

## Setting Up Your Scope For Visual Work 'Quick' Reference Guide

The following are general guidelines. Not all points may apply to your system, especially if you have a GoTo and/or an Alt/Az mount, but if anything these should be more straightforward than equatorial systems.

### Useful Kit

- Red torch or head lamp (not too bright!)
- Tripod feet supports
- Marker lights for tripod feet (red)
- Spare batteries and/or charged powerpack
- Spirit level
- Compass
- Focus mask e.g. Bhatinov mask
- Plastic bag or waterproof sheet for kneeling on
- Planisphere/book/laminated star map
- Waterproof scope cover with ropes or bungee cords
- A viewing plan
- Location co-ordinates
- Hairdryer/dew heater system
- Something hot to drink/snacks
- Appropriate warm clothing and footwear plus extras in the car
- Lots of pockets!

### Your Location

#### Home

- Consider marking the position of tripod legs on the ground to make repeated setting up quicker.

#### Away

- Stay safe! Go with a pal and tell someone where you're going!
- Good open sky views (including Polaris)
- Ideally away from street lights and car headlights
- Convenient for parking
- Elevated to avoid mist and get better 'seeing'
- Solid, level ground

### **Setting up (Day Time)**

- Establish a comfortable tripod height. Mark tripod legs.
- Align your finder with the scope.
- Find the point of focus for your main eyepiece. Mark focuser.
- Ensure optics are all clean.
- Ensure you have charged batteries or powerpack.
- Collimate reflectors
- Find scope balance point and counterweight positions. Mark.
- Find co-ordinates of viewing site (for GoTo systems)
- Come up with a viewing list (use Stellarium or similar)
- Check the weather forecast!

### **Setting up (Night Time)**

- Find north using Polaris or a compass (if not quite dark)
- Set up tripod so one leg is pointing north. Use feet supports if necessary on softer ground
- Raise tripod legs to a comfortable height
- Secure spreader plate and weigh down tripod if necessary
- Put marker lights on tripod feet
- Use spirit level to level tripod
- Put mount onto tripod and secure
- Attach motor drives or fine adjustment arms
- Attach counterweights and position towards ground
- Rotate Declination axis and open tube rings
- Carefully place scope into rings
- Tighten in place and rotate Dec axis so scope faces sky
- Now you are in 'scope up, weights down' position
- Attach dew shield, eyepiece, dew heaters
- Balance system. RA first, then Dec axis.
- Train scope on the Moon or a bright star and focus using a low power eyepiece. Use focus mask if available and using a star.
- Polar align using finderscope to locate Polaris then use either the main scope or the polarscope if available
- Release RA and/or Dec clutch knobs to move scope to target. Tighten when located in finderscope.
- Use motor controls or fine adjustment arms to centre object and track it as the Earth turns.

## Top Tips

- Try to prepare as much as you can in daytime to make life easier later at night
- Try to maintain your night vision as best you can, you'll see much more
- Consider red film on interior car lights
- Try not to knock the tripod after carefully aligning everything
- Make sure eyepieces are well secured in focusers so they don't drop out on moving the scope around.
- Use 'star hopping' to find challenging objects
- Use averted vision to view very faint objects
- With reflectors, make viewing more comfortable by carefully loosening tube rings and rotating the scope body so the eyepiece is in a better position for you.
- With refractors and SCTs, carefully loosen the star diagonal and rotate it to a more comfortable viewing position. Tighten securely.
- Keep caps on eyepieces when not in use to prevent dew or dust build up
- Have a central place for your bits and bobs (maybe under tripod) to prevent losing them in the dark
- Don't wipe eyepieces with your shirt or finger, this will damage the lens coatings
- Take time to try different eyepieces, Barlow lenses, filters and so on, especially on the Moon, planets and double stars
- Views will become steadier as the scope cools to the temperature of the surroundings
- Once it has cooled, take the opportunity to check your scope's collimation using a bright star and your highest power eyepiece.
- Air turbulence can come and go so the view can improve or degrade. Be patient!
- Focus can change with temperature so refocus now and again
- Pack up carefully and make sure you don't forget anything
- Cap eyepieces and scope before bringing inside to reduce condensation forming in the warm car or house
- Leave scopes horizontally after bringing indoors to reduce moisture beading on optics
- Don't forget to switch off red dot finders when you're done
- Keep warm, especially feet, hands and head. Being cold isn't fun!
- Don't put yourself under pressure! Take your time, relax and enjoy your hobby.