THE SOUTH AFRICAN MODEL AIRCRAFT ASSOCIATION

Operations Manual

POLICY ON THE USE OF SYNTHESIZED TRANSMITTERS

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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.

1. Introduction

The Frequency Sub-Committee proposed in July 2006 that this policy be implemented and that after practical field use of both operations and testing of synthesised transmitters the results be reviewed. This was done and as no negative reports have been received to date, the use of synthesised transmitters has been accepted and this policy stands.

2. Mandatory Requirements

The SAMAA supports the use of frequency synthesised radio control equipment in South Africa provided that it conforms to the current SAMAA Frequency Policy together with some special requirements. These special requirements are because of the ability of the equipment to operate at frequencies that are selectable within the equipment and in many cases are at frequencies which are illegal in RSA.

These requirements are detailed in the following paragraphs and are consistent with practices being used Internationally.

(a) The pilot/operator may only switch on his transmitter after the pilot / operator has identified the frequency on which transmission will occur and after he has complied with the frequency control system in use at the field of operation and reserved the frequency he intends to use with his marker or card.

This requirement is consistent with the present procedure for a normal crystal transmitter and is to ensure that there is no other operator using or intending to use that frequency

The transmission frequency must be one of those specified in the SAMAA Frequency policy PO 13 as allowed for model aircraft.

(e) Should the operator find that the frequency he intends to use is unacceptably busy, or should there be request to change frequency at a Competition the procedure outlined by the manufacturer of the equipment must be followed exactly.

(d) Do note that most manufactures do not recommend the changing of a frequency at the flying field due to the possibility of the receiver locking onto another frequency in use at the field.

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(e) After identifying the frequency that the transmitter will transmit on and selecting this frequency on his transmitter (please note that the “spot number” not the frequency is entered into the transmitter) the appropriate frequency control system is to be followed. (i.e.’ Peg or marker On’)

(f) Once the operator has completed the procedure to reserve the frequency on which the synthesized equipment is to operate and has set this transmitter, then the second stage the switch-on can be performed.

(g) Do remember to retune your receiver if you have changed the frequency of your transmitter.

(h) For the operators information , at the repair shop the Frequency Synthesised equipment is tested in accordance with the SAMAA Frequency Policy using the same procedure as equipment whose frequency is controlled by the selection of crystals.

Because the equipment can operate on many frequencies the testing station is required to test that the equipment achieves the appropriate SAMAA specifications at 3 different frequencies.

The first two are either the highest and lowest frequencies that that equipment will operate on, or alternatively those on the top or bottom of the frequencies bands that are authorised for Model Aircraft use if these are within the operating band of the equipment.

The third frequency is approximately midway between the other two. The sticker applied to the equipment is that appropriate to the test results on the frequency bandwidth for each item of equipment tested.

Instead of the normal channel sticker the testing station will apply a yellow square label carrying the letter S in black signifying that the equipment is synthesised.

3. Guidance

Whilst not part of the SAMAA Requirements, the following information is provided to assist users of this class of equipment: -

(a) Synthesised frequency equipment will give you much greater flexibility in your frequency selection but it also has more opportunities for errors and you should take great care if you change the frequency at the field.

Remember that most people you are flying with will not have the Same capabilities and your operations must fit in with what is accepted as normal operating procedure at the field.

(b) You may need to have a separate frequency marker or card, marked with your name for every frequency that you are intending to use when you change frequency, should the frequency control rules of the field or site require it.

(c) You must take extra care when using the frequency control system, as your opportunities to reserve or put your peg or marker on the wrong frequency spot on the frequency board will be much greater.

(d) Until the use of this type of equipment becomes common, you may find that the ability of your transmitter to select any frequency will be viewed with suspicion by some and, in the event of interference being suspected, you could find that you are always the first person checked.

The only way to avoid problems is to be scrupulously careful in your operations. If there is a suspicion that you might transmit on the wrong frequency, the procedure which is recommended would be to get another club member to double check each time the frequency is changed.

(e) Although Synthesised sets have the potential in the long term to be more reliable and cheaper to produce than the plug-in crystal sets, remember that they still use a fixed crystal in the transmitter module and the receiver and that any crystal can drift in frequency over time, or be damaged by shock.

You still need to have your radio equipment checked in according with SAMAA Frequency Policy, as a master crystal drifting will affect all the other frequencies synthesised from it. Curing the problem will be a job for the technician/ importer/manufacturer and will not be as simple as just plugging in a new crystal.

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