Stabi / rescue setup

setup comments

Your servo arms should be as close to 90 degrees as possible when the diagnostic screen says 0 degrees for pitch, or when you click the "subtrim (tuning)" box in the servo screen of the software, which moves the servos to center/0 degrees automatically.

Your servo to swashplate linkages should be the length that the manual for your helicopter says they should be. As for the length of the servo arms, use the hole that the manual to your helicopter tells you to use.

Then using a swashplate leveler, trim the servos in the spirit software until the swashplate is perfectly level.

Then attach the rotorhead, connect the DFC linkages to the swashplate. If the blades are not 0 degrees, turn the plastic ball links on the DFC linkages out until the blades are 0 degrees.

If you have to turn the ball links out too much (not enough threads in the plastic links) then you should make your servo to swashplate linkages longer instead.

Once you have attained 0 degrees of pitch on the blades, matching 0 degrees in the spirit sotware, check the pitch amount at full positive and full negative pitch to see if they match. Often they do not.

If they do not, hit "servo travel correction" under the servo tab in the spirit software, and move all three sliders down or up in equal amounts, for whichever (positive or negative) to make full positive and negative collective equal.

Proceed to the 'limits' tab and set the amount of pitch you want to have, and then set the cyclic ring. Set this as high as you can without mechanical binding. Make sure you check cyclic ring with full positive collective, and full negative collective, to make sure nothing mechanical is binding in those positions, not only at 0 degrees.

Then, for setting of the 6 degrees geometry in the advanced tab, make sure your transmitter stick is at 0 degrees pitch first.

Repeat setup instructions:

After changing swashplate you should re-do:
1) Subtrims
2) change 3 bottom push rod length to level the swashplate
3) change 2 upper push rod length (if adjustable) to reach 0°.
If two upper push rods are not adjustable such as with some DFC heads, you have to adjust 3 bottom push rods - equally make them longer or shorter, depending on what resulting angle of the blade is.

But still, in any case, Subtrim (Tuning) must give you perfectly perpendicular servo arms, levelled swashplate and 0° between main blades. If not, then also other steps will be likely wrong.

4) Once previous steps are done you can set Geometry 6° again.

Here you can find step by step guide how to make these steps perfectly precisely and correctly:
http://manual.spirit-system.com/index.p ... d_Geometry
In my opinion:

1) The above link to “Mechanics and Geometry” is in wrong order of the paragraphs in it.
2) It keeps talking about 3 pushrods – BUT, there are only TWO pushrods, the 3rd control is the Elevator and is of fixed length.
3) Anti-rotation bracket, my Terx 600 does NOT have that, it is an old version of that helicopter. It has instead the fixed arm going up / down.
4) In item 6, it says to adjust the rods to get swashplate level, until now, didn't touch the rods, just used the sub trim in the software.

And finally – the detailed step by step instructions which terminated my saga…
Wizard – Step-7

Before we start with step 7 it is important to make sure your servo arms are mechanically centred as close as possible. Don’t forget your rudder servo here as it is just as important.

To do this make sure you check the sub trim checkbox as this puts the servos to their center position. Now you can see if you need to physically take the arms off the servo and move then into a mechanically sound position. Here you can see mine is in line with the servo because of the way the servo’s are mounted but for the purpose of this video I will refer to this position as perpendicular as that is how the pushrods connect to the servo arm.

Once we are happy with the servo arms we will level our swashplate: To do this we take a levelling tool, whether it is something you bought, something you made like my 3D printed tool or if you use the cable tie method the point here is to make sure the three servo points are as level as you can get it.

First you will adjust the swash links to get as close as you can mechanically and only then do you fine tune using the sliders in the app. For the sake of brevity I am going to get it just close here but you want to take your time and get it right as this will affect vibration and ultimately how well your helicopter fly.

Now we can do the rudder and for that we can take the tail blades and fold them so they are facing the same way and then adjust the push rod so the blades are lined up.

Use the trim slider for fine tuning if needed.

Once the arms are centered and swash levelled we need to adjust the pitch of the blades to 0 degrees - make sure the sub trim checkbox is still checked.

Reference a flat spot on your heli, this can be your motor or if you built your frame right you can use some place where the angle is obviously horizontal. Now fit the gauge to the blade or some 3D printed paddles - I don’t have the space to swing the blades with the camera rig. Adjust the pitch links to get the blade pitch as close to zero as you can get and only then fine tune with the sliders by selecting the pitch adjust box.

Once the pitch is zero we are ready to move to the next step.