CGY750 Software Update Functions (VERSION 1.20)

This software update adds or changes the following functions. In addition to the manual originally supplied with your system, please now refer to the following new instructions:

1. Aileron gyro Expert menu

1) Aileron delay mode (placed next to EXP)

`Dly.Mode Function` ⇔ `Dly.Mode Constant`

Default: Function

This selects the aileron control delay mode. The Function mode works as a constant time delay and Constant mode works as speed constant delay. It is the same function as rudder delay mode. Previous version, only Function mode was implemented. Both control delay in and out can be used in the same manner.

2) Head response (placed next to Sensor mode)

`HeadResp -2-`

Default: 2
Ranges: 1~5

This selects the matching of the head response and gyro operation. The value 1 is the selection of fastest response. In case of a slower head response or slower swash servos, the performance can be improved by increasing the response value, more gyro gain can be obtained and the servo power consumption can be reduced. The servos will be cool down. However, applying to much value can cause a mismatch to the heli movement. When the ideal response value is selected there will be no degraded in flight performance. It is a combination of gyro operation and power consumption trade off. Try different value and see the difference. Previous version, only value 1 was implemented.

3) Pitch→Aileron F/F mixing (placed next to Head response)

`PIT→AIL L: off`

Default: off
Ranges: -100~+100 %

This sets the mixing amount of the pitch to aileron mixing. The roll axis may be affected by pitch up/down movement with flybarless head construction. This mixing works direct to the roll axis bypassing to the gyro operation (Feed Forward mixing). The mixing amount can be adjusted pitch up and down individually. Adjusting ranges are -100 % to +100 %. Try around 10 % of the mixing rate at first. It is needed to set the pitch up/down direction on the swash expert menu so that the correct mixing direction is recognized.

4) Pitch acceleration mixing down side (placed next to Pitch→Aileron F/F mixing)

`Pit.Acce DWN off`

Default: off
Ranges: -100~+100 %

This sets the mixing amount of pitch to aileron acceleration down mixing. This mixing is activated when the pitch stick is moved to the down side or negative pitch. This mixing is utilized as Pitch→Aileron mixing for offset cancel by pitch movement. It is needed to set the pitch up/down direction on the swash expert menu so that the correct mixing direction is recognized.

5) Pitch acceleration mixing up side (placed next to pitch acceleration mixing down side)

`Pit.Acce UP off`

Default: off
Ranges: -100~+100 %

This sets the mixing amount of the pitch to aileron acceleration up mixing. This mixing is activated when the pitch stick is moved to the up side or positive pitch. This mixing is utilized as Pitch→Aileron mixing for offset cancel by pitch movement. It is needed to set the pitch up/down direction on the swash expert menu so that the correct mixing direction is recognized.

6) Pitch acceleration mixing damping (placed next to pitch acceleration mixing up)

`PIT.Damp 10 n`

Default: 10 n
Ranges: 0~19 n

This sets the pitch acceleration mixing delay time. Increasing this value results in a longer delay time.

7) Elevator→Aileron F/F mixing (placed next to pitch acceleration damping)

`ELE→AIL A: off`

Default: off
Ranges: -100~+100 %

This sets the mixing amount of the elevator to aileron mixing. The roll axis may be affected by elevator input with flybarless head construction. This mixing works directly to the roll axis bypassing to the gyro operation (Feed Forward mixing). The mixing amount can be adjusted elevator up and down individually. Adjusting ranges are -100 % to +100 %. Try around 10 % of the mixing rate at first. It is needed to set the pitch up/down direction in the swash expert menu so that the correct mixing direction is recognized.

2. Elevator gyro Expert menu

1) Elevator delay mode (placed next to EXP)

`Dly.Mode Function` ⇔ `Dly.Mode Constant`

Default: Function

This selects the elevator control delay mode. The Function mode works as a constant time delay and Constant mode works as speed constant delay. It is the same function as rudder delay mode. Previous version, only Function mode was implemented. Both control delay in and out can be used in the same manner.

2) Head response (placed next to Sensor mode)

`HeadResp -2-`

Default: 2
Ranges: 1~5

This selects the matching of the head response and gyro operation. The value 1 is the selection of fastest response. In case of a slower head response or slower swash servos, the performance can be improved by increasing the response value, more gyro gain can be obtained and the servo power consumption can be reduced. The servos will be cool down. However, applying to much value can cause a mismatch to the heli movement. When the ideal response value is selected there will be no degraded in flight performance. It is a combination of gyro operation and power consumption trade off. Try different value and see the difference. Previous version, only value 1 was implemented.

3) Pitch→Elevator F/F mixing (placed next to Head response)

`PIT→ELE L: off`

Default: off
Ranges: -100~+100 %

This sets the mixing amount of the pitch to elevator mixing. The elevator axis may be affected by pitch up/down movement with flybarless head construction. This mixing works direct to the elevator axis bypassing to the gyro operation (Feed Forward mixing). The mixing amount can be adjusted pitch up and down individually. Adjusting ranges are -100 % to +100 %. Try around 10 % of the mixing rate at first. It is needed to set the pitch up/ down direction on the swash expert menu so that the correct mixing direction is recognized.

4) Pitch acceleration mixing down side (placed next to Pitch→Elevator F/F mixing)

`Pit.Acce DWN off`

Default: off
Ranges: -100~+100 %

This sets the mixing amount of the pitch to elevator acceleration down mixing. This mixing is activated when the pitch stick is moved to down side or negative pitch. This mixing is utilized as Pitch→Elevator mixing for offset cancel by pitch movement. It is needed to set the pitch up/ down direction on the swash expert menu so that the correct mixing direction is recognized.

5) Pitch acceleration mixing up side (placed next to pitch acceleration mixing down side)

`Pit.Acce UP off`

Default: off
Ranges: -100~+100 %

This sets the mixing amount of the pitch to elevator acceleration up mixing. This mixing is activated when the pitch stick is moved to up side or positive pitch. This mixing is utilized as Pitch→Elevator mixing for offset cancel by pitch movement. It is needed to set the pitch up/ down direction on the swash expert menu so that the correct mixing direction is recognized.

6) Pitch acceleration mixing damping (placed next to pitch acceleration mixing up)

`PIT.Damp 10 n`

Default: 10 n
Ranges: 0~19 n

This sets the pitch acceleration mixing delay time. Increasing this value results in a longer delay time.

7) Aileron→Elevator F/F mixing (placed next to pitch acceleration damping)

`AIL→ELE A: off`

Default: off
Ranges: -100~+100 %

This sets the mixing amount of the aileron to elevator mixing. The elevator axis may be affected by aileron input with flybarless head construction. This mixing works direct to the elevator axis bypassing to the gyro operation (Feed Forward mixing). The mixing amount can be adjusted aileron right and left individually. Adjusting ranges are -100 % to +100 %. Try around 10 % of the mixing rate at first. It is needed to set the pitch up/ down direction on the swash expert menu so that the correct mixing direction is recognized.

3. Swash basic setting

1) Servo type (adding the selection)

`ServoTyp AN: 70Hz` ⇔ `ServoTyp DG: 95Hz` ⇔

`ServoTyp DG:140Hz` ⇔ `ServoTyp DG:285Hz`

Default: AN: 70Hz

This selects the swash servo type. There are four kinds of servo driving frequency in this selection, AN:70Hz, DG:95Hz, DG:140Hz, DG285Hz. Previous version supported Analog= AN: 70Hz and DG:1520= DG:285Hz only. All Futaba digital servos can work with fastest DG:285Hz mode but some of other brands servos do not support DG:285Hz mode. In this case, select the proper servo driving frequency to meet those servos.

2) Swash servo direction setting (placed next to light mode)

`ServoDir Comb# 1`

This is a swash servo direction setting tool for setting ease. On the H3-xx swash mode, three of the swash servos direction can be changed by pushing the DATA+ or DATA- key. Choose the combination of the correct pitch movement. There are 8 combinations in H3-xx swash mode, select one of them. The display shows the combination number right below the line. In H4-xx swash mode, 16 combinations exist. After selecting the correct combination number, aileron, elevator, pitch, 2nd elevator servo reverse parameter are automatically changed.

It may happen the aileron and elevator direction are reversed even pitch movement is correct. In this case, change the transmitter servo reverse setting of the aileron and elevator to change the direction of the aileron and elevator rate on the swash basic setting menu.

4. Governor Expert setting

1) Low revolution setting (placed next to battery fail safe voltage setting)

`Low.Revo 1000rpm` ⇔ `Low.Revo 700rpm`

Default: 1000 rpm

This sets the minimum revolution setting ranges. New version adds a 700 rpm mode, previous version supported 1000 rpm only. The 700 rpm is used for bigger gasoline heli as lower head speed application.

In addition, upper revolution setting ranges is expanded to 4000 rpm (previous was 3000 rpm). It is for smaller heli running high head speed.

Caution: The rotor head is a heavy force load caused by high speed rotation of the rotor blades. Always take care of the head speed and make sure it is within the specification of the rotor head and blades.

5. Governor Basic setting

1) Gear ratio setting

The gear ratio setting is expanded from 1.00 to 50.00 (previous version was 1.00-30.00).

Caution: After updating the firmware, turn off the CGY750 and turn on again and keep turned on for more than 5 seconds so that the revised parameters are written completely to the memories.

Previous setting data are remained in the CGY750 after updated, but make sure the gyro movement and other parameters are correct.