

F3J/TD

Template for OpenTX and EdgeTX

Version 3.3

Setup Guide

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1 INTRODUCTION

1.1 DESCRIPTION

F3J/TD is a full featured template for thermal soarers with six servos. It's the quickest route to a competition quality setup, without the need for advanced programming skills.

Before you begin your journey to a great setup, please observe the golden rules for success:

- Skim through this guide once through, before starting
- Follow the instructions in sequence
- Visit the [support page](#) for the latest alerts

1.2 REQUIREMENTS

- Transmitter with slider and two pots
- OpenTx 2.3.15 or EdgeTX 2.7.1 or higher (see [change log](#) for recommended versions)
- Companion software + USB cable

1.3 PACKAGE CONTENTS

The following files are provided:

Filename	Description
f3j_33_userguide.pdf	This document
f3j_33_reference.xls	Settings reference
f3j_33x.otx	Model file with versions for cross- and v-tail.
f3j*.wav	Sound files

2 OVERVIEW

This section provides an overview of the template. Please read this first before starting the configuration.

2.1 STICK MODES

The stick mode is defined in **RADIO SETUP → MODE** menu. All stick modes are supported by the template.

2.2 SWITCH/CONTROL ASSIGNMENTS (*NEW IN 3.2*)

Starting with 3.2, the template incorporates a combination of fixed and flexible assignments to cater for all transmitter types.

Fixed assignments

The following functions have fixed assignments:

Function	Transmitter control
Aileron (roll)	Aileron stick + trim
Rudder (yaw)	Rudder stick
Elevator (pitch)	Elevator stick + trim
Aileron differential adjust	Rudder trim
Brake compensation adjust (LANDING mode)	Throttle trim
Snapflap volume adjust (T3-SPEED mode)	

Flexible assignments

The remaining functions may be assigned to any suitable control or switch. The table below shows recommended assignments for the RadioMaster TX16S. You will make the assignments later (see section 3.3).

Function	Control type	Short name	Suggested assignments	
			X9D/TX16S	Your TX
CAL mode selector	Momentary switch only (<i>safety!</i>)	Mom	SH	?
T1/T2/T3 model select	3-position switch	SFM	SA	?
LAUNCH/ZOOM/KAPOW	3-position switch	SLZ	SE	?
Thermal camber adjust	Slider	CT1	LS	?
Zoom reflex adjust	Pot	Rfx	S1	?
Launch camber adjust	Pot	CLa	S2	?

From this point forward, switches and controls will be referenced by their short names (**'SFM'** for flight mode switch, **'Rfx'** for reflex adjuster, **'Mom'** for momentary switch etc.).

2.3 FLIGHT MODES

There are 7 flight modes:

- For launch phase: LAUNCH, ZOOM
- For normal flight: T1-THERMAL, T2-CRUISE, T3-SPEED
- For landing: LANDING, KAPOW¹

LAUNCH and ZOOM modes take precedence, then KAPOW and LANDING and finally T1, T2 & T3.

	OpenTx ID	Activation	Priority
LAUNCH	FM2	SLZ ↓	V. High
ZOOM	FM3	SLZ –	V. High
KAPOW ¹	FM4	SLZ ↑ + <i>elev fully forward</i>	High
LANDING	FM5	SLZ ↑ + <i>Brakes applied</i>	Mid
T1-THERMAL	FM6	SFM ↓	Low
T2-CRUISE	FM0	SFM -	
T3-SPEED	FM7	SFM ↑	

¹ KAPOW is an optional flight mode for 'nailing the spot' (after Bob McGowan). It is disabled by default.

2.4 MIXER TABLE

Mix adjusters in **bold**

p = preset during configuration

	Brakes (crow)	Brakes comp	Snapflap	Camber / reflex	Diff	Ail>Flap	Combi	Rev Diff
Launch				CLa	Rud trim	p	p	
Zoom				Rfx	Rud trim	p	p	
T1-thermal				CT1	Rud trim	p	p	
T2-cruise					Rud trim	p	p	
T3-speed			Thr trim	p	Rud trim	p	p	
Landing	P	Thr trim			Rud trim	p	p	p
Kapow				p	Rud trim	p	p	

2.5 SERVO ASSIGNMENTS

Channel #	Vtail	Xtail
1	Right aileron	
2	Left aileron	
3	Right flap	
4	Left flap	
5	Right Vtail	Elevator
6	Left Vtail	Rudder

'Left' and 'right' are from the point of view of an observer looking forwards.

The left and right channels are not interchangeable, so please double-check your connections.

2.6 CAL MODE

A special CAL flight mode is provided for calibrating the servos. When CAL is activated, mixers and trims are disabled, and the raw stick commands are passed directly to the outputs. This allows servo limits and centres to be visualised.

To activate CAL mode:

1. Apply full left aileron and full up elevator
2. Press and release **Mom**
3. Release stick(s). The transmitter cheeps at 3 second intervals

There are three cal sub-modes, activated via switch **SFM**:

- **SFM**—: calibrate servo end points
- **SFM**↓: calibrate flap neutral (new)
- **SFM**↑: calibrate ailerons which have reduced down-travel (new)

To exit CAL mode, pull **Mom**.

2.7 BASIC FUNCTIONS DESCRIBED

Trims

- Aileron trim is shared across all flight modes
- Elevator trim is individual per flight mode
- Rudder and throttle trims are repurposed for other functions (see below)

Camber/reflex mixes

- Camber/ reflex may be set for LAUNCH, ZOOM, T1-THERMAL, T3-SPEED and KAPOW flight modes:
- Camber for T1-THERMAL is adjustable via **CT1**
- Camber for LAUNCH is adjustable using **CLa**
- Reflex for ZOOM is adjustable via **Rfx**
- Reflex for T3-SPEED is preset
- Reflex for KAPOW is preset

Brake compensation (Brake to elevator mix)

- Brake compensation is used to counteract pitch changes due to brakes.
- The amount of brake compensation can be adjusted during flight via the throttle trim.
- Fine adjustments can be made via a curve

Differential

- Diff is applied to ailerons and flaps, per flight mode
- Diff is adjustable in-flight using the rudder trim.

Roll rate enhancement with brakes

- Aileron diff is suppressed as brakes are deployed.
- Optional 'reverse diff' increases roll response when brakes are applied.

Aileron to rudder

- Aileron to rudder mix may be preset per flight mode.

Snapflap

- Snapflap (i.e. elevator to flap mixing) can optionally be set for T3-SPEED mode.
- Snapflap may be adjusted in flight using the throttle trim

KAPOW mode (optional, disabled by default)

- An optional flight mode to aid spot landing
- Activated by pushing 95% down on elevator stick
- Applies reflex to ailerons and flaps

3 PREPARING THE TRANSMITTER

Okay, it's time to start the configuration process!

3.1 TRANSFER TEMPLATE TO TRANSMITTER

In this step you'll transfer the sound and template to your transmitter.

Establish communication with your PC

1. Put your transmitter in Bootloader mode (the method will depend on your transmitter).
2. Connect tx to PC via USB. The tx's SD card and/or internal memory should appear as external drive.
3. Look for a /SOUNDS folder in one of the drives

Copy sound files

1. Copy the sound (.wav) files to the /SOUNDS/{language} folder. For example, English folder is "/SOUNDS/en". Do not copy to the 'system' folder!

Transfer model to transmitter

1. Start Companion, using a profile for your transmitter
2. Open supplied file *f3J_33.otx*. Separate setups for X- and V-tails are displayed in a window.
3. A popup will appear with some warnings. These can be ignored for now – they will be fixed when you assign the controls later.
4. From the **READ/WRITE** menu, choose *Read Models and Settings from Radio*. The model list from the radio is displayed in a second window.
5. Drag one of the F3J models into an empty slot in the tx's model list.
6. Close the *F3J_33.otx* window.
7. Right-click the new model and choose "Use as Default"
8. From the **READ/WRITE** menu, choose *Write Models and Settings to Radio*.
9. Close Companion
10. Terminate the USB connection
11. Power up the transmitter and check that the template is selected.

3.2 HARDWARE CALIBRATION

The transmitter hardware (sticks, sliders etc.) must be properly calibrated, so do so now if you haven't already calibrated or are not sure. To do a hardware calibration:

1. Open the **RADIO SETUP -> CALIBRATION**
2. Calibrate all sticks, knobs and sliders.

3.3 SWITCH AND CONTROL ASSIGNMENTS (NEW IN 3.2)

Now check and, if necessary, edit the switch/control assignments:

1. Open the **INPUTS** menu
2. Scroll down to lines 10-16 (you may need to scroll to the next page)
3. See screenshot below. Please check each function (left column) is assigned to the correct type of control or switch. The screenshot shows recommended assignments for the X9D and TX16S - if you have a different transmitter, then edit the assignments as necessary.



Figure 1 - screenshot of Inputs menu lines 10-16, showing control assignments

To change an assignment

1. Highlight the relevant input, then long press {Enter} and choose Edit
2. Skip to the *Source* field and press Enter. The field will blink.
3. Move the desired control or switch. The *Source* field will automatically update itself.

Note: Do not alter any fields other *Source*

To reverse a control or switch:

1. Open the Inputs editor
2. Reverse the sign of *Weight*.

Note: all weights must be +100% or -100%. Do not reverse the momentary switch.

3.4 FAMILIARISATION

Using the transmitter on its own, familiarise with the various flight modes (see section 2.3). A voice alert will sound as you change modes. At the end of this step, you should be confident with the following:

- Selecting LAUNCH, ZOOM, T1-THERMAL, T2-CRUISE, T3-SPEED, LANDING and KAPOW (if enabled).
- Selecting CAL mode and sub-modes

If the sounds aren't working, check that the .wav files are in the correct location (see section 3.1).

4 CALIBRATING THE OUTPUTS

In this section you'll set the rotation and operating range of the servos.

4.1 SET SERVO DIRECTION

First, set the rotation of each servo:

1. Switch on the transmitter (do not power up the receiver yet)
2. Brake stick to centre
3. Enter CAL mode
4. Set main flight mode switch (**SFM**) to middle position.
5. Power up the receiver
6. Open the **OUTPUTS** menu
7. Set the servo rotations according to table below.

Pay special attention to notes regarding aileron and elevator!!

Stick command	Control surface	Notes
Aileron stick right →	RtAil goes up ↑ LtAil goes up ↑	In CAL mode, ailerons move together.
Thr stick forward ↑	RtFlap goes up ↑ LtFlap goes up ↑	
V-TAIL only: Ele stick forward ↑	RtVee goes up ↑ LtVee goes up ↑	In CAL mode, elevator(s) operate in reverse to normal.
X-TAIL only: Ele stick forward ↑	Ele goes up ↑	
X-TAIL only: Rudder stick right →	Rud goes right →	

To change the direction of an output:

1. Go to the *direction* field
2. Press {enter}, and immediately {return}

```
OUTPUTS 1464us Direction 7/13
CH1 RtAil 0.0 -150.0→150.0 ← CV11 1500Δ
CH2 LtAil 0.0 -150.0→150.0 → CV12 1500Δ
CH3 RtFlap 0.0 -150.0→150.0 → CV13 1500Δ
CH4 LtFlap 0.0 -150.0→150.0 ← CV14 1500Δ
CH5 RtVee 0.0 -150.0-150.0 ← CV15 1500Δ
CH6 LtVee 0.0 -150.0-150.0 → CV16 1500Δ
CH7 --- 0.0 -100.0-100.0 → --- 1500Δ
```

Finally, do a final check:

1. Exit CAL , enter T2-CRUISE mode.
2. Check for correct direction of aileron, elevator and rudder

Note: the flaps will not function yet

4.2 ADJUST SERVO END POINTS AND CENTRES.

Next, you'll calibrate the servo end points and centres. At the same time, you will compensate for linkage differences between the left and right sides. Note:

- All adjustments are made in CAL mode.
- Servo end points should be set to the maximum possible, subject to equal travel either side of centre, and equal movements on left/right sides of the model. (The travels will be reduced later.)
- Adjustments are made using curves. **Do not alter Min, Max or Subtrim.**

Note: Transmitters with small mono screens (TX12, X-Lite, X9 Lite etc.) do not have a GLOBALVARS menu. Instead, GVARs are accessed through the **FLIGHT MODES** menu.

Channel	Calibration procedure
CH 4 – Lt Flap	<p>Start by calibrating the left flap channel CH4:LtFlap</p> <ol style="list-style-type: none">1. Enter CAL mode2. Set switch SFM to middle position3. In the OUTPUTS menu, highlight CH44. Skip to curve field CV14:LtF, and press {long ENTER} to open curve editor5. Throttle stick fully back (↓), adjust point 1 for lower end point. Allow for both crow and aileron inputs.6. Throttle stick fully forward (↑), adjust point 3 for upper end point. Allow for any aileron-to-flap mixing.7. Adjust point 2 so it lies on the straight line thru points 1 and 3. Don't worry that it doesn't follow the airfoil, an offset will be adjusted later.
CH 3 – Rt Flap	<p>Next, calibrate the right flap channel CH3:RtFlap. The goal is to precisely match the left flap.</p> <ol style="list-style-type: none">1. Enter CAL mode2. Switch SFM to middle position3. In the OUTPUTS menu, highlight CH34. Skip to curve field CV13:RtF, press {long ENTER} to open curve editor <p>Now adjust points 1 – 5 to exactly match the left flap:</p> <ol style="list-style-type: none">5. stick fully back, adjust point 16. stick ½-back, adjust point 27. stick to centre, adjust point 38. stick to ½-forward, adjust point 49. stick fully forward, adjust point 5 <p>To match the end points on left and right sides, it may be necessary to reduce one or other end points for the left flap.</p>

Flap neutral	<p>Next, set the flap neutral:</p> <ol style="list-style-type: none"> 1. Enter CAL mode 2. Switch SFM to down position. An adjustable offset is applied to each flap. 3. Open the GLOBAL VARIABLES menu. 4. Highlight GV5:FlNeut and skip to the FM0 (not FM1!!) column. 5. Adjust GV5 for the correct neutral. <p>Check that the flaps are precisely in line at the neutral position. If not, then check calibration of the right flap (see previous step), paying particular attention to the two points either side of the neutral.</p>
<u>V-Tail</u> CH 5 – RtVee CH 6 – LtVee	<p>V-tail only: calibrate V-tail surfaces:</p> <ol style="list-style-type: none"> 1. Enter CAL mode 2. In the OUTPUTS menu, highlight CH5:RtVee 3. Skip to curve field CV15:RvE, press {long ENTER} to open curve editor 4. Ele stick to centre, adjust point 2 for correct neutral 5. Ele stick forward (↑), set point 3 to upper limit 6. Ele stick back (↓), set point 1 to lower limit. Allow for brake comp. 7. Repeat for CH6:LtVee and CV16:LvR, ensuring that movements match CH5. 8. Check equal travel up/down; left and right surfaces match
<u>X-Tail</u> CH 5 – Ele	<p>X-tail version only - Calibrate elevator</p> <ol style="list-style-type: none"> 1. Enter CAL mode 2. In the OUTPUTS menu, highlight CH5:Elev 3. Skip to curve field CV15:RvE, press {long ENTER} to open curve editor 4. Ele stick to centre, adjust point 2 for correct neutral 5. Ele stick forward (↑), adjust point 3 to upper limit 6. Ele stick back (↓), adjust point 1 for to lower limit 7. Check travel is equal up & down
<u>X-Tail</u> CH 6 – Rudder	<p>X- tail version only - Calibrate rudder</p> <ol style="list-style-type: none"> 1. Enter CAL mode 2. In the OUTPUTS menu, highlight CH6 3. Skip to curve field CV16:LvR, press {long ENTER} to open curve editor 4. Rudder stick to centre, adjust point 2 for centred rudder 5. Rudder right (→), set point 3 for max right movement 6. Rudder left (←), set point 1 for max left movement 7. Check equal travel left/right

CH 1 – Rt Ail CH 2 – Lt Ail	<p>Finally, calibrate ailerons:</p> <ol style="list-style-type: none"> 1. Enter CAL mode 2. Switch SFM down. The flaps will go to their calibrated neutrals. 3. In the OUTPUTS menu, highlight CH1:RtAil 4. Skip to curve field CV11:RtA, then press {long ENTER} to open curve editor 5. Move aileron stick to centre. Set Point 2 for correct centre. 6. Move aileron stick right (→). Set point 3 to desired upper limit, allowing for both crow and aileron movement. 7. Move aileron stick left (←). Adjust point 1 so that down-travel = up-travel. If you can't get enough down movement due to geometry, then <ol style="list-style-type: none"> 1. Move SFM up (↑) – this reduces aileron movement by 50%. <i>Note: this reduced rate applies only in CAL mode!</i> 2. Now try again: Move aileron stick left (←) and adjust point 1 so down-travel = (reduced) up-travel. Full rate will be restored when you exit CAL; don't worry if down-travel is excessive – later adjustments to input and diff will reduce it. 3. Repeat all steps for CH2:LtAil and curve CV12:LtA. 4. Check: (a) same up/down rate per aileron, and (b) left and right ailerons match.
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Check operation:

1. Exit CAL mode
2. Move the sticks, checking that aileron, elevator and rudder control surfaces move in the correct sense.
Note that the flaps will not function yet (they will be configured in the next section).
3. The travel will be excessive – don't worry, it will be reduced in the next section.

4.3 SET CONTROL RATES AND MIXERS

Watch your model come to life!

Control / mix	Adjustment point	Adjustment procedure
Aileron rate	INPUTS →Ail	<p>Set the rate for ailerons as follows:</p> <ol style="list-style-type: none"> 1. Enter T2-CRUISE mode 2. Open the INPUTS menu 3. Scroll DOWN to [I]Ail 4. Press {long ENTER} and choose Edit 5. Skip to the weight field 6. Adjust weight for required <i>up</i>-aileron movement (down movement is affected by diff setting to be adjusted later) 7. If Expo is required, skip to Curve field, choose 'Expo' as the curve type, and set required value in adjacent field. <p><i>Note: Ignore the Diff field. Diff is adjusted using the rudder trim only.</i></p>

Elevator rate	INPUTS →Ele	As above.
Rudder rate	INPUTS →Rud	As above.
Aileron→Flap	GVARs →GV1(“A2F”)	<p>Aileron to flap mixing is set per flight mode.</p> <ol style="list-style-type: none"> 1. Open GLOBALVARs menu, highlight GV1 line (“A2F”). 2. Activate the flight mode you want to adjust. 3. Skip to highlighted column. 4. Adjust GVAR value for required aileron to flap mix. <p>Note: movement of down-going flap will be affected by diff setting.</p>
Aileron→Rud	GVARs →GV2(“A2R”)	<p>Aileron to rudder mix is set per flight mode.</p> <ol style="list-style-type: none"> 1. Open GLOBALVARs menu, highlight GV2 line (“A2R”). 2. Activate flight mode to be adjusted. 3. Skip to highlighted column. 4. Adjust GVAR value for required aileron to rudder mix
Brake→Aileron	GVARs →GV3(“CmAil”)	<p>Sets the upward aileron movement due to brakes.</p> <ol style="list-style-type: none"> 1. Open GLOBALVARs menu, highlight GV3 line (“CmAil”). 2. Skip to column FM5 3. Enable LANDING mode 4. Move throttle stick back (full brakes) 5. Adjust GVAR value for required up-aileron movement
Brake→Flap	GVARs →GV4(“CmFlap”)	<p>Sets the downward flap movement due to brakes.</p> <ol style="list-style-type: none"> 1. Open GLOBALVARs menu, highlight GV4 line (“CmFlap”). 2. Skip to column FM5 3. Enable LANDING mode 4. Move throttle stick back (full brakes) 5. Adjust GVAR for required down-flap movement
Camber presets	GVARs →GV3(“CmAil”) GVARs →GV4(“CmFlap”)	<p>Camber configuration is via GV3 (ailerons) and GV4 (flaps). Adjustments are made in the GLOBALVARs menu. Here’s the procedure:</p> <ol style="list-style-type: none"> 1. For T3-SPEED (FM7) mode, adjust GV3,GV4 for preset reflex. 2. For KAPOW (FM4), adjust GV3, GV4 for preset reflex. 3. For T1-THERMAL (FM6) mode. Move CT1 to centre. Then adjust GV3 and GV4 for thermal camber. CT1 adjusts +/-50%. 4. For LAUNCH (FM2), rotate CLa to centre. Adjust GV3 and GV4 for launch camber. CLa adjusts +/-50%. 5. For ZOOM (FM3), rotate Rfx fully clockwise. Adjust GV3, GV4 for max possible reflex. Rfx adjusts 0-100%.

Reverse Differential	GVARs →GV6(“Rdf”)	<p>Reverse diff increases the travel of the down-going aileron when full brakes and aileron are applied. Used to improve roll response under braking. To configure:</p> <ol style="list-style-type: none"> 1. Open GLOBALVARs menu, highlight GV6/FM5 2. Enable LANDING mode 3. Apply full brakes and full aileron 4. Adjust GVAR until lower aileron is at the desired position (usually at or slightly below aileron normal centre). <p>NOTE: this measure for improving roll response is in addition to aileron diff suppression, which is applied automatically.</p>
Brake→Ele compensation	GVARs →GV7(“Cmp”)	<p>Brake compensation is adjusted using the throttle trim. To set the limit of adjustment:</p> <ol style="list-style-type: none"> 1. Open GLOBALVARs menu, highlight GV7/FM5 2. Enable LANDING mode. 3. Move throttle stick fully back (max brakes) 4. Move throttle trim fully forward (max comp) 5. Adjust GVAR for max possible compensation. 6. Move throttle trim back for initial flight setting <p>To adjust the compensation curve, see section 6.2.</p>
Snapflap	MIXER →CH11:FlapCm→Snap MIXER →CH10:AilCm→Snap	<p>Snapflap (elevator to flap mixing) can be set in T3-SPEED mode. It’s set individually for flaps and ailerons. Master adjustment using throttle trim.</p> <ol style="list-style-type: none"> 1. Open MIXER menu 2. Select CH11->Snap line, and open editing menu 3. Skip to weight field 4. Enable T3-SPEED flight mode 5. Move throttle trim fully back (max snapflap). 6. Hold full up elevator 7. Adjust weight for desired max limit of snapflap adjustment 8. Close mixer editor 9. Repeat for CH10->Snap mix. 10. Using throttle trim, adjust overall snapflap for initial flight setting.

Congratulations, you’ve finished setting up your model!

Just one last thing.... please back up your EEPROM now.

5 BEFORE YOU FLY

5.1 BATTERY AND FAIL SAFE

Before flying:

- Set the battery alarm threshold to suit your battery chemistry, for both the tx and rx.
- Set the failsafe

5.2 FIELD GUIDE

Print a copy for field use:

Adjustment	Flight modes	Adjuster control	Notes
Launch camber	LAUNCH	CLa	Provides +/- 50% fine tuning of Launch preset
Zoom camber	ZOOM	Rfx	Adjusts reflex 0 – 100%
Thermal camber	T1-THERMAL	CT1	Provides +/- 50% fine tuning of T1-thermal preset
Snapflap vol	T3-SPEED	Throttle trim	Trim forward=zero snap, Trim back = max snap
Brake comp	LANDING	Throttle trim	Trim back=zero comp, trim forward =max comp
Aileron Diff	[all]	Rudder trim	Diff saved individually for each flight mode. Range is 0 - 80%
Aileron trim	[all]	Aileron trim	Shared by all flight modes
Elevator trim	[all]	Elevator trim	Saved individually per flight mode

6 SIMPLE MODIFICATIONS

6.1 ADDING RATES FOR AILERON/ ELEVATOR/RUDDER

Rates are managed in the **INPUTS** menu. Each line provides a rate value, depending on a switch, or one or more flight modes.

To add a new rate for one or more flight modes:

1. Open the **INPUTS** menu.
2. Go to the Rud, Ele, or Aileron group.
3. Highlight the last line labelled 'catchall'.
4. Press {long Enter}, choose 'Insert Before'. The mix editor opens.
5. Set source = Ail/Ele/Rud as appropriate
6. Set *weight* to the required rate.
7. Set *expo* as required
8. Tick all applicable flight modes FM0: T2-CRUISE, FM2: LAUNCH, FM3: ZOOM, FM4: KAPOW, FM5: LANDING, FM6: T1-thermal, FM7: T3-SPEED

The example below shows a rate scheme for ailerons. There are three rate lines, providing 35% rate for FM6, 40% for FM4, and 75% for all other flight modes.

INPUTS				
☒ Rud	95%	☒ Rud	0 1 2 3 4 5 6 7 8	CATCHA
☒ Ele	90%	☒ Ele	0 1 2 3 4 5 6 7 8	CATCHA
☒ Ail	35%	☒ Ail	0 1 2 3 4 5 6 7 8	
	40%	☒ Ail	0 1 2 3 4 5 6 7 8	
	75%	☒ Ail	0 1 2 3 4 5 6 7 8	CATCHA
☒ 04				
☒ 05				
☒ 06				
☒ 07				

Aileron rates

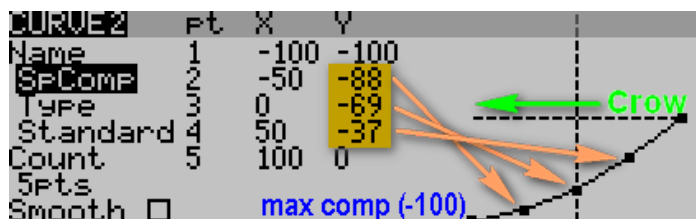
Alternatively, you can specify a switch to select rates directly rather than by flight mode.

Safety note: the last (or only) line should be a 'catchall', that is to say with all flight modes checked, and switch = '---'. This provides a fallback in case none of the previous lines is selected, perhaps due to a data entry error. (If no line is selected, the input will be inactive!)

6.2 FINE TUNING BRAKE COMPENSATION

During initial flight tests, you'll adjust the brake compensation at full brake, using the throttle trim.

Afterwards, you can fine tune by adjusting Curve 2 ('BrC'). Adjust points 2-4 only, do not alter end points. Below is example curve where compensation increases sharply on initial application of crow, then tails off:



6.3 ADJUSTING THROTTLE STICK DEADBAND

The brake stick incorporates some deadband to avoid accidental deployment. The amount of deadband can be adjusted via Curve CV4:T2S. Alter the X-value of the middle point to taste. Max recommended value is 95%.

6.4 KAPOW FLIGHT MODE

The KAPOW flight mode is disabled by default. To enable KAPOW:

1. Open the Flight Modes menu
2. Highlight the KAPOW flight mode line
3. To enable: set the switch to 'L10'. To disable: set the switch to '---'

To activate KAPOW, push fully forward on the elevator stick in any flight mode (except LAUNCH and ZOOM). By default, KAPOW will trigger at 95% forward stick. The threshold can be altered in logical switch L10.

Whilst in Kapow mode, the elevator stick and trim will still function. The elevator trim will almost certainly need to be adjusted (make sure you're in KAPOW mode whilst making the adjustment).

Note: In previous versions of this template, **KAPOW** could be activated only from **LANDING** mode. The old behaviour is deprecated, however it can be restored as follows:

1. Open the **LOGICAL SWITCHES** menu, and highlight L10.
2. In the AND field, change '---' to 'L6 '

6.5 ZOOM FLIGHT MODE

The **ZOOM** flight mode is for the second phase of the tow especially for F3J competitions. It's enabled by default.

To enable/disable **ZOOM** mode:

1. Open the **FLIGHT MODES** menu
2. Highlight the **ZOOM** flight mode line
3. To enable, set switch to L16
To disable, set switch to '---'

7 TIPS ON SERVO CALIBRATION

Before each flying session, do a quick servo CAL. This will identify any issues due to bad servo centring or bent linkages which much otherwise remain undetected. On exiting CAL mode, all your trims will be restored.

OpenTx and EdgeTX allow trim settings to be transferred to subtrims. Please don't use this – it's not suitable with multiple flight modes, and will trash your CAL settings.

8 IDENTIFYING MISTAKES

There is no 'Undo' button in OpenTx. Fortunately, it's easy to identify mistakes, using the Compare Files feature in Companion. Follow these steps:

1. Start Companion
2. Open the (unedited) .eepe file
3. Open your working EEPROM
4. From the **FILES** menu, select **COMPARE FILES**, then drag the corresponding models into the window.

Any errors should be easy to spot.

9 MAKING YOUR OWN MODIFICATIONS

Before making your own modifications, please study the Excel documentation carefully and make sure you understand the implications. The recommended workflow is:

1. Setup your model first, as described in this guide
2. Backup your work
3. Apply your modifications incrementally, testing and backing up as you go along.

10 SAFETY/DISCLAIMER

Pretty obvious really, but worth repeating: although this setup is well tested, it's up to the pilot to make sure that the controls respond correctly under all conditions. The author will not be responsible for any consequences arising from errors in the .EEPE file or documentation. Always test your setup before the first flight, and after any modifications.

If in doubt, don't fly!

11 CONTACT

If you have any queries or suggestions, or if you find any errors in the documentation please contact me at <http://rc-soar.com/email.htm>.

Happy flying!

Mike Shellim