. As we delve deeper into the subject of long spots over the coming months, the intent is to help readers better identify their landing options. This requires making informed moment-by-moment decisions based on a framework of all the variables in play.

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