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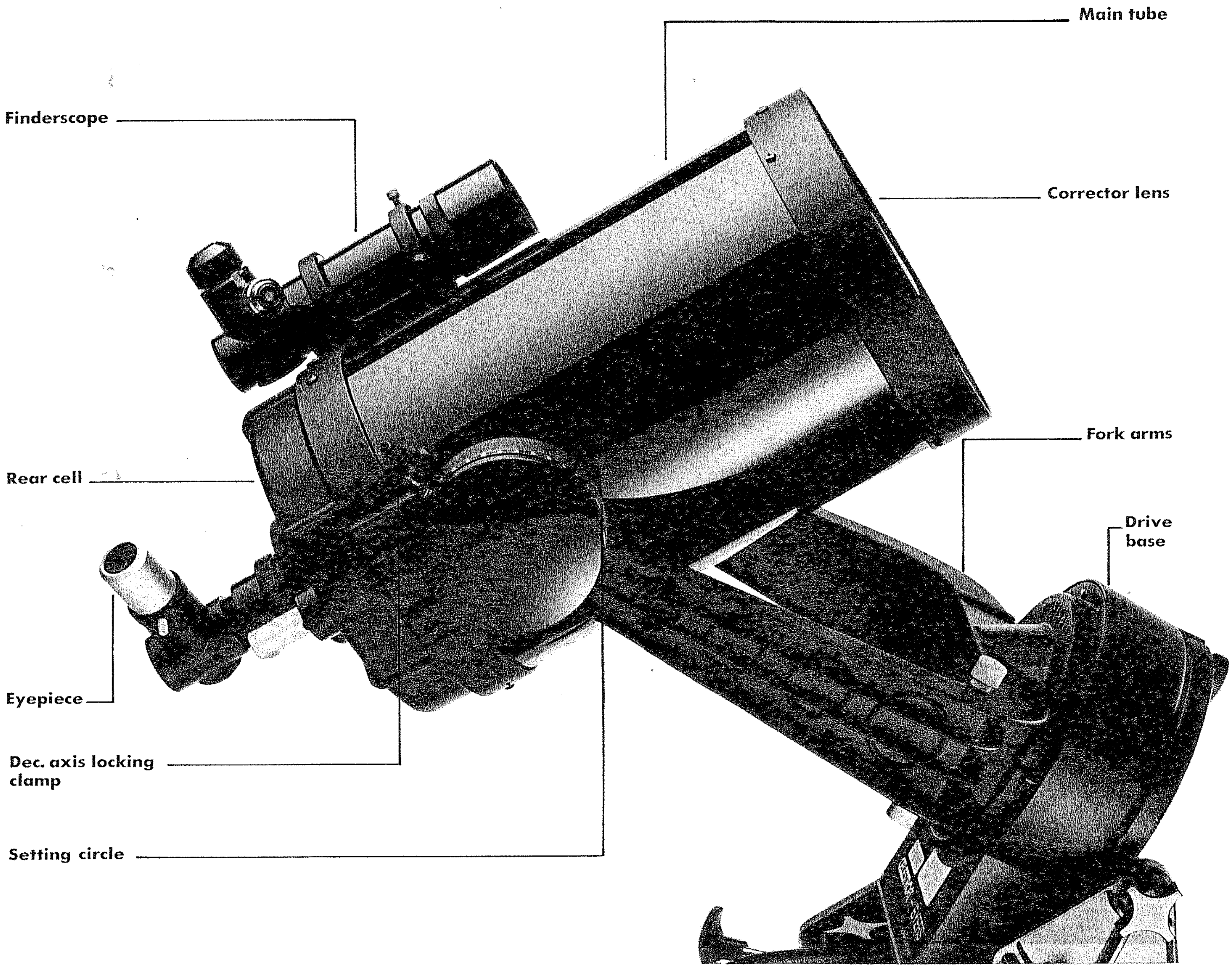
CELESTRON®

SCHMIDT-CASSEGRAIN
TELESCOPES
SUPER C8 PLUS
INSTRUCTIONS



Main tube
Finderscope
Corrector lens
Fork arms
Rear cell
Drive base
Eyepiece
Dec. axis locking clamp
Setting circle

Celestron Super C8 Plus

d=200mm/f=2000mm

Unpacking and Assembly

First, be sure you have all four boxes that your Super C8 Plus is shipped in:

- Box#1: Telescope, with fork mount and drive, in foam-lined case
- Box#2: Accessories, including:
  - 8X50mm Right Angle Finder-scope, including Polar Axis Reticle, Diagonal Assembly with illuminator unit (battery not included), and mounting bracket (with o-ring, three setscrews and two mounting bolts).
  - 1¼" PL 26mm Ocular
  - 1¼" OR 7mm Ocular
  - 1¼" Mirror Star Diagonal
  - 1¼" Visual Back
  - Piggyback Camera Mount
  - Power Cord
  - Latitude Adjuster
  - Quick-setup knobs
  - Latitude scale
  - Book, "Starwatch"
- Box#3: Adjustable tripod
- Box#4: Equatorial Wedge with azimuth adjustment screws and bubble level

Also, you should find one audio tape (how to assemble and use your telescope), one user's manual, supplementary instructions, and warranty sheet with registration card.

Take a moment to unpack the boxes in a convenient, uncluttered workspace and arrange the parts in an orderly fashion.

The first step is to set up the adjustable tripod. (CAUTION: At the top of each leg, in the center of the hinge casting, is a tab which braces the leg. Be careful not to pinch your finger on it). Loosen the locking lever on each leg, pulling each lever to a right angle with respect to the leg. Extend the legs to a convenient height, and then lock them in place again by pushing the locking tabs back down. Some models will have a lock screw, not a tab. Be sure the ring on the central post, which holds the three leg struts, is pushed all the way down on the post.

Now pick up the equatorial wedge (from Box#4). The tilt plate, (the ring-shaped frame attached to the inside of the wedge's side flanges) is what you adjust to compensate for your specific latitude position on Earth. Next, from the accessory box, remove the deluxe latitude adjuster. This consists of the crossbar (a round, black metal dowel with threaded holes in the end), the adjusting screw (a long threaded rod with a black knob), and two attachment bolts with washers (also having knobs). Fit the crossbar between the wedge side flanges. The threaded holes in the crossbar ends should coincide with the bottom "ends" of the curved side adjustment slots. Now insert the attachment bolts and washers through the curved slots and into the crossbar end holes. Only slightly tighten the bolts for the moment. Next, thread the black-handled adjustment rod through the hole in the center of the crossbar. The end of the adjuster rod fits into the triangular recess in the lower rear section of the tilt plate casting.

Now remove the four smaller-size knob-bolts from the plastic envelope that held the latitude adjuster parts. Use these knob-bolts to replace the four hex head bolts that attached the tilt plate to the wedge casting. Tighten all knob bolts finger-tight. Now remove the larger diameter knob-bolts; there should be three. Place the round bottom plate of the wedge on top of the adjustable tripod, such that the central bolt on the tripod rests in the central hole on the wedge. Now turn the wedge so that the three slotted holes in the bottom plate are centered over the three threaded holes on top of the tripod. Holding the wedge flat against the top of the tripod with one hand, use the other hand to insert the three knob-bolts through the wedge holes and into the tripod holes. Tighten the knob-bolts finger-tight. At this point, you should use your latitude scale to adjust the angle of the wedge tilt plate to correspond to your local latitude. A good atlas of the World will show the degrees in latitude for your locale; you might also consult your local library for this information. You are now ready to attach the telescope to the tripod.

Carefully remove the telescope from its carrying case and rest it on its side on a flat working area. On the bottom of the scope's drive base, locate the three large threaded bolt holes. Remove the three remaining round-headed bolts from the latitude adjuster kit. Insert one bolt into the hole opposite the power plug in the drive base; tighten a few turns. Shortly, you will be placing this bolt into the slot on top of the wedge tilt plate. But first, hold the telescope with your right hand, and then use your left hand to release the declination clamp at the top of the left fork arm. The tube will now move freely, so make sure it doesn't hit anything, including you! Swing the telescope tube until it is positioned at right angles to the fork, and then lock the declination clamp. Using both hands, lift the scope up by the fork arms and move over to the tripod mount. Slip the bolt you have installed on the drive base into the slotted hole at the top of the wedge tilt plate. Center the drive base over the tilt plate and insert the two remaining knob-bolts, and then tighten all three bolts finger-tight.

It is now time to attach accessories to complete the optical system, after which you will soon be ready to take your first look. At the rear of the scope, remove the plastic dust cap. From the photo, you will notice that the part labeled "visual back" is attached directly to the rear cell of the scope. Remember, with the rear dust cap removed, the optical tube is essentially open and exposed to contaminants and other possible hazards. Loosening the large, knurled slip-ring on the visual back will allow you to position the small silver setscrew wherever you want. Orient it in a convenient location, as you will be using it frequently.

The next item to install is the mirror star diagonal. Its purpose is to direct the focused light from the telescope at a right angle so that the eyepiece will be in a more comfortable viewing position.

Insert the diagonal's silver tube into the visual back and tighten the setscrew to lock it into position. Remove the silver 26mm Plossl eyepiece, insert it into the star diagonal, and tighten the setscrew finger-tight.

Now you are ready for your first look through the telescope. First locate the focusing knob on the right side of the back end of the scope, next to the visual back. Turning this knob provides focus adjustments when viewing objects at different distances in the daytime, or when changing magnification while observing sky objects at night. Remember that the focus knob is turned clockwise for more distant objects, counter-clockwise for nearer ones. When viewing a star or other astronomical object, always turn in the direction that produces a smaller and smaller image, until the object is sharply focused.

For initial observing, lower power eyepieces are preferable. Lower magnification yields a wider field of view, with brighter, crisper objects. A wider field of view means you are seeing a larger chunk of sky, which makes finding things much easier. When locating a specific object, always use low power first (such as your 26mm Plossl eyepiece) to get the object in view; then center your target and change to another eyepiece for high-power inspection.

At this point, you may be quite curious about how one determines the magnification being used. For any particular eyepiece, simply divide the telescope's focal length in mm (2,000mm for the C8) by the eyepiece's focal length (again in mm). For example, if you were using the 26mm Plossl eyepiece with your Super C8, you would just divide 2,000 by 26, and find that the 26mm Plossl yields a magnification of 77X, in round figures.

Now take your scope outside and get ready to choose something to look at! WARNING!!! DO NOT EVER view the Sun or even point your telescope at the Sun, UNLESS it is equipped with a solar filter intended for use with your telescope model. OBSERVATION OF THE SUN WITHOUT PROPER FILTERING WILL RESULT IN INSTANT AND PERMANENT EYE DAMAGE (BLINDNESS). Even just pointing your telescope at the Sun can ruin both the main instrument and the finderscope. The finderscope's dustcaps should be left on during solar observation; the Sun can be located by looking at the shadows of the main tube and finderscope. To reemphasize, if you wish to observe the Sun, USE THE PROPER FILTER! Refer to the list of available accessories (at the end of this text) for information concerning solar filters.

Last of all, you should now install the finderscope. The finderscope has an extremely low-power, wide field of view which further facilitates locating a target object before viewing in the main telescope. You will find two Phillips head screws and three smaller setscrews packaged with the finderscope's mounting bracket. Attach the bracket to the main tube with the two Phillips screws and tighten them securely. The finderscope can be installed in the bracket in two ways. The first way is to unscrew the

front lens of the finderscope, removing it along with the knurled focus knobs. Then slip the "O" ring down the tube of the finder, positioning it such that it evenly cushions the finderscope in the rear bracket ring. Now thread the focus knobs and objective lens back onto the finderscope tube. The second method of installing the finderscope is to remove the eyepiece, diagonal housing and illuminator, slip the "O" ring on and insert the finderscope backwards into the bracket, again wedging the "O" ring between the tube and the rear bracket ring. Then replace the rear diagonal assembly and the eyepiece. Secure the finderscope in place with the setscrews provided and tighten them finger-tight.

The last step is to align the finderscope. To begin with, select a specific target object at least one-half to one mile away (or a bright star at night). Bring the object into view in the finderscope, and then check the main scope at low power (use the 26mm eyepiece) to see if the same object is in view. Adjust the finderscope until it and the main telescope are locked onto the same object. Fine-tune the adjustment further until the finderscope's crosshairs are centered on precisely the same point on the target object that is centered in the main telescope. At this point, you may wish to repeat the process with a higher-power eyepiece on the main scope to obtain an even more precise alignment. The precise alignment of the finderscope is crucial to your success in finding objects successfully. Check the alignment each time you use your instrument, and any time you have reason to believe an accidental jolt to your scope may have resulted in misalignment.

Polar Alignment

Since the earth is continually rotating on its axis, the stars and objects in the night sky appear to move to the West as the night progresses. To compensate for this, the polar axis on a telescope's equatorial mounting must be adjusted to become parallel with the Earth's rotational axis, and the telescope then must be moved either manually or automatically, at the same rate but in the opposite direction. This being done, any star or other celestial object will remain in the field of view until you wish to move the telescope to another location in the sky. This tracking ability is little more than a welcome convenience for visual use of your telescope, but it is an absolute necessity when attempting long exposure photography of celestial objects.

The Polar Axis Finderscope included with your telescope is designed to aid in finding the celestial pole when performing polar alighment, as well as to serve as a finderscope for the main telescope. To use the Polar Axis Finderscope to perform polar alignment, use the following steps to guide you:

1 Align the finderscope with the main optical tube. This can be done during daylight by finding a target at least one mile away. Adjust the set screws on the finderscope until the object you see in the main optical tube is centered on the cross hairs of the finderscope.

2 At this point, you should set your declination setting circles to insure that they read properly. The circles need to be aligned such that the 90°-90° line on each parallels the optical axis of your telescope. When your scope's optical axis is parallel to the polar axis of the fork mount, the declination indicator on the dec circle should give a reading of 90° (approximate this adjustment before proceeding). Now place the flat bottom surface of the scope's drive base on a table or other work area that is reasonably level. Using a small level (such as the bullseye bubble level supplied) placed on the top of the drive base, make sure it is indeed level. Once this is ascertained, point the optical tube as straight upward as possible. Again using a small bubble level, placed on top on the front end of the tube, adjust the positioning of the tube until the bubble level gives a completely level reading. Now lock the declination clamp at the top of the fork arm. You now must adjust the declination circle to read 90°.

Note that the cleanly-sculpted declination hub covers, which bear the declination readout markings, are of a slip-fit design, and can be moved easily to give the proper reading. Yet there is enough friction that they will normally follow the movement of the optical tube.

3 Now orient the tripod so that the 'scope's optical axis is pointed as closely as possible in the direction of the celestial North Pole. (Polaris, which closely marks the position of the celestial North Pole, is the end star in the handle of the Little Dipper. Refer

to the diagram in the User's Manual). Also, with the scope positioned at 90° (pointing away from the drive base), try to approximate the elevation of the wedge's tilt plate to point the scope directly at the general location of the celestial pole. Also, be sure that the tripod legs are adjusted so that the bubble level on the wedge plate gives a level reading.

4 Rotate the telescope in R.A. until the fork arms are both equal distance from the ground (i.e., side-by-side). Orient the finderscope eyepiece pointing up and away from the telescope fork arm. Now rotate the eyepiece and its holder. (This can be done by loosening the set screw on the left side of the eyepiece holder). Rotate the eyepiece till one of the cross hairs is vertical and the other is horizontal. It makes no difference which one is vertical.

5 Take the Polaris guiding plate and hold it alongside the telescope. The edge with the arrow should be pointed up. Rotate the inner circle (which is a graduated hour circle) until your current local standard time corresponds to the proper date on the outer circle. The outer circle indicates the month while the middle circle is the day.

6 The position of Polaris will be indicated by the slant of the hour circle that is extended out to the month circle. The numbers 80 to 90 show the position of Polaris in 1980 and 1990 respectively.

7 The month circle looks exactly like the reticle in your SC8 finderscope. Move the wedge and the tilt plate of the wedge until Polaris is in the same position on the reticle as indicated on the Polaris guiding plate.

8 You may now make use of the latitude adjuster and azimuth adjuster screws to "fine tune" the positioning of Polaris as indicated in Step 7. To adjust in azimuth, the azimuth screws are turned in opposite directions. The latitude adjustment screw is turned clockwise to raise the elevation of the wedge tilt plate, and counterclockwise to lower it. You now have an accurate polar alignment that will allow use of the setting circles, the clock drive and piggyback/eyepiece projection photography. After you have achieved polar alignment, be sure to tighten all bottom and side bolts on the wedge.

NOTE: The battery for the illuminator is not included with the finderscope. The correct battery for this finder is a 2.7 volt (Duracell #PX14).

Byers Worm Gear Drive — the Tremendous Super Celestron C8 Advantage (Patent Pending)

The Celestron-Byers Worm Gear Drive is the most accurate drive system ever created for amateur astronomers. In independent tests by amateurs around the U.S.A. the Celestron-Byers Worm Gear Drive was found to be far more accurate than any other commercial drive offered by any other manufacturer. The incredible accuracy of this true sidereal rate drive is especially noticeable during long exposure astrophotography. Periodic error is almost nonexistent. Once you are properly aligned, no adjustments need be made during planetary, lunar and most piggyback photography. You will find that even during long exposure prime focus photography with the Super C8 very few adjustments are necessary. The incredible accuracy is achieved by precision machining and by a worm wheel that has 359 teeth (almost twice the number of competitive units). The Celestron Worm Gear Drive has a diameter of 7.54 inches, also essential for stability and error-free tracking.

Use your Super C8 Clock Drive the same way you use the regular C8 drive (as described in the instruction manual). Polar align your telescope, locate a celestial object in its field of view, center it, plug in the drive and it will track. The clutch (Right Ascension clamp -see pg. 3 of the manual) should be released ("unlocked") prior to moving the telescope in the left-right (east-west) direction. To operate the R.A. Slow-Motion Control (below the R.A. clamp), the R.A. clamp will need to be unlocked, although some pressure should be kept on the R.A. clamp so the instrument does not wander freely as you center an object.

The extra stable drive base is the most stable portable drive system available in the mass market. It is the foundation for your total visual and photographic enjoyment of the Super C8. The drive base of the Celestron Super C8 is remarkably trouble-free, and, under normal conditions, you will never need to adjust the unit. If excessive wobble is found in the polar axis, you can stabilize the system by adjusting the three thrust points within the drive base. DO NOT open the drive base to do this, you may adjust these by using a screwdriver at the three access ports on the bottom of the drive base. The Celestron factory adjusts these at the time of manufacture and you should seldom, if ever, find a need to adjust the unit. If the adjustment is off, the unit could wobble excessively about the polar axis as you manually precess the unit about the polar axis.

Using the Setting Circles

After just a little practice, the use of the setting circles will become quite easy. First, polar align the telescope according to the previous instructions. Then, locate a star you know the name of. If necessary, choose a brighter star and identify it using some basic star maps, such as the Celestron Sky Maps. Now move the telescope (but NOT the tripod) and bring the star into the field of view, and then lock in the drive clutch (R.A. clamp) so that the telescope will continue to track the star. Looking in the appendix of star locations in the back of the main user's manual, you will notice that each star has two sets of coordinate numbers. These are given in hours and minutes of right ascension and in degrees and minutes of declination. What you are attempting now is to synchronize the telescope's coordinate system with that of the sky. After you have zeroed in on the reference star you have chosen, simply look up the coordinates for that star and dial in your setting circles so that they indicate those given coordinates. Your telescope is now calibrated with the nighttime sky. The right ascension circle is automatically turned by the drive motor, so as the night progresses, it remains in synchronization with the imaginary right ascension coordinates in the sky. The declination circle does not need turning or adjusting, since declination coordinates do not change with time.

In order to find a celestial object you wish to view, but is difficult to locate visually, just look up its coordinates in the Celestron Sky Maps (or other listing of objects with their positions). Then release the right ascension and declination clamps, and simply move the telescope until the setting circles indicate the same coordinates listed in the reference source for the object you have chosen. The object should be in view at low magnification.

The use of setting circles and celestial coordinates greatly facilitates the location of many sky objects, particularly those that are faint and difficult to find. However, don't feel that you are enslaved to this method to find things in the night sky. After you have become familiar with the night sky and can estimate the location of various objects on star charts, you can glance up at the proper part of the sky and use reference stars to guide you to the object chosen. Amateur astronomers call this method of target location "star hopping". Star hopping can become quite fun, and as a side bonus, it helps you to even better learn the stars and constellations of the night skies.

Piggyback Photography

Your Super C8 Plus includes a piggyback camera mount, which will enable you to take wide angle exposures of large chunks of the sky. In this method of astrophotography, the camera is not using the large light gathering ability and long focal length of the main telescope. Instead, you are using the SC8 telescope as a guiding platform. The telescope's

motor drive is used to help the camera follow the apparent motion of the night sky, and collect a large amount of light on film over an extended exposure time.

Piggyback photography is generally quite simple. Keep in mind that you should only attempt piggyback photography when the skies are dark and clear, and no Moon is visible. First, polar-align your SC8 as outlined previously. Attach the piggyback bracket at the top center of the rear portion of the telescope, using the two machine screws provided. Then attach your camera to the bracket using the ¼-20 bolt included with the bracket. Black-and-white film can be used, but color film is suggested, since the night sky is filled with color that can be captured on time exposures. We recommend color film such as Ektachrome 400, or a fast color print film such as Kodak VR1000.

Set the aperture wide open, and use a bulb type cable release. Set the shutter speed selector to the bulb mode. Now point the telescope and camera toward an interesting area of the sky--a section of the sky where there are many bright stars or bright parts of the Milky Way. Following is a table giving the coordinates to center on, for some interesting areas of the night sky. Included with each object is a suggested camera lens to obtain best results for the particular object being photographed.

OBJECTS OF INTEREST	RECOMMENDED LENS
Pleiades	135mm/200mm
Hyades	135mm
Pleiades/Hyades	50mm
Coma Star Cluster	135mm
Orion	50mm
Andromeda Galaxy	50mm/135mm
North American Neb.	50mm/135mm
Sagittarius	50mm
California Neb.	135mm

CENTER CAMERA		
dec	R.A.	
degrees	hours	minutes
°	h	m
+24	03	43
+17	03	25
+20	04	00
+27	12	20
-02	05	35
+41	00	40
+45	21	00
-25	18	20
+36	03	55

There are a few suggestions for obtaining better results and making your experience in piggyback photography a little easier. When guiding the exposure with the main telescope, always use a high-power eyepiece. This will increase the accuracy of your guiding. Also, put the guide star out of focus; this will make the star's image larger, and any drift is much easier to detect and correct. For piggyback photography, any regular eyepiece will do for guiding; it is not necessary to use an illuminated crosshair eyepiece. On the camera lens, moderate f/ratios are best; use between f/2.8 and f/4. This will result in crisper star images, rather than the huge star images caused by the starlight getting "burned" into the emulsion.

Piggyback photography is the easiest and best way to begin your endeavors in deep-space photography. It is quite fun to experiment with, and excellent achievements can be made while learning to prepare for the more difficult areas of astrophotography.

Observing with Your Super C8 Plus

The two eyepieces provided with your Super C8 yield good high and low magnifications. The 26mm Plossl eyepiece gives about 77X, a lower power that is excellent for casual lunar observation, wide field views of the Milky Way, and bright images of star clusters, nebulae and galaxies. The 7mm Orthoscopic eyepiece yields roughly 286X; this eyepiece is about the strongest you will want to use under less-than-perfect skies. The Super C8's upper magnification limit is approximately 500X, but to use this much power requires excellent seeing conditions--no haze, heat waves or upper atmospheric turbulence. The 7mm eyepiece is excellent for observing rills, craters and mountains on the Moon, inspecting finer planetary features, and resolving close double stars.

When considering additional eyepieces, your next selection should be a good midrange magnification, somewhere between the two standard oculars. A few suggested choices are stock #93312, a 15mm Plossl ocular yielding 133X; #93313, a 17mm Plossl eyepiece giving 118X; or #93320, a 16mm Erfle eyepiece yielding

125X. There is not much difference in magnification among these three eyepieces, but there are other subtle performance differences. Simply stated, the two Plossl oculars mentioned have superior optical elements, although some ghost images might appear while viewing the Moon or brighter planets. On the other hand, the Erfle design has the advantage of much wider field of view at the same magnification. These medium power oculars are great for closer observation of the Moon while retaining a reasonable width of field. They are also good for closer views of star clusters and gaseous nebulae, and in these situations the higher power produces higher contrast for such objects.

You may also want to consider a long focal length eyepiece with lower magnification than the standard 26mm ocular. Excellent choices would be the #93324 32mm Erfle eyepiece (63X), #93316 36mm Plossl eyepiece (56X) or #93317 45mm Plossl eyepiece (44X). Again, the Plossl design incorporates superior optics, but it is hard to beat the wide field of the Erfle oculars. The width of field is substantial on all three of the suggested units, though, and they all give very good eye relief. Such eyepieces would be perfect for wide angle views of the Milky Way, larger open star clusters (such as the Hyades and Pleiades), extended gaseous nebulae, and large areas of sky containing wide scatterings of external galaxies. These oculars would also be good for views encompassing the entire disk of the full Moon, and to view the entire Sun WHEN USING THE APPROPRIATE SOLAR FILTER. (Remember that solar viewing without proper filtration will result in instant and permanent eye damage).

Another method of obtaining higher magnification is the use of a barlow lens. Such a device contains a "negative" amplifying lens which, in effect, doubles the focal length of the telescope, and thus any eyepiece used in conjunction with it will yield twice its normal magnification. There are several models to choose from, but perhaps the best choice would be the 1¼" 2X Deluxe Barlow Lens (#93509), which has superb optics and coatings. To serve as an example, a 10mm Plossl eyepiece used with a 2X barlow lens would yield the same magnifications as a 5mm Orthoscopic eyepiece used by itself (400X). But in addition, use of the barlow in this example would also let you retain the comfortable eye relief of the 10mm eyepiece, while obtaining the high magnification of the 5mm eyepiece alone. The barlow lenses mount directly into the visual back, ahead of the star diagonal. The Deluxe Barlow can be used directly in front of the eyepiece.

At the start, many beginning amateur astronomers are allured by the fascination of high magnification, and get the impression that high-power viewing is what telescopes are all about. But magnification is only part of the performance characteristics of a telescope, and can be pretty meaningless if the upper power limit is exceeded, in which case the image can become distorted, fuzzy and dim. After the novelty of high power viewing of the Moon and planets wears off, you will probably derive even greater enjoyment from wide angle views of the Milky Way, observing glittering star clusters, luminous wreaths of gaseous nebulosities and expansive clouds of stars in the direction of our Galaxy's center. Use of the Celestron Rich Field Adapter (RFA) opens up a whole new vista in wide angle observation of the heavens. The RFA operates in reverse of the barlow lens; it greatly reduces the effective focal length of the telescope, and hence, its use with any given eyepiece will produce only half the magnification and an image four times as bright, plus a field of view about twice as wide as normal. To attach the RFA, the visual back and star diagonal are deleted. The RFA connects directly onto the rear cell of the scope, and it includes its own right angle prism (star diagonal). Also included is a 20mm Erfle ocular, which, used with the RFA, yeilds a 1.0° field at 50X (on the SC8). The standard 26mm Plossl eyepiece is about the longest focal length eyepiece that may be used with the RFA without vignetting; that is, without light being cut off by obstruction from mechanical surfaces within the telescope itself.

The Skylight Filter #2 (#93621) is a multipurpose accessory. It serves as both a visual and photographic filter, to improve contrast and enhance color in exposures, and to provide better clarity for daytime terrestrial observation. In addition, the Skylight Filter can be left installed to serve as a permanent seal against dust, moisture and other harmful elements. Skylight Filter #2 threads directly onto the rear cell of the SC8 telescope, ahead of the visual back or

camera attachments.

A very useful accessory is a set of color eyepiece filters, which thread directly into the eyepiece barrels. The various colors provide more contrast when observing lunar and planetary detail at high power, and reduce the Moon's glare when it is uncomfortably bright to view. (Refer to the Celestron Accessory Catalog for filter applications).

It cannot be over-emphasized that it is a great danger to both you and your instrument to attempt viewing the Sun without using an adequate filtering system. Permanent blindness can result from ignoring this hazard warning even ONCE. But, Celestron offers two high-quality solar filters for your Super C8; they are among the best and safest units available. One model is the full-aperture 8" filter. Actually, the main use for this unit is when doing solar photography, to provide maximum light and resolution possible when much light is gathered over the length of a time exposure. Visually though, atmospheric conditions are seldom stable enough to make use of the resolution capability of the full 8" aperture. That is why an off-axis 3" solar filter is offered; it is a more economical model for visual solar observation. The 3" filter element is offset simply to avoid optical obstruction from the telescope's secondary mirror housing. The attachment of the solar filters is quite simple--they simply press-fit over the front end of the SC8 tube.

Another boon to visual observation are the Light Pollution Rejection (LPR) Filters. These filters are designed to block the objectionable wavelengths of light from sodium and mercury-vapor streetlamps, which interfere with observation of deep-space objects. At the same time, the important wavelengths of light emitted by such objects (especially emission nebulae) are allowed to pass through, producing a higher-contrast image of the object being viewed. LPR #4 (stock #93571) simply threads into the barrel of most 1¼" eyepieces. LPR #1 (#93568) threads onto the rear cell of the SC8, and since it is thus mounted ahead of the visual back, it is no longer necessary to switch the filter from eyepiece to eyepiece when changing magnification. The LPR #1 may also be used for photographic applications.

After you have become familiar with the telescope, and know the stars and constellations, and have tried some experimentation in piggyback photography, you may then find you have a keen interest in advancing in the field of astrophotography. The Celestron Tele-Extender (#93646) is used with an eyepiece and a camera T-Ring to obtain high power photographs of the Moon and planets (consult the main user's manual concerning the photographic magnification of various oculars). To use the Tele-Extender, simply insert the eyepiece directly into the visual back and tighten the setscrew; then thread the Tele-Extender onto the visual back (over the eyepiece), and finish by attaching the T-Ring and camera body.

Long-exposure photography of deep-sky objects is an entirely new and different area which requires previous, seasoned experience with simpler forms of photography, and a continuous supply of patience. Once mastered, though, it can be quite rewarding and exciting to see your own efforts appear on slides or print film. Two important tools for deep-sky photography are the Off-Axis Guiding System (#93589) and one of the drive correctors offered by Celestron. The off-axis body attaches between the rear cell of the scope and the camera T-Ring. A high-power eyepiece (with illuminated crosshairs) is then installed into the off-axis body, and the crosshairs are centered on a guide star for the course of the exposure. The purpose of the drive corrector is to make occasional precision tracking adjustments to keep the guide star on target while the exposure is being made.

A counterweight set (#93524) or counterweight bar assembly (#93521) is useful to balance the telescope when heavy visual or photographic accessories are being used. The counterweight set consists of several separate weights of various sizes that thread into mounting holes on the front casting of the SC8. The counterweight bar attaches to the top of the SC8 tube, and the two weights are slid along the bar until balance is achieved, and are then locked in place.

SUGGESTED EQUIPMENT

The list of all accessories available for the Super C8 Plus is quite extensive, and there is no reason to suppose that you need to immediately accumulate a vast stockpile of these items. However, there are some selected accessories which we feel are especially useful when you have become acquainted with your instrument, and are ready to venture into the exciting realms of both serious visual observation and astrophotography. Following are suggested equipment packages:

Basic Package
Super C8 Plus
Wedge 5/8
Adjustable tripod
with
LPR Filter #4
1.25" 17mm Plossl ocular
1.25" 10mm Plossl ocular
1.25" 2X Deluxe Barlow Lens
Rich Field Adaptor (RFA)
1.25" Porro Prism
Skylight Filter #2
Optics Cleaning Kit
Accessory Case
DC Inverter

Photography Package
T-Ring
T-Adapter
Tele-Extender
Counterweight Bar Assembly
Off-Axis Guiding System
Quartz Dual-Axis Drive Corrector

Never attempt to view through window glass; it is not of optical quality and can greatly reduce the sharpness and clarity of the optical image. Also, do not observe through an open window; the difference between indoor and outdoor air temperature can cause air turbulence (heat waves), which can also greatly

impair image clarity. Observing over concrete and pavement surfaces and over rooftops can result in similar problems; these things retain heat in the day and then release it at night, again producing areas of air turbulence. It is far more preferable to view over grass- or dirt-covered areas, which do not retain significant amounts of heat.

IMPORTANT!!! NEVER force the tube or fork arms to turn, or force the declination or right ascension knobs to turn, when the respective locking clamps are engaged. Doing so will result in serious damage to the telescope.

The SC8 is a rugged instrument, designed to withstand the wear and tear of normal use. However, there are a few important things to observe in caring for your telescope to prevent damage and keep it in optimum operating condition.

The dustcaps included with your telescope should always be put in place when the instrument is not in use; many airborne contaminants can damage the telescope, particularly the optical surfaces. Major offending elements are moisture, dust and similar fine particles, salt air (in areas near the ocean) and various chemical pollutants in urban and industrial environments.

Whatever the origin, dirt deposited on the surface of the corrector lens must eventually be removed. A thin layer of dust or lint will not interfere with the telescope's performance, but if a heavy buildup is allowed to collect on the front lens, it should not be left to remain. If cleaning is required, first remove as much loose dirt as possible using a soft camel hair brush or a can of compressed air. Then, gently swab the corrector lens with a cotton ball or soft cloth, dampened with a small amount of a mild cleaning solution. This solution may be the fluid supplied in a lens cleaning kit (such as the kit offered by Celestron), or of a type you mix yourself. A simple type is a mixture of half isopropyl (rubbing) alcohol and half DISTILLED water. When cleaning, always wipe in ONE direction only (NOT back and forth), and each successive stroke should be performed with a new cotton ball or clean section of the cloth or tissue being used. (NOTE: NEVER use any doubtful substance to clean an optical surface, including tap water which can contain many "hard" minerals and other contaminants). After cleaning, briefly repeat the process with straight distilled water and allow the surface to air dry.

The Super C8 should always be kept in its carrying case when taken on an outing or simply put away in storage. This provides added protection against damage and against dirt and other harmful elements. And, as mentioned before, always keep the dustcaps in place when the instrument is not being used. It may also be to your advantage to invest in a small accessory case to carry eyepieces and other accessories you may acquire.

Information and Problems

Your Celestron instrument has been engineered to be quite durable and require only a minimum of maintenance. However, the situation might arise where it may require service or repair; or, you may simply have a question concerning the function or use of your instrument. In such an event, do not hesitate to get assistance. Whenever possible, first try to obtain help from an authorized Celestron dealer. He can be quite helpful with many questions and problems, and can often provide minor service or repair of your telescope. If he can't, you may need to contact a customer service representative at Celestron headquarters. The phone number and address are as follows:

Celestron International
P.O. Box 3578
Torrance, CA 90503
(800) 421-1526
(Mon-Fri, 8-4 PM, Continental USA Only)
(213) 328-9560

NOTICE: Be sure to IMMEDIATELY return your warranty registration to Celestron. If you do not find a warranty card included with your instrument, you should contact Celestron immediately so that you may receive one. Also, by returning your warranty registration card you will be sure to receive a free one year subscription to Deep Sky, a quarterly journal devoted to help you see more of the night time sky.