TREX 300 Spirit2

FW 3.0 (no changes to heli nor settings after upgrade from 2.8)

Unit spirit2 mounted //
with rotor blades

Geolink mounted horizontally on
boom parallel with rotor blades
and parallel with boom

State after initialisation in bank 1
Rotor is not spinning
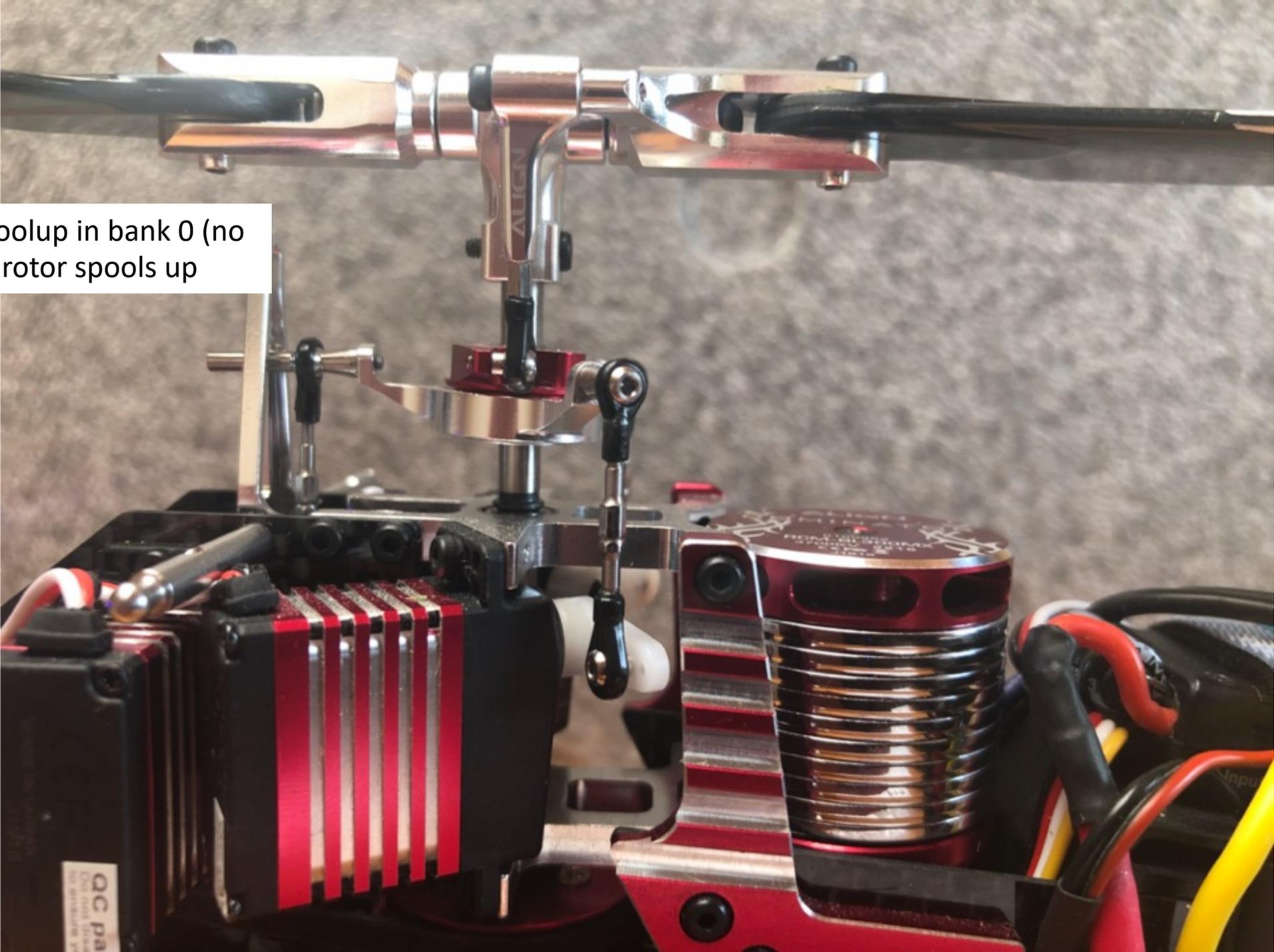
State after spoolup in bank 0 (no stabilisation) rotor spools up

State at take-off in bank 1 (coax)
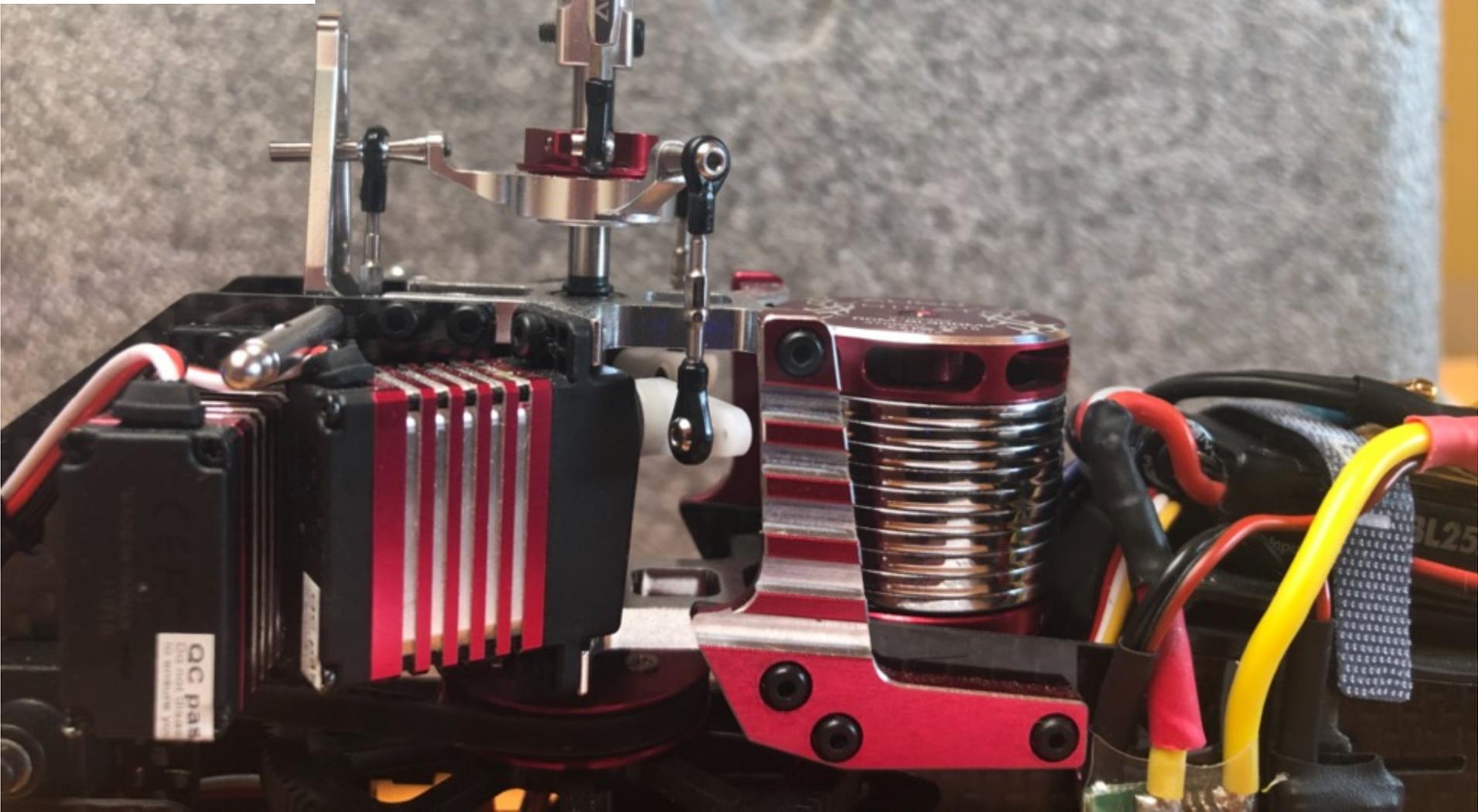
State when flying AND rescue (bank 2): swash moved op but stayed parallel to rotor blades
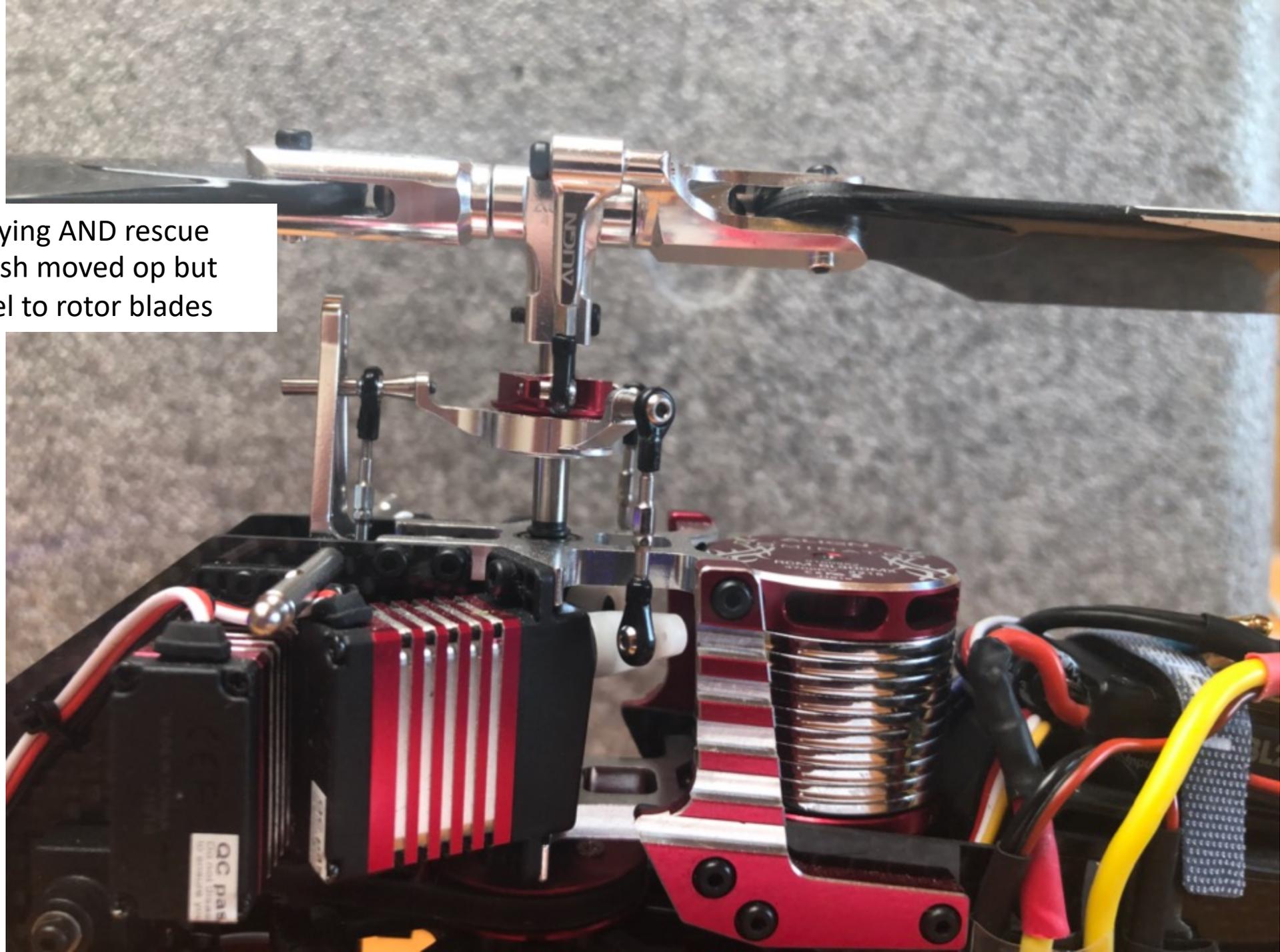
State with main axis vertical, bank 1
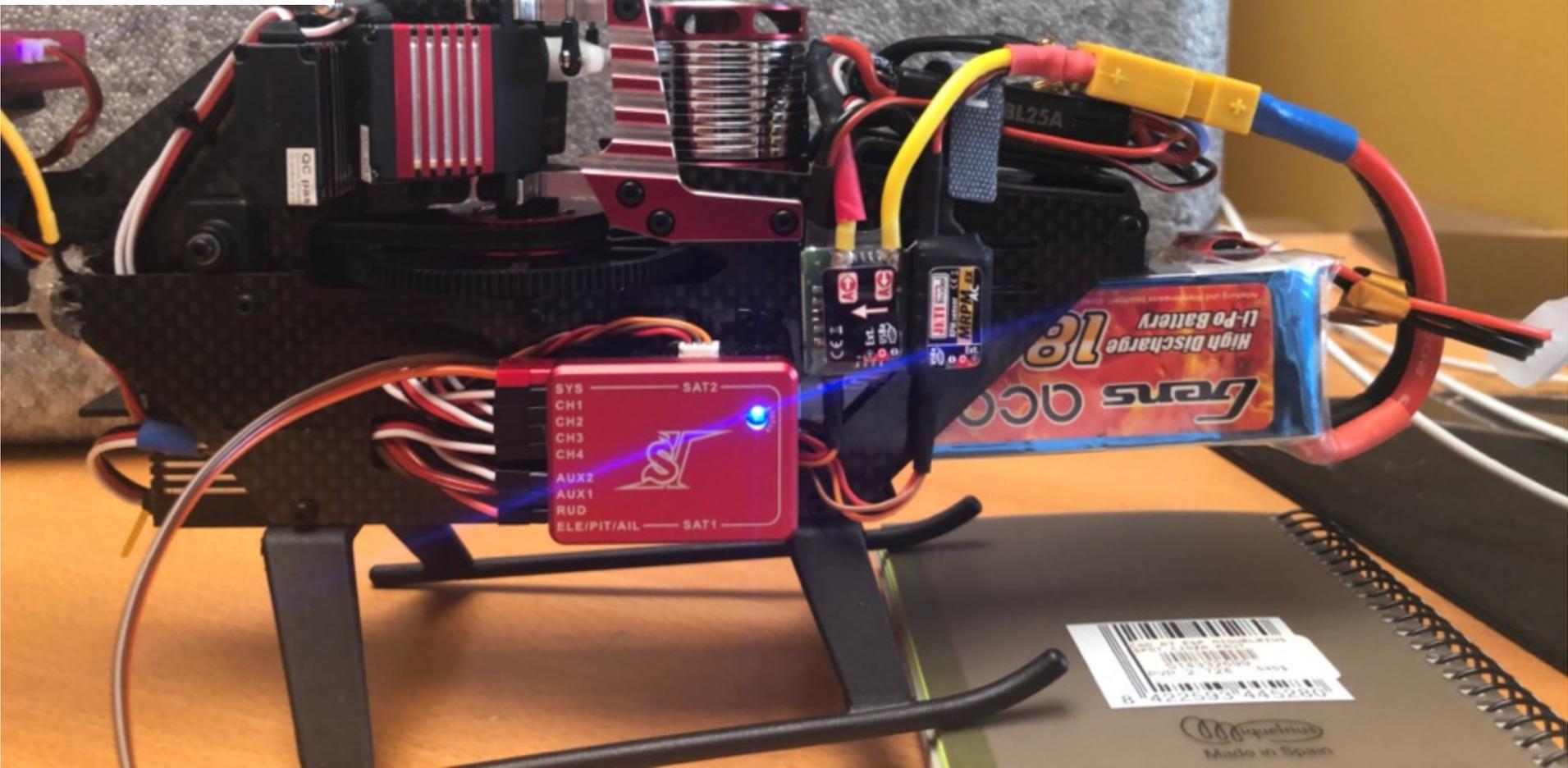
How I proceed

- All these pictures are with motor disconnected, heli standing still, but I go through all the states as if I were taking off and flying.

- I use three banks with different settings (see next slide)

- My procedure is
  - connect battery in bank 1 (stabilisation = coax) but throttle is off, this also my mode for autolanding
  - spool-up in bank 0 (stabilisation = OFF) throttle = 60%, wait for stable RPM
  - switch to bank 1 (stabilisation = coax) and fly
  - land in bank 1 (coax) and cut throttl

Bank settings
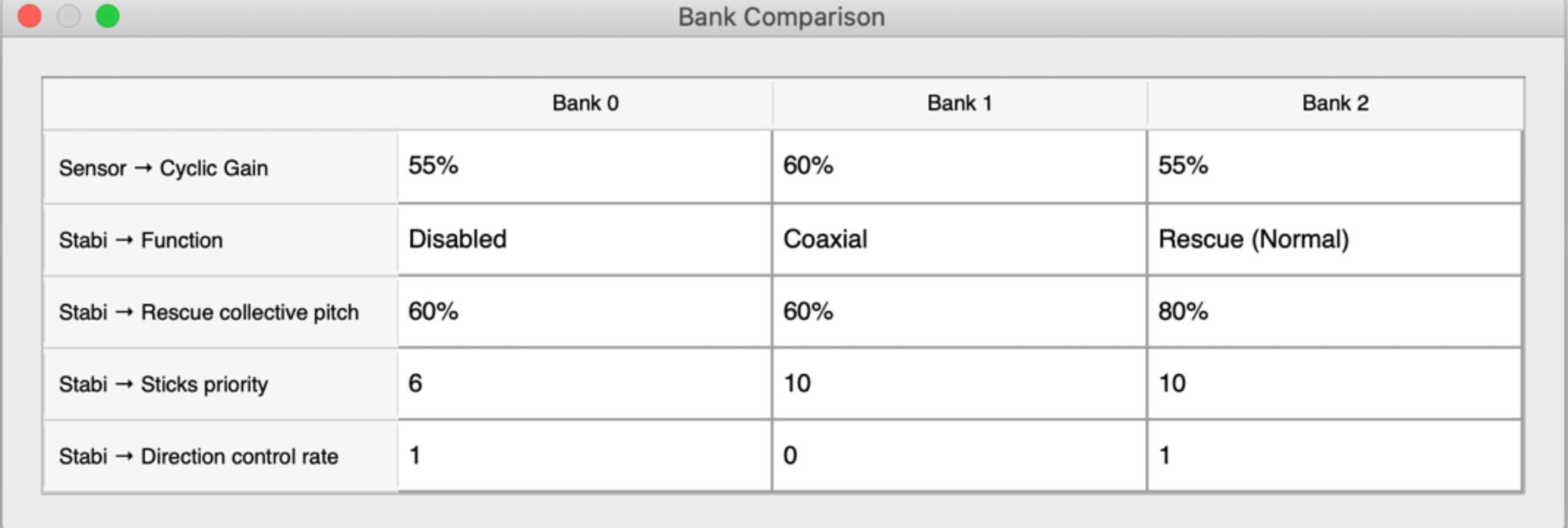
Bank Comparison

	Bank 0	Bank 1	Bank 2
Sensor → Cyclic Gain	55%	60%	55%
Stabi → Function	Disabled	Coaxial	Rescue (Normal)
Stabi → Rescue collective pitch	60%	60%	80%
Stabi → Sticks priority	6	10	10
Stabi → Direction control rate	1	0	1

Swash positions

- After initialisation (bank 1) swash is very little nose down
- At spool-up (bank 0) swash is perfectly // with rotor blades
- At take-off (bank 1) swash is still perfectly // with rotor blades
- When in rescue (bank 2) swash moves up all the way but remains // with rotor blades
- When in flying mode (bank 1) and holding the heli with the main axis vertically, swash inclines nose down

conclusion

- The correct mounting requires the unit to be parallell to rotor blades
- Because of skids, the heli is inclined by approx. 5° nose down when spooling up and at take off. Swash is then // to rotor blades
- When hovering with main axis vertical, swach is inclined nose down (due to stabilisation / coax). This requires constant correction from the pilot
- With fw 2.8 some almost no correction was needed to hover in place. With fw 3.0 strong correction is needed (roll to the right, nick to aft)
- With fw 3.0 at landing the heli tipped to the right and rotor touched ground

Spirit Settings v3.0.0

Connection | **General** | Diagnostic | Servos | Limits | Sensor | Stabi | Adva

Position

Vertical (0° + right side)

Swashplate

CCPM 120°

CH 1   CH 3
CH 2

Receiver

Jeti EX Bus   Channels

Governor / Throttle   ☑ Geo-Link module

Settings   Settings

Flight style : 4

☑ Auto save   Active bank: Bank 0

Geo-Link

Info | Module | Map | Aid | Update

G
GEOLINK

Status

Link: Connected
         Fixed

Version: 1.1.0

Satellites: 12

Precision: 0.7 m

Altitude: 1.4 m

Heading: 95°

Geo-Link

Info | **Module** | Map | Aid | Update

Serial number

5d-c5-7d-00-04

Mounting inclination

X - Parallel   Y - Perpendicular

-5.1°   0.8°

Set as zero (temporarily)

Compass calibration

Compass Heading Correction

Calibration request   0°

Mounting position

Horizontal (0°)

Geo-Link

Info | Module | Map | **Aid** | Update

☑ Return To Home   ☐ Geo-fence

Triggering by: **Geo-Link channel**   *Inactive*   Triggering by: **Stabi function**   *Inactive*

☐ Altitude Limit

Triggering by: **Stabi function**   *Inactive*
Minimum   Maximum

5 m   100 m

Triggering Acceleration   Rescue collective pitch : 60%

5

☐ Auto Landing

Triggering by: **Stabi function**   *Inactive*
Landing speed

25 %

☑ Position Hold   ☐ Altitude Hold

Triggering by: **Geo-Link channel**   *Inactive*   Triggering by: **Stabi function**   *Inactive*

Correction Gains

Horizontal Gain   Vertical Gain

100 %   80 %

Window 1 (Bank 0):

Spirit Settings v3.0.0

Connection | General | Diagnostic | Servos | Limits | Sensor | Stabi | Adva

Input channels

Throttle | Rudder | Pitch | Elevator | Aileron | Gyro | Bank

61% | 0% | 2% | 0% | 0% | -40% (Normal) | Bank 0

Head-Lock
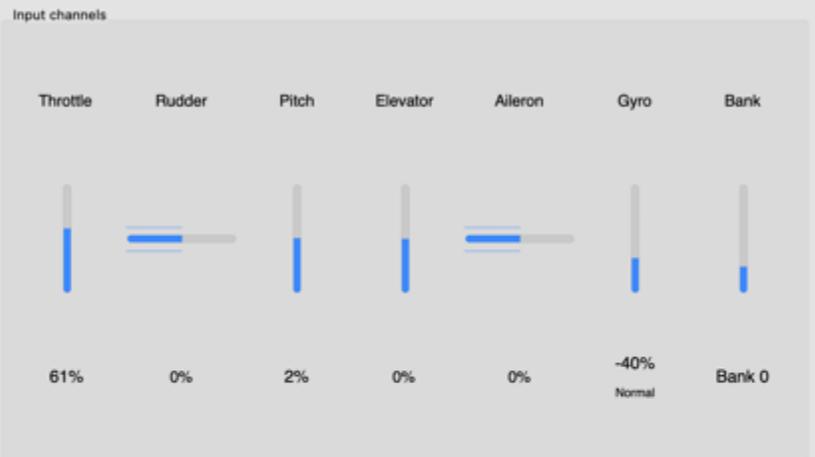
Features

Rescue:	Not configured (Bank 0)	GeoLink:	Enabled
Stabilisation:	Not configured (Bank 0)	Governor:	Not configured (Bank 0)
Bank Switching:	Enabled	ESC Telemetry:	Not configured

Spectrum Analyzer — Analyze

BEC Tester — Test

Log Viewer — Open log

☑ Auto save   Active bank: Bank 0

Window 2 (Bank 1):

Spirit Settings v3.0.0

Connection | General | Diagnostic | Servos | Limits | Sensor | Stabi

Input channels

Throttle | Rudder | Pitch | Elevator | Aileron | Gyro | Ba

66% | 0% | 2% | 0% | 0% | 70% (Head-Lock) | Bank 1
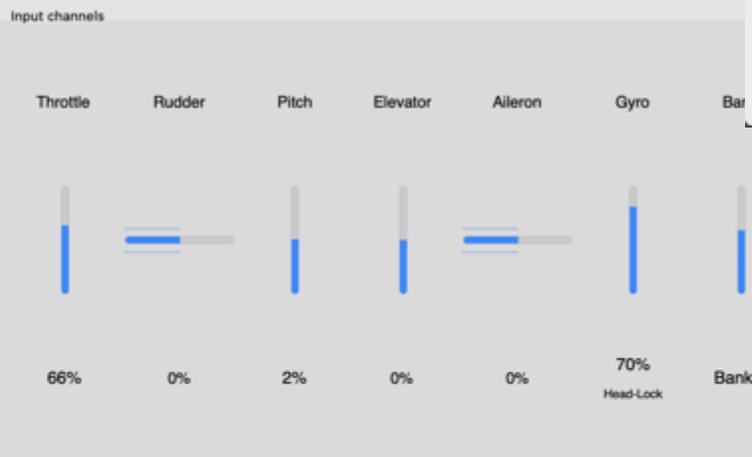
Features

Rescue:	Not configured (Bank 1)	GeoLink:	Enabled
Stabilisation:	Engaged	Governor:	Not configured (Bank 1)
Bank Switching:	Enabled	ESC Telemetry:	Not configured

Spectrum Analyzer — Analyze

BEC Tester — Test

Log Viewer — Open log

☑ Auto save   Active bank: Bank 1

Window 3 (Bank 2):

Spirit Settings v3.0.0

Connection | General | Diagnostic | Servos | Limits | Sensor | Stabi | Adva

Input channels

Throttle | Rudder | Pitch | Elevator | Aileron | Gyro | Bank

66% | 0% | 2% | 0% | 0% | 70% (Head-Lock) | Bank 2
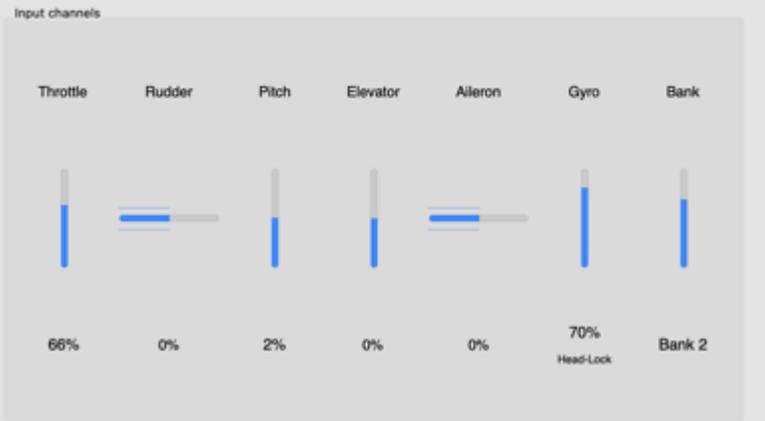
Features

Rescue:	Engaged	GeoLink:	Enabled
Stabilisation:	Not configured (Bank 2)	Governor:	Not configured (Bank 2)
Bank Switching:	Enabled	ESC Telemetry:	Not configured

Spectrum Analyzer — Analyze

BEC Tester — Test

Log Viewer — Open log

☑ Auto save   Active bank: Bank 2