

# PROFILE SELECTION & PROPER GEARING

**ATTENTION: Correct gearing is essential to getting proper performance from your brushless motor system!**

#55-1710P-2

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## THROTTLE PROFILE SELECTION

The GTB is equipped with 6 user-selectable Throttle Profiles, as shown below.

### GTB THROTTLE PROFILES

	BRUSHLESS PROFILES					BRUSH-MODE
	1	2	3	4	5	6
w/Reverse	no	yes	no	no	yes	no
Reverse%	0	100	0	0	25	n/a
Programmable	yes	yes	yes	yes	no	yes
Min.Brake%	9%	9%	9%	21%	9%	9%
Drag Brake	9%	9%	9%	21%	n/a	off
Dead Band%	5	5	5	5	5	5
Min.Drive%	1	1	3	3	1	3

**NOTE:** GTB is factory set to Profile #1

The GTB will always revert back to Profile #1 when the One-Touch set-up is performed.

### SELECTING BRUSHLESS PROFILES:

all LEDs 

With ESC on & connected to a charged battery (transmitter ON or OFF):

- 1. IF TRANSMITTER IS OFF, DISCONNECT ESC FROM RECEIVER**  
To avoid possible radio interference from other transmitters, remove the ESC's input signal harness from the receiver.
- 2. PRESS & HOLD THE ESC'S ONE-TOUCH SET BUTTON**  
Continue to hold SET button on ESC until all 4 LEDs turn on.  
*Note: you will continue holding past the Blue, Blue & Amber, Blue & Green, Amber, and then the Amber & Red LED programming indicators in the ESC's software.*
- 3. RELEASE SET BUTTON AS SOON AS ALL 4 LEDs COMES ON**  
Once released, the 4 status LEDs will flash to indicate what Throttle Profile is currently selected. The number of times the LEDs flash indicates the Brushless Throttle Profile selection (1 of 5).
- 4. QUICK PRESS (& release) SET BUTTON TO CHANGE SELECTION**  
Each press will change to the next consecutive Throttle Profile. (After Profile 5 in Brushless-Mode, the sequence begins again at Profile 1)  
*Note: there is a time constraint during this selection process.*
- 5. ESC STORES SELECTION & BEGINS TO EXIT PROGRAMMING**  
If SET button is not pressed for 3 seconds, ESC stores selected Profile in memory, exits to neutral & is ready to go. (LEDs turn off in a rolling motion left to right, then Red LED turns on solid--Green LED will be on if no transmitter signal present & Blue LED will be on when Drag Brakes are active).

*Note: ESC reverts to factory default settings & Throttle Profile #1 whenever One-Touch set-up is performed.*

## PROPER GEAR SELECTION

**Motor operating temperature is the ONLY way to properly set the vehicle gearing**

The motor should be 160-175°F MAX at end of run!  
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Change the gearing to avoid overheating.

### General Gearing Starting Points for 6-Cell Use:

MOTOR	PINION
<b>Velociti 3.5R</b>	4 teeth lower pinion than normally used on 6-7 turn brush motor
<b>Velociti 4.5R</b>	3 teeth lower pinion than normally used on 8 turn brush motor
<b>Velociti 5.5R</b>	2 teeth lower pinion than normally used on 9-10 turn brush motor
<b>Velociti 6.5R</b>	1 tooth lower pinion than normally used on 10-11 turn brush motor
<b>Velociti 7.5R</b>	same pinion as normally used on 12-13 turn brush motor
<b>SS 8.5 (SS5800)</b>	1 tooth higher pinion than normally used on 13-17 turn brush motor
<b>SS 10.5 (SS4300)</b>	1 tooth higher pinion than normally used on 19 turn brush motor
<b>SS 13.5</b>	2-3 teeth higher pinion than normally used on 27 turn brush motor

**If you do not change gearing after switching to brushless, you will be over-gear and will have slow acceleration & excessive temperatures!**

*With the broad brushless power band, you can go 1-2 teeth higher pinion than listed above for more top speed, but remember going higher will produce excessive ESC & motor heating. Check the motor's operating temperature after making any gearing adjustments--motors are designed to operate from 160°F-175°F.*

## PROFILE ADJUSTMENTS

The following parameters are adjustable in the GTB's software:

- MINIMUM BRAKE** (1 of 10 settings from 0 to 27%)--The amount of braking applied with the first pulse of transmitter throttle information. *Raising this setting starts the braking at a stronger/higher level.*
- DRAG BRAKE** (1 of 10 settings from 0% (off) to 27%)--The amount of braking applied while the transmitter is at neutral. Also known as 'coast' or 'auto' brakes. *Raising this setting makes the motor slow down more, without pushing the transmitter's trigger into the brake/reverse direction.*  
*With Drag Brakes on settings 2-10, the Minimum Brake value is the same as the Drag Brake value.*
- DEAD BAND** (1 of 5 settings from 2 to 6%)--The space between Minimum Brake and Minimum Drive, with neutral in the middle. *Raising this setting will increase the 'free play', or distance your trigger must move before forward drive or braking will begin.*
- MINIMUM DRIVE** (1 of 5 settings from 1 to 12%)--The amount of forward drive applied with the first pulse of transmitter throttle information. *Raising this setting makes the motor start at a stronger/higher level so it takes off more aggressively from neutral.*

## SWITCHING BETWEEN BRUSHLESS-MODE & BRUSH-MODE

**Performing the One-Touch set-up always reverts ESC to Profile #1 (Brushless Mode)--You will need to change back to Profile #6 for Brush Mode**

### SWITCHING FROM BRUSHLESS TO BRUSH-MODE:

With ESC off & connected to a charged battery (transmitter ON or OFF):

- 1. REMOVE BRUSHLESS 6-WIRE SENSOR HARNESS FROM ESC**
- 2. DISCONNECT BRUSHLESS MOTOR FROM ESC**
- 3. PRESS & HOLD ESC'S ONE-TOUCH/SET BUTTON**
- 4. TURN ON THE SPEED CONTROL'S POWER**  
While still pressing SET button, slide ESC's ON/OFF switch to ON position.
- 5. CONTINUE PRESSING UNTIL BLUE & RED LEDS COMES ON**  
*Note: you will continue holding past the Red LED One-Touch indicator.*
- 6. RELEASE BUTTON AS SOON AS BLUE & RED LEDS COMES ON**  
Blue & Red LEDs flash 9 times, then turn on solid after a few seconds.
- 7. QUICK PRESS (& release) SET BUTTON WHILE LEDS ON SOLID**  
ESC changes modes, and the Green LED will flash for a few seconds (with Blue & Red LEDs still on solid) to let you know you have changed modes.  
*Note: there is a time constraint during this selection process.*
- 8. ESC EXITS MODE SELECTION & RETURNS TO NEUTRAL**
- 9. CONNECT BRUSH-TYPE MOTOR TO ESC**

Refer to BRUSH-TYPE MOTOR portion of STEP 3 on main instructions (pg.3) for wiring.

### SWITCHING FROM BRUSH TO BRUSHLESS-MODE:

With ESC off & connected to a charged battery (transmitter ON or OFF):

- 1. KEEP BRUSHLESS SENSOR HARNESS REMOVED FROM ESC**
- 2. (\*IMPORTANT\*) DISCONNECT BRUSH-TYPE MOTOR FROM ESC**
- 3. SEPARATE SHORTED MOTOR POWER PHASE WIRES**
- 4. PRESS & HOLD ESC'S ONE-TOUCH/SET BUTTON**
- 5. TURN ON THE SPEED CONTROL'S POWER**  
While still pressing SET button, slide ESC's ON/OFF switch to ON position.
- 6. CONTINUE PRESSING UNTIL BLUE & RED LEDS COMES ON**  
*Note: you will continue holding past the Red LED One-Touch indicator.*
- 7. RELEASE BUTTON AS SOON AS BLUE & RED LEDS COMES ON**  
Blue & Red LEDs flash 9 times, then turn on solid after a few seconds.
- 8. QUICK PRESS (& release) SET BUTTON WHILE LEDS ON SOLID**  
ESC changes modes, and the Green LED will flash for a few seconds.
- 9. ESC EXITS MODE SELECTION & RETURNS TO NEUTRAL**  
Green LED will flash continuously at neutral (w/Red on solid) indicating that sensor harness for the brushless motor is disconnected from ESC.
- 10. RE-CONNECT BRUSHLESS 6-WIRE SENSOR HARNESS TO ESC**

Refer to BRUSHLESS MOTOR portion of STEP 3 on main instructions (pg.2) for wiring.

**IMPORTANT PRECAUTION: Never connect a brushless motor's 6-wire sensor harness to ESC when wired to a brush-type motor!**  
*If ESC is powered on while in Brushless-Mode, and is connected to Brush-type motor (phase wires shorted together) & a battery pack, a 6-wire brushless motor's sensor harness is connected to ESC, and ESC receives a transmitter's throttle signal, severe ESC damage will occur.*

# ADVANCED -- CUSTOM PROGRAMMING

**PLEASE NOTE: This page contains optional Advanced Programming items! No further adjustments are required.**  
*(but don't worry, you can always reset factory defaults by performing the One-Touch programming again, so go ahead & experiment--that's why the programming is in there, right?)*

## TO CUSTOM PROGRAM PROFILES 1-4 OR 6:

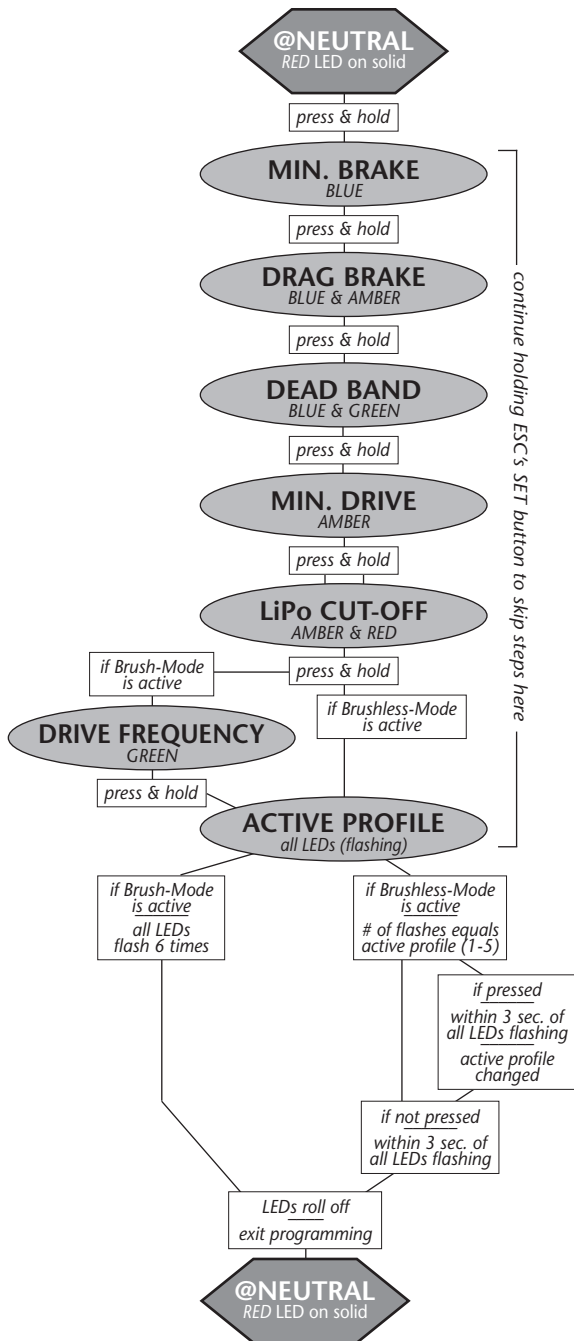
Your transmitter can be either ON or OFF:

- IF TRANSMITTER IS OFF, DISCONNECT ESC FROM RECEIVER**  
Remove input signal harness from receiver to avoid radio interference.
- CONNECT SPEED CONTROL TO A CHARGED BATTERY PACK**
- SLIDE ESC'S ON/OFF SWITCH TO 'ON' POSITION**
- MAKE SURE THROTTLE PROFILE 1-4 OR 6 IS ACTIVE**  
If you are not sure what profile is selected, follow the procedures in 'Throttle Profile Selection' to check or select desired profile.
- FOLLOW STEPS ON RIGHT SIDE OF THIS PAGE TO CUSTOMIZE ESC**  
You can adjust different parameters (described on back side of this sheet) for Throttle Profiles 1, 2, 3, 4, & 6 to fine tune the speed control to perform & feel the way you like it.

**Remember that you can not access the Brush-Mode (Profile #6) without disconnecting the brushless motor's sensor harness from the ESC.**

**Note: there is no time constraint during selection process of custom parameters.**

## GTB SOFTWARE FLOW CHART:



## RESTORING FACTORY DEFAULTS:

Every time you perform the One-Touch Set-Up, the factory default settings are restored for each of the throttle profiles & ESC reverts to Profile #1.

## TO ADJUST MINIMUM BRAKE: (using this turns off drag brakes)

- A. **PRESS & HOLD SPEED CONTROL'S SET BUTTON**  
With ESC at neutral, press & hold SET button until the **BLUE** status LED turns on solid--Release ESC's SET button once LED is on solid.

- B. **SELECT MINIMUM BRAKE PERCENTAGE** blue LED   
Blue status LED flashes to indicate active Minimum Brake setting. Quick press & release SET button to select desired setting.

<b>Setting (# of flashes):</b>	1	2	3	4	5	6	7	8	9	10
<b>Minimum Brake (%):</b>	0	3	6	9	12	15	18	21	24	27

- C. **PRESS & HOLD SET BUTTON TO STORE SELECTION**  
When SET button is pressed & held for about 1 second, the new selection is stored in ESC's memory--The 4 status LEDs will scroll back & forth to indicate ESC is exiting programming & the Red (Green & Blue may also be on) LED will turn on solid--ESC is at neutral & ready to go.

## TO ACTIVATE & ADJUST DRAG BRAKE:

- A. **PRESS & HOLD SPEED CONTROL'S SET BUTTON**  
With ESC at neutral, press & hold SET button until **BLUE & AMBER** status LEDs turn on solid--Release SET button once LEDs are on solid.

- B. **SELECT DRAG BRAKE PERCENTAGE** blue & amber LEDs   
Blue & Amber status LEDs flash to indicate Drag Brake setting (Min. Brake setting will be the same as Drag Brakes). Quick press & release SET button to change Drag Brake setting.

<b>Setting (# of flashes):</b>	1	2	3	4	5	6	7	8	9	10
<b>Drag Brake (%):</b>	off	3	6	9	12	15	18	21	24	27

- C. **PRESS & HOLD SET BUTTON TO STORE SELECTION**  
Selection is stored in memory--Status LEDs scroll back & forth and ESC exits programming. Red LED turns on solid (Green & Blue LEDs may also be on)--ESC is at neutral & ready to go.

**Notes: When Drag Brakes are active, the Blue LED will also stay on during normal operation. To re-activate the standard style of braking (no drag brakes during neutral), repeat Minimum Brake adjustment as described above.**

## TO ADJUST DEAD BAND:

- A. **PRESS & HOLD SPEED CONTROL'S SET BUTTON**  
With ESC at neutral, press & hold SET button until **BLUE & GREEN** status LEDs turn on solid--Release SET button once LEDs are on solid.

- B. **SELECT DEAD BAND PERCENTAGE** blue & green LEDs   
Blue & Green status LEDs flash to indicate active Dead Band setting. Quick press & release SET button to change setting.

<b>Setting (# of flashes):</b>	1	2	3	4	5
<b>Dead Band (%):</b>	2	3	4	5	6

- C. **PRESS & HOLD SET BUTTON TO STORE SELECTION**  
Selection is stored in memory--Status LEDs scroll back & forth and ESC exits programming. Red LED turns on solid (Green & Blue LEDs may also be on)--ESC is at neutral & ready to go.

## TO ADJUST MINIMUM DRIVE:

- A. **PRESS & HOLD SPEED CONTROL'S SET BUTTON**  
With ESC at neutral, press & hold SET button until **AMBER** status LED turns on solid--Release SET button once LED is on solid.

- B. **SELECT MINIMUM DRIVE PERCENTAGE** amber LED   
Amber status LED flashes to indicate active Minimum Drive setting. Quick press & release SET button to change setting.

<b>Setting (# of flashes):</b>	1	2	3	4	5
<b>Minimum Drive (%):</b>	1	3	5	8	12

- C. **PRESS & HOLD SET BUTTON TO STORE SELECTION**  
Selection is stored in memory--Status LEDs scroll back & forth and ESC exits programming. Red LED turns on solid (Green & Blue LEDs may also be on)--ESC is at neutral & ready to go.

## TO ACTIVATE LiPo CUT-OFF CIRCUITRY:

- A. **PRESS & HOLD SPEED CONTROL'S SET BUTTON**  
With ESC at neutral, press & hold SET button until **AMBER & RED** status LED turns on solid--Release SET button once LEDs are on solid.

- B. **TURN LiPo CUT-OFF CIRCUITRY ON or OFF** amber & red LEDs   
Amber & Red status LEDs flash to indicate LiPo Cut-Off Circuitry setting. Quick press & release SET button to change setting. **1 flash = OFF 2 flashes = ON**

- C. **PRESS & HOLD SET BUTTON TO STORE SELECTION**  
Selection is stored in memory--Status LEDs scroll back & forth and ESC exits programming. Red LED turns on solid (Green & Blue LEDs may also be on)--ESC is at neutral & ready to go.

## TO ADJUST DRIVE FREQUENCY: (Profile 6 ONLY)

- A. **PRESS & HOLD SPEED CONTROL'S SET BUTTON**  
With ESC at neutral, press & hold SET button until **GREEN** status LED turns on solid--Release SET button once LED is on solid.

- B. **SELECT DRIVE FREQUENCY** green LED   
Green status LED flashes to indicate active Drive Frequency setting. Quick press & release SET button to change setting.

<b>Setting (# of flashes):</b>	1	2	3	4	5	6	7
<b>Drive Frequency (kHz):</b>	1.5	2.5	3.5	4.5	6.5	8.5	11

- C. **PRESS & HOLD SET BUTTON TO STORE SELECTION**  
Selection is stored in memory--Status LEDs scroll back & forth and ESC exits programming. Red LED turns on solid (Green & Blue LEDs may also be on)--ESC is at neutral & ready to go.