Blade BLH013050

Blade Nano S3 BNF Basic RC Helicopter

Instruction Manual

1. Introduction

The Blade Nano S3 BNF Basic RC Helicopter is an advanced micro collective pitch helicopter designed for both learning and mastering 3D aerobatics. Building upon its predecessor, the Nano S2, this model incorporates key technological enhancements, including integrated voltage telemetry compatible with Spektrum transmitters. Its re-tuned flight controller improves AS3X stability, offers an enhanced SAFE mode with angle demand, and features improved panic recovery. The SAFE Z altitude control utilizes an on-board accelerometer for consistent altitude maintenance. The vertically mounted flight controller significantly reduces vibration, contributing to exceptional control and performance for executing complex 3D maneuvers. Linear servos provide precise control authority, while the 45C LiPo flight battery ensures efficient power delivery for dynamic flight.

Constructed with super-resilient polymers, a carbon-fiber main shaft, and a tail boom, the lightweight airframe offers remarkable durability, minimizing damage from typical impacts during 3D practice. Most parts from the Nano S2 are compatible, simplifying repairs. This Bind-N-Fly (BNF) Basic version requires a compatible Spektrum DSMX/DSM2 transmitter, battery, and charger to operate.

Image 1.1: The Blade Nano S3 BNF Basic RC Helicopter, showcasing its compact design and rotor system.

2. Safety Precautions

Always operate your RC helicopter responsibly and safely. Failure to do so can result in injury or property damage. Adhere to the following guidelines:

- **Read the Entire Manual:** Familiarize yourself with the product features before operation.
- **Age Recommendation:** This product is not intended for use by children without direct adult supervision. Recommended age is 14 months and up, but complex RC models require maturity and skill.

- **Safe Operating Environment:** Operate in open areas away from people, pets, buildings, and other obstacles. Avoid flying near power lines, trees, or water.
- **Avoid Obstacles:** Always maintain a safe distance in all directions around your model to prevent collisions or injury.
- **Battery Safety:** Use only recommended LiPo batteries and chargers. Follow all instructions for charging, handling, and storage of LiPo batteries to prevent fire or explosion. Never leave charging batteries unattended.
- **Propeller Safety:** Keep hands, face, and loose clothing away from rotating parts. The rotor blades can cause severe injury.
- **Moisture Avoidance:** Do not expose the model to moisture. Electronic components are susceptible to damage from water.
- **Interference:** Ensure your transmitter batteries are fully charged and that there is no radio interference in your operating area.
- **Pre-Flight Check:** Before each flight, inspect the model for any damage, loose parts, or worn components. Ensure all controls respond correctly.
- **Post-Flight Care:** Disconnect the battery after each flight and allow the motor and electronics to cool down.

3. What's in the Box

The Blade Nano S3 BNF Basic package typically includes the following components:

- Blade Nano S3 BNF Basic RC Helicopter (fully assembled)
- Spare Main Rotor Blades
- Spare Tail Rotor Blades
- Small Tool Set (e.g., hex wrenches)
- Instruction Manual (this document)

*Note: As a "Bind-N-Fly Basic" model, this package does**not** include a remote controller (transmitter), flight battery, or battery charger. These items must be purchased separately.*

4. Needed to Complete

To operate your Blade Nano S3 BNF Basic RC Helicopter, you will need the following items, which are not included in the box:

- **Compatible Spektrum DSMX/DSM2 Transmitter:** A full-range, 6+ channel Spektrum DSMX/DSM2 aircraft transmitter is required. Ensure your transmitter supports collective pitch helicopter setup.
- **1S 150mAh 45C LiPo Flight Battery:** A suitable 1-cell Lithium Polymer battery with a 45C discharge rate and a JST-PH 1.25 connector is necessary to power the helicopter.
- **Compatible LiPo Battery Charger:** A charger designed for 1S LiPo batteries with the appropriate connector.

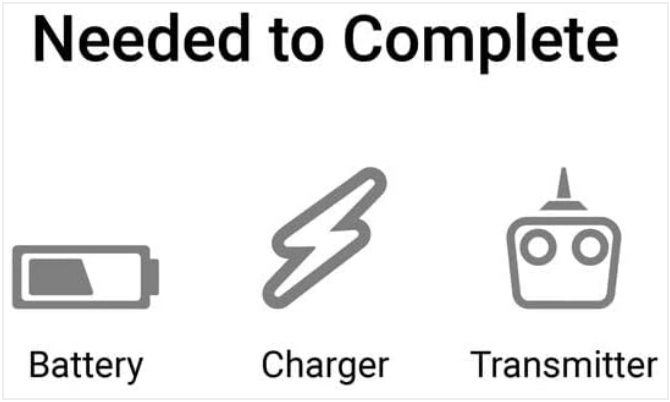

Image 4.1: Visual representation of items needed to complete the setup: Battery, Charger, and Transmitter.

5. Key Features

The Blade Nano S3 incorporates several advanced features for an enhanced flight experience:

- **Powerful Coreless Motors:** Allow for advanced 3D maneuvers and responsive flight.
- **Lightweight Design:** Contributes to low disc loading, ideal for advanced aerobatics and agile performance.
- **Linear Servos:** Provide faster response times and improved holding torque compared to traditional

rotary servos, enhancing control precision.

- **Integrated Voltage Telemetry:** Provides real-time battery voltage feedback directly to compatible Spektrum transmitters.
- **Re-tuned Flight Controller:** Offers improved AS3X stability and enhanced SAFE technology.
- **SAFE Technology Flight Modes:**
    - *Stability-Z Mode:* Features a limited flight envelope with self-leveling, a low bank angle limit, and software-dampened pitch control. Ideal for beginners.
    - *Stability Mode:* Provides a limited flight envelope with self-leveling and a low bank angle limit, offering more freedom than Stability-Z.
    - *Agility Mode:* Grants full control authority with no bank angle limit, designed for experienced pilots performing 3D maneuvers.
- **Panic Recovery:** An improved feature that can instantly return the helicopter to a level, upright flight attitude with the press of a button, aiding in recovery from disorientation or loss of control.
- **Durable Construction:** Made with super-resilient polymers, a carbon-fiber main shaft, and tail boom for exceptional durability against impacts.

Image 5.1: The Blade Nano S3 demonstrating its agility during indoor flight.

6. Setup Guide

Follow these steps to prepare your Blade Nano S3 for its first flight:

1. **Charge the Flight Battery:** Fully charge your 1S 150mAh LiPo flight battery using a compatible LiPo charger. Always follow the charger's instructions and safety guidelines.
2. **Install Transmitter Batteries:** Insert fresh batteries into your Spektrum DSMX/DSM2 transmitter.
3. **Create a New Model Profile (Transmitter):**
    - Turn on your transmitter and create a new model memory.
    - Select "Helicopter" as the model type.
    - Configure the swashplate type (typically 120-degree CCPM or similar, refer to your transmitter's manual and the Nano S3's specific binding instructions for precise settings).
    - Set up the flight modes (Stability-Z, Stability, Agility) and Panic Recovery function on desired switches.
4. **Binding the Helicopter to the Transmitter:**

- Ensure the transmitter is off or in bind mode.
- Connect the flight battery to the Nano S3. The helicopter's LED will begin to flash rapidly.
- Put your transmitter into bind mode (refer to your transmitter's manual for specific steps).
- The helicopter's LED will turn solid when binding is successful.
- Disconnect the flight battery from the helicopter, then turn off the transmitter.
- Reconnect the flight battery to the helicopter, then turn on the transmitter. The helicopter should now connect automatically.

5. **Control Surface Check:**
    - With the helicopter powered on and connected to the transmitter, gently move the cyclic (aileron/elevator) and rudder sticks.
    - Observe the swashplate and tail rotor for correct movement relative to stick inputs.
    - Ensure the collective pitch responds correctly to throttle/collective stick movements.
    - Verify that the Panic Recovery function activates correctly.
6. **Pre-Flight Inspection:** Before every flight, visually inspect the helicopter for any loose screws, damaged blades, or wires. Ensure the battery is securely installed.

Image 6.1: The Blade Nano S3 in a stable hover, indicating proper setup and calibration.

7. Operating Instructions

Understanding the flight modes and controls is crucial for successful operation.

7.1 Flight Modes

The Nano S3 offers three distinct flight modes, selectable via a switch on your transmitter:

- **Stability-Z Mode:**
    - *Characteristics:* Self-leveling, limited bank angle, and altitude hold (SAFE Z). The helicopter will automatically try to return to a level hover and maintain its altitude.
    - *Best For:* Absolute beginners, learning basic orientation and controls, indoor hovering.
- **Stability Mode:**
    - *Characteristics:* Self-leveling, limited bank angle, but without altitude hold. Offers more control authority than Stability-Z.

- *Best For:* Pilots transitioning from fixed-pitch helicopters, practicing forward flight and gentle turns.

- **Agility Mode:**
  - *Characteristics:* Full control authority, no self-leveling, no bank angle limits. The helicopter will maintain its last commanded attitude.
  - *Best For:* Experienced pilots, 3D aerobatics, inverted flight, and advanced maneuvers.

7.2 Basic Controls

Familiarize yourself with the standard collective pitch helicopter controls:

- **Throttle/Collective (Left Stick Up/Down - Mode 2):** Controls the main rotor RPM and blade pitch, determining altitude and vertical movement.
- **Rudder/Yaw (Left Stick Left/Right - Mode 2):** Controls the tail rotor, causing the helicopter to rotate left or right on its vertical axis.
- **Aileron/Roll (Right Stick Left/Right - Mode 2):** Tilts the helicopter left or right, causing it to move sideways.
- **Elevator/Pitch (Right Stick Up/Down - Mode 2):** Tilts the helicopter forward or backward, causing it to move in those directions.

7.3 Panic Recovery

The Panic Recovery feature is a crucial safety net. If you lose orientation or control, activate the assigned Panic Recovery switch on your transmitter. The helicopter will immediately return to a level, upright flight attitude. Release the switch to regain normal control. Practice this feature at a safe altitude.

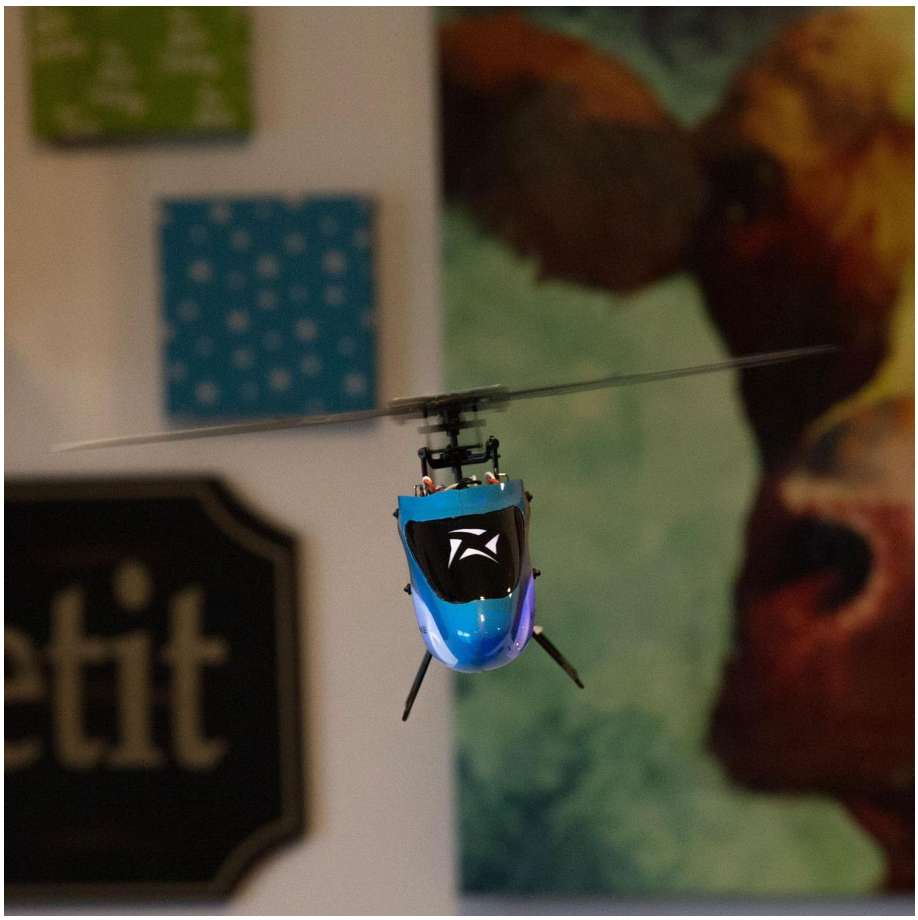

Image 7.1: The Nano S3 in forward flight, demonstrating its maneuverability.

8. Maintenance

Regular maintenance ensures the longevity and optimal performance of your Blade Nano S3.

- **Rotor Blade Inspection:** After each flight, inspect main and tail rotor blades for cracks, chips, or damage. Replace damaged blades immediately. Even minor damage can affect flight stability and safety.
- **Linkage and Swashplate Check:** Ensure all linkages are securely attached and move freely without binding. Check the swashplate for smooth movement and no excessive play.

- **Motor and Gear Inspection:** Check the main gear for any stripped teeth. Ensure the main motor and tail motor are free of debris and spin smoothly.
- **Battery Care:**
  - Always disconnect the flight battery from the helicopter after use.
  - Store LiPo batteries at a storage voltage (around 3.8V per cell) if not used for extended periods.
  - Never over-discharge or overcharge LiPo batteries.
  - Inspect batteries for puffing or damage before each use. Discontinue use of damaged batteries.
- **General Cleaning:** Use a soft, dry cloth to clean the helicopter body and components. Avoid using solvents or harsh chemicals.
- **Screw Tightness:** Periodically check all screws for tightness, especially those on the rotor head and frame. Do not overtighten.

Image 8.1: A user performing a pre-flight check or post-flight inspection on the Nano S3.

9. Troubleshooting

This section addresses common issues you might encounter with your Blade Nano S3.

Problem	Possible Cause	Solution
Helicopter does not bind to transmitter.	Transmitter not in bind mode; incorrect model type; receiver not powered; too far from transmitter.	Ensure transmitter is in bind mode and close to the helicopter. Verify correct model type (Helicopter) and swashplate settings on transmitter. Check flight battery connection.
Helicopter is unstable or drifts.	Damaged rotor blades; bent main shaft/tail boom; loose linkages; vibration; incorrect trim settings.	Inspect and replace damaged blades. Check for bent shafts. Ensure all linkages are secure. Perform a trim flight or reset trims to neutral. Check for excessive vibration.
Short flight times.	Battery not fully charged; old/damaged battery; excessive collective pitch; motor/gear issues.	Ensure battery is fully charged. Replace old or puffed batteries. Reduce aggressive collective inputs. Check for binding in drivetrain.

Problem	Possible Cause	Solution
Tail rotor not responding or weak.	Damaged tail rotor blade; worn tail motor; loose tail boom.	Inspect and replace tail rotor blade. Check tail motor for debris or wear. Ensure tail boom is secure.
No response from controls.	Battery disconnected; transmitter off; receiver not powered; damaged servo/electronics.	Check all power connections. Ensure transmitter is on and linked. Inspect servo wires and connections. If problem persists, contact support.

10. Specifications

Key technical specifications for the Blade Nano S3 BNF Basic RC Helicopter:

- **Model:** Blade Nano S3 BNF Basic
- **Product Dimensions:** 10.1 x 4.8 x 2.6 inches (25.65 x 12.19 x 6.6 cm)
- **Item Weight:** 10.2 ounces (289.17 grams)
- **Manufacturer:** Blade
- **ASIN:** B0DS2S2ZQL
- **Recommended Age:** 14 months and up (Note: RC helicopters require skill and supervision for younger users)
- **Type:** Micro Collective Pitch Helicopter
- **Technology:** SAFE Technology, AS3X, Integrated Voltage Telemetry
- **Servos:** Linear Servos
- **Battery (Required):** 1S 150mAh 45C LiPo (JST-PH 1.25 connector)
- **Transmitter (Required):** Spektrum DSMX/DSM2 compatible, 6+ channel

11. Warranty and Support

For warranty information, technical support, or replacement parts, please contact the manufacturer or your authorized dealer. Keep your proof of purchase for warranty claims.
Manufacturer: Blade
You can often find additional resources, FAQs, and contact information on the official Blade website or through the retailer where you purchased the product.
For more information, visit the Blade Store on Amazon.

Documents - Blade – BLH013050

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