



# **Prince Georges**

## **Radio Control Club**

### **PGRC FLIGHT TRAINING PROGRAM**

*The intent and purpose of this program is to see that new pilots receive competent and consistent flight and safety training. The program may be modified at the instructor's discretion to suit a new pilot's equipment and aircraft as long as the spirit of the program is not violated.*

#### **LEVEL I**

**Airworthiness check** -See pre-flight checklist.

**Radio Control Procedures**-Review and discuss. Use of transmitter, electric motor safety protocols and the courtesies and safety while operating in the pit area.

**Radio Range Check**-Review and discuss. Pilot should have full control (no glitches) at a 30 yard range while in transmitter range test mode.

**Personal Safety Rules**-Review and discuss. Danger of propeller to fingers, hands, arms, clothing, tools, and wires. Keep body parts out of the arc of the propeller. Keep start-up throttle setting at low or mid throttle. Have someone else hold the aircraft until very familiar with start-up procedures.

**Engine Adjustment**-Adjust high and low speed fuel/air mixtures for full engine power at high throttle and no engine stalling at idle or when throttling up. Set idle speed so that airplane will not taxi away in the pit area. Demonstrate knowledge of engine starting procedure.

**Fail Safe**-Test to see if throttle goes to 0 when transmitter is turned off.

**Throttle kill switch**-If applicable, set a switch for throttle kill.

**Safety rules for the Protection of Spectators and other Pilots**-Review and discuss. See PGRC Flying Field Safety Regulations.

**Maiden Flight Demonstration by Instructor**-Confirm aircraft trim and reliable radio and engine operation. Confirm appropriate control surface rates. Demonstrate problems to the student.

**Post-Flight Check**- Examine aircraft for damage, wear and loose parts. Discuss flight problems and corrective actions.

## **PRE- FLIGHT CHECKLIST**

### **FUSELAGE**

1. Check for any obvious defects in the construction of the fuselage. (warps, breaks, etc.)
2. Check elevator and rudder hinges and clevises to make sure that they are properly glued and aligned.
3. Check nose/tail wheel for proper installation and steering.
4. Check that the servos and servo mounts are secure and that the servo arms are securely fastened.
5. Check that all pushrods are securely fastened.
6. Check that the battery and receiver are properly wrapped and in a secure location.
7. Check that the fuel tank is properly installed. Make sure that the fuel compartment is fuel proofed.
8. Check to make sure that there are no loose items that could interfere with servo or pushrod movement.

### **WING**

1. Check for any obvious defects in the construction of the wing. (Warps, breaks, aileron hinges, etc.)
2. Check that the center section is properly reinforced and that the aileron servo(s) is/are properly mounted.
3. Check that the aileron pushrods and clevises are properly and securely mounted.
4. Check that the wing goes in place properly and explain the need for the proper number of rubber bands or wing bolts.
5. Check installed wing for proper alignment and incidence.

### **ENGINE**

1. Check to make sure that the engine area is fuel proofed.
2. Check engine for proper mounting and alignment.

### **RADIO**

1. Make sure that TX and RX batteries have been fully charged.
2. Range check radio
3. Check that all control surfaces work smoothly and in the proper directions. Make sure that the throttle works properly.
4. Check the control surfaces for proper trim and alignment.

### **BALANCE**

1. Check the balance of the aircraft and explain and correct any problems encountered.

### **PRE-FLIGHT BRIEFING**

1. Make sure that the instructor and student have worked out a proper system for transferring the transmitter in case of trouble. Use a buddy box/trainer cord whenever possible.
2. Discuss what will be taught and practiced during the upcoming flight(s).

## LEVEL II

**Instructor/Student Communications-** Review the meaning of and the desired response to the following instructions:

“Turn Left (Right) “ --Turn the aircraft to **its** left (right) by moving the right control stick to the left (right).

“Pull Up (Push Down)”—Cause the aircraft to climb (descend) by pulling back (pushing forward) the right control stick.

“More Power (Less Power)”—Increase (decrease) engine speed by pushing forward (pulling back) the left control stick.

**Low Speed Taxi** – Taxi out for takeoff. Learn directional control sensitivity on the ground. Perform ovals and figure eights on the runway, experience the “left Vs right problem when the aircraft is coming toward the pilot.

**Straight and Level Flight**—Accomplish minor flight path corrections at a safe altitude. Learn to make minor trim adjustments for “hands-off” straight and level flight.

**Dips**—Alternately raise and lower aircraft altitude (3 or 4 “dips” for each pass over the field). Learn elevator control sensitivity of the aircraft.

**Loops**—Now have some fun. Learn the aircraft’s reaction to full up elevator control.

**S-Turns**—Alternate left and right gentle turns (weave up and down the field).

Experience and learn the aircraft’s aileron (rudder) control sensitivity.

**Shallow Turns** (15 Degree Bank)—Execute 180 degree or 360 degree changes in heading. Keep low bank angle so only a small amount (if any) elevator is needed to maintain altitude. Learn to steer out of a turn and to avoid the spiral dive.

**Oval Pattern** (15 Degree Bank)—Using the same shallow turns, perform clockwise and counterclockwise racetrack patterns. Keep bank angle low and maintain altitude.

**Figure Eight Pattern** (15 Degree Bank)—Same as above, but requires alternate left and right turns of about 270 degrees change in heading. Keep bank angle low and maintain altitude.

## LEVEL III

**High Speed Taxi**—Learn to maintain aircraft directional control going in both directions on the runway during takeoff acceleration and at speeds approaching takeoff speed. Learn to compensate for torque and crosswind effects.

**Medium Turns**(30 Degree Bank)—Execute 180 degree or 360 degree changes in heading. Bank angles of up to 45 degrees will be used to execute medium to sharp turns. Significant amounts of elevator control will be needed to maintain altitude.

**Oval Pattern**(30 Degree Bank)—Using the same turns as above, perform clockwise and counterclockwise racetrack patterns. Maintain control of bank angle and altitude.

**Figure eight Pattern**(30 Degree Bank)—Same as above, but requires alternate left and right turns of about 270degrees in heading. Maintain control of bank angle and altitude.

**In-Flight Trim**—Experience the “thrill” of attempting to fly a badly out-of -trim aircraft. Maintain adequate aircraft control while performing a complete in-flight re-trim of the control system. This exercise is to prepare the student for some types of in-flight failures for which safe recovery of the aircraft should be possible.

#### LEVEL IV

**Slow Flight**—Explore the significantly different aircraft control characteristics when flying at speeds approaching a stall. Learn the relationships between throttle settings, engine speed, and air speed. Learn to manage the throttle settings, engine speed, and air speed. Learn to manage the throttle as a legitimate flight control. Practice turns at low speeds to learn the extent of control movement required to maneuver the aircraft. Management of the throttle and performing maneuvers reliably at low speeds are essential skills for the landing approach.

**Stall Recoveries**—Perform power-on and power-off stalls to learn the behavior of the aircraft in these situations. Practice stall recovery techniques. Gain an understanding of how much altitude can be lost in a stall (“fatal” if permitted to occur on the landing approach or immediately after takeoff).

**Rudder-Only Flying**(With Aileron Equipped Aircraft)—This is another “survival type” exercise which teaches an approach to possible survival of an in-flight loss of aileron control. This “cross-handed” procedure (remember - elevator on the right stick and rudder on the left stick with a four channel system) is a substantial eye-brain-hand coordination problem for some people.

#### LEVEL V

**Traffic Pattern**—Learn how to enter the PGRC Field traffic pattern for landing from the right and left. Understand how the wind direction influences the landing approach and therefore the entry to the traffic pattern. Practice flying the traffic pattern for landing approaches to both ends of the runway. Objective is to maintain the flight path with specific landmarks to ensure proper aircraft position, altitude, and heading for the landing approach.

**Landing Approach**—Practice landing approaches from both ends of the field to about a 10 foot minimum altitude. Objectives are to maintain proper flight path to the runway threshold and to manage aircraft airspeed and altitude to ensure probable landing success. These approaches should be made to the grass runway on the far side of the asphalt runway.

**Takeoffs**—Perform takeoffs. Learn the influence of the wind and engine torque on the aircraft during the takeoff roll and climb-out

**Soaring**—Another fun activity. With engine at idle, or after running out of fuel, practice staying aloft as long as possible. Calm hot weather usually causes thermals over the field and may permit several minutes of soaring with the trainer.

**Forced Approach**(Dead Stick)—From a safe altitude, set engine throttle at idle and practice the entire approach as if the engine were not running. It will only be a matter of time before you have to do this for real. Remember that it is desirable to land into the wind, it is not “required”. It is sometimes better to make a fast downwind landing than to crash trying to turn around into the wind. It is your airplane, and with experience, it is your call.

## **LEVEL VI**

**Traffic Pattern and Landing**—Perform safe landings within the confines of the field. Make these landings on the grass runway on the other side of the asphalt. ( Grass is kinder to balsa than asphalt is. A perfect touchdown on the paved runway centerline will come later.) A suitable landing will keep the aircraft right-side-up without touching the wings or the prop to the ground, and will not cause landing gear damage.

**Forced Landing**(Dead Stick)—Perform landings with simulated or real engine out conditions.

**Crosswind Takeoffs and Landings**—Learn to compensate for the effects of a crosswind on the takeoff roll, climb-out, landing approach, and landing roll-out.

# PGRC

## PILOT PROFICIENCY TEST

FIXED-WING  ROTARY-WING  CAMERA DRONE

The agreement with PGRC (Prince Georges Radio Control Club) operates at PGRC Field specifies that the Club verify the proficiency of RC pilots who will use the field unsupervised and confirm that they have active liability insurance. The Club therefore requires that such pilots be current members of PGRC and the Academy of Model Aeronautics (AMA) and pass a Pilot Proficiency Test (PPT) administered by a PGRC Instructor Pilot. The criteria for the test listed above.

This test and the field access granted on successful completion apply only to the type of model aircraft marked above. The Pilot Candidate is not authorized to fly any other type solo, and must take and pass the test again to add solo privileges for other aircraft types.

A precondition for taking the PPT is knowledge of the AMA Safety Code, the PGRC Field & Flight Rules, and all applicable FAA regulations. Successful completion of this test is recognition that the Pilot Candidate has demonstrated a basic ability to perform minimum safe solo flight maneuvers at PGRC Field.

DISCLAIMER - PGRC and the Instructor Pilot do NOT certify that the Pilot Candidate is capable of safely flying

- i. the test maneuvers on a consistent basis
- ii. any maneuver other than those set forth in the test
- iii. any aircraft other than the one used in the test
- iv. at any other flying site
- v. under other than calm and clear weather conditions.

INDEMNIFICATION - The Pilot Candidate named below agrees to indemnify and hold harmless PGRC and the Instructor Pilot listed below from and against any and all actions, liability, claims, suits, damages, costs or expenses of any kind, including reasonable attorney's fees, which may be brought or made against PGRC or the Instructor Pilot of which PGRC or the Instructor Pilot must pay and incur by reason of or in any manner resulting from any injury, loss or damage to person or property arising or resulting from the Pilot Candidate's operation of a model aircraft, and/or the certification issued pursuant to the Pilot Proficiency Test.

I have received, read, and understand the AMA Safety Code and the PGRC Field & Flight Rules and all information contained herein. I have complied with all PGRC, AMA, FAA and all other rules and regulations applicable to model aircraft operations, and will continue to do so as a PGRC Pilot member.

Pilot Candidate signature: \_\_\_\_\_ AMA # \_\_\_\_\_

Pilot Candidate name: \_\_\_\_\_

The Pilot Candidate has met the PPT criteria for PGRC Field privileges, including flying skill, safety procedures, and regulatory compliance, in my presence on the date below.

Instructor Pilot signature: \_\_\_\_\_

Instructor Pilot name: \_\_\_\_\_ date: \_\_\_\_\_