

Tuning an SK360 Equipped Heli for Pyros & Tick-Tocks

(rev 1.1)

If you're a 3D pilot, for good performance during piroos and fast collective changes, some extra tuning is required.

First, for repeated tick-tocks, go to the Advanced tab and set the value of "Hiller Decay" to 150%. That will help prevent wobble from building up after 3 or more tick tocks.

Next, for good piroos, it's important to reduce the SK360's workload by making the heli respond as symmetrically as possible:

- 1) The heli's centre of gravity should be directly under the main shaft. The best way to tell is to put the blades at right angles to the body, and place your fingers under the blade-grip bolts. The main shaft should be straight up and down.
- 2) The servo horns and all other linkages should be close to 90 degree angles to each other, to get even blade pitch response in both directions. If they can't all be made even, then the linkage angles should at least compensate for each other.
- 3) Now put the SK360 into setup mode, and set collective pitch to zero. The swash should be level. If it isn't, adjust the individual servo centers or the linkages from the servos to level it.
- 4) Set the collective pitch to maximum positive. The swash should still be level. If not, adjust the travels for one or two of the swash servos on the Servo tab in the SK360's software until the swash is level. This is required because not all servos are the same; they can vary by up to 10 or 20% in their response. Do the same for max negative pitch, using servo travels for the other direction (requires firmware 1.10 or above).
- 5) Increasing the "Damping Gain" for Elevator on the Advanced tab to 20-25% can give improved performance during piroos for some helis. You may need to reduce the Hiller gain a bit to prevent oscillation.
- 6) Adjust the tail drag compensation, which is set on the Advanced tab. This will require test flying on a day without much wind, and a laptop would help. Start from a hover, and then hit max positive collective. If the heli's nose goes up, lower the tail drag comp number for elevator by 1 or 2 steps. If the nose goes down, increase the value. This is a rough setting, within 1 step is probably good enough.
- 7) If the heli banked the right or left during the tests in step 5, you may also have to adjust tail drag compensation for aileron. If the heli goes right, decrease the value.

In addition, hardware changes that might also help with piroos and tick-tocks are:

- Larger diameter blades
- Strong, digital servos