

## FLIGHT TECHNIQUE

By Jason Benson Photos by John Reid, Illustration by FX Models

# The Stall Turn

*PERFORM THIS ATTENTION-GETTING MANEUVER WITH JUST ABOUT ANY PLANE*



**T**he stall turn is one of those maneuvers that can be flown with just about any airplane. When performed correctly and in control, the stall turn will get attention every time it is performed. Once you have mastered the basics outlined in this article, be sure to cut loose and try different variations to mix it up.

**Definition:** The name really says it all. The stall turn, or hammerhead, as it is often referred to, is a maneuver in which you stall the aircraft and then use the rudder to turn it around. The maneuver is performed in a vertical orientation, and when flown correctly, the aircraft will pivot on the center of gravity. Prerequisites: You should have a solid grasp on flying a straight vertical line

and be comfortable using the rudder to “steer” the plane around.

### FLYING THE STALL TURN

As always, you need to be sure to practice at a safe altitude. Since the stall turn is performed at the top of a vertical line, you don't necessarily have to start high. Just be sure to make your upline long enough so you don't have to worry about the ground.

You will begin the stall turn by flying parallel to the runway with wings level. It is best to be flying between half and two-thirds throttle. Once your plane passes you, advance the throttle to full and pull a constant radius quarter loop to the upline. During this pull, make sure to keep the wings level and use rudder to keep your heading.

Once you have reached a comfortable level, you will want to decrease your throttle until you are at a setting where the plane will hover, possibly slightly less. As soon as the plane stops moving, you will want to add full, highrate

rudder in the direction you want to turn. As the plane rotates, bring the throttle back to idle to avoid the thrust of the engine pulling the plane over the top. When your model comes around to where the nose is pointing at the ground, you will want to come out of the rudder. In order to avoid tail wag you need to keep a little of the rudder in and slowly release it as the plane picks up speed on the downline.

As you approach your entry altitude you will pull another quarter loop, making sure to use the same radius as your entry. When the plane levels out, be sure to advance the throttle back to cruise setting to avoid stalling the wings.

## **KEY POINTS**

### **Pivot:**

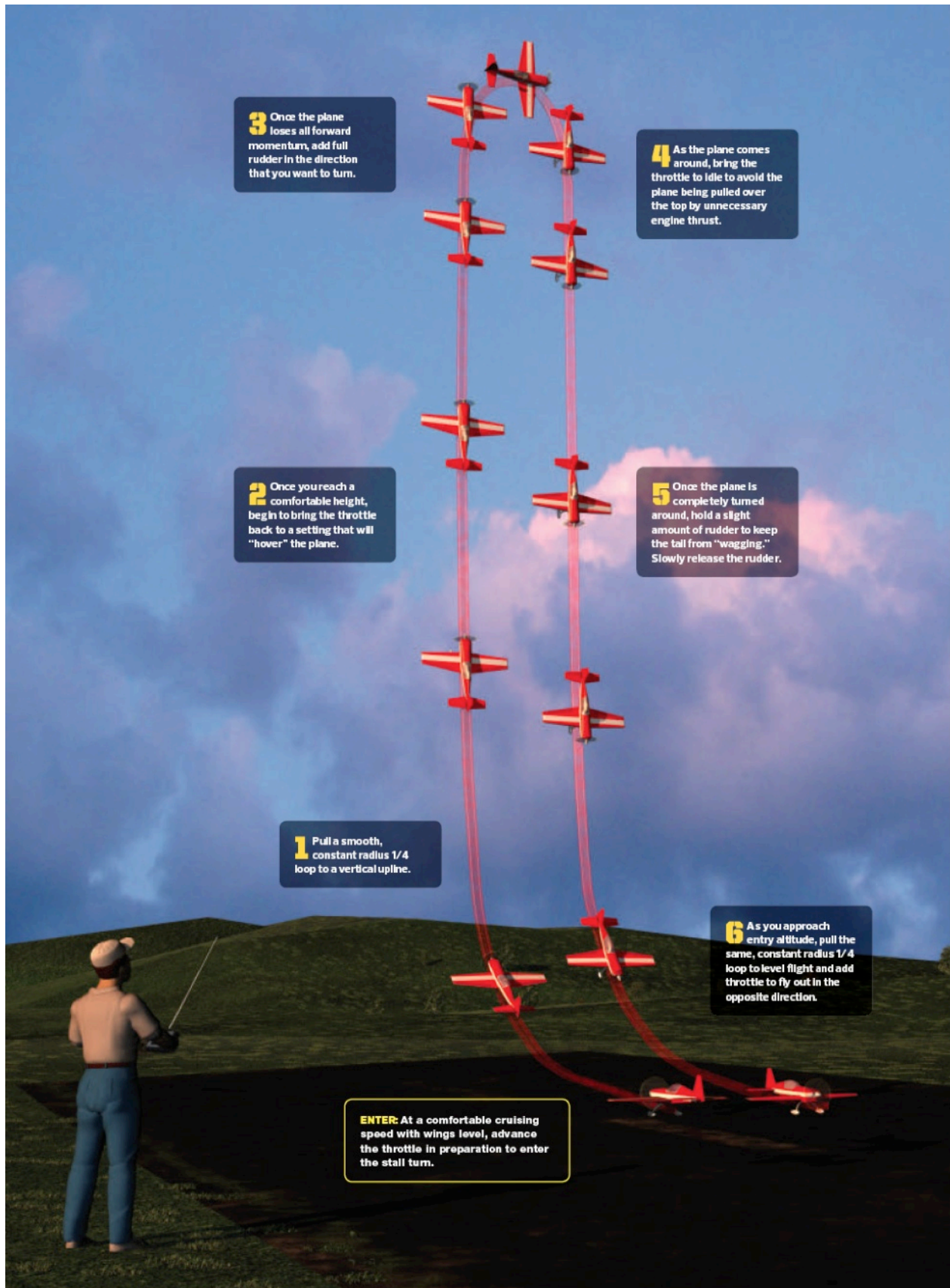
The hardest part about the stall turn is mastering the stall without relying on luck. Too many people cut the throttle completely and rely on timing the rudder input to get the plane to turn. Experiment with throttle settings at the top until you find that “sweet spot” for your particular model.

### **Radius:**

In order to score well on the stall turn, your entry and exit radii have to match. Wings level: Changes to wings level will cause changes in heading. This is something that is easy to master — you just need to focus.

## **VARIATIONS**

Once you have the stall turn mastered, you can try changing things up. For example, try an aileron roll on the upline or a snap roll on the downline. If you are flying a high-wing plane like a Cub, try doing lower-level stall turns in succession like you’re riding a half pipe ramp. You can also try flying the stall turn perpendicular to the runway. All of these ideas will help to keep the maneuver fresh. I hope you enjoyed this information.



**3** Once the plane loses all forward momentum, add full rudder in the direction that you want to turn.

**4** As the plane comes around, bring the throttle to idle to avoid the plane being pulled over the top by unnecessary engine thrust.

**2** Once you reach a comfortable height, begin to bring the throttle back to a setting that will "hover" the plane.

**5** Once the plane is completely turned around, hold a slight amount of rudder to keep the tail from "wagging." Slowly release the rudder.

**1** Pull a smooth, constant radius 1/4 loop to a vertical upline.

**6** As you approach entry altitude, pull the same, constant radius 1/4 loop to level flight and add throttle to fly out in the opposite direction.

**ENTER:** At a comfortable cruising speed with wings level, advance the throttle in preparation to enter the stall turn.