



## **Training: Bob Juncosa**

### **"The Humble Figure Eight"**

When it comes to a list of what new pilots need to know, there is of course the optional takeoff followed by the mandatory landing. Typically, new pilots then focus on mastering the standard "boxing" of the field in right and left-hand circuit patterns. But then what? Sure, a loop might be the next easiest maneuver to try but for my money, there is no single maneuver that teaches flying skills better than a properly done figure eight.

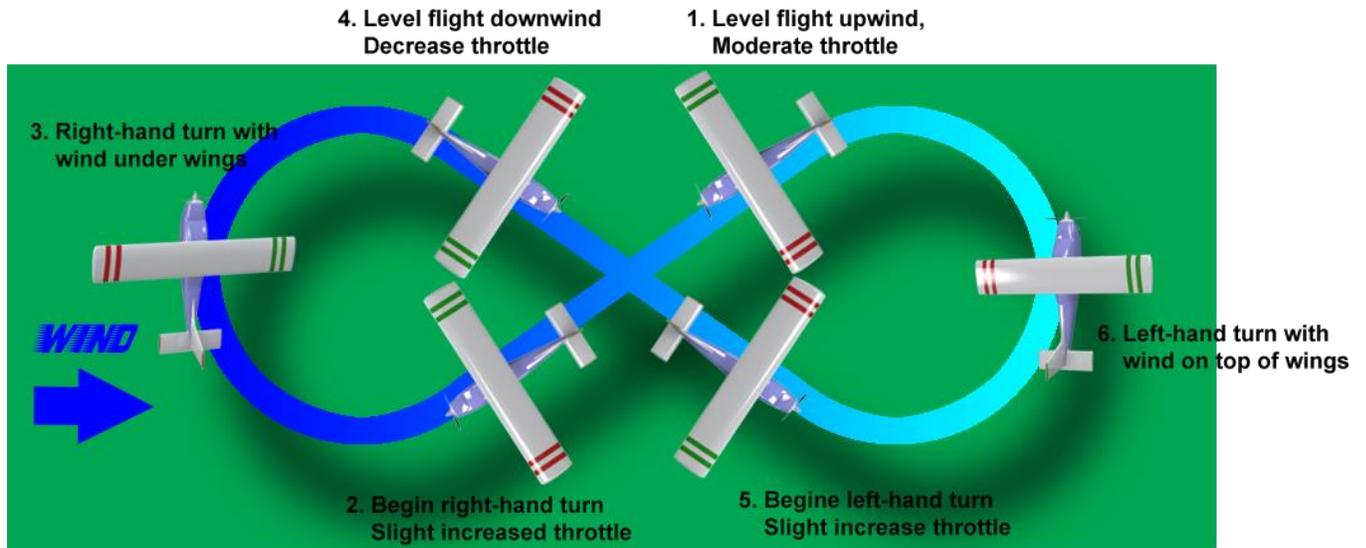
Here's why:

- The pilot must fly in both upwind and down wind conditions
- The pilot must fly both right-hand and left-hand turns
- The pilot must (should?) use of all four axis of control (throttle, aileron, elevator, rudder)

Before we go any further, let's define what constitutes a proper figure eight. The entire figure eight is done at the same altitude and at the same speed. The right hand and left hand lobes are the same in shape and size. Lastly, the crossing point of the figure eight is at "show center" of the field (or in front of the pilot, whichever applies)

For the purposes of this example, let's assume that the wind is going from left to right, you are starting your figure eight headed upwind and from the far right corner of your pattern. Here are the steps:

- Put the plane in level flight and head towards the center of the field at moderate speed
- Cross the dead center of the field
- Make an upwind right-hand coordinated turn with rudder, aileron, and elevator. (A little throttle may be necessary.) At this point, the wind will be hitting the underside of the wings and pushing you downwind in the direction of your turn.
- As you swing through the turn and begin the downwind leg, you will need to decrease your throttle. If not, with no changes to the inputs of the other axis, your plane will rise in altitude and decrease the radius of the turn. This is because the plane's airspeed has increased and the control surfaces have more effective.
- Level out and cross the same center point of the field
- Now you have to execute a downwind left-hand coordinated turn. (Again, a little throttle may be necessary.) Now, the wind will be hitting the top side of the wings pushing you downwind and against the direction of the turn.
- As you complete your left-hand turn, you'll be headed up wind again so should find that you will need to increase your throttle to the original starting amount.
- Finish your turn and cross the dead center of the field
- Repeat as desired



In the above example, all the upwind turns were right-hand turns and all the downwind turns were left-hand turns. To take full advantage of the training benefit of a figure eight, be sure to do as many figure eights by either starting up wind with a left-hand turn or starting downwind with a right-hand turn.

So if you haven't done one yet, give the humble figure eight a try. Think about adding it to your standard repertoire. It is a graceful maneuver that takes up a lot of airspace so it looks good, especially with smoke on! It is a fun low risk maneuver and as I said at the start of this article, it is a great learning and practice maneuver. I do figure eights on pretty much every flight I make.

In closing, please do not hesitate to comment on these articles and especially let me know what you would like to see in future articles. If you have any training tips, pass them along. I'll be happy to put it into article form, with full credit to you of course.

Wind

Happy Landings

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