

## **Safety Requirements for Solar Observing**

Viewing the Sun optically can be very dangerous, if you are using the equipment below and are at all uncertain about what you are doing then you must ask for help from the Section Secretary, Equipment Officer or other approved person(s).

To ensure the safe use of the telescopes listed below, approved training must be given before they can be used by Astronomy Section members.

### **Meade LX200 16" SCT and Full Aperture Solar Filter**

1. Check the integrity of the filter by holding it up to the light, looking for pinholes and tears. If the solar filter material is damaged do not use it and report it to the Section Secretary or Equipment Officer.
2. Make sure the telescope is pointing away from the Sun before removing the telescope corrector plate cover and fitting the solar filter in front of the corrector plate.
3. When handling the filter avoid touching the filter material.
4. When installing, push the filter fully onto the Meade; it is a snug fit, but does not require any great force to install. You must use suitable tape (such as electrical tape) on at least four equally spaced locations, from the metal frame of the filter onto the body of the telescope. Do not stick it to the filter material.
5. Make sure night-time finderscope on the Takahashi is suitably covered before pointing the telescope at the Sun.
6. If the Takahashi is not in use for solar observing, then you must fix the lens cap securely with tape.
7. Typically, the Takahashi will have a Baader Herschel wedge installed which has a built in solar finder, see instructions for the Takahashi.
8. When removing the filter make sure the telescope is pointing well away from the Sun before removing it. Replace it carefully in the packaging and box, as it was when you unpackaged it.

### **Takahashi and Baader Herschel Wedge for Solar Outreach Events**

9. The Herschel wedge will be provided by Jean Dean, it will be pre-configured internally for visual viewing only. Do not disassemble the wedge and change the configuration.
10. Make sure the telescope is pointing away from the Sun before removing the front cover to the telescope and fitting the Herschel wedge.
11. The Herschel wedge has an integrated solar finder on the rear-ward facing face to safely locate the Sun.
12. Make sure the night-time finderscope is suitably covered before pointing the telescope at the Sun.
13. If the Meade LX200 16" SCT is not in use for solar observing, then you must fix the corrector plate cover securely with tape.
14. Only use the provided eyepiece.
15. When removing the Herschel wedge make sure the telescope is pointing well away from the Sun before removing it.
16. The Herschel wedge contains a heat dissipating ceramic component which is quite delicate so treat the wedge very carefully.

### **Celestron Nexstar 8" SCT/Nexstar 102mm SLT MAK and Full Aperture Solar Filter**

17. Check the integrity of the filter by holding it up to the light, looking for pinholes and tears. Check the three fixings are in place and functioning. If the solar filter material and/or fixings are damaged do not use it and report it to the Section Secretary or Equipment Officer.
18. Make sure the telescope is pointing away from the Sun before removing the telescope corrector plate cover and fitting the solar filter in front of the corrector plate.
19. When handling the filter avoid touching the filter material.
20. When installing adjust the three plastic screws to achieve a satisfactory grip on the telescope. In addition, you must use suitable tape (such as electrical tape) on at least three equally spaced locations, from the metal frame of the filter onto the body of the telescope. Do not stick it to the filter material.
21. Do not use the night-time finderscope to locate the Sun. It must be removed when solar observing.

22. Use the pinhole solar finder to locate the Sun, it attaches to the dovetail shoe. Instructions are given below.
23. When removing the filter make sure the telescope is pointing well away from the Sun before removing it. Replace it carefully in the packaging and box, as it was when you unpackaged it.

### **Lunt 60mm Ha Solarscope and Skywatcher Solarquest mount**

24. The solarscope is configured for the safe viewing of the Sun's chromosphere, the filter system comprises an internal etalon and a blocking filter which is incorporated into the diagonal. Do not use without the blocking filter diagonal, or look down the optical tube without the blocking filter diagonal in place, it is very dangerous.
25. Attach the solarscope to the Skywatcher Solarquest mount and set up on firm ground using the spreader plate and level the tripod. Turn on the mount and it will swing round and automatically find the Sun.
26. The solarscope must only be used with the diagonal and eyepiece provided. No additional or alternative items are to be incorporated into the optical train.

### **Heliostat**

27. The projected image of the heliostat onto the meeting room wall is safe to look at but those present should be warned not to look into the two mirrors, which are located outside.

### **Pinhole solar finder instructions**

28. The solar finder attaches to the dovetail shoe.
29. The pinhole faces forward and the screen to the rear.
30. The aperture acts like a "pinhole camera" to project a bright solar disc onto the translucent screen in the rear of the unit. You simply centre the image on the screen to safely locate the Sun, standing at the front or front/side looking towards the rear of the telescope to view the screen. Do not face directly into the Sun.

**Additional requirements if carrying out public solar viewing**

31. Always give a safety briefing about the danger of looking directly at the Sun with both the naked eye and with optical instruments.

**32. Do not leave the telescopes unattended at any time.**

33. Do not let members of the public control the telescopes.

34. If giving out solar eclipse glasses and/or spectral-grating peepholes to children you must give them to the children with a parent or guardian present, giving clear safety instructions and handing the parent/guardian a copy. Additionally, inform them that the safety instructions for the solar eclipse glasses are also printed on the inside of the glasses. Emphasis that the spectral-grating peepholes must NOT be used to look at the Sun.