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› Hobby King Turnigy Aerodrive SK3 3542-1250kv Brushless Outrunner Motor Instruction Manual

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Hobby King Turnigy Aerodrive SK3 3542-1250kv Brushless Outrunner Motor Instruction Manual

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1. INTRODUCTION

This manual provides essential information for the safe and efficient use of your Turnigy Aerodrive SK3 3542-1250kv Brushless Outrunner Motor. The SK3 series motors are designed for high performance, featuring double shielded bearings, sintered neodymium magnets, and a string wound stator for consistent winding. Please read these instructions thoroughly before installation and operation.



Figure 1: The Turnigy Aerodrive SK3 3542-1250kv Brushless Outrunner Motor. This image shows the motor's main body, shaft, and copper windings visible through the ventilation holes.

2. SETUP AND INSTALLATION

Proper installation is crucial for the motor's performance and longevity. Ensure all connections are secure and components are correctly aligned.

2.1 Components Included

- Turnigy Aerodrive SK3 3542-1250kv Brushless Outrunner Motor
- Motor Mount

- Mounting Screws
- Propeller Adapter



Figure 2: Included accessories: motor mount, mounting screws, and propeller adapter. These components are essential for securing the motor and attaching a propeller.

2.2 Mounting the Motor

1. Attach the provided motor mount to your airframe or mounting surface using appropriate hardware. Ensure the mount is securely fastened and aligned.
2. Align the motor with the mounting holes on the motor mount. The bolt holes spacing is 25 x 25mm, and the bolt thread is M2.5.
3. Secure the motor to the mount using the included M2.5 screws. Do not overtighten.

2.3 Electrical Connections

- Connect the three motor wires to your Electronic Speed Controller (ESC). The motor uses 3.5mm Bullet plugs.
- For initial setup, the order of the three wires does not matter. If the motor spins in the wrong direction, swap any two of the three motor wires.
- Ensure all connections are insulated and secure to prevent short circuits.
- The suggested ESC for this motor is 55A.

2.4 Propeller Installation

1. Slide the propeller adapter onto the motor shaft (5mm diameter).
2. Secure the propeller adapter to the shaft according to its design (typically with a set screw).
3. Mount your propeller onto the adapter, ensuring it is balanced and securely tightened. An unbalanced propeller can cause excessive vibration and damage.

3. OPERATING INSTRUCTIONS

This section outlines general operating guidelines for your brushless motor. Always refer to your ESC and battery manuals for specific operating procedures.

3.1 Powering On

- Ensure all connections are correct and secure.
- Connect your battery (3-4S LiPoly, 11.1-16.8V) to the ESC.
- Follow your ESC's arming procedure. The motor will typically emit a series of beeps indicating it is ready.

3.2 Throttle Control

- Gradually increase throttle to spin the motor. Avoid sudden, full-throttle inputs, especially with a propeller attached, to prevent damage to the motor or ESC.
- Monitor motor temperature during operation. Excessive heat can indicate an overloaded motor or an improperly sized propeller.

3.3 Safety Precautions

- Always operate the motor in a well-ventilated area.
- Keep hands, loose clothing, and other objects clear of the spinning propeller.
- Disconnect the battery immediately after use or before performing any maintenance.
- Never attempt to stop a spinning propeller with your hand.

4. MAINTENANCE

Regular maintenance ensures optimal performance and extends the lifespan of your motor.

4.1 Cleaning

- Periodically clean the motor to remove dust, dirt, and debris that can accumulate in the windings or bearings.
- Use compressed air or a soft brush. Avoid using liquids that could damage the motor's internal components.

4.2 Bearing Inspection

- Check the motor bearings for smooth operation. If you notice any grinding, excessive play, or unusual noise, the bearings may need replacement.
- The SK3 series uses quality double shielded bearings, designed for durability.

4.3 Wire and Connector Check

- Inspect all wires and connectors for signs of wear, fraying, or corrosion. Replace any damaged components immediately to prevent electrical issues.

5. TROUBLESHOOTING

This section addresses common issues you might encounter with your brushless motor.

Problem	Possible Cause	Solution
Motor does not spin or stutters	• Loose or incorrect wire connections • ESC not armed or improperly configured • Damaged motor or ESC	• Check all three motor-to-ESC connections. • Verify ESC arming sequence and programming. • Test motor with a known good ESC, or ESC with a known good motor.
Motor spins in wrong direction	Incorrect motor wire connection order	Swap any two of the three motor wires connected to the ESC.
Motor overheats during operation	• Propeller is too large or too aggressive • Insufficient cooling airflow • Motor overloaded	• Reduce propeller size or pitch. • Ensure adequate airflow around the motor. • Check current draw; ensure it's within motor's max current (50A).

Problem	Possible Cause	Solution
Reduced power or efficiency	- Damaged bearings - Dirty motor windings - Weak battery	- Inspect and replace bearings if necessary. - Clean the motor. - Test with a fully charged, healthy battery.

6. SPECIFICATIONS

Detailed technical specifications for the Turnigy Aerodrive SK3 3542-1250kv Brushless Outrunner Motor.

Feature	Value
Voltage Range	11.1~16.8V (3~4S LiPoly)
RPM/V (kv)	1250kv
Max Power	770W
Max Current	50A
Idle Current	0.016A
Resistance	24mΩ
Shaft Diameter	5mm
Bolt Holes Spacing	25 x 25mm
Bolt Thread	M2.5
Plug Type	3.5mm Bullet
Suggested ESC	55A
Motor Dimensions	37 x 36mm
Weight	167g
Material	Sintered Neodymium Magnets

7. WARRANTY AND SUPPORT

7.1 Warranty Information

Specific warranty terms for the Turnigy Aerodrive SK3 3542-1250kv Brushless Outrunner Motor are typically provided at the point of purchase or on the manufacturer's official website. Please retain your proof of purchase for any warranty claims. Warranty generally covers manufacturing defects under normal use conditions.

7.2 Customer Support

For technical assistance, troubleshooting beyond this manual, or inquiries regarding parts and service, please contact Hobby King customer support through their official website or the retailer from whom the product was purchased. Provide your product model number (9192000254-0) and a detailed description of the issue for efficient support.

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