

**BLADE**

# *Fusion*<sup>™</sup> 270



**Instruction Manual  
Bedienungsanleitung  
Manuel d'utilisation  
Manuale di Istruzioni**

**APE**  
ALMOST-READY-TO-FLY

**BNF**  
BASIC

## NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, LLC. For up-to-date product literature, visit horizonhobby.com and click on the support tab for this product.

## Meaning of Special Language

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

**WARNING:** Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of superficial injury.

**CAUTION:** Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.

**NOTICE:** Procedures, which if not properly followed, create a possibility of physical property damage AND a little or no possibility of injury.



**WARNING:** Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.

This is a sophisticated hobby product. 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. Do not use with incompatible components or alter this product in any way outside of the instructions provided by Horizon Hobby, LLC. This 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 serious injury.

**Age Recommendation: Not for children under 14 years. This is not a toy.**

## Safety Precautions and Warnings

- Always keep a safe distance in all directions around your model to avoid collisions or injury. This model is controlled by a radio signal subject to interference from many sources outside your control. Interference can cause momentary loss of control.
- Always operate your model in open spaces away from full-size vehicles, traffic and people.
- Always carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.).
- Always keep all chemicals, small parts and anything electrical out of the reach of children.
- Always avoid water exposure to all equipment not specifically designed and protected for this purpose. Moisture causes damage to electronics.
- Never place any portion of the model in your mouth as it could cause serious injury or even death.
- Never operate your model with low transmitter batteries.
- Always keep aircraft in sight and under control.
- Always move the throttle fully down at rotor strike.
- Always use fully charged batteries.
- Always keep transmitter powered on while aircraft is powered.
- Always remove batteries before disassembly.
- Always keep moving parts clean.
- Always keep parts dry.
- Always let parts cool after use before touching.
- Always remove batteries after use.
- Never operate aircraft with damaged wiring.
- Never touch moving parts.



**WARNING AGAINST COUNTERFEIT PRODUCTS:** If you ever need to replace a Spektrum™ component found in a Horizon Hobby product, always purchase from Horizon Hobby, LLC or a Horizon Hobby authorized dealer to ensure authentic high-quality Spektrum™ product. Horizon Hobby, LLC disclaims all support and warranty with regards, but not limited to, compatibility and performance of counterfeit products or products claiming compatibility with DSM or Spektrum™ technology.

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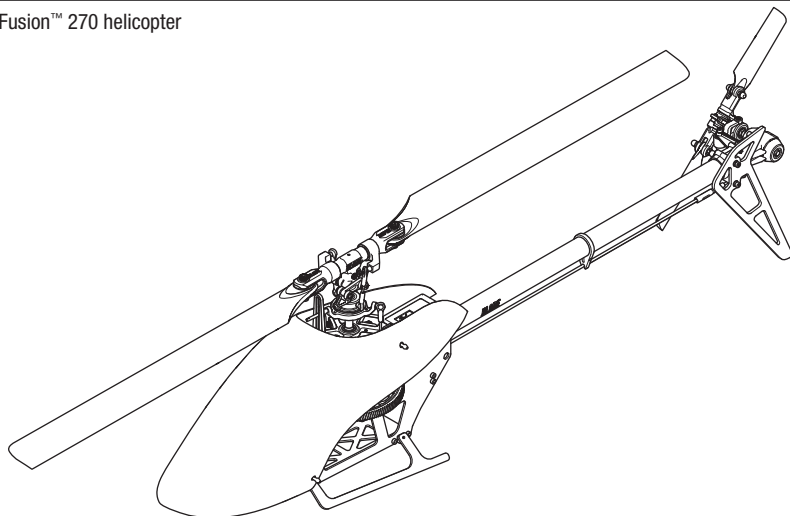
### Specifications

<b>Length</b>	<b>560mm</b>	<b>Main Rotor Diameter</b>	<b>620mm</b>
<b>Height</b>	<b>190mm</b>	<b>Tail Rotor Diameter</b>	<b>160mm</b>
<b>Flying Weight</b>	<b>626 g</b>		

Components		ARF	BNF Basic
<b>Airframe</b>	Blade® Fusion 270	<b>Included</b>	<b>Included</b>
<b>Motors</b>	BL Motor 2950KV, Fusion 270 (BLH5348)	<b>Installed</b>	<b>Installed</b>
<b>Receiver</b>	Replacement Receiver, Fusion 270 (BLH5349)	<b>Required</b>	<b>Installed</b>
<b>ESC</b>	Brushless ESC 45A (BLH5052 )	<b>Installed</b>	<b>Installed</b>
<b>Swash Servos</b>	Sub-Micro Digital Heli Cyclic MG Servo (SPMSH3050)	<b>Required</b>	<b>Installed</b>
<b>Tail Servo</b>	Sub-Micro Digital Heli Tail MG Servo (SPMSH3060)	<b>Required</b>	<b>Installed</b>
<b>Battery</b>	Thrust 14.8V 1300mAh 35C 4S Battery (EFLRB13004S35)	<b>Required</b>	<b>Required</b>
<b>Charger</b>	Li-Po Balancing Charger	<b>Required</b>	<b>Required</b>
<b>Transmitter</b>	Full Range DSM2®/DSMX® technology transmitter	<b>Required</b>	<b>Required</b>

### Box Contents

- Blade® Fusion™ 270 helicopter



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## First Flight Preparation

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- Remove and inspect contents
- Begin charging the flight battery (not included)
- Install the electronics (ARF version)
- Configure the flight controller (ARF version)
- Install the flight battery in the helicopter (once it has been fully charged)
- Program your computer transmitter
- Bind your transmitter
- Familiarize yourself with the controls
- Find a suitable area for flying

## Low Voltage Cutoff (LVC)

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The ESC will continuously lower power to the motor until complete shutdown when the battery reaches 12V under load. This helps prevent over-discharge of the Li-Po battery. Land immediately when the ESC activates LVC. Continuing to fly after LVC can damage the battery, cause a crash or both. Crash damage and battery damaged due to over-discharge are not covered under warranty.

## Electronic Speed Controller Governor Operation

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The included electronic speed controller (ESC) utilizes a head speed governor to maintain a constant head speed during flight. The governor will work to maintain a constant head speed throughout maneuvers and the discharge cycle of the flight battery.

The throttle position determines the requested head speed, and although throttle curves are still used, they will be a constant value; all positions of the curve are set to the same value. The lowest position of the normal flight mode throttle curve must be set to 0 to ensure the motor can be disabled.

## Flying Checklist

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- Always turn the transmitter on first
- Plug the flight battery into the lead from the ESC
- Allow the ESC to initialize and arm properly
- Verify control directions and gyro compensations are correct
- Fly the model
- Land the model
- Unplug the flight battery from the ESC
- Always turn the transmitter off last

Repeatedly flying the helicopter until LVC activates will damage the helicopter battery.

Disconnect and remove the Li-Po battery from the aircraft after use to prevent trickle discharge. During storage, make sure the battery charge does not fall below 3V per cell.

The default throttle curve settings listed in the transmitter setup tables should be acceptable to most pilots and we recommend starting with these values. If you feel an adjustment is necessary after a few flights, adjust the throttle percentage for the desired flight mode. We recommend making small changes of 5% to find your preferred head speed.

Remember the throttle position on the transmitter is simply requesting a specific head speed and this is not related to the actual motor power percentage.

## Transmitter Setup (Bind-N-Fly® Basic)

Program your transmitter before attempting to bind or fly the helicopter. Always start by creating a new model in the transmitter to ensure no existing settings are inadvertently used. Transmitter programming values are shown below for the Spektrum™ Transmitters. The files for models using Spektrum™ transmitters with Spektrum™ AirWare™ software are also available for download online at [www.spektrumrc.com](http://www.spektrumrc.com).

### DX6i

#### SETUP LIST

Model Type	HELI
Swash Type	1 servo 90

Reverse	
Channel	Direction
THRO	N
AILE	N
ELEV	N
RUDD	N
GYRO	N
PITC	N

Modulation Type
AUTO DSMX-ENABLE

D/R COMBI	
D/R SW	AILE

Timer	
Down Timer	4:00
Switch	THR CUT

#### Panic Mode Operation

*Ele D/R Switch:* Pos 0 = Panic Mode Off  
Pos 1 = Panic Mode On

#### ADJUST LIST

TRAVEL ADJ		D/R & Expo			
Channel	Travel	Channel	Sw Pos	D/R	Expo
THRO	100/100	AILE	0	100	0
AILE	100/100		1	85	0
ELEV	100/100	ELEV	0	100	0
RUDD	100/100		1	85	0
GYRO	100/100	RUDD	0	100	0
PITC	100/100		1	85	0

Throttle Curve					
Switch Pos (F Mode)	Pos 1	Pos 2	Pos 3	Pos 4	Pos 5
NORM	0	50	50	50	50
STUNT*	65	65	65	65	65

Pitch Curve					
Switch Pos (F Mode)	Pos 1	Pos 2	Pos 3	Pos 4	Pos 5
NORM	25	37	50	75	100
STUNT	0	25	50	75	100
HOLD	25	37	50	75	100

GYRO			
RATE	SW-F.MODE		
Switch Pos (F Mode)			
0	82%	NORM	0
1	75%	STUNT	1

Mix 1		
GYRO > GYRO	ACT	
RATE	D+125%	U+125%
SW	ELE D/R	TRIM-INH

**DX6G2, DX6e, DX7G2, DX8G2, DX9, iX12, DX18, DX20**

**SYSTEM SETUP**

Model Type	HELI
Swash Type	Normal

**F-Mode Setup**

Switch 1	Switch B
Switch 2	Inhibit
Hold Switch	Switch H
	0 1

**Channel Assign**

**Channel Input Config**

1 Throttle	
2 Aileron	
3 Elevator	
4 Rudder	
5 Gear	INH
6 Collective	
7 AUX 2*	

**Frame Rate**

11ms*
DSMX

\* Function is not available on all transmitters

**Panic Mode Operation**

Switch I

Press = Panic Mode On  
Release = Panic Mode Off

**FUNCTION LIST**

**Servo Setup**

Channel	Travel	Reverse	Channel	Travel	Reverse
THR	100/100	Normal	PIT	100/100	Normal
AIL	100/100	Normal	AX2*	100/100	Normal
ELE	100/100	Normal	AX3*	100/100	Normal
RUD	100/100	Normal	AX4*	100/100	Normal
GER	100/100	Normal			

**D/R & Expo**

Chan	Sw (F) Pos	D/R	Expo
AILE	0	100/100	0
	1	85/85	0
	2	85/85	0
ELEV	0	100/100	0
	1	85/85	0
Rudd	2	85/85	0
	0	100/100	0
	1	85/85	0
	2	85/85	0

**Gyro**

Normal	85%
Stunt 1	78%
Stunt 2	65%
Hold	85%
Channel	Gear
Switch	Flight Mode

**Mixing**

P-Mix 1	Normal	
	Channels	Ger > Gyr
	Rate	125%/0%
	Offset	-100%
	Switch	Switch I
	Position	0 1

**Throttle Curve**

Sw Pos (B)	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5
N	0	45	45	45	45
1	65	65	65	65	65
2	75	75	75	75	75
Hold	0	0	0	0	0

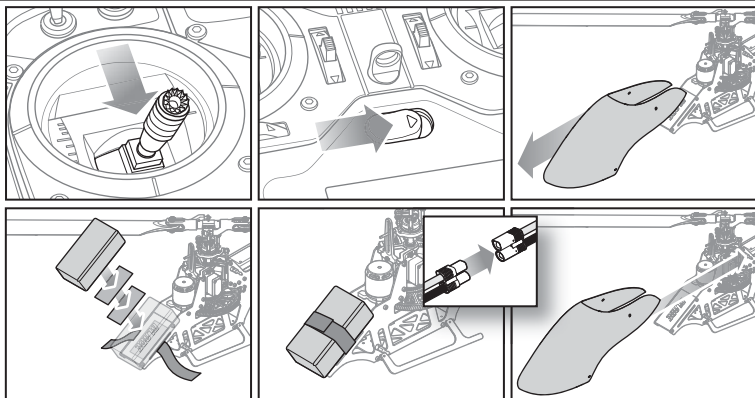
**Pitch Curve**

Sw Pos (B)	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5
N	25	37	50	75	100
1	0	25	50	75	100
2	0	25	50	75	100
HOLD	25	37	50	75	100

**Timer**

Mode	Count Down
Time	5:00
Start	Throttle Out
Over	5%
One Time	Inhibit

## Installing the Flight Battery



1. Lower the throttle.
2. Power on the transmitter.
3. Center all trims.
4. To allow the ESC to arm and to keep rotors from initiating at startup, turn on throttle hold and normal flight mode before connecting the flight battery.
5. Attach hook material to the helicopter frame and loop material to the battery.
6. Install the flight battery on the helicopter frame. Secure the flight battery with a hook and loop strap. Connect the battery cable to the ESC.
7. Do not move the helicopter until the AR636A initializes. The swashplate will center, indicating that the unit is ready. The AR636A status LED will illuminate once initialization has been completed.
8. The helicopter motor will emit 5 ascending tones, indicating the ESC is armed.

**CAUTION:** Make sure the flight battery, wire and connector does not come into contact with the motor. Failure to do so will cause the motor, ESC and battery to overheat, resulting in a crash causing property damage and injury.

**CAUTION:** Always disconnect the Li-Po battery from the ESC power lead when not flying to avoid over-discharging the battery. Batteries discharged to a voltage lower than the lowest approved voltage may become damaged, resulting in loss of performance and potential fire when batteries are charged.

## Transmitter and Receiver Binding (Bind-N-Fly® Basic)

Binding is the process of programming the receiver to recognize the GUID (Globally Unique Identifier) code of a single specific transmitter. You need to 'bind' your chosen Spektrum™ DSM2/DSMX technology equipped aircraft transmitter to the receiver for proper operation.

### Binding Procedure

1. Program your transmitter using the Transmitter Setup found in this manual.
2. Insert the bind plug in the BND/DAT port on the receiver.
3. Connect the flight battery to the ESC. The orange LED on the AR636 will begin flashing rapidly to indicate bind mode.
4. Move the throttle stick to the low throttle position in normal mode.
5. Follow the procedures of your specific transmitter to enter Bind Mode. The system will connect within a few seconds. Once connected, the orange LED will turn off and the AR636A will start the initialization process.
6. When the initialization process is complete, the Status LED light will come on solid orange.
7. Disconnect the flight battery and remove the bind plug from the AR636A. Store the bind plug in a convenient place.

**WARNING:** You must move the throttle to the LOW/OFF position during binding. Failure to do so may cause the rotor blades to spin and the helicopter to lift during the AR636A initialization, which could result in damage to property and injury.

**NOTICE:** Remove the bind plug to prevent the system from entering bind mode the next time the power is turned on.

**CAUTION:** When using a Futaba® transmitter with a Spektrum™ DSM2® module, you must reverse the throttle channel

If you encounter problems, obey binding instructions and refer to transmitter troubleshooting guide for other instructions. If needed, contact the appropriate Horizon Product Support office.

## Throttle Hold

Throttle hold is used to prevent the motor from powering on inadvertently. For safety, turn throttle hold ON any time you need to touch the helicopter or check the direction controls.

Throttle hold is also used to turn off the motor quickly if the

helicopter is out of control, in danger of crashing, or both. The blades will continue to spin briefly when throttle hold is activated. Pitch and direction control is still maintained.

## Control Tests



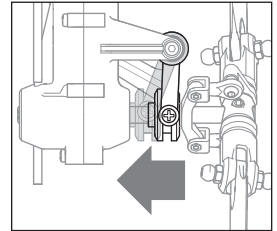
**CAUTION:** You must complete the Tail Rotor and Cyclic tests prior to every flight. Failure to complete the tests and ensuring the sensor corrects in the proper direction can cause the helicopter to crash, resulting in property damage and injury.

### Tail Rotor

1. Power on the transmitter.
2. Turn TH HOLD ON and put transmitter in normal mode.
3. Connect the flight battery to the ESC.

**NOTICE:** Do not allow the helicopter to move until the Status LED is solid orange. The AR636A will not operate correctly if the helicopter moves before the Status LED is solid orange.

4. Move the rudder stick to the right. The pitch slider on the tail shaft should move toward the tail case. If the pitch slider moves in the opposite direction, ensure the rudder channel reverse setting within the transmitter is set to normal.



5. Release the rudder control. Manually turn the helicopter nose to the left. The flight controller should compensate by moving the tail slider towards the tail case.

### Cyclic

When using a flybarless flight controller, you are controlling rotational rates while the AR636A controls the servos. You are not directly controlling the servos with the transmitter.

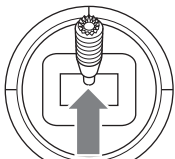
**It is normal for the swashplate to slowly move back to its original position after a stick input and for the servos to not move at the same speed as your control sticks.**

1. Tilt the helicopter forward. The swashplate must tilt backward.
2. Roll the helicopter left. The swashplate must roll right.

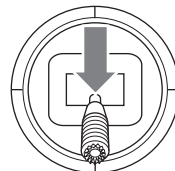
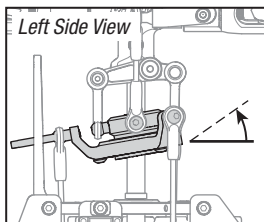
### Cyclic and Collective Control Test

**Ensure the throttle hold is ON when performing the direction control tests.** Test the controls prior to each flight to ensure the servos, linkages and parts operate correctly. If the controls do not react as shown in the illustrations below, confirm the transmitter is programmed correctly before continuing on to the Motor test.

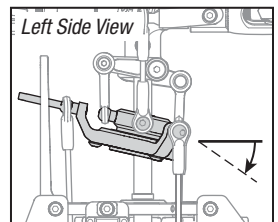
#### Elevator



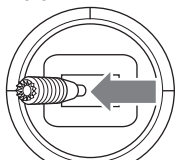
Elevator down



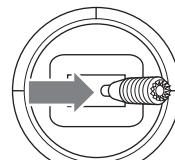
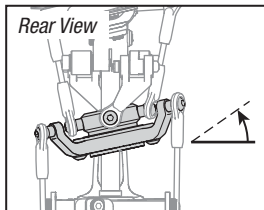
Elevator up



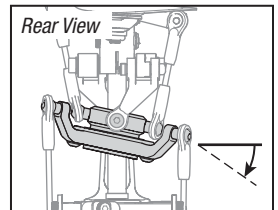
#### Aileron



Aileron left

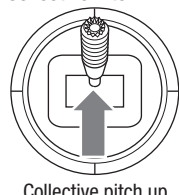


Aileron right

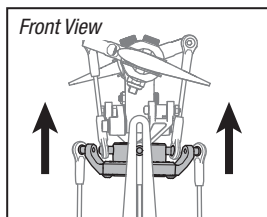




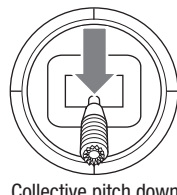
## Collective Pitch



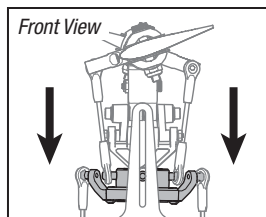
Collective pitch up



Front View



Collective pitch down



Front View

## Motor Test

Place the helicopter outdoors on a clean, flat and level surface (concrete or asphalt) free of obstructions. Always stay clear of moving rotor blades.

1. Before you continue, confirm that TH HOLD is ON. The motor will emit 5 ascending tones after the helicopter's ESC has armed properly.

**WARNING:** The motor will spin when the throttle is increased while TH HOLD is OFF.



**WARNING:** Stay at least 30 feet (10 meters) away from the helicopter when the motor is running. Do not attempt to fly the helicopter at this time.

2. Ensure the throttle is lowered completely. Confirm the transmitter is still set to normal flight mode. Turn throttle hold OFF to enable throttle control. Slowly increase the throttle until the blades begin to spin. The main blades spin clockwise when viewing the helicopter from the top. The tail rotor blades spin counterclockwise when viewing the helicopter from the right-hand side.

## Pre-Flight Checklist

- Check all screws and ensure that they are tight
- Check belt tension and ensure that it is not too tight or too loose
- Check main and tail blades to ensure they are not damaged
- Check all links and make sure they move freely but do not pop off easily
- Check that the transmitter and flight batteries are fully charged
- Check all wires to ensure that they are not cut, pinched, or chafed and are properly secured
- Check all wire connections
- Check gears and make sure no teeth are missing
- Make sure flight battery is properly secured
- Make sure the receiver is properly secured
- Perform a complete control test
- Verify the flight controller is correcting in the proper directions
- Check that servos are functioning properly

## Flying the Blade Fusion 270

### Consult local laws and ordinances before choosing a location to fly your aircraft.

Select a large, open area away from people and objects. Your first flights should be outdoors in low-wind conditions. Always stay at least 30 feet (10 meters) away from the helicopter when it is flying.

The Blade Fusion 270 is intended to be flown outdoors by experienced pilots

### Panic Recovery

If you get into distress while flying in any mode, push and hold the Panic Switch and move the control sticks to their neutral position. SAFE® technology will immediately return the aircraft to an upright level attitude, if the aircraft is at a sufficient height with no obstacles in its path. Return the collective stick to 50% and release the Panic Switch to turn off Panic Recovery and return to the current flight mode.

**NOTICE:** Before releasing the panic switch, make sure the collective stick has been returned to the 50% position. Once the panic switch has been released, full negative collective becomes available, which could cause the helicopter to descend rapidly.

- This mode is intended to provide the pilot with the confidence to continue to improve their flight skills.
- Move the collective stick to 50% and return all other transmitter controls to neutral for the quickest recovery.

- When panic is activated and once the model has reached a level upright attitude, the negative collective is reduced to prevent the user from pushing the model into the ground.

### Takeoff

Deliberately increase throttle and establish a hover at least 24" (0.6 meter) high, outside of ground effect.



**CAUTION:** Making large inputs to the roll or pitch controls while the helicopter is on the ground may result in a crash.

### Flying

The helicopter lifts off the ground when the rotor head reaches a suitable speed. Establish a low-level hover to verify proper operation of your helicopter.

First flights should be performed in normal mode and low cyclic and rudder dual rates until you are familiar with the flying manner of the Blade Fusion 270.



**CAUTION:** Always fly the helicopter with your back to the sun and the wind to prevent loss of flight control.

## Landing

Establish a low level hover. Deliberately lower the throttle until the helicopter lands.

### When the helicopter is in stunt mode:

- The rotor head speed is constant.
- The main rotor will increase negative pitch as the throttle/collective stick is moved from the middle stick position to the low stick position. Negative pitch allows the helicopter to fly upside down and perform aerobatics.

## Gyro Gain Adjustment

- If the tail wags or oscillates, lower the gain on the gyro.  
*In the transmitter gyro menu, decrease the gyro gain values a small amount at a time until the helicopter is stable within a particular flight mode.*
- If the tail is drifting while hovering, increase the gain on the gyro.  
*In the transmitter gyro menu, increase the gyro gain values a small amount at a time until the tail starts to wag/oscillate. Afterwards, reduce the gain until the tail stops wagging/oscillating within a particular flight mode.*

## Tail Belt Tension

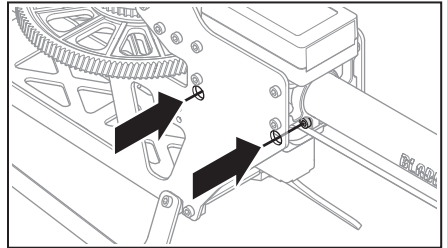
Belt tension that is too tight results in loss of power and causes the belt to wear more quickly. Tension that is too loose can cause belt damage and loss of tail rotor control in flight.

### To check for proper belt tension:

1. View the tail rotor drive belt through the opening at the back of the main frame.
2. Use a hex wrench or standard screwdriver to compress the belt through the opening.
3. Apply light pressure on the belt, compressing the belt toward the left side of the tail boom.
4. The belt tension is correct if the compressed side of the belt reaches approximately halfway to the opposite side of the belt.
  - a. If the compressed side of the belt reaches farther than halfway to the other side of the belt, the tension is too loose.
  - b. If the compressed side of the belt does not reach halfway to the other side of the belt, the tension is too tight.

### To adjust belt tension:

1. Loosen the two horizontal stabilizer screws.
2. Loosen the 2 screws at the back of the main frame.



3. Slide the boom forward or aft to adjust the belt tension.
4. When the belt tension is properly adjusted, tighten the 2 screws at the back of the frame.
5. Tighten the horizontal stabilizer screws.

## Post-Flight Inspections and Maintenance

<b>Ball Links</b>	Make sure the plastic ball link holds the control ball, but is not tight (binding) on the ball. When a link is too loose on the ball, it can separate from the ball during flight and cause a crash. Replace worn ball links before they fail.
<b>Cleaning</b>	Make sure the battery is not connected before cleaning. Remove dust and debris with a soft brush or a dry lint free cloth.
<b>Bearings</b>	Replace bearings when they become damaged.
<b>Wiring</b>	Make sure wiring does not block moving parts. Replace damaged wiring and loose connectors.
<b>Fasteners</b>	Make sure there are no loose screws, other fasteners or connectors. Do not over tighten metal screws in plastic parts. Tighten screw so parts are mated together, then turn screw only 1/8th of a turn more.
<b>Rotors</b>	Make sure there is no damage to rotor blades and other parts which move at high speed. Damage to these parts includes cracks, burrs, chips or scratches. Replace damaged parts before flying.
<b>Flight Controller</b>	Make sure the AR636A is securely attached to the frame. Replace the double-sided tape when necessary. The helicopter will crash if the AR636A separates from the helicopter frame.

Change between stunt and idle up modes in a hover with the throttle near the hovering stick position.



**WARNING:** Do not use wooden main blades with the Blade Fusion 270 or injury and/or property damage could occur. Only use Blade Fusion 270 replacement carbon fiber main blades.

## Advanced Settings (AR636A only)

The Fusion 270 default settings are appropriate for most users. We recommend flying with the default parameters before making any adjustments.



**WARNING:** Always disconnect the motor wires from the ESC before performing the following steps. After completing the adjustments, reconnect the motor wires to the ESC before attempting to fly the model.

### Telemetry Based Text Generator for Advanced Settings

Advanced parameters may be easily read in text form when using a Spektrum™ telemetry based transmitter. Transmitters may require a firmware update to access this function. To register and update Spektrum™ transmitters, visit [www.spektrumrc.com](http://www.spektrumrc.com).

#### Turning On Text Gen

Access the Telemetry menu, select one of the “Empty” Telemetry slots and scroll to select “Text Gen.” Set the display option to active (Act). Once the Text Gen message feature has been enabled, the transmitter will display text based menus on the telemetry screens for adjusting PID values and servo center points. The helicopter must be bound and initialized for the Text Gen screen to function; scroll from the home screen past the telemetry screen(s) to access the Text Gen screen.

#### Using Text Gen

The available features and stick inputs used to manipulate the menus are the same as the methods outlined in the following section, but using the text based programming is more intuitive. Refer to the transmitter manual for details on how to utilize telemetry menus.

Telemetry		LIST
Auto-Config	6: Empty	
1: Text Gen	7: Empty	
2: Empty	8: Empty	
3: Empty	9: Empty	
4: Empty	10: Rx V	
5: Empty	11: Flight Log	
Settings	File Settings	

Fusion 270	
Version 4.39	
[Cyclic]	
P	>100
I	100
D	100
Feel	100

### Gain Parameters

#### 1. Cyclic P Gain Adjustment (Default 100%)

**Higher gain** will result in greater stability. Setting the gain too high may result in random twitches if your model has an excessive level of vibration. High frequency oscillations may also occur if the gain is set too high.

**Lower gain** will result in less stability. Too low of a value may result in a less stable model particularly outdoors in winds.

If you are located at a higher altitude or in a warmer climate, higher gains may be beneficial—the opposite is true for lower altitude or colder climates.

#### 2. Cyclic I Gain Adjustment (Default 100%)

**Higher gain** will result in the model remaining still, but may cause low frequency oscillations if increased too far.

**Lower gain** will result in the model drifting slowly.

If you are located at a higher altitude or in a warmer climate, higher gains may be beneficial—the opposite is true for lower altitude or colder climates.

#### 3. Cyclic D Gain Adjustment (Default 100%)

**Higher gain** will improve the response rate of your inputs.

If the gain is raised too much, high frequency oscillations may occur.

**Lower gain** will slow down the response to inputs.

#### 4. Cyclic Response (Default 100%)

**Higher cyclic response** will result in a more aggressive cyclic response.

**Lower cyclic response** will result in a less aggressive cyclic response.

#### 5. Tailrotor P Gain Adjustment (Default 100%)

**Higher gain** will result in greater stability. Setting the gain too high may result in random twitches if your model has an excessive level of vibration. High frequency oscillations may also occur if the gain is set too high.

**Lower gain** may result in a decrease in stability. Too low of a value may result in a less stable model particularly outdoors in winds.

If you are located at a higher altitude or in a warmer climate, higher gains may be beneficial—the opposite is true for lower altitude or colder climates.

#### 6. Tailrotor I Gain Adjustment (Default 100%)

**Higher gain** results in the tail remaining still. If the gain is raised too far, low speed oscillations may occur.

**Lower gain** will result in the tail drifting in flight over time.

If you are located at a higher altitude or in a warmer climate, higher gains may be beneficial—the opposite is true for lower altitude or colder climates.

#### 7. Tailrotor D Gain Adjustment (Default 100%)

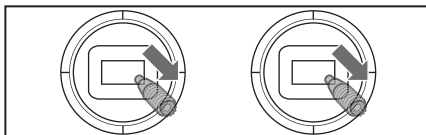
**Higher gain** will improve the response rate to your inputs. If raised too far, high frequency oscillations may occur.

**Lower gain** will slow down the response to inputs, but will not have an effect on stability.

## Entering Gain Adjustment Mode (AR636A only)

### Spektrum™ Transmitters:

1. Lower the throttle stick to the lowest position.
2. Power ON the transmitter.
3. Install the flight battery on the helicopter frame, securing it with the hook and loop strap.
4. Connect the battery connector to the ESC.
5. Place the helicopter on a flat surface and leave it still until the orange receiver LED glows solid, indicating initialization is complete.
6. Move and hold both transmitter sticks to the bottom right corner as shown.

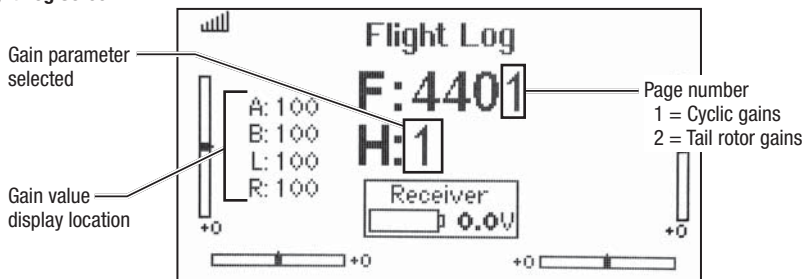


7. Activate the panic recovery function switch until the swash servos move.
8. Release the sticks and deactivate panic recovery. The model is now in Gain Adjustment Mode.
9. Proceed to Adjusting the Gain Values to make any desired changes.

### Adjusting the Gain Values

If you are using a Spektrum™ telemetry-enabled transmitter, the gain adjustments can be viewed on the Flight Log screen. Refer to your transmitter instructions to locate this screen. The gain parameter currently selected will flash on the transmitter screen. If you are not using a Spektrum™ telemetry-enabled transmitter, the parameter and gain values are indicated by the position of the swashplate on the helicopter.

#### Flight Log Screen



Once you have entered Gain Adjustment Mode, you can move the cyclic stick forward and backward to select the gain parameter you would like to adjust. Moving the stick backward will select the next parameter. Moving the stick forward will select the previous parameter.

The selected gain parameter is indicated on the Flight Log screen and by the lean of the swashplate on the roll axis.

Parameter #	Display location	Swash Position	Page #
1	A	100% to the Left	1
2	B	50% to the Left	1
3	L	25% to the Left	1
4	R	Swashplate Level	1
5	A	25% to the Right	2
6	B	50% to the Right	2
7	L	100% to the Right	2

The current gain value for the selected parameter is indicated on the Flight Log screen and by the angle of the swashplate (forward or backward) as shown in the table at the right.

Move the cyclic stick left or right to adjust the gain value. Moving the stick *right* will increase the gain value. Moving the stick *left* will decrease the gain value.

It is always best to adjust one gain at a time. Make small adjustments (5% or less) and test fly the model to evaluate the adjustments that were made.

If you would like to reset the current gain value to the default value of 100%, move and hold the rudder stick full right for 1 second. The swash will level on the pitch axis, indicating a 100% gain setting.

Swash Position	Gain Value
Full backward	0%
50% backward	50%
Level forward and backward	100%
50% forward	150%
Full forward	200%

### Saving the Gain Adjustments

#### All Spektrum™ Transmitters:

1. Lower the throttle stick to the lowest position and release the sticks.
2. Activate the panic recovery function until the swash servos move.
3. Deactivate the panic recovery function to save the gain adjustments.
4. Reconnect the main drive motor to the ESC. Your model is now ready for flight.

## Servo Adjustment (AR636A only)

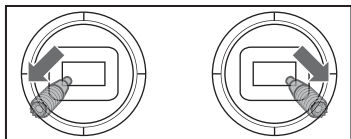
Your Blade Fusion 270 helicopter was setup at the factory and test flown. The servo adjustment steps are usually only necessary in special circumstances, such as after a crash or if a servo or linkage is replaced.



**WARNING:** To ensure your safety, always disconnect the motor wires from the ESC before performing the following steps. After you have completed the adjustments, reconnect the motor wires to the ESC before attempting to fly the model.

*All Spektrum™ Transmitters:*

1. Lower the throttle stick to the lowest position.
2. Power ON the transmitter.
3. Install the flight battery on the helicopter frame, securing it with the hook and loop strap.
4. Connect the battery connector to the ESC.
5. Place the helicopter on a flat surface and leave it still until the orange receiver LED glows solid, indicating initialization is complete.
6. Hold the left stick to the bottom left corner and the right stick to the bottom right corner as shown.



7. Activate the panic recovery function until the swash servos move.
8. Release the sticks and deactivate the panic recovery function. The model is now in Servo Adjustment Mode.
9. Proceed to Adjusting the Servo Neutral Position to make any desired changes.

### Adjusting the Servo Neutral Position

With the model in Servo Adjustment Mode, the control stick and gyro inputs are disabled and the servos are held in the neutral position. Check the position of the servo arms to see if they are perpendicular to the servos.

- If the arms are perpendicular to the servos, no adjustment is necessary. Exit Servo Adjustment Mode.
- If one or more servo arm is not perpendicular to the servos, continue the servo adjustment process.

While watching the swashplate servos, apply backward cyclic and release. One of the servos will jump, indicating which servo is selected. Press backward cyclic and release until the servo that needs to be adjusted is selected.

Once the servo you wish to adjust is selected, move the cyclic stick right or left to adjust the servo neutral position in the desired direction.

If you would like to reset the current servo to the default neutral position, hold the rudder stick full right for 1 second.

The range of adjustment is limited. If you are unable to adjust the servo arm to be perpendicular to the servo, you must reset the servo to the default neutral position, remove the servo arm and place it back onto the servo as close to perpendicular as possible. You may then adjust the servo neutral position using the left/right cyclic stick.

### Swashplate Leveling

Before saving your adjustments and exiting servo adjustment mode, verify the swashplate is level and both main rotor blades are at 0 degrees.

If they are not, make linkage adjustments as necessary.

### Saving the Servo Adjustments

*All Spektrum™ Transmitters:*

1. Lower the throttle stick to the lowest position and release the sticks.
2. Activate Panic Recovery until the swash servos move.
3. Deactivate Panic Recovery to save the servo adjustments.
4. Reconnect the main drive motor to the ESC. Your model is now ready for flight.

All of the settings are stored internally, so your adjustments will be maintained each time you initialize the model.

## Trim Flight (AR636A only)

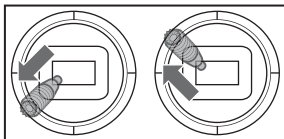
Perform this procedure if the model is not performing well or has been recently rebuilt from a crash.

The trim flight procedure was performed during the factory test flight and only needs to be performed if you notice the model is not returning to level consistently or if the model does not remain still during stationary pirouettes. The trim flight is used to determine the optimal settings for SAFE® technology during flight.

The trim flight must be performed in calm conditions.

### Entering Trim Flight Mode

1. Lower the throttle stick to the lowest position.
2. Center all trims. For the included Spektrum™ DXe transmitter (RTF only), the trims are centered when you hear a higher pitched beep while pressing the trim button. Move the trim in both directions until you hear the high-pitched beep.
3. Power ON the transmitter.
4. Install the flight battery in the helicopter.
5. Connect the battery connector to the ESC.
6. Place the helicopter on a flat surface and leave it still until the motor beeps twice and the blue ESC LED glows solid, indicating initialization is complete.
7. Place the helicopter where you are going to take off.
8. Move and hold the left stick to the bottom left corner and the right stick to the top left corner as shown.



9. Activate Panic Recovery until the swashplate rotates around once.
10. Release the sticks and deactivate panic recovery.
11. The model is ready for the trim flight.

### Performing the Trim Flight

1. Slowly increase the throttle to lift the model into a stationary hover. Make corrections as necessary to keep the model still. Evaluation does not begin until the throttle stick is over 50% and the sticks are centered. Making corrections will not affect the result but a longer flight may be necessary.
2. Keep the model stationary in a hover for a total of 30 seconds. Sliding and slow movements are okay. The main goal is to keep the rotor disk level.
3. Once you are satisfied with the trim flight, land the model.

### Exiting Trim Flight Mode

1. After landing, lower the throttle stick to the lowest position.
2. Activate Panic Recovery for 2 seconds, or until the swashplate twitches, indicating the servo positions and attitude values have been recorded and trim flight mode has been exited.

### Flight Test

After performing the trim flight, test-fly the model to evaluate the leveling characteristics.

- The model should return to level flight consistently.
- During takeoff, the model should lift off with minimal corrections.
- During a hover, the control stick should remain close to center. Small corrections are acceptable.

If the model performs poorly or does not level properly after the trim flight, retry the entire trim flight procedure. If the problem persists, inspect the model for damaged components, a bent shaft or anything that may result in increased vibration. The trim flight may not record the correct values due to excessive vibration, flying in wind or the model not staying level. In these cases, shorter trim flights may be necessary. Try the 30-second, level trim flight without corrections mentioned above first. If the leveling characteristics are not satisfactory, gradually shorten the trim flights, checking for improvements until the model performs as described.

## Calibration Procedure (AR636A only)

If the helicopter is experiencing drift issues after completing the trim flight procedure located at [www.bladehelis.com](http://www.bladehelis.com), perform the following calibration. The calibration procedure may also be needed following crash repairs.

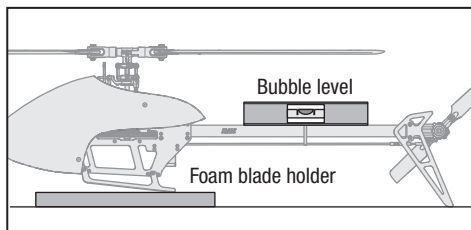
To perform the calibration procedure below, the Spektrum™ AR636 receiver installed in the Blade Fusion 270 must have the most recent firmware. Receiver firmware updates and instructions are available under “PC Firmware Updates” at [www.spektrumrc.com/technology/AS3X.aspx](http://www.spektrumrc.com/technology/AS3X.aspx). The transmitter/receiver programming cable (SPMA3065) is required to update the receiver firmware.



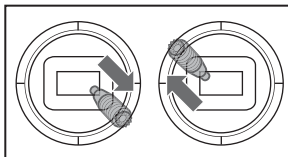
**WARNING:** Before beginning the calibration procedure, disconnect the main motor and tail motor leads to prevent accidental motor startup during calibration.

To perform the calibration procedure:

1. Ensure the surface used for calibration is level.
2. Power on the transmitter and helicopter, allowing them to initialize.
3. Turn Throttle Hold ON.
4. Ensure the main motor and tail motor leads are disconnected. Set the flight mode switch to Intermediate Mode (FM1).
5. Using a bubble level as shown below, level the helicopter by placing a foam blade holder under the landing skid. Use additional items, as necessary, to build up under the landing skid until the tail boom is level.



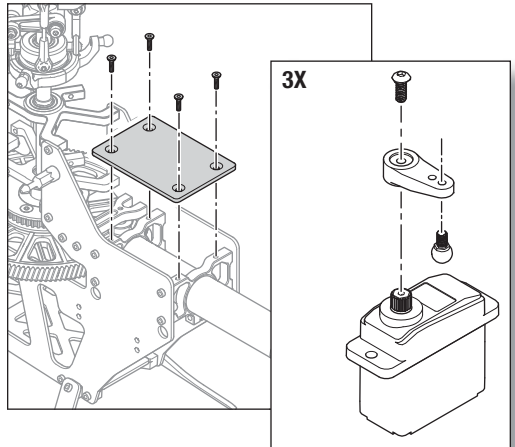
6. Hold the left stick to the bottom right corner, the right stick to the upper left corner and activate the Panic Recovery function until the LED on the receiver flashes once.



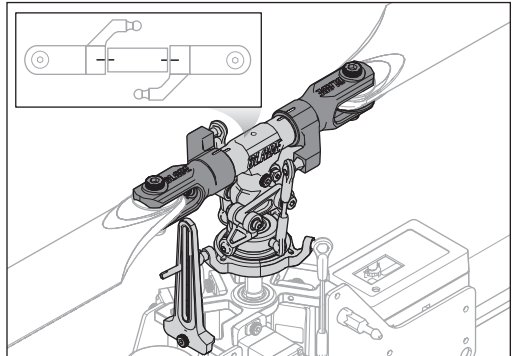
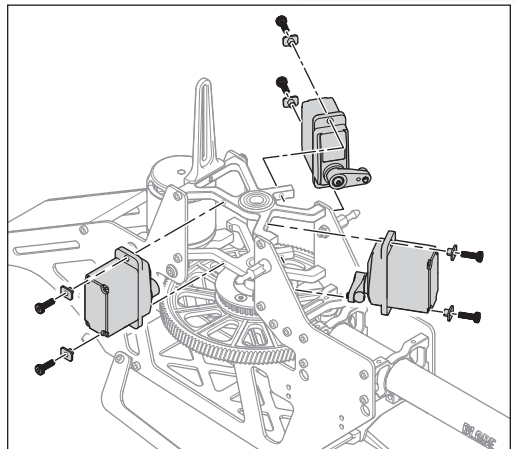
7. Release both sticks and deactivate Panic Recovery.
8. The LED on the receiver will remain solid for 1-2 minutes while the calibration takes place. Do not move the helicopter until the calibration is completed. If the LED begins blinking rapidly, an error has occurred. Begin the calibration procedure again, starting with step 1.
9. After the calibration is successfully completed, the receiver LED will blink slowly (2 seconds on, 2 seconds off).
10. Power the helicopter off.
11. Reconnect the main motor and tail motor wires.
12. Perform the trim flight procedure as shown in the Advanced Settings Addendum available at [www.bladehelis.com](http://www.bladehelis.com).
13. During subsequent flights after the trim flight, the helicopter should return to within 5 degrees of level consistently.

## Almost-Ready-to-Fly Assembly

1. Begin assembly by removing the gyro plate from the rear of the frame.
2. Center the three swash servos and install the servo arms and linkage balls as shown.

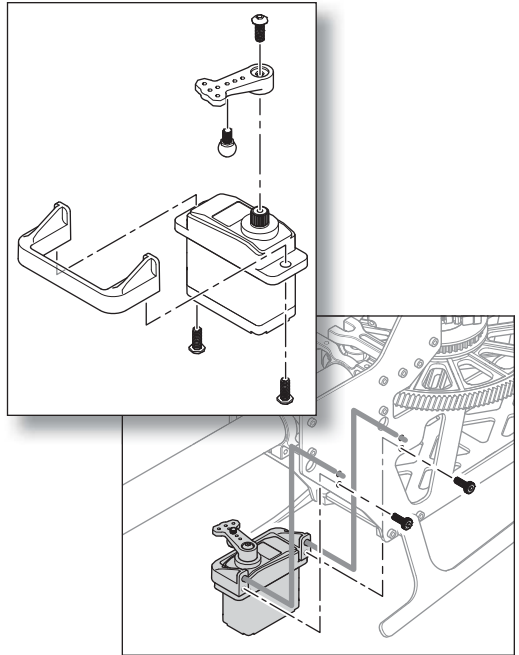


3. Mount the cyclic servos to the bearing blocks as shown.
4. Install the swashplate linkages. Adjust the length of the linkages so the swashplate is level and the marks on top of the head block line up with the corresponding marks on the blade grips when the servos are centered.

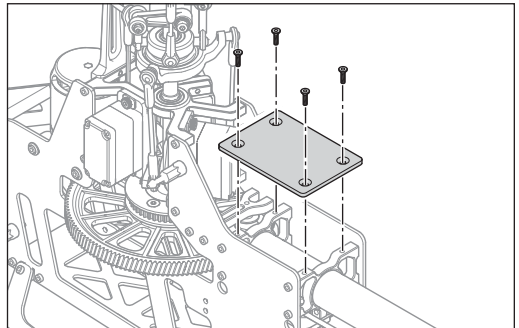




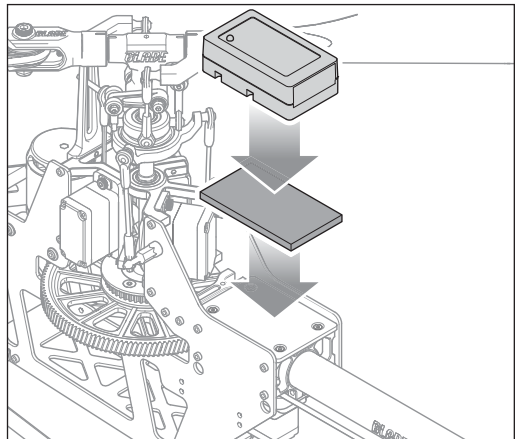
5. Attach the tail servo mount to the tail servo.
6. Center the tail servo and attach the servo arm to the servo. Attach the ball end to the servo arm.
7. Mount the tail servo assembly to the inside of the right frame side, as shown.
8. Connect the tail pushrod to the tail servo ball end.



9. Route the servo wires through the tail boom mounts and under the gyro plate. **Ensure the wires stay well clear of all rotating parts.** At any point where the servo wires pass through or cross the frame plates, use sandpaper to round the edge of the frame plate to prevent the wires from chafing. Use zip ties to secure the wires to the frame.
10. Re-attach the gyro plate to the frame.



11. Mount the flight controller to the gyro plate using double sided foam tape provided with your flight controller.
12. Review the instructions provided with your flight controller to complete the servo connections and setup.



## Optional AR7210BX Setup (ARF version)

The following table provides the settings for the Spektrum™ AR7210BX DSMX® Flybarless Control System when used in conjunction with Spektrum™ H3050 and H3060 digital servos.

**NOTICE:** Always follow the manual included with the flight controller to perform a Factory Reset of the AR7210BX prior to beginning a new model setup.

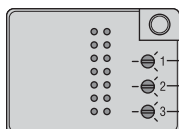
Complete the Control Tests section to verify the controls are responding correctly prior to attempting flight.

SETUP MENU (Menu-LED is steady ON)	OFF	Purple Flashing	Purple Solid	Red Flashing	Red Solid	Blue Flashing	Blue Solid	Red/ Blue
<b>A Mounting orientation</b>					horizontal socket, back			
<b>B Swashplate – servo frequency</b>							200 Hz	
<b>C Rudder – center position pulse length</b>							1520 µs*	
<b>D Rudder – servo frequency</b>						333 Hz		
<b>E Rudder – servo endpoints</b>	Use rudder stick to move servo to right endpoint and wait, then left endpoint and wait (or vice versa)							
<b>F Rudder – sensor direction</b>							reversed	
<b>G Swashplate – servo centering</b>	reference position		CH1 center position		CH2 center position		CH3 center position	
<b>H Swashplate – mixer</b>					120°*			
<b>I Swashplate – servo directions</b>							nor   nor   nor	
<b>J Swashplate – cyclic pitch geometry</b>	Use aileron stick to adjust 6° cyclic pitch on the roll axis to one direction (blades aligned with fuselage)							
<b>K Collective pitch range &amp; endpoints</b>	Set collective stick to max/min position and use aileron stick to adjust desired pitch. Set pitch direction by rudder stick input: Status-LED blue = positive pitch, red = negative pitch							
<b>L Swashplate – cyclic limit</b>	Move aileron, elevator and throttle stick. Adjust maximum limit by rudder stick input							
<b>M Swashplate – sensor directions</b>							nor   nor*	
<b>N RPM Governor – Operation mode</b>	deactivated*							

\*Factory setting

### PARAMETER MENU (Menu-LED is flashing quickly)

	OFF	Purple Flashing	Purple Solid	Red Flashing	Red Solid	Blue Flashing	Blue Solid
<b>A Cyclic and rudder trim/SAFE® trim</b>	Use aileron and elevator stick to trim, hold button 2s to trim rudder. Reset all by rudder stick input. Switch trim mode by activating SAFE® technology using the SAFE® switch channel.						
<b>B Control Behavior</b>							transmitter
<b>C Swashplate – Pitching up behavior</b>					medium*		
<b>D Tail – Rate Consistency</b>					medium*		
<b>E Stick deadband</b>				small*			
<b>F Tail – RevoMIX</b>			off*				
<b>G Cyclic response</b>			normal*				
<b>H Pitch boost</b>			off*				
<b>I RPM Governor – Throttle response</b>				slightly increased			
<b>J RPM Governor – Initial spool up rate</b>					200 RPM/s		
<b>K RPM Governor – Quick change rate</b>					500 RPM/s		



Swashplate Cyclic Gain: Centered

Swashplate Direct Feed Forward: Centered

Tail Dynamic: Centered

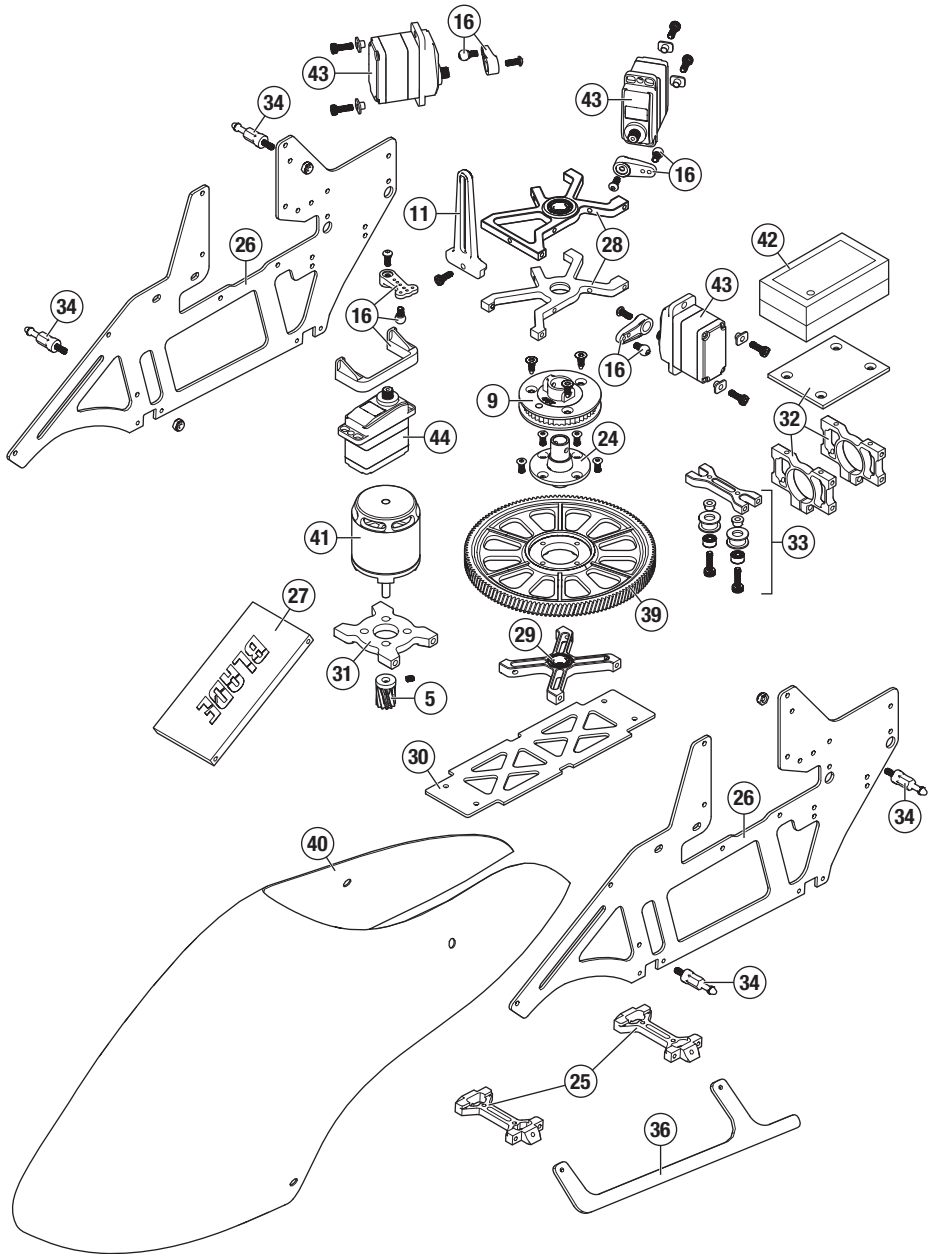
### Remote Gyro Gain

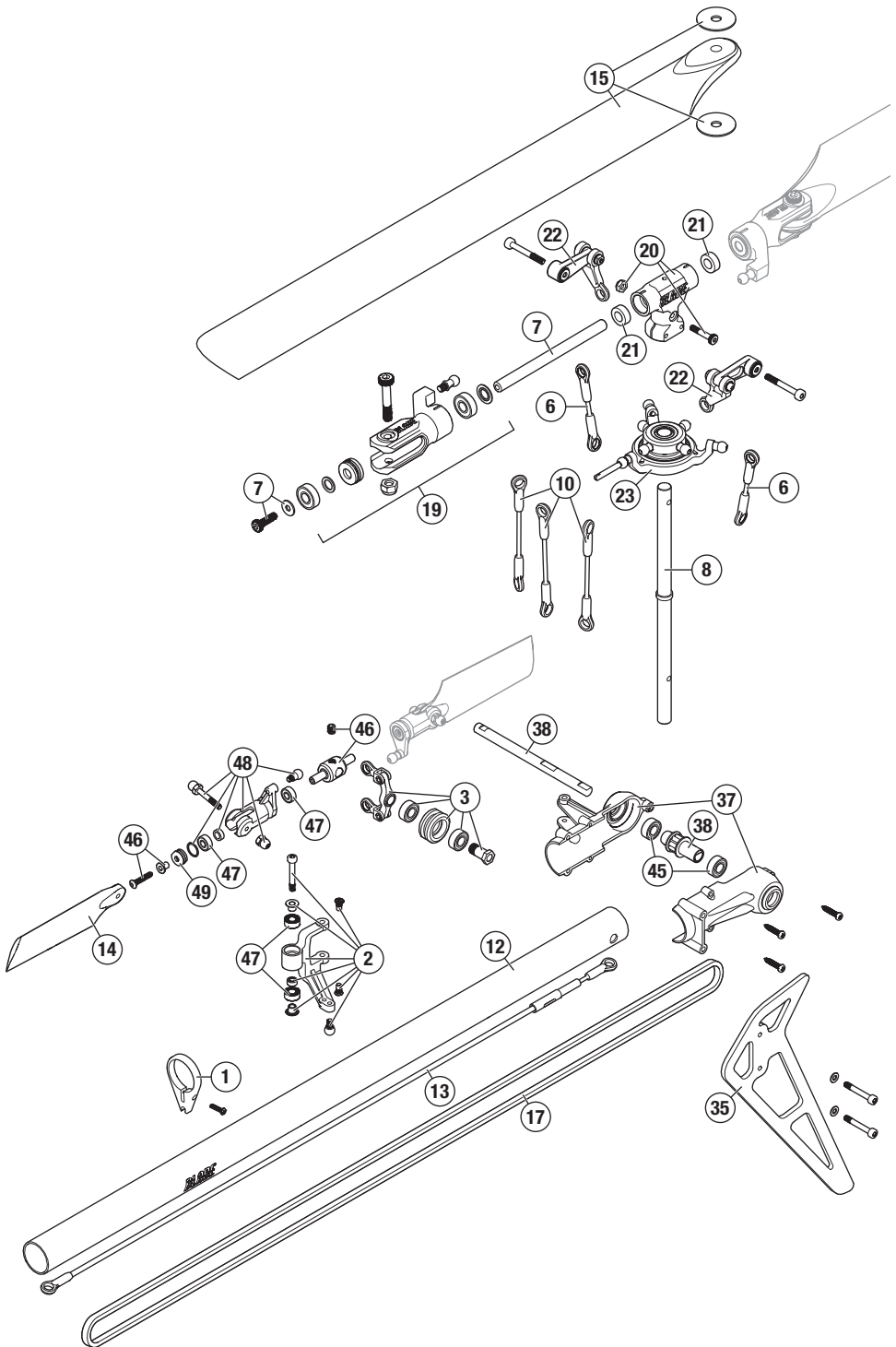
Normal	65%
Stunt 1	55%
Stunt 2	50%
Hold	65%

## Troubleshooting Guide

Problem	Possible Cause	Solution
Helicopter will not bind to the transmitter (during binding AR636A only)	Low flight battery or transmitter battery voltage	Fully charge or replace the flight battery and/or transmitter batteries
	AR636A is not in bind mode	Make sure the bind plug is connected to the AR636A BND/DAT port
	Transmitter is not in bind mode	Power on the transmitter while holding the Trainer/Bind switch. Hold the Trainer/Bind switch until binding is complete
	Transmitter too close to the helicopter during binding process	Power off the transmitter. Move the transmitter further away from the helicopter. Disconnect and reconnect the flight battery to the helicopter and follow binding instructions
Helicopter will not link to the transmitter (after binding)	Helicopter is bound to a different model memory (ModelMatch™ radios only)	Disconnect the flight battery. Select the correct model memory on the transmitter. Reconnect the flight battery
	Flight battery/Transmitter battery charge is too low	Replace or recharge batteries
AR636A will not initialize	The helicopter was moved during initialization	Lay the helicopter on its side during initialization if windy
	The transmitter is powered off	Power on the transmitter
	Controls are not centered	Center elevator, aileron and rudder controls. Make sure the throttle is at idle
Helicopter will not respond to the throttle but responds to other controls	Throttle not at idle and/or throttle trim is too high	Lower the throttle stick and lower the throttle trim
	The transmitter is not in normal mode or throttle hold is on	Make sure the transmitter is in normal mode and throttle hold is off
	The motor is not connected to the ESC or the motor wires are damaged	Connect the motor wires to the ESC and check motor wires for damage
	Flight battery charge is too low	Replace or recharge flight battery
	Throttle channel is reversed	Reverse the throttle channel on the transmitter
Helicopter power is lacking	Flight battery has low voltage	Fully charge the flight battery
	Flight battery is old or damaged	Replace the flight battery
	Flight battery cells are unbalanced	Fully charge the flight battery, allowing the charger time to balance the cells
	Excessive current is being drawn through the BEC	Check all servos and the helicopter motor for damage
	Tail drive belt tension is not correct	See "Tail Belt Tension" in this manual
Helicopter will not lift off	Main rotor head is not spinning in the correct direction	Make sure the main rotor head is spinning clockwise. Refer to the motor control test
	Transmitter settings are not correct	Check throttle and pitch curve settings and pitch control direction
	Flight battery has low voltage	Fully charge the flight battery
	Main rotor blades are installed backwards	Install the main rotor blades with the thicker side as the leading edge
The helicopter tail spins out of control	Rudder control and/or sensor direction reversed	Make sure the rudder control and the rudder sensor are operating in the correct direction
	Tail servo is damaged	Check the rudder servo for damage and replace if necessary
	Inadequate control arm throw	Check the rudder control arm for adequate travel and adjust if necessary
	Tail belt is too loose	Make sure the tail drive belt tension is adjusted correctly
The helicopter wobbles in flight	Cyclic gain is too high	Please review the "Advanced Settings - Gain Adjustments" section
	Head speed is too low	Increase the helicopter's head speed via your transmitter settings and/or using a freshly charged flight pack
	Dampers are worn	Replace the main rotor head dampers

# Exploded View





## Parts List

#	Part #	Description
1	BLH1660	TailPushrodSupport/GuideSet:B450
2	BLH1667	Tail Rotor Pitch Lever Set: B450
3	BLH1668	TailRotorPitchCtrSlidrSt:B450
4	BLH1901	Helical Main Gear B450
5	BLH1904	Helical Pinion 12T B450/300X/CF
6	BLH4803	Main rotor link set : 270 CFX
7	BLH4805	Spindle Set : 270 CFX
8	BLH4808	Main Shaft (2) : 270 CFX
9	BLH4810	Fr Drive Pulley 45t : 270 CFX
10	BLH4819	Servo Linkage (3) : 270 CFX
11	BLH4820	Anti-Rotation Guide : 270 CFX
12	BLH4825	Tail Boom (2) : 270 CFX
13	BLH4826	Tail Pushrod (2) : 270 CFX
14	BLH4827	Tail Rotor Blade set : 270 CFX
15	BLH4829	C/F Main Blades : 270 CFX
16	BLH4831	Servo arm/link ball : 270 CFX
17	BLH4833	Tail Belt : 270 CFX
18	BLH5052	Brushless ESC 45A
19	BLH5301	Blade Grip Fusion 270
20	BLH5304	Head Block Fusion 270
21	BLH5306	Dampners (4) Fusion 270
22	BLH5307	Follower Arm (2) Fusion 270
23	BLH5309	Swashplate Fusion 270
24	BLH5311	Drive Hub Fusion 270
25	BLH5312	Landing Gear Mount Fusion 270

#	Part #	Description
26	BLH5314	C/F Main Frame Fusion 270
27	BLH5315	Battery Tray Fusion 270
28	BLH5316	Bearing Blocks (2) Fusion 270
29	BLH5317	Lower Bearing Block Fusion 270
30	BLH5318	C/F Lower Plate Fusion 270
31	BLH5321	Motor Mount Fusion 270
32	BLH5322	Tailboom Mount (2) Fusion 270
33	BLH5323	Tail Belt Tensionor Fusion 270
34	BLH5324	Body Mount Post (2) Fusion 270
35	BLH5330	C/F Tail Fin Fusion 270
36	BLH5334	CF Landing Gear Skids Fusion 270
37	BLH5335	Tailcase Fusion 270
38	BLH5336	Tailshaft CNC Fusion 270
39	BLH5337	Helical Main Gear (Black)
40	BLH5347	Fiberglass Canopy Fusion 270
41	BLH5348	Brushless Motor 2950kV Fusion 270
42	BLH5349	Replacement Receiver Fusion 270
43	SPMSH3050	SubMicro Dig Heli Cyc MG Servo
44	SPMSH3060	H3060 SubMicro DigHeliTail Servo
45	BLH5351	4×10×4 Ball Bearing (2)
46	BLH1669	Tail Rotor Hub Set
47	BLH1115	3×6×2.5 Ball Bearing
48	BLH1670	Tail Rotor Blade Grip/Holder Set
49	BLH1612	2.5×6×3 Thrust Bearing

## Optional Parts List

Part #	Description
BLH1902	Helical Pinion 10T B450/300X/CF
BLH1903	Helical Pinion 11T B450/300X/CF
BLH1905	Helical Pinion 13T B450/300X/CF
BLH1906	Helical Pinion 14T B450/300X/CF
BLH4832	Opt C/F Tail Blade : 270 CFX
SPMSP1040	Gear Set: H3050
SPMSP1041	Gear Set: H3060

Part #	Description
SPMSP2052	Case Set: H3050, H3060
	DX6 DSMX 6-Channel Transmitter Only
	DX8 DSMX 8-Channel Transmitter Only
	DX9 DSMX 9-Channel Transmitter Only
	iX12 DSMX 12-Channel Transmitter Only
	DX20 DSMX 20-Channel Transmitter Only

## Limited Warranty

### What this Warranty Covers

Horizon Hobby, LLC, (Horizon) warrants to the original purchaser that the product purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase.

### What is Not Covered

This warranty is not transferable and does not cover (i) cosmetic damage, (ii) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (iii) modification of or to any part of the Product, (iv) attempted service by anyone other than a Horizon Hobby authorized service center, (v) Product not purchased from an authorized Horizon dealer, (vi) Product not compliant with applicable technical regulations, or (vii) use that violates any applicable laws, rules, or regulations.

OTHER THAN THE EXPRESS WARRANTY ABOVE, HORIZON MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

### Purchaser's Remedy

Horizon's sole obligation and purchaser's sole and exclusive remedy shall be that Horizon will, at its option, either (i) service, or (ii) replace, any Product determined by Horizon to be defective. Horizon reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Horizon. Proof of purchase is required for all warranty claims. SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY. **Limitation of Liability**

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF HORIZON HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. 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 the Product, purchaser is advised to return the 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). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Horizon reserves the right to change or modify this warranty at any time without notice.

### WARRANTY SERVICES

#### Questions, Assistance, and Services

Your local hobby store and/or place of purchase cannot provide warranty support or service. Once assembly, setup or use of the Product has been started, you must contact your local distributor or 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 visit our website at [www.horizonhobby.com](http://www.horizonhobby.com), submit a Product Support Inquiry, or call the toll free telephone number referenced in the Warranty and Service Contact Information section to speak with a Product Support representative.

### Inspection or Services

If this Product needs to be inspected or serviced and is compliant in the country you live and use the Product in, please use the Horizon Online Service Request submission process found on our website or call Horizon to obtain a Return Merchandise Authorization (RMA) number. 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. An Online Service Request is available at [http://www.horizonhobby.com/content/service-center\\_render-service-center](http://www.horizonhobby.com/content/service-center_render-service-center). If you do not have internet access, please contact Horizon Product Support to obtain a RMA number along with instructions for submitting your product for service. When calling Horizon, you will be asked to provide your complete name, street address, email address and phone number where you can be reached during business hours. When sending product into Horizon, please include your RMA number, a list of the included items, and a brief summary of the problem. A copy of your original sales receipt must be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

**NOTICE: Do not ship LiPo batteries to Horizon. If you have any issue with a LiPo battery, please contact the appropriate Horizon Product Support office.**

### Warranty Requirements

**For Warranty consideration, you must include your original sales receipt verifying the proof-of-purchase date.** Provided warranty conditions have been met, your Product will be serviced or replaced free of charge. Service or replacement decisions are at the sole discretion of Horizon.

### Non-Warranty Service

Should your service not be covered by warranty, service 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 service you are agreeing to payment of the service without notification. Service estimates are available upon request. You must include this request with your item submitted for service. Non-warranty service estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Horizon accepts money orders and cashier's checks, as well as Visa, MasterCard, American Express, and Discover cards. By submitting any item to Horizon for service, you are agreeing to Horizon's Terms and Conditions found on our website [http://www.horizonhobby.com/content/service-center\\_render-service-center](http://www.horizonhobby.com/content/service-center_render-service-center).

**ATTENTION: Horizon service is limited to Product compliant in the country of use and ownership. If received, a non-compliant Product will not be serviced. Further, the sender will be responsible for arranging return shipment of the un-serviced Product, through a carrier of the sender's choice and at the sender's expense. Horizon will hold non-compliant Product for a period of 60 days from notification, after which it will be discarded.**

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## Warranty and Service Contact Information

Country of Purchase	Horizon Hobby	Contact Information	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	servicecenter.horizonhobby.com/RequestForm/	4105 Fieldstone Rd Champaign, Illinois, 61822 USA
	Horizon Product Support (Product Technical Assistance)	productsupport@horizonhobby.com 877-504-0233	
	Sales	websales@horizonhobby.com 800-338-4639	
European Union	Horizon Technischer Service Sales: Horizon Hobby GmbH	service@horizonhobby.eu +49 (0) 4121 2655 100	Hanskampring 9 D 22885 Barsbüttel, Germany

## FCC Information

### FCC ID: BRWDASRX15

This equipment has been tested and found to comply with the limits for Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**NOTICE:** Modifications to this product will void the user's authority to operate this equipment.

## IC Information

### IC: 6157A-AMRX15

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device."

## Compliance Information for the European Union

### CE EU Compliance Statement:

Horizon Hobby, LLC hereby declares that this product is in compliance with the essential requirements and other relevant provisions of the RED and EMC Directives.

A copy of the EU Declaration of Conformity is available online at: <http://www.horizonhobby.com/content/support-render-compliance>.

### 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 collections 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 make sure 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.



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