Estes 302232

Estes 302232 Alti Trak Altitude Finder Instruction Manual

Model: 302232

Introduction

The Estes 302232 Alti Trak is a handheld device designed to accurately measure the peak altitude of model rockets. This tool provides a simple, non-electronic method for tracking rocket flights, making it suitable for educational purposes, contests, and general hobby use. It measures altitude without adding mass to the rocket, ensuring precise results.

Image: The Estes Alti Trak, a blue handheld device for measuring rocket altitude.

What's Included

The Estes Alti Trak comes fully assembled and ready for use. The package includes:

- One (1) Alti Trak Altitude-tracking tool
- Integrated trigger-locking degree wheel

Image: A visual representation of the Alti Trak and its main components, highlighting the altitude-tracking tool and trigger-locking degree wheel.

Setup

The Alti Trak requires no assembly or batteries. It is ready for immediate use out of the package. Before use, ensure you are familiar with its components:

1. **Sighting System:** Used to track the rocket's flight path.
2. **Trigger:** Activates and locks the degree wheel.
3. **Degree Wheel:** Displays the angle of the rocket's peak altitude.

For accurate measurements, select a launch site that allows for a clear line of sight to the rocket's entire flight path. Position yourself at a known distance from the launch pad (e.g., 500 feet or 152 meters) to facilitate altitude calculations.

Operating Instructions

Follow these steps to measure your model rocket's altitude using the Estes Alti Trak:

1. **Positioning:** Stand at a predetermined, measured distance from the rocket launch pad. A distance of 500 feet (approximately 152 meters) is commonly recommended for direct reading.
2. **Aiming:** Before the rocket launches, aim the Alti Trak at the rocket using the sighting system.
3. **Tracking:** Squeeze and hold the trigger on the Alti Trak. As the rocket ascends, follow its flight path through the sights, keeping the rocket centered.
4. **Locking Altitude:** Release the trigger precisely when the rocket reaches its apogee (peak altitude). The degree wheel will lock in place, indicating the angle of the rocket at its highest point.
5. **Reading:** Read the angle indicated on the degree wheel. The scale typically reads in meters.
6. **Calculation:**
    - If you are at the recommended 500-foot distance, you can use the conversion table provided on the product packaging or a similar resource to convert the angle to feet or meters.
    - Alternatively, you can use basic trigonometry (tangent function) with your known distance from the launch pad and the measured angle to calculate the altitude.

For increased accuracy, especially in competitive settings, it is recommended to use two Alti Traks positioned at different known distances from the launch pad, or at 180 degrees from each other, and average the readings.

Image: A person holding the Alti Trak, illustrating how to aim and use the device to track a rocket's flight.

Technical Specifications

Brand:	Estes
Model Number:	302232 (Item Part Number: 002232)
Material:	Plastic
Dimensions (Item):	2 x 14 x 8 inches (5.08 x 35.56 x 20.32 cm)
Weight (Item):	5.6 ounces (0.16 kg)
Maximum Altitude Measurement:	Up to 1,300 feet (approximately 396 meters)
Assembly Required:	No

Educational Objective:	STEM

Image: A graphic detailing the technical specifications of the Estes Alti Trak, including length, height, material, color, and weight.

Safety Guidelines

When using the Alti Trak in conjunction with model rockets, always adhere to the NAR (National Association of Rocketry) model-rocket safety code. Key safety practices include:

- Ensure an appropriate and clear launch site is selected.
- Maintain a safe distance from the launch pad (at least 15 feet).
- Always insert the safety key into the launch controller.
- Issue a clear countdown before launching the rocket.
- Be aware of wind conditions, as they can affect rocket flight and recovery.
- Never attempt to catch a falling rocket.

The Alti Trak itself is a passive measuring device and poses minimal safety risks when used as intended.

Troubleshooting

While the Alti Trak is a simple mechanical device, here are some common issues and their solutions:

- **Inaccurate Readings:**
  - Ensure you are standing at a precisely measured distance from the launch pad.
  - Practice tracking the rocket to improve timing for releasing the trigger at apogee.
  - Minimize movement while tracking the rocket to maintain a steady aim.
  - Consider using two Alti Traks for cross-verification and averaging results.
- **Difficulty Reading Scale:**
  - Ensure adequate lighting.
  - Clean the degree wheel and viewing window if they are dirty.
- **Trigger Mechanism Sticking:**
  - Check for any debris obstructing the trigger's movement.
  - The device is designed to be maintenance-free; avoid disassembling it.

Warranty and Support

The Estes Alti Trak comes with a Full One-Year Warranty from the manufacturer. For warranty claims or technical support, please contact Estes directly through their official website or customer service channels.
Visit the Estes Store for more information and products.

Related Product Videos

Below are videos demonstrating model rocket launches, which can provide context for using your Alti Trak. These videos are provided by the seller.

Estes 2162 Big Daddy Flying Model Rocket Kit Launch

Your browser does not support the video tag.

Video: This video demonstrates the assembly and launch of an Estes Big Daddy model rocket. It shows the process of preparing the rocket for flight and its successful launch and parachute deployment, offering a visual guide to the type of event the Alti Trak is designed to measure.