**THE SOUTH AFRICAN MODEL AIRCRAFT ASSOCIATION**


Operations Manual

# DEFINITION AND SPECIFICATION OF MODEL AIRCRAFT

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**PO 18**

To Management Committee
and SIGS for Approval

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**THE SOUTH AFRICAN MODEL AIRCRAFT ASSOCIATION**

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## DEFINITION AND SPECIFICATION OF MODEL AIRCRAFT

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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.

**Purpose**

1. The purpose of this policy is to define the general characteristics of a "model aircraft" as set out by the FAI (Federation Aeronautique International) These characteristics and specifications with minor deviations as agreed in RSA are as stated below.

**Fixed Wing Model Aircraft**

2. Unless otherwise stated, fixed wing model aircraft shall not exceed the following general specification:

| | | |
|---|---|---|
| (a) | Maximum flying weight without fuel | 25kg |
| (b) | Maximum wingspan (powered) | 5000mm |
| (c) | Maximum wingspan (unpowered) | 6000mm |
| (d) | Maximum wing load | 15,00kg/m² |
| (e) | Electric motors, maximum no load voltage | 42 volts |

**Model Helicopters**

3. Unless otherwise stated model helicopters shall not exceed the following general specifications.

| | | |
|---|---|---|
| (a) | Maximum weight without fuel | 6 kgs |
| (b) | Maximum swept area of lifting rotor(s) counting only once any superimposed areas (Provided that in the case of co-axial model helicopters whose rotors are further than one rotor diameter apart, the area of both rotors is counted) | 250dm² |
| (c) | Piston motor swept volume maximum - 2 stroke | 15 cm² |
| | - 4 stroke | 20 cm² |
| | - petrol | 25 cm² |
| (d) | Electric motors, maximum no load voltage | 42 volts. |

**Free Flight Models**

4. Other free flying model aircraft which are neither radio nor line controlled, shall not have a mass exceeding 5 kg

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**Heavy Models**

5. Model aircraft exceeding the maximum flying weight specifications in 2 (a) of 25kgswill be subject to inspections during construction, and will be required to obtain a certificate of inspection and exemption from the CAA and SAMAA before being allowed to fly at any SAMAA field, club or display.

**Noise Limits**

6. (a) Fixed Wing Models

All powered model aircraft categories shall be limited to a maximum of 96 db(A) at 3 metres, over a hard surface, unless the class or category of model has specified lower limits. Specific noise measuring procedures are to be developed by the national body controlling model aircraft to ensure that the above limits are achieved.

7. (b) Helicopters

Noise limitation for helicopters in hovering mode shall be as follows:
- Over hard surface 89 dbca at 3 metres.
- Over soft surface 87 dbca at 3 metres.

**Other Models**

8. (a) Model Aircraft which have not been specifically addressed in this specification must be queried with SAMAA who together with the SIG, CAA and Inspectors will give a ruling.

(b) All Competition Model Aircraft must conform to the safety rules and Sporting Code for their particular SIG.

9. Guidelines for Radio Equipment: The following general recommendation are included in this section to offer basic suggestions for enhanced safety. We suggest you contact the SAMAA office for names of specialist members to handle your queries.

**Models up to 7kgs**

(a) Any standard commercial equipment with servos rated at 3,6kg/cm or more may be used in model aircraft up to the FAI limit of 7 kg.

For the larger aircraft in this category at least one servo per control surface should be used.

**Models between 7kg and 25kg**

(b) Model aircraft which exceed the FAI limit of 7kg must be fitted with heavy duty servos which have the capability of handling the loads that the control surfaces impose on the servos. Standard servos with a rating of 3.6 kg/cm are not suitable for these sizes of aircraft and larger servos suited to the model size should be used with at least one servo being used for each aileron and one servo for each stabiliser half being recommended. Use of dual receives is also recommended on a larger model aircraft.

**Battery Pack**

(c) The battery sizes used on larger aircraft is depended on the number, size and type of servo loads on the control surfaces. Batteries should be able to sustain power to the onboard radio components for a minimum of one hour total flying time before recharging. Dependable redundant and fail safe battery systems are recommended as is the use of dual receiver units and split control for the larger and more expensive models.

(d) Other recommendations are:-

(i). Servo arms and control hands should be rated heavy duty

(ii). With (pull-pull) cable systems a separate tension bar is recommended

(iii). Hinges should be rated heavy duty and be manufactured primarily for larger aircraft

(iv). Clevises and attachment hardware should be heavy duty 4/40 thread and rod type or be as specified by equipment manufacturers for larger models.

(v). Long servo leads may required to be fitted with Anti glitch devices

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(vi). All motors or turbines on larger models shall have a remote switch on the transmitter to remotely shut down the motor / turbine.

9. (a) The use of metal bladed propellers is prohibited
(b) The use of metal rotor blades is prohibited
(c) The use of Pyrothechnics or explosives in or from model aircraft is prohibited