

# **CRAMS WINGS FLIGHT TRAINING PROGRAM**

This training program has been designed to provide a basic standard for flight instruction and safety. We believe that consistency in the maneuvers being taught and attaining a high level of flying skill is of prime importance. The requirement for learning in our hobby is clear. There are several levels of competence which must be achieved before a beginner can expect to be proficient. Proficiency, in our case, means solo flight of our radio controlled model in a safe, predictable and confident manner. Attaining this proficiency is not a single, giant leap but rather a series of intermediate, progressive skills levels, each of increasing difficulty. The levels are:

1. The ability to set up the aircraft and prepare it for successful flight.
2. The ability to maintain safe and predictable flight at altitude.
3. The ability to take off, climb to altitude and maintain safe, predictable flight (no landing).
4. The ability to conduct a proper landing approach, land safely and in the correct location.

These levels are somewhat arbitrary and are not intended to be restrictive. Pilots and instructors should anticipate that progress will be made in more than one level at anyone time. The levels must all be completed before a student will be granted Wings. At the completion of the Wings Test, your instructor will present you with a card that indicates that you have your wings and will be valid for a period of 3 months. At the next CRAMS club meeting, you will be presented with your wings.

## **LEVEL 1**

Prior to flight training the student should prepare the aircraft for flight. Prospective pilots find it very discouraging when they arrive at the field and are unable to fly because changes have to be made to the aircraft or equipment. An airworthiness check includes the following:

- . the balance point is correct (bring the plans if necessary)
- . flying surfaces are straight and warp free
- . radio, tank, engine properly installed
- . radio range check
- . control surfaces are aligned and working properly

This check should be completed before proceeding to the flying field. Installation of equipment can be reviewed during construction of the model. Some of these things are difficult to change once the model is complete. This check should be completed on any new and repaired aircraft.

### **Level 1**

- set up aircraft ready for flight
- range check the radio
- start and tune the engine for dependable operation
- knowledge of MAAC and club rules
- post flight clean up

## **LEVEL 2**

Flight training begins with the student learning to control the aircraft at altitude. Before each

flight the student and instructor should discuss past experiences and prepare a flight plan. The preparation of a flight plan is essential. It provides the student some clear goals and allows the instructor to gauge the progress the student is making. There are two fundamental maneuvers at level 2, straight level flight and level shallow turns. The critical skill acquired during level 2 is that the student be able to recognize changes in aircraft altitude and implement corrective action in a smooth and deliberate manner. The actual accuracy of the maneuvers is secondary. Training begins with straight and level flight and 90 degree turns. As skill and confidence develop the two maneuvers are practiced in combination. Competence is achieved when the student is able to perform Race Track and Figure Eight maneuvers in either direction without loss of altitude.

### **Level 2**

- control aircraft in straight and level flight
- control aircraft in shallow turns (left and right)
- control aircraft in Figure Eight pattern
- control aircraft in Race Track pattern (left and right)
- learn to taxi and prepare for take off

### **LEVEL 3**

Level 3 is a growing experience. The skills developed in level 2 are practiced until they become second nature. Some aerobatic maneuvers can be added at the discretion of the instructor and pilot. The additional learning in level 3 is the ability to take off and climb to altitude. The student and instructor will have to work together until the aircraft can complete its take off run in a "dead straight" fashion. This may require many adjustments to the wheel and rudder alignment.

During level 3 the average altitude of the aircraft will be reduced. Again all flights must have a flight plan so that the pilot has the opportunity to develop skills. Level 3 flights are usually full flights (approx 15 minutes) and they provide an excellent opportunity to develop a self discipline that will payoff in the future.

Several aerobatic maneuvers are appropriate at this level. The Loop, Split S, Immelmann Turn and Stall Turn are all suitable for level 3. When including these, remember to include them in your flight plan and to fly them in a particular place and manner. Doing the maneuver precisely is not important. What is important is that the maneuvers be planned, attempted and carried through to completion.

The take off maneuver is usually developed in two stages. The high speed taxi and the actual take off. The aircraft must be set up for dead straight high speed taxi or the student has a tremendous handicap. Take the time necessary to set up for dead straight high speed taxi. Initially the take off will continue straight out followed by a gentle turn back to the field. Once the student is comfortable with the take off, development should focus on the turn away from the pit and a procedure turn back to the field. Proficiency is attained when the pilot can take off and do a procedure turn resulting in straight and level flight over the runway.

### **Level 3**

- develop flight skills from level 2
- control aircraft in high speed taxi
- control aircraft in take off
- Control aircraft in procedure turn
- learn the basics of such maneuvers as the Loop, Split S, Immelmann Turn, Stall

Turn

#### **LEVEL 4**

Landing generates the most anxiety of any single accomplishment in our hobby sport. Successful landings are primarily the result of good flying habits and discipline developed in the prior levels. Landing training is accomplished in three steps. The first step is to learn to get comfortable with the slow speed characteristics of the plane. To practice this:

- a. climb to altitude
- b. throttle back to idle or slightly above
- c. fly the aircraft in the oval and figure eight pattern from levels 2 and 3

Also fly in a landing pattern over the runway. You'll generally find that the controls are slower to take effect and that you must anticipate the effect of the control inputs. Step two is to practice the landing pattern. We believe this is the most important step. If the landing pattern is executed correctly corrections will not be required or will be minimal. Step three is the actual landing. If the landing pattern is successful you will find yourself a couple of feet over the runway going slow - a little up elevator and let it settle onto the runway and you're done. Remember, the landing will be easy if you can get over the runway at low altitude. Solid competency and practice in levels 1-2-3 make landings easy.

#### **Level 4**

- control the aircraft during slow speed flight
- recovery from and avoiding stalls
- control the aircraft during a landing pattern
- conduct a landing
- practice dead stick landings once "power-on" landings have been achieved

## **CRAMS WINGS TEST**

1. Unassisted rise *off* ground or hand launch take *off*
2. One circuit right or left depending on wind direction
3. Straight flight over center of field
4. Procedure turn (180 degree left or right turn followed by a 270 degree opposite turn while maintaining altitude)
5. Horizontal Figure Eight while maintaining altitude
6. One left hand circuit, descending on final leg with overshoot
7. One right hand circuit, descending on final leg with overshoot
8. Join circuit on downwind leg
9. Land smooth and clean