WIMAC Flight Training v1.2

Name:

MAAC #:

Introduction

Fellow WIMAC member,

Welcome to your club's R/C flight training program. As a newcomer to this exciting hobby you must participate in a training program designed to introduce you to the fun-filled world of radio control flight. Our club maintains a list of instructors who provide this service on a **voluntary** basis. These instructors are qualified, able, willing and ready to assist you in every possible manner. Whether you wish primary or advanced flight instruction, physical inspection of your aircraft, a test flight or simply construction/installation advice, these people are ready to help. **All you have to do is ask**.

Your progress through the training program is proportionate to your enthusiasm and willingness to ask for help. If you have any questions concerning the club's training program you can call our club's instructors or directors. All training instructors have three primary areas of concern. Their first and primary concern is for your safety and all others at the flying site. Their second concern is to protect your airplane and other personal property at the flying site. Their third concern is to teach you to fly. The goal of this program is to produce safe, courteous and competent R/C pilots and to have fun while learning.

The individuals who will assist you will do their best to provide accident-free instruction. **Should an accident occur, the instructor assumes no liability for your aircraft**. Secondly, the instructors will respond, in an emergency, to safeguard the life and limb of all present. The instructors will take whatever corrective action deemed necessary to ensure flight safety.

The purpose of this set of instructions is to provide an organized and progressive series of levels that will not only assist the instructor in teaching you to fly, but to fly safely with a basic understanding of your equipment and it's limitations.

The function of the instructor is to teach you this material, monitor and develop your understanding and performance of it, sign off your progress in your Flight Log, and to conduct your solo flight evaluation.

Flight Log

This document will also serve as Flight Log - a record of your progress through the training program. It is mandatory as a student to have your Flight Log in possession at all flight sessions and that entries are maintained. Each flight at each level will be dated, initialed and if required, commented in your Flight Log by your Instructor. An Instructor must approve your advancement to the next level, which he will sign and date in your Flight Log to indicate your competency at that level. The Flight Log allows another Instructor to determine your level of training. You must also be prepared to advise a new Instructor of your experience level. A new Instructor may also ask you to complete the maneuvers of the previous flight level.

The training program includes 10 levels designed to teach you to fly quickly and competently. The main thrust of any training effort must be directed towards the final level of competence in the skill being taught. In your case, it is the solo flight of a radio control model aircraft. Attaining that final skill level is not a giant leap that can be taught at the first training session. It is instead, the fitting together of an associated series of intermediate attainable skills, each of increasing difficulty.

Remember, never attempt to fly without an Instructor until the 10th level has been completed and that your instructor is satisfied with your progress and ability to fly unassisted in a safe courteous manner. Any attempt to fly on your own before being proficient may result in injuries to your fellow members, property damage and the certain destruction of your model aircraft. Crashing airplanes is expensive, discouraging and dangerous.

New Aircraft Check List

Your frequency pin is clipped at the proper place on the frequency board.

Note: All aircraft should be inspected at the start of the season using this Checklist.

A. Engine Area

- Check engine mount, engine, muffler, carburetor, prop nut/spinner for security and throttle connections for proper adjustment. The engine compartment must be fuel proofed.
- Check prop for nicks, cracks and balance.
- Check nose-wheel steering for security (if equipped).
- Check cowl for security (if equipped).

B. Tank area

- Fuel tank and fuel tubing for leaks and/or damage.
- Fuel tank for security and protection from vibration by foam rubber. The fuel tank area should be fuel proofed.
- Check battery for security and protection from vibration by foam rubber (if located in tank compartment).
- Battery connections for security and damage.

C. Radio compartment

- Check to ensure fuel has not leaked into radio compartment.
- Check servo mounted with rubber grommets, servo arms and servo arm screws for security and proper operation.
- Check push rods and connectors for security and adjustment.
- Check wiring for fouling in servo arms or pushrods and secured by appropriate means.
- Check battery for security and protection from vibration by foam rubber (if located in radio compartment).
- Check receiver, switch and connectors for security and protection.
- Check receiver antenna exits clear of obstructions.

D. Tail Area

- Check vertical fin, rudder and rudder pushrod/clevis for operation, security, proper adjustment and throws. Pull on rudder hinges.
- Check tail wheel for operation, security and proper adjustment (if equipped).
- Check horizontal stabilizer, elevator and elevator pushrod /clevis for operation, security, proper adjustment and throws. Pull on elevator hinges.

E. Wing

- Check wing for breaks, warps or cracks.
- Check aileron servo, ailerons and pushrods/clevis for operation, security proper adjustment and throws. Pull on aileron hinges.
- Check landing gear for security of attachment (if equipped).
- Check wing to fuselage mating.
- Check wing center joint.
- Check wing attachment points for possible damage. If rubber bands are used, make sure there are enough by simulating G force.
- With wing attached check center of balance of model with the fuel tank empty.

F. Radio Operation

- Your frequency pin is clipped at the proper place on the frequency board.
- Check receiver and transmitter battery voltages under load.
- Power-on sequence.
- Check for proper operation, control directions, throws and neutral position.
- Ensure no interference during range check (75 to 100 feet or per manufacturer's instructions) with the transmitter antenna retracted and the engine running.
  Note: An observer at the plane should check for interference.
- Operate servos to ensure no binding occurs.

G. Engine Operation.

- Check engine mixture at idle and full throttle.
- Throttle trim lever should provide the means to stop the engine.

H. Buddy box set-up.

- Train student to set-up buddy box.

Note: The aircraft will not be flown until a qualified Instructor has assessed its airworthiness. Meaning that any and all corrections to the above New Aircraft Checklist will be done prior to the first flight or next flight following a crash.

Recommended Changes to Aircraft

Ground Instructor: **Date:** _____/_____/_____

Sign-off of recommended changes:

Daily Check List

Your frequency pin is clipped at the proper place on the frequency board.

A. Engine Area

- Check engine mount, engine, muffler, carburetor, prop nut/spinner for security and throttle connections for proper adjustment. The engine compartment must be fuel proofed.
- Check prop for nicks, cracks and balance.
- Check nose wheel steering for security (if equipped).

B. Radio compartment

- Check servo mounted with rubber grommets, servo arms and servo arm screws for security and proper operation.
- Check push rods and connectors for security and adjustment.

C. Tail Area

- Check rudder pushrod/clevis for operation and security.
- Check elevator pushrod /clevis for operation and security.

D. Wing

- Check aileron, pushrods/clevis for operation and security.
- Check wing attachment points for possible damage. If rubber bands are used, make sure there are enough by simulating G force.

E. Radio Operation

- Your frequency pin is clipped at the proper place on the frequency board.
- Check receiver and transmitter batteries under load.
- Check for proper operation, control directions, throws and neutral position.
- Ensure no interference during range check (75 to 100 feet or per manufacturer's instructions) with the transmitter antenna retracted and the engine running.
  Note: An observer at the plane should check for interference.

F. Engine Operation

- Check engine mixture at idle and full throttle.
- Throttle trim lever should provide the means to stop the engine.

G. Pre-Flight

- Check receiver and transmitter batteries under load.
- Verify that fuel tank is full.
- Verify control surface direction, throws (low/high rate) and position of trims from behind the aircraft.
- Ensure that that radio and engine are operating properly before take-off.

Level 1 – Radio and Field Procedures

Objectives:

To make you aware of the necessity for frequency control, self-disciplined use of your radio and safe operation of your model aircraft at the field.

Elements:

- The need for frequency control.
- Frequency board and frequency pins.
- Conducting a radio range check before your first flight.
- Abnormal operation of the radio and interference.
- Batteries: charging, checking and life.
- Servo operation and load limits.
- Pit area.
- Engine operation in the pits.
- Taxiing on the field.
- Use of and operation of the runway.
- Flight area and boundaries.
- Other traffic and right of way on the field.
- No Fly Zone (pits and parking lot).

Completion Standards:

This level is complete when you achieve the objectives and understand the practice of the above elements. This level should be reviewed at the start of all subsequent flying sessions at the Club.

Level 1 – Flight Log

Date	Initials	Comments

Level 1 Signoff:

Level 2 – Aircraft Familiarization

Objective:

Using the checklist, you will learn to properly preflight your model and identify deficiencies that could cause a malfunction or a safety hazard. You should be able to start and adjust your engine for proper running, both at high speed and at idle

Elements:

- Use of New Aircraft Checklist.
- Understanding of control throws required as a student.
- Instructor demonstrates safe engine starting procedures and engine adjustment.
- You will practice starting and adjusting your engine.
- The Instructor teaches you how to identify rich and lean engine settings.

Completion Standards:

This level is complete when you achieve the objectives and can practice the above elements. This level should be reviewed at the start of all subsequent flying sessions at the Club.

Level 2 – Flight Log

Date	Initials	Comments

Level 2 Signoff:

Level 3 – Flight Familiarization

Objectives:

The Instructor will do the first test flight of your aircraft and evaluate its airworthiness. Once the aircraft has been trimmed you will be allowed to become familiar with the model's controls and their use in flight.

Elements:

- On the ground, you will be explained the controls and what kind of reactions you can expect from them. Example: the necessity of holding a little up elevator in turns to keep the model from diving in a turn.
- If a buddy box is not used the instructor will explain the procedures used to give you the transmitter and take it away from you during the flight.
- The Instructor test flies the aircraft and will attempt to trim it for level flights. If the model cannot be trimmed the instructor will land and under his guidance you will need to adjust the control surfaces as required. This step will be repeated until the Instructor can trim the model and proceed to evaluate its performance and airworthiness.
  Note: These flights will be done in a safe and conservative manner.
- With the model trimmed and flying at a reasonable airspeed, you will be allowed to start your first flight. These first flights will be accomplished at an altitude deemed 3 mistakes high. In the event of you losing control, the Instructor will attempt to talk you out of the situation. Should you not be able to do so, the Instructor will take control of the aircraft by using his buddy box or taking the transmitter out of your hands.

Completion Standards:

This level is complete when the Instructor has determined that you are able to determine and execute proper control inputs to achieve a desired change in the model's attitude. Example: The model dives and you give up elevator.

Note: Proficiency and accurate control are not criteria at this point. After 5 or 6 flights the aircraft should be inspected using the New Aircraft Checklist since vibration due to the engine operation may result in components becoming louse.

Level 3 – Flight Log

Date	Initials	Comments

Level 3 Signoff:

Level 4 – Flight Manoeuvres

Objectives:

To teach you how to properly control your model during basic flight maneuvers.

Elements:

- Effect of wind on the model during flight.
- Disorientation, level flight and trim at different power settings.
- Left & right circuits.
- Straight climbs.
- Climbing turns.
- Gliding.

Note: These maneuvers should be taught in order if possible.

Completion Standards:

This level is complete when you can perform the maneuvers without assistance from the instructor. Each maneuver should be done with a reasonable degree of accuracy. Example: turns should be fairly smooth and altitude maintained fairly well.

Level 4 – Flight Log

Date	Initials	Comments

Level 4 Signoff:

Level 5 – Accuracy Manoeuvres

Objective:

To teach you to perform the five basic maneuvers to a standard that will develop proficiency, skill and ability to control your model in a specific manner.

Elements:

- Level flight, maintaining heading and altitude.
- Level flight at reduced power, maintaining heading and altitude.
- Left and right turn to a specific heading.
- Climbing turns to a specific heading.
- Power off (idle) glides that require you to maneuver the model to a specific area and approximate altitude. Example: Close the throttle over the south end of the field at two hundred feet and glide to the north end of the field arriving at one hundred feet.
- The Instructor may introduce loops and rolls during this level to add variety to the training.

Completion Standards:

This level is complete when you can perform and maneuver the model at the Instructor's direction and can demonstrate the ability to control the model in an accurate manner.

Level 5 – Flight Log

Date	Initials	Comments

Level 5 Signoff:

Level 6 – Orientation Manœuvres

Objective:

To teach you the skills and abilities necessary for your first landing by controlling the model regardless of its heading or direction relative to yourself.

Elements:

- Figure 8 - you must fly a figure 8-pattern consisting of two 360 degrees turns, one left and one right. The maneuver must be placed in front of you at a safe distance and altitude.
- You must fly a rectangular pattern at a safe altitude with the up-wind leg (parallel with) the landing area. **Note: The instructor will designate the size and altitude of the maneuver.**
- Instructor will introduce trimming an out-of-trim aircraft. With the aircraft at a reasonable altitude, the instructor should de-trim the ship and have the student re-trim it.
- If you are using a buddy-box, the Instructor will place your aircraft in an unusual attitude and you will be required to reestablish normal flight attitude.
  Note: This maneuver will be done at a safe altitude.
- The Instructor may introduce the Immelmann turn and the Split-S turn to provide additional challenge and variety.

Completion Standards:

This level is complete when you can fly the Figure 8 without experiencing disorientation and can fly both right and left rectangular patterns consistently.

Level 6 – Flight Log

Date	Initials	Comments

Level 6 Signoff:

Level 7 – Flight Stalls

Objective:

To teach you the causes of flight stalls how to avoid them and to recover from them.

Elements:

- Pre-flight discussion of flight stalls, what causes them, and how to recover. (Flight stalls are a function of angle of attack and will happen at any speed.)
- Practice of stalls by the student with and without power.
- Stalls in turns (take-off, departure stalls).
  Note: Takeoff and departure stalls are almost impossible to set up with most trainers, but do occur in more advanced models. Therefore it is recommended that the power be reduced to about 1/3 throttle and a steep climbing turn be entered.
- The stall turn and spin/spiral may be introduced for variety.

Completion Standards:

This level is complete when you understand the cause of stalls and can demonstrate proper recovery from a stall.

Level 7 – Flight Log

Date	Initials	Comments

Level 7 Signoff:

Level 8 - Take-Off

Objective:

To teach you how to control the model during take-off, both into the wind, in a crosswind and in an out-of-trim situation.
Note: Depending on the abilities of the student, the Instructor may introduce the maneuver earlier in the flight-training program.

Elements:

- Discussion of the effects of torque and wind during take-off and initial climb, discuss aborted take-off.
- Use of rudder. Practice taxiing in both directions on the runway under the supervision of the Instructor.
- Use of throttle.
- Practice into the wind take-off.
  Note: Prior to every take-off, verify control surface direction, throws (low/high rate) and position of trims from behind the aircraft.
- Use of trim controls to achieve level flight after the plane has made a normal take-off.
  Note: After you have demonstrated proficiency in normal take-off, the Instructor will intentionally de-trim model at the transmitter to allow you to practice take-off with a slightly out of trim model. Re-trimming at altitude will be required
- Practice crosswind take-off.

Completion Standards:

This level is complete when you have successfully taken off and established a normal climb with adequate airspeed, both in the trimmed and out-of-trim situations. Adequate directional control must be demonstrated during the crosswind take-off.

Level 8 – Flight Log

Date	Initials	Comments

Level 8 Signoff:

Level 9 – Landing

Objective:

To teach you to visualize and perform a stable and controlled approach to the runway in preparation for landing.

Elements:

- Review of proper landing techniques.
- Student flies a rectangular pattern as in level 6, but reduces power and establishes a normal glide on the base leg and continues the approach until over the end of the runway, at which point he is to add power and go around. The minimum altitude at the end of the maneuver should be no less than twenty (20) feet.
- As the student becomes comfortable with the maneuver, the altitude should be lowered until the instructor is confident that the model can glide to the runway with the power off (idle).
- Landing. At this point the instructor will tell the student to continue the approach and land.
  Note: The chances of a successful landing will be increased if the instructor reminds the student to keep the power at idle. It may be necessary to talk the student through the flare and touchdown.
- The student should make at least two deadstick landings at this time. The engine may be set at idle to simulate a dead engine.

Completion Standards:

This level is complete when you have successfully landed the model several times under normal circumstances and simulated deadsticks.

Level 9 – Flight Log

Date	Initials	Comments

Level 9 Signoff:

Level 10 - Solo Flight Evaluation

Objective:

You must perform a series of solo flights under the supervision of the Instructor to earn your wings.

Elements:

You must perform 6 consecutive flights landing in both directions under the Instructor's supervision but with no assistance. Starting with a thorough preflight checklist, take-off, a flight of normal duration, landing and ending with return of the transmitter to the impound.

Completion Standards:

This level is complete when you have successfully been signed off for solo flight, demonstrated a practical knowledge of all course objectives and field operating rules.
Note: After signoff, changes of atmospheric condition could warrant Instructor supervision until sufficient flight experience is accumulated.

Level 10 – Flight Log

Date	Initials	Comments

Level 10 Signoff:

Notes: