

CX-II

Competition Speed Controller

Economical FET speed controller
Uses power MOSFET transistors

● Instruction Manual ●



Thank you for purchasing the CX-II speed controller. Please read this manual carefully to insure proper operation of your controller before using.

Features	Specifications
<ul style="list-style-type: none">• Power MOSFETs are used for maximum efficiency.• Advanced design allows the use of high current motors.• FET Shunt braking circuit• Compact design and ease of use that you expect from KO Propo• Extremely light weight for competition.• Optional heat sink available.	<ul style="list-style-type: none">• Dimensions 38 × 32 × 14.5mm• Weight 27g• Voltage 6.0—8.4V• Maximum continuous current 75amps• Maximum current surge 220amps• Forward ON resistance .015 Ohms• Operation:<ul style="list-style-type: none">Proportional forward controlShunt braking

Cautions on Use

3

Electronic speed controllers are as delicate as they are sophisticated. Because of this it is necessary to observe the following rules to prevent serious and expensive damage to your controller.

- Always observe the correct battery polarity. Always connect the (+) terminal to the red wire and the (−) terminal to the black wire. NEVER change the Connectors on the speed control as this will void your warranty! KO PROPO speed controllers are now equipped with the Tamiya battery connector. A battery pack with a Tamiya connector is required.
- To reverse the direction of the motor, reverse the battery connector. **NEVER** reverse the battery connector or permanent damage will occur.

- The CX-II contains a battery eliminator circuit (BEC) which powers the receiver and steering servo. Do not connect a separate receiver battery pack.
- Never turn on the speed controller switch without first connecting the speed controller to the receiver.
- Do not spray any substance on the amplifier circuitry or permanent damage will occur.
- Water is the greatest danger to your speed controller. Avoid operating your model in the rain or in puddles. If you are using the model in a muddy environment, take precautions to keep the mud away from the controller.
- Do not operate the motor when the vehicle is stalled or excess current drain can damage the motor, batteries, and/or controller.

Cautions on Use

- (1) Never reverse the polarity of the battery connectors. Be sure the red (+) wire of the controller is connected to the red (+) wire of the battery. Be sure the black wires are connected similarly.



- If these connectors are reversed damage may occur which will be beyond economical repair.
- Always check to polarity of the plugs before connecting.
- Always connect the battery pack last.

- (2) Always disconnect the motor from the speed control before using a motor tester.



- If the controller is still connected, damage to the amp may occur.

Cautions on Use

- (3) Protect the controller from water!

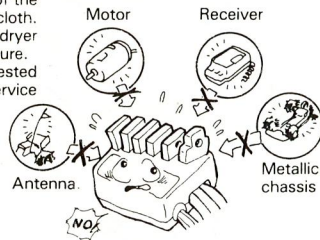
If the speed controller gets wet:



- Unplug all connectors.
- Wipe the inside of the case with a dry cloth.
- Dry with a hair dryer on low temperature.
- Have the unit tested by the factory service center.

- The rest of the radio controll system including the servo, receiver, and the motor are also easily damaged by water. Avoid running the model through puddles or in the rain.

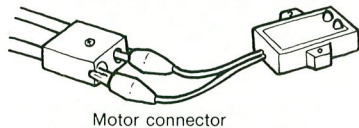
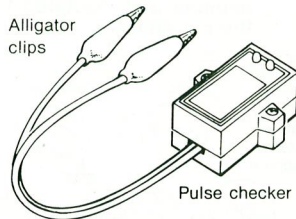
- (4) Keep the case of the controller away from the receiver antenna and insulated from the car chassis.



- It is a good idea to attach the controller to the model with servo mounting tape.

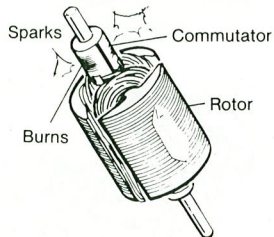
To Get the Most from Your CX-II

- (1) To use the pulse checker, disconnect the motor first.



- Connect the red clip to the red side of the connector and the black clip to the blue side of the connector.

- (2) Periodically check your motor.



- If the commutator is blackened or burnt, arcing can occur which causes large voltage spikes. The motor will not run at maximum efficiency and the controller may be damaged. In addition the spikes give off radio interference which can affect the control of your model. When the motor is in this condition it should be repaired or replaced.

To Get the Most from Your CX-II

- (3) Always use at least three noise killer capacitors.

Do not let the capacitor leads short against the motor or another capacitor lead.

Keep the capacitor leads as short as possible.

Be careful to avoid any short circuits.

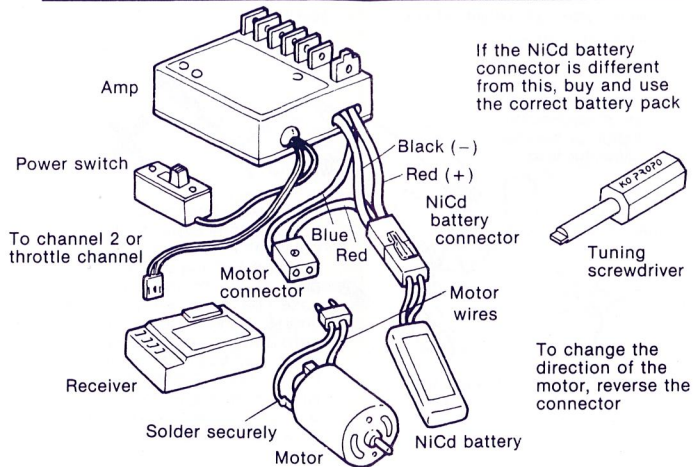
Solder the leads securely.

Trim the wire.



- This installation must be done neatly. Solder one capacitor between the poles of the motor. Solder the remaining two capacitors between a pole of the motor and the motor case. Be sure not to create any shorts. **NEVER** solder a capacitor onto a motor connector as this is a good way to create a short circuit. If your hobby shop does not have Noise killer capacitors, you should purchase three .047uf ceramic capacitors at a local electronics store. The value can vary up to 25%.

Names of the Parts and Connections



Set Up and Adjustment

Using the adjustment wand included with your speed controller, set the neutral and high speed adjustments to their center of rotation. Turn the exponential control fully counter clockwise. The transmitter throttle trim should be set to its center position. If you have a two stick transmitter with a throttle kick-down lever it should be set to the lower position. If you have a pistol grip transmitter set the following adjustments if applicable:

Throttle trim: Center position

Throttle exponential: Linear position

Throttle end point adjustments: Maximum throw

Plug the speed controller into the receiver. Connect the pulse checker into the motor plug of the controller (the motor must **not** be connected at this time). Connect the speed controller's battery connector to the running battery. Turn on the transmitter. Turn on the speed controller. Move the steering control to verify operation of the radio control unit. Without moving the throttle control turn the neutral adjustment until the green light on the pulse checker begins to glow. Turn this adjustment back until the light goes out. Now move the throttle control until it is almost at the full throttle setting (about 80% of the full throttle position). Turn the high speed adjustment until the red light just turns on. If the throttle control appears to operate in the wrong direction it will be necessary to flip the reversing switch on the transmitter for the throttle channel. If your transmitter has an exponential adjustment for the throttle it can now be set as required or the exponential adjustment on the speed controller can be used. Finally turn everything off, unplug the running battery, unplug the pulse checker and plug in the motor to the speed controller. The adjustment of your speed controller is now complete. As you begin to use the controller you may find it necessary to do some minor adjustments of the throttle end point adjustments (if equipped) to match the performance of the model.

Malfunction Checklist

Problem	Cause	Remedy
Can't get full speed	Controller not adjusted for full throttle	Adjust using pulse checker
Can't get full speed	Battery pack is low on charge	Recharge battery or replace
Transistors get too hot	Excessive current drain	Eliminate cause of excessive current drain
No response	Switch is not on	Turn on switch
No response	Connector is loose	Check all connectors
No response	Battery is low	Recharge or replace
Motor doesn't stop in neutral	Controller not adjusted properly	See section on adjusting controller

Service

- If your speed controller requires service due to failure or misoperation you may send it to our service center for repair.
- To speed this service along send the controller directly back to our service center. **Do not** bring it back to the hobby shop where you purchased it unless they instructed you to do so.
- Please inform our service center in writing the nature of the problem and the conditions leading up to the problem. We must have this information in order to give you reliable service. This letter must accompany the unit. Do not send us a letter under separate cover or call to tell us the problem.
- If we feel the service is not covered under warranty or if we feel it will be expensive to repair, we will contact you before service is done. You may also request a free estimate in your letter.
- Send the unit with your letter and your complete name and address to:

Cirrus R/C Systems
18480 Bandilier Circle
Fountain Valley, CA
92728-8610

For more information call: (714) 963-0329

Service Request Card

To: SERVICE DEPARTMENT

Name

Phone

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Address

Indicate the type of problem. For problems other than those given below, describe the problem in the space provided.

A Reverse connection B Lead wires shorted C Motor shorted D Water damage

Other

This amp is for use with:

1 KO 2 Sanwa 3 Futaba 4 Futaba FJ 5 JR 6 ()