SAB Goblin 630

Goblin 630 Carbon Edition Flybarless Electric Helicopter User Manual

Your comprehensive guide to assembling, operating, and maintaining your SAB Goblin 630 Carbon Edition helicopter.

1. Introduction

Welcome to the world of high-performance RC helicopters with the SAB Goblin 630 Carbon Edition. This model is engineered for precision and power, featuring advanced carbon fiber construction and a robust dual belt drive system. This manual provides essential information to ensure safe and optimal use of your helicopter.

Figure 1: The SAB Goblin 630 Carbon Edition Flybarless Electric Helicopter, showcasing its sleek yellow and black carbon fiber canopy and main rotor blades.

2. Safety Information

Operating remote-controlled helicopters requires strict adherence to safety guidelines to prevent injury and damage. Always prioritize safety.

- **Read the Entire Manual:** Before assembly or operation, thoroughly read and understand all instructions and warnings in this manual.
- **Experienced Pilots Only:** This model is designed for experienced hobbyists. It is not a toy and requires advanced piloting skills.
- **Safe Flying Environment:** Operate in open, clear areas away from people, animals, buildings, and power lines. Avoid flying near airports or restricted airspace.
- **Pre-Flight Checks:** Always perform a comprehensive pre-flight inspection, including battery charge, rotor blade security, and control surface movement.
- **Battery Safety:** Use only recommended batteries and chargers. Follow all battery charging and handling instructions to prevent fire or explosion.
- **Rotor Blades:** Keep clear of rotating blades. They can cause severe injury. Always disconnect the battery when not flying or performing maintenance.
- **Weather Conditions:** Do not fly in strong winds, rain, or other adverse weather conditions.

3. Setup Guide

The Goblin 630 Carbon Edition is a kit that requires assembly. This section provides general guidance for the build process. Refer to the detailed assembly diagrams provided separately with your kit for specific steps.

1. **Unpacking and Inventory:** Carefully unpack all components and verify against the parts list. Ensure no parts are missing or damaged.
2. **Frame Assembly:** Begin by assembling the carbon fiber frame components. Pay close attention to screw lengths and thread-locking compound application where specified.
3. **Power System Installation:** Install the motor and the dual belt drive power system. Ensure belts are properly tensioned according to specifications to maximize power transfer and prevent slippage.
4. **Servo Installation:** Mount the servos using the patent-pending horizontal servo mounting system. This design ensures direct torque transfer to the flybarless main rotor system. Connect linkage rods securely.
5. **Rotor Head Assembly:** Assemble the flybarless rotor head. Ensure all bearings are smooth and linkages move freely without slop.
6. **Tail Assembly:** Construct the tail boom and rotor assembly. Verify smooth operation of the tail pitch slider.
7. **Electronics Installation:** Install your chosen flybarless unit, ESC (Electronic Speed Controller), and receiver. Route wiring neatly and secure with zip ties or cable wraps.
8. **Canopy Mounting:** Secure the carbon fiber canopy. Ensure it fits snugly without interfering with moving parts.
9. **Initial Setup and Calibration:** Follow the instructions for your specific flybarless unit for initial setup, including servo centering, collective and cyclic pitch adjustments, and ESC calibration.

Figure 2: The packaging for the SAB Goblin Helicopter kit, indicating the brand and model. This box contains all the components for assembly.

4. Operating Instructions

Operating the Goblin 630 Carbon Edition requires proficiency in RC helicopter piloting. Always ensure you are in a safe flying area and have performed all pre-flight checks.

- **Transmitter Setup:** Ensure your radio transmitter is correctly bound to the receiver and all control surfaces respond appropriately to stick inputs. Verify correct direction of movement.
- **Battery Connection:** Connect the flight battery securely. Listen for the ESC initialization tones.
- **Spool Up:** Slowly increase throttle to allow the rotor blades to spool up to operating RPM. Ensure the

helicopter remains stable during spool up.

- **Take-off:** Once RPM is stable, smoothly increase collective pitch to lift off. Maintain a stable hover before attempting forward flight.
- **Flight Control:** Practice basic maneuvers in a controlled environment. The Goblin 630 is highly responsive due to its direct servo linkage system.
- **Landing:** Reduce collective pitch slowly to descend. Aim for a smooth, controlled landing. Once on the ground, reduce throttle to zero and disconnect the flight battery.

5. Maintenance

Regular maintenance is crucial for the longevity and safe operation of your Goblin 630 Carbon Edition.

- **Post-Flight Inspection:** After each flight, inspect the helicopter for any loose screws, damaged parts, or signs of wear on bearings and linkages.
- **Blade Inspection:** Check main and tail rotor blades for nicks, cracks, or damage. Replace damaged blades immediately.
- **Bearing Lubrication:** Periodically lubricate bearings as recommended by the manufacturer to ensure smooth operation.
- **Belt Tension:** Verify the tension of the dual belt drive system. Adjust if too loose or too tight.
- **Cleaning:** Keep the helicopter clean from dirt, dust, and debris.
- **Component Check:** Regularly check all electronic components, including the motor, ESC, servos, and flybarless unit, for proper function and secure mounting.

6. Troubleshooting

This section addresses common issues you might encounter. For more complex problems, consult online forums or contact SAB support.

Problem	Possible Cause	Solution
Helicopter drifts during hover	Incorrect flybarless unit setup; unbalanced blades; trim issues.	Recalibrate flybarless unit; balance main rotor blades; adjust transmitter trims if necessary (though flybarless systems typically don't require much trim).
Loss of power during flight	Low battery voltage; ESC overheating; motor issues.	Check battery charge and health; ensure adequate ESC cooling; inspect motor connections and windings.
Tail wags or oscillates	Incorrect tail gain setting; loose tail components; worn tail bearings.	Adjust tail gain in flybarless unit; check all tail linkages and screws; replace worn bearings.
Unusual vibrations	Unbalanced blades; bent main shaft/spindle; loose components.	Balance main and tail blades; inspect main shaft and spindle for straightness; tighten all screws.

7. Technical Specifications

Key specifications for the Goblin 630 Carbon Edition helicopter:

Feature	Detail
Product Dimensions	37.5 x 11.5 x 7 inches
ASIN	B00UIBAX3A
Item Model Number	Goblin 630
Manufacturer	SAB
Construction Material	Carbon Fiber
Drive System	Dual Belt Drive
Servo Mounting	Patent Pending Horizontal

8. Warranty and Support

For warranty information, technical support, or to purchase replacement parts, please refer to the official SAB Helicopters website or contact your authorized dealer. Keep your proof of purchase for any warranty claims.
Online Resources: For additional support, community forums, and the latest updates, visit the official SAB Helicopters website: www.goblin-helicopter.com