mc4000 6-servo Wing Setup for F3x models

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[editor's note: there is a Version 2 cif file to accompany this article at **http://www.rc-soar.com/4000/model_setups]**

Introduction

Have finished the programming of my snapflap idea on the NYX F3F, here goes for a description of how it works.

Theory....

I already have a setup that allows me to determine the amount of snapflap used by using slider F as an attenuator. What I wanted to be able to do was change the point of "up stick" that the snapflap came in while flying as I suspect that I needed the snapflap earlier than that when and rather than the good ol' trial and error method I wanted to be able to alter this while flying..
My snapflap is either off or on - there is no "proportional" control here. Snapflap is either deployed or it isn't as you either want the extra lift or you don't (IMHO). Back to bang-bang relay days ;-) although you could by using a multipoint curve on MIX14 get some proportional control over the snapflap. If you look at my MIX 14 "curve" it is either 0 or 100%

Model Definition (only snapflap related stuff is in detail)

Controls

A - Rudder
B - Spoiler
C - Aileron
D - Elevator
E - Flap
F - Aux 1

Switches

I always operate the switches so that off or normal is up on two pos switches and centered on the 3 pos.

- **S01 3 pos** - Transfer Switch 1 Used to select flight modes 1 Normal - Center,
- 2 Thermal - Down, 3 Speed - up
- **S02 2 pos** - Used to select flight mode 5 Landing - Down (Will always disable snapflap when on)
- **S03 2 pos** - Used to select flight mode 4 F3F (Reduced elevator) - Down
- **S07 3 pos** - Transfer Switch 2 Used to select which snapflap mixing is active (This switch was Control G but I don't use it so moved it to S07)
- **Control Sw C1** - From control D 1 point Max -60%
- **Control Sw C2** - From control D 1 point Max -45%
- **Control Sw C3** - From control D 1 point Max -30%

- **`Analogue Sw A1`** - From control B (Used to cancel differential as per web site)
- **`Analogue Sw A2`** - From control D (Used for pure stick input as per web site)
- **`Analogue Sw A3`** - From control F (Used to attenuate the amount of snapflap as per my Accacia file I sent you before)
- **`Logical Sw LOG1 -`** S02^ AND C1-Dv AND T2-3^
- **`Logical Sw LOG2 -`** S02^ AND C2-Dv AND T2-2^
- **`Logical Sw LOG3 -`** S02^ AND C3-Dv AND T2-1^

Servos

`1 - Left Aileron` (Servo Mix)

Servomix Inputs:
1 Aileron Trim
2 Flap
3 Spoiler
4 Snapflap (LOG1)
5 Snapflap (LOG2)
6 Snapflap (LOG3)

`2 - Right Aileron` (Servo Mix)

Inputs as per 1

`3 - Left Flap` (Servo Mix)

Inputs as per 1

`4 - Right Flap` (Servo Mix)

Inputs as per 1

`5 - Elev` +

`6 - Rudder Trim`

`MIX13` - Pure Elev

This is the standard frig to get a pure stick signal from control D as per your web site

`MIX14` - Snapflap

Inputs
1 - Pure Elev

Snapflap operation.

Snapflap volume is controlled by Slider F (All the way down is no snapflap - all the way up is max snapflap).
Snapflap activation is controlled by S07 (Transfer switch 2) in combination with control switches C1,C2 & C3. When up it will activate the snapflaps when 60% up stick is pulled, centered they activate at 45% up stick and when it is down at 30%.

Note the %ages are just trial settings. I had my snapflap come in at 60% last weekend and had the feeling I needed them earlier than that hence the 60/45/30 spread. I will refine these settings after testing.
There may be better ways of achieving the above but I arrived at this solution by evolving what I already had rather than by starting from scratch.

Don't you just love to 4000???? Trying to think of another TX you could do this on.....

SH