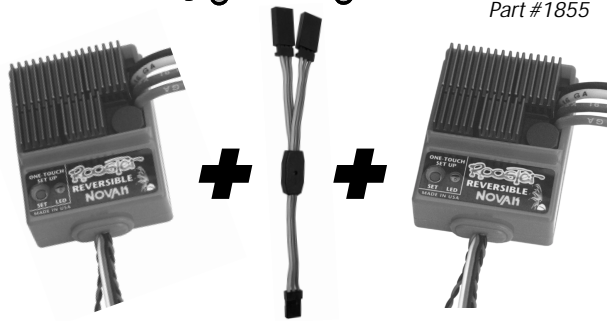


E-MAXX Rooster COMBO

Part #1855



OPERATING INSTRUCTIONS



ROOSTER E-Maxx COMBO

The ROOSTERS are the long standing benchmark in reliable reversible speed controls for 6-7cell/mild-modified set-ups. With two Roosters installed in your Traxxas E-Maxx using the included Input Signal Y-Harness, the Rooster E-Maxx Combo lets you hop-up your E-Maxx with the ability to run standard 7.2V (05 & 075 size) motors (stock Traxxas motors not recommended). You also get the added benefit of brakes before the engagement of reverse, and the Roosters feature Novak's **Smart Braking Circuitry™** that brings the model to a slow speed before hitting reverse to save your vehicle's gearbox and reduce speed control heating. These speed controls feature the original One-Touch Set-Up (There's nothing easier!), exclusive **Polar Drive Technology™** for the smoothest throttle response and improved radio system performance, and **Reverse Disable Circuitry™** that locks-out reverse for racing or forward only use. Other features include built-in **brake light circuitry** to power two high-intensity LEDs for enhanced realism (available separately in the Novak Brake Light LED Kit #5655), **Radio Priority Circuitry™** to maintain steering control even after the battery has discharged, and **dual-level thermal protection**.

SPECIFICATIONS

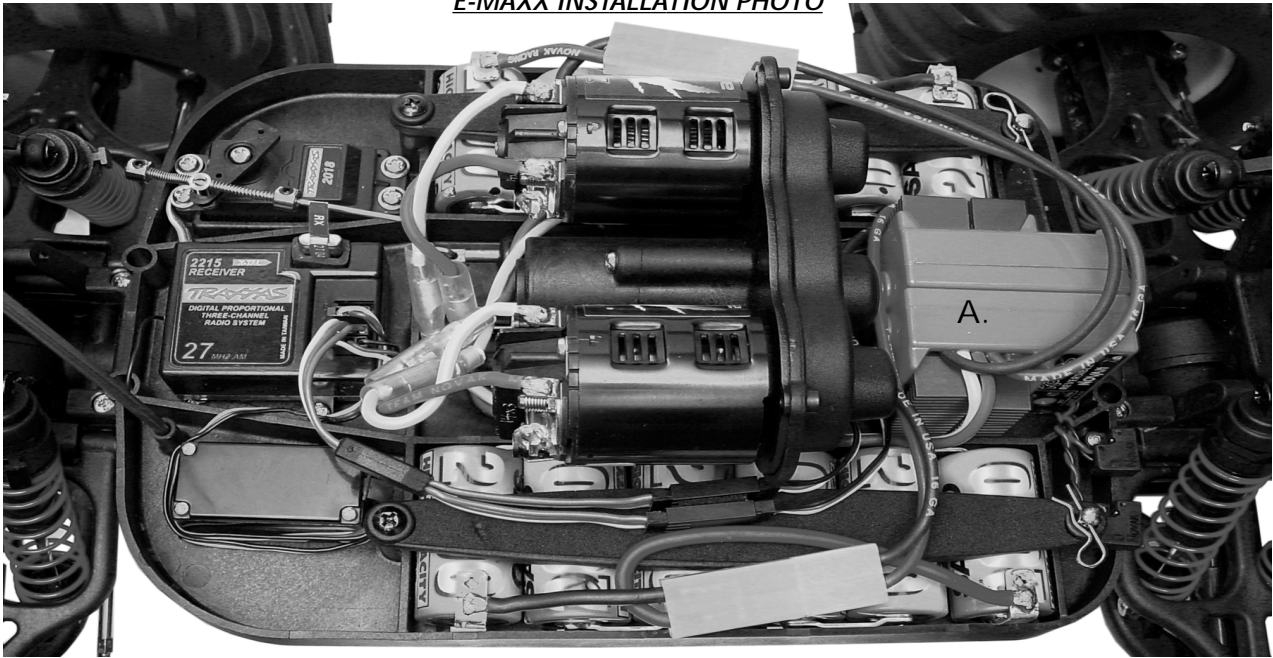
Input Voltage (1.2VDC/cell)	6-7 cells
Case Width	1.63 inches
Case Depth	2.02 inches
Case Height (w/h.sinks)	1.22 inches
Weight (w/heat sinks)	3.00 ounces
On-Resist.-Fwd. (@Trans)	0.018 Ω
On-Resist.-Rev. (@Trans)	0.018 Ω
Rated Current-Fwd.	100 amps
Rated Current-Rev.	100 amps
Braking Current	100 amps
Rev. Delay (after Smart Braking)	Zero Sec.
BEC Voltage	5.0 volts DC
BEC Current	1.0 amp
Power Wire	16G / 6"
Signal Harness	26G / 6"
Transistor Type	MEGAFET
PWM Frequency	1250 Hertz
Motor Limit	Mild Modified*
Part Number	1855

*14 turn motors with available Traxxas E-Maxx gear ratios

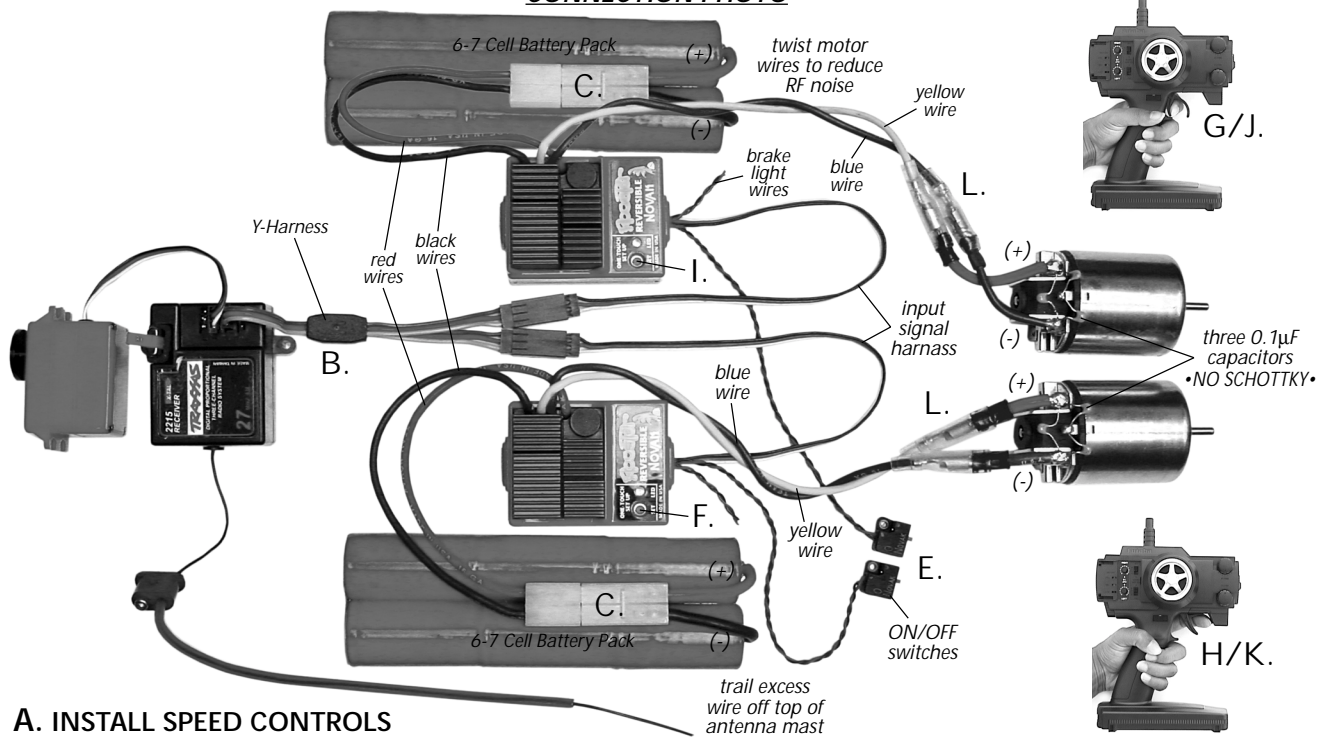
QUICK SET-UP

FOR DETAILED INFO. REFER TO STEPS 1 THRU 6

E-MAXX INSTALLATION PHOTO



CONNECTION PHOTO



A. INSTALL SPEED CONTROLS

Use double-sided tape to mount ESCs in the rear tub of E-Maxx. For more details refer to Step 2.

B. CONNECT SPEED CONTROLS TO RECEIVER

Plug input signal harnesses of each ESC into the double side of the Y-Harness. Plug single side of the Y-Harness into the throttle channel of receiver. If not using stock E-Maxx receiver, make sure ESC signal harness has proper wiring sequence. Refer to Step 1 to change wiring.

C. CONNECT SPEED CONTROLS TO BATTERIES

Plug the JST/Tamiya connector from the first ESC into one of the battery packs (6-7 cell @ 1.2 volts DC/cell). Plug the second ESC into the other battery pack. We found that connecting the left side ESC to the right side motor & battery in the truck keeps excess wire to a minimum, and you won't have to tie wrap the wires to keep them inside the truck and away from moving parts.

D. TURN ON TRANSMITTER POWER

Refer to Step 5 for transmitter adjustments.

E. TURN ON SPEED CONTROLS

Slide ON/OFF switches to the ON positions.

F. PRESS AND HOLD ESC 1's ONE-TOUCH BUTTON

With the transmitter throttle in neutral position, press and hold the One-Touch button on the first speed control until the status LED turns solid red, then release.

G. PULL THROTTLE TO FULL-FORWARD POSITION

Hold until status LED turns solid green.

H. PUSH THROTTLE TO FULL-REVERSE POSITION

Hold until status LED blinks green, then return throttle to neutral position. LED will then turn solid red indicating proper programming and throttle is in neutral position.

I. PRESS AND HOLD ESC 2's ONE-TOUCH BUTTON

With the transmitter throttle in neutral position, press and hold the One-Touch button on the second ESC until the status LED turns solid red, then release.

J. PULL THROTTLE TO FULL-FORWARD POSITION

Hold until status LED turns solid green.

K. PUSH THROTTLE TO FULL-REVERSE POSITION

Hold until status LED blinks green, then return throttle to neutral position. LED will then turn solid red indicating proper programming and throttle is in neutral position.

L. CONNECT SPEED CONTROLS TO THE MOTORS

Use 7.2V (05 or 075 size) standard R/C motors with 14 turns** or higher in the Traxxas E-Maxx.

Turn off speed controls then transmitter.

Plug the bullet connector on the YELLOW wire of the first speed control to positive of the first motor.

Plug the bullet connector on the BLUE wire of the first speed control to negative of the first motor.

Plug the bullet connector on the YELLOW wire of the second speed control to positive of the second motor.

Plug the bullet connector on the BLUE wire of the second speed control to negative of the second motor.

Again, we found that connecting the left side ESC to the right side motor & battery in the truck works best.

M. KICK-UP A ROOST!

Turn on transmitter and then the speed controls.

**Rooster motor specification is 16 turns or higher (mild modified). 14 turns can be used with E-Maxx using available Traxxas gear ratios.

PRECAUTIONS

- WATER & ELECTRONICS DON'T MIX!** Do not operate model in or around water. Never allow water, moisture, or other foreign materials to get inside the ESC.
- USE NEUTRALLY TIMED MOTORS** Using motors with other than 0° timing will draw excess current in reverse, and result in ESC overheating and premature motor wear. Modified motors (with adjustable end bells) timed to 0° or Johnson/Mabuchi (closed end bell) motors are recommended
- 6 or 7 CELLS ONLY** Never use fewer than 6 or more than 7 cells (7.2-8.4 volts DC) in each main battery pack.
- MOTOR CAPACITORS REQUIRED** Three 0.1µF (50V) ceramic capacitors (included) must be properly installed on every motor to prevent radio interference.
- ALWAYS USE HEAT SINKS** Four heat sinks are factory-installed on each Rooster, and must be used for maximum cooling and performance.
- NO REVERSE VOLTAGE!** Reverse battery polarity can damage speed control—Disconnect battery immediately.
- NO SCHOTTKY DIODES** External Schottky diodes must NOT be used with reversible speed controls. Using an external Schottky diode will damage the ESC.
- DON'T LET TRANSISTOR TABS TOUCH** Never allow separate transistor banks to touch each other or any exposed metal. This will create a short circuit and damage the ESC.
- DISCONNECT THE BATTERIES** Always disconnect the battery pack from the speed control when not in use.
- TRANSMITTER ON FIRST** Turn on your transmitter before the ESCs so you will have control of the radio equipment.
- DON'T GET BURN'T!** Transistor tabs and the heat sinks can get extremely hot, so be careful not to touch them until they cool. Supply adequate air flow for cooling.
- INSULATE WIRES** Always insulate exposed wiring with heat shrink tubing to prevent short circuits.

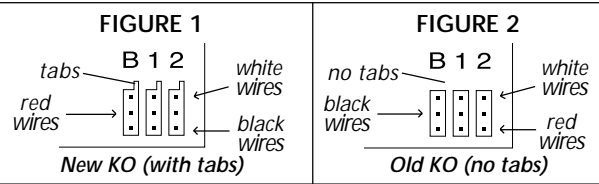
STEP 1 CHANGING THE INPUT HARNESS

The Rooster speed controls come with the industry standard input harness connector. This connector works with all major radio brands. However, with some older style receivers the sequence of the wires in the plastic connector housing needs to be changed. **This is an important step, because the electronics inside the receiver may be damaged if the wiring sequence is incorrect.** Changing the wiring is easily accomplished as described below.

JR • Hitec • New KO • Airtronics Z

If your receiver is a JR, Hitec, Futaba, new KO, or an Airtronics Z (blue case) you do not need to change the sequence of the ESC's input harness wires. New KO cases have tabs on the input harness openings as in Figure 1.

- Insert the input plug into the receiver with the **BLACK wire toward the outside edge** of the receiver case.

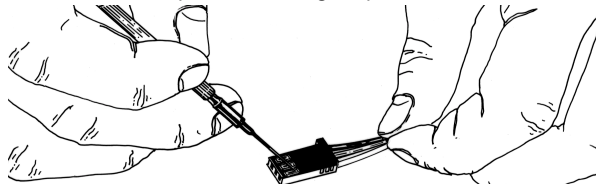


Old-style KO • Old-style Sanwa/Airtronics

If your receiver is an older KO or Sanwa/Airtronics, you must change the sequence of the ESC's input harness wires. Old Sanwa/Airtronics cases are black in color. Old KO cases do not have the tab openings (See Figure 2).

- Interchange the red and black wires** in the plug plastic of the ESC's input harness as shown in Figure 3 below.
- Insert the input plug into the receiver with the **RED wire toward the outside edge** of the receiver case.

FIGURE 3 With a small standard screwdriver, gently lift the plastic prong until the wire and metal socket easily slides out of the plastic housing. Repeat for each wire.



STEP 2

MOUNTING INSTRUCTIONS

1. INSTALL SPEED CONTROL

The two Rooster speed controls should be positioned back to back and mounted on their sides in the rear electronics area of the E-Maxx as shown in the E-MAXX Installation photo on front. Use the included double-sided tape to mount the speed controls to the truck's chassis.

Note: Heat sinks are required with Rooster ESCs for optimum performance and power handling. The Rooster heat sinks come factory installed and must not be removed.

DO NOT SHORT CIRCUIT HEAT SINKS The three banks of transistor tabs are separated by plastic on the case top. Each bank of heat sinks should never contact each other or other conductive objects (metal, etc.), or they will short circuit and damage the speed control.

Replacement Rooster heat sinks available in Novak kit #5409.

2. INSTALL ON/OFF SWITCHES

Determine a convenient place to mount the switches where they will be easy to get to. Mount the switches using double-sided tape or with screws through the hole in the base of the switch housings.

In our install, we mounted the switches to the E-Maxx's stock switch holes with the screws that held in the E-Maxx switch. In this location, just ahead of the left rear tire, the switches are easy to get to without removing the body.

3. RECEIVER NOTES

If you are not using the stock E-Maxx receiver, be sure to mount the receiver as far from the motor, power wires, battery, and servo as possible (*stock position works well*). These components all emit radio noise when the throttle is being applied. Mount the antenna close to the receiver and trail any excess wire off the top of the antenna.

STEP 3

HOOK-UP INSTRUCTIONS

Refer to Quick Set-Up Installation & Connection Photos on front

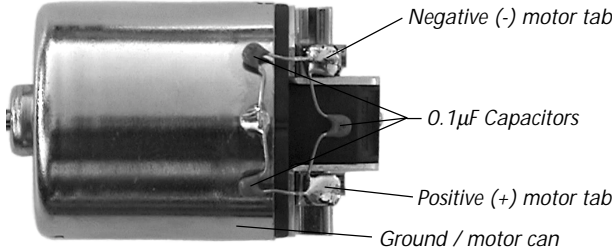
1. INSTALL MOTOR CAPACITORS

Electric motors generate radio noise that can interfere with your receiver and cause radio problems. Included in the ESC accessory kit are six 0.1µF (50V) non-polarized, ceramic capacitors. Three capacitors must be installed on each motor to help reduce the noise generated by the motor and to prevent ESC damage.

Solder 0.1µF (50V) capacitors between:

- POSITIVE (+) motor tab & NEGATIVE (-) motor tab.
- POSITIVE (+) motor tab & GROUND tab*.
- NEGATIVE (-) motor tab & GROUND tab*.

**If your motor does not have a ground tab, solder the capacitor leads to the can of the motor as shown below.*



Extra 0.1µF capacitors are available in Novak kit #5620

2. IMPORTANT NOTE ABOUT SCHOTTKY DIODES

NO SCHOTTKY DIODES

Schottky diodes must NOT be used with reversible speed controls. Using a Schottky diode will damage the speed control and will void the warranty.

3. CONNECT SPEED CONTROLS TO THE Y-HARNESS

After the proper wiring sequence has been configured to match the receiver (Refer to Step 1), plug the input signal harnesses from both speed controls into the double end of the included Y-HARNESS.

The brown wire on the Y-Harness is the negative (-) wire and should connect to the black wire of the ESC.

4. CONNECT Y-HARNESS TO THE RECEIVER

Plug the single end of the Y-HARNESS into the THROTTLE CHANNEL of the receiver.

4. CONNECT SPEED CONTROLS TO THE BATTERY PACKS

Plug the JST/Tamiya connector from the first ESC into one of the battery packs (*6-7 cell @ 1.2 volts DC/cell*). Plug the second ESC into the other battery pack.

We found that connecting the left side ESC to the right side motor & battery in the truck keeps excess wire to a minimum, and you won't have to tie wrap the wires to keep them inside the truck and away from moving parts.

*Removal of JST/Tamiya connector voids warranty.

5. CONNECT SPEED CONTROLS TO THE MOTORS

Plug the bullet connector on the **YELLOW** wire of the first speed control to *positive* of the first motor. Plug the bullet connector on the **BLUE** wire of the first speed control to *negative* of the first motor. Plug the bullet connector on the **YELLOW** wire of the second speed control to *positive* of the second motor. Plug the bullet connector on the **BLUE** wire of the second speed control to *negative* of the second motor.

Again, we found that connecting the left side ESC to the right side motor & battery in the truck works best.

TIP: Twist BLUE & YELLOW motor wires once or twice as they go to the motor to reduce any radio noise emitted from power wires.

MOTOR SELECTION: Use neutrally timed (0°) motors for optimum performance. Typical motors are not tuned to operate in reverse, and draw excessive current that can cause ESC overheating. Modified motors timed to 0° or Johnson/Mabuchi (closed end like E-Maxx stock motor) motors are recommended. Ask a hobby dealer to help select a properly timed motor.

STEP 4

TRANSMITTER ADJUSTMENTS

For proper speed control operation and programming set transmitter adjustments as follows:

1. Set **HIGH ATV** or **EPA** to **maximum** setting.
[Amount of throw at full throttle]
2. Set **LOW ATV**, **EPA**, or **ATL** to **maximum** setting.
[Amount of throw at full brakes]
3. Set **EXPONENTIAL** to **zero** setting.
[Throttle channel linearity]
4. Set **THROTTLE CHANNEL TRIM** to **middle** setting.
[Adjusts neutral position/Increases or decreases coast brakes]
5. Set **THROTTLE CHANNEL REVERSING SWITCH** to **either** position.
[Do not change switch position after programming]
6. Set **ELECTRONIC TRIGGER THROW ADJUSTMENT** to **50% throttle** and **50% brake** throw (or 5:5).
[Adjusts pistol-grip transmitter's throttle trigger throw on electronic/digital transmitters]
7. Set **MECHANICAL TRIGGER THROW ADJUSTMENT** to position with **1/2 throttle** and **1/2 brake** throw.
[Adjusts pistol-grip transmitter's throttle trigger throw on mechanical/analog transmitters]

STEP 5

SPEED CONTROL PROGRAMMING

Both ESCs should be connected to the Y-Harness, Y-Harness connected to the receiver, both ESCs connected to charged battery packs, and the transmitter adjusted as in Step 4.

1. **DISCONNECT MOTORS**
2. **TURN ON THE TRANSMITTER**
3. **TURN ON THE FIRST SPEED CONTROL** (*2nd will come on*)
4. **PRESS AND HOLD ESC's ONE-TOUCH BUTTON**
With transmitter throttle at neutral, press and hold ESC's One-Touch button until status LED *turns solid red*.
5. **RELEASE ESC SET BUTTON WHEN LED IS RED**
6. **PULL TRANSMITTER THROTTLE TO FULL-ON POSITION**
Hold it there until the status LED *turns solid green*.
NOTE: The motor will not run during programming even if it is connected to the speed control.
7. **PUSH TRANSMITTER THROTTLE TO FULL-REVERSE**
Hold it there until the status LED *blinks green*.
8. **RETURN TRANSMITTER THROTTLE TO NEUTRAL**
Status LED will *turn solid red*, indicating that throttle is at neutral and proper programming has been completed.
9. **REPEAT STEPS 2-7 WITH SECOND ESC**
10. **CONNECT MOTORS**

Speed controls are programmed & ready to kick-up a roost!

If transmitter settings are changed, it will be necessary to complete the programming sequence once again. If you experience problems during programming, turn off speed control and repeat programming.

STEP 6

REVERSE DISABLE PROGRAMMING

Both speed controls should be connected to the Y-Harness, the Y-Harness connected to the receiver, both speed controls connected to charged battery packs, and the transmitter should be adjusted according to Step 4.

1. **TURN ON THE TRANSMITTER**
2. **TURN ON THE FIRST SPEED CONTROL**
3. **PRESS AND HOLD ESC's ONE-TOUCH BUTTON**
Press and hold the ESC One-Touch button until the status LED *turns from solid red to solid green*.
4. **RELEASE ONE-TOUCH BUTTON WHEN LED IS GREEN**
5. **PRESS ONE-TOUCH BUTTON TO ENABLE/DISABLE**
SLOW RED FLASH = REVERSE ENABLED
FAST RED FLASH = REVERSE DISABLED
Note: You must press the One-Touch button very soon after the LED begins flashing red (slow or fast).
6. **LED WILL TURN GREEN THEN EXIT PROGRAMMING**
Green LED indicates ESC is exiting programming mode.
7. **REPEAT STEPS 2-6 WITH SECOND ESC**

Note: Both speed controls must have reverse enabled or disabled. If one ESC has reverse enabled and one disabled, the motors will fight each other when the one ESC tries to go into reverse and the other stays in the braking mode. This could draw excess current and overheat the ESCs.

BRAKE LIGHTS

The Rooster speed controls are equipped with Brake Light Cicutry that allows you to power two high-intensity LEDs for realistic model brake lights. The brake lights get their power from the small red and black 26G wires that exit the front of the speed control's case along with the input signal harness and ON/OFF switch. The optional *Brake Light LED Kit* (#5655) includes two LEDs, wire harness, brake light mounting brackets, and detailed instructions.

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TROUBLE-SHOOTING GUIDE

This section describes possible speed control problems, causes, and solutions.

Steering Channel Works But Motor Will Not Run

- Speed control has thermally shut down—Allow ESCs to cool down—Use milder motors or smaller pinion gears.
- Check motor connections. Check motors and brushes.
- One motor wired backwards—Check wiring and reverse.
- Make sure ESCs are plugged into Y-Harness and Y-Harness plugged into throttle channel of receiver. Check throttle channel operation with a servo. Check wiring color sequence of receiver signal harness.

- Possible internal damage—Refer to Service Procedures.

Receiver Glitches/Throttle Stutters During Acceleration

- Motor capacitors broken or missing—Refer to Step 3.
- Receiver or antenna too close to speed controls, power wires, batteries, or motors—Refer to Step 2.
- Bad connections—Check wiring and connectors.
- Motor brushes worn—Replace brushes.
- Excessive current to motors—Use milder motors or smaller pinion gears.

Motor and Steering Servo Do Not Work

- Check wires, receiver input signal harness wiring and color sequence, radio system, crystals, battery and motor connectors, and battery packs.

- Possible internal damage—Refer to Service Procedures.

Model Runs Slowly / Slow Acceleration

- Check motor and battery connectors—Replace if needed.
- Reverse not disabled/enabled in both ESCs—Refer to Step 6.
- Bad battery or motor—Check operation with another.
- Incorrect transmitter/ESC adjustment—Refer to Step 4 & 5.
- Using stock Traxxas 14.4V motors—Use 7.2V motors.

Motor Runs Backwards

- Both motors wired backwards—Check wiring and reverse.
- Backwards motor timing—Reverse motor end bell.

ESC Is Melted Or Burnt/ESC Runs With Switch Off

- Internal damage—Refer to Service Procedures.

**For more help visit our website or contact Customer Service.*

SERVICE PROCEDURES

Before sending your Rooster ESCs for service, review the Trouble-Shooting guide and the instructions. The ESCs may appear to have failed when other problems exist.

After reviewing the instructions, if you feel that one of your ESCs require service, please obtain the most current product service options and pricing by one of the following methods:

WEBSITE: We have an abundance of information available for all levels of speed controls, and all of our products. Print a copy of the *PRODUCT SERVICE FORM* from the SERVICE section of the website. Fill out the needed information on this form and return it with the Novak product that requires servicing.

PHONE/FAX/E-MAIL: If you do not have access to the internet, contact our customer service department by phone, fax, or e-mail as listed in the CUSTOMER SERVICE section below, and they will supply you with current service options and send you a *PRODUCT SERVICE FORM*.

WARRANTY SERVICE: For warranty work, you *MUST CLAIM WARRANTY* on the *PRODUCT SERVICE FORM* and include a valid cash register receipt with purchase date on it, or an invoice from previous service work. If warranty provisions have been voided there will be service charges.

ADDITIONAL NOTES:

- Hobby dealers or distributors are not authorized to replace Novak products thought to be defective.
- If a hobby dealer returns your speed control for service, submit a completed *PRODUCT SERVICE FORM* to the dealer and make sure it is included with the speed control.
- Novak Electronics, Inc. does not make any electronic components (transistors, resistors, etc.) available for sale.

PRODUCT WARRANTY



Each Rooster ESC is guaranteed to be free from defects in materials or workmanship for a period of 120 days from original date of purchase (*verified by dated, itemized sales receipt*). Warranty does not cover incorrect installation, components worn by use, damage from using fewer than 6 or more than 7 cells (*1.2 volts DC/cell*) input voltage, short-circuiting heat sinks, cross-connection of the battery/motor, using the same-gender connectors on ESC, removing JST/Tamiya connector or heat sink or using motors with fewer than 14 turns with E-Maxx, reverse voltage application, damage resulting from thermal overload, damage from excessive force while installing or not using heat sinks, not installing three 0.1µF (50V) capacitors on motors, splices to input or switch harnesses, damage from disassembling case or excessive force when using One-Touch button, tampering with internal electronics, allowing water, moisture, or other foreign material to enter ESC or get onto PC board, incorrect installation/wiring of input plug plastic, external receiver battery pack, or FET servo, allowing exposed wiring to short-circuit, use of a Schottky diode, or any damage caused by crash, flooding, or act of God.

In no case shall our liability exceed the product's original cost. We reserve the right to modify warranty provisions without notice.

Because Novak Electronics, Inc. has no control over connection and use of the ESC, no liability may be assumed nor will be accepted for damage resulting from the use of this product. Every ESC is thoroughly tested and cycled before leaving our facility and is, therefore, considered operational. By the act of connecting/operating ESC, the user accepts all resulting liability.

CUSTOMER SERVICE

CUSTOMER SERVICE HOURS (PST)

Monday-Thursday: 8:00am-5:00pm
Friday: 8:00am-4:00pm (*closed every other Fri.*)
(949) 833-8873 • FAX (949) 833-1631
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