



Figure of the Month

The Stall Turn / Hammerhead

The Stall Turn / Hammerhead is another important manoeuvre in aerobatics, firstly simply because it is a compulsory manoeuvre for the Free Knowns or Frees, but in higher level in the free knowns it is a good reversing figure or cross box figure as well.

From various authors:

“The name ‘Stall Turn’ is very misleading. Pilots rightly interpret ‘stall’ as meaning an over-critical angle of attack, yet this is the complete opposite of what we are actually trying to achieve. The American term ‘Hammer Head’ is rather more descriptive in that it describes the rapid yaw rotation that we see at the top of the figure.”

“In very simple terms, the Stall Turn is a pull-up to a vertical zoom, and before all forward momentum is lost, the aircraft is yawed through 180° into a vertical downward dive and after accelerating to normal flying speed is recovered to level flight.”

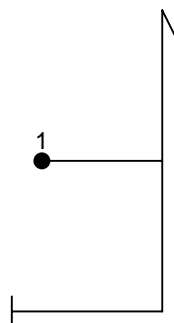
“The Hammerhead is an interesting manoeuvre because three forces, slipstream, torque and gyroscopic precession caused by the aircrafts propeller come into play to a greater extent than in most other aerobatic manoeuvres.”

All books on aerobatics will have a section on how to fly the Stall Turn/Hammerhead, so I will leave it to you pilots, as usual, to read up on it more thoroughly. I also suggest reading the judging criteria sent out with this attachment so you know what the judges are looking for and what you will be downgraded on.

For those not into reading, the following video link is from the IAC website:

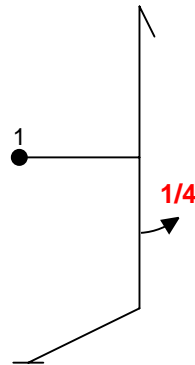
<https://www.youtube.com/watch?v=A9mHRS7InOA>

Entry & Graduate – yours is the vanilla / stock standard figure

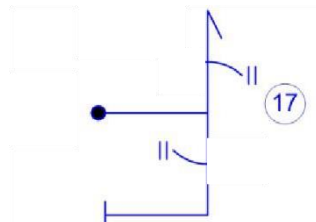


The Stall Turn / Hammerhead

Sportsman – you will have whatever is given in the **Known**, your own choice if you design a **Free**, and in the unknown the only addition to the standard/basic Stall Turn/Hammerhead is a possible $\frac{1}{4}$ turn on the down line.



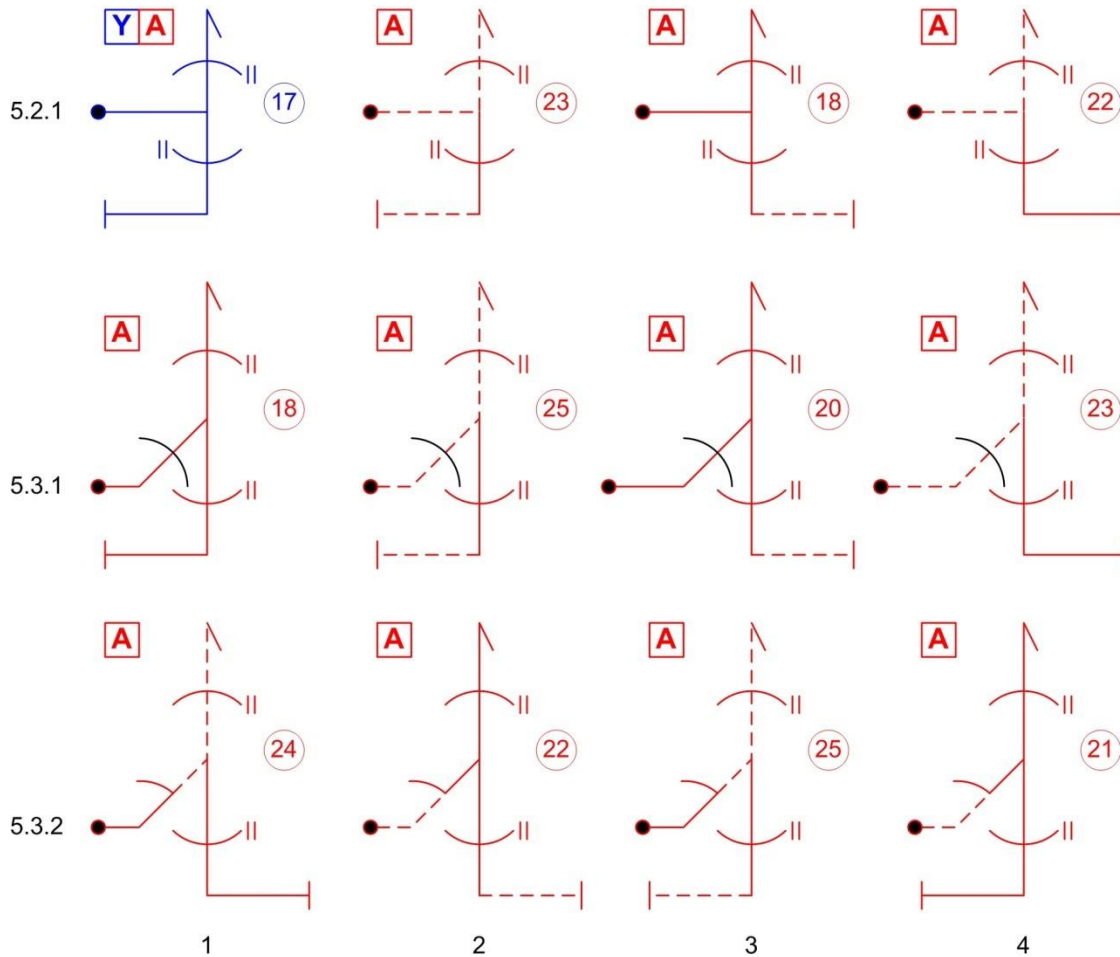
Yak 52 & Intermediate – you too will have whatever is given in the Free Known figures and/or your choice of Stall Turns/Hammerheads from the Aresti manual. With regards to Unknown Frees it is the basic/standard Stall Turn/Hammerhead with the possibility of a $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{2}{8}$ roll on the vertical up and a $\frac{1}{4}$ or $\frac{2}{8}$ roll on the vertical down.



Advanced – as for Yak 52/Intermediate it will be whatever is given in the Free Known compulsories or what you choose to put in. The following may be encountered in the Unknowns, I will leave it up to you to work out the rolls/combinations of rolls that can be included in the Hammerhead (Remember black lines indicate Unlimited manoeuvres).

The Stall Turn / Hammerhead

A.8. Family 5 Stall Turns



A.8.1.1. All categories: In Family 5, Flick Rolls are not permitted on ascending vertical or 45-degree lines, except in Family 5.2.1.

A.8.1.2. Advanced: Rotations allowed: on all 45-degree lines, limited to 9.1.2.2 or 9.4.2.2; and on ascending vertical lines in Families 5.3.1 and 5.3.2, limited to 9.1.1.1.

A.8.1.3. Unlimited: The combined total for all aileron roll elements on either or both the 45-degree and vertical up lines in Families 5.3.1 and 5.3.2 must not exceed 450° of rotation and 4 stops.