EIGER FIELD GUIDE

#55-1835P-1.4 ***•For Eiger & Eiger Pro ESCs•*** *9-2014*

This Novak Eiger and Eiger Pro ESCs are factory loaded with several programmable features, and we have developed this ***Field Guide*** as a quick-reference to keep with you out on the rocks to help walk you through the programming and adjustment of all of the speed control's software functions and diagnostic features.

Take the time to thoroughly read through this programming manual before attempting to make any programming adjustments so you can fully understand the different ESC parameters, and how they can be used to fine tune your ESC's feel and performance to meet your needs. Most importantly, enjoy all of the technical benefits and features this Novak ESC has to offer.

ONE-TOUCH SET-UP

With the ESC connected to (at least) a charged battery pack, the receiver, and the brushless motor's sensor harness:

1. **TURN ON THE TRANSMITTER'S POWER**
2. **PRESS & HOLD ESC'S ONE-TOUCH/SET BUTTON**
3. **TURN ON THE SPEED CONTROL'S POWER**
   With transmitter throttle at neutral, and still **pressing the SET button**, slide the ESC's **ON/OFF switch** *to ON position.*
4. **CONTINUE HOLDING SET BUTTON UNTIL RED LED COMES ON**
5. **RELEASE SET BUTTON AS SOON AS LED TURNS RED**
6. **PULL TRANSMITTER THROTTLE TO FULL-ON POSITION**
   Hold it there until the **green status LED** ***turns solid green***.
   Note: Motor will not run during programming even if connected.
7. **PUSH TRANSMITTER THROTTLE TO FULL-BRAKE/REVERSE**
   Hold it there until the **green status LED** ***blinks green***.
8. **RETURN TRANSMITTER THROTTLE TO NEUTRAL**
   The **red status LED** will ***turn solid red***, indicating that speed control is at neutral and that proper programming has been completed. *White LED may also be on and blinking, indicating that Dynamic Timing Advance is OFF and the timing is set to a level of 0%.*

If transmitter settings are changed, the One-Touch Set-Up must be repeated. If you experience any problems, turn off ESC and repeat One-Touch.

NOTE: When the One-Touch Set-Up set-up is performed, the speed control will automatically revert back to the factory-default settings.

BRUSHLESS MODE NOTE: If using the Eiger with a Brushless Motor, leave the motor wires DISCONNECTED when performing the One-Touch Set-Up. Once One-Touch Set-Up is completed, change the Throttle Profile to Setting #2, and connect the motor wires.

TRANSMITTER ADJUSTMENTS

Transmitter adjustments may not be needed to operate this ESC, however, if you have any problems with ***ONE-TOUCH PROGRAMMING***, adjust the transmitter as follows and repeat the ***ONE-TOUCH PROGRAMMING*** step.

NOT ALL TRANSMITTERS HAVE THESE ADJUSTMENTS

THROTTLE CHANNEL ADJUSTMENTS

A. Set **HIGH ATV** or **EPA** to **100%** setting. *[amount of throw at full throttle]*

B. Set **LOW ATV**, **EPA**, or **ATL** to **100%** setting. *[amount of throw at full brakes]*

C. Set **EXPONENTIAL** to **zero** setting. *[throttle channel linearity]*

D. Set **THROTTLE CHANNEL REV. SWITCH** to **either** position.

E. Set **THROTTLE CHANNEL TRIM** to **middle** setting.
[adjusts neutral position/increases or decreases coast brakes]

F. Set **ELECTRONIC TRIGGER THROW ADJUSTMENT** to **50% throttle** and **50% brake** throw–*best for reversible ESCs.*
[adjusts trigger throw electronic/digital pistol-grip transmitters]

G. Set **MECHANICAL TRIGGER THROW ADJUSTMENT** to position with **1/2 throttle** and **1/2 brake** throw.

GOOD QUALITY RADIO SYSTEM SUGGESTED

With the higher performance of brushless systems, undesirable radio system noise may occur when used with lower quality radio systems. 2.4GHz radio systems are the best to use. FM radio systems are acceptable, as long as the system is high quality. ***AM radio systems are NOT recommended***.

ESC PARAMETERS

Several ESC parameters are customizable to help fine-tune the feel and response of the speed control to your liking. These setting are all easily accessed via the ESC's One-Touch/Set button and the on-board status LEDs. The following parameters are adjustable:

1. Throttle Profile *(1 of 2)*	**Brush**	**Brushless**
2. Drag/Hill Brake	1 of 5 Modes	1 of 10
3. Brake Frequency	n/a	1 of 10
4. Drive Frequency	1 of 6	1 of 10
5. Dead Band	1 of 5	1 of 5
6. Minimum Brake	n/a	1 of 10
7. Motor Rotation	n/a	CCW/CW
8. Voltage Cut-Off Circuitry	OFF/LiPo/LiFe	OFF/LiPo/LiFe
9. Hall Sensor Test *(diagnostic)*	n/a	yes

PROPER GEAR SELECTION

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

The Motor and Speed Control should not exceed *160°F MAX* at any time during run*!*

Change the gearing to avoid overheating!

DO NOT FREE-REV MOTOR*!*

Free-running your brushless motor in a no-load condition can cause rotor failure & ESC transistor damage that will not be covered by the product's warranty.

Because of the potential danger of overheating and ESC/motor damage and failure, **you must start with *VERY* small pinion sizes** and check the speed control and motor operating temperatures at multiple times throughout the initial runs after installation. This is the only way to ensure that you are not causing excessive heating.

If ESC & motor temperatures remain low & stable, you can slowly increase the pinion size while again monitoring the temperatures to determine the safe gearing for your vehicle, motor, and climate/track conditions. Because these variables can change or be modified, ***you MUST continually monitor ESC & motor temperatures*** to protect your electronics from damage.

VOLTAGE CUT-OFF CIRCUITRY

This speed control features Novak's Smart-Stop Voltage Cut-Off Circuitry built-in, and when used properly will allow you to safely use LiPo and LiFe type batteries, without letting the cells drop below their critical safety voltage during operation.

The default setting in the speed control is that the Voltage Cut-Off is turned ON and is set to LiPo. If you are using NiMH or NiCd cells, you will need to switch the Voltage Cut-Off feature OFF. If you are using LiFe cells, you will need to switch the Voltage Cut-Off feature to the LiFe battery setting.

Note: Whenever the speed control's One-Touch Programming is performed, this setting will revert to the LiPo default setting.

DO NOT USE LiPo/LiFe BATTERIES WITH VOLTAGE CUT-OFF TURNED OFF

NOVAK R/C, INC.

19 Rancho Circle, Lake Forest, CA 92630
PHONE: (949) 916-6044 Mon-Thu 8am - 4pm
Customer Service E-mail: cs@teamnovak.com
Visit the Novak website for up to date instructions, helpful videos, and Tech Articles.

www.teamnovak.com

EIGER / EIGER PRO
CUSTOM PROGRAMMING OPTIONS -- ADVANCED

ESC SOFTWARE FLOW CHART

This ESC features many parameters that can be customized to fine-tune the feel & response to your liking. The flow chart below and the adjustment steps to the right describe the different parameters and how they effect the ESC.

One-Touch Set-Up (refer to page 1) must be completed before customization of parameters, as all ESC parameters are defaulted back to the factory settings whenever the One-Touch Set-Up is performed.

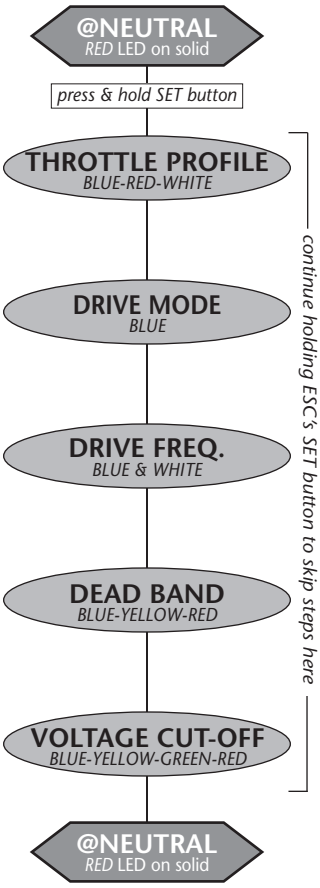
DEFAULT SETTINGS FOR THE ESC PARAMETERS ARE LISTED IN BOLD IN THE TABLES TO THE RIGHT

TO CHANGE PARAMETER SETTINGS:

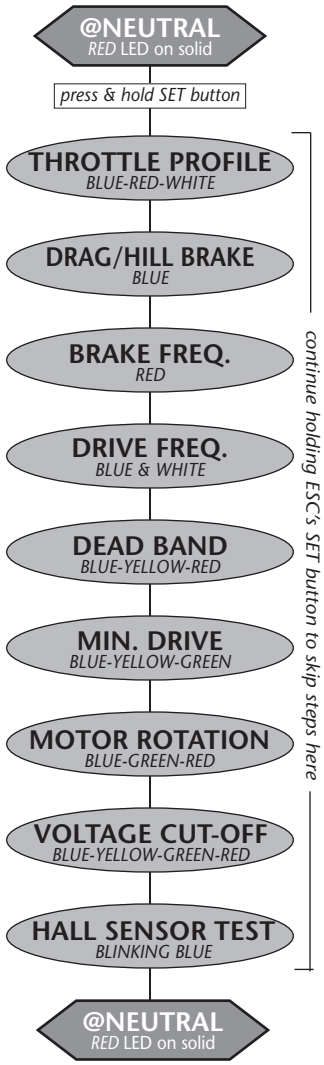
1. WITH THE ESC SWITCHED "OFF", CONNECT ESC TO A CHARGED BATTERY PACK, RECEIVER, AND MOTOR'S SENSOR HARNESS.
2. TURN ON THE TRANSMITTER.
2. SLIDE THE ESC's ON/OFF SWITCH TO 'ON' POSITION
3. WITH ESC AT NEUTRAL, PRESS & HOLD SET BUTTON
   Release ESC's SET button once LEDs are lit for the desired setting.
   To skip a parameter, continue to press & hold button until desired parameter is reached.
4. SELECT PARAMETER VALUE
   LED will flash the same number of times as the parameter is set to *(refer to tables at right).* Quick press & release SET button to change to your desired setting.
5. PRESS & HOLD SET BUTTON TO STORE NEW SELECTION
   When SET button is pressed and held for about 1 second, ***the new selection is stored*** in ESC's memory—*Status LEDs will scroll across to indicate ESC is exiting programming & ESC returns to neutral.*

There is no time constraint during selection of custom parameters.

BRUSH PROFILE



BRUSHLESS PROFILE



ESC STATUS LED ORDER:

BLUE YELLOW GREEN RED WHITE

BRUSH PROFILE PROGRAMMING

THROTTLE PROFILE

#1 THROTTLE PROFILE SELECTION *(1 of 2)* ***BLUE-RED-WHITE LEDs***

>> Changing this setting switches the ESC's motor control output from Brush-type motors to Sensor-Based Brushless motors.

Setting (# of flashes)	*1*	*2*
Throttle Profile:	**Brush**	Brushless

DRIVE MODE

#2 DRIVE/BRAKE MODE SELECTION *(1 of 5)* ***BLUE LED***

Drive mode and braking type & amount being applied.

>> Setting 1 = Bash Mode--*Push Brakes/Forward--Regular driving* *(No braking applied at neutral).* **Setting 2 = Servo Mode--*Forward/Reverse--Robotic applications*** *(No braking/No reverse delay).* **Settings 3-5 = Hill Brake settings--*Rock crawling*** *(Low, Medium, or High Brakes).*

Setting (# flashes)	*1*	*2*	*3*	*4*	*5*
Drive/Br. Mode:	Bash	Servo	**Crawl-Lo**	Crawl-Med	Crawl-Hi

DRIVE FREQUENCY

#3 DRIVE FREQUENCY SELECTION *(1 of 6)* ***BLUE & WHITE LEDs***

How the ESC's throttle response feels with respect to the transmitter's trigger input.

>> Increasing the Drive Frequency makes the throttle response feel smoother and more controllable.

Setting (# of flashes)	*1*	*2*	*3*	*4*	*5*	*6*
Drive Freq. (KHz):	1.6	2.0	2.2	**3.0**	10.0	13.5

DEAD BAND

#4 DEAD BAND SETTINGS *(1 of 5)* ***BLUE-YELLOW-RED LEDs***

The space between Minimum Brake and Minimum Drive, with Neutral in the middle.

>> Increasing this setting increases amount of *'free play'*, or distance the transmitter's trigger must move before forward drive or braking begins. This is useful for triggers that don't center accurately or have worn pots.

Setting (# of flashes)	*1*	*2*	*3*	*4*	*5*
Dead Band (%):	2	3	4	**5**	8

VOLTAGE CUT-OFF

#8 VOLTAGE CUT-OFF *(1 of 3)* ***BLUE-YELLOW-GREEN-RED LEDs***

>> Changing this setting enables or disables the ESC's built-in Smart Stop cut-off circuitry, and also sets the voltage cut-off point based on what type of battery is being used for the vehicle's main battery pack.

DO NOT USE LiPo/LiFe BATTERIES WITH THE ESC'S VOLTAGE CUT-OFF CIRCUITRY TURNED OFF

Setting (# of flashes)	*1*	*2*	*3*
Voltage Cut-Off Type:	OFF *(NiMH/NiCd)*	**LiPo**	LiFe

BRUSHLESS PROFILE PROGRAMMING

THROTTLE PROFILE

#1 THROTTLE PROFILE SELECTION *(1 of 2)* ***BLUE-RED-WHITE LEDs***

>> Changing this setting switches the ESC's motor control output. To use with a Sensor-Based Brushless Motor, change to Setting #2 .

Note: When performing One-Touch Set-Up (page 1), be sure to leave the brushless motor wires DISCONNECTED. After the One-Touch Set-Up is done, change the Throttle Profile Setting to #2, then connect the brushless motor power wires.

Setting (# of flashes)	*1*	*2*
Throttle Profile:	**Brush**	Brushless

DRAG/HILL BRAKE

#2 DRAG/HILL BRAKE SETTINGS *(1 of 10)* ***BLUE LED***

Amount of braking being applied while transmitter is at neutral. AKA 'hold' brakes.

>> <u>Settings 1-5 are Standard Drag Brake</u> settings--less aggressive braking for rock racing *(setting #1 applies no braking while trigger is at neutral).*

***<u>Settings 6-10 are Power Hill Brake</u> settings (ESC applies power to motor to 'hold' its position)*--very strong rock crawling Hill/Hold braking.**
Note: you must have a Novak Crawler brushless motor to have power brakes.

Setting (# of flashes)	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Drag Brake (%):	0	40	**60**	95	100	40	65	70	80	90
Brake Type:	**Drag Brakes**					**Power Hill Brakes**				

BRAKE FREQUENCY

#3 BRAKE FREQUENCY SELECTION *(1 of 10)* ***RED LED***

How the ESC's braking response feels with respect to the transmitter's trigger input.

>> Increasing the Brake Frequency makes the brake response feel smoother and more controllable.

Setting (# of flashes)	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
BrakeFreq. (KHz):	13.5	10.5	5.5	4.5	3.5	3	2.5	**2.25**	2	1.6

DRIVE FREQUENCY

#4 DRIVE FREQUENCY SELECTION *(1 of 10)* ***BLUE & WHITE LEDs***

How the ESC's throttle response feels with respect to the transmitter's trigger input.

>> Increasing the Drive Frequency makes the throttle response feel smoother and more controllable.

Setting (# of flashes)	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Drive Freq. (KHz):	32	30	**25**	23	21	16	14	12	10	8

DEAD BAND

#5 DEAD BAND SETTINGS *(1 of 5)* ***BLUE-YELLOW-RED LEDs***

Dead Band is the space between Minimum Brake and Minimum Drive, with Neutral in the middle.

>> Increasing this setting increases amount of *'free play'*, or distance the transmitter's trigger must move before the ESC sends forward drive or braking signal to the motor.

This is useful for transmitters with triggers that don't center accurately or have worn pots and do not return to neutral properly.

Setting (# of flashes)	*1*	*2*	*3*	*4*	*5*
Dead Band (%):	2	3	4	**5**	8

MINIMUM DRIVE

#6 MINIMUM DRIVE SETTINGS *(1 of 10)* ***BLUE-YELLOW-GREEN LEDs***

Minimum Drive is the amount of forward drive applied with first pulse of transmitter throttle information sent.

>> Increasing this setting starts the forward drive at a stronger level.

This is useful to compensate for heavier vehicles to minimize the amount of trigger throw required before effective drive is applied.

Setting (# of flashes)	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Minimum Drive (%):	**0**	1	2	3	4	6	8	10	12	15

MOTOR ROTATION

#7 MOTOR ROTATION SELECTION *(1 of 2)* ***BLUE-GREEN-RED LEDs***

>> Changing this setting changes the rotation direction of the motor's output/pinion shaft. Counter-clockwise rotation is standard in most vehicles.

Setting (# of flashes)	*1*	*2*
Rotation Direction:	**CCW ↺**	CW ↻

<u>Note:</u> Your brushless motor must have the mechanical timing set to 30° for proper operation in forward and reverse direction. All Novak brushless motors, except for Novak Crawling motors, are factory timed to 30°. To change the mechanical timing on your Novak motor, refer to the Novak website (www.teamnovak.com) in the TECH INFO section. Having the motor set at 0° will draw excessive current in the reverse direction and may cause damage.

VOLTAGE CUT-OFF

#8 VOLTAGE CUT-OFF *(1 of 3)* ***BLUE-YELLOW-GREEN-RED LEDs***

>> Changing this setting enables or disables the ESC's built-in Smart Stop cut-off circuitry, and also sets the voltage cut-off point based on what type of battery is being used for the vehicle's main battery pack.

DO NOT USE LiPo/LiFe BATTERIES WITH THE ESC'S VOLTAGE CUT-OFF CIRCUITRY TURNED OFF

Setting (# of flashes)	*1*	*2*	*3*
Voltage Cut-Off Type:	OFF *(NiMH/NiCd)*	**LiPo**	LiFe

HALL SENSOR TEST

#9 MOTOR SENSOR TEST ***BLINKING BLUE LED***

>> This diagnostic feature allows you to check the functionality of your brushless motor's hall effect sensors & sensor harness *(and its connections at the ESC and motor)*. Once activated, slowly rotate the motor's output/pinion shaft and the appropriate LED will light up if a signal is received for that sensor in the motor. Refer to *'MOTOR HALL SENSOR TEST'* section.

Motor Hall Sensor	*A*	*B*	*C*
LED Color:	BLUE	YELLOW	RED

RESTORING FACTORY DEFAULTS

Every time the ESC's One-Touch Set-Up is performed, the ESC will automatically revert back to the factory default settings.

For brushless motors, be sure the power wires are disconnected before One-Touch Set-Up is performed.

Note: ESC Parameter values are subject to change due to ongoing development.

Refer to our web site for updated values and more information on ESC parameters.

MOTOR HALL SENSOR TEST

The Hall Sensor Test diagnostic feature in this ESC allows you to easily check the sensors in the brushless motor connected to it to determine if they are operating normally. This will help you pinpoint the cause of problems in your system, and hopefully reduce the down time and expenses associated with sending your product in for service when you can resolve the issue yourself.

To access this feature, simply follow these steps:

1. **Follow the steps in the 'CUSTOM PROGRAMMING OPTIONS' section to access the Hall Sensor Test option via the ESC's SET button.**
2. **Slowly rotate the motor's output/pinion shaft.** ***If motor is installed in a vehicle, slowly rotate the drive train so that the motor also rotates.***
3. **The status LEDs on the speed control should cycle through illuminating the BLUE, YELLOW, and RED status LEDs.**

If the BLUE, YELLOW, and RED LEDs light up one after another as the motor's shaft is rotated, the Hall Sensors in the motor are operating normally.

If any one of the BLUE, YELLOW, or RED status LEDs do not light while rotating the motor's shaft, there is a either a problem with the Sensor Harness Cable *(or its connections either at the motor end or the ESC end)* or with the actual Hall Effect Sensors in the motor's timing section.

If your motor has a user-replaceable double-ended sensor harness, replace it with another one to determine if this is the problem. If, after replacing the harness, all 3 of the LEDs still do not light up, it would appear that one of the motor's sensors has been damaged--replace the timing section of your motor, or if your motor is not user-rebuildable, send it in the manufacturer for the appropriate service.

TEMPERATURE MONITORING

This ESC has a built-in diagnostic temperature monitoring feature that lets you quickly check the ESC's operating temperature at any time.

While connected to a battery and powered ON, ***simply tap the ESC's SET button and one of the on-board LED lights will flash 4 times*** to indicate the operating temperature of the speed control.

WHITE **flashing LED = normal operating temp--*under 135°F (57°C).***

BLUE **flashing LED = medium operating temp--*136-147°F (58-64°C).***

YELLOW **flashing LED = hot operating temp--*148-167°F (65-75°C).***

GREEN **flashing LED = hotter operating temp--*168-194°F (76-90°C).***

RED **flashing LED = *hottest* operating temp--*195-215°F (91-102°C).***

You are now pushing the ESC extremely hard and should be very careful to avoid overheating and possible thermal shut-down.

All LEDs* flashing = DANGEROUS operating temp--*216-239°F (103-115°C).

Your ESC is now about to thermally shut-down.

Reduce the pinion size/check drive train to avoid ESC overheating that could result in potential damage.

RECEIVER PACK USAGE

***NOVAK HIGHLY-RECOMMENDS** the use of an external receiver battery pack to supply power to the electronics when using high-power servos*, as these servos put excessive load on the speed control's internal BEC.

Using an external reciever pack will greatly increase life span of your ESC, as this is a leading cause of speed control failure.

To use an External Receiver Battery Pack to Power the Electronics:

1. Plug the 5 cell (1.2 VDC/Cell) receiver battery pack into the battery slot *(or any open/unused channel)* of the receiver.
2. **Remove the red wire from ESC's input receiver harness** *(insulate the red wire).*
3. To turn the vehicle ON, switch the receiver pack's power switch ***ON***. Then, turn the ESC's power switch ***ON***.
4. To turn vehicle OFF, turn ESC's switch ***OFF***, then turn receiver pack's switch ***OFF***.

EXTERNAL BEC CONNECTION

Using a Non-Novak External BEC

To use a non-Novak BEC with this ESC, follow the BEC manufacturer's instructions. Remove the *RED* wire from the plug plastic on the ESC's receiver input signal harness. Turn *ON* the ESC's power switch, then turn ON the BEC's power switch.

Using a Novak External BEC

Connect the Novak BEC's main power input leads *(heavier gauge silicone wires)* to ESC's Positive & Negative battery solder tabs *(RED to Positive, BLACK to Negative)*.

Plug the BEC's receiver power output lead into any open channel of your receiver.

Remove the RED wire from the plug plastic on the ESC's receiver input signal harness--Insulate removed wire to avoid short circuits, as it is "live".

Turn *ON* the ESC's power switch, then turn *ON* the BEC's power switch.

Turn the system's power *OFF* in the reverse order--BEC then ESC.

TROUBLE-SHOOTING GUIDE

Steering Channel Works But Motor Will Not Run
- Possible receiver damage—Check operation with a different receiver.
- Possible internal damage—Refer to *'SERVICE PROCEDURES'* section.
- Check motor or motor connections.
- Check ESC is plugged into receiver's throttle channel. Check signal harness wire sequence.

Receiver Glitches/Throttle Stutters During Acceleration
- Receiver or antenna too close to ESC, power wires, battery, or motor.
- Bad motor sensors, sensor harness, or connections—Check wiring, sensor harness, & connections, perform hall sensor test *(Refer to 'MOTOR HALL SENSOR TEST' section)*.
- Low voltage to receiver—Try Novak Glitch Buster *(#5626)* on receiver to retain power.
- PowerCap damaged/missing—Replace PowerCap/Trans-Cap Module.
- Battery pack damaged or weak—Try a different battery pack.
- Motor magnet weak or overheated—Replace rotor *(Refer to motor manufacturer's website)*.
- Excessive current to motor—Use a milder motor or a smaller pinion gear.
- Untidy wires or signal and power wired bundled together. Input harness and servo wires should be bundled separately. Power wires should be as short as possible.

Motor and Steering Servo Do Not Work
- Check wires, receiver signal harness wiring & color sequence, radio system, crystals, battery/motor connectors, & battery pack.
- Possible receiver damage—Check operation with a different receiver.
- Possible internal damage—Refer to Service Procedures.

Motor Runs Backward
- Reverse motor rotation direction—Refer to *'CUSTOM PROGRAMMING OPTIONS'* section.
- Improper One-Touch set up—Refer to *'ONE-TOUCH PROGRAMMING'* section.

Speed Control Runs Excessively Hot
- Gear ratio too low—Increase gear ratio/Reduce pinion *(refer to 'PROPER GEAR SELECTION')*.
- Motor is damaged—Try a different motor.

Model Runs Slowly/Slow Acceleration
- Gear ratio too high—Reduce gear ratio/Increase pinion *(refer to 'PROPER GEAR SELECTION')*.
- Check battery & connectors—Check battery pack & connectors. Replace if needed.
- Incorrect transmitter/ESC adjustment—Refer to '*TRANSMITTER ADJUSTMENTS*'.
- PowerCap damaged/missing—Replace PowerCap or Power Trans-Cap Module.

ESC Is Melted Or Burnt/ESC Runs With Switch Off
- Internal damage—Refer to Service Procedures.

No Power to the BEC
- Check power wire connections to your battery, ESC and BEC unit.
- Check BEC input harness is plugged into receiver & ESC's red wire is removed from harness.
- Be sure that the BEC unit switch is turned ON.

ERROR/LED CODES

- ***Blue status LED on solid at neutral***—Minimum Brake is set to value greater than 0%.
- ***Yellow status LED on solid at neutral***—Drag Brake is set to value greater than 0%.
- ***Red & Green status LEDs on solid***—Check input signal harness connections at ESC and receiver. Check input signal harness wiring sequence—Refer to ***STEP 3***.
- ***Red status LED on solid & Green LED blinking***—Check motor sensor harness connection. Possible internal motor damage.
- ***Blue & Green status LEDs both blinking.*** Misfire shut-down—return throttle to neutral position to regain motor control—check drive train for free operation.
- ***Blue & Red status LEDs blinking.*** Possible ESC thermal shut-down—Check gear ratio & free operation of drive train for possible overloading/ESC is being severely over-loaded—allow system to cool & return throttle to neutral position to regain motor control. ***LEDs will continue to blink until system is cooled down.***
- ***Blue & Yellow status LEDs blinking.*** Possible Motor thermal shut-down—Check gear ratio & free operation of drive train for possible overloading/Motor is being severely over-loaded—allow system to cool & return throttle to neutral position to regain motor control. ***LEDs will continue to blink until system is cooled down.***
- ***Blue & Green (Misfire Detection), Blue & Red (ESC Thermal Shut-Down), or Blue & Yellow (Motor Thermal Shut-Down) status LEDs blinking.*** ESC may have shut-down **& ESC's neutral point is too far off** to sense that transmitter throttle has been returned to neutral *(Refer to 'ONE-TOUCH' & 'TRANSMITTER ADJUSTMENTS')*.
- ***Red & Yellow status LEDs toggling.*** LiPo/LiFe Cut-Off voltage reached. Recharge battery.

SERVICE PROCEDURES

Before sending your product in for service, review the **Trouble-Shooting Guide**. Product may appear to have failed when other problems exist. After reviewing instructions, if you feel that you require service, obtain the most current service options & pricing as follows:

WEB: Print out the ***PRODUCT SERVICE FORM*** from CUSTOMER SERVICE section of the web site. Fill out required information on form and return it with the product requiring service.

WARRANTY SERVICE: You *MUST CLAIM WARRANTY* on ***PRODUCT SERVICE FORM*** & include a valid cash register receipt with purchase date, dealer name, & phone# on it, or a previous service invoice. If warranty provisions have been voided, there will be service charges.

• ESCs returned without a serial number will not be serviced under warranty •

TRADE-IN PROGRAM: Novak offers a trade-in program for non-warranty items toward current and discontinued products. You can replace, exchange, or upgrade Novak products as listed within the trade-in program. Complete a Non-Warranty Service Form to be eligible.

ADDITIONAL NOTES:
- Dealers/distributors aren't authorized to replace products thought to be defective.
- If a hobby dealer returns your product for service, submit a completed ***PRODUCT SERVICE FORM*** to the dealer and make sure it is included with product.
- Novak Electronics, Inc. does not make any internal electronic components *(transistors, resistors, etc.)* available for sale.