



PiQuad™ System Setup Guide

Rev. -
2021 July

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VERSION HISTORY

Version #	Authored By	Revision Date	Approved By	Approval Date	Reason
-	D. Haessig	7/4/21			Initial release

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Introduction

This document describes the calibration steps to be completed after PiQuad assembly and before initial flight. In addition, it describes the procedure for configuring the Turnigy radio for operation of the PiQuad in accordance with the Pilot's Manual.

Radio Controller, IMU & Magnetometer Calibration

Calibration is completely described in the video provided here: (to be added)

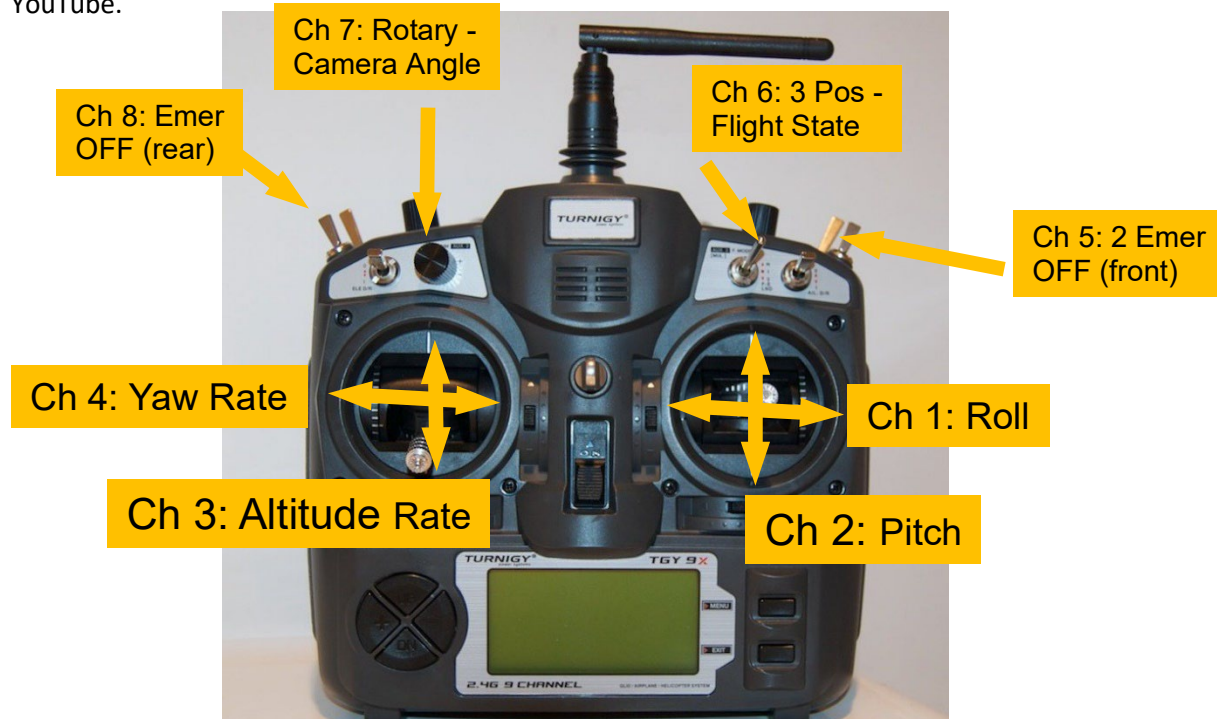
Turnigy Radio Setup

Table of Contents for this Section:

- Setting the ID0, ID1, ID2 switch to channel 6 and selecting PWM values for the three states
- Setting the GEAR switch to channel 5 and selecting PWM values for the two states
- Setting the POT P3 knob to channel 7 for camera gimbal control
- Setting the ELE switch to channel 8 and selecting PWM values for the two states

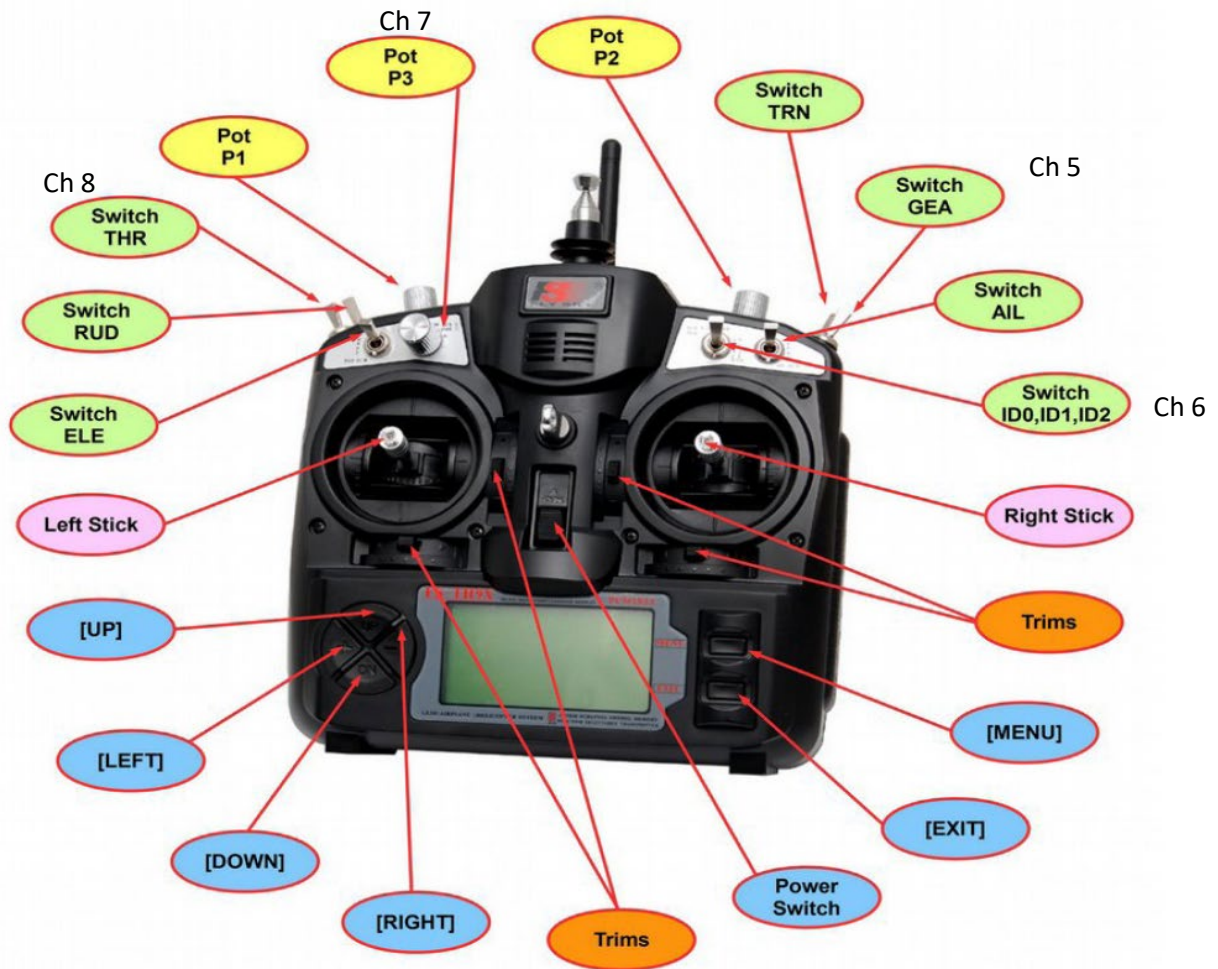
1: Introduction

In the Turnigy units provided, the Roll and Pitch controls are on the right, and the Vertical and Yaw controls are on the left as below. This is known as Mode 2. If your transmitter has this stick arrangement reversed (Mode 1), we suggest you switch to Mode 2 using the instructions found on YouTube.



- The potentiometer "POT P3" will provide a means to control the camera gimbal
- Switch "THR" and Switch "Gear" will be used to provide an Emergency OFF controller input (pull both forward to shut off throttle to the props)
- Switch "ID0, ID1, ID2" is a 3-position switch controlling selection of "Idle Mode", "Flight Mode", and "Auto-Land Mode"

For reference, the name and locations of ALL switches are shown here, including those that we are currently not using:





[MENU] -> [MENU]

[EXIT] -> [EXIT]

[UP] -> [UP]

[DN] -> [DOWN]

[RIGHT] -> [RIGHT]

[LEFT] -> [LEFT]

2: Setting Transmitter to Mode 2

Hold the MENU button for 1 second. The MENU screen will appear with 2 choices, 'SYSTEM' on the left being highlighted. Select 'SYSTEM' by hitting MENU again.



The SYSTEM SETTINGS screen will appear. Click [DN] to move to 'STICK SET'. Hit MENU to select 'STICK SET'. Click [DN] to select 'MODE2'.



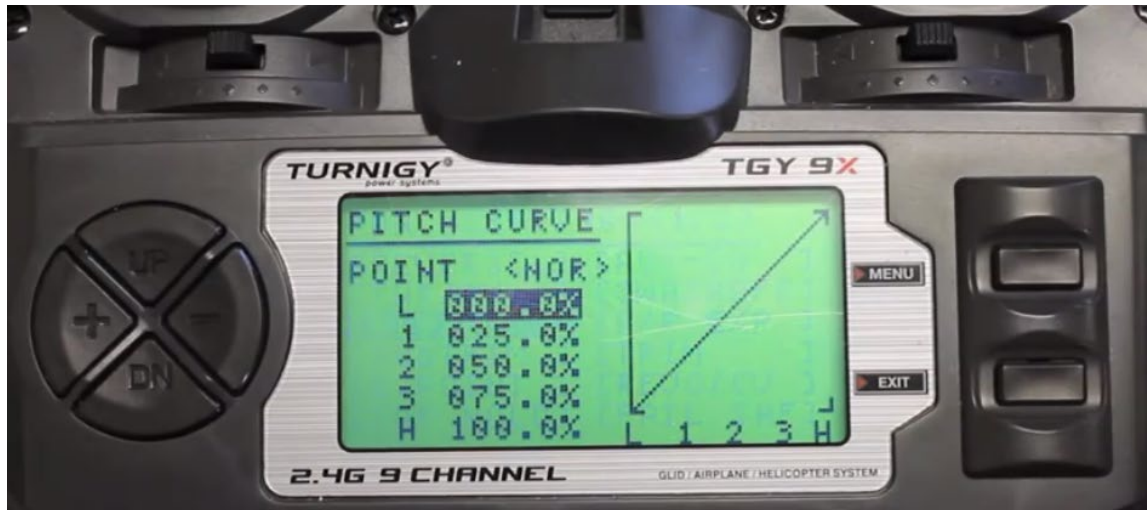
Hit **MENU** to select it. When the 'THRO REVERSE' questions comes up, hit **EXIT**.

2: Setting the Fight Mode 3 position Switch (ID0, ID1, ID2)

We are going to set the 3 way switch to CH6 and set the 3 output levels for the 3 switches.

[MENU] hold for 1 sec -> [UP] -> [MENU] -> [DN] (2 times till you highlight PIT/CV) -> [MENU]

and you will be in the pitch curve mode.



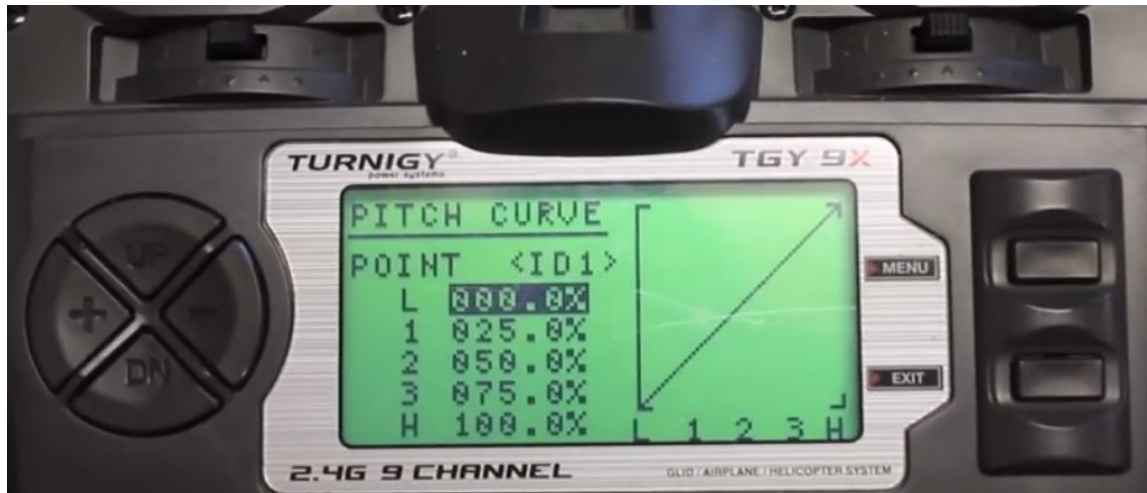
Flipping the 3-state switch (ID0, ID1, ID2) will change the indication to the right of indication "POINT" on screen

Flip to ID switch to **ID0** (topmost state). The display next to **POINT** is now set to 'NOR' for Normal Mode (our Flight Mode). There are 4 level displayed on the Turnigy – L, 1, 2, 3, and H.

- Use [UP]/[DN] buttons to highlight Point L -> click [RIGHT]/[LEFT] until you display 000.0% for L
- Click [DN] to highlight Point 1 -> click [RIGHT]/[LEFT] until you display 000.0% for 1
- Click [DN] to highlight Point 2 -> click [RIGHT]/[LEFT] until you display 000.0% for 2
- Click [DN] to highlight Point 3 -> click [RIGHT]/[LEFT] until you display 000.0% for 3
- Click [DN] to highlight Point H -> click [RIGHT]/[LEFT] until you display 000.0% for H

You have now set the state for ID0 to 0%, or 0msec PWM.

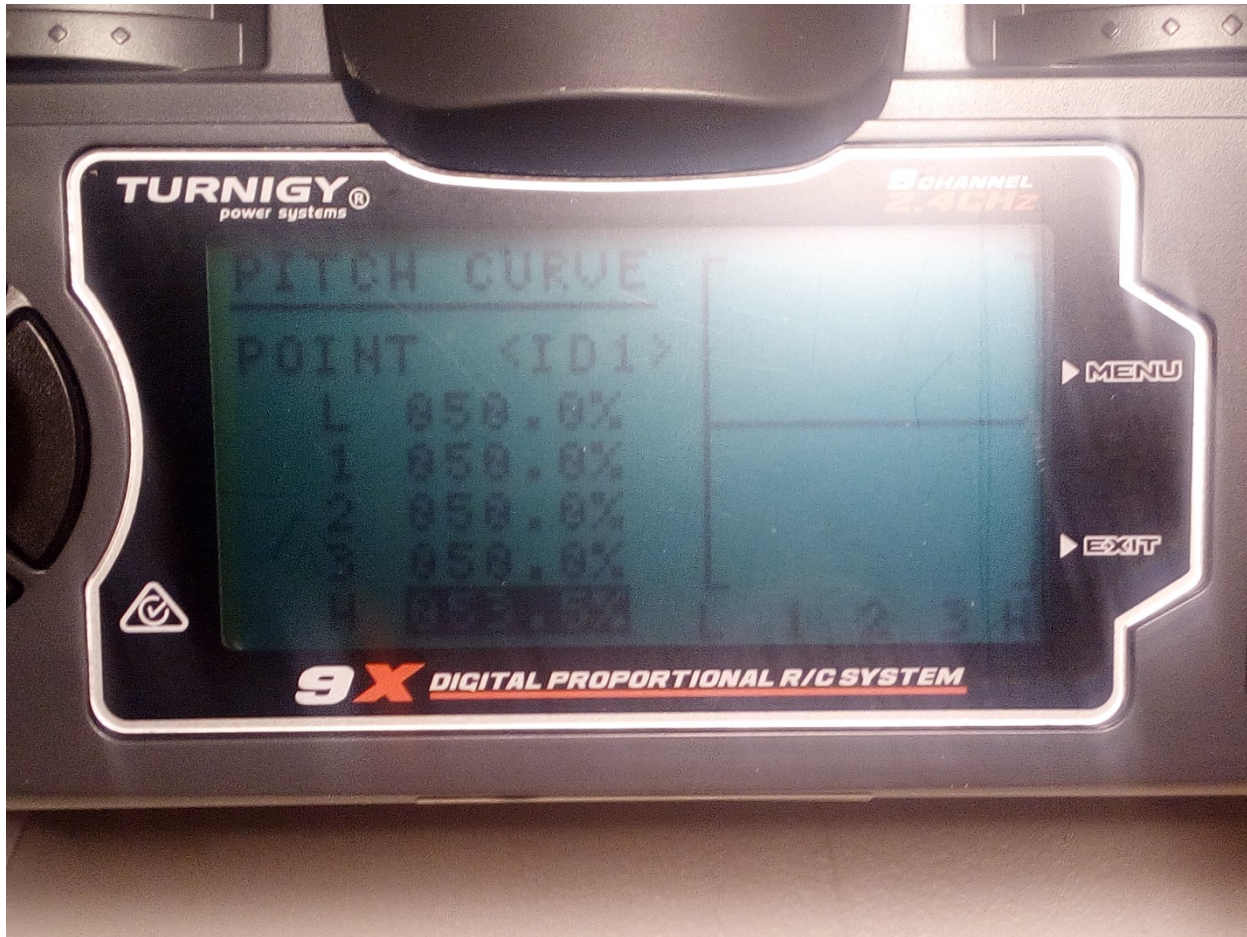
Click **MENU** -> This is a very important step that will save this curve. If not done correctly you will have to repeat. Flip to ID switch to **ID1** (middle state). Click **MENU** again -> you will see the display with ID1 shown on top.



Go thru the same process as stated above, except this time setting the output to a fixed 50%.

- Use [UP]/[DN] buttons to highlight Point L -> click [RIGHT]/[LEFT] until you display 50.0% for L
- Click [DN] to highlight Point 1 -> click [RIGHT]/[LEFT] until you display 50.0% for 1
- Click [DN] to highlight Point 2 -> click [RIGHT]/[LEFT] until you display 50.0% for 2
- Click [DN] to highlight Point 3 -> click [RIGHT]/[LEFT] until you display 50.0% for 3
- Click [DN] to highlight Point H -> click [RIGHT]/[LEFT] until you display 50.0% for H

You have now set the ID1 output to 50% or 1500 msec PWM. The Turnigy screen will look like this:



Click **MENU** -> This is a very important step that will save this curve. If not done correctly you will have to repeat. Flip to ID switch to **ID2** (bottom state). Click **MENU** again -> you will see the display with ID2 shown on top.

- Use [UP]/[DN] buttons to highlight Point L -> click [RIGHT]/[LEFT] until you display 100.0% for L
- Click [DN] to highlight Point 1 -> click [RIGHT]/[LEFT] until you display 100.0% for 1
- Click [DN] to highlight Point 2 -> click [RIGHT]/[LEFT] until you display 100.0% for 2
- Click [DN] to highlight Point 3 -> click [RIGHT]/[LEFT] until you display 100.0% for 3
- Click [DN] to highlight Point H -> click [RIGHT]/[LEFT] until you display 100.0% for H

Click **MENU** -> This is a very important step that will save this curve. If not done correctly you will have to repeat.

You have now set the state for ID1 to 100% or 2000 msec PWM output.

- Pitch curve 0% for all states L,1,2,3,H approx 0 ID2 sw position 0
- Pitch curve 50% for all states L,1,2,3,H approx 1500 ID2 sw position 1
- Pitch curve 100% for all states L,1,2,3,H approx 2000 ID2 sw position 2

To see if the assignments are set correctly, cycle the ID Switch through the three settings to see a visual indication of the bar changing on channel 6.

3: Setting the GEAR switch to Channel 5

Go to the [AUX-CH] setup screen and select CH5. Here are the steps:

- **MENU** hold for 1 sec -> **UP**(func setting)-> **MENU** -> [DN] (6 times till you highlight AUX-CH) -> **MENU** -> click the '+' button until you display **GEAR** -> Then hit **MENU** to save.

This picture shows the pane where you will assign the channel to **GEAR**.

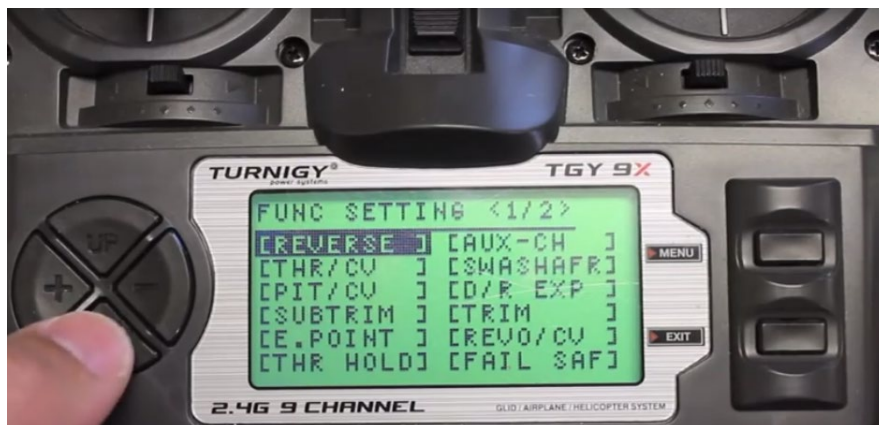


[EXIT] -> [EXIT] to return to home screen

4: Setting up the Pit-Trim (POT P3) Potentiometer to Channel 7 for Camera Gimbal control

Starting from the home screen.

[MENU] hold for 1 sec -> [UP] (select setting) -> [MENU] :



-> Hit [DN] (6 times till you select "AUX-CH")-> [MENU]



When you reach the AUX-CH screen

[DN] (3 times till you select "CH7"-> [RIGHT]/[LEFT] until you display PIT TRIM



[MENU] -> to return to the settings menus -> [EXIT] -> [EXIT] to get to the original screen

To exit:

[EXIT] -> [EXIT] to return to home screen

To see if the assignments are proper please go to the Appendix and follow the display procedure to show the controls and verify assignment. Rotating the pot will provide a visual indication of the bar changing on channel 7.

5: Setting Channel 8 to the THR CUT Switch

[MENU] hold for 1 sec -> [UP] (select setting) -> [MENU] :

Hit [DN] (6 times till you select "AUX-CH"-> [MENU]

Hit [DN] (4 times till you select "CH8"-> [RIGHT]/[LEFT] until you display 'THRO HOLD'

[MENU] -> to return to the settings menus

[EXIT] -> [EXIT] to return to home screen

6: Setting Reverse on AIL

[MENU] hold for 1 sec -> [UP] (select setting) -> [MENU] :

Hit [DN] (1 times till you select "REVERSE"-> [MENU]

Hit [DN] (6 times till you select "AUX"-> [RIGHT]/[LEFT] to change AUX to the REV state

[MENU] -> to return to the settings menus

[EXIT] -> [EXIT] to return to home screen

