

STEP 6-ONE-TOUCH PROGRAMMING

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. Blue & yellow LEDs will also be on indicating Minimum Brake (blue) & Drag Brake (yellow) settings are at levels above 0%.

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

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

VOLTAGE CUT-OFF CIRCUITRY

When active (see Track Guide to turn ON/OFF), the built-in Novak Smart-Stop Voltage Cut-Off Circuitry lets you safely use 1S or 2S Lithium Polymer (LiPo) or Lithium Iron Phosphate (LiFe) battery packs by cutting off the speed control's throttle output when the critical safety voltages are reached.

The circuitry constantly monitors the pack voltage and automatically selects a 1S or 2S cut-off voltage [3.125V (1S), 6.25V (2S) Li-Po; 2.375V (1S), 4.75V (2S) Li-Fe]. When the ESC detects that the critical safety voltage will soon be reached, it begins interrupting, or "blipping," the throttle output as an early warning that the battery's voltage is getting low and the throttle output will soon be completely shut off.

When the critical voltage is reached, the throttle output to the motor gets completely shut down to keep the voltage from dropping further (Red & Green LEDs will alternately flash & you still have steering control).

Re-charge battery after Smart-Stop circuitry shuts off throttle

Even though the pack's voltage will rise (after a short resting period) to a level high enough to run motor again, this is not good for LiPo or LiFe batteries.

Reaching critical safety voltage too many times can damage the cells.

DO NOT CONTINUE TO RUN VEHICLE AFTER THE SMART-STOP HAS SHUT DOWN THE THROTTLE OUTPUT THE FIRST TIME.

When the ESC is switched ON, the Yellow & Red LEDs will flash together 3 times to indicate LiPo/LiFe Cut-Off is ACTIVE.

With the Voltage Cut-Off Circuitry turned ON & using NiCd or NiMH cells, the circuitry will shut off the ESC's throttle output very early into the run, due to the different characteristics of these batteries. Change the ESC's Voltage Cut-Off Circuitry mode to OFF to use these batteries. See CUSTOM PROGRAMMING options on the Track Guide to properly adjust this setting.

OPTIONAL RECEIVER PACK USAGE

If you are planning to use an external receiver battery pack with the Kinetic 2S ESC to power the electronics you need to do the following:

1. Plug the external 5 cell (1.2VDC/cell) receiver battery pack into the battery slot of the receiver.
2. To turn the vehicle ON, switch the receiver pack ON. Then, turn the ESC's switch ON, then OFF to allow the ESC to be powered by an external source.
3. To turn the vehicle OFF, turn the receiver pack's switch OFF.

ALTERNATIVE METHOD

1. Plug the external 5 cell (1.2 VDC/Cell) receiver battery pack into the battery slot of the receiver.
2. Unplug the ESC's red wire from the input harness going to the receiver. Insulate the red wire to keep it from shorting.
3. To turn the vehicle ON, switch the receiver pack ON, then turn the ESC's switch ON.
4. To turn vehicle OFF, turn ESC's switch OFF, then turn receiver pack's switch OFF.

SERVICE PROCEDURES

Before sending your speed control in for service, review the **Trouble-Shooting Guide** (in Track Guide). The ESC may appear to have failed when other problems exist. After reviewing instructions, if you feel that your ESC requires service, please obtain the most current product service options and pricing by the following ways:

WEB SITE: Print a copy of the **PRODUCT SERVICE FORM** from the CUSTOMER SERVICE section of the Web site. Fill out the needed information on this form and return it with the Novak product that requires servicing.

PHONE/FAX: If you do not have access to the internet, please contact our customer service department by phone or fax.

WARRANTY SERVICE: For warranty work, you **MUST CLAIM WARRANTY** on **PRODUCT SERVICE FORM** & include a valid cash register receipt with purchase date and dealer name & phone # on it, or an invoice from previous service. 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: For non-warranty work, Novak offers a trade-in program for current and discontinued products. You can replace, exchange or upgrade any Novak speed control to any available speed control listed within the trade-in program. You must 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.

CONTACT:

NOVAK ELECTRONICS, INC.
17032 Armstrong Ave. Irvine, CA 92614
PHONE: (949) 833-8873 • FAX: (949) 833-1631
Customer Service E-mail: cs@teammovak.com
www.teammovak.com

PRODUCT WARRANTY

The Kinetic Racing Brushless ESC (1S or 2S) is guaranteed to be free from defects in materials or workmanship for a period of 120 days from the original date of purchase (verified by dated, itemized sales receipt). Warranty does not cover incorrect installation, components worn by use, damage to case or exposed circuit boards, damage from using more than 6 cells (1.2 volts DC/cell) or more than 2 LiPo/LiFe cells input voltage, damage due to timing, damage due to turning off Thermal Overload Protection (via NovaLink™), damage resulting from using LiPo/LiFe batteries without Smart-Stop circuitry active, using insufficient LiPo/LiFe batteries that cannot supply the amount of current required by this system, cross-connection of battery/motor power wires, overheating solder tabs, reverse voltage application, improper use or installation of external BEC, damage resulting from thermal overload or short-circuiting motor, damage from incorrect installation of FET servo or receiver battery pack, damage due to free revving motor, damage due to using a non-Novak motor or a non-sensored motor, not using or incorrect installation of a Power Trans-Cap module on the ESC or from using a damaged or incorrect cell-rating Power Trans-Cap module, using a Schottky diode, splices to input, ON/OFF switch, or sensor harnesses, damage from excessive force when using the One-Touch/SET button or from disassembling case, tampering with internal electronics, allowing water, moisture, or any other foreign material to enter ESC or get onto the PC board, incorrect installation/wiring of input plug plastic, allowing exposed wiring or solder tabs to short-circuit, or any damage caused by a crash, flooding, or natural disaster. Melted speed controls or motors are not covered by the warranty.

Because Novak has no control over the connection & use of the speed control or other related electronics, no liability may be assumed nor will be accepted for any damage resulting from the use of this product. Every Novak speed control & motor is thoroughly tested & cycled before leaving our facility and is, therefore, considered operational. By the act of connecting/operating speed control, user accepts all resulting liability. In no case shall our liability exceed the product's original cost. We reserve the right to modify warranty provisions without notice. This product is not intended for use by children under 14 years of age without the strict supervision of an adult. Use of this product in an uncontrolled manner may result in physical damage or injuries—take extra care when operating any remote control vehicle. Designed by Novak Electronics, Inc. in Irvine, CA and assembled with globally sourced components.

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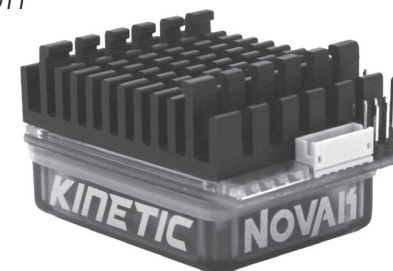
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BASIC SET-UP GUIDE - KINETIC

• See "Track Guide" sheet for Proper Gearing, Profile Selection, Custom Programming & One-Touch Set-Up •

NOVAK

#55-1740-1 Rev.2
2-2011



KINETIC

The Most Advanced Racing Speed Controller

The Kinetic Racing Brushless ESC (#1740) includes Novak's Dynamic Timing Advance™ electronic motor timing, NovaBrakes™, Electronic Power Control™ current limiting, on-board temperature monitoring, zero-timing Sportsman Mode, complete on-board programmability and built-in PC interface.

The Kinetic ESC is loaded with 17 adjustable parameters, sports a cross-cut heat sink, and includes everything necessary including a cooling fan & power trans-cap module.

The Kinetic 1S ESC is optimized for 1S racing and features a low-profile heat sink and 2S LiPo receiver pack harness.



Kinetic 1S (#1741)

For informative product videos, visit the Team Novak Channel on YouTube®.

Join Novak's e-mail list to receive updates about the Kinetic.

To benefit from all of the technical features of the Kinetic, PLEASE READ ALL INSTRUCTIONS BEFORE OPERATION

ACCESSORIES

NOVALINK™ PROGRAMMING INTERFACE [Novak kit #5440]

Optional fully adjustable PC interface, which includes a USB cord and software disk.

PLUG-IN INPUT SIGNAL HARNESS (MINI-JST) [Novak kits #5304 & #5309]

Includes input signal harness with 2mm mini plug on ESC end for use with Kinetic. 4.5" in Novak kit #5304, and 9" in Novak kit #5309.

BRUSHLESS SENSOR HARNESSSES [Novak kit #5351-#5353]

Shielded sensor harness protects sensor wires and provides multiple installation options. 4"/100mm (Novak #5351), 6"/150mm (Novak #5352) & 9"/230mm (Novak #5353).

SUPER-FLEX SILICONE 14GA WIRE SET [Novak kit #5508]

Two each of 9" length black, red, blue, yellow and orange 14GA wire.

SUPER-FLEX SILICONE 12GA WIRE SET [Novak kit #5512]

Two each of 3 ft. length black, red and blue 12GA wire. Optional wire set is perfect for low-resistance connections.

BRUSHLESS MOTOR CONNECTOR WIRE SET [Novak kit #5332]

Flexible 14GA wire with gold-plated connectors for low-resistance connections.

LOW-PROFILE HEAT SINK [Novak kit #55431]

For Kinetic/GTB 2/Havoc Pro SC ESCs with 8.5T or higher motor. Includes thermal gap pad.

REMOTE POWER PROGRAMMING SWITCH [Novak kits #5602 & 5604]

Includes ON/OFF Power Switch and Programming Button harness. #5604 for Kinetic 1S.

2-PIN JST HARNESS SET--MALE & FEMALE PIGTAILS [Novak kit #5612]

Includes 1 male & 1 female harness with 22GA silicone wire and 2-pin JST connector on 1 end.

COOLING FANS--25x25x10mm [Novak kits #5649 & #5653]

Cooling fans fit the ESC's heat sink perfectly & has the Kinetic's 2mm mini plug for easy power connection. Single fan in Novak kit #5649, and 2-pack of fans in Novak kit #5653.

POWER TRANS-CAP MODULE [Novak kits #5679 & 5687]

Replacement Power Trans-Cap provides improved efficiency and lowers operating temperatures. #5679 for 2S LiPo and #5687 for 1S LiPo usage.

POWER CONNECTORS--3.5 & 4mm [Novak kit #5731 & #5741]

Low-Loss connectors generate dozens of wiring routing and installation options.

LEAD-FREE SILVER SOLDER [Novak kit #5831-#5833]

Novak solder contains 3% Silver for high-conductivity and is available in three sizes. 6g in Novak kit #5831, 15g in Novak kit #5832, and 100g in Novak kit #5833.

DOUBLE-SIDED MOUNTING TAPE [Novak kit #5840 & #5841]

Includes cushioned, double-sided tape to secure electronics in vehicles.

10 pieces in Novak kit #5840, and 100 pieces in Novak kit #5841.

HEAT SHRINK TUBING [Novak kit #5850 & #5851]

Novak heat shrink tubing is 6" long and available in six sizes: 1/16" - 3/8".

6 piece assortment in Novak kit #5850, and 24 piece assortment in Novak kit #5851.

SPECIFICATIONS

Input Voltage-1S ESC	1S LiPo
Input Voltage-2S ESC	1-2S LiPo/LiFe cells, 4-6 NiMH
ESC Footprint.....	1.16"x1.47" (29.5 x 37.3mm)
ESC Weight-1S (w/o wires).....	1.15 ounce (32.6 grams)
ESC Weight-2S (w/o wires).....	1.29 ounce (36.6 grams)
B.E.C. Voltage/Current (built-in).....	6.0 volts DC / 3 amps
Power Wire (Battery/Motor).....	14G Super-Flex Silicone
On-Resistance	0.00040 ohm per phase @25°C trans.temp.
PC interface	NovaLink™ Programming Interface
Compatibility	Sensored Brushless Motors

PRECAUTIONS

WATER & ELECTRONICS DON'T MIX!

Allowing water, moisture or other foreign materials to get inside ESC will void warranty.

MUST BE 14 YEARS OR OLDER TO OPERATE

This product is not a toy and is not intended for use by children under 14 years of age without the strict supervision of an adult.

TIMING INCREASES ELECTRONICS' TEMPERATURES

Use extreme caution when setting up and testing your application to avoid overloading and overheating the Kinetic ESC and brushless motor. Excessive overheating will void warranty!

SENSOR-BASED BRUSHLESS MOTORS ONLY

The Kinetic ESC is designed for optimal use with Novak sensor-based brushless motors. Motor may be replaced with sensor-based brushless motors down to 3.5T (540-size) or 4.5T (550-size).

TIMING PRODUCES DANGEROUSLY HIGH SPEEDS

When Novak's advanced timing is activated, the resulting vehicle speed can be dangerously high. It is important to take extra precautions.

NO SCHOTTKY DIODES!

Schottky diodes are never to be used with brushless ESCs. Do not use Schottky diodes with Kinetic ESC!

DO NOT FREE REV OR OPERATE WITHOUT LOAD!

This includes running the motor without a pinion or holding the car in the air and running the motor at or close to full power. Free revving will void the warranty!

DISCONNECT BATTERIES WHEN NOT IN USE

Always disconnect batteries from ESC to avoid short circuits and possible fire hazard.

1-2S LiPo/LiFe OR 4-6 NiMH CELLS ONLY

If using LiPo or LiFe battery packs, use 1 or 2-cell (1-2S) batteries for the vehicle's main battery & be sure the Voltage Cut-Off programming option is turned ON (refer to Track Guide). If using NiCd or NiMH batteries, NEVER use more than 6 cells (1.2VDC/cell) in the vehicle's main battery pack, and disable Voltage Cut-Off Circuitry (refer to Track Guide).

NO REVERSE VOLTAGE!

Reverse battery polarity can damage ESC & void warranty. Disconnect battery immediately if a reverse connection occurs.

POWER TRANS-CAP MODULE REQUIRED

An external Power Trans-Cap module is installed on ESC & MUST be used at all times. Failure to use a Novak Trans-Cap module with proper cell rating (1S or 2S, depending on ESC) will result in higher ESC temperatures & possible thermal shut-down or damage.

TRANSMITTER ON FIRST

Always turn on the power of the transmitter first so that you will have control of the vehicle when you turn on the electronics.

GOOD QUALITY LiPo/LiFe BATTERIES SUGGESTED

Using batteries that cannot supply the amount of current required by this brushless system will result in possible battery pack, ESC, and/or motor damage, and will void the warranty. It is recommended to use cells with a 25C or higher rating.

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 system use is best.** An FM system is acceptable, as long as it is high quality. AM systems are NOT recommended.

DO NOT BUNDLE POWER & SIGNAL WIRES TOGETHER

RF noise in the power wires can adversely effect radio system performance.

INSULATE WIRES

Always insulate exposed wiring with heat shrink tubing or electrical tape to prevent short circuits, which can damage the ESC.

NO CA GLUE

Exposure to CA glue or its fumes can cause damage to internal components of the ESC and result in premature failure.

WIRING AND COOLING FAN

This section shows the polarity of the Kinetic's output pins. The included receiver harness (Novak #5309) has a 2mm mini plug on the end that is plugged into the ESC and a standard JST plug on the receiver end. The included ON/OFF switch on the Kinetic 2S (Novak #5602) has a standard JST plug on it. Before connecting, note the wiring sequence of the installed harness connectors as shown here.

The Kinetic 2S's heat sink is designed to accept a 25x25mm cooling fan, and comes with nylon 4-40x5/8" screws to secure it. To install, simply center the fan on the ESC and push the nylon screws down into the cross cuts of the heat sink. If using metal screws, thread them into the heat sink. Install the fan's power connector onto the fan output pins on the ESC--note polarity as shown below.

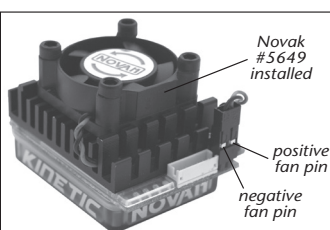


FIGURE 4

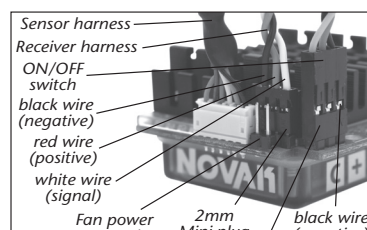


FIGURE 5

STEP 1-CONNECT INPUT HARNESS

The Kinetic has a user-replaceable input harness with a 2mm mini plug on the ESC end of it and the industry-standard JST connector on the receiver end of it. **The Kinetic works with all major radio brand's new receivers** [Refer to Figure 1 to see how to connect the included user-replaceable input harness]. However, some very old receivers must have the wiring sequence in the plastic 3-pin JST connector housing changed on the receiver end. **This is important, as the receiver & servo electronics may be damaged if the sequence is incorrect.**

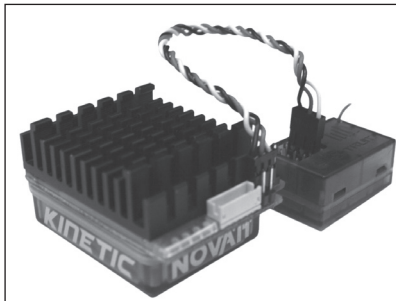


FIGURE 1
Input harness plugged into Ch. 2 of the receiver.

For instructions on changing the wiring sequence for older receivers, visit the Novak Web site (www.teamnovak.com).

STEP 2-MOUNT ESC

Mount the speed control so that the power wires are as far away from other electronics as possible. Make sure that the speed control or the power wires will not interfere with any moving parts in the vehicle. Select a location that has good cooling and allows airflow through heat sinks.

If the ESC gets air flow, it will run cooler; and that means, it will be more efficient!

1. MOUNT SPEED CONTROL IN VEHICLE

Use the included double-sided tape to mount the speed control in vehicle (do not use glue). Avoid contact with side walls or other chassis components to avoid vibration damage.

Be sure receiver & antenna are mounted as far from ESC, power wires, battery, & servo as possible--these components all emit RF noise when throttle is applied. On graphite or aluminum chassis vehicles, it may help to place receiver on edge with crystal & antenna as far above chassis as possible.

Note: Mount antenna as close to receiver as possible--trail any excess wire off top of antenna mast (cutting or coiling excess antenna wire will reduce radio range).

2. SECURE POWER TRANS-CAP MODULE TO CHASSIS

Use included double-sided tape, or a tie-wrap, to mount Power Trans-Cap Module to the vehicle's chassis or shock tower. Module can also be tie-wrapped along the power wires--this requires less space on the chassis and provides good isolation from vibration.

3. INSTALL ON/OFF SWITCH

Use the included double-sided tape, and mount the switch where it will be easy to access--be sure to select a position where it will not get damaged or get switched OFF during a crash or roll-over.

4. SECURE POWER WIRES

To avoid vibration damage, tie wrap the power wires together or to a point on the vehicle.

STEP 3-KINETIC 1S RECEIVER PACK

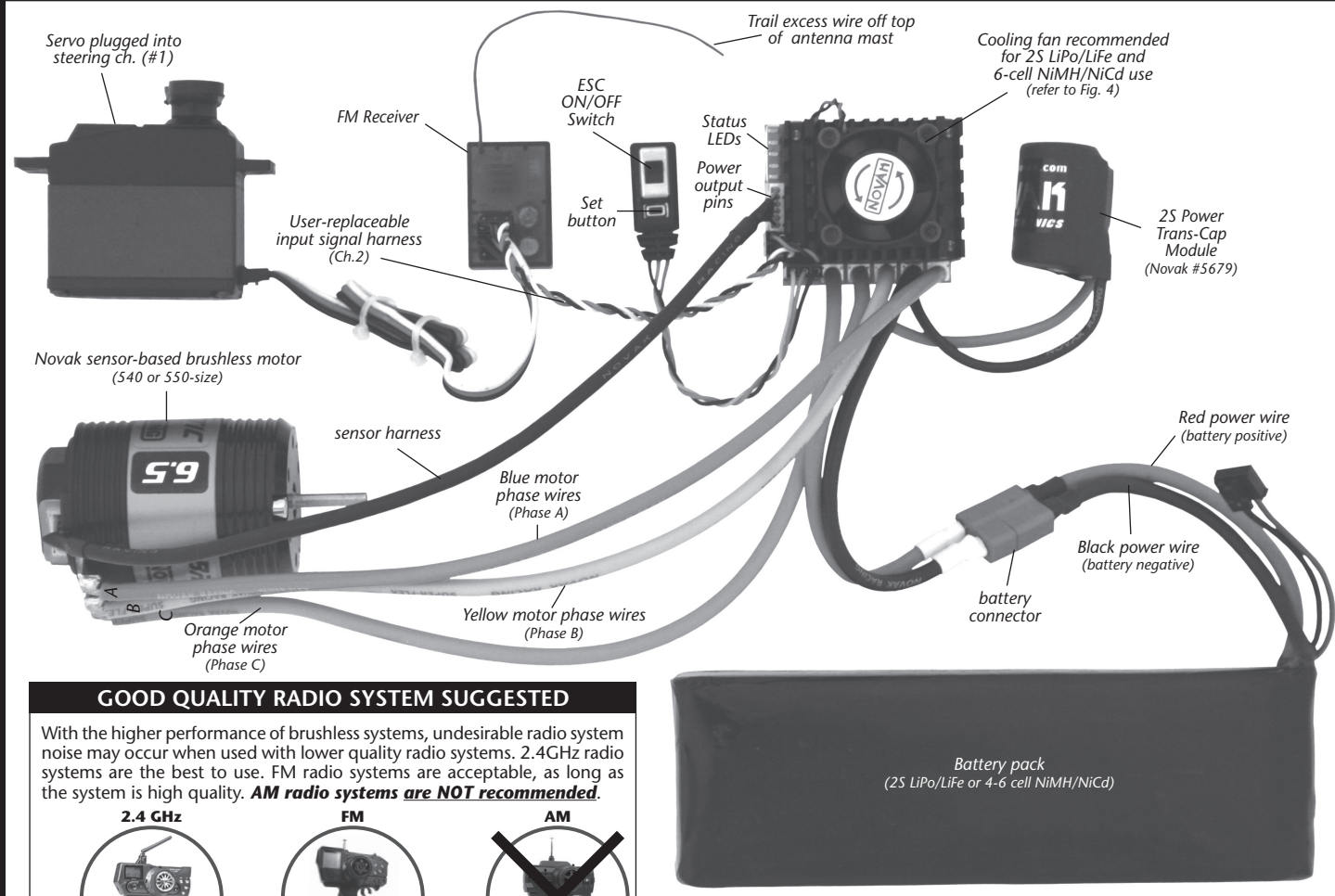
If using a Kinetic 2S (Novak #1740), skip to Step 4.

The Kinetic 1S speed control is wired for using an external 2S LiPo receiver battery pack to power the vehicle's electronics. This method provides the best possible performance and prevents the radio system from cutting-out. The electronics cut-out because of excessive spikes of current being drawn by the motor when the voltage of the battery pack has dropped during the run, allowing the voltage to drop below the required level of the radio system. The best solution to this problem is to power the vehicle's radio system and electronics from a separate power source than what is being used to supply power to the motor. Because of the power requirements of 2.4GHz radio systems, we have designed this system to use a 2S LiPo receiver battery pack for adequate voltage headroom.

1. INSTALL EXTERNAL 2S LiPo RECEIVER PACK (Refer to Fig. 3)

Plug a fully charged external 2S LiPo receiver battery pack into the speed control's receiver pack connector. Be sure to match the red wire from the battery pack to the red wire of the ESC, and the black wire of the battery pack to the black wire of the ESC.

KINETIC 2S SET-UP PHOTO (FIGURE 2)



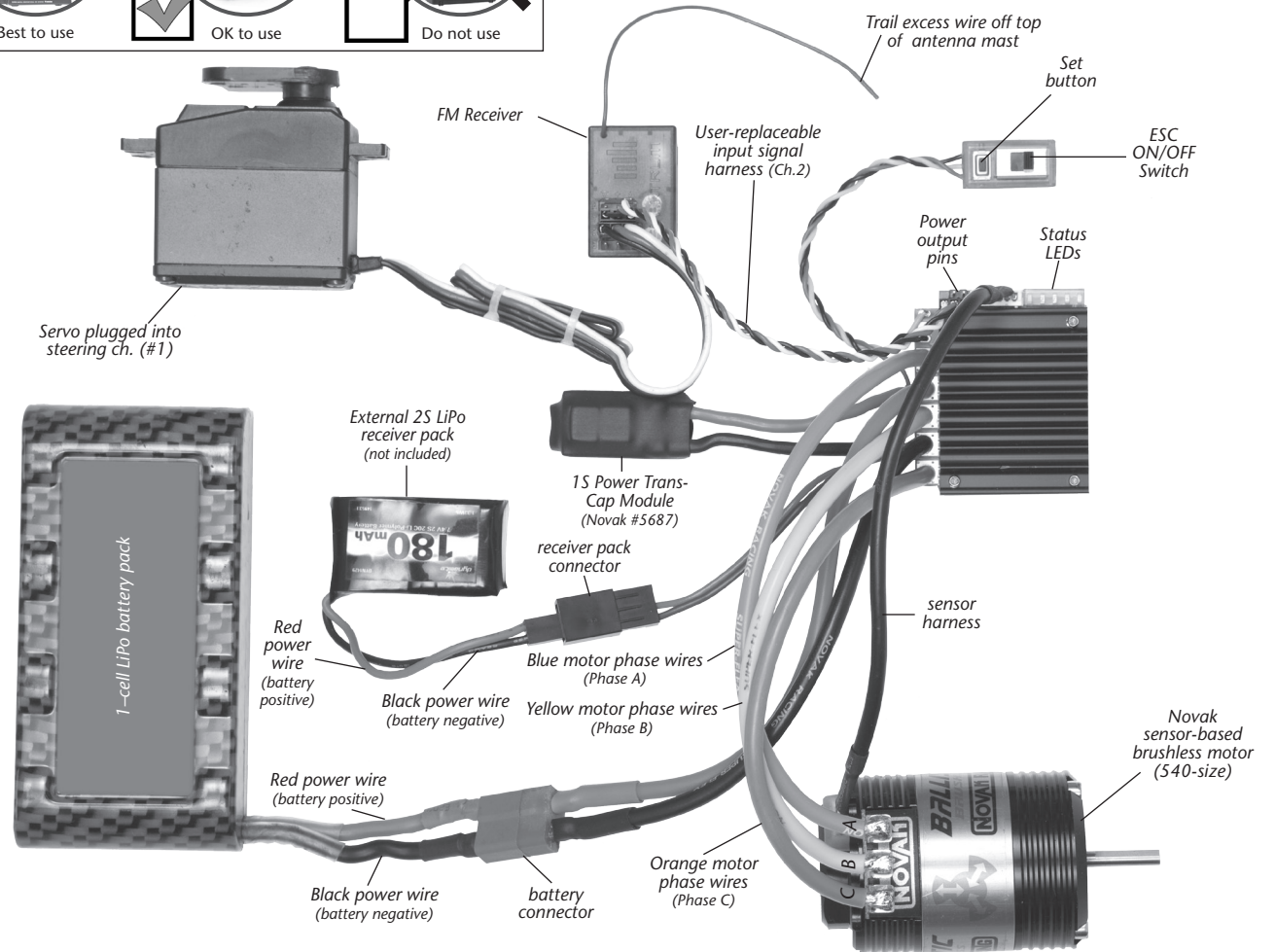
GOOD QUALITY RADIO SYSTEM SUGGESTED

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.**



Battery pack, servo, receiver, motor plugs, and external receiver pack (for Kinetic 1S Set-Up Photo) are not included; items are available separately.

KINETIC 1S SET-UP PHOTO (FIGURE 3)



STEP 4-WIRE ESC TO MOTOR

The Kinetic 1S and 2S ESCs are compatible with all Novak 540-sized brushless sensed motors. It is not compatible with brushed or sensorless brushless motors. Additionally, the Kinetic 2S is compatible with all Novak 550-sized brushless motors.

1. INSTALL PINION GEAR

Install pinion on motor and align pinion and spur gears. Tighten pinion's set screw on the flat of motor shaft.

2. ADJUST MOTOR FOR PROPER GEAR MESH

A. Adjust the motor position for proper amount of free play. **You NEED a small amount of play between the pinion gear and the spur gear (about the thickness of a piece of paper)--check the free play at several positions around the spur gear to ensure a proper mesh (just in case the gears are out of round).**

MAKE SURE THE PINION/SPUR GEAR MESH IS NOT TOO TIGHT!

If gear mesh is too tight, motor shaft breakage can occur.

B. Tighten motor mounting screws--Avoid using excessive force that could break screws or strip the threaded holes in motor.

3. CHECK FOR PROPER GEARING

The brushless motor (with sintered rotor) & ESC should NOT be hotter than 160°F after a 5 minute run. Lower the gearing until both the ESC & motor are under this temperature. The cooler the ESC runs, the better the performance of the system.

4. SOLDER MOTOR POWER PHASE WIRES TO MOTOR

A. Cut the ESC's BLUE, YELLOW & ORANGE silicone motor power wires to the desired length, and strip 1/8-1/4" of insulation from the end of each wire. Tightly twist the exposed strands of wire and tin with solder.

B. Place the ESC's BLUE Phase 'A' motor wire onto motor's 'A' solder tab & solder. Use a soldering iron to apply heat to exposed wire; begin adding solder to tip of soldering iron & to wire. Add just enough solder to form a clean & continuous joint from the plated area of the solder tab up onto the wire. Trim any excess wire with side cutters.

IMPORTANT NOTE: DO NOT OVERHEAT SOLDER TABS

Prolonged/excessive heating of solder tabs (motor or ESC) will damage PCB.

C. Solder the ESC's YELLOW Phase 'B' motor wire to the motor's 'B' solder tab as described in Step 4B above.

D. Solder the ESC's ORANGE Phase 'C' motor wire to the motor's 'C' solder tab as described in Step 4B above.

IMPORTANT NOTE: DO NOT OVERHEAT SOLDER TABS

Prolonged/excessive heating of solder tabs (motor or ESC) will damage PCB.

Note: Make sure no wire strands have strayed to an adjacent solder tab, this will result in short-circuiting & severe ESC damage, which will void the warranty.

5. CONNECT MOTOR SENSOR HARNESS TO ESC

Insert the 6-pin connector at the end of the motor's sensor wires into ESC's sensor harness socket--the connector is keyed and will only insert in one direction. To connect to the ESC, Novak suggests its Brushless Shielded Sensor Harnesses, which are available in three lengths: 4"/100mm (Novak #5351), 6"/150mm (Novak #5352) & 9"/230mm (Novak #5353).

BRUSHLESS MOTOR PRECAUTIONS

FACTORY-INSTALLED POWER TRANS-CAP MODULE REQUIRED

The factory-installed Power Trans-Cap Module MUST be used with brushless motors. If Power Trans-Cap Module becomes dented or damaged, ESC failure can occur--replace immediately (Novak Kit #5679 for 2S & #5687 for 1S). Longer wires will decrease performance.

DO NOT USE SCHOTTKY DIODES

Schottky diodes must NOT be used with brushless ESCs. Schottky diode usage will damage the ESC & void warranty.

MOTOR CAPACITORS NOT NEEDED

Novak brushless motors do not require external motor capacitors.

STEP 5-WIRE ESC TO BATTERY

To connect the Kinetic to the main battery pack using connectors, we suggest low-loss, high power connectors like Dean's Ultra Plug.

- Use polarized connectors. Reverse voltage will damage ESC & void warranty.
- Use a female connector on battery packs to avoid shorting.

1. INSTALL BATTERY CONNECTOR

A. Cut the RED & BLACK silicone battery power wire to the desired length, and strip 1/8"-3/16" of insulation from the end of each wire. Tightly twist and tin the ends of the exposed wire with solder.

B. Solder the ESC's RED (+) battery wire to the connector's POSITIVE (+) contact.

C. Solder the ESC's BLACK (-) battery wire to the connector's NEGATIVE (-) contact.

D. Cover the exposed solder joints with heat shrink tubing to prevent possible short circuits.

2. CONNECT ESC TO BATTERY PACK

Connect the speed control's battery connector to a fully charged 1S-2S LiPo, 1S-2S LiFe cells or 4-6 NiMH cells (1.2 VDC/cell) battery pack.

NOTE: If using NiMH or LiFe batteries, the Voltage Cut-Off Circuitry must be programmed for the appropriate battery type (refer to Kinetic Track Guide).