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› [Explore Scientific](#) /

› Explore Scientific 10-inch Hybrid Truss Tube Dobsonian Telescope User Manual

Explore Scientific DOB1045C

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Model: DOB1045C

1. INTRODUCTION

Welcome to the user manual for your Explore Scientific 10-inch Hybrid Truss Tube Dobsonian Telescope. This telescope is designed to provide exceptional views of celestial objects, offering a large aperture for bright and detailed observations. Its hybrid truss-tube design combines the stability of a traditional Dobsonian with the portability of a truss-tube system, making it an ideal instrument for both novice and experienced astronomers. This manual will guide you through the setup, operation, and maintenance of your telescope to ensure a rewarding observing experience.





Figure 1.1: The Explore Scientific 10-inch Hybrid Truss Tube Dobsonian Telescope fully assembled.

2. SAFETY INFORMATION

- **Never look directly at the Sun through your telescope or its finder scope without a professionally manufactured solar filter.** Permanent and irreversible eye damage, including blindness, can result.
- Always supervise children when using the telescope.
- Handle optical components with care to avoid scratches or damage.
- Ensure all components are securely fastened during assembly and operation to prevent accidental falls or damage.
- Avoid exposing the telescope to extreme temperatures or sudden temperature changes, which can affect optical performance.

3. UNPACKING AND COMPONENT IDENTIFICATION

Carefully unpack all components from the shipping box. It is recommended to keep the original packaging for future transport or storage. Verify that all parts listed below are present.

Included Components:

- Primary Mirror Box / Rocker Box Assembly
- Secondary Mirror Cage Assembly (Optical Tube Assembly)
- Truss Poles (typically 4 or 6, depending on design)
- Altitude Bearings (often integrated with the rocker box or separate arcs)
- Single-speed Focuser
- 25 mm Plossl Eyepiece
- 10 mm Plossl Eyepiece
- Moon Filter
- Red-dot Finder
- Collimation Tool
- Moon Map
- Wil Tirion Multi-latitude Planisphere for the Northern Hemisphere
- Assembly Hardware (knobs, screws, etc.)



Figure 3.1: Secondary Mirror Cage Assembly with focuser and eyepiece attached.



Figure 3.2: Primary Mirror Box with the top cover open, revealing the mirror cell.



Figure 3.3: Primary Mirror Box with altitude bearings and handles.



Figure 3.4: Truss poles and various assembly hardware components.

4. SETUP AND ASSEMBLY

The Explore Scientific Hybrid Truss Tube Dobsonian is designed for relatively straightforward assembly and disassembly without tools, facilitating transport.

4.1 Assembling the Telescope Structure

1. Place the Primary Mirror Box / Rocker Box Assembly on a stable, level surface. This forms the base of your telescope.
2. Attach the truss poles to the designated mounting points on the Primary Mirror Box. Ensure they are securely fastened using the provided knobs or screws. The design allows for quick attachment and detachment.
3. Carefully lift the Secondary Mirror Cage Assembly and attach it to the upper ends of the truss poles. Ensure all connections are firm and stable. The secondary mirror cage houses the secondary mirror, focuser, and red-dot finder.
4. Verify that the focuser is oriented correctly for comfortable viewing. Some users may find the focuser's default 90-degree exit angle challenging and may consider adjusting its position or using a diagonal for more comfortable viewing, though this may require minor modifications not covered by standard setup.



Figure 4.1: View down the optical tube, showing the primary mirror and truss structure.

4.2 Attaching Accessories

- **Red-dot Finder:** Mount the red-dot finder onto its designated bracket on the secondary mirror cage. Secure it with the provided hardware. This will be used for initial targeting of celestial objects.
- **Eyepieces:** Insert either the 25 mm Plossl or 10 mm Plossl eyepiece into the focuser. The 25 mm eyepiece provides a wider field of view and lower magnification, ideal for locating objects. The 10 mm eyepiece offers higher magnification for more detailed views.
- **Moon Filter:** The moon filter can be threaded onto the bottom of your eyepiece to reduce the brightness of the Moon, enhancing contrast and comfort during lunar observations.



Figure 4.2: Included 10mm Plossl Eyepiece and Moon Filter.

4.3 Collimation

Collimation is the process of aligning the optical components (primary and secondary mirrors) of your telescope. Proper collimation is crucial for sharp images. While the telescope is designed to hold collimation well, it should be checked before each observing session, especially after transport.

- Use the provided collimation tool to assist in aligning the mirrors.
- Detailed collimation instructions are typically found in dedicated guides or online resources, as the process involves adjusting screws on both the secondary and primary mirror cells.
- Beginners may find collimation challenging initially, but practice will improve proficiency.

5. OPERATING THE TELESCOPE

5.1 Aligning the Red-dot Finder

Before observing, align the red-dot finder with the main telescope.

1. During daylight hours, point the main telescope at a distant, stationary object (e.g., a telephone pole or chimney) at least a quarter-mile away.
2. Center the object in the telescope's lowest power eyepiece (25 mm Plossl).
3. Turn on the red-dot finder and adjust its alignment screws until the red dot is precisely centered on the same object.
4. The red-dot finder is now aligned and ready for use in the night sky.

5.2 Observing Celestial Objects

- **Locating Objects:** Use the red-dot finder to point the telescope towards your desired celestial object. Once the object appears in the finder, look through the main telescope's eyepiece.
- **Focusing:** Use the single-speed focuser knobs to achieve a sharp image. Turn the knobs slowly until the object appears clear and crisp.
- **Changing Magnification:** To change magnification, swap eyepieces. Start with the 25 mm Plossl for wide-field views and easier object acquisition, then switch to the 10 mm Plossl for higher magnification and more detail.
- **Movement:** The Dobsonian mount allows for smooth manual movement in both altitude (up/down) and azimuth (left/right). Gently push or pull the telescope tube to track objects as they drift across the field of view due to Earth's rotation. The optimized aluminum structures and high altitude bearings facilitate fine adjustments.
- **Using the Moon Filter:** For lunar observations, thread the moon filter onto the eyepiece to reduce glare and enhance surface detail.

- **Using the Planisphere and Moon Map:** The included Wil Tirion multi-latitude planisphere helps you identify constellations and locate objects in the night sky. The moon map provides a detailed guide to lunar features.

6. MAINTENANCE

6.1 Cleaning Optics

- **Mirrors:** The primary and secondary mirrors should be cleaned only when absolutely necessary, as frequent cleaning can damage coatings. Use a soft camel hair brush or compressed air to remove loose dust. For stubborn smudges, use a specialized optical cleaning solution and lens tissue, applying minimal pressure. Avoid touching the mirror surfaces with bare hands.
- **Eyepieces:** Eyepieces can be cleaned with a lens brush and optical cleaning solution. Breathe lightly on the lens to fog it, then gently wipe with a clean microfiber cloth.

6.2 General Care

- Store the telescope in a dry, dust-free environment when not in use.
- Protect the primary mirror from dust and moisture by keeping the mirror box closed or covered.
- Regularly check all screws and knobs for tightness, especially those securing the truss poles and focuser.
- Consider purchasing an accessory shroud to improve contrast and offer dew protection for the primary mirror during observing sessions.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
Images are blurry or out of focus.	Improper focus; poor collimation; atmospheric conditions.	Adjust focuser slowly. Check and adjust collimation. Wait for stable atmospheric conditions (seeing).
Red-dot finder not pointing to the same object as the telescope.	Finder is not aligned.	Re-align the red-dot finder during daylight hours on a distant object.
Focuser feels wobbly or loose.	Set screws on focuser base are loose.	Locate the small set screws (often Allen-head) at the base of the focuser and gently snug them up. (Note: A 1.5mm Allen wrench may be required and is not typically provided).
Difficulty tracking objects smoothly.	Altitude or azimuth bearings need adjustment or lubrication.	Ensure the altitude bearings are clean. Check for any obstructions. The design includes optimized aluminum structures for smooth movement.
Eyepiece height is too low for comfortable viewing.	This is a characteristic of Dobsonian telescopes, especially at zenith.	Use an adjustable observing chair. Consider placing the telescope on a sturdy, elevated platform (e.g., concrete blocks) for taller observers.

8. SPECIFICATIONS

Feature	Specification
Model Number	DOB1045C
Primary Mirror Diameter	25.4 cm (10 inches)
Focal Length	1270 mm
f/ratio	f/5
Secondary Obstruction	24%
Mirror Cell Support Points	9
Truss Pole Length	64 cm
Truss Pole Diameter	20 mm
Secondary Cage Assembly Diameter	38 cm OD
Secondary Cage Assembly Weight	6.5 pounds
Secondary Cage Assembly Height	17 cm
Mirror Box/Rocker Box Height	42.5 cm
Mirror Box Weight	~35 pounds (approximate, can vary)
Height to Center of Eyepiece at Zenith	119 cm
Theoretical Limiting Stellar Magnitude	14.7 mag
Theoretical Rayleigh Limit	0.54 arc sec
Theoretical Maximum Magnification	500x
Telescope Mount Description	Altazimuth Mount
Focus Type	Manual Focus (Single-speed)
Finderscope	Reflex (Red-dot)
Eyepiece Lens Description	Plossl

9. WARRANTY AND SUPPORT

Your Explore Scientific 10-inch Hybrid Truss Tube Dobsonian Telescope comes with a Limited USA One Year Warranty. To activate this warranty, the product must be registered within 60 days of purchase.

- **Product Registration:** For warranty registration, please refer to the official Explore Scientific website or the documentation included with your purchase.

- **Extended Care:** The Explore Alliance membership program offers Extended Care for all Explore Scientific products with a paid membership. For more information on this program, please visit the Explore Scientific website.
- **Customer Support:** For technical assistance, troubleshooting beyond this manual, or warranty claims, please contact Explore Scientific customer support directly. Contact information can typically be found on their official website.

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Example: How do I reset this device or fix this error?

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Model number, symptoms, what you tried, or the section of the manual you are using.

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