

BLADE™ EX



E-flite™

Specifications

Length	15.75 in (400mm)
Height	7.17 in (182mm)
Main Rotor Diameter	13.60 in (345mm)
Weight RTF w/Battery	8.0 oz (227 g)
Main Motor	180 (2 installed)
Battery	7.4V 800mAh Li-Po (included)
Transmitter	FM 4-Channel (included)
On-Board Electronics	4-in-1 Receiver/Mixer/ESC/Gyro (installed)
Servo	EFLRS75 High-Speed, High-Torque (2 installed)

Introduction

The Blade™ CX is a truly Ready-for-Anyone-to-Fly micro class electric helicopter. Coaxial counter-rotating blades cancel out the rotational torque that makes hovering a conventional helicopter so difficult while providing unsurpassed stability in all other phases of flight too. Whether you are a first-time helicopter pilot or an experienced pilot looking for the best in coaxial micro helicopter performance, you'll enjoy many of the outstanding features that have the Blade CX flying in no time such as pre-installed main motors, 4-in-1 control unit with receiver, mixer, ESC and gyro, and high-speed, high-torque S75 sub-micro servos. With the included 4-channel FM transmitter, 2-cell 800mAh Li-Po battery pack and DC charger, you'll have precise control for hovering, forward flight and more with durations of up to 15 minutes per charge.

While the Blade CX is nearly ready-to-fly right from the box, please take the time to read through this manual completely for tips on battery safety and charging, control checks, flying and more. Please also take a few minutes to watch the included Instructional Video CD for additional tips and to see the Blade CX in action.

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Warning

An RC model helicopter is not a toy! If misused, it can cause serious bodily harm and damage to property. Fly only in open areas, preferably at AMA (Academy of Model Aeronautics) approved flying sites.



Lithium Polymer batteries are significantly more volatile than alkaline or Ni-Cd/Ni-MH batteries used in RC applications. All manufacturer's instructions and warnings must be followed closely. Mishandling of Li-Po batteries can result in fire.

Additional Required Equipment

Only 8 "AA" batteries (sold separately) are required to complete your Blade™ CX.

Blade CX RTF Contents

Item	Description
N/A	Blade CX RTF Airframe
EFLH1040	4CH Transmitter FM 72MHz
EFLB0990	7.4V 800mAh 2-Cell Li-Po, JST/Balance
EFLC3100	2-Cell Li-Po Balance Charger, 0.5A
EFLH1209	Mounting Accessories & Screwdriver



Warranty Information

Horizon Hobby, Inc. guarantees this model to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. In no case shall Horizon Hobby's liability exceed the original cost of the purchased kit. Further, Horizon Hobby reserves the right to change or modify this warranty without notice.

In that Horizon Hobby has no control over the final assembly or material used for the final assembly, no liability shall be assumed nor accepted for any damage resulting from the use of the final assembled product. By the act of using the assembled product, the user accepts all resulting liability.

Please note that once assembly of the model has been started, you must contact Horizon Hobby, Inc. directly regarding any warranty question. Please do not contact your local hobby shop regarding warranty issues, even if that is where you purchased it. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance.

If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.

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Battery Warnings, Guidelines and Charging

While the 7.4V 800mAh 2-cell Lithium Polymer Battery Pack (EFLB0990) included with your Blade™ CX features Charge Protection Circuitry and Balance Charging via the included 2-cell Lithium Polymer Balance Charger (EFLC3100) to help ensure a safe charge every time, you MUST read the following safety instructions and warnings before handling, charging or using the Li-Po battery pack.



Note: Lithium Polymer batteries are significantly more volatile than the alkaline, Ni-Cd or Ni-MH batteries used in RC applications. All instructions and warnings must be followed exactly. Mishandling of Li-Po batteries can result in fire.

By handling, charging or using the included Li-Po battery you assume all risks associated with lithium batteries. If you do not agree with these conditions, return your complete Blade CX model in new, unused condition to the place of purchase immediately.

Battery Warnings, Guidelines and Charging (continued)

- You must charge the included 7.4V 800mAh 2-cell Li-Po battery pack in a safe area away from flammable materials.
- Do not charge the battery when installed in the helicopter.
- Never charge the battery unattended. When charging the battery you should always remain in constant observation to monitor the charging process and react to potential problems that may occur.
- After flight, the battery must be cooled to ambient temperature before charging.
- **You MUST use the included 2-cell 7.4V Li-Po Balance Charger ONLY.** Failure to do so may result in a fire causing personal injury and/or property damage. **DO NOT use a Ni-Cd or Ni-MH charger.**



- If at any time during the charge or discharge process the battery begins to balloon or swell, discontinue charging or discharging immediately. Quickly and safely disconnect the battery, then place it in a safe, open area away from flammable materials to observe it for at least 15 minutes. Continuing to charge or discharge a battery that has begun to balloon or swell can result in a fire. A battery that has ballooned or swollen even a small amount must be removed from service completely.
- In the event of a crash, you must quickly and safely disconnect and remove the battery from the model, then place it in a safe, open area away from flammable materials to observe it for at least 15 minutes.
- Store the battery at room temperature for best results.
- When transporting or temporarily storing the battery, the temperature range should be from 40–120 degrees Fahrenheit. Do not store the battery or model in a car or direct sunlight whenever possible. If stored in a hot car, the battery can be damaged or even cause a fire.
- Do not over-discharge the battery. Discharging the battery too low can cause damage to the pack resulting in reduced performance and duration. Follow the additional guidelines found in the “Flying the Blade CX” section (page 25) to prevent over-discharge of the battery.

If you have any further questions or concerns regarding the handling, charging and/or use of the included Li-Po battery pack, please contact Horizon Hobby’s Product Support staff at 1-877-504-0233.

Battery Warnings, Guidelines and Charging (continued)

It is important that you only charge the included 7.4V 800mAh 2-cell Li-Po Battery Pack (EFLB0990) with the included 2-cell 7.4V Li-Po Balance Charger (EFLC3100). Your battery pack is equipped with special Charge Protection Circuitry and a Balance Charge Lead with connector that is only compatible with this charger. Attempting to charge the pack using another Li-Po charger or non Li-Po compatible charger could result in serious damage. Please familiarize yourself thoroughly with the warnings and guidelines (pages 4–5) before continuing.

Note: The Li-Po battery pack included with your Blade™ CX will arrive partially charged. For this reason the initial charge may only take approximately 1.0–1.5 hours.

The included 2-cell 7.4V Li-Po Balance Charger will charge a near fully discharged (not over-discharged) 7.4V 800mAh 2-cell Li-Po Battery Pack in approximately 2.0–2.5 hours. In some cases the charge time may be shorter depending on the actual amount of capacity left in the pack after a flight. **NEVER charge the battery unattended.**

The charger requires up to 1.5 Amps of 11.5–15 Volt DC input power that can be supplied from a small 12V gel cell or car battery.



Battery Warnings, Guidelines and Charging (continued)

Input power for the charger can also be supplied through the use of an AC to DC adapter/power supply for convenient charging anywhere an AC outlet is available. We recommend the optional E-flite™ AC to 12V DC, 1.5 Amp Power Supply (EFLC4000). **NEVER attempt to power the charger from an AC outlet without the use of a proper AC to DC adapter/power supply.**



The charger is equipped with two LED indicators marked RED and GREEN on the label. These LEDs indicate the following (also found on the label of the charger):

- **Red Flashing LED Only:** Input power with no battery connected
- **Red and Green Solid LED:** Battery connected and charging
- **Red Solid LED Only:** Charge complete
- **Red and Green Flashing LED:** Charge error

Battery Warnings, Guidelines and Charging (continued)

Once you have connected the charger to a power source (Use care to ensure proper polarity when connecting the charger to the power source), its red LED will flash to indicate the charger has power and is ready to begin charging. Connect the Li-Po battery pack to the charger using the specially marked Balance Charge Lead. The connector is keyed to prevent reverse polarity connection.



When the battery is properly connected and charging normally, the red and green LED indicators will glow solid. Once the battery has been fully charged, the green LED will go out, leaving just the red LED glowing solid. The battery can now be removed from the charger and installed into the Blade™ CX for flight.

Charge Errors and Indications

In the event that both the red and green LEDs flash, a charge error has occurred. Some examples of charge errors and their indications include:

- Alternating flashing of the red and green LEDs will indicate that the charge process has been interrupted. If input power to the charger has been interrupted due to disconnection from the power source or a drop in voltage/current output from the power source, unplug the battery from the charger. Next, check to make sure that the alligator clips are firmly and properly attached to the power source or that the input power plug from the optional AC to 12V DC adapter/power supply is connected. Also be sure that the power source is providing the proper amount of voltage and current required to the charger.

After confirming the connections and that the power source is delivering the necessary voltage and current, re-start the charge process by connecting the battery pack. Continue to monitor the charge process to ensure that no further charge errors occur.

- Simultaneous flashing of the red and green LEDs will indicate that the voltage of the Li-Po battery pack is too low to allow the charge process to begin. In this case the battery may have been over-discharged due to flying the model too long (For more information on preventing over-discharge of the Li-Po battery pack, see the “Flying the Blade CX” section found on page 25), or that a single cell or even both cells in the battery pack may be damaged.

If after several charging attempts you continue to see this charge error indication, you should remove the battery pack from service and replace it with a new one.

If you have any further questions or concerns regarding charge error indications, please contact Horizon Hobby's Product Support staff at 1-877-504-0233.

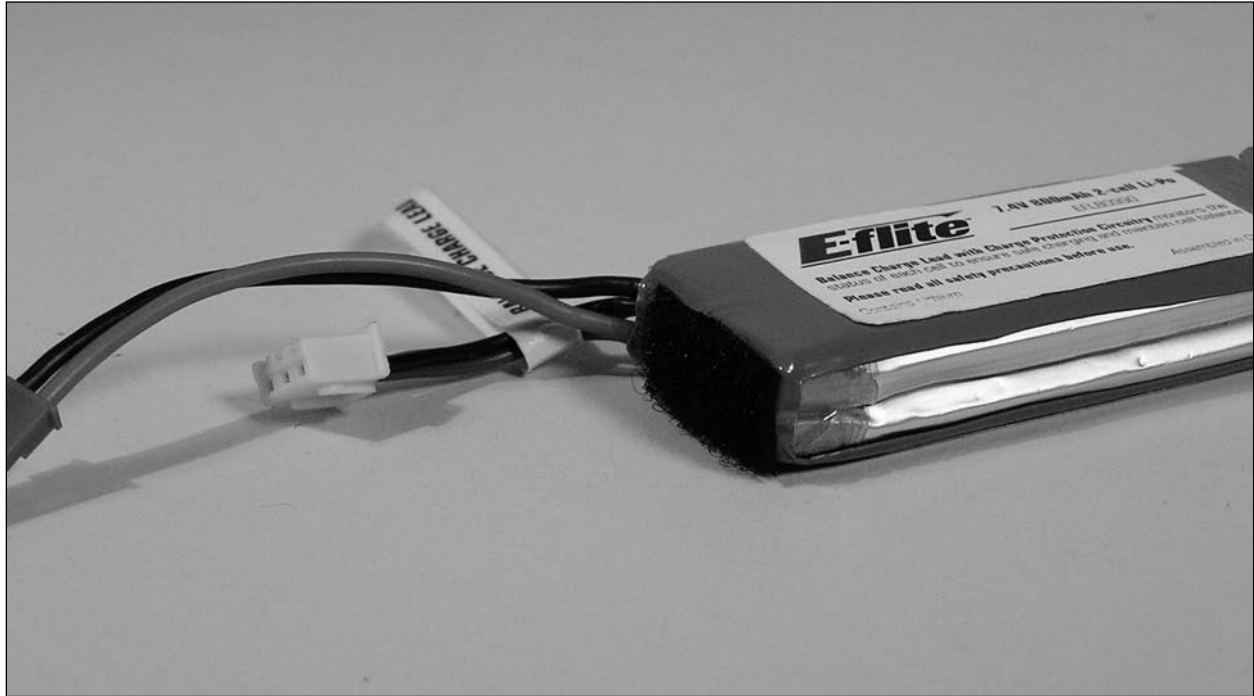
Install the Transmitter Batteries

Install 8 new “AA” batteries in the included transmitter. Check the power level of the batteries and operation of the transmitter by switching the power switch on (upward). The status LEDs at the top of the transmitter will indicate the power level of the batteries. If at any time the status LEDs no longer show green, it will be necessary to replace the batteries with new ones.



Installing the Flight Battery

Use the included hook and loop material for mounting the Li-Po battery pack. The “hook” material is already installed on the battery frame stop. Install the “loop” material on the end of the battery with the wire leads.



The battery can be installed through the opening in the rear of the body. Be sure to install the end of the battery with the loop material first, with the wire leads oriented to the left side of the model so that they can pass by the stop. Slide the battery into the support frame until the hook and loop material makes contact.



Installing the Flight Battery (continued)

Quick Tip: You can install a tape “pull tab” on the end of the battery to make it easier to remove. You can also carefully remove some additional material from the opening in the rear of the body.



Center of Gravity

Once the battery has been properly installed and secured you will need to check the helicopter's center of gravity. If the helicopter is not properly balanced it can be difficult to control and constantly try to move forward or backward in hover.

To check the center of gravity, lift the helicopter by the stabilizer flybar with the flybar positioned perpendicular to the tail section of the body. Make sure that the helicopter balances level. If it does not, confirm that the battery has been properly installed and reposition if necessary.



Control Test

Although each Blade™ CX model is test flown at the factory, it is a good idea to test the controls prior to the first flight to ensure none of the servos, linkages or other parts were damaged during shipping and handling. Before proceeding, disconnect both of the main motor plugs from the 4-in-1 control unit, making note of their direction and polarities for proper re-installation after the control test is complete. It is not safe to perform the control test with the main motor plugs connected to the 4-in-1 control unit after power up.

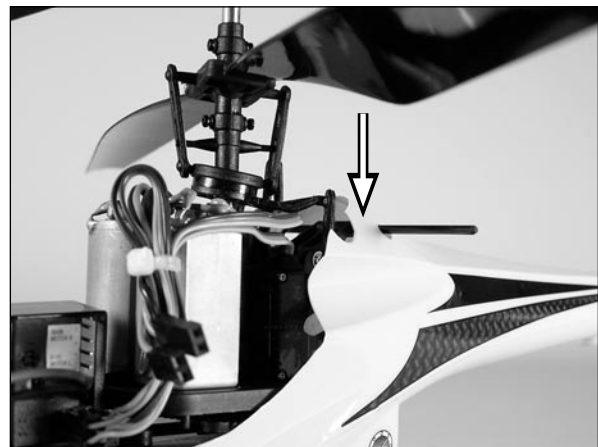
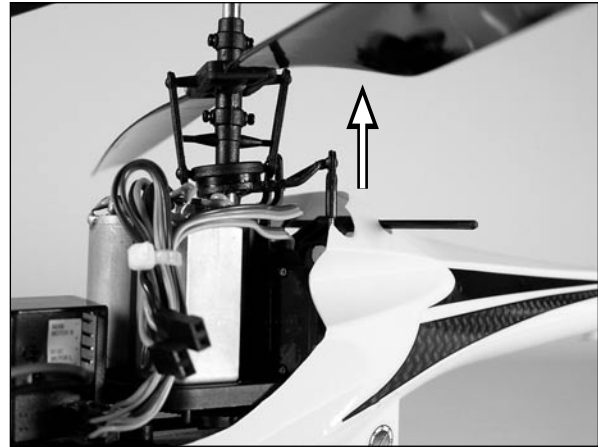


Turn the transmitter on first then plug the battery into the battery lead of the 4-in-1 unit.



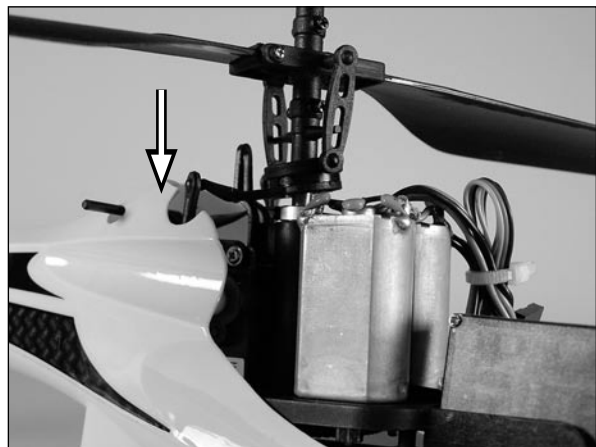
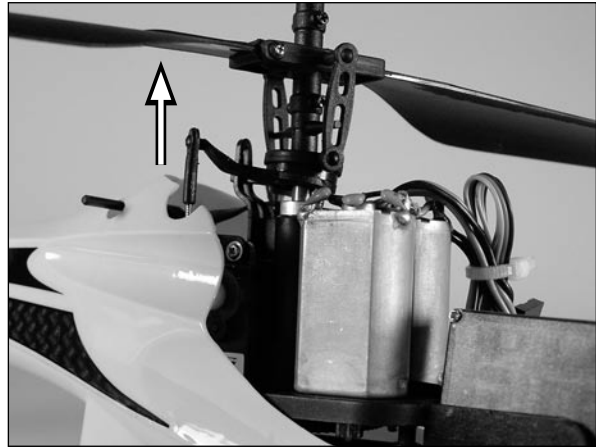
Control Test (continued)

Position the helicopter to view it from the left-hand side. Move the right-hand control stick on the transmitter forward and back to check elevator pitch control. When the stick is pushed forward, the rear servo should push the swashplate upward. When the stick is pulled back, the rear servo should pull the swashplate downward.



Control Test (continued)

Position the helicopter to view it from the right-hand side. Move the right-hand control stick on the transmitter left and right to check aileron roll control. When the stick is pushed to the left, the forward servo should push the swashplate upward. When the stick is pushed to the right, the forward servo should pull the swashplate downward.



If at any time during the test the controls do not respond properly, double-check the location of the servo connections on the 4-in-1 unit. These should be positioned as follows (when viewing the helicopter from behind):

Channel 1 (Lower Port) – Forward aileron servo

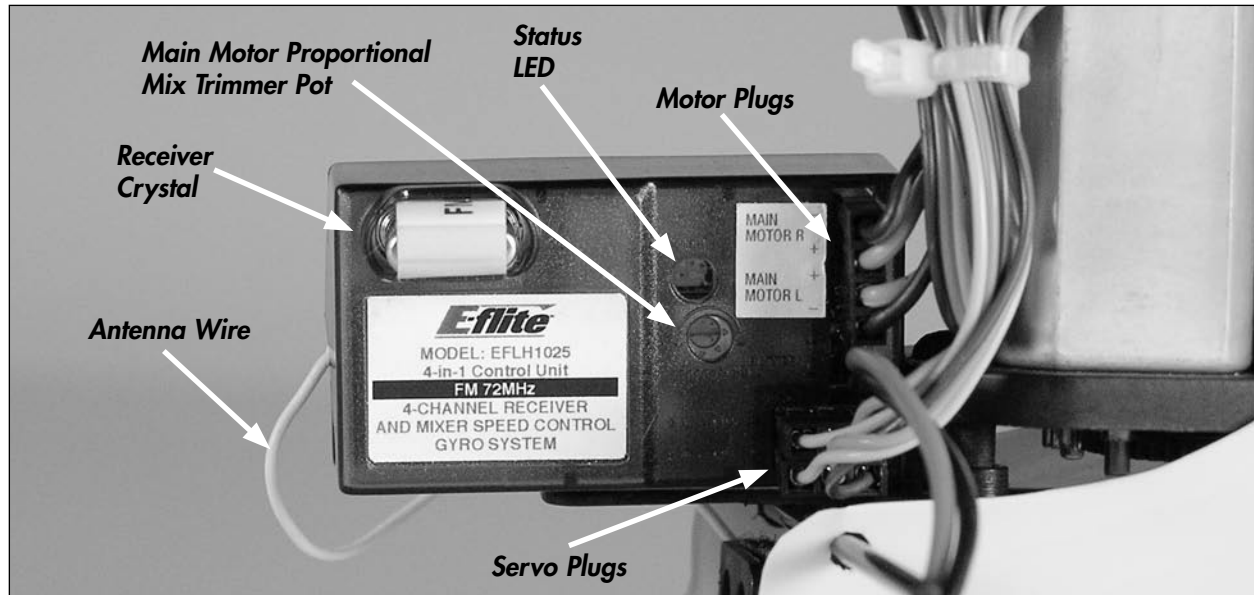
Channel 2 (Upper Port) – Rear elevator servo

Once you have confirmed that the servo connection locations are correct, all controls should be functioning properly. If you do encounter any problems with your Blade CX responding properly to the transmitter, do not fly. Contact Horizon Hobby's Product Support staff at 1-877-504-0233.

If you have confirmed proper control operation of your Blade™ CX, reconnect the main motor plugs to the 4-in-1 unit, taking care to keep the proper polarity and location of each as they were before the test. Use the label on the 4-in-1 unit for reference of the proper polarity and locations. Note that the red wire leads are positive (+) and the black wire leads are negative (-).

4-in-1 Control Unit Description, Arming and Motor Control Test

The unique 4-in-1 Control Unit installed on your Blade™ CX is a lightweight combination of 4-channel FM receiver, main motor mixer, main motor electronic speed controls, and piezo gyro. The 4-in-1 unit also contains a main motor proportional mix trimmer pot and status LED.



The following checklist contains the steps you must follow to ensure proper arming and operation of the 4-in-1 unit as well as proper motor control response:

- **Each time before you fly you must ALWAYS turn on the transmitter power first before connecting the flight battery to the 4-in-1 unit. Never connect the flight battery to the 4-in-1 unit before first powering on the transmitter. Never turn off the transmitter before disconnecting the flight battery from the 4-in-1 unit first.** Also, be certain to fully extend the transmitter antenna before flight.
- **Both the throttle (left-hand) stick and throttle trim MUST be in their lowest possible position in order for the 4-in-1 unit to arm the electronic speed controls for the main motors** (see photo found on page 16 for reference).
- If this is the first test flight, or a test flight following repairs, you will also want to center the rudder, aileron and elevator trims (see photo found on page 16 for reference).

4-in-1 Control Unit Description, Arming and Motor Control Test (continued)



- After confirming that the transmitter has been turned on and has an adequate level of battery power as displayed by the LEDs at the top of the transmitter, it is now safe to connect the flight battery to the 4-in-1 unit.
- **With battery power applied, the 4-in-1 unit status LED will blink red, and then blink green. It is extremely important that you do not move or sway the helicopter once the status LED begins to blink green confirming that the initialization process and calibration of the gyro has begun.** It is OK to move the model when the status LED is blinking red (as in the time it takes to connect the flight battery to the 4-in-1 unit and place the model at rest), as long as the model remains motionless when the status LED begins to blink green.
- **When the status LED becomes solid green, the unit is armed and ready for flight.** Use caution as both main motors will now run with throttle stick or throttle trim input. Do not advance the throttle stick or trim until you are clear of the rotor blades and ready to fly.

Note: If the status LED does not become solid green, please review the following:

- If after blinking red the status LED becomes solid red, you have a positive Radio Frequency (RF) link between the transmitter and receiver of the 4-in-1 unit, but the throttle stick and throttle trim may not be in their lowest possible positions. Check to be sure that both the throttle stick and throttle trim are in their lowest possible position and the status LED should blink green then become solid green indicating the unit is armed and ready for flight. Proceed to the next step of the checklist once the unit is armed.

4-in-1 Control Unit Description, Arming and Motor Control Test (continued)

- If after blinking red the status LED continues to flash from green to red, you do not have a positive RF link between the transmitter and receiver of the 4-in-1 unit. First, check to be sure that the transmitter has been powered on and has an adequate level of battery power. If the transmitter was indeed powered on, power both the transmitter and 4-in-1 unit down, then check that the crystal in the transmitter and the crystal in the 4-in-1 are properly seated and secured in their mounts. Once you have confirmed the crystals are properly seated and secured, turn on the transmitter and then connect the flight battery to the 4-in-1 unit. The 4-in-1 unit should now arm normally.

If your 4-in-1 unit will not arm after following the guidelines as listed above, contact Horizon Hobby's Product Support staff at 1-877-504-0233.

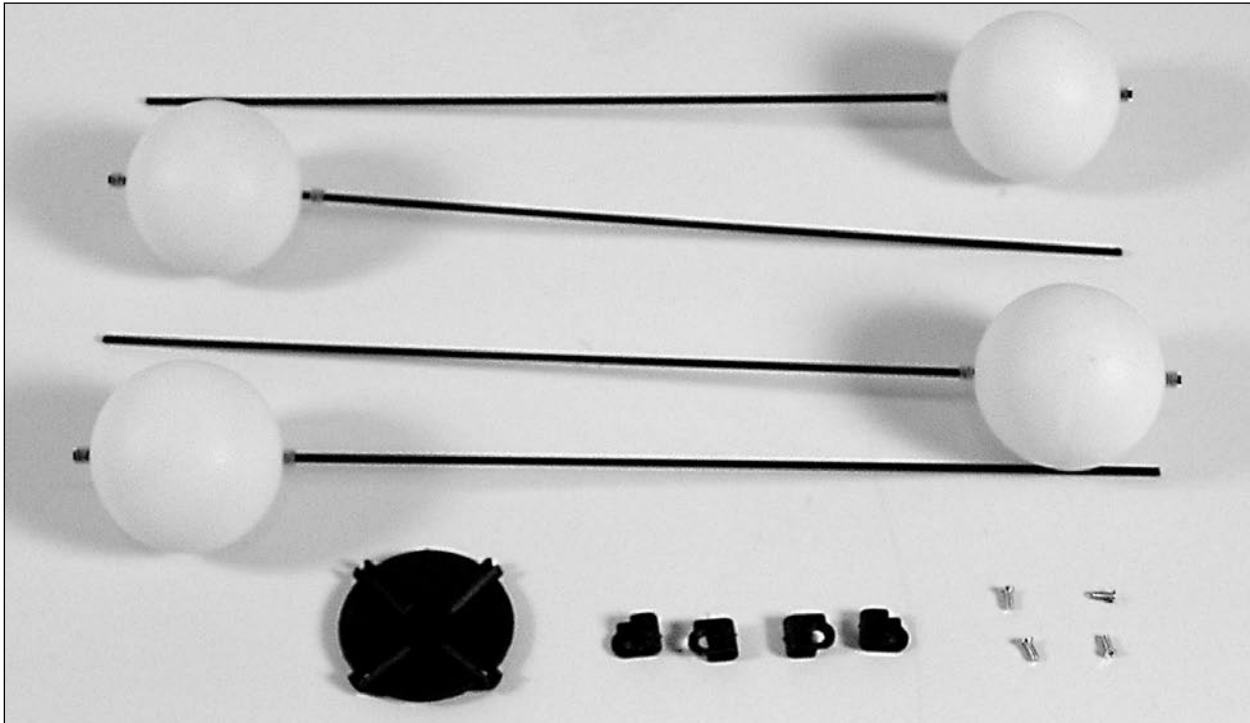
- Once you have placed the helicopter in a safe area to fly, free from obstructions, and are clear of the rotor blades, you can safely begin to power up the model. We recommend an indoor area with at least 20-feet by 20-feet of floor space and no less than 8-foot ceilings. If you have to take your first flight outside, pick a time when wind conditions are calm.
- Advance the throttle (left-hand) stick slowly, just until the main rotor blades begin to spin. Be sure not to advance the throttle stick too far to keep the helicopter from lifting off the ground. Note the direction that each of the main rotor blades spins. When viewed from the top, the lower main rotor blade should spin clockwise and the upper main rotor blade should spin counterclockwise. If either rotor blade is operating in the wrong direction, unplug the battery, then simply reverse its motor plug polarity on the 4-in-1 unit. Note that the proper polarity is marked on the label of the 4-in-1 unit.
- After confirming that the direction of rotation for both rotor blades is correct, it is best to confirm that both rotor blades respond properly to rudder control inputs. With both main rotor blades spinning at a low level of power, move the rudder (left-hand) stick all the way to the right. This should cause the speed of the upper main rotor blade to increase, and the speed of the lower main rotor blade to decrease. Next, move the rudder stick all the way to the left. This should cause the speed of the lower main rotor blade to increase and the speed of the upper main rotor blade to decrease. If both rotor blades are not responding properly to rudder input, simply reverse the locations of their motor plugs on the 4-in-1 unit. Note that the proper motor plug locations are marked on the label of the 4-in-1 unit.
- After confirming both main rotor blades respond properly to rudder inputs, your Blade™ CX is now ready for flight.

Before the First Flight

If the Blade™ CX is your first helicopter model, we suggest that you install the optional Training Gear Set (EFLH1205) before making your first flight. The training gear helps to further increase the stability of the model while also providing added support and cushioning to prevent tip-overs and damage to the model from abrupt landings.

Installing the training gear takes only a few minutes following these steps:

- The Training Gear Set includes four training gear rods with plastic balls installed, four training gear rod to landing skid attachments, four screws and one training gear rod mounting base.



- Locate the four training gear rod to landing skid attachments and four screws. Note that there are two each of two types of attachments. Carefully snap two of the attachments to the landing skids forward of the landing skid struts. The side of the attachment with the large hole should face outward, away from the helicopter, and forward to the front of the helicopter. Next, carefully snap the remaining two attachments to the landing skids behind the landing skid struts. The side of the attachment with the large hole should face outward, away from the helicopter, and backward to the rear of the helicopter.

Before the First Flight (continued)

- Once you have installed all four attachments, install the four screws making sure that they thread properly into the back side of the attachment. It may be helpful to squeeze the attachment with a pair of pliers to make it easier to thread the screw into the backside of the attachment. Do not tighten the screws all the way at this time as the attachments will need to be adjusted for proper alignment once the training gear rods are installed.



- Locate the four training gear rods and rod mounting base. Note that the rod mounting base has four channels into which the training gear rods will mount. The open side of these channels will face upward toward the bottom of the helicopter when properly installed.

Carefully pass each of the rods through the attachments on the landing skids and into the channels on the base. Take care to not pull the landing skids out of their mounts in the battery supports.



Before the First Flight (continued)

- After ensuring that the rods are secure in the base, adjust the positions of the attachments on the landing skids so that the base is centered under the main shaft of the helicopter. Once confirming the base is centered under the main shaft, make sure that each of the landing skids is still firmly installed in the mounts of the battery supports. Note that the landing skids may be pulled slightly inward under pressure of the training gear rods.
- With the attachments, rods and base properly positioned, you can now tighten the attachment screws until they are just snug. Take care when tightening the screws to prevent stripping the backside of the attachments.
- Adjust the position of the tubing keepers and plastic balls on the training gear rods so that the balls are positioned approximately 1/8" from the end of each rod. Be sure that the tubing keepers are positioned so that the plastic ball can still spin freely on the rod.

Your Blade™ CX is now ready for flight.

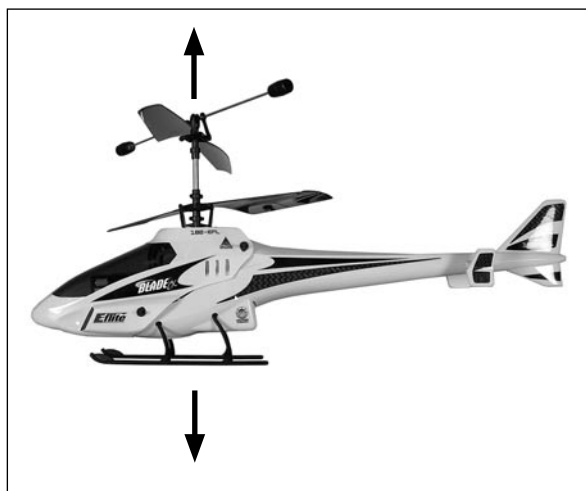


Before the First Flight (continued)

If you are not familiar with the controls of the helicopter, please take a few minutes to familiarize yourself with them before attempting your first flight.

The left-hand stick controls both throttle (ascend/descend) and rudder (yaw left/right). When the throttle is in the lowest position the main rotor blades will not spin. Advancing the stick upward will increase the speed of the main rotor blades. Increasing the speed of the main rotor blades will cause the model to ascend. Decreasing the speed of the main rotor blades by lowering the stick will cause the model to descend. After lifting the model off the ground you can balance the throttle so that the model will hold a stationary hover without ascending or descending.

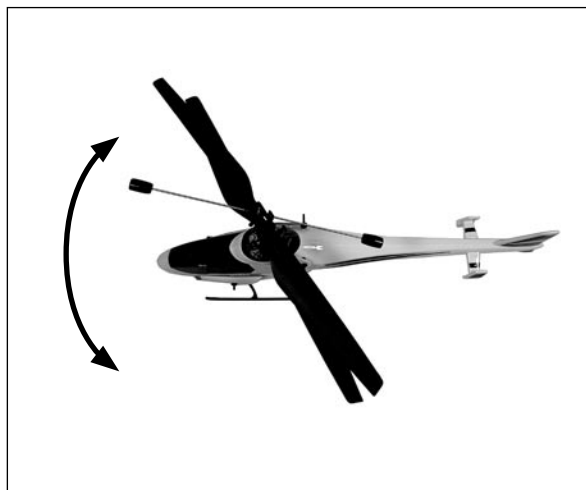
You can also use the throttle trim to adjust the throttle value for a given stick position. For example, raising the throttle trim will allow the model to hover at a lower throttle stick position.



Before the First Flight (continued)

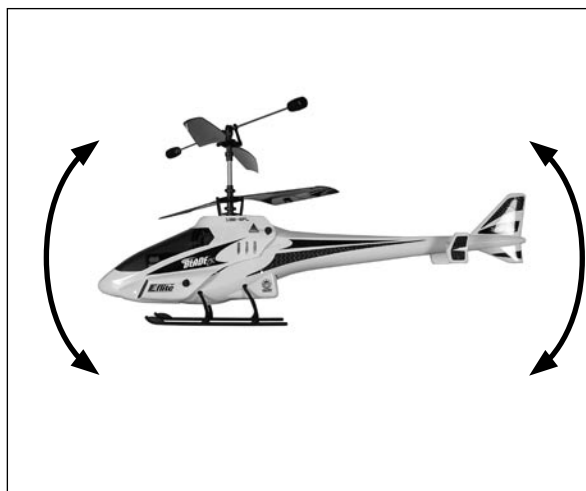
Moving the stick to the left will turn (yaw) the nose of the helicopter to the left about the axis of the main shaft. This is accomplished by increasing the speed of the lower main rotor blade while decreasing the speed of the upper main rotor blade. Moving the stick to the right will turn (yaw) the nose of the helicopter to the right about the axis of the main shaft. This is accomplished by increasing the speed of the upper main rotor blade while decreasing the speed of the lower main rotor blade.

The rudder trim can be used to help keep the nose of the helicopter from rotating to the left or right when in hover with no rudder stick input. For example, if the nose of the helicopter drifts to the right when in hover, add left rudder trim until the nose stays as close to straight as possible. Also note that further adjustments to the rudder trim can be made using the Main Motor Proportional Mix Trimmer Pot as outlined on page 26.



The right-hand stick controls both elevator (pitch fore/aft) and aileron (roll). Pushing the stick forward will pitch the nose of the helicopter downward, allowing the helicopter to be flown forward. Pulling the stick backward will pitch the tail of the helicopter downward, allowing the helicopter to be flown backward.

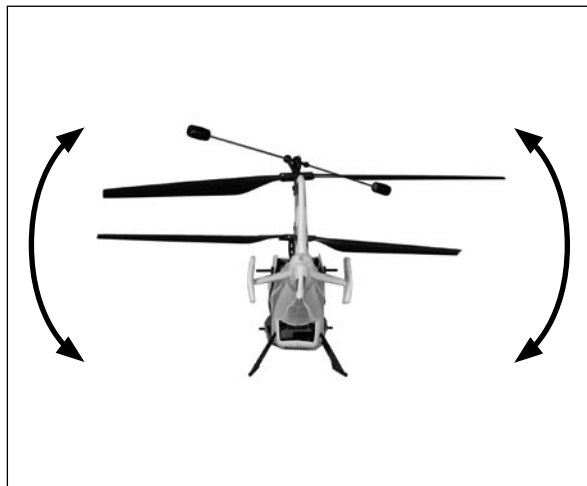
The elevator trim can be used to help keep the helicopter from drifting forward or backward when in hover with no elevator stick input. For example, if the helicopter drifts forward when in hover, add back elevator trim until the helicopter hovers as level as possible with no forward drifting.



Before the First Flight (continued)

Moving the stick to the left will roll the helicopter to the left, allowing the helicopter to be flown to the left. Moving the stick to the right will roll the helicopter to the right, allowing the helicopter to be flown to the right.

The aileron trim can be used to help keep the helicopter from drifting left or right when in hover with no aileron stick input. For example, if the helicopter drifts to the right when in hover, add left aileron trim until the helicopter hovers as level as possible with no drifting to the right.



Once you have become familiar with the controls of the helicopter and are ready to fly, it will be time to choose an area for the first flight. You will want to select a large, open area that is free of people and obstructions. We recommend an indoor area with at least 20-feet by 20-feet of floor space and no less than 8-foot ceilings. If you have to make your first flight outdoors, pick a time when wind conditions are calm.

Flying the Blade™ CX

Having followed the proper 4-in-1 control unit arming procedure, confirmed proper control of the servos and motors, and found a suitable flying area, your Blade CX is ready for flight.

In addition to reviewing the flight maneuvers outlined below, we recommend that you watch the included Instructional Video CD to see many of these maneuvers and adjustments performed by the Blade CX and pilot.

- Slowly raise the throttle stick, increasing the speed of the main rotor blades until the model begins to lift off. Do not raise the throttle stick too quickly as the model could climb too fast causing you to lose control or make contact with objects above.
- Lift the model off the ground just a few inches and concentrate on balancing the throttle stick position so that the model holds a steady hover altitude. In some cases it may be best to make a few short “hops” to an altitude of just a few inches until you become familiar with the control inputs and trim settings required to maintain a steady hover and altitude. As you will find, the Blade™ CX requires minor throttle adjustments to maintain its altitude in hover. Remember to keep these throttle adjustments as minimal as possible as large adjustments could result in a loss of control and/or a possible crash.
- While attempting to establish a low-level hover, you can also check to see if any trim adjustments are required to help keep the Blade CX from constantly drifting in various directions. If you find the helicopter constantly drifts without any directional control input, it will be best to land the model before making any adjustments to the trim levers. Additional details regarding the location and function of the trim levers can be found in the “Before the First Flight” section of this manual (page 21-23).

If the nose of the helicopter is drifting to the left or right, you will need to adjust the rudder trim. You can also adjust the Main Motor Proportional Mix if you experience any difficulties in trimming nose drift with the rudder trim lever only. Please see the “Main Motor Proportional Trimmer Pot Description and Adjustment” section of this manual for more details (page 26).

If the helicopter is drifting forward or backward, you will need to adjust the elevator trim.

If the helicopter is drifting to the left or right, you will need to adjust the aileron trim.

Continue to make trim adjustments until the helicopter can hover at a low altitude with very little drifting and directional control input. If the Blade CX is your first helicopter model, it may be best to have the help of an experienced helicopter pilot to trim the model for you before making your first flight.

- Once you have the Blade CX properly trimmed and maintaining a stable low-level hover, practice using the rudder, elevator and aileron controls to get a feel for how the helicopter responds to control inputs. Remember to keep the control inputs as minimal as possible to prevent over-controlling the helicopter, especially when in hover. Additional details regarding the control functions can be found in the “Before the First Flight” section of this manual (page 21-23).
- After becoming comfortable with hovering the Blade CX at low-levels of altitude just a few inches off the ground, you can transition to hovering and flying the helicopter at higher altitudes of approximately three to four feet. At these higher altitudes you will be able to get a feel for the flight characteristics of the Blade CX when it is flying out of “ground effect.”
- If at any time during flight you feel like the helicopter is drifting out of control, simply release all of the controls except for throttle. You will need to use the throttle to maintain altitude, but due to the inherent stability of the coaxial counter-rotating blades, the Blade CX will simply return to a stable hover on its own if space allows.

Flying the Blade CX (continued)

- Don't be afraid to set the helicopter down on the ground quickly by lowering the throttle when approaching walls or other obstacles to help prevent main rotor blade strikes. The optional Training Gear Set (EFLH1205) shown in the "Before the First Flight" section of this manual (page 18–21) will help to further prevent damage to the helicopter in the event that you must make an abrupt landing to avoid walls or other obstacles.
- **In the unfortunate event of a crash or rotor blade strike, no matter how minor or major, you MUST lower both the throttle stick and throttle trim to their lowest possible position as quickly as possible to prevent damage to the ESCs of the 4-in-1 unit.**
- **It is extremely important when hovering and flying the Blade CX to be aware of the power level of the Li-Po battery pack. If at any time the helicopter begins to require more throttle than typical to maintain hover or flight, or has lost the ability to maintain hover or flight due to significant loss of power, you must land the helicopter and power the motors down IMMEDIATELY to prevent over-discharge of the Li-Po battery pack. If you continue to run the motors after noticing a loss in power it is possible to discharge the Li-Po battery pack too far, causing permanent damage to the pack. Over-discharge of the Li-Po battery pack can result in shortened flight times, loss of power output or failure of the pack entirely.**
- Once you have gained experience and confidence in hovering the Blade CX, you can attempt more advanced maneuvers including:
 - Forward Flight
 - Backward Flight
 - Pirouettes
 - Skidding Take Offs
 - Skidding Landings
 - Spot Landings

Main Motor Proportional Mix Trimmer Pot Description and Adjustment

The Main Motor Proportional Mix Trimmer Pot can be found on the left side of the 4-in-1 control unit. This “proportional” trimmer pot adjusts the amount of mixing between the main motors allowing you to “fine-tune” the rudder trim (sub-trim) to help prevent the nose from drifting to the left or right when in hover.



In a stable hover, with the rudder trim centered and no rudder control input, note toward which direction the nose of the helicopter is trying to drift. If the nose of the helicopter is drifting to the left, you will want to increase power to the right-hand motor (spinning the upper main rotor blade). This is accomplished by turning the “proportional” trimmer pot clockwise.

If the nose of the helicopter is drifting to the right in hover, you will want to increase the power to the left-hand motor (spinning the lower main rotor blade). This is accomplished by turning the “proportional” trimmer pot counterclockwise.

Note: You must always power down the 4-in-1 unit before making adjustments to the proportional mix trimmer pot. Any changes made to the trimmer pot will not take effect until the 4-in-1 unit is re-initialized and re-armed.

Note: Be sure to use the proper size and type of screwdriver to carefully make adjustments to the trimmer pot. Use of the improper size and type of screwdriver or too much force can damage the trimmer pot. Also be sure to take your time when making adjustments to the proportional trimmer pot as it may only require very slight adjustment to achieve the desired level of performance.

As the battery output voltage decreases throughout the flight, it may be necessary to make small adjustments to the rudder trim or rudder control input in order to keep the nose of the helicopter straight. These small adjustments can be made using the rudder trim lever or rudder control stick and do not require additional adjustments of the proportional trimmer pot.

Upper Main Rotor Blade Tracking Adjustment

Caution: Be sure to maintain a safe distance from the helicopter (approximately 10–15 feet) when tracking the Upper Main Rotor Blade.

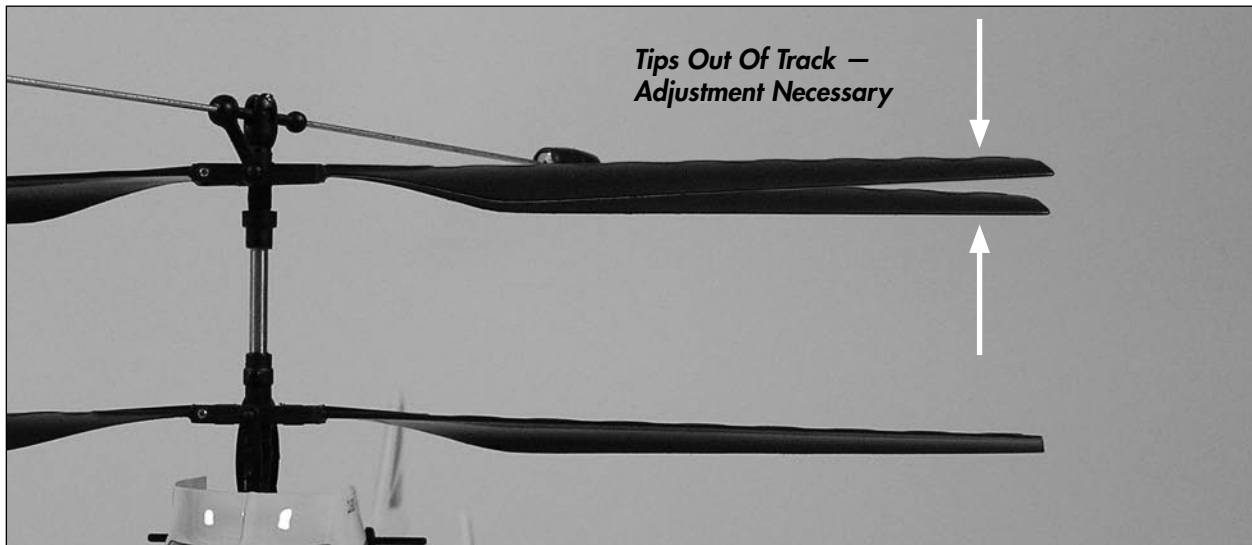
Your Blade™ CX is equipped with an adjustable linkage between the Stabilizer Flybar and Upper Main Rotor Blade. This linkage allows you to adjust the tracking of the upper main rotor blade for smoother and more stable flight performance.



- You can check the upper main rotor blade tracking either on the ground or in the air at eye level. It might be a good idea to have an assistant on hand to help sight the blade tracking.
- Once the main rotor blades have been brought up to speed, note whether the tips of the upper main rotor blade are tracking in the same plane or not.
- If the tips are not tracking in the same plane, power the helicopter down to make adjustments to the adjustable linkage. You can start by turning the ends of the linkage in one-half to one-full turn at a time. Power the helicopter up again and re-check the blade tracking. If the tracking has gotten better, continue to turn the ends of the linkage in one-half to one-full turn at a time until the tips are tracking in the same plane.

If the tracking has gotten worse after first turning the ends of the adjustable linkage in, turn the ends of the linkage back out one-half to one-full turn at a time. If the tracking has gotten better, continue to turn the ends of the linkage out one-half to one-full turn at a time until the tips are tracking in the same plane.

Upper Main Rotor Blade Tracking Adjustment (continued)



Typically, not much adjustment should be necessary to properly track the tips of the upper main rotor blade. However, due to the small size of the linkage ends and threaded rods it may not always be possible to achieve absolutely perfect blade tracking. Don't worry as the helicopter will still perform well as long as the blade tracking is adjusted as closely as possible.

Note: It will not be necessary to adjust the Lower Main Rotor Blade tracking as fixed links are used between the rotor blade and swashplate.

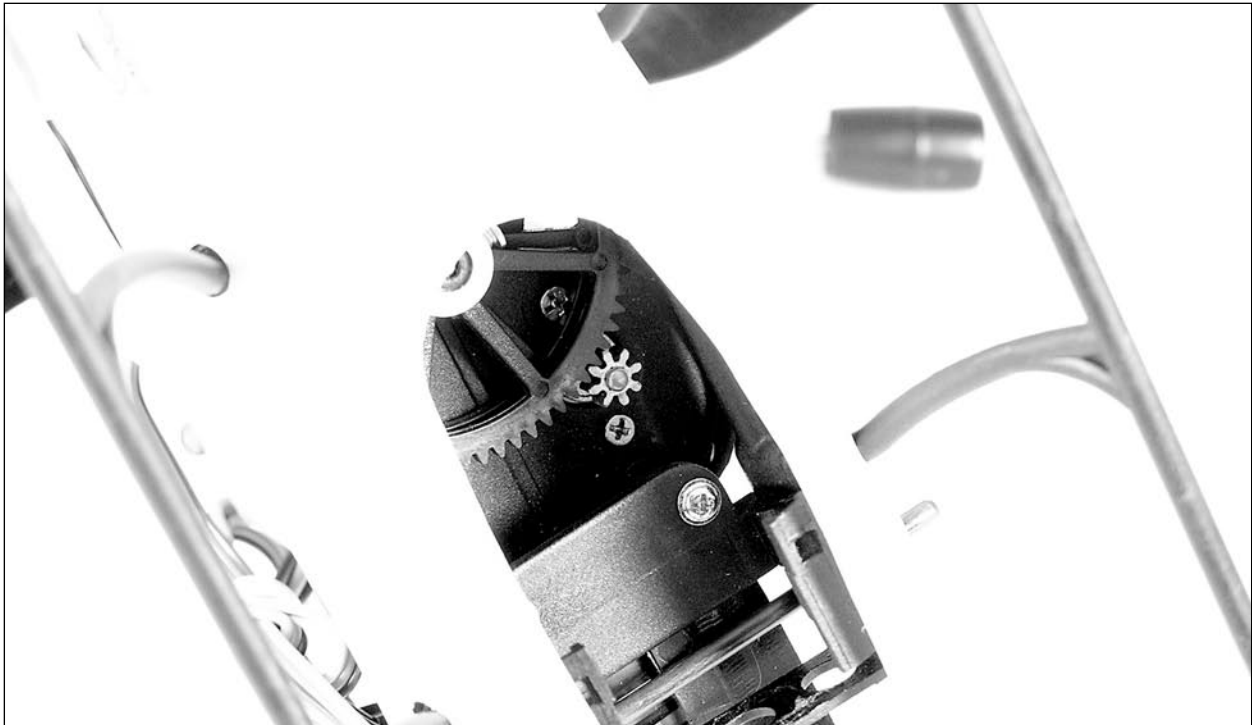
Main Motor Care and Installing the Optional Main Motor Heat Sink

The 180 motors used to power your Blade™ CX are of the closed end-bell variety and do not require any special maintenance. We do, however, suggest that you allow the motors to cool to near ambient temperature between flights/battery pack changes to prevent accelerated motor wear due to excess motor heat.

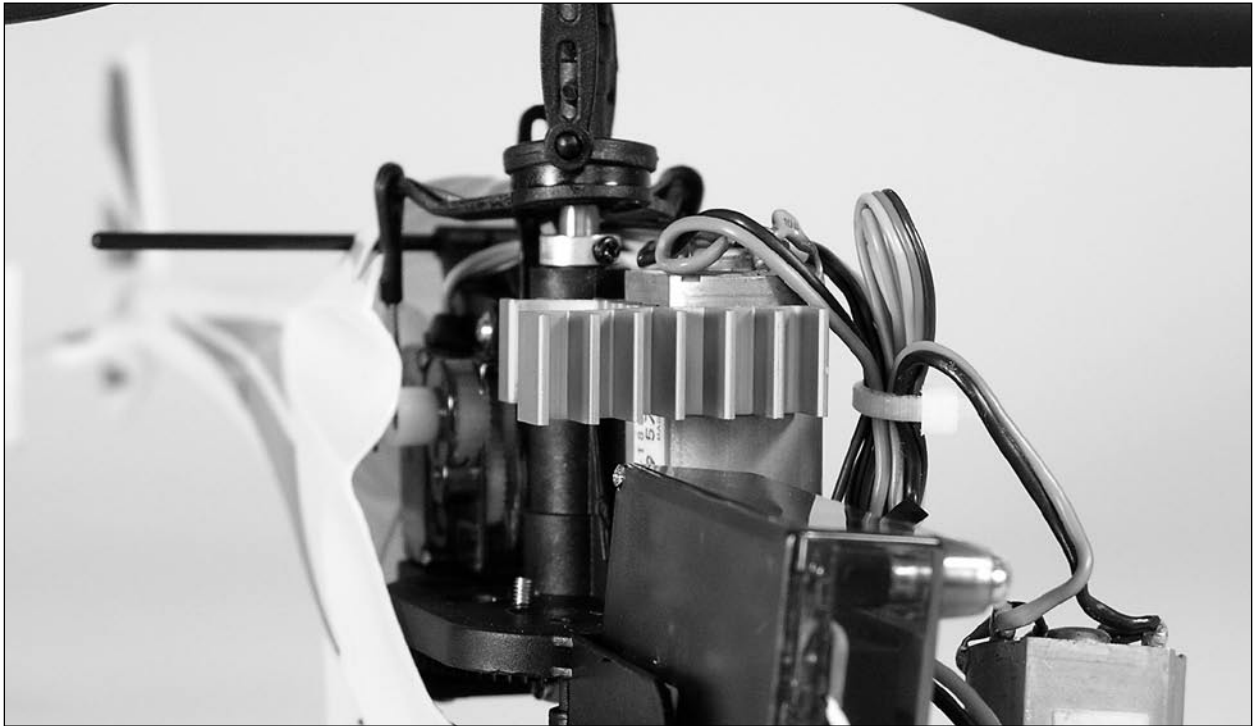
You will find the performance and life of the 180 main motors to be very good, however, installation of the optional Main Motor Heat Sink (EFLH1208) can help to further improve motor cooling during flight, resulting in improved motor performance and longer motor life.

Installing the main motor heat sink takes only a few minutes following these steps:

- Installation of the main motor heat sink will require that you temporarily remove the right-hand main motor from the main frame. This is easily accomplished by removing the two motor mounting screws found on the bottom of the main frame.

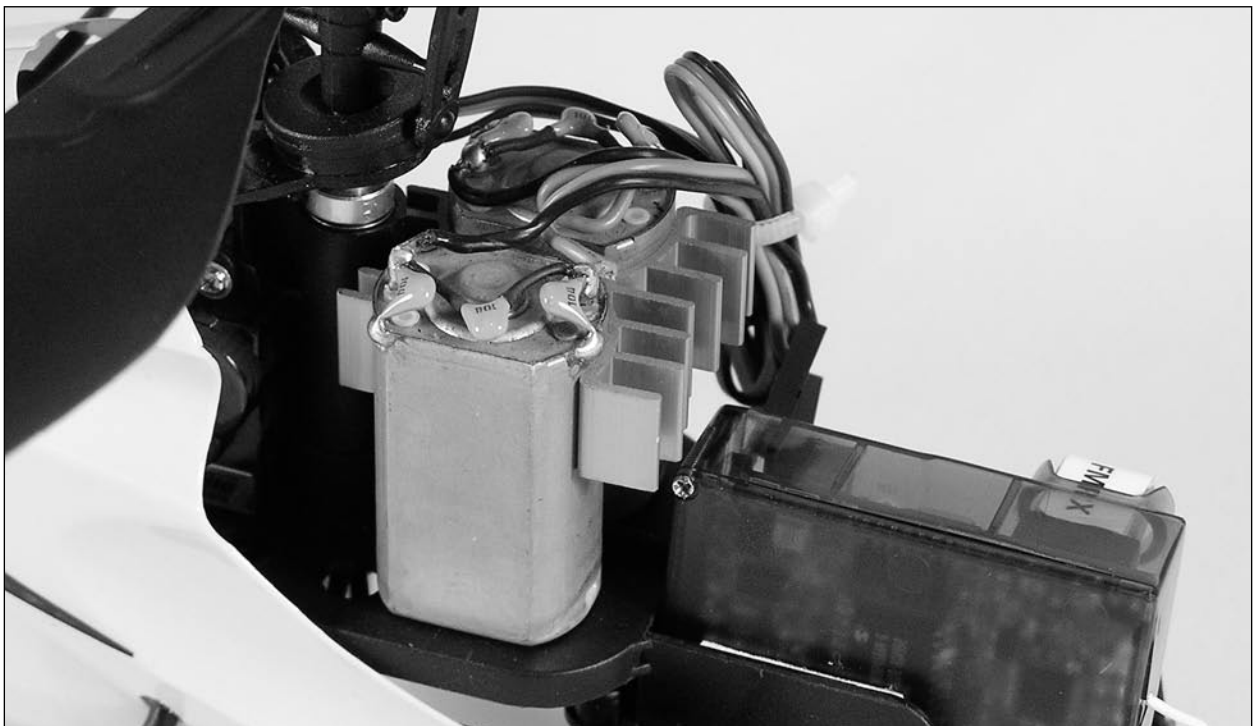


- With the right-hand main motor removed from the frame, you can press the main motor heat sink into place near the top/end of the left-hand main motor. We recommend that you use Heat Sink Compound (EFLM1913) on any surfaces of the heat sink that make contact with the motor case to further improve the effectiveness of the heat sink. The wider end of the heat sink (more fins) must be placed toward the front of the helicopter.



- You can now press the right-hand main motor into place in the heat sink and use the motor mounting screws to re-install the motor on the main frame. Again, we recommend that you use Heat Sink Compound (EFLM1913) on any surfaces of the heat sink that make contact with the motor case to further improve the effectiveness of the heat sink.

The main motor heat sink is now installed and ready for flight.



2005 Official AMA National Model Aircraft Safety Code

GENERAL

- 1) I will not fly my model aircraft in sanctioned events, air shows or model flying demonstrations until it has been proven to be airworthy by having been previously, successfully flight tested.
- 2) I will not fly my model higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right-of-way and avoid flying in the proximity of full-scale aircraft. Where necessary, an observer shall be utilized to supervise flying to avoid having models fly in the proximity of full-scale aircraft.
- 3) Where established, I will abide by the safety rules for the flying site I use, and I will not willfully or deliberately fly my models in a careless, reckless and/or dangerous manner.
- 4) The maximum takeoff weight of a model is 55 pounds, except models flown under Experimental Aircraft rules.
- 5) I will not fly my model unless it is identified with my name and address or AMA number on or in the model. (This does not apply to models while being flown indoors.)
- 6) I will not operate models with metal-bladed propellers or with gaseous boosts, in which gases other than air enter their internal combustion engine(s); nor will I operate models with extremely hazardous fuels such as those containing tetranitromethane or hydrazine.

RADIO CONTROL

- 1) I will have completed a successful radio equipment ground range check before the first flight of a new or repaired model.
- 2) I will not fly my model aircraft in the presence of spectators until I become a qualified flier, unless assisted by an experienced helper.
- 3) At all flying sites a straight or curved line(s) must be established in front of which all flying takes place with the other side for spectators. Only personnel involved with flying the aircraft are allowed at or in front of the flight line. Intentional flying behind the flight line is prohibited.
- 4) I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission. (Only properly licensed Amateurs are authorized to operate equipment on Amateur Band frequencies.)
- 5) Flying sites separated by three miles or more are considered safe from site-to site interference, even when both sites use the same frequencies. Any circumstances under three miles separation require a frequency management arrangement, which may be either an allocation of specific frequencies for each site or testing to determine that freedom from interference exists. Allocation plans or interference test reports shall be signed by the parties involved and provided to AMA Headquarters. Documents of agreement and reports may exist between (1) two or more AMA Chartered Clubs, (2) AMA clubs and individual AMA members not associated with AMA Clubs, or (3) two or more individual AMA members.
- 6) For Combat, distance between combat engagement line and spectator line will be 500 feet per cubic inch of engine displacement. (Example: .40 engine = 200 feet.); electric motors will be based on equivalent combustion engine size. Additional safety requirements will be per the RC Combat section of the current Competition Regulations.
- 7) At air shows or model flying demonstrations, a single straight line must be established, one side of which is for flying, with the other side for spectators.
- 8) With the exception of events flown under AMA Competition rules, after launch, except for pilots or helpers being used, no powered model may be flown closer than 25 feet to any person.
- 9) Under no circumstances may a pilot or other person touch a powered model in flight.

Replacement Parts List

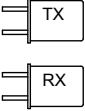
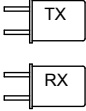
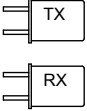
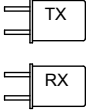
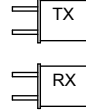
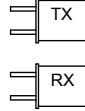
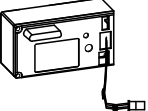

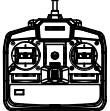

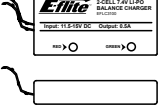

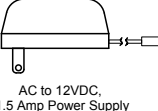

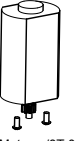
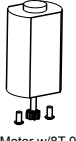
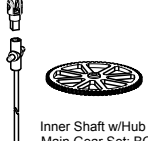
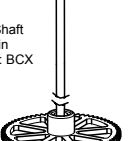


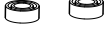

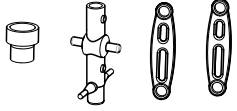
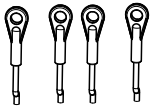
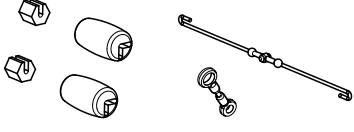
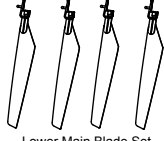
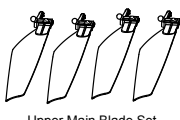
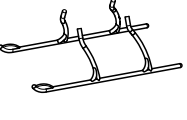
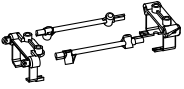

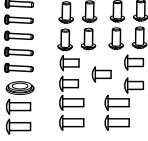
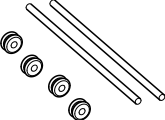
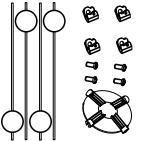
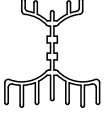

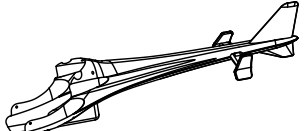
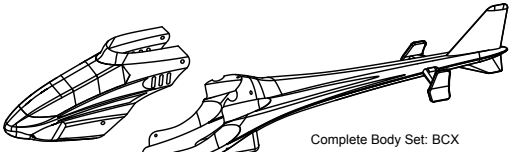

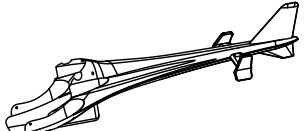
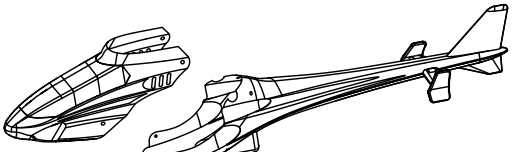
EFLH1200	Blade CX RTF Electric Coaxial Heli
EFLB0990	7.4V 800mAh 2-Cell Li-Po, JST/Balance
EFLC3100	2-Cell Li-Po Balance Charger, 0.5A
EFLH1017	FM Crystal Set CH17, 72.130: BCP, BCX
EFLH1019	FM Crystal Set CH19, 72.170: BCP, BCX
EFLH1021	FM Crystal Set CH21, 72.210: BCP, BCX
EFLH1025	4-in-1 Control Unit FM 72MHz: BCX
EFLH1040	4CH Transmitter FM 72MHz: BCX
EFLH1045	Transmitter Antenna: BCP, BCX
EFLH1050	FM Crystal Set CH50, 72.790: BCP, BCX
EFLH1052	FM Crystal Set CH52, 72.830: BCP, BCX
EFLH1054	FM Crystal Set CH54, 72.870: BCP, BCX
EFLRS75	7.5 Gram Sub-Micro S75 Servo
EFLRS751	Gear Set: S75
EFLRS752	Case Set: S75
EFLH1121	Bearing 2x6x3mm (2): BCP, BCX
EFLH1209	Mounting Accessories & Screwdriver: BCX
EFLH1210	180 Motor w/8T 0.5M Pinion Left: BCX
EFLH1211	180 Motor w/8T 0.5M Pinion Right: BCX
EFLH1212	Inner Shaft w/Hub & Main Gear Set: BCX
EFLH1213	Outer Shaft & Main Gear Set: BCX
EFLH1214	Shaft Retaining Collar Set: BCX
EFLH1215	Bearing 4x8x3mm (2): BCX
EFLH1216	Swashplate Set: BCX
EFLH1217	Lower Rotor Head & Linkage Set: BCX
EFLH1218	Servo Pushrod Set: BCX
EFLH1219	Stabilizer Flybar Set: BCX
EFLH1220	Lower Main Blade Set (2 pair): BCX
EFLH1221	Upper Main Blade Set (2 pair): BCX
EFLH1222	Landing Skid Set: BCX
EFLH1223	Battery Support Set: BCX
EFLH1224	Main Frame Set: BCX
EFLH1225	Hardware Set: BCX
EFLH1226	Body Mount Rod & Grommet Set: BCX
EFLH1227	Front Body: BCX
EFLH1228	Rear Body: BCX
EFLH1229	Complete Body Set: BCX

Optional Parts List

EFLC4000	AC to 12V DC, 1.5 Amp Power Supply
EFLH1205	Training Gear Set: BCX
EFLH1208	Main Motor Heat Sink: BCX
EFLM1913	Heat Sink Compound, 5g
EFLH1230	Front Body, Police: BCX
EFLH1231	Rear Body, Police: BCX
EFLH1232	Complete Body Set, Police: BCX

Please see your favorite retailer or visit our web site (www.E-fliteRC.com) to find the latest in new replacement and option parts releases for your Blade™ CX.

Replacement and Optional Parts

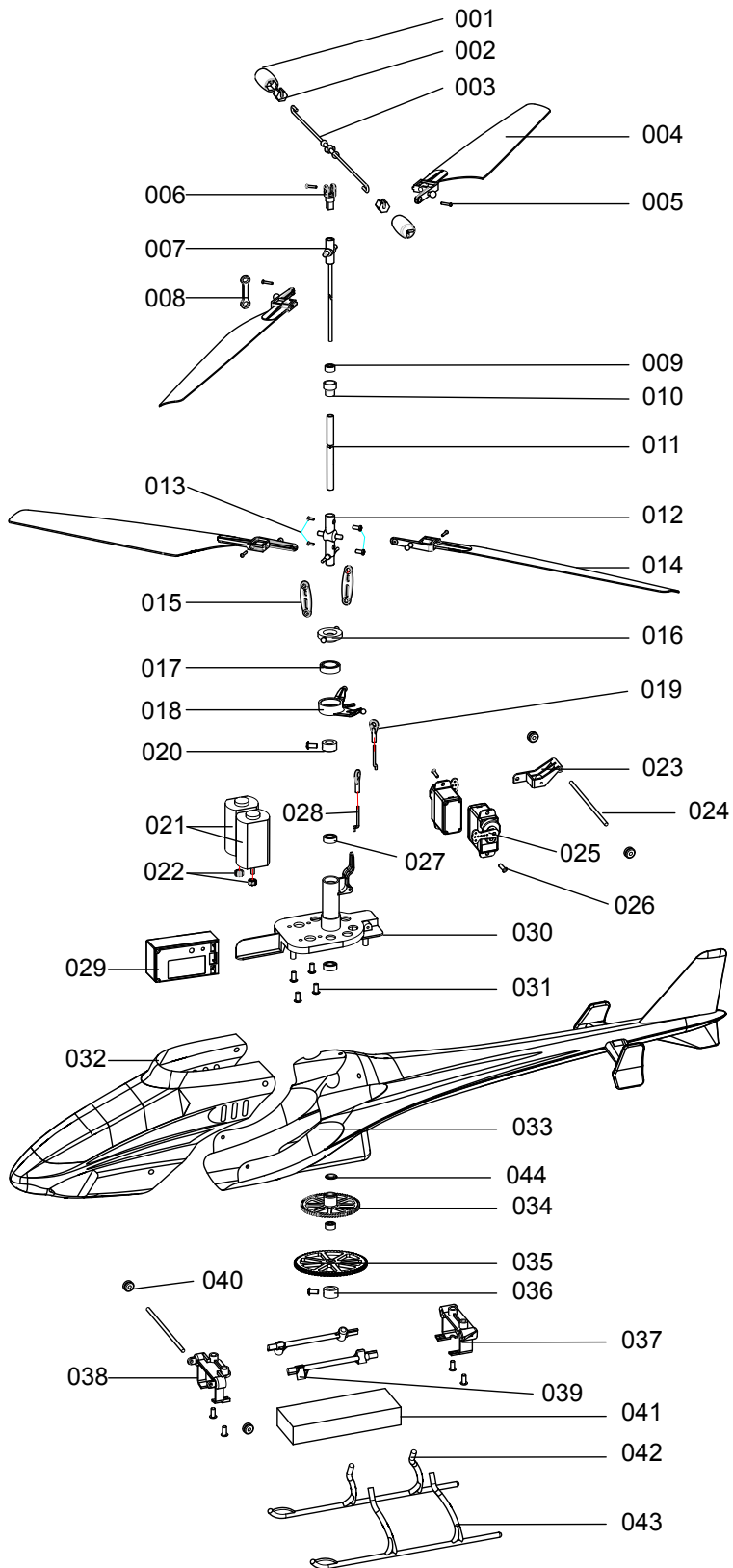
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 <p>4-in-1 Control Unit FM 72MHz: BCX EFLH1025</p>	 <p>7.5 Gram Sub-Micro S75 Servo EFLRS75</p>	 <p>4CH Transmitter FM 72MHz:BCX EFLH1040</p>	 <p>Transmitter Antenna: BCP, BCX EFLH1045</p>	 <p>2-Cell Li-Po Balance Charger, 0.5A EFLC3100</p>	 <p>7.4V 800mAh 2-Cell Li-Po, JST/Balance EFLB0990</p>
 <p>AC to 12VDC, 1.5 Amp Power Supply ELFC4000</p>	 <p>Mounting Accessories & Screwdriver: BCX EFLH1209</p>	 <p>180 Motor w/8T 0.5M Pinion Left: BCX EFLH1210</p>	 <p>180 Motor w/8T 0.5M Pinion Right: BCX EFLH1211</p>	 <p>Inner Shaft w/Hub & Main Gear Set: BCX EFLH1212</p>	 <p>Outer Shaft & Main Gear Set: BCX EFLH1213</p>
 <p>Bearing 2x6x3mm (2): BCP, BCX EFLH1121</p>	 <p>Shaft Retaining Collar Set: BCX EFLH1214</p>	 <p>Bearing 4x8x3 (2): BCX EFLH1215</p>	 <p>Swashplate Set: BCX EFLH1216</p>	 <p>Lower Rotor Head & Linkage Set: BCX EFLH1217</p>	
 <p>Servo Pushrod Set: BCX EFLH1218</p>	 <p>Stabilizer Flybar Set: BCX EFLH1219</p>		 <p>Lower Main Blade Set (2 pair): BCX EFLH1220</p>	 <p>Upper Main Blade Set (2 pair): BCX EFLH1221</p>	 <p>Landing Skid Set: BCX EFLH1222</p>
 <p>Battery Support Set: BCX EFLH1223</p>	 <p>Main Frame Set: BCX EFLH1224</p>	 <p>Hardware Set: BCX EFLH1225</p>	 <p>Body Mount Rod & Grommet Set: BCX EFLH1226</p>	 <p>Training Gear Set: BCX EFLH1205</p>	 <p>Main Motor Heat Sink: BCX EFLH1208</p>
 <p>Front Body: BCX EFLH1227</p>	 <p>Rear Body: BCX EFLH1228</p>		 <p>Complete Body Set: BCX EFLH1229</p>		
 <p>Front Body, Police: BCX EFLH1230</p>	 <p>Rear Body, Police: BCX EFLH1231</p>		 <p>Complete Body Set, Police: BCX EFLH1232</p>		

Exploded View Parts Listing

Exploded View Reference Number	Description (Quantity Required)	Included In Item Number
001.	Stabilizer Flybar Rubber Tip (2)	EFLH1219
002.	Stabilizer Flybar Weight (2)	EFLH1219
003.	Stabilizer Flybar (1)	EFLH1219
004.	Upper Main Blade (2)	EFLH1221
005.	1.2 x 6mm Screw (5)	EFLH1225
006.	Stabilizer Flybar Hub/Holder (1)	EFLH1212
007.	Upper Rotor Head & Inner Shaft (1)	EFLH1212
008.	Stabilizer Flybar Linkage (1)	EFLH1219
009.	Bearing 2mm x 6mm x 3mm (2)	EFLH1121
010.	Bearing Holder (1)	EFLH1217
011.	Outer Shaft (1)	EFLH1213
012.	Lower Rotor Head (1)	EFLH1217
013.	M2 x 2.5mm Screw (5)	EFLH1225
014.	Lower Main Blade (2)	EFLH1220
015.	Lower Rotor Head/Swash Linkage (2)	EFLH1217
016.	Upper Swashplate (1)	EFLH1216
017.	Bearing 7mm x 13mm x 4mm (1)	EFLH1216
018.	Lower Swashplate (1)	EFLH1216
019.	Servo Pushrod Control Link (2)	EFLH1218
020.	Outer Shaft Retaining Collar (1)	EFLH1214
021.	Main Motor Left (1)	EFLH1210
	Main Motor Right (1)	EFLH1211
022.	Pinion Gear Left (1)	EFLH1210
	Pinion Gear Right (1)	EFLH1211
023.	Servo Mount (1)	EFLH1224
024.	Body Mount Rod (2)	EFLH1226
025.	Sub-Micro Servo (2)	EFLRS75
026.	1.7 x 4mm Screw (8)	EFLH1225
027.	Bearing 4mm x 8mm x 3mm (2)	EFLH1215
028.	Servo Pushrod (2)	EFLH1218
029.	4-in-1 Control Unit (1)	EFLH1025
030.	Main Frame (1)	EFLH1224
031.	M2 x 4mm Screw (6)	EFLH1225
032.	Front Body (1)	EFLH1227
033.	Rear Body (1)	EFLH1228
034.	Outer Shaft Main Gear (1)	EFLH1213
035.	Inner Shaft Main Gear (1)	EFLH1212
036.	Inner Shaft Retaining Collar (1)	EFLH1214
037.	Battery Support Rear (1)	EFLH1223
038.	Battery Support Front (1)	EFLH1223
039.	Battery Support Joiner (2)	EFLH1223
040.	Body Mount Grommet (4)	EFLH1226
041.	Battery Pack (1)	EFLB0990
042.	Landing Skid Right (1)	EFLH1222
043.	Landing Skid Left (1)	EFLH1222
044.	Step Washer (1)	EFLH1225

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