

## 1. Introduction

- This document covers the RC Turbine Instructors Competency test.
- Safety is the highest priority. The objective of all competency related matters is to achieve the highest levels of safety and performance.
- This test performed by a pilot of higher competency level, all paid up RCASA members in good standing.
- The pilot is allowed to land for battery replacement or refuelling.
- The pilot can use the craft of his choice within the applicable class.
- Only 1 flight required, landing for refuelling or battery replacement allowed.
- Any action that is seen as a breach of safety in any way, will result in a complete NYC of this test.

## 2. Expected outcome

The pilot must show competency in the following:

### a. Oral questions or web answered.

#### **100% Competent is expected on the following questions**

- i. Which Organisation controls RSA airspace above 150ft? (SACAA)
- ii. What is the maximum weight allowed for a fixed wing craft? (35kg)
- iii. What is the maximum noise level allowed? (96 dBA at 3m)
- iv. What must you do in case any Full-Size craft approaches the field? (FLY in Opposite direction, lower and land)
- v. Where can you find the fly and no-fly zones at the RCASA venue? (Club Notice Boards, Safety Officer on duty)
- vi. What is most important when starting up? (Start in designated area, taking care of Jet Blast. Ensure no-one is in line with compressor wheel and behind aircraft)
- vii. What must you do before take-off and landing? (Shout out! "TAKE OFF or LANDING")
- viii. What must you do in the case of Dead stick (flame Out) or any unwanted response or problems? (Shout out! "DEAD STICK" or "FLAME OUT")
- ix. What should be done if you turbine model develops a servo failure during Flight? (If possible, steer craft away from No-fly Zones and declare you have an Issues, Ask for assistance)
- x. What is good practice to do before take-off? (Double check controls working in correct direction and check wind direction)
- xi. If flying at a different venue, what must the PIC do before flying. (Check to see if local Safety officer/Instructor is present and ask what the rules of the RCASA venue are)

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- xii. If more than one AC or Heli are flying, is it necessary to know the circuit direction before flying? (yes)
  - xiii. During training of a pilot or test flight of an turbine model, is it good practice to check the installations of newly built craft before maiden flights. (Yes, get as many people to check as possible.)
  - xiv. What type of fire extinguisher must be used with turbines? (CO2)
  - xv. Is it necessary to have fuel valve cut-off switch fitted in fuel feed line to the turbine? (Yes)
  - xvi. Is it necessary to wear ear protections on start-up of the turbine? (Yes)
  - xvii. What do you do when a hot start happens? (Shut off fuel first, point fire extinguisher to rear of turbine and kill flames with a sweeping motion)
  - xviii. Why must you always extinguish flames at the back of the turbine towards the tail and not through the front of the Turbine? (By blowing through the turbine you can damage the turbine due to "super cooling" and you will not extinguish the flames properly.)
  - xix. What is the main function of a RC turbine instructor? ( To guide, help and instruct turbine pilot to obtain there turbine rating. Also to assist with technical help and advise of set up of turbine model.

**b. Pre-flight checks**

The pilot must show competency in the following:

- Answer verbal questions regarding the working and components of the turbine as above.
- Give a detailed description of the pre-flight inspection. Turbine driven craft tend to operate at higher velocities and therefore entails more kinetic energy which increases risk.
- Give a detailed check for start-up procedure, listing all safety factors, ie distance, etc.
- Flight schedule must have at least five additional aerobatic manoeuvres in schedule as well as prescribed manoeuvres. (IE; loop, roll, 4 point, slow roll, Cuban 8, Split S, barrel roll, Inverted pass, any manoeuvre containing rolls and change of direction (loop) suitable to Jet without compromising safety)
- Manoeuvres must include a overshoot approach up and down wind. Wheels and flaps must be deployed.
- Pilot to have a worked-out flight schedule (call card) of manoeuvres and handed to test officer.
- Full control always must be illustrated with smooth transitions.
- The pilot must show that he manages any delays in turbine response well.

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- Any failure related to safety is a holistic fail.

### **c. Flight Test**

- Perform a safe start-up.
- 1 Flight is required with one manoeuvre of the pilots' choice and a landing.
- Pilot to preform take-off with good throttle control.
- Perform a low-level circuit at controlled speed and constant height.
- Perform a high-speed pass (can be down wind constant height).
- Perform low speed pass into wind with flaps.
- Perform an overshoot into wind. (missed approach with flaps and wheel out)
- Perform an overshoot down wind. (missed approach with flaps and wheel out)
- Perform 5 pilot selected manoeuvres.
- Show the test instructors how you would explain to a first turbine time flyer while flying how to compensate for throttle control. He must also explain to first time Jet pilot that he needs to do turns and fly jet smoothly not erratic movements.
- Perform Landing circuit to check wheels down and locked
- Perform landing on runway.
- Perform shut down (close fuel valves and allow turbine to cool down).

### **3. Additional Notes**

- Do a de-briefing pointing out all positive and negative aspects from the test and results.
- Discuss any findings in a positive manner.
- All tests to be logged on the RCASA portal, C and NC for good record keeping.