



Operations Manual

DEFINITION AND SPECIFICATION OF MODEL AIRCRAFT

Issue 3 – 2012

PO 18

Management Committee
Approved

Date: 20./05/2012

DEFINITION AND SPECIFICATION OF MODEL AIRCRAFT

Issue 1- 20.07.2008
Issue 2- 02.07.2011
Issue 3- 20.05.2012

Table of Contents

- 1. Purpose
- 2. General Characteristics of Model Aircraft
 - 2.1 Fixed Wing model aircraft
 - 2.2. Helicopter model aircraft
 - 2.3. Free Flight Models
 - 2.4 Giant Fixed wing model aircraft
 - 1. Fixed wing power (internal combustion)
 - 2. Fix wing Turbine
 - 2.5 Giant Helicopter model aircraft
 - 1 Helicopter (internal combustion)
 - 2 Helicopter turbine
 - 2.6. Noise Limits
 - (a) Fixed Wing models
 - (b) Helicopters models
 - (c) Gas Turbine models
 - (d) Electric models
 - (e) competition models
 - 2.7. Prohibited
 - 2.8 Requirement

This document forms part of the SAMAA Manual of Procedures. It is to be used by SAMAA Members and Registered Clubs in all activities associated with the flying of model aircraft in the RSA

SAMAA PO 18 DEFINITION AND SPECIFICATION OF MODEL AIRCRAFT

1. Purpose

This policy is based on the Technical Specification as recorded in the CAA's Regulation and Technical Manuals under the CAT's Section 24.01.2.N.1 titled "General Characteristics of Model Aircraft" and the previously accepted SAMAA Manual of Operations. As stated in the CAA Technical Specification the limitations on model aircraft is adopted from the FAI (Federation Aeronautique International) documents section 4 of ABR, part 4C, which defines a model aircraft as an aircraft of limited dimensions, with or without a propulsion device, not permitted to carry humans or animals, to be used for Competition purposes. The latest 2012 FAI update of the documents has been used to update the previous Specification, and due to the fact that the FAI rules only cover model aircraft flown in competitions, which has left the RSA far behind the rest of the world where sport and recreational model aircraft have been developed and are flying, we have added a section to cover these recreational model aircrafts, which are showcasing the larger and more detailed model aircraft to the world. Below is set out the updated and characteristics of the Model Aircraft, which may legally flown at SAMAA Registered Clubs.

2. GENERAL CHARACTERISTICS OF MODEL AIRCRAFT

2.1. Fixed Wing Model Aircraft

Fixed wing model aircraft shall not exceed the following general specifications:

- (a) Maximum flying weight with fuel 25kg
- (b) Maximum wingspan (powered) 5m
- (c) Maximum wingspan (unpowered) 6m
- (d) Maximum surface area 5m²
- (e) Maximum wing load 25kg/m²
- (f) Maximum swept volume of piston motor(s) 250 cc
- (g) Electric motors, maximum no load voltage 72 volts
- (h) Maximum thrust of turbine 25Kgs (250 Newtons)

All model aircraft with take off weight exceeding 10Kgs, will be subject to having been "inspected", and having a valid "permit to fly" prior to being allowed to fly at a Registered Club/field or in an Event.

2.2. Model Helicopters

Model helicopters shall not exceed the following general specifications:.

- (a) Maximum weight (with fuel/with batteries) 6.5 kgs

SAMAA PO 18 DEFINITION AND SPECIFICATION OF MODEL AIRCRAFT

- (b) Maximum swept area of lifting rotor cannot exceed 2.5m²
- (c) For helicopters with multiple rotors whose rotor shafts are more than one rotor diameter apart the total swept area of both rotors cannot exceed 2.5m²
- For helicopters with multiple rotors whose rotor shafts are less than one rotor diameter apart the total swept area of both rotors (counting the area of superposition only once)cannot exceed 2.5m²
- The tail rotor must be driven by the main rotor and must not be driven by a separate engine/motor.
- (d) Maximum Internal combustion engine displacement No restrictions
- (e) Electric motors, maximum no load voltage 51 volts
- (f) Gyros, the use of automatic stabilisation devices that utilise external references is forbidden. The use of pre-programmed flight manoeuvres is forbidden. The use of an electric rate sensor is limited to rotation about the yaw axis.
- (g) Rotor Blades, all metal main or tail rotor blades are prohibited.

2.3. Free Flight Models

Free flying model aircraft which are neither radio nor line controlled, shall not have a mass exceeding 2.5 kg

2.4. "Giant" Model Aircraft

The building and flying of any and all "Giant" model Aircraft shall be strictly controlled, in accordance with the SAMAA MOP PR21. (Procedure for building and flying Giant model aircraft) SAMAA Inspectors shall be appointed to ensure compliance during construction and flight testing shall be done in a controlled manner under a separate Inspector. No "giant" model shall be flown, at a SAMAA Registered field, without a Authorised "permit to fly" having being issued. Giant model aircraft shall comply with, but not exceed the following general specifications:

- 2.4.1 Giant Fixed wing internal combustion motor driven model aircraft
- (a) Maximum flying weight with fuel 50Kg
 - (b) Maximum wingspan (powered) unlimited
 - (c) Maximum wingspan (unpowered) unlimited

SAMAA PO 18 DEFINITION AND SPECIFICATION OF MODEL AIRCRAFT

- (d) Maximum wing loading 25kg/m²
- (e) Engine Capacity limit None
- (f) To comply with requirements of SAMAA MOP PR 21

2.4.2 Giant Fixed wing Turbine Jet driven model aircraft

- (a) As in 2.4.1 above, except for limitations stated below;
- (b) Maximum flying weight with fuel 35Kgs
- (c) Maximum wing loading 25kg/m
- (d) Turbine thrust to weight ratio 1:1
- (e) Maximum speed 320kph
- (f) To comply with requirements of SAMAA MOP PR 21

2.5 Model Helicopters

Giant rotary wing model aircraft shall not exceed the following general specifications:

2.5.1 Giant Helicopter, internal combustion driven model aircraft

- (a) Maximum weight with fuel 18Kgs
- (b) Maximum Engine capacity 50cc
- (c) Maximum swept area of lifting rotor 5m²
- (d) To comply with SAMAA MOP PR 21

2.5.2 Giant Helicopter turbine driven model aircraft

- (a) As for 2.4.3 above, except for limitations listed below; 20Kgs(200 Newtons)
- (b) Maximum thrust of Turbine
- (c) To comply with SAMAA MOP PR 21

NOTE: All Giant scale model aircraft, are subject to structural and equipment inspections, during the building phase and to test flights by the respective pilots of their models in front of a SAMAA appointed inspector, prior to a permit to fly being issued as set out in the SAMAA MOP PR 21

2.6 Noise Limits

(a) Fixed Wing Models

All Fixed wing powered model aircraft shall be limited to a maximum of 96 db(A) at 3 metres, over a hard surface, unless the competition class or category of model has specified lower limits. Specific noise measuring procedures are to be developed by the National Controlling body to ensure that all models comply with the above limits.

(b) Helicopters

Noise limitation for helicopters in hovering mode, 2 meters above the Surface, and rotating through 360 degrees, shall not exceed the following

SAMAA PO 18 DEFINITION AND SPECIFICATION OF MODEL AIRCRAFT

- values:
- > Over hard surface 89 db(A) at 3 metres.
 - > Over soft surface 87 db(A) at 3 metres.

(c) Gas Turbine powered models

There will be no noise limitation for gas turbines models

(d) Electric powered models

There will be no noise limit requirement for electric motor powered, propeller driven models

(e) Competition Models

All Competition Model Aircraft must conform to the Safety Rules and Sporting Code for their particular SIG.

2.7. Prohibited

The following are prohibited for all model aircraft:

- (a) The use of metal propeller and/or rotor blades.
- (b) The use of repaired propellers and/or rotor blades.
- (c) Knife edge leading edges.
- (d) Sharp spinner or prop fasteners.
- (e) Non shock mounted radio equipment, where there is engine vibration.
- (f) Any ballast or heavy parts subject to jettisoning.
- (g) Any burning fuse that is not enclosed in a "snuffer" tube or similar.
- (h) The carrying of Pyrotechnics or explosives in, or being dropped from, a model aircraft.
- (i) The use of nitrous fuels in model aircraft motors.
- (j) Propeller which fold forward or have exposed propeller tips pointing forwarding the direction of flight.
- (k) Any device which allows a model to flown automatically to a selected location.

2.8 Requirements

- (a) All spinners and other forward facing metal or equally rigid projection should have a minimum radius of 5mm

.....

KFN