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# The Immelmann Turn

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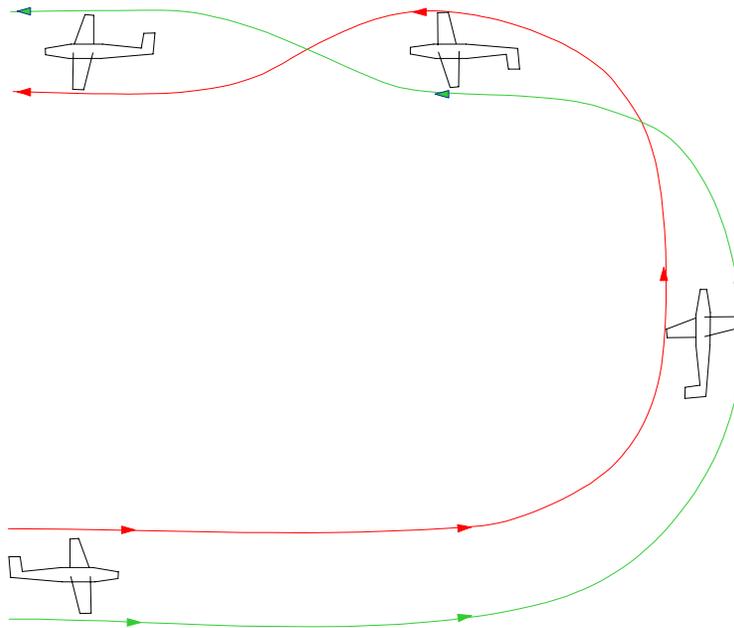
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Now that you've learned how to do the three most basic maneuvers in aerobatics let's combine these three elements into one maneuver. The Immelmann Turn. What is an Immelmann Turn? An Immelmann Turn is a maneuver that takes the plane back to the direction it came from without turning the plane left or right. Here is a description on how the maneuver is done.

The maneuver starts at straight and level flight, the plane pulls up into a half inside loop, then immediately does a half roll (180 degrees) at the top of the loop and returns to straight and level flight in the exact opposite direction it was entered.

Well, I hope you noticed in the description the basic maneuvers it takes to do an Immelmann. Straight and level, loop, and roll where all used to do this maneuver. I also hope you noticed the difference in altitude from start to finish. We started low and finished high. So let's learn to do any Immelman Turn. For descriptive purposes the maneuver will be flown from left to right. I like to start all maneuvers when the plane passes directly in front of me. This makes it easier to see what the plane is doing.



*Figure 1, The Immelmann Turn*

Starting from straight and level flight at approximately  $\frac{3}{4}$  throttle. As the plane passes directly in front of you pull back and hold the elevator as you would do a loop. When the plane reaches about 4 o'clock put in full throttle. As the plane reaches the top adjust the elevator to make a nice half loop. When the plane has reached the top of the half loop (the plane should be inverted and going exactly in the opposite direction from which the loop was started) release the elevator to neutral and immediately roll the plane left or right with the proper

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aileron input. When the plane rolls to the upright position (180 degrees) release the aileron to the neutral position and fly back straight and level. Now, take a breath. If everything went well you should be headed back the opposite direction from which you started. If not keep trying. While practicing this maneuver try not to lose any altitude when rolling to the upright position. Remember the key to this maneuver is the timing of the roll. If you roll too soon you'll be heading up when you get to the upright position or by rolling too late you'll be heading for good old terra firma. You want to finish nice and level. Give it a try and don't forget to breathe.

Next: The Split "S"