

# PROFILE SELECTION & PROPER GEARING

**ATTENTION: Proper gearing is essential to getting the most performance from your GTB and your brushless motor system when operating in the Brushless-Mode.**

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## PROPER GEAR SELECTION

As a general rule with the **Velociti 5.5R** Brushless motor on 6 cells, start with a **3 tooth lower pinion gear** than you would normally use with a low-turn brush-type motor.

As a general rule with the **Velociti 6.5R** Brushless motor on 6 cells, start with a **2 tooth lower pinion gear** than you would normally use with a low-turn brush-type motor.

\*For other motors, refer to the motor's included instructions for gearing recommendations.

Because of the broad power band of brushless, you can go 1 to 3 teeth higher pinion than the above recommendations for more top speed, but note that that going 3 or more teeth higher will produce excessive ESC heating. Be sure to check the operating temperature of ESC after making gearing adjustments. The GTB ESC is designed to operate comfortably from 160°F-180°F (warmer than typical brush-type ESC) with motor temperatures also around 160-180°F.

If you had a low turn modified brush-type motor in the vehicle before switching to the GTB system, and you do not change gearing, you will be over-gear and the vehicle will have slower acceleration!

### Start within these final drive ratio ranges in the vehicle:

8.75-9.25 : 1	Velociti 5.5R in Touring Cars (rubber tire)
7.75-8.5 : 1	Velociti 6.5R in Touring Cars (rubber tire)
11.5-12.0 : 1	Velociti 5.5R in Off-Road Buggies
10.5-11.0 : 1	Velociti 6.5R in Off-Road Buggies
13.0 : 1	Velociti 5.5R in Off-Road Stadium Trucks
12.3 : 1	Velociti 6.5R in Off-Road Stadium Trucks

Higher final drive ratios will give longer run time at the expense of top speed. Lower ratios will result in higher ESC temperatures--too low may result in overheating & thermal shut-down.

VEHICLE	SPUR	5.5R PINION	6.5R PINION
Losi XXX-BK2 Buggy	82	16-17	17-18
Losi XXX Buggy	82	15-16	16-17
Losi XXX-4 Buggy	94	15-16	16-17
Losi XXX-TMF2 Truck	86	15-16	16-17
Losi XXX-T Truck	86	14-15	15-16
Assoc. TC4 Sedan	72	20-21	21-22
Assoc. B4 Buggy	81	16-17	17-18
Assoc. B3 Buggy	81	15-16	16-17
Assoc. T4 Truck	87	15-16	16-17
Assoc. T3 Truck	87	14-15	15-16

Note: Above chart shows basic starting points for gearing on larger tracks with 6-cell battery packs & standard size tires--See our website for extended gearing chart.

## THROTTLE PROFILE SELECTION

The GTB speed control is equipped with **6 user-selectable Throttle Profiles** to choose from, 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.Drive%	3	3	2	3	3	3
Min.Brake%	20%	20%	20%	40%	20%	20%
Drag Brake	20%	20%	20%	40%	n/a	off
Dead Band%	4	4	4	4	5	4

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

### SELECTING BRUSHLESS PROFILES:

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

- 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.
- PRESS & HOLD THE ESC'S ONE-TOUCH SET BUTTON**  
Continue to hold SET button on ESC until all 4 LEDs turns on.  
Note: you will continue holding past the Blue, Blue & Amber, Blue & Green, and then the Amber LED programming indicators in the ESC's software.
- 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).
- 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.
- 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, until just Red LED is on--Red & Green if no transmitter signal present).

**REMEMBER:** Whenever One-Touch set-up is performed, ESC automatically reverts to factory default settings & the Throttle Profile reverts to #1 when in Brushless-Mode.

## SWITCHING BETWEEN BRUSHLESS-MODE & BRUSH-MODE

### SWITCHING FROM BRUSHLESS TO BRUSH-MODE:

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

- REMOVE BRUSHLESS 6-WIRE SENSOR HARNESS FROM ESC**
- DISCONNECT BRUSHLESS MOTOR FROM ESC**
- PRESS & HOLD ESC'S ONE-TOUCH/SET BUTTON**
- TURN ON THE SPEED CONTROL'S POWER**  
While still pressing SET button, slide ESC's ON/OFF switch to ON position.
- CONTINUE PRESSING UNTIL BLUE & RED LEDS COMES ON**  
Note: you will continue holding past the Red LED One-Touch indicator.
- RELEASE BUTTON AS SOON AS BLUE & RED LEDS COMES ON**  
Blue & Red LEDs flash 9 times, then turn on solid after a few seconds.
- 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.
- ESC EXITS MODE SELECTION & RETURNS TO NEUTRAL**
- 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):

- KEEP BRUSHLESS SENSOR HARNESS REMOVED FROM ESC**
- (\*IMPORTANT\*) DISCONNECT BRUSH-TYPE MOTOR FROM ESC & separate the power phase wires that were shorted together at brush motor.**
- SEPARATE SHORTED MOTOR POWER PHASE WIRES**
- PRESS & HOLD ESC'S ONE-TOUCH/SET BUTTON**
- TURN ON THE SPEED CONTROL'S POWER**  
While still pressing SET button, slide ESC's ON/OFF switch to ON position.
- CONTINUE PRESSING UNTIL BLUE & RED LEDS COMES ON**  
Note: you will continue holding past the Red LED One-Touch indicator.
- RELEASE BUTTON AS SOON AS BLUE & RED LEDS COMES ON**  
Blue & Red LEDs flash 9 times, then turn on solid after a few seconds.
- QUICK PRESS (& release) SET BUTTON WHILE LEDS ON SOLID**  
ESC changes modes, and the Green LED will flash for a few seconds.
- 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.
- 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

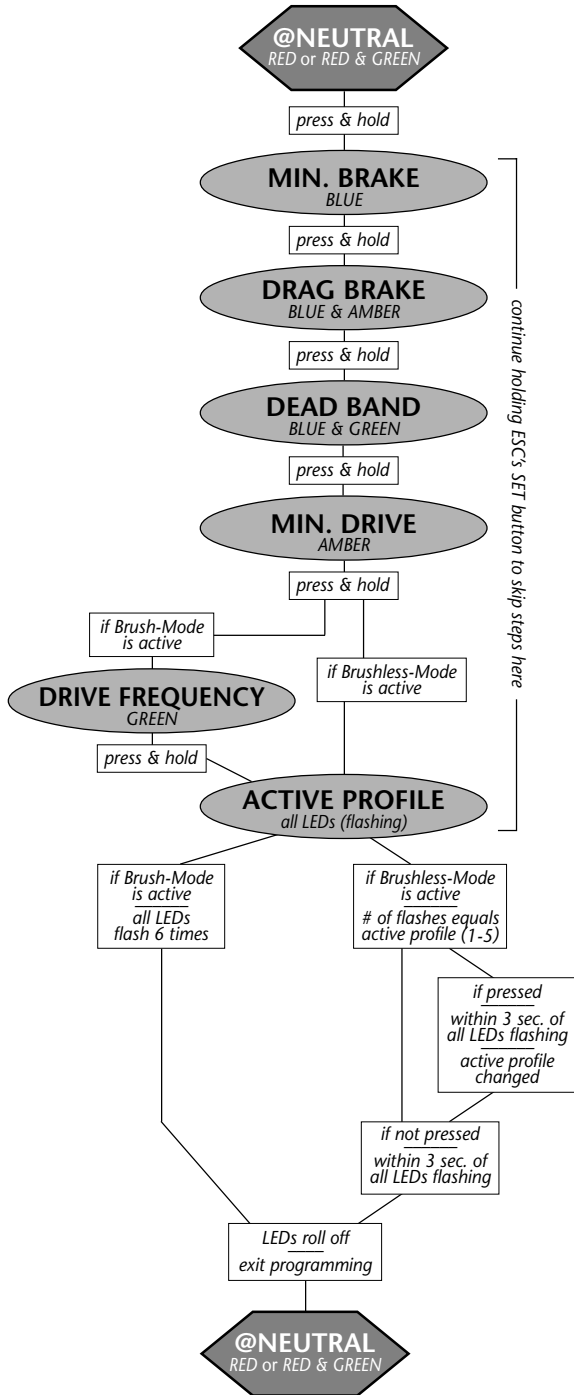
**PLEASE NOTE: This page contains optional Advanced Programming items! No further adjustments are required.**  
*(but don't worry, you can always reset factory defaults by performing the One-Touch programming again, so go ahead & experiment--that's why the programming is in there, right?)*

Throttle Profiles 1, 2, 3, 4, & 6 can be independently customized to fine tune the speed control to feel just the way you like it.

**The GTB lets you adjust the following software parameters:**

- **Minimum Brake/Drag Brake Percentage**--1 of 10 settings.
- **Braking Type**--1 of 2 types of braking styles (standard Constant Force braking or DRAG BRAKING where braking is applied during neutral).
- **Dead Band**--1 of 5 Dead Band settings from 2 to 6%.
- **Drive Frequency (Profile 6 only)**--1 of 7 Drive Frequencies from 1.5 to 11kHz.
- **Minimum Drive Percentage**--1 of 5 settings from 2 to 12%.

## 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.

## TO CUSTOMIZING PROFILES 1-4 OR 6:

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

- 1. IF TRANSMITTER IS OFF, DISCONNECT ESC FROM RECEIVER**  
Remove input signal harness from receiver to avoid radio interference.
- 2. 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.

**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.**

## TO ADJUST MINIMUM BRAKE: (or re-activate std-style 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 status LED (1st LED on left) flashes to indicate active Minimum Brake setting. Quick press & release to select desired setting.

<b>Setting (# of flashes):</b>	1	2	3	4	5	6	7	8	9	10
<b>Minimum Brake (%):</b>	5	10	15	20	25	30	35	40	45	50

- 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 you are exiting programming & the Red LED will turn on solid (Red & Green if no transmitter signal present)--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 solid.
- B. SELECT DRAG BRAKE PERCENTAGE**  
Blue & Amber status LEDs (1st & 2nd LEDs on left) flash to indicate active Drag Brake setting (Drag brake setting will be same as Minimum Brake setting). Quick press & release to change Drag Brake/Minimum Brake setting, then press & hold SET button for about 1 second to activate drag braking, store selection into ESC's memory, and return to neutral.

<b>Setting (# of flashes):</b>	1	2	3	4	5	6	7	8	9	10
<b>Drag Brake (%):</b>	off	10	15	20	25	30	35	40	45	50

**Note: 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 solid.
- B. SELECT DEAD BAND PERCENTAGE**  
Blue & Green status LEDs flash to indicate active Dead Band setting. Quick press & release to change setting, then press & hold SET button for about 1 second to store selection and return to neutral.

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

## 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 status LED flashes to indicate active Minimum Drive setting. Quick press & release to change setting, then press & hold SET button for about 1 second to store selection and return to neutral.

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

## 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 status LED flashes to indicate active Drive Frequency setting. Quick press & release to change setting, then press & hold SET button for about 1 second to store selection and return to neutral.

<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