

## OWNER'S MANUAL

# REBEL 2



### PRO FORWARD / REVERSE

- QuickTune Radio Calibration
- Updated Software and Components
- Low Resistance

## INTRODUCTION

Congratulations on purchasing Tekin's new and improved REBEL 2 electronic speed control. This little monster stands in a class all of its own. The REBEL 2 is based on the reliable design of Tekin's original REBEL but has been rebuilt from the inside out with new components and software, better manufacturing process, and much more. These new features make the Rebel 2 more reliable than the original Rebel, which is hard to believe.

## SPECIFICATIONS

Controls	Fwd/Brk/Rev
Input Power	4-10 Cells (Stk) 4-8 Cells (Mod)
On Resistance	0.0038 Ohm
Operating Frequency	2000 Hz
BEC	6.0V/5.0A
Motor Limit	10 Turns (6 Cells)
Reverse Delay	0-4 Sec
Power Wires	(4) 15 GA Silicone
Dimensions	1.8x1.4x1.1 inch
Weight	2.4 oz.

\*Specifications are subject to change without notice.

## PRECAUTION

The following statements need to be understood before using the REBEL 2:

- 1) Do not operate speed control in or around water.
- 2) Do not hook-up the battery backwards! No reverse voltage protection.
- 3) Do not use external Schottky Diodes on reversing speed controls.
- 4) Turn on the transmitter first to avoid uncontrollable noise to speed control.
- 5) Disconnect battery from speed control when not in use.
- 6) Insulate exposed wires with heat shrink tubing to prevent short circuits.

## CONNECTION SELECTION

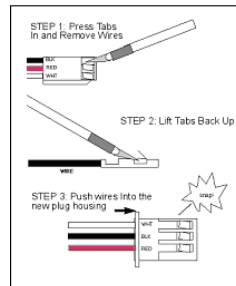
The first step to prepare your speed control for installation is to ensure that it is compatible with the type of radio receiver you are using. The standard connector on this unit is the TEKIN/Futaba J plug. If using a different receiver, the side tab on the TEKIN plug can be removed to fit.

**IMPORTANT:** With some older style receivers, the wiring sequence in the housing connector must be changed due to polarity or damage will occur.

\*If a change is needed, follow the steps below to change plugs:

- 1) Remove the original plug housing. Using a small hobby knife, press in the three metal tabs far enough that each of the wires can be removed from the black plug housing (Figure 1: Step 1).
- 2) After removing the wires from the plug housing, use a hobby knife and **carefully** lift the metal tabs back up (Figure 1: Step 2).
- 3) Select the plug housing that matches your radio system and insert the wires into the housing matching the wire colors to the labels on the plug (Figure 1: Step 3).

FIGURE 1: CHANGING PLUG TYPES



**IMPORTANT:** As long as the instructions are followed correctly and proper polarity is observed, changing the motor and battery plugs will not void warranty. Wiring the plug incorrectly may damage the speed control or radio receiver and void the warranty.

## MOUNTING

- 1) Placement: Choose a location for the speed control that is protected from debris. To prevent radio interference place as far away from the radio receiver as possible and keep the power wires as short as possible.
- 2) Mounting: Clean the bottom of the speed control and chassis for best results. Using the double-sided tape, (included in accessory pack) mount the speed control to chassis.
- 3) Using a piece of double-sided tape mount the ON/OFF switch in a convenient place.

## HOOKUP INSTRUCTIONS

**IMPORTANT:** Take precautions if changing factory battery connector. Connecting the battery backwards will cause damage, and will void warranty.

- 1) CONNECT SPEED CONTROL TO RECEIVER

After the correct plug has been installed according to your receiver, plug the speed control into the throttle channel of the receiver.

- (Channel 1: Servo)
- (Channel 2: Speed Control)  
"1 to Turn, 2 to Burn"

- 2) CONNECT SPEED CONTROL TO BATTERY AND MOTOR

ESC	BATTERY	MOTOR
Black Wire	(-) Negative	
Red Wire	(+) Positive	
Blue "Bullet" Wire		(-) Negative
Red/Pink "Bullet" Wire		(+) Positive

\*Refer to Wiring Diagram

**CAUTION:** If the battery wires touch during the plug installation. It will cause an electrical short circuit resulting in damage to the pack and possibly a fire hazard.

**NOTE:** Make sure all wires are secure and a safe distance from all moving parts using the zip-ties in the accessory pack.

- 3) INSTALL MOTOR CAPACITORS

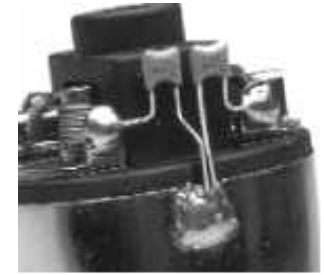
Check your motor; it may have pre-installed capacitors. If not, install the 0.1uF capacitors on the motor that were included in your accessory kit. These capacitors help reduce the noise generated by the motor and prevent speed control damage. Solder the capacitors between:

Capacitor 1: Negative (-) motor tab to ground or motor can.

Capacitor 2: Positive (+) motor tab to ground or motor can.

Capacitor 3 (Optional): Positive (+) motor tab to Negative (-) motor tab.

FIGURE 2: INSTALLING CAPACITORS



**IMPORTANT: NO SCHOTTKY DIODES.** Schottky Diodes can NOT be used with reversible speed controls. This will cause damage to the speed control and will void the warranty.

**NOTE:** The 2" red wire bundled with the radio plug wires is a switched battery supply. That can used for FET servo.

## TRANSMITTER ADJ.

Before turning on your speed control, there are a few transmitter adjustments that will ensure optimum operation.

**NOTE:** Not all transmitters have these adjustments.

- 1) Set HIGH ATV/EPA to maximum setting. (Amount of throw at full throttle)
- 2) Set LOW ATV/EPA/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. (Adjust neutral position/increase or decrease coast brakes)
- 5) Set ELECTRONIC TRIGGER THROW to 70% throttle and 30% brakes or 7:3. (Adjust trigger throw for digital transmitters)
- 6) Set MECHANICAL TRIGGER THROW to position with 2/3 throttle and 1/3 brake. (Adjust trigger throw on analog transmitters)

## QuickTune

**NOTE:** Speed control is hooked up to the receiver, a charged battery being used, and the transmitter is adjusted properly.

### QuickTune:

- 1) Turn on transmitter.
- 2) Turn on speed control.
- 3) Press and hold the set button on the speed control. The light will go out and then start blinking red (approximately 10-15 seconds).
- 4) Pull transmitter trigger to the full position.
- 5) Push transmitter trigger to the full brake position.
- 6) Release trigger.
- 7) Solid red light means unit is calibrated.

**NOTE:** Must complete these steps while the light continues to blink. When properly calibrated, the Green LED comes on at full throttle and the Red LED is ON at neutral. If any problems occur, turn off the speed control and repeat programming.

### SETTING THE REVERSE DELAY:

**NOTE:** Speed control is hooked up to the receiver, a charged battery being used, and the transmitter is adjusted properly.

- 1) Turn on transmitter.
- 2) Turn on speed control.
- 3) Press and hold the set button on the speed control for the length of time you want the reverse delay to be. If you hold the button for more than 4 seconds, reverse operation will be disabled and the speed control will only have forward/brake until you set the reverse delay again.

**NOTE:** Holding the button too long will initiate QuickTune Mode. If this occurs, you will have to repeat the QuickTune.

SET-BUTTON FUNCTION	
Holding in for...	Function
0 – 4 seconds	Sets reverse delay time
5 – 9 seconds	Activates reverse bypass
10 – 15 seconds	QuickTune Mode

## OPERATING TIPS

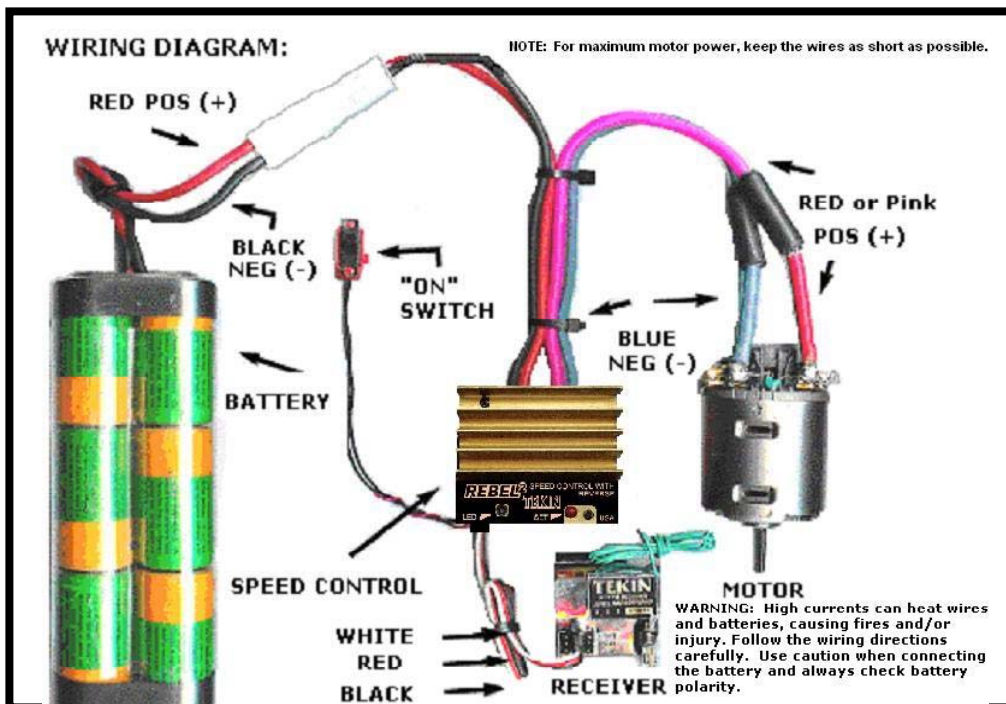
Listed below are a number of tips to ensure that you will get years of trouble-free service from your Tekin speed control.

### PROPER ON/OFF PROCEDURE

Always turn your transmitter on first and then turn on your speed control. At the conclusion of your run, simply reverse the above procedure.

### BATTERY POLARITY

It is extremely important to ensure the battery pack is connected to the speed control properly.



Connecting them backwards could cause severe damage to the battery pack and/or speed control.

### DO NOT JAM GEARS

Avoid rapidly switching from forward to reverse. This will cause tremendous reduction in run time and excessive heat build-up.

### RADIO INTERFERENCE

Try to keep the receiver at least 1-2 inches away from any motor or battery wires.

### RECEIVER BATTERY

The built-in BEC (Battery Eliminator Circuit) is strong enough for 1 standard servo. If you are using a high power servo or over 7 cells, a separate receiver battery is needed.

## RECEIVER BATTERY

### NOTE: Optional

Connect a separate battery pack to the receiver using the "B" or "BAT" socket on the receiver. A small switch should be used on the receiver pack to operate the radio. The receiver pack should have no more than 5 cells. For operation turn on transmitter and turn on receiver switch. Leave the speed control switch in the OFF position.

## TROUBLESHOOTING

### ERRATIC RADIO OPERATION

- 1) No capacitors on motor: Install capacitors.
- 2) Receiver too close to speed control and/or wires: Move speed control.
- 3) More than 7 cells in main battery: Reduce batteries.

- 4) Main battery voltage low: Recharge batteries.

### NOT REACHING FULL SPEED

- 1) Speed control not adjusted properly: QuickTune Calibrate.

### OVERHEATING OR SHUTTING DOWN

- 1) Battery connected backwards: Disconnect battery immediately!
- 2) No cool down period between runs: Allow cool down times.
- 3) Using a modified motor fewer than 10 turns: Use milder motor.
- 4) Operating in reverse for extended period of time: Avoid excessive reverse.
- 5) Pinion gear on motor too big: Use smaller gear.

### MOTOR WON'T SHUT OFF; RUNS AT LOW SPEED

- 1) Moisture in speed control: Disconnect battery and allow speed control to dry.

### THROTTLE WORKS, STEERING DEAD

- 1) Bad servo and/or wiring: Replace servo and/or wiring.
- 2) Servo not plugged into receiver channel 1: Plug in servo to channel 1.

### STEERING WORKS, THROTTLE DEAD

- 1) Speed control receiver plug improperly wired and/or not plugged into receiver channel 2.
- 2) Faulty motor and/or wiring: Check connection of motor and related connections.
- 3) Transmitter and/or speed control not adjusted properly.

### STEERING AND THROTTLE DEAD

- 1) Speed control receiver plug improperly wired and/or not plugged into receiver channel 2.
- 2) Battery voltage too low: Recharge battery.
- 3) Faulty motor and/or wiring: Check connection of motor and related connections.
- 4) Dirty on/off switch.
- 5) Faulty radio equipment: Check radio batteries and crystals.
- 6) Internal speed control damage: Return speed control for repairs.

## REPAIR & SERVICE

Before sending your REBEL 2 in for service, please review the Instructions and Troubleshooting sections. After reviewing these instructions, if your REBEL 2 still requires service, please obtain the most current product service options & pricing by the following:

WEBSITE: ([www.teamtekin.com](http://www.teamtekin.com)) Follow the instructions from the Service Request section of our website.

PHONE/FAX: Contact our customer service department. 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.

NOTES: Hobby dealers or distributors are not authorized to replace TEKIN products thought to be defective.

Tekin, Inc.

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## WARRANTY

TEKIN, INC. guarantees speed controllers to be free from factory defects in materials and workmanship for a period of 120 days from date of purchase, when verified by sales receipt. This warranty does not cover: suitability for specific application, components worn by use or improper voltage (fuse provides protection in most cases), tampering, misuse, or shipping. Our warranty liability shall be limited to repairing unit to our original specifications. Because we have no control over the installation or use of this product, in no case shall we be liable for damages.

Additionally, these items void the warranty:

- 1) Using the same polarity connectors on the battery and motor wires from the speed controller.
- 2) Allowing water or moisture into the speed controller.
- 3) Incorrect wiring.
- 4) Use inconsistent with the instructions.