

## **Guide to Clubman Aerobatics**

Formally known in NZ as Novice Pattern, and Sportsman Pattern. Renamed to "Clubman" in 2018 to remove confusion with the naming of IMAC classes.

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1. Take Off Sequence
2. Double Stall Turn
3. Cuban Eight
4. Three Inside Loops
5. Slow Roll
6. One Outside Loop
7. Three Horizontal Rolls
8. Three Turn Spin
9. Landing

### **First of All – Some tips.**

1. Positioning is the key. Any club flyer can do three loops or three rolls, but placing them directly in front of the judges is harder than you think. In clubman, only the centre marker is used. This will be positioned directly in front of the judges, about 150m out. Your manoeuvres should be positioned proportionally over the centre marker to score well.
2. You need to fly a line parallel to the run way. How far out you fly will depend on the size of your model. A forty sized model should probably be flown at about 100m, but a 2m model would still be quite visible at 175 m.
3. The start and end of each manoeuvre must be announced to the judges. Make sure its called loud and clear enough for the judges to hear. Eg – "Double Stall Turn Commencing Now"....do the manoeuvre, then call "Complete". If the start of the manoeuvre is not announced, it should score a zero.
4. Each manoeuvre must begin and end with a portion of straight and level flight. 2 seconds is the rule, but the longer the better. Make sure the manoeuvre is announced, the straight flight portion is then flown, then the manoeuvre, then a portion of straight flight again, then call "Complete".
5. A manoeuvre must be completed on each upwind or downwind pass. After each manoeuvre, to give you more time, fly well up wind (or down wind) and get yourself properly lined up and ready for the next manoeuvre. Take as much time as you like. If you're not lined up properly, and you haven't got to the centre marker yet, turn around and line up again. You can do this as long as you don't go past the centre marker.
6. The Caller – You will need someone to help you start the model safely, carry the model to the runway, and call you through the manoeuvres. The caller will give you information during the flight about what the next manoeuvre is. The caller can also do all the announcing to the judges, and allow you to concentrate on the flying. I advise you get an experienced aerobatics pilot to be your caller for the first few competitions.
7. If you totally screw up a manoeuvre, make sure you exit in the direction you entered. If you get out of sequence and start doing all the upwind manoeuvres down wind, you will be getting zero from the judges. This is where it helps to have an experienced caller who can keep you in the correct sequence.

### **Learning to fly the line.**

In the Clubman Aerobatics Sequence, all the manoeuvres are performed on a line parallel to the judges. After each manoeuvre you will need to fly upwind (or down wind) and turn the model around ready for the next one. The best turn around manoeuvre is the half reverse Cuban. Pull onto 45 degrees, ½ roll to inverted, pull through 5/8 loop back to level flight. This manoeuvre will turn the model through 180 degrees and place you back on the same line as where you started. It is important to get the model back on line with the wings level ready for the next manoeuvre. Before getting started with the actual manoeuvres that make up the sequence, you should first learn to fly the line. Fly from one end of the line to the other, and do a turn around at each end. Keep doing this until you are good at flying the same line during each upwind and downwind pass. Do it for 10 minutes if you have to.

When flying the actual manoeuvres in front of the judges, keeping yourself on line during the flight will make flying the actual manoeuvres a lot easier.

### **The Schedule**

The sequence has been around for a long time. It has all the elements required to progress the pilot up to the next level, the Expert sequence. There have been some minor changes over the last 10 years, but generally it has remained the same.

Once you've started the engine, your caller will place the model on the end of the runway. You need to stand 2 or 3 metres in front of the judges. Your caller will stand behind you during the flight. Wait till your caller is in position and ready before you start the flight.

1. Take Off Sequence – Check the judges are ready, then announce the manoeuvre – “Take Off Commencing”. Open up the throttle and take off down the run way, try and make the take off smooth. Once in the air, keep flying upwind. You must then perform a 90 degree turn away from the flight line, followed by a 270 degree turn to finish heading down wind. When the model passes through centre, call “Complete”.
  - The model must sit still with the motor going, un-assisted by the caller, prior to the take off.
  - Make sure the first 90 degree turn is actually 90 degrees.
  - Try to keep the climb angle constant and level out once you are high enough.
  - Don't climb or dive once you have levelled out

After flying past centre, fly downwind and perform a turnaround ready for the first manoeuvre. Make sure the model is positioned wings level flying into wind parallel to the runway.

2. Double Stall Turn – Flying into wind, wings level, 3 or 4 seconds before you get to centre, call “Double Stall Turn Commence”. When you get to the centre marker, pull up into a  $\frac{1}{4}$  loop and fly a vertical line. The bigger you make the  $\frac{1}{4}$  loop, the easier it will be to see the top of the model for the stall turn. Throttle back and as the model is about to stall, apply the rudder. Dive the model vertically down, and pull through a half loop to another vertical line on the other side of the centre marker. Again, make the  $\frac{1}{2}$  loop big, but remember the bottom of the  $\frac{1}{2}$  loop should be directly above the centre marker. Fly the second vertical line and do the second stall turn at the top. Finish the manoeuvre with another  $\frac{1}{4}$  loop the same size as the first. Fly upwind and keep the wings level, pause for 3 or 4 seconds past the centre marker, call “Complete”.
  - Make sure the wings are level before you start the first  $\frac{1}{4}$  loop, otherwise you'll be on an angle.
  - Make the looping parts big so you can see the model better for the stall turns.
  - Use the rudder and elevator to keep the model perfectly vertical on the way up. In the model is not vertical when you stall, it will fall to the wheels, or on its back, and you will get a zero.
  - If the model is leaned over slightly to one side, stall turn in that direction.
  - Don't kick the rudder in too soon. If the model is not slow enough, and the stall turn part takes more than  $1\frac{1}{2}$  wingspans, it is called a wing over and you will get a zero.
  - On the down line, hold a small amount of down elevator to keep the model vertical. More so on the first down line if it is windy.
  - Exit with the wings level and fly straight for 3 or 4 seconds before calling complete.
  - Centre the entire manoeuvre over the centre marker.

Fly upwind and perform a turn around ready for the next manoeuvre.

3. Cuban Eight – Flying downwind, with wings level, 3 or 4 seconds before centre call “Cuban Eight Commence”. Fly past centre and pull up into an inside loop. When you are diving at 45 degrees, release the elevator, pause, perform a half roll, pause, begin the second inside loop. Again at 45 degree diving part, pause,  $\frac{1}{2}$  roll again, pause and recover down wind. Keep the wings level and fly horizontal flight for 3 or 4 seconds, call “Complete”.
  - The Loops should be the same size.
  - The lines connecting the two loops should be 45 degrees.
  - The  $\frac{1}{2}$  rolls should be positioned in the middle of the 45 degree lines. (They should be also positioned directly above the centre marker)
  - Keep the wings level through the loops.
  - If it is windy, adjust the amount of elevator slightly as you are looping to keep the loops the same size, and to keep the manoeuvre centred.

- When you are flying the diving 45 degree line, hold a small amount of down elevator to hold the model at 45 degrees.

Fly downwind and perform a turn around ready for the next manoeuvre.

4. Three Inside Loops – Flying into wind, with wings level, 3 or 4 seconds before centre call “Three Loops Commence”. When you get to centre pull up elevator and complete three inside loops. Finish flying into wind, wings level, wait 3 or 4 seconds, call “Complete”.
  - The loops should be the same size, and superimposed.
  - Keep the wings level during the loops.
  - If it is windy, adjust the amount of elevator slightly as you are looping to keep the loops the same size, and to keep them centred.
  - Use the rudder to keep the model on line.

Fly upwind and perform a turn around ready for the next manoeuvre.

5. Slow Roll – Flying down wind, with wings level, 3 or 4 seconds before starting call “Slow Roll Commence”. Perform a slow roll, you should be inverted as you pass the centre marker, and the roll should be 3 to 5 seconds long. Finish flying down wind, wings level, wait 3 or 4 seconds, call “Complete”.
  - Make sure you are flying parallel to the runway before starting and the wings are level.
  - If you’re not Hanno Prettner, pull the nose up by a few degrees as you start to make the slow roll easier (and safer).
  - When you’re inverted, push a small amount of down elevator to keep the roll level.
  - Try not to loose or gain any height during the roll.
  - Keep the roll rate constant.
  - Keep the wings level as you exit.
  - Most important, make sure the roll is a slow roll, eg it lasts for at least 3 seconds. If just whack in full aileron, and the model rolls to fast, you will get a zero.

Fly downwind and perform a turn around ready for the next manoeuvre.

6. One Outside Loop – Flying into wind, with wings level, 3 or 4 seconds before starting call “One Outside Loop Commence”. Before centre  $\frac{1}{2}$  roll to inverted. When you get to centre push down elevator and complete an outside loop. Pause, then  $\frac{1}{2}$  roll to upright. Finish flying into wind, wings level, wait 3 or 4 seconds, call “Complete”.
  - The  $\frac{1}{2}$  rolls should be equally positioned on either side of centre. Pause for about 2 or 3 seconds after the roll before the loop starts. Do the same length of pause after the loop, before the second half roll.
  - Make sure the wings are level before and after each  $\frac{1}{2}$  roll.
  - Keep the wings level during the outside loop.
  - The loop should be round.

Fly upwind and perform a turn around ready for the next manoeuvre.

7. Three Horizontal Rolls – Flying down wind, with the wings level, 3 or 4 seconds before starting call “Three Rolls Commence”. Perform three horizontal rolls. You should be inverted during the second roll as you pass the centre marker. Finish flying down wind, wings level, wait 3 or 4 seconds, call “Complete”.
  - Make sure you are flying parallel to the runway before starting and the wings are level.
  - Make the rolls easier by pulling the nose up a few degrees before starting the first roll.
  - Don’t make the roll rate to fast.
  - When you are inverted on each roll, push a small amount of down elevator to keep the rolls level.
  - Keep the roll rate constant.
  - If you are losing too much height, stop rolling and exit safely rather than trying to squeeze in the last roll.

Fly downwind and perform a turn around ready for the next manoeuvre. This time do an immelmann turn, as the next manoeuvre requires some altitude.

8. Three Turn Spin – Flying up wind, with wings level, 3 or 4 seconds before starting call “Three Turn Spin Commence”. Now ease back on the throttle until you get to idle, and starting applying elevator to make the model stall when you get to centre. Once stalled, perform a three turn spin. Exit nose down, regain flying speed, and gently recover upwind. Fly wings level for 3 or 4 seconds, then call “Complete”.
- Slow the model down and start pulling in the elevator to make the model stall.
  - Keep the model headed into wind using the rudder. As the model slows, the nose may begin to wander off line, use the rudder.
  - Keep the wings level as the model reaches the stall.
  - Technically you should fly a horizontal line on the entry to this manoeuvre, but it may be worth losing 1 or 2 points by pulling the nose up more to ensure a stall is made.
  - Make sure the nose drops before you start spinning. If you don't let the nose drop, the model will not be stalled and you will force a snapped entry. You will get a zero.
  - Don't wait too long after the nose has dropped before starting the spin. Otherwise the model will regain flying speed and you will then snap the entry.
  - When you exit the spin, make sure the model has regained flying speed spin before pulling the nose up. Don't stall it again by pulling to early on the exit.

Fly upwind and perform a turn around ready for the next manoeuvre. This time you get a free pass.

9. Landing – This is a continuation of the rectangular approach, and is judged from a height of about 2 metres. Flare the model smoothly to touch the model down on the runway with no bounces, keep the model tracking straight and roll the model to a stop. Call “Complete”.
- Make the landing smooth.
  - Keep the model headed straight after the landing.
  - Roll the model to a complete stop before calling complete.
  - Try not to nose the model over.
  - There is a defined landing zone, so make sure you land in it. If you land too far away, you may get a zero. Usually for clubman, it is simply land on the runway. Obviously a smooth touch down in front of the judges would get a better score than touching down off in the rough !
  - Don't hit the Judges ☺