

# Lunt LS60Tha Solar Telescope Manual

Congratulations and thank you for your purchase of a Lunt Solar Systems solar telescope! Before you begin setting up your telescope and observing the Sun for the first time, please review the safety statements below. If you have any questions about the safe use of any Lunt Solar Systems product, please contact our customer service department before you operate the equipment.

## SAFETY STATEMENTS

Never look at the Sun with your naked eye or with a telescope that is not specifically designed to do so. Permanent and irreversible eye damage may result.

Check that all filters are installed correctly and are free of any surface contamination that may compromise performance and/or potentially damage the surface of the optic when exposed to the Sun, i.e. fingerprints. Perform a routine safety check before each viewing session.

Never leave the solar telescope unsupervised while pointed at the Sun. People who are not familiar with the correct operating procedures of the system may inadvertently replace the diagonal or remove the filter itself not being aware of the integrated safety features of each.

Always be aware that you are viewing in direct sunlight. Take necessary precautions to protect yourself from sunburn and heat exposure.

Never attempt to disassemble the system. Doing so will void your warranty and compromise its safety. Do not use your system if it is compromised in any way due to mishandling or damage.

The Blocking Filter diagonal must always be in place when the telescope is in use. Lunt Blocking Filters are not interchangeable with products from other vendors.

Protect your instrument from shock due to drops. The etalon is the heart of the Lunt optical system, and while it can withstand normal use, a major shock may cause the etalon to de-contact, which will require a trip to the factory for a non-warranty repair. Store the instrument in its original case when not in use. With proper handling and care your Lunt Solar Systems telescope should last a lifetime.

## UNPACK YOUR NEW PURCHASE!

*In the shipping box you will find:*

- Metal Locking Carry Case with foam insert
- Optical Tube Assembly with focuser attached
- Clamshell Mounting Ring
- Blocking Filter Diagonal (600 mm or 1200 mm)
- Keys for the case
- Warranty Card
- Instruction Manual
- Allen Wrench for Focuser Tension Screw
- Focuser Locking Screw (wrench & screw located in or near eyepiece cutouts in case)

## SETTING UP FOR THE FIRST TIME

1. In order to protect it during shipment, we removed the focuser locking screw from the base of the focuser. Turn the telescope over and take a look at the underside of the focuser assembly. You will see an empty hole nearest the OTA. Install the focuser locking screw. Once installed, it need not be removed again.
2. Next, check the tension screw, located near the focusing locking screw. Sometimes this screw works its way loose in shipment. If this is the case, use the allen wrench to tighten it. Keep your allen wrench in your case should you need to adjust the focuser tension at any time.
3. Attach the telescope and clamshell to your mount of choice. There is a ¼-20 threaded hole on the underside of the clamshell. Attach the scope directly to a photographic tripod or attach a Vixen-style or Losmandy-style dovetail plate (whichever your mount requires) to the clamshell.
4. Slide the Blocking Filter into the focuser and lock it down with the thumb screw. Insert a low power eyepiece (sold separately) into the blocking filter. A 25 mm is a good choice for a large field of view.
5. Slide the Sol-Searcher (sold separately) into the slot provided on the clamshell. The Sol-Searcher label will be facing outward, towards the Sun. See the instruction sheet that came with the Sol-Searcher for complete installation & alignment instructions. If you do not have a Sol-Searcher, you can use the shadow cast by the Sun on the front objective cell against the clamshell. Center the shadow and you should be pretty close. Look through the eyepiece to tweak your alignment.
6. Now it's time to focus. Your goal is to get the edge of the Sun as sharp as possible. Course focus is achieved by moving the diagonal draw tube in and out. Medium focus is achieved using the larger silver knobs on either side of the focuser assembly. Fine focus is achieved with the 10:1 reduction (smaller black knob). The fine focus is often too fine for visual use, but comes in very handy if you are imaging.
  - a. Pull the diagonal slide tube out about 25 mm (1").
  - b. Put the focus tube at about 50% of travel.
7. Look through the eyepiece. Do you see a fuzzy red ball? If not, make sure you have removed the dust cap from the front and check your alignment to the Sun. If the Sun is still not in the field of view of your eyepiece, move the telescope around a little while you are looking through it. Be patient, you will find it! Once you do, center the Sun and, if you have one, adjust the Sol-Searcher.
8. Tune That Sun! Here is where the magic begins. On the top middle of the scope is a small black wheel recessed into the telescope housing. Stand behind the eyepiece and move the knob all the way to the right. Do NOT force the wheel. While looking through the instrument, slowly move the wheel to the left. After about 4-5 turns you should have seen the edge detail of the Sun come into view and then fade away again. Move the wheel back in the other direction until the prominences are most vivid. Moving the wheel from here in either direction should have little visual effect on the image but more or less surface detail may become apparent. Personal preference will specify where the tuning point is dependent upon what you like to observe. Once tuned, there should be no reason to retune during an observing session.
9. When you feel you have tuned effectively, refocus the telescope. The finer details should come into view. Try to relax the eye while observing and let the details come to you.
10. Once you are comfortable observing with the lower power eyepiece, change it out for a 12 mm or other higher power ocular. Remember, the image will dim a little because of higher magnification, and you may have to move your scope a little bit to make up for the narrower field of view, but you should be able to see details easier. On days of good seeing, you can push the magnification higher than on days of poor seeing, so remember, if the image cannot be brought into sharp focus, use a lower power eyepiece.

## TO LEARN MORE...

Join the solar community at <http://www.solarastronomy.org>. You'll find a very active forum, as well as articles on many aspects of solar observing and imaging.

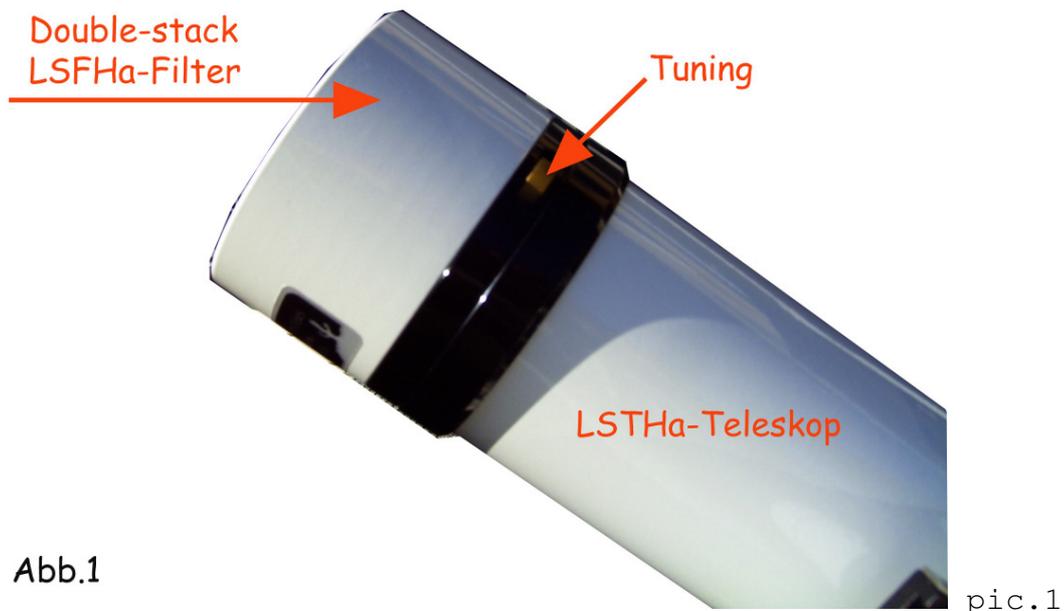
Visit the Lunt Solar Systems blog at <http://luntsolarsystems.com/blog/>. Search the archives for posts on your favorite topics.

## Double-stack manual

### 1.Double-stack on a Lunt Solar Telescope:

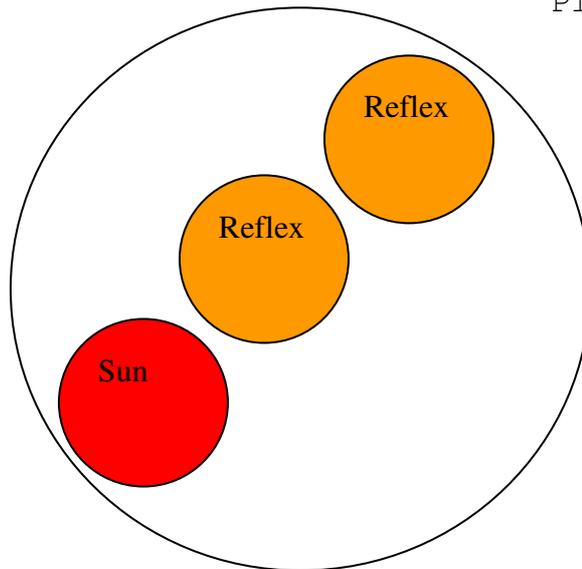
This manual is for double-stacking a Lunt Solar Telescope. Take the following steps, if you want to use the double-stack filter:

- first go with your manual for the LSTHa-telescope and tune it
- carefully screw your double-stack LSFHa-filter into the solar telescope(pic.1)
- look thru your telescope and tune your double-stack filter



It can happen that you will see the following picture in your eyepiece(pic.2), after you have your double-stack filter screwed on. Than you just have to tune your double-stack filter to move the sun reflexes out of your field of view.

Pic.2

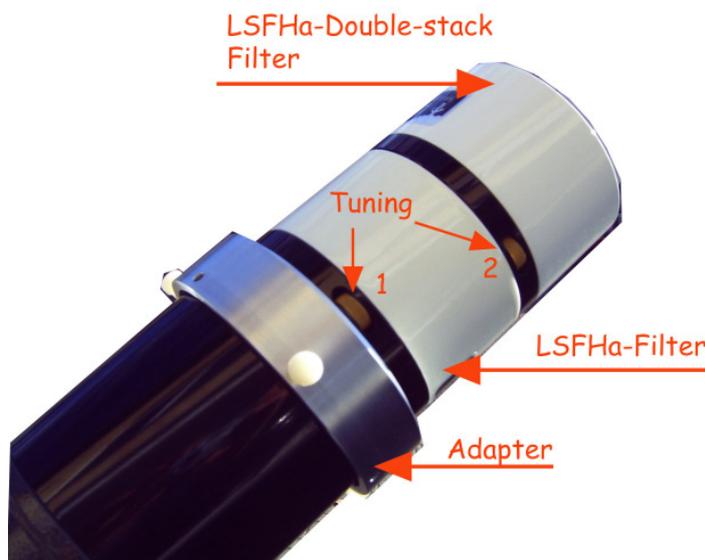


Now you should be able to see much more details on the sun's surface, because with the double-stack filter you observe with a bandpass of around  $<0,55\text{\AA}$ .

## 2. Double-stacking on your own telescope

This is a short manual for you people using your own telescope with our LS-Filters. Now take a look how you can use the Double-stack filter.

- see your manual for the LSFHa-Filter and tune it first
- carefully screw your LSFHa-Double-stack filter on your first one (pic.3)
- now look thru your telescope and tune your Double-stack filter as you did the first one, that's it!



pic.3