

Alex Quotes;

Menu item **RTH loiter radius** Menu page **AP 2/3**.

It does affect autopilot modes RTH and position hold. On the Waypoint sequencer mode there is a separate setting **for each waypoint, but at this moment you have to set it to zero**, else it is possible that it keeps circling around the first waypoint.

"alternately increase heading proportional gain until you see the turn gets tighter, or until it does not has any more effect. Then increase the limit and proportional gains alternating."

You have to start by increasing the stabilization proportional gains, get them up until the associated axis start to oscillate, then get them down again like 5 points past the no oscillation point

Stabilization roll(pitch) gain and Max roll(pitch) angle is all you need to tweak if you feel lazy

On the latest firmware there is an option to set the radius around target for all autopilot modes. If ***you set the radius to zero, it will do the figure eight patterns of older firmware.***

Start with defaults, then you can check whats the effect by increasing it 5 points at a time. Increase heading proportional gain until you see the turn gets tighter, or until it does not has any more effect. Then increase the limit and proportional gains alternating.

The algorithm is:

-Calculate the heading error = Actual heading - desired heading. Heading error is limited by **Heading limit**

-Heading error * proportional gain = desired angle. Desired angle is limited by **Max roll angle**

-Servo movement = (desired angle - actual angle) * Stabilization roll gain. Servo movement limited by internal servo limits, set when you run the wizard

<http://www.rcgroups.com/forums/showthread.php?t=1457930&page=48&pp=50#post22554627>

If you still want to increase the autopilot authority, Increase **Max roll angle**, make sure that if you move the ailerons max to the right the autopilot set this max angle on FBW mode. If not increase the **roll proportional gain** on slow increments until roll axis start to oscillate and then set it 5-10 units back.

If it does still turns slowly, increase **heading proportional gain** on slow increments until it does not improve anymore, if you reach this adjust and still need more bank angle then increase **heading proportional limit**.