

TAMIYA 54612

Tamiya 54612 Sensored Brushless Motor TBLM-02S 155T User Manual

Model: TBLM-02S 155T (54612)

1. INTRODUCTION

This manual provides essential information for the proper installation, operation, and maintenance of your Tamiya 54612 Sensored Brushless Motor TBLM-02S 155T. This motor is designed for use in remote-controlled vehicles, offering precise control and efficient performance. Please read this manual thoroughly before use to ensure safe and optimal operation.

2. SAFETY PRECAUTIONS

- **Age Restriction:** This product is not suitable for children under 14 years of age. Adult supervision is required for users under 18.
- **Heat Warning:** The motor can become extremely hot during operation. Avoid touching the motor immediately after use to prevent burns. Allow it to cool down completely.
- **Electrical Safety:** Ensure all electrical connections are secure and correctly polarized. Incorrect wiring can cause damage to the motor, Electronic Speed Controller (ESC), or battery.
- **Power Source:** Use only compatible power sources (batteries) within the specified voltage range (6.6 - 7.2 V).
- **Ventilation:** Ensure adequate ventilation around the motor during operation to prevent overheating.
- **Foreign Objects:** Keep the motor free from dirt, dust, moisture, and foreign objects that could impede its function or cause damage.

3. PACKAGE CONTENTS

The Tamiya 54612 Sensored Brushless Motor TBLM-02S 155T package typically includes:

- Tamiya TBLM-02S 155T Sensored Brushless Motor
- Motor wires (pre-attached or included for connection)
- Sensor cable

Note: Additional components such as an Electronic Speed Controller (ESC), battery, and RC vehicle chassis are sold separately.

4. SETUP AND INSTALLATION

Follow these steps for proper installation of the motor into your remote-controlled vehicle:

1. **Mounting the Motor:** Securely mount the motor to the motor mount of your RC vehicle chassis using appropriate screws. Ensure proper gear mesh between the motor pinion gear and the spur gear.
2. **Connecting to ESC (Power Wires):** Connect the three main power wires from the motor to the corresponding output terminals on your sensored brushless Electronic Speed Controller (ESC). These are typically labeled A, B, and C. Ensure the connections are firm and insulated to prevent short circuits.



Figure 1: Side view of the Tamiya TBLM-02S 155T motor, illustrating the three main power wire terminals (A, B, C) and the sensor port. The wires are typically color-coded for easy identification and connection to a compatible ESC.

3. **Connecting the Sensor Cable:** Connect the sensor cable from the motor's sensor port to the sensor port on your ESC. This cable provides precise rotor position feedback to the ESC, enabling smooth and efficient sensored operation.



Figure 2: Top-down view of the Tamiya TBLM-02S 155T sensored brushless motor. This image highlights the overall design, including the Tamiya branding and the 'CAUTION! HOT!' warning label, indicating the importance of heat management during and after operation.

4. **ESC Calibration:** Refer to your ESC's instruction manual for proper calibration procedures. This typically involves setting throttle endpoints and other parameters to match the motor and transmitter.

5. OPERATING INSTRUCTIONS

Once the motor is correctly installed and the ESC is calibrated, you can begin operating your RC vehicle:

- **Power On Sequence:** Always turn on your transmitter first, then the RC vehicle (ESC). When powering off, turn off the vehicle (ESC) first, then the transmitter.
- **Initial Run:** Perform a short initial run to check for any unusual noises, vibrations, or excessive heat. If any issues are detected, power off immediately and re-check all connections and settings.
- **Monitoring Temperature:** Regularly monitor the motor's temperature during operation. If the motor becomes excessively hot (too hot to touch for more than a few seconds), stop operation and allow it to cool. Adjust gearing or driving style if overheating persists.
- **Sensored Operation:** The sensored design of this motor provides smooth low-speed control and consistent power delivery, making it ideal for applications requiring precise throttle response.

6. MAINTENANCE

Regular maintenance ensures the longevity and performance of your motor:

- **Cleaning:** Keep the motor clean and free from dirt, dust, and debris. Use a soft brush or compressed air to remove foreign particles.
- **Inspection:** Periodically inspect the motor for any signs of wear, damage, or loose connections. Check the motor wires and sensor cable for fraying or damage.
- **Bearing Check:** Listen for any unusual noises from the motor, which could indicate worn bearings. If necessary, consult a qualified technician for bearing replacement.
- **Storage:** Store the motor in a clean, dry environment away from extreme temperatures and direct sunlight.

7. TROUBLESHOOTING

If you encounter issues with your motor, consider the following common troubleshooting steps:

| Problem | Possible Cause | Solution |
|--------------------------|--|---|
| Motor not spinning | Loose or incorrect wiring, discharged battery, ESC not calibrated, damaged motor/ESC | Check all connections, charge battery, recalibrate ESC, inspect motor/ESC for damage |
| Motor runs erratically | Damaged sensor cable, incorrect ESC settings, interference | Check/replace sensor cable, verify ESC settings, check for radio interference |
| Motor overheating | Incorrect gearing, excessive load, poor ventilation, prolonged high-stress operation | Adjust gearing (smaller pinion), reduce load, ensure proper airflow, take breaks during operation |
| Unusual noise from motor | Worn bearings, foreign object in motor, improper gear mesh | Inspect bearings, clean motor, adjust gear mesh |

If these steps do not resolve the issue, contact Tamiya customer support or your retailer for further assistance.

8. SPECIFICATIONS

- **Model Number:** 54612
- **Type:** Sensored Brushless Motor
- **Turns:** 15.5T
- **Input Voltage:** 6.6 - 7.2 V
- **Weight:** 178 g (6.28 ounces)
- **Product Dimensions:** Approximately 2 x 2.75 x 5.5 inches
- **Manufacturer:** Tamiya
- **Recommended Age:** 14 years and up
- **Material:** Primarily metal components with plastic elements

9. WARRANTY AND SUPPORT

For warranty information, please refer to the documentation provided with your purchase or contact the retailer where the product was acquired. Tamiya products typically come with a manufacturer's warranty against defects in materials and workmanship.

For technical support, spare parts, or further inquiries, please visit the official Tamiya website or contact your local Tamiya distributor or authorized retailer.