

## ***Super Magic 5.0 Supplement – version 1.5***

This document describes the changes that are related to Super Magic 5.0. This represents a significant change from previous versions. It includes some fixes and support for a new generation of timers. It will still support the older timers. This version requires Palm OS 3.5 or later.

The last Super magic of the old series was 4.47. It has columns for 3 servos. This version has columns for 4 servos. The screen Icon for this version has an M on it with the image of the airplane. It is possible to have both the old and new versions on a Palm Pilot at the same time. They will work against the same timer database. The old version will not support and may damage those features that are only in the new version.

Note that the features that are in the new timers are only available in those timers and to use those features you need both Super Magic 5.0 and the new timers.

## Main screen

Name		New Program			
MinSec100	Action	Value			
1	0 0 0 Jmp	0	0	0	0
2	0 0 0 D/T	0	0	0	0
3	0 0 0 D/T	0	0	0	0
4	0 0 0 D/T	0	0	0	0
5	0 0 0 D/T	0	0	0	0
1	0 0 00	000	000	000	000
Cird4	0 Straigh4	0	Launc4	0	
Cird3	0 Straigh3	0	Launc3	0	
Cird2	0 Straigh2	0	Launc2	0	
Circle	0 Straight	0	Launch	0	

Buttons: Switch, All Enabled, Accept, Hook, GenP, Connect, Set Timer

## General

There are 4 columns for servo values and can be up to 4 lines for the initial positions for the 4 servos. The lines appear if the timer has that number of servos.

Some F1A timers have servos on the tow hook. These servos are processed differently than flight servos that may be used to control flight surfaces. There is not a line for a hook servo on this screen.

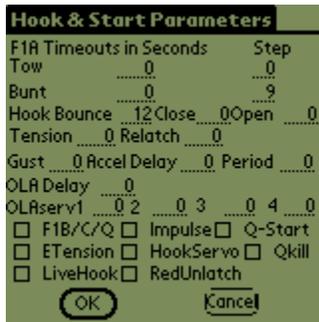
## Hook

This button takes you to a screen that lets you manage the hook [glider timers] and start functions.

## GenP

This takes you to the general parameter screen that lets you manage other general parameters.

## Hook or Start screen



## General

This screen lets you manage features associated with the start of the flight. This screen supports 4 types of F1A, glider hook configurations.

### Standard Hook.

This is a Circle tow hook with a hook forward and an unlatch sensor. There is no servo on the hook.

### Mechanical relatch hook

This is a circle tow hook with a hook forward sensor and an unlatch/relatch tension switch sensor. There is a servo on the hook that is controlled by the timer. The unlatch tensions is controlled outside of the timer and the sensor indicates if that tension has been reach or not.

### Electronic Relatch Hook.

This is s circle tow hook with a hook forward sensor and a strain gage hook tension sensor on the hook. There is a servo on the hook. The unlatch tension is set in the timer. This includes a REC SA hook

### M&K Style Impulse Hook

This is an Impulse hook as made by M&K. It requires an extra input line from the hook and cannot be used with a hook with a servo.

## ***F1A Time outs - Tow***

This is the time in seconds, known as the tow timeout and the step to go to if during the tow period the hook does not come forward in that time out period. For example if the timeout period is 120 seconds if the hook does not come forward in 120 seconds then the timer will go to the specified step. This generally means that the sportsman has dropped is towline and the model is fling away.

This applies to all types of F1A hooks.

## ***F1A Timeout – Bunt***

For a Standard Hook this is a time in seconds measured between when the hook unlatches and then the hook swings back, i.e. is not sensed as forward.

## ***Hook [and Start] Bounce -***

This is an arbitrary number between 1 and 15. It applies to all hook and start switches [sensors]. 12 is a good number.

## ***Close and Open***

This is a servo position number [0 to 255] and is the position of the hook servo when the hook is closed and open. Note that the length of travel can be tuned with the servo base point and servo multiplier found on the servo screen.

This applies to all timers with a hook servo

## ***Tension and Relatch***

This is the unlatch and relatch hook tensions. It is a number between 0 and 1200. Typically around 50 is a good number. The relatch should be lower than the unlatch. This applies only to electronic relatch timers.

## ***Gust Bounce***

This is a number in tenths of a second and it is the delay once the unlatch tension is reached before the hook starts to open. So if the number was 3 for three tenths then the unlatch tension would have to be applied for 3 tenths of a second before it was considered to be 'good' and the hook would open. If it dropped back below the unlatch tension during that time the unlatch point would not consider to have been attained and the hook will not unlatch. Note that 0 is a valid number; this effectively turns this feature off.

This applies to all timers with a hook servo.

## ***Accel delay and period***

This applies to some F1A timers. Normally when the unlatch point has been attained on a F1A timer the servos move to the launch position. This delays the move of servo 1, usually the stabilizer servo. The delay number is the time in tenths of a second for the servo to start moving. So if it was 4, then 4 tenths of a second after unlatch the stabilizer servo will start moving. Note that if there was a gust bounce it comes into effect after the gust bounce. Given the above two examples the timer would wait 3 tenths for the gust bounce to pass. Then it would be the unlatch point. The timer would then wait another 4 tenths before moving the stabilizer servo.

The period is the time in tenths of a second for the servo to attain the maximum launch deflection. So if this was 5 then after the servo started moving it would take 5 tenths of a second to attain maximum deflection.

Zero is a valid number for either or both parameters. Setting it to zero effectively turns this feature off.

## ***F1B/C***

Checking this box turns off the hook management features and makes the timer a F1B, C or Q type of timer. This applies to Universal timers only.

## ***E-tension Hook***

This must be used in conjunction with the Hook Servo and indicates that the timer is one with a hook servo and strain gauge sensor on the hook.

## ***Hook Servo***

This applies to a F1A timer and means that the timer has hook servo.

## ***Live Hook***

This means that the D/T time can be adjusted from the tow hook or start switch. Pull the hook forward or push the start button and power the timer up. When a continuous noise sounds the d/t length can be set.

## ***Red Unlatch***

This applies to glider timers only. The normal mode for the unlatch sensor is switch closed indicated to the timer that unlatch has been attained. Checking this box reversed the sense of this, meaning that open indicates that unlatch has been attained.

## ***Impulse***

This means that the hook is an Impulse style hook

## ***Qkill***

This enable the F1Q features, this applies to all no glider timers.

This requires the start button to be held for 1 second, rather than .3 second before the timer is armed.

This re-enables the start button and pushing it after the 'flight' has been started will cause an action similar to RDT to stop the motor.

## **OLA**

These features apply to impulse hooks only

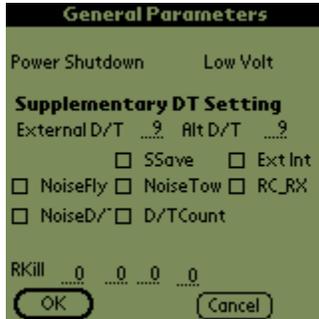
### **OLA Delay**

This is the delay in tenths of a second after the Impulse signal is received and bore the servos are moved.

### **OLA Serv1 2 3 4**

This is the position that servos 1, 2, 3 and 4 are moved to after the Impulse signal is received and the OLS Delay passed

## ***General Parameters screen***



### ***Power Shutdown***

This specifies how long the timer can be turned on for before starting the flight. If this time is reached the timer turns itself off. It is a number in minutes.

### ***Low Voltage.***

This is a low detection capability. Details to be supplied later.

### ***External D/T***

This specifies what step number is executed if a radio d/t or similar device connected to the timer is activated.

### ***Alternate D/T***

This is the D/T step that will be used if the alternate D/T switch is on.

### ***PTest***

Not used

## **SSave**

When checked this turns on the servo power saver feature. This turns off power to the servo after one second before the start of the flight and two seconds afterwards. Before the flight includes while on tow. The servo is not turned off during the launch processing on an F1A and at anytime if the step servo function is used.

The mechanical design much be such that the control surface will not move if the servo is not powered.

## **Ext Int**

For timers where there is a choice between alternate D/T and External Interrupt i.e. radio D/T checking this activates the radio D/T feature. The timer does not include the radio receiver but this means that it will accept input from one.

## **Noise Fly**

When checked there is a beep every second when the flight has started. This means after launch for a F1A timer.

## **Noise Tow**

When checked this causes a beep every seconds while the model is circling under tow. The noise stops when the hook is forward and the model is in 'straight tow' mode.

Note that always there is a continuous tone when the hook is unlatched on a F1A model timer. There is also a continuous tone when the start button is depressed and before it is released on a F1B mode timer.

## **Noise D/T**

When checked the buzzer will beep after D/T. The noise can be stopped when the model is retrieved by pushing the start button or hook forward.

## **D/T Count**

When checked this means the timer will “beep out” the D/T time. This uses 2 different tones. Whole minutes are beeped in one tone then the remaining seconds in 15 second increments using a high/lower pitched tone.

## **Rkill**

This feature applies to F1Q timers only, more details later

## Servo

The screenshot shows a menu titled "Set Servo Parameters" with four columns labeled 1, 2, 3, and 4. The settings are as follows:

	1	2	3	4
Base Point	18	18	18	18
Multiplier	510	510	510	510
Speed	1	1	1	1
Reverse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Park	0	0	0	0
Screen label	S	R	W	F

At the bottom, there is a "Screen Enabled" label and two buttons: "OK" and "Cancel".

### Base Point

This sets the 0 end of the servo's travel. Typical number is 18. 20 is the value to generate a 1 ms pulse

### Multiplier

The sets the 255 of high end of the servo's travel. It can be a single digit for the basic Universal timers or a 3 digit number 450 with an implied decimal point = 4.50 for the more advanced timers. The values should be 4 or 5. A value of 4 will generate an upper end pulse width of 2 ms.

### Speed

This controls the servo PWM cycle time. It should be 1 or 2.

### Reverse

This will cause the servo to rotate the other way around. \*\*

### Park

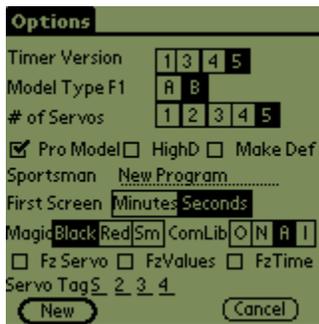
This is where the servo will go after D/T. A value from 1 to 255. \*\*

## Screen Label

This is custom screen label that will replace the digit in the default label. For example if the first servo was the Stabilizer then putting an S would cause it to be displayed as ServS rather than Serv1. The letter is also used as a column heading. Note that this value is stored in the timer flight program. It is not supported by some older timers. If not supported the value set in the options screen will be used. \*\*

\*\* Not on all timers.

## Options



This screen defines the default options used when creating a new program. Most times these options are dependant on the actual timer so it is best to read in the program that is already in the timer and use it as a basis for the new program.

### Timer version

This determines the basic capabilities of the timer to be supported.

### Model Type

For universal timers this will configure the timer as F1A type with hook management or F1BC or Q without hook management. It ill not change the characteristics of a timer that is a universal timer from the outset.

### # of servos

Determines the default number of servo to put on the screen.

### First screen

This sets the first screen to be the one with the times in time for segment that shows minutes, seconds and hundredth or the one that shows the total elapsed time in just seconds and hundredths.

### Magic

Black id the standard defaults and Red and Smart set option for OEN versions of the Magic Timers as used by Victor Stamov

### Comm Lib

This permits the manual selection of the communications library in the Palm Pilot. It should be left on A for automatic unless advised otherwise by Magic tech support.

### **Fz Servo Values Time**

This permits the freezing of the servo parameters on the Servo screen or the Values and Time on the main careen to prevent them from being changed by accident or by someone who is unsure of what they are doing.

### **Servo Tag**

This sets the default values for the servo labels as mention on the servo screen. It is used in the creation of as new flight program or when the timer does not support stored servo labels.