

Supra Setup

Mark Drela 15 Aug 05

Decalage

With -2 camber setting (full reflex), the nearly-flat rear bottom of wing and the stab are parallel.

CG position

3.6" (91.5mm) behind center LE
95 mm Joe

Tow ring position

3.8" (96.5mm) behind center LE (on a line perpendicular to wing bottom)

108 Joe and Kiesling 215 mm

Supra control throws

All control throws measured at TE of the moving surface at the largest-chord location.

Positive throw is TE down.
Negative throw is TE up.

Flight mode summary

- 1) Normal
- 2) Launch mode
 - Enables 100% aileron differential
 - Enables additional aileron->rudder mixing

Aileron throws (55mm between hingeline and TE, 1mm = 1.05 degrees)

+14mm aileron stick

-14mm aileron stick

+ 0mm aileron stick | Launch mode (100% differential)

-14mm aileron stick |

0mm -2 camber

+2mm 0 camber

+5mm +3 camber

+9mm launch camber

0mm zero crow stick

+3mm half crow stick (max CL for crawling)

-10mm full crow stick (max CD for braking)

-2mm down-elevator stick

+3mm up-elevator stick

Flap throws (62mm between hingeline and TE, 1mm = 0.92 degrees)

+12mm aileron stick

-12mm aileron stick

+ 0mm aileron stick | Launch mode (100% differential)

-12mm aileron stick |

0mm -2 camber (baseline)

+2mm 0 camber

+5mm +3 camber

+11mm launch camber

0mm zero crow stick

+22mm half crow stick (max CL for crawling)

+54mm full crow stick (max CD for braking)

NOTE:

The larger the max flap crow deflection, the better.

The +54mm deflection should be increased as much as possible.

-2mm down-elevator stick

+3mm up-elevator stick

Elevator throws (82mm between hingeline and TE, 1mm = 0.70 degrees)

+11mm down-elevator stick

-14mm up-elevator stick

0mm compensation with -2 wing camber (baseline)

+1mm compensation with +3 wing camber

+4mm compensation with half crow

+9mm compensation with full crow

+1mm compensation with launch camber

Rudder throws (117mm between hingeline and TE, 1mm = 0.49 degrees)

+/-62mm rudder stick

+/-15mm aileron stick

+/-30mm aileron stick | when crow is more than half deployed

+/-38mm aileron stick | Launch mode

Snap flap

Snap flap on Mark's Supra. He uses 2mm up with down elevator and 3mm down with up elevator

Crawl & Brake Settings

It's important to understand the distinction between deceleration and flying slowly. Deceleration requires high CD, which is maximum with the "brake" setting. Flying slowly requires high CL, which is maximum with the "crawl" setting.

I normally fly most of the approach in the crawl setting, and give only occasional blips of the brake setting to dump energy as needed. – Mark Drela Aug. 2008

Darryl's Flap Setup

One of the problems with setting a model up the day before a contest is no time to really look at the set up, and dial it in. If your compensation is fairly close, you tend to live with it. The flap throw I had in the Supra was kinda backwards from the way I normally set it up. It's normally fairly linear to the flap stick, with maybe a bit more coming in later at the end of my stick movement. If I'm flying it properly, I'll only use about 1/4 to 1/3 flap stick for the entire final. But on this model, the linkage, (and tranny) set up combined to make a TON of flap in the first 1/4 to 1/3 of my stick movement. So I was at about 45 degrees flap with between 1/4 and 1/3 flap stick. No wonder I felt like the darn thing just stopped flying. I had to be so precise with the flap stick. - Daryl Perkins
