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13353

BLADE® CP Pro2

PLUG-N-PLAY®

E-flite®

Specifications

Length	20.7 in (525mm)
Height	7.1 in (180mm)
Main Rotor Diameter	20.3 in (515mm)
Tail Rotor Diameter	3.2 in (80mm)
Weight with Battery	11.5 oz (325 g)
Main Motor	High-Power 370 (installed)
Tail Motor	Direct-Drive N60 (installed)
Battery	3S 11.1V 800mAh Li-Po (required)
Charger	3S 11.1V Li-Po DC Balancing (required)
Transmitter	6+ channel with helicopter and 120-degree CCPM programming (required)
Receiver	6+ channel micro (required)
On-Board Electronics	2-in-1 mixer/ESCs (installed)
Servos	DS75 Digital Sub-Micro (3 installed)
Gyro	G110 Micro Heading Lock (installed)

Table of Contents

Introduction

The Blade® CP Pro 2 PNP takes the micro electric helicopter to the next level. From its feature-packed design to the level of quality and performance, intermediate to advanced pilots will enjoy testing their aerobatic skills on the Blade CP Pro 2 PNP.

The high-power 370 main motor offers brushless-like performance, while the direct-drive N60 tail motor and G110 heading lock gyro offer incredibly locked-in tail control. A 2-in-1 control unit offers complete control of the main and tail motors, while three DS75 digital sub-micro servos deliver precise CCPM control of the Bell-Hiller mixing equipped rotor head.

Never before have so many great features, and so much 3D aerobatic capability, been available in a Plug-N-Play® micro CP class helicopter—right out of the box, no additional parts or upgrades required. The Blade CP Pro 2 PNP is the industry's only fully 3D-capable micro heli that performs aerobatics like backward hurricanes and piro flips right out of the box.

Warning

An RC aircraft 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, following all instructions included with your radio.

Keep loose items that can get entangled in the rotor blades away from the main and tail blades, including loose clothing, or other objects such as pencils and screwdrivers. Especially keep your hands away from the rotor blades.

Before Starting Assembly

Before starting any final assembly and preparing your Blade CP Pro for flight, remove each component from the box for inspection. Closely inspect all components for damage. If you find any damaged or missing parts, contact the place of purchase.

Note on Lithium Polymer Batteries

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. Always follow the manufacturer's instructions when disposing of Lithium Polymer batteries.

Using the Manual

This manual is divided into sections to help make final assembly and preparing for flight easier to understand, and to provide breaks between each major section. Remember to take your time and follow all directions.

Instructions for Disposal of WEEE by Users in the European Union

This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

Additional Safety Precautions and Warnings

As the user of this product, you are solely responsible for operating it in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

This model is controlled by a radio signal that is subject to interference from many sources outside your control. This interference can cause momentary loss of control so it is advisable to always keep a safe distance in all directions around your model, as this margin will help to avoid collisions or injury.

- Never operate your model with low transmitter batteries.
- Always operate your model in an open area away from cars, traffic or people.
- Avoid operating your model in the street where injury or damage can occur.
- Never operate the model out into the street or populated areas for any reason.
- Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) that you use.
- Keep all chemicals, small parts and anything electrical out of the reach of children.
- Moisture causes damage to electronics. Avoid water exposure to all equipment not specifically designed and protected for this purpose.
- Never lick or place any portion of your model in your mouth as it could cause serious injury or even death.

Blade CP Pro 2 PNP Contents

Item	Description
Not Available Separately	Blade CP Pro 2 PNP Airframe
EFLH1129	Mounting Accessories & Wrench
EFL2086	Hook and Loop Material
EFLH1032	2-in-1 Control Unit (1 installed)
EFLRDS75H	DS75 Digital Sub-Micro (3 installed)

Additional Equipment

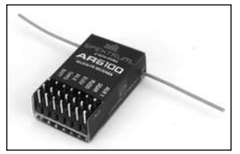
The following items are required to complete your Blade CP Pro 2 PNP:

- 6-channel (or greater) transmitter with helicopter and 120-degree CCPM programming
- 6-channel (or greater) micro receiver (end pin type is recommended for the best and most convenient installation)
- 3S 11.1V 800mAh Li-Po battery
- 3S 11.1V Li-Po compatible charger

Recommended Setups

For Sport and 3D Flying:

Spektrum DX6i
6-Channel Radio
System (SPM6600)



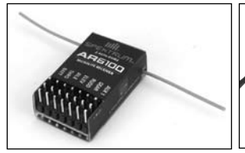
Spektrum AR6100
6-Channel Microlite
Receiver (SPM6100)

E-flite 3S Li-Po
Balancing Charger,
0.8A (EFLC3105)

E-flite 3S 11.1V
800mAh 15C Li-Po
Battery (EFLB0996)

For Aggressive 3D Flying

Spektrum DX7
7-Channel Microlite
Heli Radio System
(SPM2722)



Spektrum AR6100
6-Channel Microlite
Receiver (SPM6100)

Thunder Power 3S
11.1V 910mAh
Li-Po Battery
(THP9103SJPL)

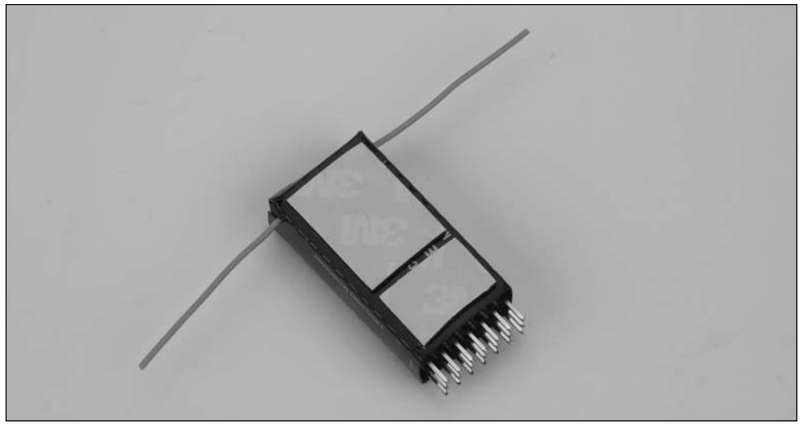
Thunder Power
TP-610C 1–6 Cell
Li-Po Charger with
Balancer (THP610)

Receiver Connection and Installation

A 6-channel or greater micro receiver is required. We strongly recommend the use of a DSM (Digital Spectrum Modulation) equipped receiver (like the Spektrum AR6100) and transmitter on 2.4GHz (like the Spektrum DX6i or DX7) for the ultimate in glitch-free performance. However, if you will be using a 72MHz radio system, we recommend the use of a PCM receiver.

The following steps outline connection and installation of the receiver:

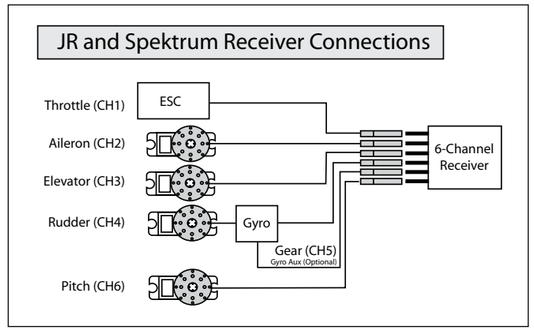
- Apply one or two sections of the included two-sided tape on your chosen receiver. Be sure to leave the paper backing that remains on the other side of the tape in place until after completing the next step.



- Locate the wire leads/connectors located near the front of the main frame. While it is possible to connect these leads/connectors to the receiver after it's been installed, it is easier to connect them to the receiver before installing it on the helicopter. Please see the following lists and illustrations, while also referring to the manual for your transmitter, for proper connections:

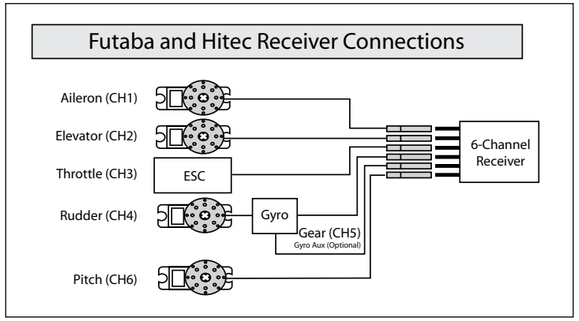
For JR and Spektrum Transmitters/Receivers

Channel 1 (THRO)	2-in-1Control Unit 'THRO' (Throttle) lead
Channel 2 (AILE)	Right mounted swashplate control 'aileron' servo lead
Channel 3 (ELEV)	Front-mounted swashplate control 'elevator' servo lead
Channel 4 (RUDD)	Gyro 'rudder' lead
Channel 5 (GEAR)	Gyro 'auxiliary' lead (the single yellow wire lead)
Channel 6 (AUX1)	Left mounted swashplate control 'pitch' servo lead

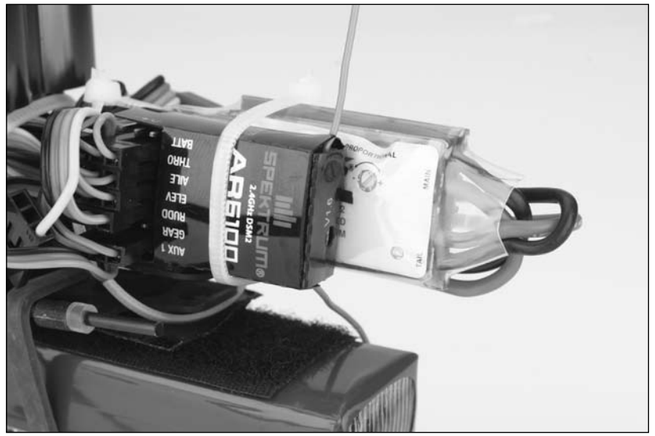


For Futaba and Hitec Transmitters/Receivers

Channel 1 (AILE)	Right mounted swashplate control 'aileron' servo lead
Channel 2 (ELEV)	Forward-mounted swashplate control 'elevator' servo lead
Channel 3 (THRO)	2-in-1Control Unit 'THRO' (Throttle) lead
Channel 4 (RUDD)	Gyro 'rudder' lead
Channel 5 (GEAR)	Gyro 'auxiliary' lead (the single yellow wire lead)
Channel 6 (AUX1)	Left mounted swashplate control 'pitch' servo lead



- After connecting the wire leads to the receiver, remove the remaining paper backing from the two-sided tape on the receiver. Then, carefully straighten the antenna(s) and place the receiver onto the front tray. Fasten the receiver in place on the front tray and use one of the included zip/cable ties for added security. However, be sure not to tighten the zip/cable tie too much as it could damage the case of the receiver.



- Once the receiver is mounted securely, route the antenna(s) per the instructions included with the receiver. In the case of the Spektrum AR6100 receiver, be sure that both antennas extend outward (to the top and bottom of the helicopter) as much as possible for the best overall performance. Be sure to check the position and orientation of both antennas before each flying session, especially if the helicopter was taken out of a box or carrying case.

If using a 72MHz receiver, you can route the antenna around the landing gear and be certain to secure any excess length of the antenna to prevent it from coming into contact with any moving parts on the helicopter.

Transmitter Setup

A 6-channel or greater transmitter with helicopter and 120-degree CCPM programming is required. We recommend the use of a DSM equipped 2.4GHz transmitter such as the Spektrum DX6i or DX7.

The following initial settings are suggested for the recommended transmitters, however, these settings will also be similar for other brands/models of transmitters. All settings/values other than those shown should remain the same as a new default helicopter model in your transmitter's programming. Also, some settings such as dual rates, exponential, gyro sensitivity/gain and others may need to be adjusted depending on personal preference, flying style and/or flight performance of your actual model.

Spektrum DX6i
In the "Adjust" list (ADJUST LIST):
Dual Rate and Exponential (D/R&EXPO)

AILE	0	100%	15%
ELEV	0	100%	15%
RUDD	0	100%	15%
AILE	1	70%	10%
ELEV	1	70%	10%
RUDD	1	80%	10%

NOTE: These values serve only as starting points. It may be necessary to decrease or increase the values per your preference.

Travel Adjustment (TRAVEL ADJ)
Transmitter Default
Gyro Sensitivity (GYRO)

100%

NOTE: These values serve only as starting points. It may be necessary to decrease or increase the values in order to achieve the proper gain setting value.

Throttle Curves (THRO CUR)

NOTE: The factory recommended normal mode throttle curve has been optimized for the power/torque band of the High-Power 370 and recommended brushless motor power system.

	POS L	POS 2	POS 3	POS 4	POS H
NORMAL	0.0%	45.0%	60.0%	75.0%	100.0%
STUNT	100.0%	100.0%	100.0%	100.0%	100.0%
HOLD					- 0.0%

Pitch Curves (PITC CUR)

	POS L	POS 2	POS 3	POS 4	POS H
NORMAL	42.0%	46.0%	50.0%	75.0%	100.0%
STUNT	0.0%	25.0%	50.0%	75.0%	100.0%
HOLD	42.0%	46.0%	50.0%	75.0%	100.0%

Swashplate Mixing (SWASH MIX)

AILE +100%
ELEV -100%
PITC +35%

In the "Setup" list (SETUP LIST):
Servo Reversing (REVERSE)

ELEV – R
AILE – R
RUDD – R

Swashplate Type (SWASH TYPE)
CCPM 120*

Timer (TIMER)
DOWN TIMER – 04:30

Spektrum DX7
In the "System Mode":
Input Selection (INPUT SELECT)

GEAR = GYRO

Swashplate Type (SWASH TYPE)
3 SERVOS 120*

In the "Function Mode":
Dual Rate and Exponential (D/R & EXP)

AILE	0	100%	15%
ELEV	0	100%	15%
RUDD	0	100%	15%
AILE	1	70%	10%
ELEV	1	70%	10%
RUDD	1	80%	10%

NOTE: These values serve only as starting points. It may be necessary to decrease or increase the values per your preference.

Servo Reversing (REVERSING SW)

ELEV – R
AILE – R
RUDD – R

Travel Adjustment (TRAVEL ADJUST)
Transmitter Default

Swashplate Mixing (SWASH MIX)

AILE +100%
ELEV -100%
PITC +35%

Throttle Hold (THRO HOLD)

ACT	HOLD Pos.
HOLD SW	0.0%

Throttle Curves (THRO CURVE)

NOTE: The factory recommended normal mode throttle curve has been optimized for the power/torque band of the High-Power 370 and recommended brushless motor power system.

	POS L	POS 1	POS 2	POS 3	POS H
NORMAL	0.0%	45.0%	60.0%	75.0%	100.0%
STUNT 1	100.0%	75.0%	50.0%	75.0%	100.0%
STUNT 2	100.0%	100.0%	100.0%	100.0%	100.0%
HOLD					- 0.0%

Pitch Curves (PITCH CURVE)

	POS L	POS 1	POS 2	POS 3	POS H
NORMAL	42.0%	46.0%	50.0%	75.0%	100.0%
STUNT 1	0.0%	25.0%	50.0%	75.0%	100.0%
STUNT 2	0.0%	25.0%	50.0%	75.0%	100.0%
HOLD	42.0%	46.0%	50.0%	75.0%	100.0%

Gyro Sensitivity (GYRO SENS)

AUTO
RATE:
0: 100%
1: 100%

NOTE: These values serve only as starting points. It may be necessary to decrease or increase the values in order to achieve the proper gain setting value.

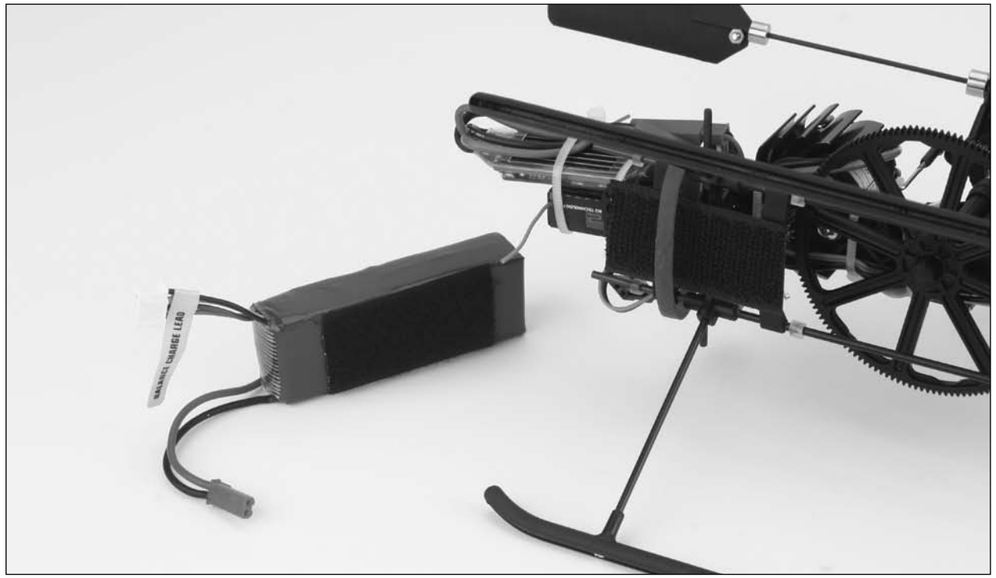
Timer (TIMER)

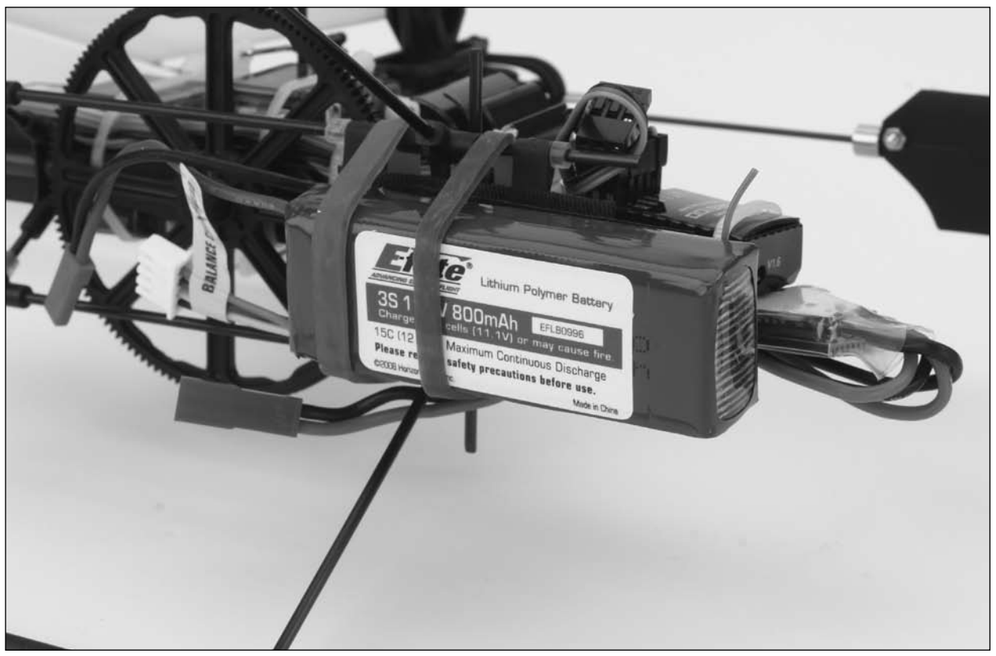
DOWN–T
4:30

After programming your chosen transmitter with the suggested initial settings, install the flight battery and test the controls as outlined in the following sections in order to be sure that the settings are correct for proper control and performance.

Installing the Flight Battery

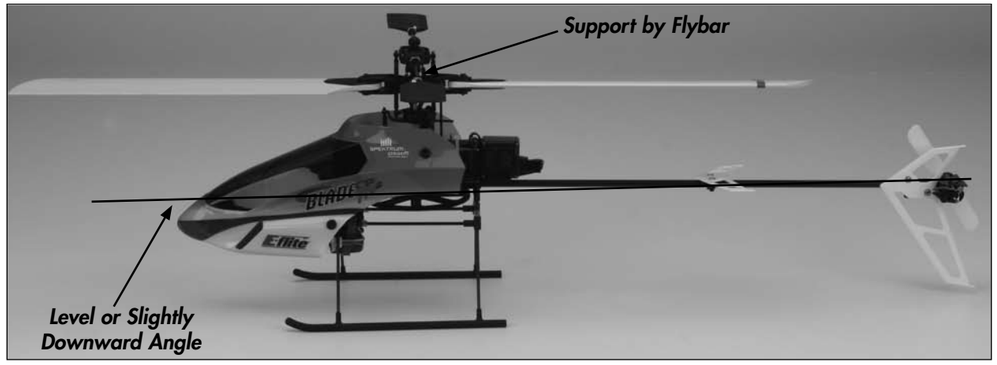
Use the included hook and loop material for mounting the Li-Po battery pack. We suggest installing the “loop” (fuzzy) material on the battery pack and the “hook” material on the battery support. You should also use the included rubber bands for the most secure attachment of the battery to the helicopter.





Center of Gravity

Once the battery has been properly installed and secured, you will need to check the helicopter’s center of gravity. With the canopy installed, lift the helicopter by the flybar with the flybar positioned perpendicular to the tail boom. Slide the battery support and battery forward or rearward as required to achieve a slightly nose down or perfectly level helicopter position. You should always check the CG of your Blade CP Pro 2 PNP before flying, especially if you are switching between different sizes and types of battery packs.



Transmitter Control Identification

Note: Each time before you fly you should ALWAYS turn the transmitter on before connecting the flight battery to the 5-in-1 unit. After each flight, be sure that you always disconnect the flight battery from the 5-in-1 unit before powering the transmitter off. **HP6DSM Transmitter is shown for reference only.**

Control Test

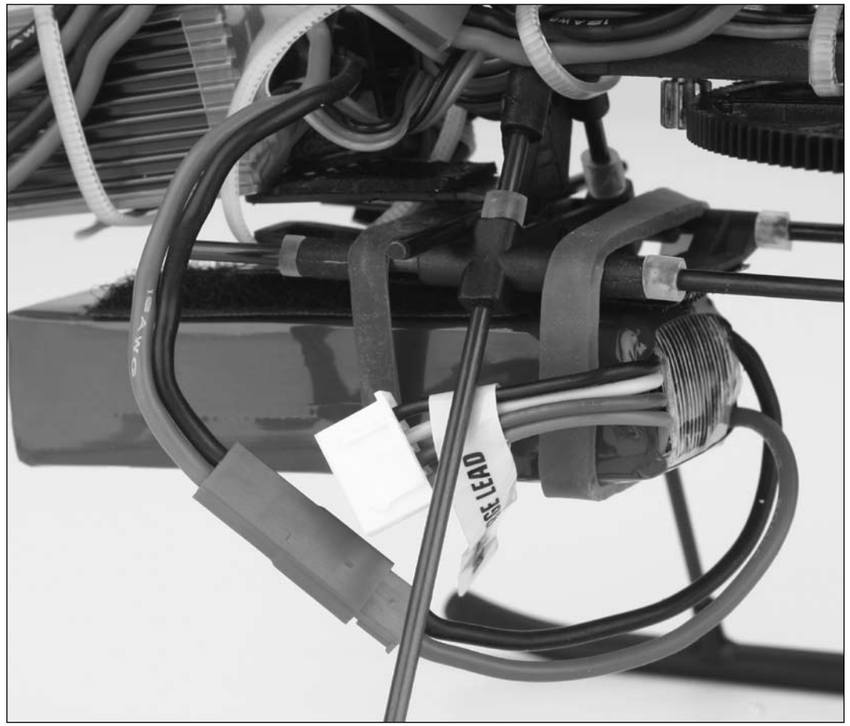
After programming your transmitter and installing the flight battery, it will be necessary to test the controls prior to servo arm and linkage adjustment, to ensure none of the servos, linkages or other parts were damaged during shipping and handling. Before proceeding, unplug both the main and tail motors from the 2-in-1 control unit. It is not safe to perform the control test with the main or tail motor plugs connected to the 2-in-1 control unit after power up.

Turn the transmitter on first and lower the throttle stick and trim completely. Then, plug the battery into the battery lead of the 2-in-1 unit.

NOTE: HP6DSM Transmitter is shown for reference only.

Mode 2

Mode 1

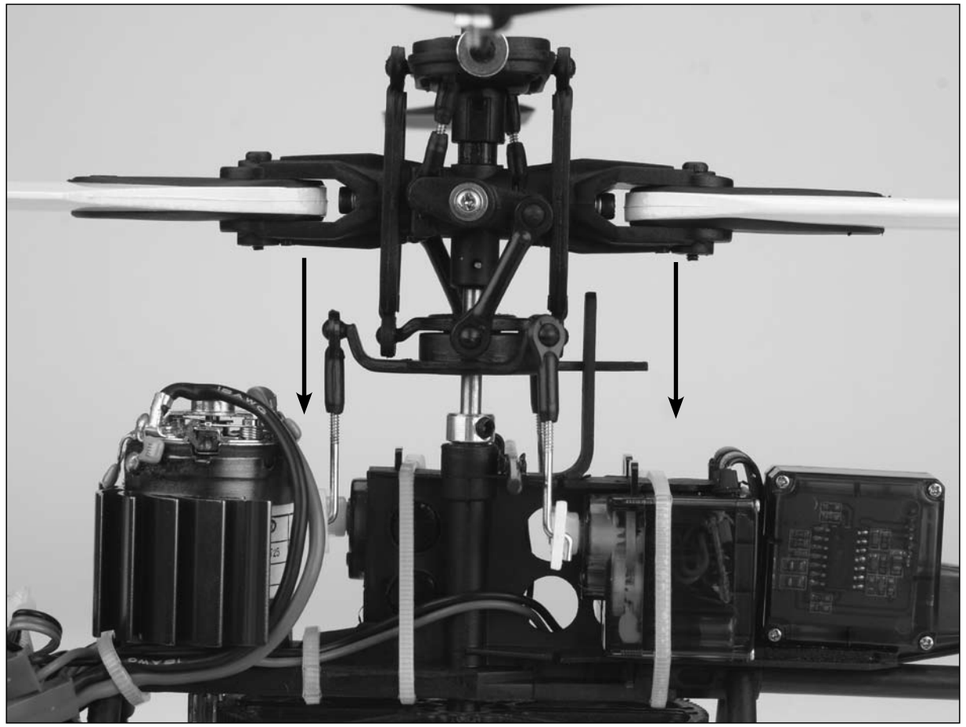


Position the helicopter to view it from the left or right side. Move the throttle/collective stick up and down to check the collective pitch control. When the stick is pushed up, the swashplate should lower, increasing the pitch of the main blades.

NOTE: HP6DSM Transmitter is shown for reference only.

Mode 2

Mode 1

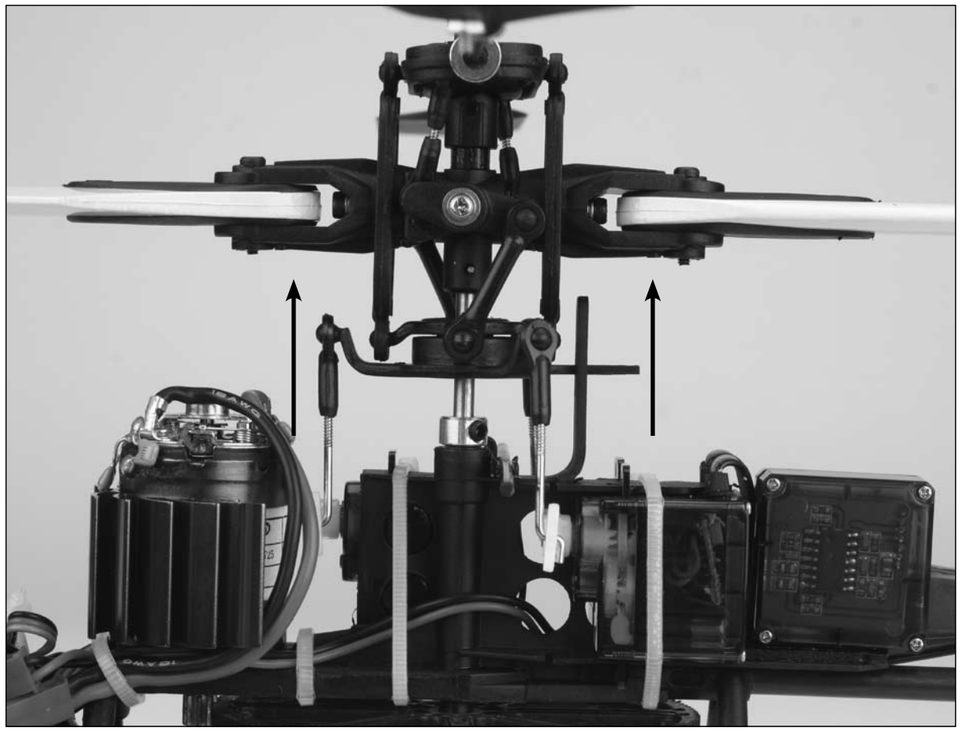


With the stick pulled back down, the swashplate should raise, decreasing the pitch of the main blades.

NOTE: HP6DSM Transmitter is shown for reference only.

Mode 2

Mode 1



Again viewing the helicopter from the left or right side, move the elevator stick forward and aft to check elevator pitch control. When the stick is pushed forward, the swashplate should also tilt forward.

NOTE: HP6DSM Transmitter is shown for reference only.

Mode 2

Mode 1

With the stick pulled back, the swashplate will tilt toward the rear.

NOTE: HP6DSM Transmitter is shown for reference only.

Mode 2

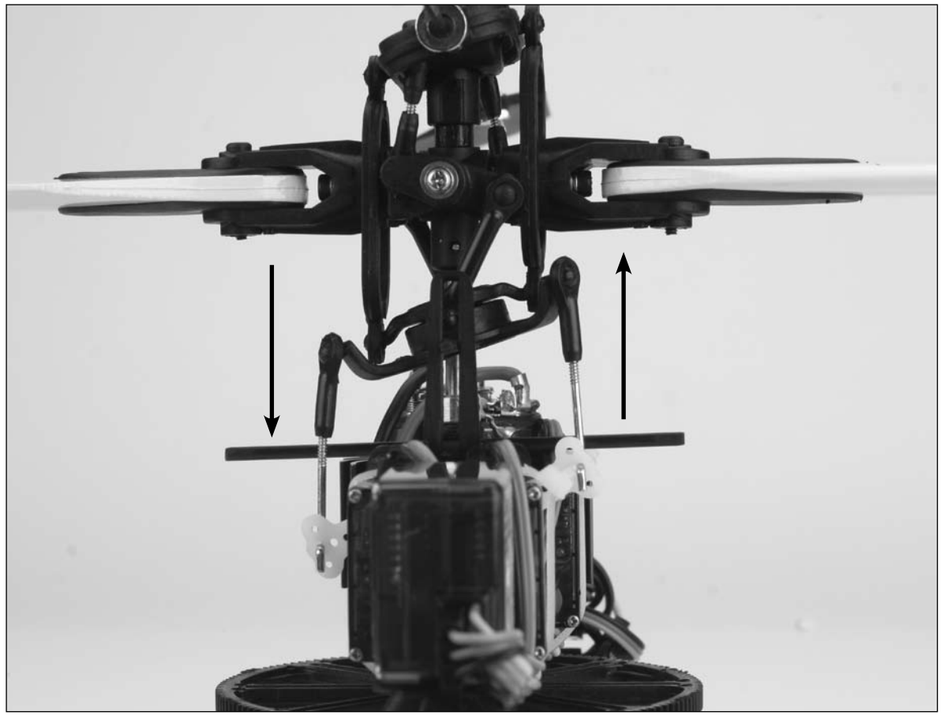
Mode 1

While viewing the helicopter from the rear (tail boom toward you), move the right-hand stick left and right to check aileron roll control. When the stick is pushed to the left, the swashplate should also tilt left.

NOTE: HP6DSM Transmitter is shown for reference only.

Mode 2

Mode 1

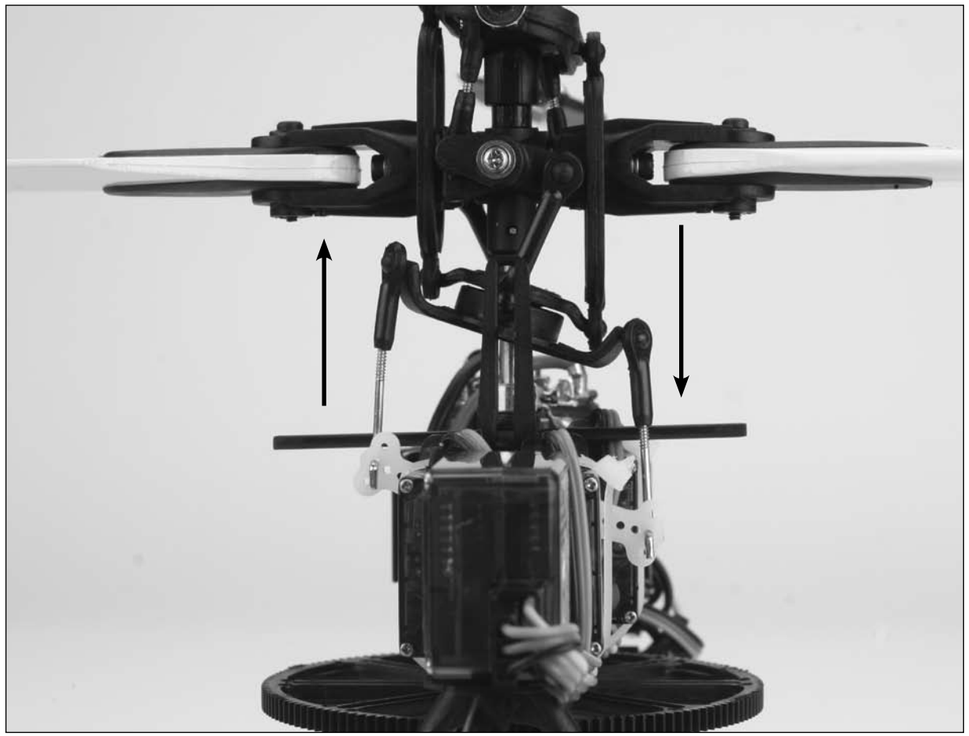


With the stick pushed right, the swashplate will tilt to the right.

NOTE: HP6DSM Transmitter is shown for reference only.

Mode 2

Mode 1



If at any time during the test the swashplate controls do not respond properly, double-check the swashplate mixing settings in the transmitter. The values should be set as listed in the transmitter setup section of this manual. If the swashplate controls still do not respond properly after ensuring that the swashplate mixing values are correct, double-check the servo reversing settings in the transmitter.

If the controls still do not respond properly after ensuring the servo reversing settings are correct, you may also check the servo connections to the receiver. The connection for each servo should be connected to the receiver as listed in the Receiver Connection and Installation section of this manual.

Once you have confirmed proper swashplate mixing values, servo reversing settings and servo connection locations, all controls should be functioning properly. However, if you continue to encounter any problems relating to your Blade CP Pro 2 PNP responding properly to the transmitter, do not fly. Call the Horizon Support Team at 1-877-504-0233 before proceeding.

If you have confirmed proper control operation of your Blade CP Pro 2 PNP, continue with servo arm and linkage adjustment.

Servo Arm and Linkage Check and Adjustment

Although the servo arms and linkages of each Blade CP Pro 2 PNP model have been assembled and installed at the factory, it may be necessary to make some small adjustments to achieve the proper and optimum control setup.

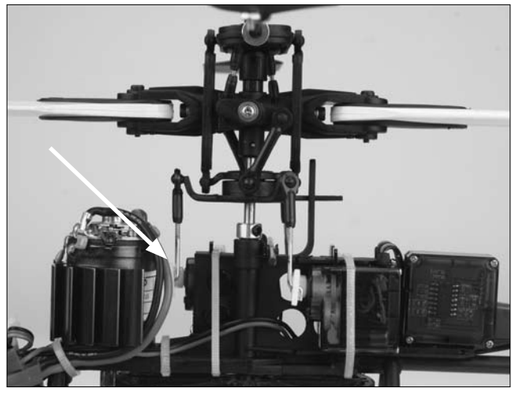
With the 2-in-1 unit still disconnected from the motors and the transmitter and helicopter powered on, set the throttle/collective stick to the middle/center position. If you've programmed your transmitter using the recommended initial settings, regardless of the flight mode you are in (normal, stunt or throttle hold), the transmitter will be outputting the values for the desired 0 degrees of main rotor blade pitch. If you are using settings other than those recommended, please set the throttle/collective stick to the position that outputs the values for 0 degrees pitch.

NOTE: Many computer transmitters have graphical and/or data displays that indicate when the throttle/collective stick is set to the middle/center position. This is usually indicated by a value of 50% in/out, or by showing the cursor at the mid point of the throttle/pitch curves.

With the throttle/collective stick in the middle/center position, the three CCPM servos should be in their centered/neutral positions. This will allow you to confirm that the servo arms, swashplate and rotor blades are in their proper neutral/0 degree pitch positions.

Servo Arms

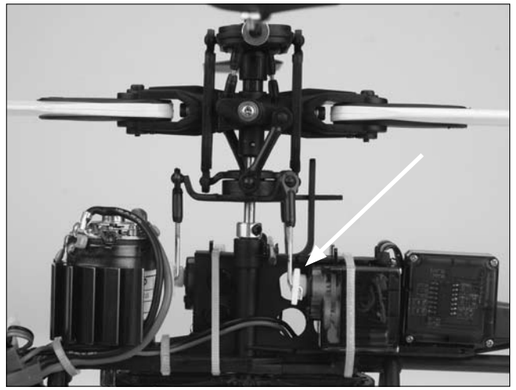
When the aileron and pitch servos are in their neutral positions, their servo arms should be as close to level/horizontal as possible.



If either servo arm is not level/horizontal, try to reposition the servo arm on the output shaft/gear of the servo to find a position that is closer to level/horizontal. If it's not possible to find a position for the servo arm that is exactly level/horizontal, or within at least a few degrees in either direction, use the sub-trim function of your transmitter to adjust the servo's neutral position.

NOTE: If using sub-trim, be sure to use the lowest value possible to achieve a servo arm position that is within a few degrees of level/horizontal (the arm does not have to be perfectly level). Significant amounts of sub-trim can cause unequal throw of the servos that may result in undesired CCPM control interaction and/or loss of control.

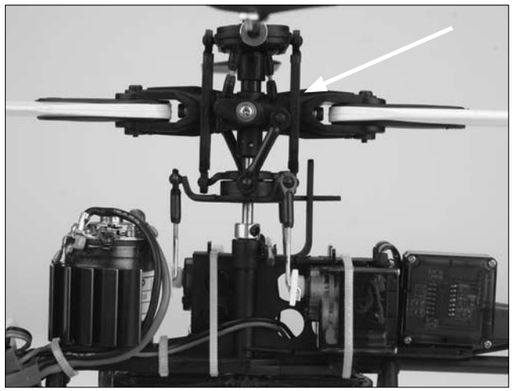
When the elevator servo arm is in its neutral position, the servo arm should be as close to perpendicular to the servo as possible.



If the servo arm is not perpendicular to the servo, try to reposition the servo arm on the output shaft/gear of the servo to find a position that is closer to perpendicular. If it's not possible to find a position for the servo arm that is exactly perpendicular, or within at least a few degrees in the clockwise direction, use the sub-trim function of your transmitter to adjust the servo's neutral position.

Swashplate

After confirming that the servo arms for the CCPM servos are in their best possible neutral positions, it will be necessary to confirm that the swashplate is level and in the proper position to provide equal amounts of collective pitch/cyclic throw without binding.

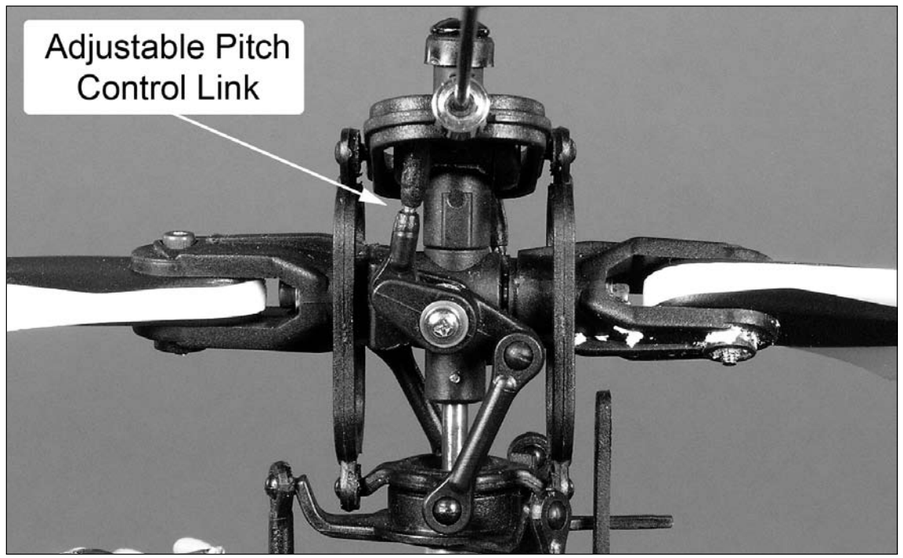


Linkages

If you find that the swasplate is not positioned the correct amount from the top of the frame, or not level from any side and the front or rear of the helicopter, adjust any of the three CCPM servo linkages as necessary. Typically very few if any adjustments will be necessary.

After confirming that the swashplate is level and in the correct position, it will be necessary to confirm that the main rotor blades are set to approximately 0 degrees of pitch. We strongly recommend the use a pitch gauge (EFLH1000) for the most accurate measurement during this step, and it can also be used when adjusting/ confirming all other pitch values in the various flight modes.

With the flybar positioned parallel to the tail boom (when viewed from above and from the side), both main rotor blades should be positioned so they are as close to level/horizontal (0 dergees) as possible. If either blade is not positioned correctly, you can increase the pitch of the blade by lengthening its pitch control linkage. This is accomplished by turning one of the Ball Link ends out by one-half to one full turn. Or, you can decrease the pitch of the high blade by shortening the linkage.

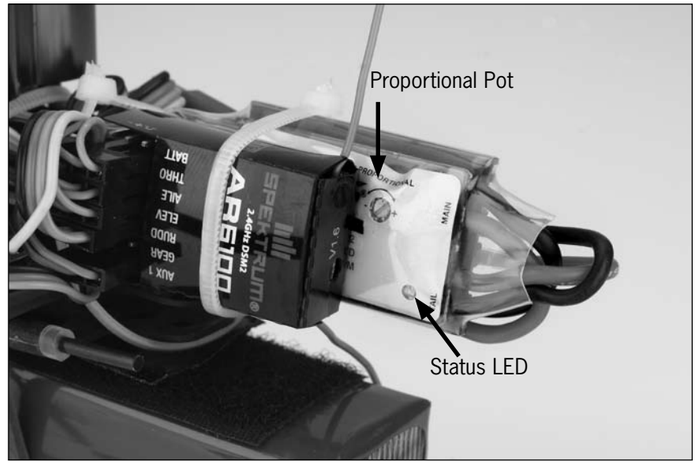


After confirming that the swashplate is level and correctly positioned, and the main rotor blades are set to approximately 0 degrees of pitch, you are almost ready for the first flight. **Before proceeding, unplug both the main and tail motors from the 2-in-1 control unit**. It is not safe to perform the control test with the main or tail motor plugs connected to the 2-in-1 control unit after power up.

Unplug the flight battery from the **2-in-1 control unit** and reconnect **both the main and tail motors to the 2-in-1 control unit.** Make sure to connect the main motor and tail motor leads as labeled on the 2-in-1 control unit to ensure proper operation of the motor.

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

The unique 2-in-1 Control Unit installed on your Blade CP Pro 2 is a lightweight combination of main motor and tail motor electronic speed controls, and main motor and tail motor proportional mixer. The 2-in-1 unit is also equipped with a proportional tail rotor mix trimmer pot and status LED.



The following checklist contains the steps you must follow to ensure proper arming and operation of the 2-in-1 unit, as well as proper motor response:

❑ Each time before you fly you must ALWAYS turn the transmitter on before connecting the flight battery to the 2-in-1 unit. Never connect the flight battery to the 2-in-1 unit before powering the transmitter on first. After each flight, be sure that you always disconnect the flight battery from the 2-in-1 unit before powering the transmitter off.

❑ Both the throttle stick and throttle trim MUST be in the lowest possible position in order for the 2-in-1 unit to arm. The Flight Mode (F MODE) switch must also be in the normal (0) Flight Mode position with the switch toggled toward the back of the transmitter for the unit to arm.

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.

NOTE: HP6DSM Transmitter is shown for reference only.

❑ After confirming that the transmitter has been turned on and has an adequate level of battery power as displayed by the LCD screen at the top of the transmitter, it is now safe to connect the flight battery to the 2-in-1 unit.

❑ With battery power applied, and once the orange LED of the Spektrum AR6100 receiver glows solidly to indicate a positive link to the transmitter, the 2-in-1 unit status LED will blink red, then blink green.

❑ When the status LED becomes solid green, the unit is armed and ready for flight. Use caution as both the main and tail rotors will now spin with throttle stick input. For safety, once the unit is armed, the main and tail motors will not spin with the throttle stick and trim in their lowest positions. However, we also suggest setting the throttle hold (TH HOLD) switch in the on (1) position toward the front of the transmitter once the 2-in-1 unit has armed. This will keep the motors and rotor blades from spinning while you handle the helicopter and transmitter.

If you have not set the throttle hold switch to the on position, or after you set the switch to the off (0) position toward the back of the transmitter, DO NOT advance the throttle stick 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, 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.
- 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. First, check to be sure that the transmitter has been powered on and has an adequate level of battery power. If the transmitter is powered on and functioning properly, disconnect the flight battery from the 2-in-1 unit, then reconnect it. Watch for the orange LED of the receiver to begin glowing solidly, and once it does, the 2-in-1 unit should arm normally.

If your 2-in-1 unit will not arm after following the guidelines as listed above, contact the Horizon Support Team at 1-877-504-0233.

❑ Once you have placed the helicopter in a safe area, free of obstructions, and are clear of the rotor blades, you can safely begin to power up the model to check for proper operation of the motors.

❑ Advance the throttle stick upward slowly, just until both the main and tail rotor blades begin to spin. DO NOT attempt the fly the helicopter at this time. Note the direction that the main and tail rotor blades spin. The main rotor blades should spin clockwise when viewed from the top, with the tail rotor blade spinning clockwise when viewed from the right-hand side of the helicopter. If either set of rotor blades is operating in the wrong direction, unplug the battery and reverse the polarity of the corresponding motor's input power leads.

❑ With the tail motor/rotor spinning at a low Rpm, this is also a good time to check that the tail rotor is responding properly to transmitter inputs. When inputting a slight amount of right rudder, the tail rotor rpms should increase, pushing the nose of the helicopter to the right. If you are on carpet, grass, or an otherwise uneven surface, be very careful not to allow the helicopter to catch the vertical fin when testing the tail rotor control on the ground (or during liftoff when beginning a flight).

After confirming that both rotor blades are rotating in the correct directions, and the tail rotor is responding properly to rudder inputs, your Blade CP Pro 2 is ready for flight. However, please be sure to review the following sections of the manual BEFORE proceeding with the first flight.

Gyro Initialization, Response Test and Adjustment

Your Blade CP Pro 2 PNP model is equipped with an E-flite G110 Micro Heading Lock Gyro. This gyro offers an excellent blend of size, weight, features and performance.

Initialization and Response Test

The following checklist includes the steps you must follow to ensure proper initialization and operation of the gyro:

❑ After connecting the flight battery to the 2-in-1 unit, be sure that you do not move or sway the helicopter. Allow it to remain motionless until the red LED on the gyro illuminates solidly, indicating that the gyro has initialized properly and is ready for use.

NOTE: It is extremely important that you do not move or sway the helicopter after powering it on and before the gyro initializes. The gyro must be allowed adequate time to record the neutral position in order to initialize for proper operation. If you ever accidentally move the helicopter after powering it on and before the gyro initializes, power the helicopter off (by disconnecting the flight battery from the 2-in-1 unit) and repeat the process to power the helicopter on and to initialize the gyro properly.

❑ Once the gyro has initialized properly, and before making your first flight, it will be necessary to confirm that the gyro is responding properly to the movements of the helicopter and providing proper inputs to the tail rotor in order to counteract any unwanted changes in yaw.

For added safety during the test, disconnect the main motor from the 2-in-1 control unit.

NOTE: For your safety it is extremely important that you remain clear of the tail rotor.

❑ After securing the helicopter and ensuring that all objects are free and clear of the tail rotor blades, and also reconfirming that the main motor has been disconnected from the 2-in-1 control unit, advance the throttle/collective stick on the transmitter to approximately 1/4–1/3 travel. Use caution, as the tail motor should begin to spin the tail rotor blade.

❑ Now it is necessary to confirm that the tail motor/rotor is responding properly to inputs from the gyro. While holding the helicopter securely and ensuring that all objects are free and clear from the tail motor, quickly twist the nose of the helicopter to the left. If the tail motor/rotor is responding properly to inputs from the gyro, the rpms will increase, to counteract the nose twisting to the left, in order to bring the nose back to the right. When quickly twisting the nose of the helicopter to right, the rpms should decrease or stop entirely. If the tail motor/rotor is not responding properly, use the reverse switch located on the gyro to reverse the direction of response.

❑ After confirming that the tail motor/rotor is responding properly to inputs from the gyro, disconnect the battery from the 2-in-1 control unit, power down the transmitter and reconnect the main motor to the 2-in-1 unit.

Now that you've confirmed the gyro is providing proper inputs to the tail motor/rotor, be sure to review the following sections of the manual BEFORE proceeding with the first flight.

Gain Adjustments

The G110 offers remote mode selection and gain adjustment features. These features allow the gyro mode (Standard Rate or Heading Lock) and gain values to be set remotely in the transmitter. However, for simplified use, while maintaining maximum performance in the Blade CP Pro 2, Please set your gyro gain to 100%.

- If you opt to not use the remote gain feature of the G110 gyro, please leave the remote gain lead unplugged and turn the GYRO GAIN POT to 100%. This will not a problem as the gyro will always be in the heading lock mode and the gain value can be set using the gain value adjustment pot located on the gyro itself.
- After making the initial test flight, you may find that it is necessary to adjust the gyro gain setting value prior to subsequent test flights in order to achieve the best possible performance. The goal, when using a heading lock type gyro, is to find the highest gain setting value at which the tail/nose of the helicopter does not twitch quickly (oscillate) from side to side in all areas of flight (including fast forward flight and descents). In the case of the G110 in the Blade CP Pro 2, we find that it is typical to have the gain setting adjustment pot set at or near the most clockwise/100% value. In this position we find that the tail/nose does not tend to twitch quickly from side to side in most areas of flight and we are able to achieve maximum tail and heading hold performance.

Trim Adjustments

During flight, it may be necessary to make some small adjustments to the rudder trim in order to prevent the nose/tail of the model from "drifting" to the left or right when the rudder stick is in the neutral position. Typically, only a small amount of adjustment may be necessary.

NOTE: It is always best to avoid sudden temperature and environmental condition changes when using a gyro. For example, it is best to not fly a model on a very hot (or cold) day immediately after removing it from an air-conditioned (or heated) vehicle. It is also best to keep the gyro out of direct sunlight and away from any heat-generating sources on the model.

To help the gyro better acclimate to temperature and environmental conditions at the flying field, it is best to let your Blade CP Pro 2 model stand in the environment for approximately 10–15 minutes before flying, allowing the temperature of the gyro sensor to stabilize. If you do not allow the temperature to stabilize, you may experience radical trim changes that require significant adjustments of the rudder trim during flight.

Servo Mode Setting

The G110 is equipped with a switch and software that allows its performance to be optimized for use with most analog and some digital servos. The servo mode selection switch is found on the side of the gyro.

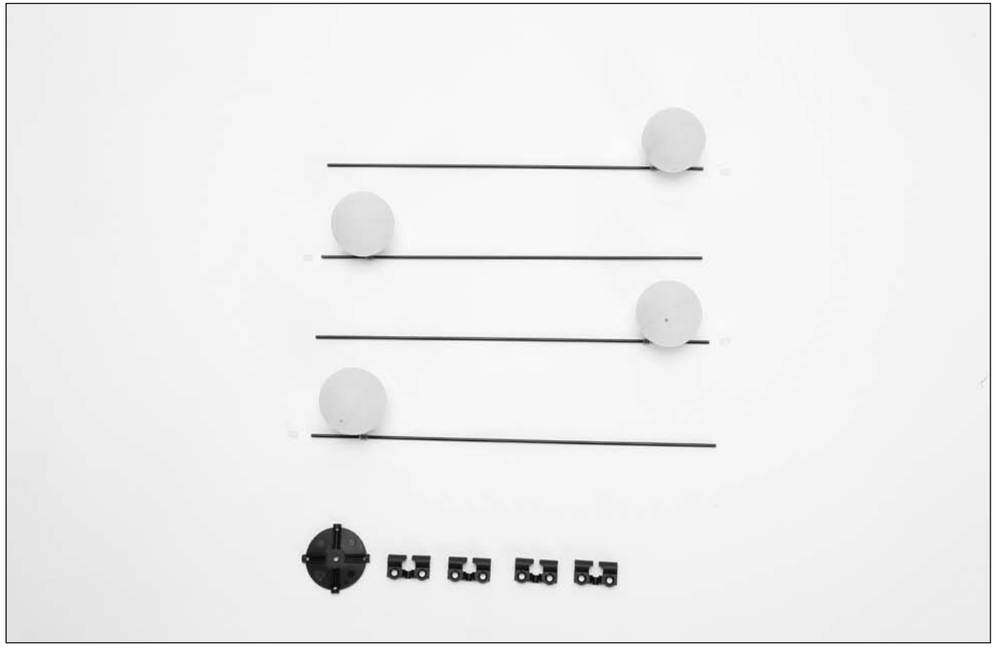
However, because the Blade CP Pro 2 uses an ESC and motor to control the tail, you must be certain that the servo mode selection switch on the gyro is set to standard servo mode to ensure proper response and performance of the gyro. If it is set to digital servo mode, the electronic speed control and tail motor will not respond properly to inputs from the gyro or transmitter. This could even cause failure of the motor, ESC or both.

Installing the Optional Training Gear

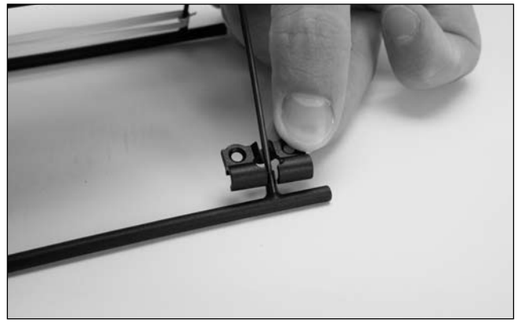
If the Blade CP Pro PNP 2 is your first single-rotor and/or collective-pitch equipped helicopter model, we suggest that you install the optional Training Gear Set (EFLH1128) before making your first flight. The training gear helps to further increase the stability of the model while also providing added support and cushioning to prevent tip-overs and damage to the model from abrupt landings.

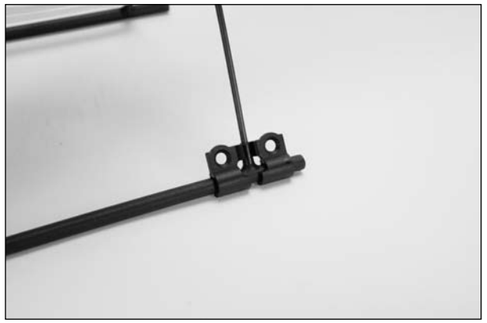
Installing the training gear takes only a few minutes following these steps:

- The training gear set includes four plastic balls, four tubing keepers, four training gear rods, four training gear rod to landing skid attachments and one training gear rod mounting base.



- Locate the four training gear rod to landing skid attachments. These are the black plastic parts with two relatively large holes in them. Slip the attachments around the landing gear struts (the “legs” that join the landing skids to the frame) from the inside, then snap the clips into place on the skids. Rotate the attachments until they are resting against the landing strut to landing skid joint.





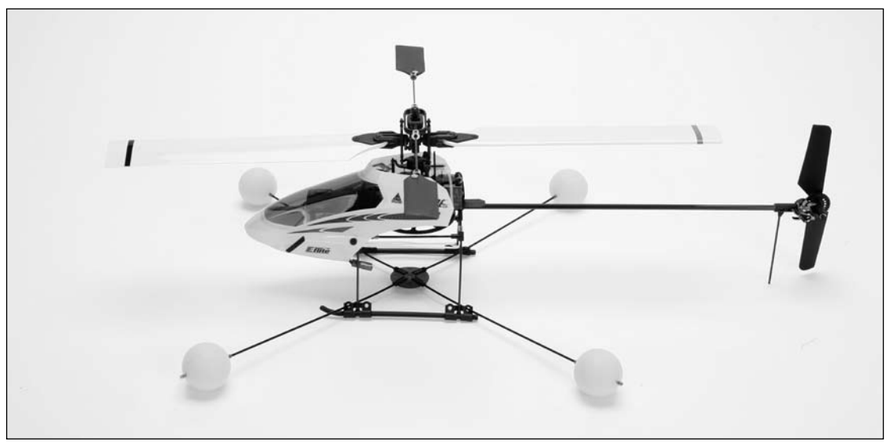
- After installing all four attachments, locate the four training gear rods and rod mounting base. Note that the rod mounting base has four channels into which the training gear rods will mount. The “open” side of these channels will face upward toward the bottom of the helicopter when properly installed.

- Carefully pass each of the rods through the holes in the attachments on the landing skids and into the channels on the base. The rods will pass through the front holes of the forward attachments, and the back holes of the rear attachments. You may find it necessary apply some light pressure to the rods, base and landing skids when installing all four rods in the base. This is typical, however, take care to not pull the landing struts out of their mounts in the frame and to not damage any of the parts.

  Once all four rods are installed, note that the landing skids may be pulled slightly inward under their pressure. This is also typical as the pressure helps to keep the training gear in place.

- Install one plastic ball on the exposed end of each rod. Then, slide one tubing keeper over the end of each rod to prevent the ball from sliding off. Adjust the position of the tubing keepers that were factory-installed on each rod until they are just touching each plastic ball. The tubing keepers should then be positioned so that the ball can spin freely on the rod, without too much movement side-to-side between the keepers.

  Your Blade CP Pro 2 PNP is now ready for flight with the training gear installed.



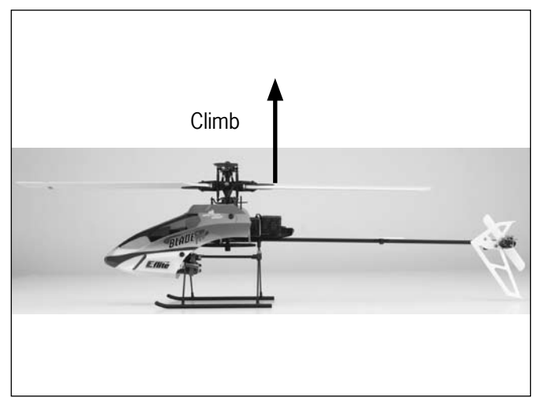
Understanding the Primary Flight Controls

If you are not familiar with the controls of your Blade CP Pro 2 PNP, please take a few minutes to familiarize yourself with them before attempting your first flight.

The left-hand stick (Mode 2) on the transmitter controls both throttle/collective pitch (climb/descend) and rudder (yaw left/right). When the throttle stick and throttle trim lever are in their lowest positions, the main rotor blades will not spin. Advancing the stick upward will increase the speed and pitch of the main rotor blades. Increasing the speed and pitch of the main rotor blades will cause the model to climb. **NOTE:** In this section the HP6DSM Transmitter is shown for reference only

Mode 2

Mode 1

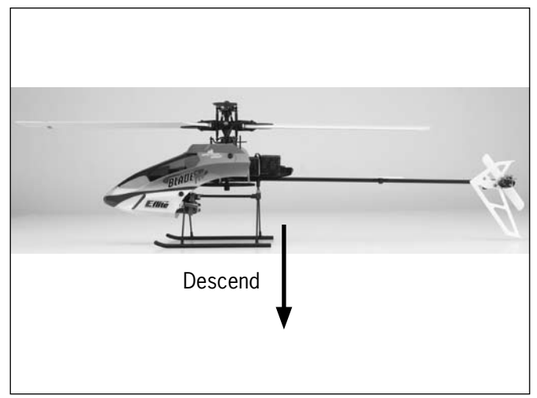


Decreasing the speed and pitch of the main rotor blades by lowering the throttle stick will cause the model to descend.

NOTE: When you are in the stunt flight mode lowering the left hand stick will actually cause the speed of the main rotor blades to increase while also increasing the amount of negative pitch the main rotor blades can offer. This allows the model to be flown inverted and to perform basic and 3D aerobatic maneuvers.

Mode 2

Mode 1



After lifting the model off the ground, you can balance the throttle/pitch by carefully moving the throttle stick up and down so the model will hold a stationary hover without climbing or descending.

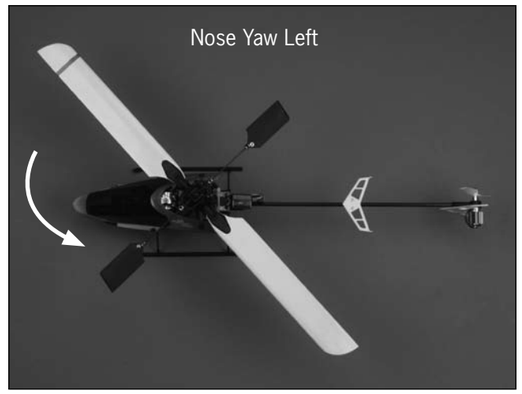
You can also use the throttle trim to adjust the throttle/collective pitch value for a given stick position. For example, raising the throttle trim will allow the model to hover at a lower throttle stick position. It will also offer more total positive pitch at the highest stick position, and less negative pitch at the lowest position. In most cases it is preferred to position the throttle trim so it offers an equal amount of positive and negative pitch when the stick is in the highest and lowest positions.

Also, if you do raise the throttle trim when in the normal flight mode, you MUST remember to lower it (and the throttle stick) to the lowest possible position IMMEDIATELY in the event of a crash or rotor blade strike. Even if the motors are trying to spin at the lowest speed possible, they can still pull enough current to damage the ESCs of the 2-in-1 unit if the rotor blades are stalled, which may require replacement of the 2-in-1 unit. If you are in the stunt flight mode (and also helpful when you are in the normal flight mode), it is usually best to utilize the throttle hold function of the transmitter in the event of a crash or rotor blade strike by toggling the TH HOLD switch toward the front of the transmitter.

Moving the throttle 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 decreasing the speed of the tail rotor blade.

Mode 2

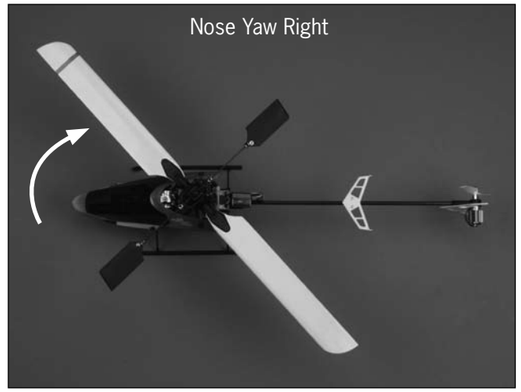
Mode 1



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

Mode 2

Mode 1

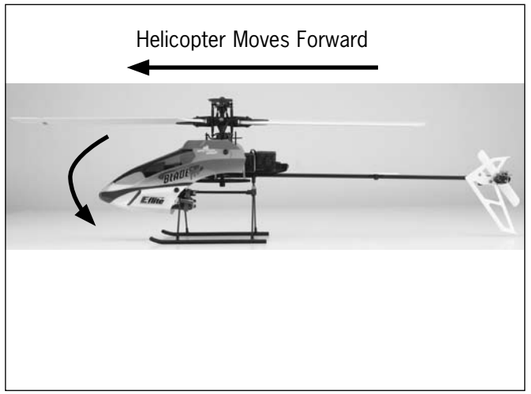


The rudder trim can be used to help keep the nose of the helicopter from rotating to the left or right when in hover with no rudder stick input. For example, if the nose of the helicopter drifts to the right when in hover, add left rudder trim until the nose stays as close to straight as possible. Also note that further adjustments to the rudder trim can be made using the main motor proportional mix trimmer pot as outlined in the “Tail Rotor Proportional Mix Trimmer Pot Adjustment” section of the manual.

Pushing the elevator stick forward will pitch the nose of the helicopter downward, allowing the helicopter to be flown forward.

Mode 2

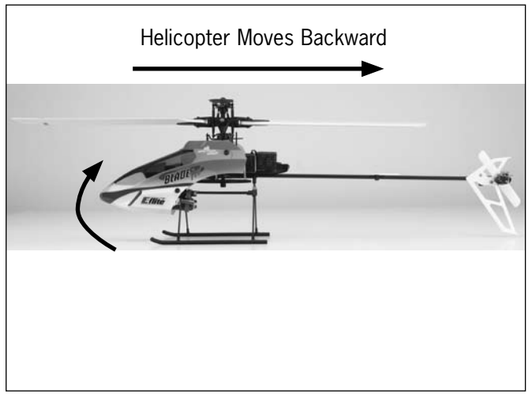
Mode 1



Pulling the stick backward will pitch the tail of the helicopter downward, allowing the helicopter to be flown backward.

Mode 2

Mode 1

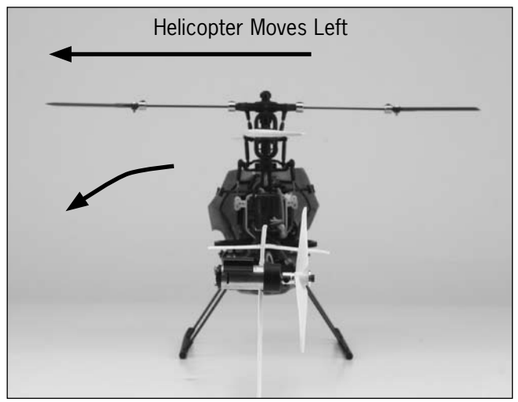


The elevator trim can be used to help keep the helicopter from drifting forward or backward when in hover with no elevator stick input. For example, if the helicopter drifts forward when in hover, pull the elevator trim downward until the helicopter hovers as level as possible with no forward drifting.

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

Mode 2

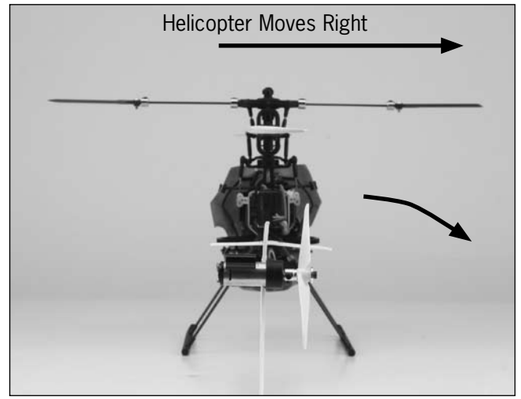
Mode 1



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

Mode 2

Mode 1



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're familiar with the primary controls of the helicopter, you are almost ready to fly.

Dual Rates

Depending on the transmitter and settings you use, your Blade CP Pro 2 can be fine tuned by simply flipping the dual rate switch. This switch allows the pilot to toggle between the high and low control rates available for the aileron, elevator and rudder channels (depending on the transmitter and settings you have chosen).

Normal and Stunt Flight Modes

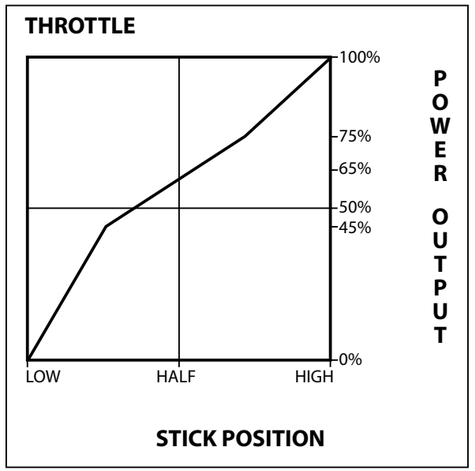
Your chosen transmitter should feature a Flight Mode switch. This switch allows you to toggle between the Normal and Stunt/Idle Up flight mode(s) during flight

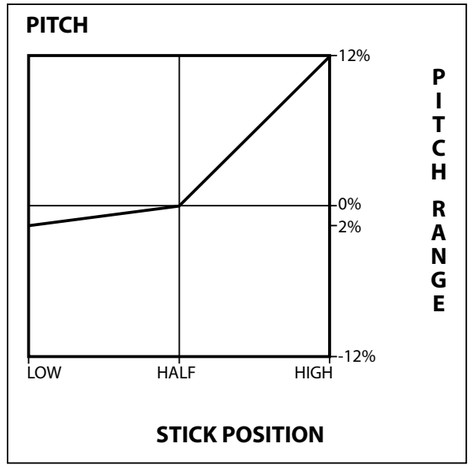
In the normal flight mode (when using the recommended settings), the throttle curve is programmed from 0% to 100%, with a pitch range of approximately –2 degrees (42%) to +12 degrees (100%). This is the preferred flight mode for general hovering and basic (non-aerobatic) flight.

NOTE: The factory recommended normal mode throttle curve has been optimized for the power/torque band of the High-Power 370 and recommended brushless motor power system.

	POS L				POS H
NORMAL Throttle	0.0%	45.0%	60.0%	75.0%	100.0%
NORMAL Pitch	0.0%	25.0%	50.0%	75.0%	100.0%

If you used the above settings, your throttle and pitch curves will look like:

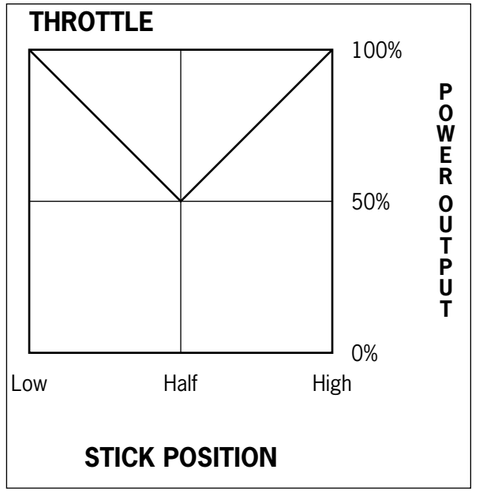


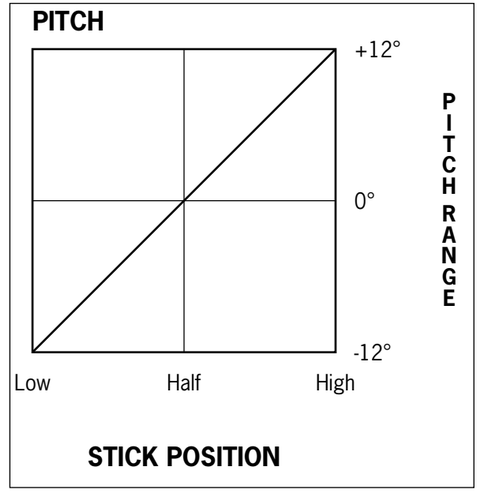


In the idle up/stunt flight mode (Depending on which recommended settings you use), the throttle curve can be "V" shaped from 100% to 100% with 50% throttle at mid-stick or a "flat-line" from 100% to 100% with 100% throttle at mid-stick with a pitch range of -12 (0%) to +12 degrees (100%). This is the preferred flight mode for most forward/backward, aerobatic and 3D flying.

	POS L				POS H
STUNT Throttle	100.0%	75.0%	50.0%	75.0%	100.0%
STUNT Pitch	0.0%	25.0%	50.0%	75.0%	100.0%

If you used the above settings, your throttle and pitch curves will look like:





NOTE: When in stunt mode, even with the throttle stick all the way down, the blades and motors will continue to spin. You must use the normal flight mode to safely turn off the motors. For safety, the 2-in-1 unit will not arm if the flight battery is plugged in and the flight mode switch is in the stunt position.

Also, when switching between the normal and stunt flight modes, it is best to do so in the air while hovering. The throttle and pitch curves of each flight mode have been optimized to transition smoothly around hover. Please be sure to never switch into stunt mode without having powered the main and tail motors up in normal mode first. The abrupt start could cause damage to the gears, motors or possibly even the 2-in-1 unit.

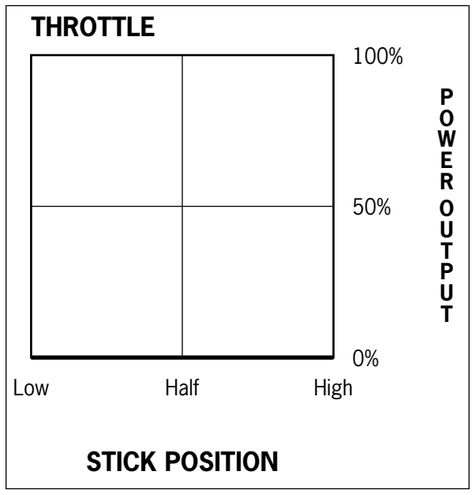
Throttle Hold

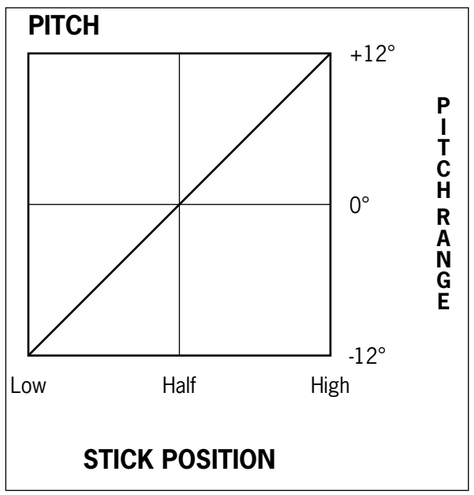
Your chosen transmitter should feature a Throttle Hold switch. This switch allows you to toggle between Throttle Hold OFF and Throttle Hold ON.

NOTE: HP6DSM Transmitter is shown for reference only.

When throttle hold is off, the transmitter will be in the normal or stunt flight mode (depending on where the flight mode switch is set). When throttle hold is on, the helicopter will be in the throttle hold flight mode. In this flight mode, the throttle should always be set to 0%. In the case of an electric-powered model like the Blade CP Pro 2, this will power down the 2-in-1 Unit ESC/motors completely.

Toggling the throttle hold switch to the on position also allows you to safely power down the 2-in-1 Unit ESC/motors any time the helicopter is not flying. This is particularly helpful as it allows you to safely handle the helicopter, while the 2-in-1 unit ESC is still armed, regardless of the throttle/collective stick and flight mode switch positions.





NOTE: If the throttle hold switch is in the on position, and the throttle/collective stick set to anything above the lowest possible position with the flight mode switch set to the normal position, the 2-in-1 Unit ESC/motors will power up as soon as the throttle hold switch is set to the off position. This is also the case regardless of the throttle/collective stick position when the flight mode switch is set to the stunt position. You must exercise extreme care and caution when switching the throttle hold switch to the off position. You should always be in the normal flight mode and have the throttle/collective stick set to the lowest possible position BEFORE switching throttle hold off.

Before the First Flight

Although each Blade CP Pro 2 PNP model is factory assembled and tested, you should check the following before making your first flight.

- ❑ Check the security of all screws on your model. Tighten any screws that may be loose and replace any screws or other parts that may be stripped.
- ❑ Check to be sure that the screws securing the main rotor blades in the blade grips are tightened so the blades can pivot in the grips when moderate pressure is applied. **Never allow the main blades to swing freely in their grips.**
- ❑ Check the security of all the plastic ball link ends on your model. The links should stay attached to the control/linkage balls even when moderate force is applied. Any link that does not stay attached to the control/linkage ball should be replaced before flight.
- ❑ Check to be sure that all electronic equipment and wire leads are secure and will not come into contact with any moving parts.
- ❑ 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.

Your Blade CP Pro 2 PNP is now ready for flight.

Choosing a Flying Area

When you are ready for your first flight, you will want to select a large, open area that is free of people and obstructions. Until you have properly trimmed, adjusted and become familiar with the handling of the Blade CP Pro 2 PNP, we suggest that your first and subsequent test flights be made outdoors in CALM air only.

While it is possible for the Blade CP Pro 2 PNP to be flown indoors, we suggest that it only be in a very large indoor facility such as a gym that is also free of people and obstructions. The Blade CP Pro 2 PNP is not intended to be flown in small indoor areas or facilities where it may be possible to fly a coaxial helicopter like the Blade CX or Blade CX2.

Flying the Blade CP Pro 2 PNP

Having followed the proper 2-in-1 control unit arming and gyro initialization procedures, confirmed proper control of the servos and motors, and found a suitable flying area, your Blade CP Pro 2 PNP is ready for flight.

- 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 CP Pro 2 PNP requires minor throttle/collective pitch adjustments to maintain its altitude in hover. Remember to keep these adjustments as minimal as possible as large adjustments could result in a loss of control and/or a possible crash.

  NOTE: If you find your model will not lift off the ground with the throttle stick in the highest position, increasing the throttle trim will add collective pitch. You can also increase the pitch of the blades by adjusting the pitch control links. See the "Pitch Curve Adjustments" section of this manual for more information.

- 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 CP Pro 2 PNP 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 locations and functions of the trim lever can be found in the "Understanding the Primary Flight Controls" section of this manual.

  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 tail rotor proportional mix if you experience any difficulties in trimming nose drift with the rudder trim lever only. See the "Tail Rotor Proportional Mix Trimmer Pot Adjustment" section of this manual for more information.

- 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 CP Pro 2 PNP is your first single-rotor and/or collective pitch helicopter model, it may be best to have an experienced helicopter pilot trim the model for you before making your first flight.

  NOTE: The throttle trim can be used to adjust the throttle and collective pitch values for a given throttle stick position. For example, raising the throttle trim will allow the model to hover at a lower throttle stick position.

  Also, if you find that your model "jumps" either upward or downward when in a hover, with little to no control input, you may need to adjust the overall pitch curve so that it is better matched to the throttle curve for smoother response. By decreasing the length of both adjustable pitch control links by approximately one-half to one full turn, it will lower the pitch of the rotor blades for a given throttle/collective stick position. This will allow the model to hover at a higher head speed (main rotor blade rpm), offering a smoother, more stable feel and a pitch curve that is better matched to the throttle curve.

- Once you have the Blade CP Pro 2 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.

- After becoming comfortable with hovering the Blade CP Pro 2 PNP 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 helicopter when it is flying out of "ground effect."

- Don't be afraid to set the helicopter down on the ground quickly by lowering the throttle when approaching obstacles to help prevent main rotor blade strikes. Also, the optional training gear set 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 when it is installed.

  If at any time during the flight you feel like the helicopter is drifting out of control, it is best to return all controls to neutral and to lower the throttle stick completely or activate Throttle Hold. This will help reduce the amount of damage that may be caused in the event of a crash.

- If at any time during flight you feel like the helicopter is drifting out of control, it is best to return all controls to neutral and to lower the throttle stick and trim completely or to activate Throttle Hold. This will help to reduce the amount of damage that may be caused in the event of a crash.

- **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 POSITIONS (WHEN IN THE NORMAL FLIGHT MODE) AS QUICKLY AS POSSIBLE TO PREVENT DAMAGE TO THE ESCS OF THE 2-IN-1 UNIT. YOU CAN ALSO ACTIVATE THROTTLE HOLD IN ANY FLIGHT MODE, REGARDLESS OF THROTTLE STICK POSITION.**

  Failure to lower both the throttle stick and throttle trim to their lowest possible positions (in the normal Flight Mode only) or to activate Throttle Hold (in any Flight Mode) in the event of a crash could result in damage to the ESCs in the 2-in-1 unit, which may require replacement of the 2-in-1 unit.

  While the 2-in-1 control unit main motor and tail motor ESCs are readily capable of handling all in-flight power loads, and even brief momentary bursts beyond these typical loads, they can be damaged if excessive amounts of current are pulled through them for an extended period of time. This period of time may vary depending on many conditions, so it is best to keep any momentary overloads as short as possible in order to prevent damage to the 2-in-1 ESCs.

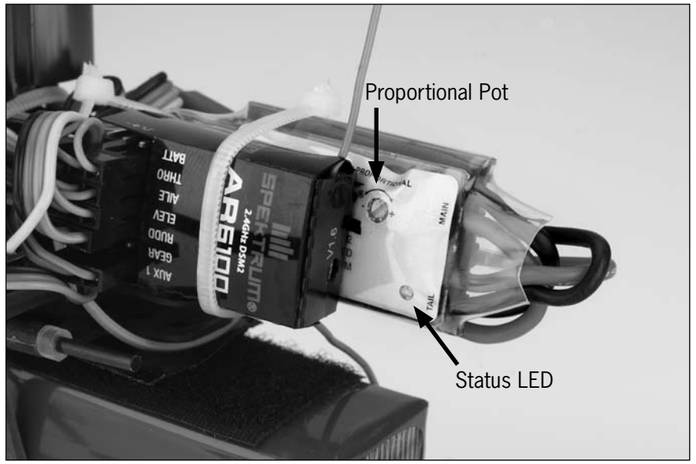
  NOTE: Crash damage is not covered under warranty.

- It is extremely important when hovering and flying the Blade CP Pro 2 PNP 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

Tail Rotor Proportional Mix Trimmer Pot Adjustment

After trimming the primary flight controls and becoming familiar with the handling of the model, you may also need to adjust the tail rotor proportional mixing. The proportional trimmer pot adjusts the amount of tail motor to main motor mixing.



After establishing a stable hover, quickly advance the throttle/collective stick upward to “pop” the helicopter up a few feet in altitude while adding no rudder input. During the abrupt increase in altitude, note which direction the nose of the helicopter may yaw/turn. If the nose of the helicopter does not yaw in either direction by a significant amount, no adjustment is necessary. However, if the nose of the helicopter yaws to the left, you will want to increase the amount of tail motor to main motor mixing. By turning the proportional trimmer pot clockwise (+), you increase the tail motor/rotor rpm for a given main motor/rotor rpm. This increase in tail motor/rotor rpm will help to push the nose of the helicopter to the right when there is an abrupt change in torque.

If the nose of the helicopter is trying to yaw to the right, decrease the tail rotor proportional mix by turning the proportional trimmer pot counterclockwise (-).

NOTE: You must always power down the 2-in-1 control unit before making adjustments to the proportional mix trimmer pot. Any changes made to the trimmer pot will not take effect until the 2-in-1 unit is re-armed.

Main Rotor Blade Tracking Adjustment

Caution: Be sure to maintain a safe distance from the helicopter (approximately 10–15 feet) and to wear appropriate eye protection (such as safety goggles) when tracking the main rotor blades.

Blade tracking is a critical element to the flight performance of just about any helicopter, including the Blade CP Pro 2 PNP. Main rotor blades that are out of track may cause vibration, instability, and loss of power. Although each Blade CP Pro 2 PNP model is test flown and the blades are tracked at the factory, minor adjustments to blade tracking may be required after blade changes, repairs, or pitch control link adjustments.

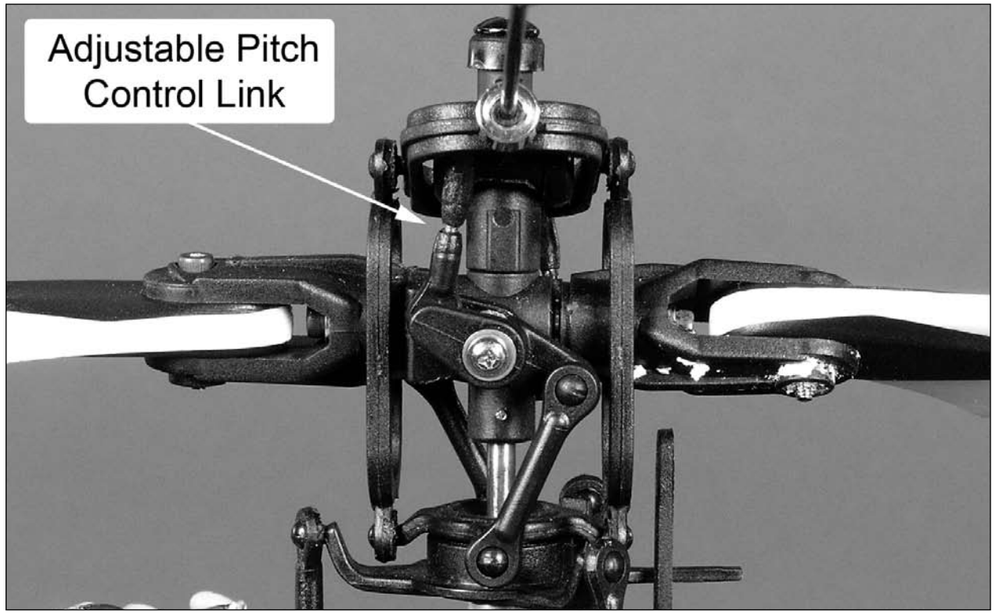
To check main rotor blade tracking and make any required adjustments, please note the following tips:

- **Before proceeding with the test flight of a new model, or any model to which changes or repairs have been made, be certain that the main rotor blades have been properly installed and secured. The main blades should be tightened so they can pivot in the blade grip when moderate pressure is applied. Never allow the main blades to swing freely in their grips.**
- **After powering the model on and allowing the 2-in-1 unit and gyro to arm and initialize properly, bring the main rotor blades of your Blade CP Pro 2 up to speed. You can check the 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 blades. Again, be certain to maintain a safe distance of approximately 10–15 feet from the helicopter when checking the tracking of the main rotor blades.**
- **Once the main rotor blades have been brought up to speed, note which blade is running low and which blade is running high (by the colored tracking tape).**

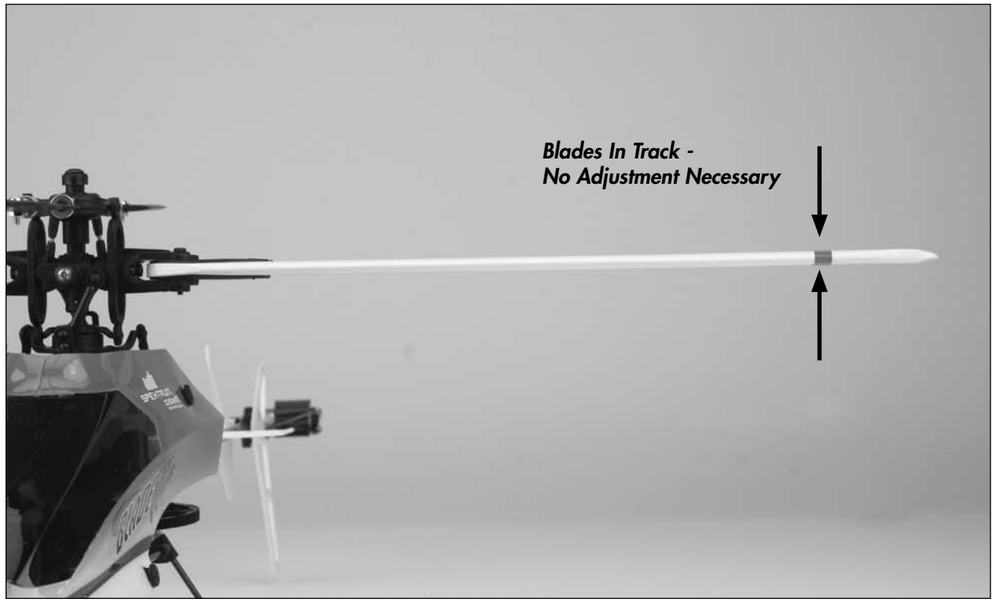
- **After confirming which blade is running low and which blade is running high, power down the helicopter in order to make any necessary adjustments to the linkages. You can increase the pitch of the low blade by lengthening its pitch control linkage. This is accomplished by turning one of the Ball Link ends out by one-half to one full turn. Or, you can decrease the pitch of the high blade by shortening the linkage.**

NOTE: The blade you choose to raise or lower when making tracking adjustments will depend on the pitch of each blade. Because both rotor blades should be as close to 0 degrees as possible when Throttle Hold is activated (DO NOT attempt to check for 0 degrees pitch in the normal or stunt/idle up Flight Modes) and the throttle/collective stick is in the middle position, you can easily identify which rotor blade to adjust. If one blade is “lower” than 0 degrees, raise it to match the other blade. If one blade is “higher” than 0 degrees, lower it to match the other blade.

Making sure that both rotor blades are as close to 0 degrees as possible when the throttle/collective stick is in the middle position will help to ensure that you have an equal amount of positive and negative pitch travel when in the Idle Up/Stunt Flight Mode, and that your curves more closely match those shown in the “Normal and Stunt Flight Modes” section of this manual.



Typically, not much adjustment should be necessary to properly track the main rotor blades. If significant adjustments are required, be sure to double-check the length of both pitch control links (they should be close to the same length). You should also check the blades for any warps or twists. In most cases, you should be able to get both blades tracking perfectly in the same plane. However, due to slight variations in the ball links and threaded linkage rods/pushrods of the pitch control linkages, it may not always be possible to achieve absolutely perfect blade tracking. Don't worry, as the helicopter should still perform well as long as the blade tracking is adjusted as closely as possible.

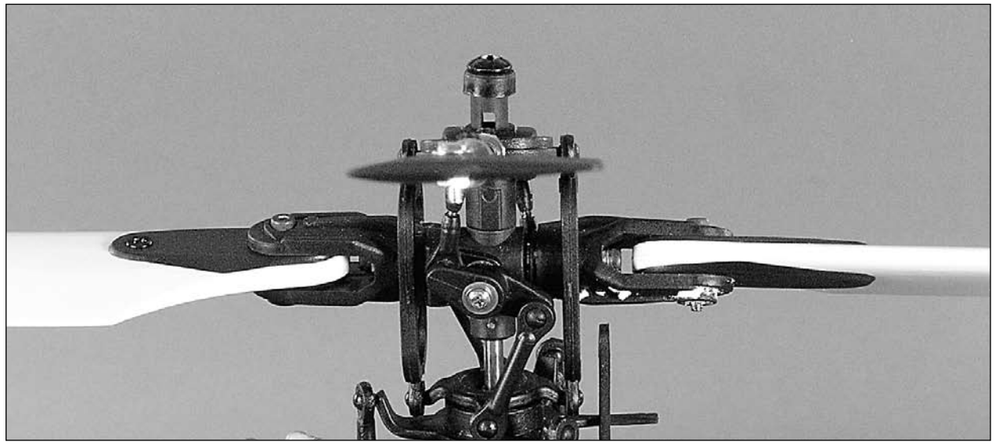


Flybar Paddle Tracking Adjustment

While main blade tracking is a critical element of flight performance, proper flybar paddle tracking and positioning is also important in maintaining proper control response and vibration-free operation.

To check flybar paddle tracking, positioning and making adjustments, please note the following tips:

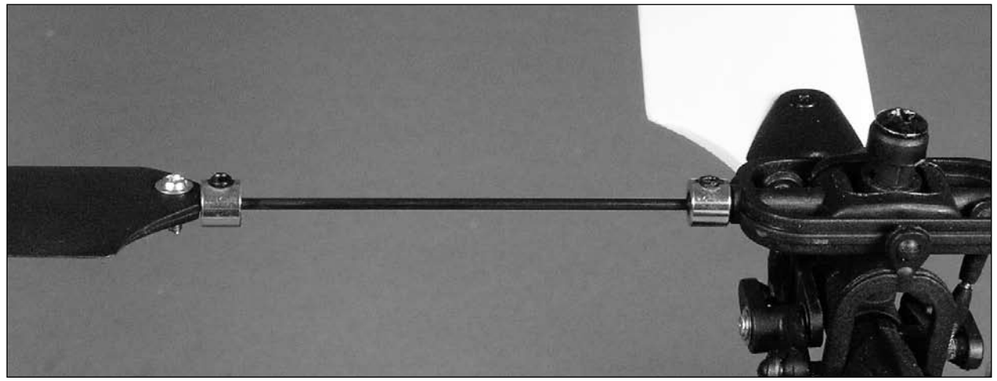
- Confirm that both flybar paddles are equally spaced from the ends of the paddle control frame. If they are not equally spaced, adjust the position of the flybar by loosening the setscrews located in the paddle control frame, then sliding the flybar from side to side until they are.
- Be certain that both flybar paddles are parallel to the paddle control frame. If they are not, loosen the screws and nuts in the flybar paddles and twist the paddles until they are properly aligned and parallel with the paddle control frame.
- If you have made certain that both flybar paddles are parallel to the paddle control frame arms, they should now be parallel to one another. If they are not, take your time making adjustments in order to ensure that both flybar paddles are positioned parallel to one another and the paddle control frame.



- Once you have properly positioned and aligned the flybar paddles following these tips, be certain they are firmly secured using the screws, washers and hex nuts.

Flybar Weights, Head Dampening Shims and Fine-Tuning Cyclic Response

Your Blade CP Pro 2 PNP is equipped with flybar weights that are secured in their outermost position against the flybar paddle.

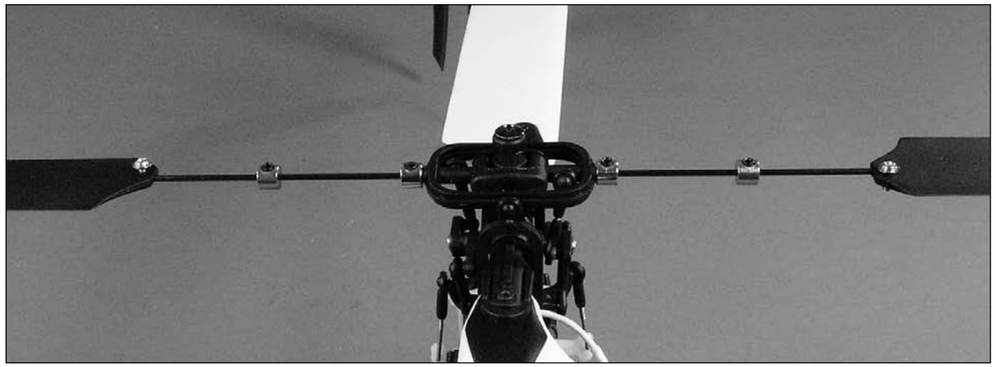


In this position, the weights help to provide added stability by increasing the amount of cyclic input required to overcome the gyroscopic force of the flybar paddles. In general, flying with the weights in this position will still provide good cyclic response, but with reduced sensitivity (especially when in hover), when compared to having them positioned closer to the head/main shaft on the flybar. We suggest that you make your first flights with the flybar weights in this position before making any adjustments.

If, after the first few flights, you feel as though the cyclic response is too quick, we recommend the addition of one or more weights on each side of the flybar, next to the weights that were already installed. Additional weights are available separately in packs of two (EFLH1165). With the added weights installed, the cyclic response will become noticeably less responsive.

If, after the first few flights, you would prefer to have even quicker and more aggressive cyclic response, you can reposition the flybar weights so that they are closer in to the head/main shaft on the flybar. It is usually best to move the weights in only a small distance at a time before making each subsequent test flight, until you find the position at which you prefer the cyclic response most.

NOTE: It is important that the weight(s) on each side of the flybar be positioned at a distance equal from the head/main shaft in order to prevent imbalance that could lead to vibration in the rotor head.



Dampening of the rotor head (main rotor blades) can also be adjusted in order to fine-tune the cyclic response of your model. In general, stiffer dampening will result in quicker cyclic response. The dampening of your Blade CP Pro 2 has been set to provide a good balance of cyclic response and stability right out of the box, and we suggest that you make your first flights with this amount of dampening before making any changes.

If, after the first few flights, you would prefer to have even quicker and more aggressive cyclic response, you can stiffen the rotor head dampening by adding shims between the o-ring and step washer on each side of the center hub (see the "Exploded View" drawing and parts listing for reference). Head dampening shims are available separately in packs of eight (EFLH1144), however, you should install only one shim per side at a time before making each subsequent test flight, until you find the dampening at which you prefer the cyclic response (and stability) most.

NOTE: You must always install an equal number of shims on each side of the center hub.

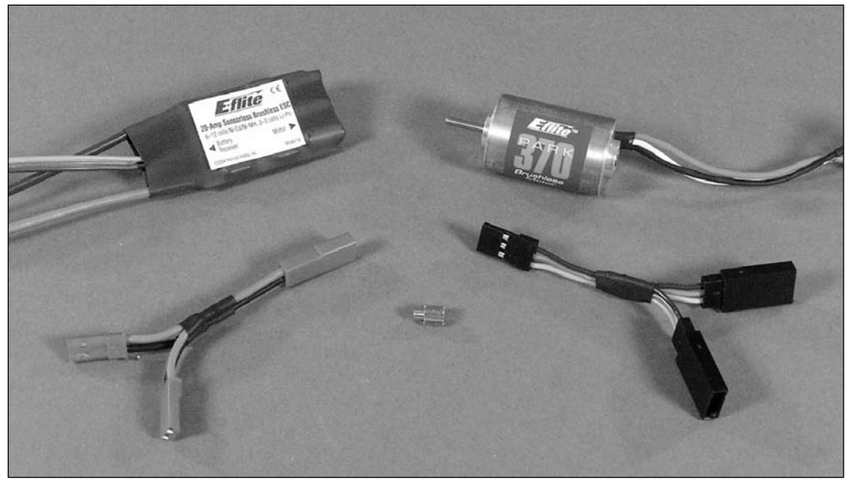
NOTE: If you install too many shims, and the dampening becomes too stiff, the helicopter can wobble and shake in flight. Take care when making test flights after adding shims to prevent crashing the model as a result of a wobble or shake. Typically, we find that using 2–3 shims per side with the stock high-power 370 brushed main motor works well. More shims per side can cause the wobble and shake. If running a power system that is capable of producing higher rotor head speeds, like the optional 370 brushless motor power system, you can sometimes add even more shims before encountering the wobble and shake. Again, exercise extreme care when test flying the model after adding shims.

Optional Brushless Main Motor Power System Installation and Setup

The Blade CP Pro 2' PNPs separate Spektrum AR6100 receiver and 2-in-1 control unit allow you the option of upgrading to a brushless main motor power system, without the need for difficult modifications or a new radio system. An optional brushless main motor power system can provide added power and/or duration when compared to the stock brushed main motor power system, and is an excellent choice for those interested in maximizing the performance and aerobatic potential of their model.

We have tested a wide variety of motor types, in a wide range of Kv (rpm/v) values, and gear ratio combinations in the Blade CP Pro. While many combinations offered a noticeable improvement in power or duration when compared to the stock brushed motor, we found the following recommended power system combination (and required supporting accessories) to provide the best balance of power and good flight duration when using the included 3S 11.1V 800mAh Li-Po battery pack:

Item	Description
EFLA228	JST Female/2 JST Male Parallel Y-Harness
EFLA311B	20-Amp Brushless ESC
EFLM1000	Park 370 Brushless Inrunner Motor, 4100Kv
EFLM1912	Heat Sink, 20x20mm (optional)
EFLM1949	Pinion Gear, 8T 0.5 Module 2mm ID
EFLRYH3	3" Y-Harness



NOTE: It is possible to substitute the recommended 8-tooth pinion (EFLM1949) with a 9-tooth pinion (EFLM1950) for increased power at the expense of slightly reduced flight duration. However, those interested in maximum power and performance should substitute the 8-tooth pinion with a 10-tooth pinion (EFLM1951), noting that the typical "aggressive" flight duration will be approximately 5.0–6.5 minutes per charge using the stock Li-Po battery.

Also, reduced flying weight and a similar power-to-weight ratio can be achieved by using a Thunder Power Pro Lite series 3S 11.1V 730mAh battery (THP7303SJPL), while improved power and duration can be achieved by using a Pro Lite series 3S 11.1V 910mAh battery (THP9103SJPL). However, please note that the stock charger cannot be used with the 730mAh battery, and that a 3S 11.1V Thunder Power to E-flite balance connector adapter cable (included with EFLA229) is necessary to allow use of the stock charger with the 910mAh battery.

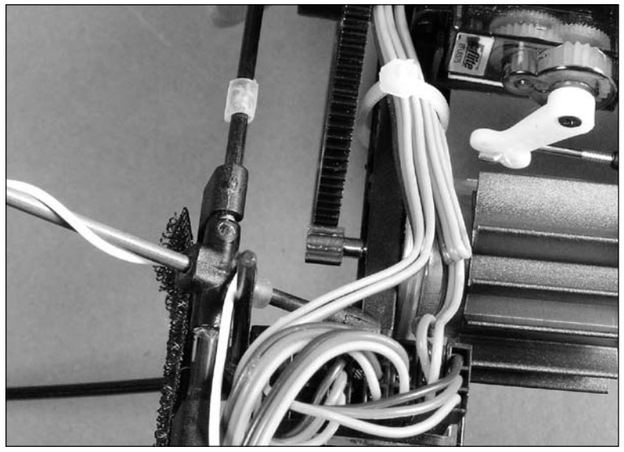
The following steps outline installation and setup of the recommended optional brushless power system:

- In order to provide the most secure motor mounting, and proper clearance for the forward bearing cup in the main frame, it will be necessary to install the Park 370 brushless motor's (EFLM1000) included "Adapter Ring."

- After installing the adapter ring, it will then be necessary to remove the stock brushed main motor from the main frame in order to trial fit the brushless motor to check for proper placement of the pinion on the brushless motor's shaft.

  NOTE: Before removing the stock brushed main motor, we suggest that you check the gear mesh of its pinion and the main drive gear, in multiple places on the main drive gear, for reference. This is approximately how you will want to set the pinion and main gear mesh after installing the brushless motor and pinion.

- Once the stock brushed main motor has been removed from the frame, temporarily install the Park 370 brushless motor and adapter ring. Then, using an 8-, 9- or 10-tooth pinion gear (EFLM1949, EFLM1950 or EFLM1951) main gear for reference, mark the shaft of the motor (using a marker or tape) at the point to which the pinion gear should be press fit onto the shaft to provide adequate gear tooth contact of the pinion and main gear. It is important to install the pinion on the motor shaft so that it will always offer full contact with the main gear teeth in order to promote the best power transfer and to prevent uneven and/or accelerated gear wear.



- After confirming the point to which the pinion gear should be press fit onto the motor shaft, remove the motor from the frame. Then, following the instructions included with the motor, install the pinion on the motor shaft. The motor is now ready to install in the helicopter.

- Next, install the motor in the main frame using the mounting screws and washers removed from the stock brushed main motor. It is a good idea to apply a small amount of blue threadlock compound to the threads before installing the screws. If possible, be sure to mount the motor so the leads exiting the rear of the case are positioned as close to the main shaft as possible in order to help provide better clearance for the canopy. Do not tighten the mounting screws entirely until after the next step.

NOTE: Do not use the screws included with the brushless motor for mounting as they do not offer adequate thread length for secure installation.

- Take your time to set the gear mesh between the pinion and main gear properly. Then, tighten the mounting screws securely.

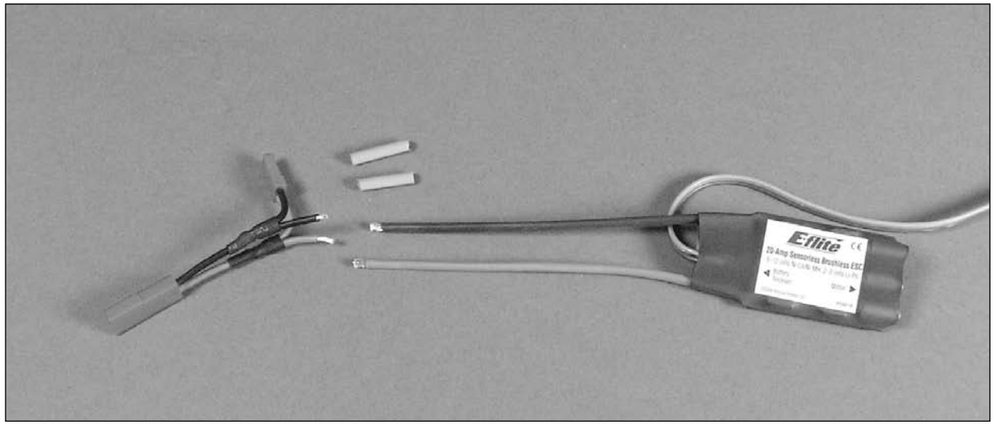
  NOTE: It is very important to set the gear mesh so it is smooth with no binding. Be certain to check the mesh at multiple points on the main gear in order to find the position in which to secure the motor for the best gear mesh overall. Remember, if the gear mesh is set too loose or too tight, at any point on the main gear, it may strip the gear and/or could cause a significant loss in power.

- After completing installation of the brushless motor, we also suggest that you install the optional 20x20mm Heat Sink (EFLM1912). Be sure to follow the instructions included with the heat sink for proper installation.

- Next, it will be necessary to prepare the 20-Amp Brushless ESC (EFLA311B) for installation. For these steps you will also need the JST female/2 JST male parallel Y-harness (EFLA228). This Y-harness will be used to provide power to both the 2-in-1 control unit and brushless ESC from the Li-Po battery pack.

- Because the ESC does not include a battery connector, you will need to solder the Y-harness directly to its battery power leads. To do this, remove one of the Y-harness' JST male connectors from its wire leads, as close to the end of the connector as possible. Then, strip the ends of the remaining wire leads so that they can be soldered to the ESC's battery power leads.

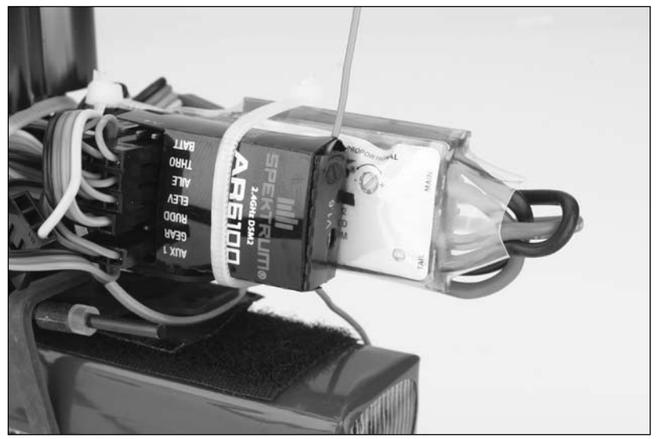
  Note: It is extremely important to be sure that you remove one of the JST male connectors and not the JST female connector. It is also critical that you maintain proper polarity (positive-to-positive and negative-to-negative) when soldering the leads together, while also using shrink-tubing to insulate the joints in order to prevent shorting.



- Once the Y-harness has been connected to the ESC's battery power leads, and the joints have been properly insulated, you can now proceed with installation of the ESC on the helicopter. There are a few places in which the ESC can be mounted on the helicopter, including the following:

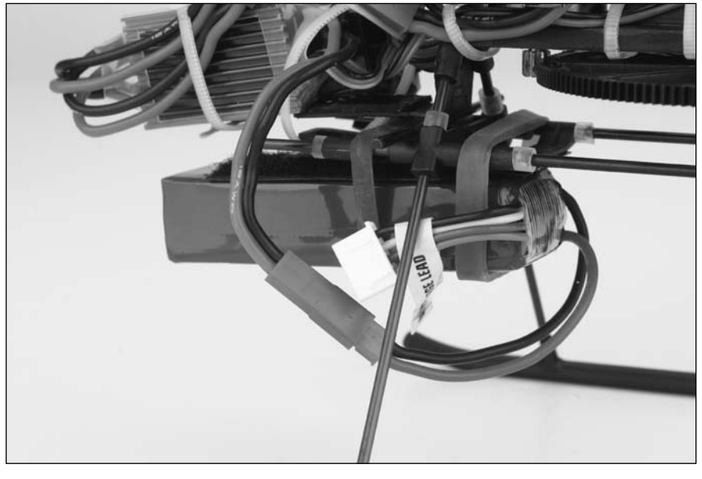
Option 1

Just ahead of the motor (and heat sink), above the receiver and 2-in-1 control unit. If choosing to mount the ESC in this location, be sure it is mounted with all wire leads as far from the receiver and antenna as possible, while also providing adequate clearance for the canopy. It will also be best to mount the ESC so the power FETs (the side of the ESC with the label) are mounted toward the top of the helicopter. In some cases it might also be helpful to use a small block of balsa wood or foam, along with the foam mounting tape and cable/zip tie wraps included in the mounting accessories and wrench package, to mount the ESC.



Option 2

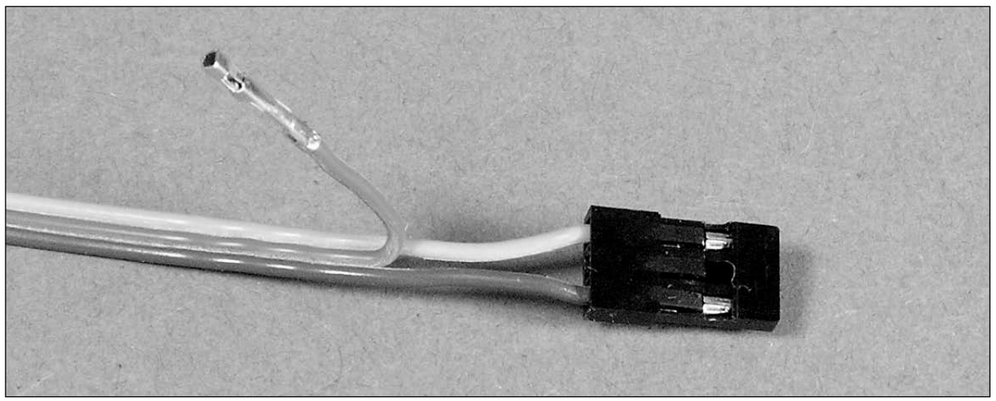
To the bottom of the battery/lower frame support rods, just below the main gear and behind the battery support/mount. Use some small strips of foam mounting tape on the rods, and a long cable/zip tie wrap (included in the mounting accessories and wrench package), to secure the ESC in this location. Be sure to also secure the receiver and battery power leads away from the gears and any other moving parts. Then, depending on the length of the motor leads, it may also be necessary to make up some short motor wire lead extensions (using approximately 1.5"–2.0" of wire and the connectors included with the ESC) to connect the motor to the ESC.



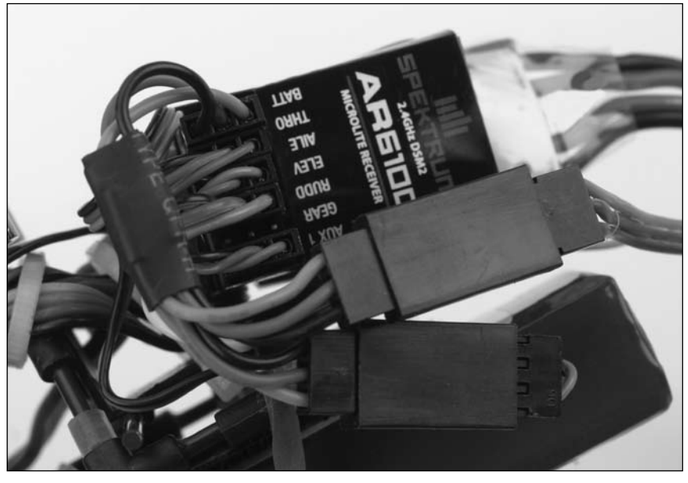
- After securing the ESC in its mounting position, connect the motor wire leads to the connectors on the ESC. The order of the wire leads in the connectors is not too important at this time, as the position of any two of them can be reversed if the motor does not spin in the proper direction after testing its operation.

- Because the receiver and servos will receive power from the 2-in-1 control unit, it will now be necessary to disable the BEC power of the brushless ESC before connecting it to the receiver. To do this, it will be necessary to remove the red (positive) lead and connector from the plastic housing that goes to the receiver, then to insulate it properly to prevent shorting. Use a small screwdriver or knife blade (and extreme care to prevent injury) to lift the plastic tab that secures the connector in the plastic housing, then slide it out the back end of the housing. Use tape or shrink tubing to insulate and secure the exposed connector.

Note: It is extremely important to disable the BEC of the brushless ESC in order to prevent damage to the other electronics. Remember, BEC power is already supplied to the receiver and servos through the 2-in-1 control unit throttle and rudder leads.



- Now that the BEC power of the brushless ESC has been disabled, connect its receiver lead to one of the female connectors of the 3" Y-Harness (EFLRYH3). Next, connect the throttle channel receiver lead of the 2-in-1 control unit to the remaining female connector of the 3" Y-harness. Then, connect the male connector of this Y-harness to the throttle channel of the receiver.



- To complete installation and wiring hook-up of the brushless ESC, connect the remaining JST male connector of the battery power lead Y-harness to the female JST connector of the 2-in-1 control unit. Be sure to then secure

the battery power leads of the brushless ESC and 2-in-1, along with the now unused main motor power lead of the 2-in-1 unit, so they cannot come into contact with the gears or any other moving parts, and so you can readily access the remaining JST female connector for connecting the battery pack.

Now that you have completed installation of the optional brushless power system, it will be necessary to check that the ESC is properly programmed to ensure maximum performance, and that the motor is operating in the correct direction. However, before proceeding with these checks, unplug the tail motor from the 2-in-1 control unit. Also, remove the main rotor blades and mounting bolts/nuts from the main blade grips to help ensure safety. Then, follow these steps if using the E-flite 20-Amp brushless ESC (EFLA311B):

- Turn the transmitter on first and advance the throttle stick to full power. Then, after placing your hand on the rotor head and securing the helicopter so it will not be able to move and you can quickly disconnect the battery if power to the motor is applied, plug the battery into the battery lead Y-harness connected to the 2-in-1 control unit and brushless ESC. You should then hear the beep to signal power up of the brushless ESC, followed by an additional beep to indicate that the ESC has entered the programming mode.

  Note: Exercise extreme caution and care when programming the brushless ESC with the motor pinion gear meshed properly to the main gear. Although the ESC is equipped with safe power-on software and should not apply power to the motor, you must still be very careful. If, at any time, power to the motor is applied and the rotor head begins to spin, unplug the battery immediately to prevent any damage to the model and electronics, or even personal injury.

- Follow the instructions included with the ESC to set the programming for the brake and voltage cutoff to the following:

  Voltage Cutoff – Auto Li-Po ON

  Note: With the voltage cutoff programming set to Auto Li-Po ON, a soft cutoff of motor power (usually noticeable as a quick "pulsing" of motor power under load) will occur when the voltage of the 3S Li-Po battery pack reaches 9V under load. This is generally preferred in most cases, however, you can disable the Auto Li-Po soft cutoff entirely by setting the voltage cutoff programming to Auto NiCd/NiMH ON. In this mode, soft cutoff of motor power will not occur until approximately 5.0V under load, even when using a 3S Li-Po battery pack for power. However, this means you must exercise extreme care to prevent over-discharging the Li-Po battery pack during flight.

  Brake – OFF

  Note: It is extremely important that the motor brake of the ESC is disabled in order to prevent damage to the main gear and other components.

Once you have confirmed that the ESC's programming for the voltage cutoff and braking is correct, disconnect the battery from the power leads. You will now need to confirm that the motor is operating in the correct direction.

- Turn the transmitter on first and lower the throttle stick and trim completely. Then, plug the battery into the battery lead Y-harness connected to the 2-in-1 control unit and brushless ESC. You should almost immediately hear beeps from the brushless ESC to indicate that it is armed and ready for use.

  Note: The brushless ESC will almost always arm before the 2-in-1 control unit. This is extremely important to remember because the main motor will then run if the throttle stick is advanced, even if the 2-in-1 has yet to arm. Be certain to exercise extreme caution when waiting for the 2-in-1 control unit to arm, especially if the brushless ESC has already been armed.

- Once the brushless ESC has armed properly, you have placed the helicopter in a safe place free of obstructions, and are clear of the flybar paddles, you can safely power up the model to check the operating direction of the motor.

- Advance the throttle stick slowly, just until the flybar paddles begin to spin, and note the direction they spin. The flybar paddles should spin clockwise when viewed from the top. If they are spinning in the wrong direction, unplug the battery, then simply reverse the order of any two of the brushless motor leads where they connect to the ESC. Then, repeat the test to confirm that the flybar paddles (and motor) are spinning in the correct direction before proceeding.

After confirming that the brushless main motor is operating in the correct direction, and you have disconnected the battery, reconnect the tail motor to the 2-in-1 control unit. Then, re-installed the main rotor blades in the blade grips using the mounting bolts/nuts.

Your Blade CP Pro 2 PNP is now ready to fly with the optional brushless main motor power system. Be sure to take extra care when making the first test flights with the new power system as it can offer a significant improvement in power over the stock brushed main motor power system. Also, be sure to take your time to re-adjust the tail rotor proportional mix and gyro gain as necessary in order to maximize performance with the brushless power system.

2008 Official AMA National Model Aircraft Safety Code

GENERAL

1. A model aircraft shall be defined as a non-human-carrying device capable of sustained flight in the atmosphere. It shall not exceed limitations established in this code and is intended to be used exclusively for recreational or competition activity.
2. The maximum takeoff weight of a model aircraft, including fuel, is 55 pounds, except for those flown under the AMA Experimental Aircraft Rules.
3. I will abide by this Safety Code and all rules established for the flying site I use. I will not willfully fly my model aircraft in a reckless and/or dangerous manner.
4. I will not fly my model aircraft in sanctioned events, air shows, or model demonstrations until it has been proven airworthy.
5. I will not fly my model aircraft higher than approximately 400 feet above ground level, when within three (3) miles of an airport without notifying the airport operator. I will yield the right-of-way and avoid flying in the proximity of full-scale aircraft, utilizing a spotter when appropriate.
6. I will not fly my model aircraft unless it is identified with my name and address, or AMA number, inside or affixed to the outside of the model aircraft. This does not apply to model aircraft flown indoors.
7. I will not operate model aircraft with metal-blade propellers or with gaseous boosts (other than air), nor will I operate model aircraft with fuels containing tetranitromethane or hydrazine.
8. I will not operate model aircraft carrying pyrotechnic devices which explode burn, or propel a projectile of any kind. Exceptions include Free Flight fuses or devices that burn producing smoke and are securely attached to the model aircraft during flight. Rocket motors up to a G-series size may be used, provided they remain firmly attached to the model aircraft during flight. Model rockets may be flown in accordance with the National Model Rocketry Safety Code; however, they may not be launched from model aircraft. Officially designated AMAAir Show Teams (AST) are authorized to use devices and practices as defined within the Air Show Advisory Committee Document.
9. I will not operate my model aircraft while under the influence of alcohol or within eight (8) hours of having consumed alcohol.
10. I will not operate my model aircraft while using any drug which could adversely affect my ability to safely control my model aircraft.
11. Children under six (6) years old are only allowed on a flightline or in a flight area as a pilot or while under flight instruction.
12. When and where required by rule, helmets must be properly worn and fastened. They must be OSHA, DOT, ANSI, SNELL or NOCSAE approved or comply with comparable standards.

RADIO CONTROL

1. All model flying shall be conducted in a manner to avoid flying or flight over unprotected people.
2. I will have completed a successful radio equipment ground-range check before the first flight of a new or repaired model aircraft.
3. I will not fly my model aircraft in the presence of spectators until I become a proficient flier, unless I am assisted by an experienced pilot.
4. At all flying sites a line must be established, in front of which all flying takes place. Only personnel associated with flying the model aircraft are allowed at or in front of the line. In the case of air shows, a straight line for demonstrations must be established. An area away from the line must be maintained for spectators. Intentional flying behind the line is prohibited.
5. I will operate my model aircraft using only radio-control frequencies currently allowed by the Federal Communications Commission (FCC). Only individuals properly licensed by the FCC are authorized to operate equipment on Amateur Band frequencies.
6. I will not knowingly operate my model aircraft within three (3) miles of any preexisting flying site without a frequency-management agreement. A
frequency-management agreement may be an allocation of frequencies for each site, a day-use agreement between sites, or testing which determines that no interference exists. A frequency-management agreement may exist between two or more AMA chartered clubs, AMA clubs and individual AMA members, or individual AMA members. Frequency-management agreements, including an interference test report if the agreement indicates no interference exists, will be signed by all parties and copies provided to AMA Headquarters.
7. With the exception of events flown under official AMA rules, no powered model may be flown outdoors closer than 25 feet to any individual, except for the pilot and located at the flightline.
8. Under no circumstances may a pilot or other person touch a model aircraft in flight while it is still under power, except to divert it from
striking an individual.
9. Radio-controlled night flying is limited to low-performance model aircraft (less than 100 mph). The model aircraft must be equipped with a lighting system which clearly defines the aircraft's attitude and direction at all times.
10. The operator of a radio-controlled model aircraft shall control it during the entire flight, maintaining visual contact without enhancement other than by corrective lenses that are prescribed for the pilot. No model aircraft shall be equipped with devices which allow it to be flown to a selected location which is beyond the visual range of the pilot.

FREE FLIGHT

1. I will not launch my model aircraft unless I am at least 100 feet downwind of spectators and automobile parking.
2. I will not fly my model aircraft unless the launch area is clear of all individuals except my mechanic, officials, and other fliers.
3. I will use an effective device to extinguish any fuse on the model aircraft after the fuse has completed its function.

CONTROL LINE

1. I will subject my complete control system (including the safety thong where applicable) to an inspection and pull test prior to flying. The pull test will be in accordance with the current for the applicable model aircraft category. Model aircraft not fitting a specific category shall use those pull test requirements as indicated for Control Line Precision Aerobatics.
2. I will ensure that my flying area is clear of all utility wires or poles and I will not fly a model aircraft closer than 50 feet to any above-ground electric utility lines.
3. I will ensure that my flying area is clear of all nonessential participants and spectators before permitting my engine to be started.

PARKFLYER SAFE OPERATING RECOMMENDATIONS

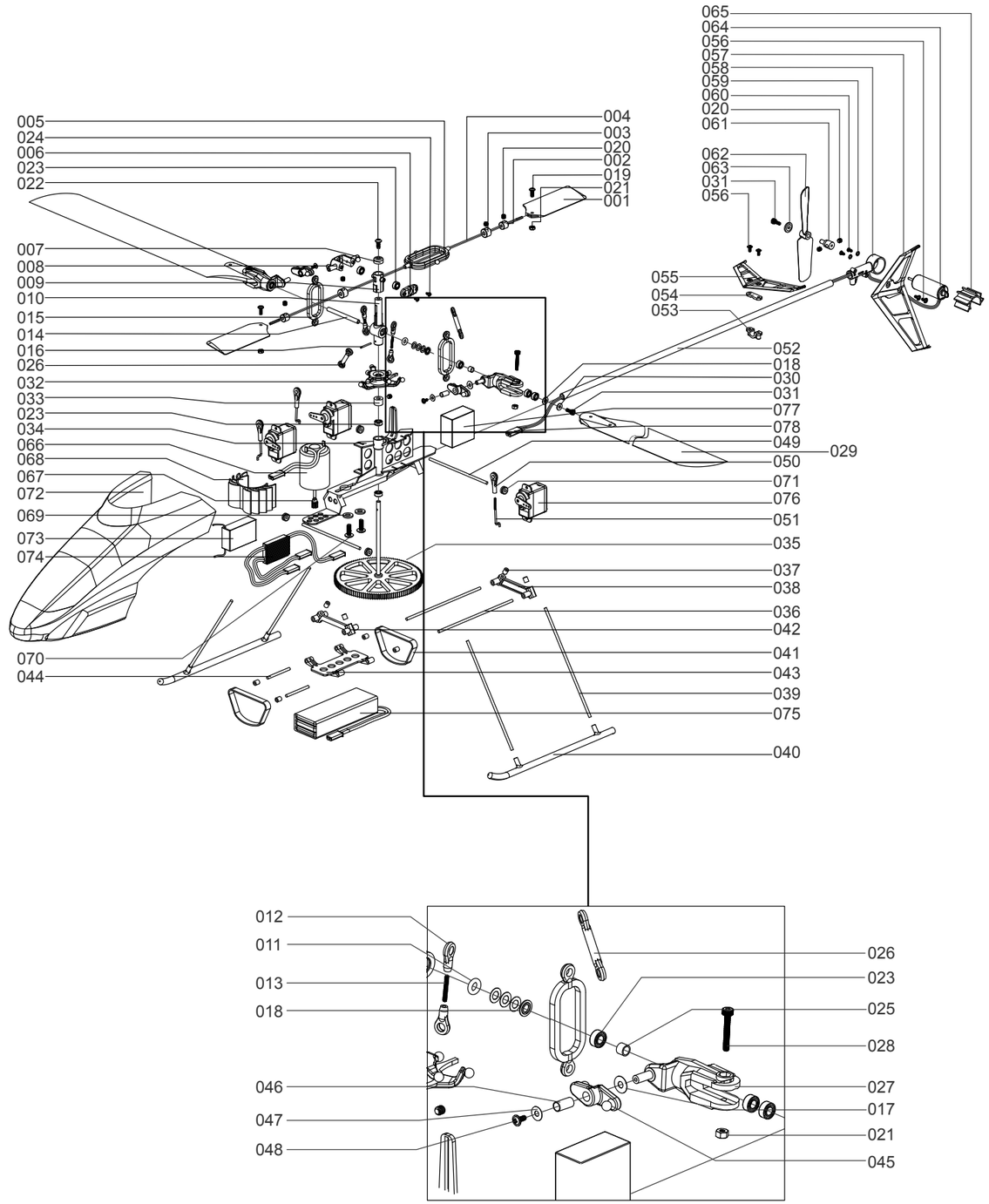
- Inspect your model before every flight to make certain it is airworthy.
- Be aware of any other radio frequency user who may present an interference problem.
- Always be courteous and respectful of other users of your selected flight area.
- Choose an area clear of obstacles and large enough to safely accommodate your flying activity.
- Make certain this area is clear of friends and spectators prior to launching your aircraft.
- Be aware of other activities in the vicinity of your flight path that could cause potential conflict.
- Carefully plan your flight path prior to launch.
- Abide by any and all established AMA National Model Aircraft Safety Code.

Exploded View Parts Listing

Exploded View Reference Number	Description (Quantity Required)	Included In Item Number
001	Flybar Paddle (2)	EFLH1150
002	Flybar Weight Collar (2)	EFLH1165
003	Flybar Retaining Collar (2)	EFLH1148
004	Flybar (1)	EFLH1149
005	Paddle Control Frame (1)	EFLH1148
006	Rotor Head Frame B (1)	EFLH1146
007	Center Hub Cap (1)	EFLH1145
008	Rotor Head Frame A (1)	EFLH1146
009	Rotor Head (1)	EFLH1146
010	Center Hub (1)	EFLH1145
011	O-Ring (2)	EFLH1158
012	Pitch Control Link (4)	EFLH1151
013	Threade d Rod (2)	EFLH1151
014	Spindle (1)	EFLH1143
015	Paddle Control Frame Pushrod (2)	EFLH1163
016	Retaining Pin (1)	EFLH1135
017	Shim (8)	EFLH1144
018	Step Washer (4)	EFLH1171
019	Cap Head Screw (2)	EFLH1150
020	Set Screw (7)	EFLH1159
021	Nut (4)	EFLH1150
022	Cap Head Screw (1)	EFLH1145
023	Bearing 3×6×2.5mm (10)	EFLH1115
024	Cap Head Screw (2)	EFLH1146
025	Bearing Spacer (2)	EFLH1162B
026	Bell Mixer Arm Pushrod (2)	EFLH1172
027	Bell Mixer Main Blade Grip (2)	EFLH1171
028	Socket Head Cap Screw (2)	EFLH1159
029	Main Blade (2)	EFLH1147B
030	Washer (2)	EFLH1171
031	Socket Head Cap Screw (3)	EFLH1159
032	Swashplate Assembly (1)	EFLH1152
033	Main Shaft Retaining Collar (1)	EFLH1164
034	Main Frame (1)	EFLH1167
035	Main Shaft & Drive Gear (1)	EFLH1155
036	Rear Battery Support Rod (2)	EFLH1154
037	Silicone Tube Section (8)	EFLH1158
038	Rear Battery Support Rod Joiner (1)	EFLH1154
039	Strut Rod (4)	EFLH1156
040	Skid (2)	EFLH1156
041	Rubberband (2)	EFLH1129
042	Front Battery Support Rod Joiner (1)	EFLH1154
043	Battery Support (1)	EFLH1154
044	Front Battery Support Rod (2)	EFLH1154
045	Bell Mixer Arm (2)	EFLH1172
046	Bell Mixer Arm Bushing (2)	EFLH1172
047	Washer (2)	EFLH1172
048	Pan Head Screw (2)	EFLH1172
049	Canopy Mount Rod (2)	EFLH1136
050	Servo Pushrod Control Link (3)	EFLH1153
051	Servo Pushrod Threaded Rod (3)	EFLH1153
052	Tail Boom (1)	EFLH1160
053	Lower Horizontal Stab/Fin Mount (1)	EFLH1325
054	Upper Horizontal Stab/Fin Mount (1)	EFLH1325
055	Horiz Stab/Fin (1)	EFLH1326W
056	Pan Head Screw (4)	EFLH1326W
057	Vertical Stabilizer/Fin (1)	EFLH1326W
058	Tail Motor Mount (1)	EFLH1321
059	Washer (2)	EFLH1322
060	Flat Head Screw (2)	EFLH1322
061	Tail Rotor Blade/Prop Adapter (1)	EFLH1323
062	Tail Rotor Blade/Prop (1)	EFLH1324
063	Tail Rotor Blade/Prop Washer (1)	EFLH1323
064	Tail Motor (1)	EFLH1322
065	Tail Motor Heat Sink (1)	EFLH1319
066	Main Motor (1)	EFLH1310
067	Pinion Gear (1)	EFLH1310
068	Main Motor Heat Sink (1)	EFLH1309
069	Washer (2)	EFLH1310
070	Screw (2)	EFLH1310
071	Canopy Mount Grommet (4)	EFLH1136
072	Canopy (1)	EFLH1315
073	Receiver (1)	SPM6100
074	2-in-1 Control Unit (1)	EFLH1032
075	Battery Pack (1)	EFLB0996
076	Sub-Micro Servo (3)	EFLRDS75H
077	Micro Heading Lock Gyro (1)	EFLRG110HL
078	Tail Motor Wire Lead (1)	EFLH1134

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 CP Pro 2 PNP.

Exploded View



Replacement Parts

EFLB0996	800mAh 3S 11.1V 15C Li-Po, 20GA JST/Balance
EFLC3105	3-Cell Li-Po Balancing Charger, 0.8A
EFLH1032	2-in-1 Control Unit, Mixer/High-Power ESCs: BCPP2
EFLH1056	HP6DSM 6-Channel Transmitter, 2.4GHz DSM2: BCPP2
EFLH1058	Transmitter Antenna, 2.4GHz: BCX/P2, LP5DSM, HP6DSM
EFLH1115	Bearing 3x6x2.5mm (2): BCP/+/P/P2
EFLH1129	Mounting Accessories & Wrench: BCP/+/P/P2
EFLH1134	Main & Tail Motor Wire Set: BCP/+/P/P2
EFLH1135	Retaining Pin (6): BCP/+/P/P2
EFLH1136	Canopy Mount Rod & Grommet Set: BCP/+/P/P2
EFLH1143	Spindle: BCP/+/P/P2
EFLH1145	Center Hub & Spindle Set: BCP/+/P/P2
EFLH1146	Rotor Head Set: BCP/+/P/P2
EFLH1147B	Symmetrical Main Blade Set: BCP/+/P/P2
EFLH1148	Paddle Control Frame: BCP/+/P/P2
EFLH1149	Flybar (2): BCP/+/P/P2
EFLH1150	Paddle Set: BCP/+/P/P2
EFLH1151	Pitch Control Link Set: BCP/+/P/P2
EFLH1152	Swashplate Set: BCP/+/P/P2
EFLH1153	Servo Pushrod Set: BCP/+/P/P2
EFLH1154	Battery Support Set: BCP/+/P/P2
EFLH1155	Main Shaft & Drive Gear: BCP/+/P/P2
EFLH1156	Landing Skid Set: BCP/+/P/P2
EFLH1158	O-Ring & Tubing Set: BCP/+/P/P2, B400
EFLH1159	Hardware Set: BCP/+/P/P2
EFLH1160	Tail Boom: BCP/+/P/P2
EFLH1163	Paddle Cntrl Frame Pushrod Set: BCP/+/P/P2
EFLH1164	Main Shaft Retaining Collar: BCP/+/P/P2
EFLH1165	Flybar Weight (2): BCP/+/P/P2
EFLH1166	Main Frame Assembly: BCP/+/P/P2
EFLH1167	Main Frame: BCP/+/P/P2
EFLH1171	Bell Mixer Main Blade Grip Set: BCP/+/P/P2
EFLH1172	Bell Mixer Arm & Pushrod Set: BCP/+/P/P2
EFLH1308	High-Power 370 Main Motor Brush & Spring Set:BCPP2
EFLH1309	High-Power 370 Main Motor Heat Sink: BCPP2
EFLH1310	High-Power 370 Motor w/8T 0.5M Pinion: BCPP2
EFLH1315	Body/Canopy, Fade w/Decals: BCPP2
EFLH1319	Direct-Drive N60 Tail Motor Heat Sink: BCPP2
EFLH1321	Direct-Drive Tail Motor Mount: BCPP2
EFLH1322	Direct-Drive N60 Tail Motor: BCPP2
EFLH1323	Direct-Drive Tail Rotor Blade/Prop Adapter: BCPP2
EFLH1324	Direct-Drive Tail Rotor Blade/Prop: BCPP2
EFLH1325	Horizontal Stabilizer/Fin Mount: BCPP2
EFLH1326W	Stabilizer/Fin Set, White: BCPP2
EFLRDS75H	7.5-Gram DS75 Digital Sub-Micro Helicopter Servo
EFLRDS751	Gear Set: DS75, DS75H
EFLRG110HL	11.0-Gram G110 Micro Heading Lock Gyro
SPM6100	AR6100 DSM2 Microlite 6-Channel Receiver, Air

Optional Parts List

EFLA229	Adapter Cables for THP Battery to EFL Balancer/Charger
EFLC4000	100-240V AC to 12VDC, 1.5 Amp Power Supply
EFLH1000	Mini/Micro Helicopter Pitch Gauge
EFLH1059	Trainer Cord: BCX2, BCPP2
EFLH1118	Vertical Tail Support: BCP/+/P/P2
EFLH1128	Training Gear Set: BCP/+/P/P2
EFLH1144	Head Dampening Shims (8): BCP/+/P/P2, B400
EFLH1147A	Flat Bottom Main Blade Set: BCP/+/P/P2
EFLH1147C	Sym. Carbon Main Blade Set: BCP/+/P/P2
EFLH1175	Aluminum Swashplate Set: BCP/+/P/P2
EFLH1176	Complete Aluminum Main Rotor Head Set: BCP/+/P/P2
EFLH1177	Aluminum Center Hub Set: BCP/+/P/P2
EFLH1178	Retaining Pin & Keeper,Alum Center Hub (4):BCP/+/P/P2
EFLH1179	Aluminum Rotor Head / Flybar Seesaw Set: BCP/+/P/P2
EFLH1180	Aluminum Paddle Control Frame Set: BCP/+/P/P2
EFLH1181	Stainless Flybar, Aluminum Head: BCP/+/P/P2
EFLH1182	Aluminum Bell Mixer Upgrade Blade Grip Set:BCP/+/P/P2
EFLH1183	Spindle Washer & Cone Washer (4),Alum Grip:BCP/+/P/P2
EFLH1184	Alum&Composit Paddle Cntrl Frm Pushrod Set:BCP/+/P/P2
EFLH1314	Body/Canopy, White w/out Decals: BCP/+/P/P2
EFLH1326C	Stabilizer/Fin Set, Carbon Fiber: BCPP2
THP7303SJPL	730mAh 3-Cell/3S 11.1V Pro Lite Li-Po, 18GA JST
THP9103SJPL	910mAh 3-Cell/3S 11.1V Pro Lite Li-Po, 18GA JST

Optional Brushless Main Motor Power System

EFLA228	JST Female/2 JST Male Parallel Y-Harness
EFLA311B	20-Amp Brushless ESC
EFLM1000	Park 370 Brushless Inrunner Motor, 4100Kv
EFLM1912	Heat Sink, 20x20mm
EFLM1949	Pinion Gear, 8-Tooth 0.5 Module 2mm ID
EFLM1950	Pinion Gear, 9-Tooth 0.5 Module 2mm ID
EFLM1951	Pinion Gear, 10-Tooth 0.5 Module 2mm ID
EFLRYH3	3” Y-Harness, Lightweight

Warranty Period:

Horizon Hobby, Inc., (Horizon) warranties that the Products purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase by the Purchaser.

Limited Warranty

(a) This warranty is limited to the original Purchaser ("Purchaser") and is not transferable. REPAIR ORREPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. This warranty covers only those Products purchased from an authorized Horizon dealer. Third party transactions are not covered by this warranty. Proof of purchase is required for warranty claims. Further, Horizon reserves the right to change or modify this warranty without notice and disclaims all other warranties, express or implied.

(b) Limitations- HORIZON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCT. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

(c) Purchaser Remedy- Horizon's sole obligation hereunder shall be that Horizon will, at its option, (i) repair or (ii) replace, any Product determined by Horizon to be defective. In the event of a defect, these are the Purchaser's exclusive remedies. Horizon reserves the right to inspect any and all equipment involved in a warranty claim. Repair or replacement decisions are at the sole discretion of Horizon. This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the Product. This warranty does not cover damage due to improper installation, operation, maintenance, or attempted repair by anyone other than Horizon. Return of any goods by Purchaser must be approved in writing by Horizon before shipment.

Damage Limits

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCT, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you as the Purchaser or user are not prepared to accept the liability associated with the use of this Product, you are advised to return this Product immediately in new and unused condition to the place of purchase.

Law: These Terms are governed by Illinois law (without regard to conflict of law principals).

Safety Precautions

This is a sophisticated hobby Product and not a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the Product or other property. This Product is not intended for use by children without direct adult supervision. The Product manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or injury.

Questions, Assistance, and Repairs

Your local hobby store and/or place of purchase cannot provide warranty support or repair. Once assembly, setup or use of the Product has been started, you must contact Horizon directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please direct your email to productsupport@horizonhobby.com, or call 877.504.0233 toll free to speak to a service technician.

Inspection or Repairs

If this Product needs to be inspected or repaired, please call for a Return Merchandise Authorization (RMA). Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Horizon is not responsible for merchandise until it arrives and is accepted at our facility. A Service Repair Request is available at www.horizonhobby.com on the "Support" tab. If you do not have internet access, please include a letter with your complete name, street address, email address and phone number where you can be reached during business days, your RMA number, a list of the included items, method of payment for any non-warranty expenses and a brief summary of the problem. Your original sales receipt must also be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

Warranty Inspection and Repairs

To receive warranty service, you must include your original sales receipt verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be repaired or replaced free of charge. Repair or replacement decisions are at the sole discretion of Horizon Hobby.

Non-Warranty Repairs

Should your repair not be covered by warranty the repair will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for repair you are agreeing to payment of the repair without notification. Repair estimates are available upon request. You must include this request with your repair. Non-warranty repair estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Please advise us of your preferred method of payment. Horizon accepts money orders and cashiers checks, as well as Visa, MasterCard, American Express, and Discover cards. If you choose to pay by credit card, please include your credit card number and expiration date. Any repair left unpaid or unclaimed after 90 days will be considered abandoned and will be disposed of accordingly. Please note: non-warranty repair is only available on electronics and model engines.

Product Registration

Please register your product at www.e-fliterc.com/register

United States:

Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Service Center
4105 Fieldstone Road
Champaign, Illinois 61822

All other products requiring warranty inspection or repair should be shipped to the following address:

Horizon Support Team
4105 Fieldstone Road
Champaign, Illinois 61822

Please call 877.504.0233 or e-mail us at productsupport@horizonhobby.com with any questions or concerns regarding this product or warranty.

United Kingdom:

Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Hobby UK
Units 1-4 Ployters Rd
Staple Tye
Harlow, Essex
CM18 7NS
United Kingdom

Please call +44 1279 641 097 or e-mail us at sales@horizonhobby.co.uk with any questions or concerns regarding this product or warranty.

Germany:

Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Technischer Service
Otto Hahn Str. 9a
25337 Elmshorn
Germany

Please call +49 4121 46199 66 or email us at service@horizonhobby.de with any questions or concerns regarding this product or warranty.

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