

# Getting Airborne



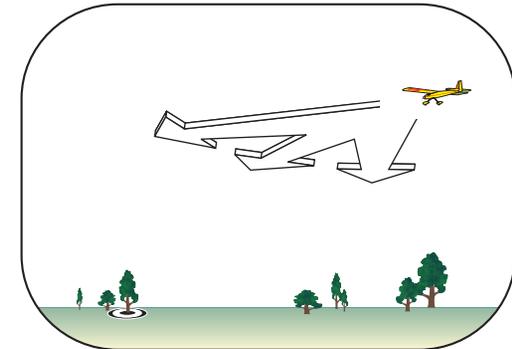
## Parallel Lines



## Ground Reference Targets



## Projecting Flight Paths



## Object as a Whole and Wind



## Parallel Lines: The Foundation of Consistent Aerobatics

In this section: B-10 illustrates the objective of surveying your flying environment and choosing ground reference *targets* to help position your passes back and forth parallel to the runway. The altitude you choose to train at will of course depend on your confidence and judgement. You should, however, try to keep it generally the same.

If you have ever watched *proficient* R/C pilots fly (you can tell by their ability to perform a variety of maneuvers one after another), you may have noted the absence of any visible corrections or realignments between their maneuvers (often referred to as being *smooth*). The primary reason for their smooth and apparent ease of flying is so simple that it is often overlooked. The tendency of beginning aerobatic pilots, and frankly most flyers, is to start each maneuver and *then* try to make corrections to finish it on a decent heading. Proficient flyers understand that starting each maneuver from a parallel line is the most influential factor in finishing it parallel. Similarly, by having your priorities straight and establishing good parallel lines early, you will have set the stage to be able to anticipate your maneuvers, learn new ones, and perform more than one per pass — just like a pro!

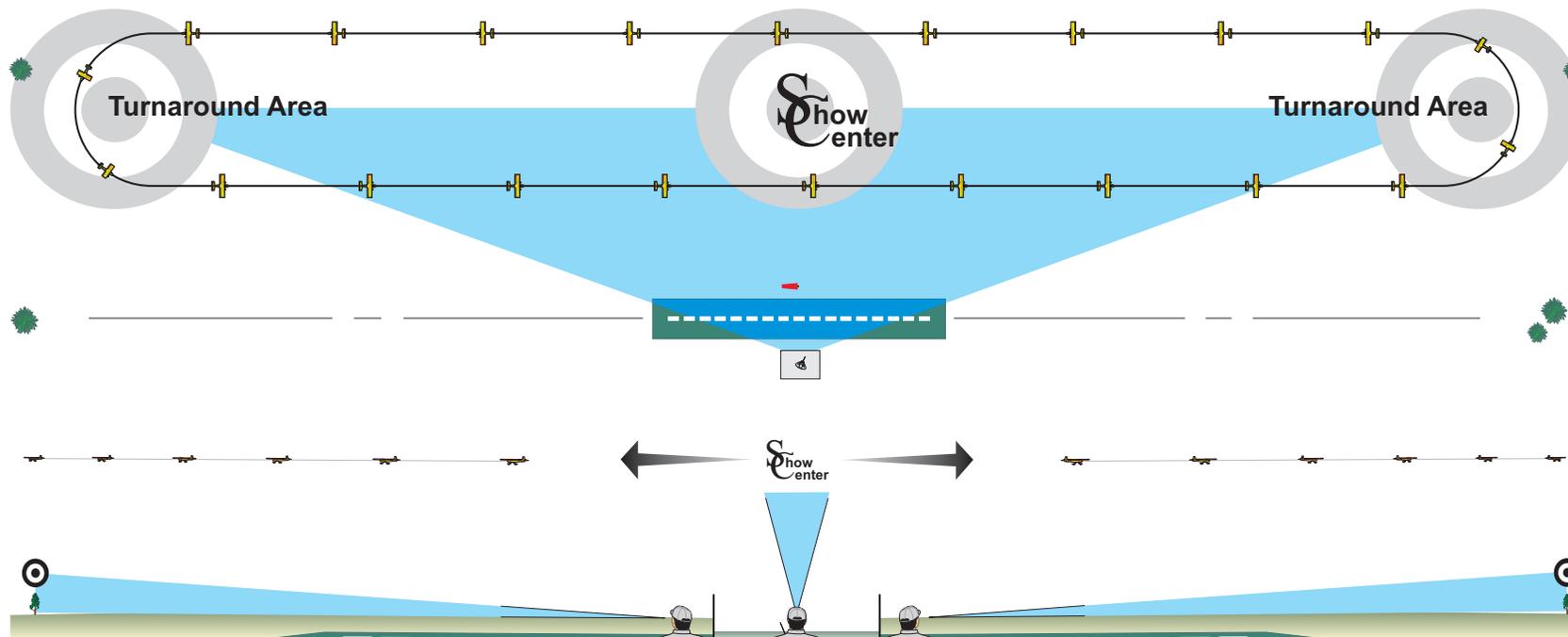
B-11 & 12 revisit the primary positioning techniques of *projecting* the flight path of the plane viewing it as a *whole*, and using yourself as the primary reference to help detect deviations off of parallel as it passes out in front of you.

B-13 illustrates the positive consequences of establishing parallel line entries into your maneuvers in order to gain the maximum amount of learning from each practice flight.

Summary: While it is often assumed that a person advancing into aerobatics will need to learn advanced procedures to fly well, a basic foundation of parallel lines to the runway is actually the key to effective practice and aerobatic proficiency at every skill level. (Absent that foundation, one's flying invariably plateaus with the majority who are only able to perform a limited number of individual *stunts*, regardless of how much they fly.)

## Surveying Your Flying Environment and Choosing Targets

Picture the distance out in front of you in which you would prefer to perform aerobatics (*show center*). Project that distance out to your left and right parallel to the runway centerline, and pick some ground reference *targets* to use as parallel turnaround points.



Note: Whether the airplane is physically over the turnaround ground references, or the targets are miles away, is not important. Your initial targets are simply points to shoot for as the plane approaches the horizon to maintain a consistent pattern, and to help you determine possible better locations to start the turnarounds to improve your positioning.

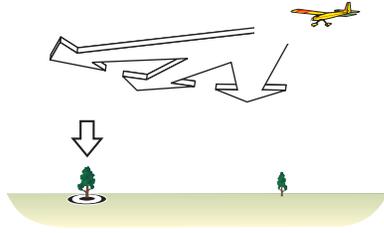
Note #2. Taking the time to find good targets reduces the number of corrections needed to keep parallel with the runway, thereby freeing you up to start preparing for the aerobatic maneuver(s) that you'll be practicing.

Simulator note: Simulator flyers need to fly near tree top level to track the plane's position and utilize targets.

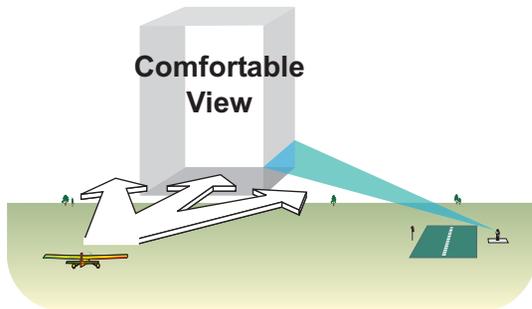
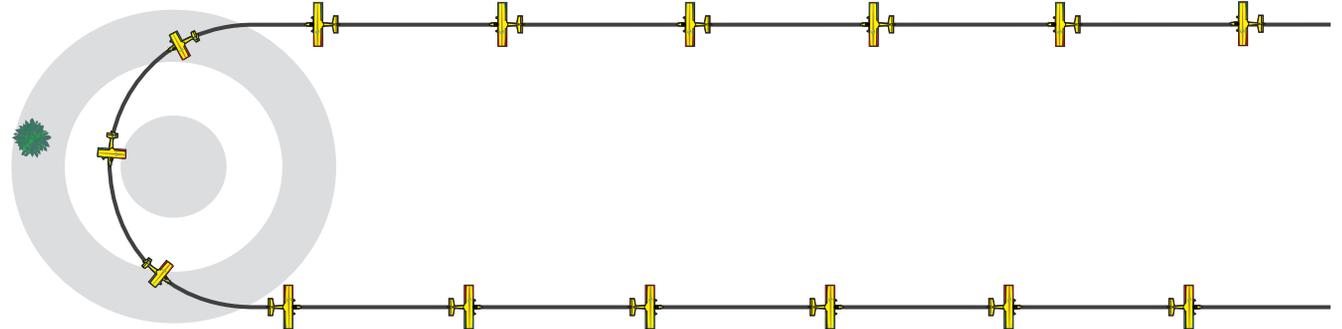
KPTR: Choosing ground references will help you position parallel to the runway, and thus set the stage for other things.

## Positioning Basics Revisited: Projecting Flight Paths

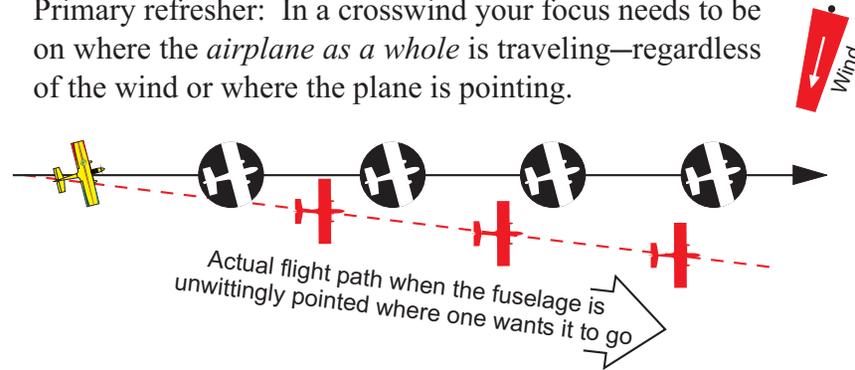
When flying at higher speeds, it becomes increasingly important to keep track of the big picture by continually asking (projecting), “Where is the airplane heading?” to recognize deviations off of the intended path right away.



Whereas the horizon provides a reference to detect deviations from the preferred flight path to your left and right, in front, you will have to try to maintain the same distance out in front of you on each pass.



Primary refresher: In a crosswind your focus needs to be on where the *airplane as a whole* is traveling—regardless of the wind or where the plane is pointing.



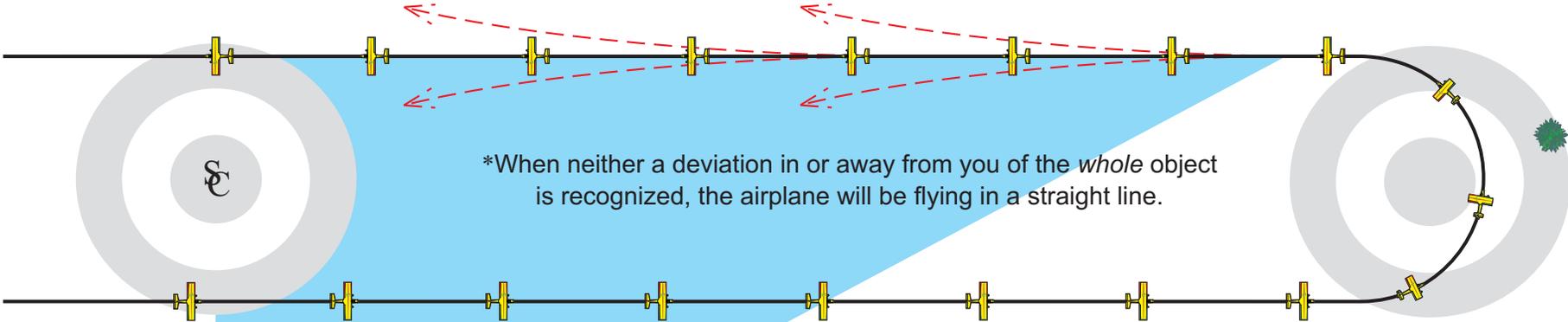
Sidebar: People debate every year about how to use the controls (esp. rudder) to correct crosswind drifts flying back and forth. Yet, if they guided the airplane as a *whole* (versus pointing it), they would not have to correct for wind drift in the first place (and would have more time for other things)!

KPTR: *Project* where the *whole* airplane is heading, and make course corrections based on where you want it to end up.

# Projecting Flight Paths into Comfortable View/Show Center



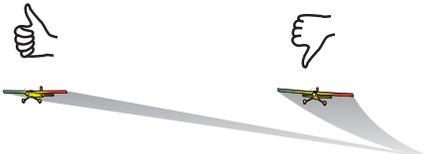
Using *yourself*, that is, asking, “Where is the airplane heading in reference to me?” is the quickest way to detect and correct deviations approaching show center before they become otherwise obvious.\*



\*When neither a deviation in or away from you of the *whole* object is recognized, the airplane will be flying in a straight line.



You as the primary reference



To consistently arrive at show center you need to question where each line is ultimately heading:

“Is it going to arrive in front of me too close, too far away, or is it going to arrive in front of me in comfortable view?”

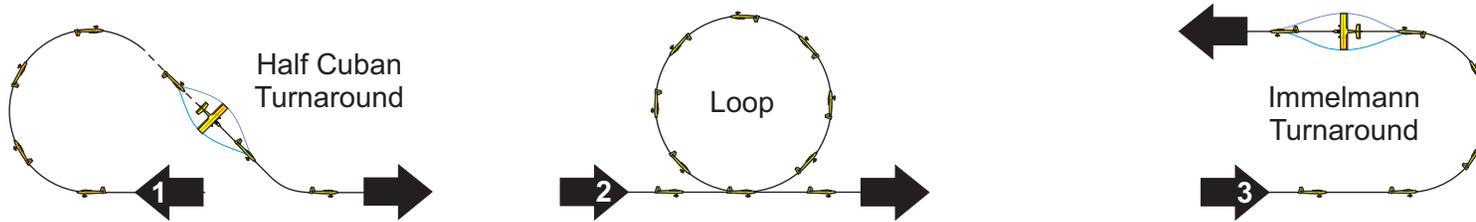
Simulator flyers should try to maintain the same distance (airplane size) as it passes out in front.



KPTR: Show center is consistently maintained by guiding the airplane to the same point (distance) out in front of you.

## Parallel Lines and the Opportunity to Go Beyond

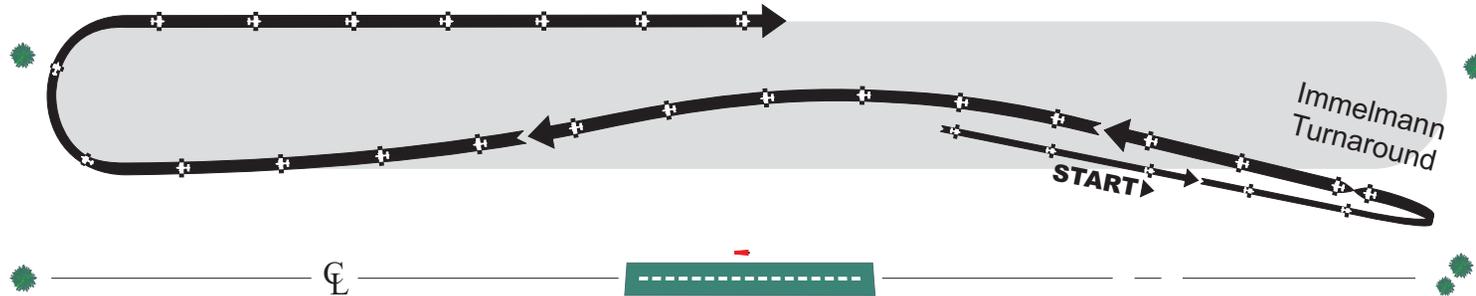
The more emphasis you place on deciding what speed to fly at, trimming for that speed, and establishing parallel lines, the earlier opportunities will present themselves to add to them loops, rolls, and other combinations.



The upshot of starting the first maneuver from a parallel line in comfortable view is that afterwards the airplane should already be in position for another!



Note that *forcing* a maneuver from an improper line can result in a minute or two of realigning before getting the chance to try again. Consequently, fighting to realign the plane after maneuvers is more likely to do with needing to improve the positioning of your setups than the maneuvers themselves.



Conclusions: 1. Prioritizing and keeping parallel lines will allow more maneuver practice attempts with less effort. 2. And, If you don't like where it's ending up after turning around, look first to adjust where you start your turn, not the turnaround itself.

"I need a lot of practice on my Immelmans."

"Actually, all your Immelmans are great. You just need to pay more attention to the line you're on when you enter them."

KPTR: A successful maneuver *result*, in good shape for another, is accomplished with greater ease through an initial focus on the setup.