

Guidance for Instructors during Flight Training

Note: 1 This is written for electric models on 2.4GHz. See Annex for IC and/or 35MHz.

2 This only covers flying. Other aspects are covered in a separate note

Post-Flight briefings and end of session briefings

After each flight, tell the Student what was going well and what needs to be corrected.

Make it clear that there is also a need to consolidate each stage before moving on to the next so that the basics become almost sub-conscious.

Take the opportunity to explain any points of aerodynamics or operational procedures that were shown up during the flight or session.

Stage zero - Selecting and acquiring a model and equipment

Objectives:

Role of the Instructor:

- Make sure that the student receives balanced advice regarding the different types of model that are suitable for training, not just a 'buy this one' approach. Consider the type of flying that the Student is aiming for (if he knows this).
- Inform the student of BMFA guidance against the use of dry cells in Tx
- Similarly, ensure that the student is aware of the different options for radio gear and that gyro-stabilisation is not suitable for learning.
- Make sure that the student is aware of all of the equipment and tools that are necessary.
- Strongly advise the student to check his planned purchases with at least one instructor prior to purchase.

Safety issues at this stage:

- LiPo handling and Charging. Inform Student of fire hazard and need to charge out of doors on fireproof surface. Storage in a safe place and a safe container.
- Hazard of propellers. Always stand behind prop when connecting battery and when model is live. Expect the motor to start on its' own. Remove the prop for system set-up and test.
- Test the Fail Safe before fitting prop (and at start of each flying session).
- Range check with any newly configure model
- Ensure Tx is charged

Stage 1 – First flight and Flight Pattern 1 (Level flight and circuits)

Objectives:

- Instructor to check structural integrity of model and soundness of radio installation.
- Instructor to flight-test and trim the model
- Allow the student to gain a 'feel' for the controls
- Develop the ability to judge the attitude of the aircraft in the air, the speed and the direction of travel.
- Establish a height and circuit size that is comfortable for the model and Student
- Keep the model in one piece!

When to move on to next stage:

- Student can maintain circuit at a constant height and on intended line.
- Both left hand and right hand circuits can be executed satisfactorily.
- Turns can be executed smoothly without loss of height.

- Student rarely gives 'left' when 'right' is needed (or vice-versa).

Pre-flight briefing

- Explain that you will take-off and trim model prior to handover.
- Describe the intended flight pattern. (Mention that you will take control every few minutes to give the Student a Break)
- Explain how to fly straight (level wings). Explain that Throttle controls height and Elevator controls speed. Explain how to achieve turns (bank the wings to a steady angle). Explain need to keep bank to modest levels (up to 30 degrees)
- Explain process for hand-over of control between Instructor and Student (with or without a buddy box).

Role of the Instructor:

- Check model for airworthiness, including CG and security of internal equipment
- Take-off and trim model for straight and level flight
- Check CG in flight with dive test
- Check that power change does not cause excessive pitch change (Adjust thrust line if necessary)
- Check that student seems to have adequately good eyesight. Discuss any problems and suggest eye test if necessary

Safety issues at this stage

- Demonstrate and explain pre-flight checks and tests
- Explain need for model restraint once armed.
- Explain need for Fail-Safe test and then Range Check (in that order) and demonstrate
- Remind student to not point armed model at anyone.

Stage 2 – Flight Pattern 2 (Ascent and Descent, Speed Variation, Stall and Recovery plus some simple manoeuvres)

Objectives:

- To learn how to steadily gain height or to steadily descend by using the throttle.
- To learn how to use elevator to control the speed of the model and how to supplement this with throttle when needed.
- To gain experience of the change in control authority that occurs with change in speed.
- To learn how to develop and use speed to penetrate against a headwind
- To understand what causes a stall and how to recover from it. Also how to avoid it, especially during landing. Special attention should be given to dealing with gusty conditions.

When to move on to next stage:

- Student can maintain the circuit path whilst changing the climb/descent rate
- Student can induce and recover from stall without being talked through it.
- Student has become comfortable with model in unusual attitudes

Pre-flight briefing

- Explain the reason why the model responds to elevator by going faster
- Explain the reason that the model responds to throttle by climbing
- Explain what causes a stall and how to recover

Role of the Instructor

- Ensure that student maintains the intended circuit path during ascent and descent practice.
- Demonstrate the stall and recovery

Safety issues at this stage

- Re-enforce the practice of '2 mistakes high' for new manoeuvres
- Ensure that student understands need to regain normal flying speed after a stall and not to pull in up elevator until the speed is regained

Stage 3 – Flight Pattern (Overshoots)

Objectives:

- To become familiar with the glide path for landing and any helpful landmarks
- To become comfortable with the model near to the ground
- To become comfortable with checking the patch is clear and calling intentions to others.
- To be able to safely transition to a full power climb-out (and thus be able to abort a future landing)
- To become familiar with the straight climb-out to the first turn and thus become familiar with the pattern expected for take-off

When to move on to next stage:

- Student can reliably align model on the chosen glide path at the correct height and at a speed suited to landing
- The student is confident to align the model with the centre of the strip and overshoot at 10 feet or less from around the centre of the strip length.
- Student can transition to full power and maintain the model in the correct line during climb-out. (Common problem is to lose concentration on steering whilst transitioning to full power.)

Role of the Instructor

- To explain the need to follow a pre-determined flight path (height and line) from around the mid-point of the downwind leg.
- To point out any helpful landmarks and ensure that the final leg is aligned with the centre of the strip
- To guide the student in descending without excessive or inadequate forward speed
- To explain the need to have adequate speed and throttle before commencing the climb-out
- To tell the student to check for the presence of people in the overshoot area and to call overshoots

Safety issues at this stage

- Ensure that the student checks that the landing area is clear
- Ensure that student understands need to regain normal flying speed before initiating the climb and not to pull in up elevator too soon

Stage 4 – Flight Pattern 4 (Take-offs)

Objectives:

- To become familiar with the pre-take-off procedure
- To be able to hold a steady line on the ground and during climb-out
- To be able to abort the take-off safely

When to move on to next stage:

- Student can reliably track the model straight and achieve a gentle climb-out on a straight path to circuit height and then turn
- Student can actively correct any tendency of the model to turn on the ground during the take-off run

Role of the Instructor

- To tell the student to check for the presence of people in the flight area and to note where they are in case of a need to ditch the model
- To explain how to achieve a straight take off run and when to abort if it goes wrong
- To explain the reason for a gentle and straight climb-out

Safety issues at this stage

- Student consistently calls before entering the patch and before starting the take-off run
- Student consistently checks carefully for people in the flight area
- Student understands the need to abort a take-off that is going wrong.
- Student to understand the hazards of too steep a take-off

Stage 5 – Flight Pattern 5 (Approach and Landing)

Objectives:

- To understand the means of reducing the speed of the aircraft during the approach and for touch-down
- To build on the overshoot experience, adding a satisfactory flare.
- To become accustomed to calling, walking forward and checking that the area is clear.

When to move on to next stage:

- Student can reliably approach and land with a good touch-down and roll-out
- Landings are at a safe speed
- Landings reliably not too near the ends or sides of the strip

Role of the Instructor

- To make sure that the student checks that the area is clear and calls landing
- To warn the student to abort if his approach would miss the strip or otherwise cause damage.
- Advise on the subtleties of achieving a satisfactory flare and touch-down

Safety issues at this stage

- Failure to check that the area is clear or to call landing
- Failure to abort a poorly set-up landing approach

Stage 6 – Flight Pattern 6 (Manoeuvres and dead stick landings)

Objectives:

- To gain more experience of the flight envelope of the model
- To learn to recover from differing unexpected situations
- To practice semi-solo flying

Role of the Instructor

- To suggest manoeuvres, how to do them and their place in the flight pattern
- To advise on achieving better manoeuvres
- To assess the manoeuvres and the overall flight pattern

- To supervise from afar so as to provide solo-like experience

When to move on to next stage:

- This flight pattern can be interspersed with stage 7

Safety issues at this stage

- Becoming over-confident and sloppy
- Not starting manoeuvres at adequate height

Stage 7 – Flight Pattern 7 (Practice for A cert)

Objectives:

- To learn and practice the flight patterns for the A cert in different weather conditions
- To learn to present a complete, competent flight
- To be able to consistently present a good flight under different conditions.

Role of the Instructor

- To advise on the progress towards readiness for the A-cert
- To offer solutions to any difficulties in achieving satisfactory flights
- To supervise from afar so as to provide solo-like experience
- To check the student's knowledge of aspects likely to be the subject of A-cert questions

Safety issues at this stage

- Ensure that all ground handling, pit procedures and flightline procedures and calls are routinely performed.