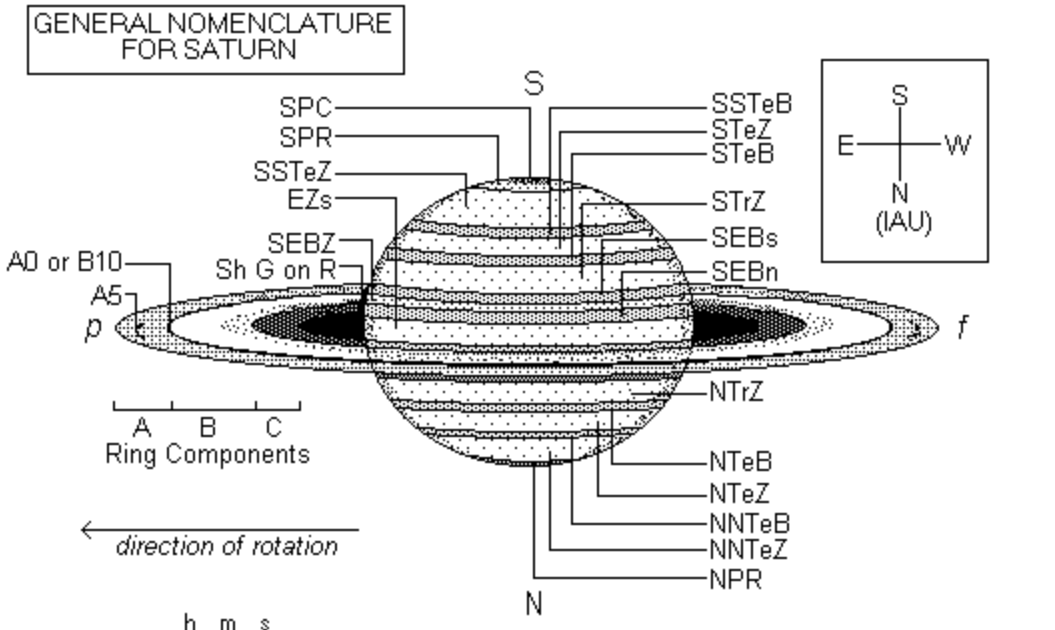
The A.L.P.O. Saturn Section

Secondary in size only to Jupiter, the planet Saturn lies at a mean distance from the Sun of some 9.5 AU (astronomical units). Considered only as a globe, the planet is a somewhat smaller, dimmer, and relatively quiescent replica of the giant Jupiter. With its majestic and symmetrical ring system, together with the brighter eight satellites accessible to moderate-size telescopes, Saturn emerges as an object of exquisite and unsurpassed beauty, holding a particular magnetism for the visual and photographic observer alike. Besides its aesthetic qualities, Saturn exhibits numerous features requiring persistent and meticulous observation. At opposition, the globe of Saturn subtends an angle of about 17" (seconds of arc) in equatorial diameter, while the ring system's major axis spans nearly 42". Those experienced at observing Jupiter will note that Saturn requires almost twice the magnification needed for the Giant Planet so that a disc of comparable proportions is produced. In addition, those with relatively small telescopes will frequently find that Saturn is relatively barren and changeless, seldom displaying the wealth of activity that is so common on Jupiter.

It is quite hazardous to try to establish some inflexible minimum with respect to aperture, particularly when it is recalled that extraordinary results have been obtained in past years by experienced observers using extremely small instruments. Almost any optical assistance will show Saturn's spectacular ring system, and the major disc features are revealed with a 7.5cm. (3.0in.) refractor, including perhaps a major belt and a zone or two near the equator of the planet. Cassini's Division should also be visible in the rings with such an instrument. Moving up to a 10.2cm. (4.0in.) refractor or a 15.2cm. (6.0in.) reflector, the observer will discover that he has found about the minimum aperture that will prove to be suitable for routine and beginning detailed studies of Saturn. Of course, when seeing and transparency conditions allow, the larger the aperture, the bigger will be the image scale and the greater the resolution and image brightness. Experienced observers have found that a 15.2cm. (6.0in.) refractor or a 25.4cm. (10.0in.) reflector is an ideal instrument for observing Saturn. More important than instrument design is optical and mechanical quality, and the prospective Saturn observer should obtain the best telescope he can afford. Excellent optics and a stable mounting are of far greater importance that sophistication of electronics in the mounting or exotic substrates or coatings for the lenses or mirrors. Some observers in recent years, for example, have successfully used simple, but premium-quality, Dobsonian reflectors when observing Saturn. The novice should spend some time in experimental work with the telescope he intends to use for following Saturn, seeking to establish the best combination of magnification, filters, and image size, brightness, and contrast. These topics, and many others, are discussed in considerable detail in *The Saturn Handbook*. After a bit of experience in observing Saturn, individuals will want to become familiar with the more advanced methods and techniques described in that book.

Like Jupiter, Saturn displays in an appropriate telescope a series of bright zones and darker belts that run roughly parallel to the equator. Much of the fundamental nomenclature assigned to the specific zones and belts of Jupiter applies to Saturn. A complete familiarization with the names of features, where they are located relative to one another, and their abbreviation is essential. Look at the diagram below, which depicts the general nomenclature for Saturn.



System I: $10^{h}14^{m}00^{s}$ (IAU) Regions in Equatorial portion of Globe (e.g., EZ, SEB, NEB)
System II: $10^{h}38^{m}25^{s}$ (ALPO) Regions North or South of System I

The appearance of Saturn in the diagram above is that as seen in a normal inverting telescope in the Northern Hemisphere of the Earth. Features move across the globe of Saturn from right to left, and Saturn, like Jupiter, has two regions of rotation defined as System I and System II. The symbolism used in the nomenclature of features is as follows:

N (North)	Te (Temperate)	n (North component)
S (South)	Tr (Tropical)	s (South component)
B (Belt)	R (Region)	*p* (Preceding)
Z (Zone)	P (Polar)	*f* (Following)

Usage is exemplified as follows:

SEB	(South Equatorial Belt)
EZ	(Equatorial Zone)
NEBn	(North component of the North Equatorial Belt)
Ring A	(Ring component A)
A0 or B10	(Cassini's Division between Ring A and Ring B; 0/10ths out from the globe in Ring A or 10/10ths out from the globe in Ring B)
A5	(Encke's Division; 5/10ths or halfway out
from	the globe in Ring A)
Sh G or R	(Shadow of the Globe on the Rings; note that "R" here is "Rings")

The Saturn Handbook gives more detail on the specialized uses of all of the terminology and nomenclature for Saturn.

Observations of the Saturn's globe, rings, and satellites are organized into the following routine programs:

1. Visual numerical relative intensity estimates of belts, zones, and ring components.

2. Full-disc drawings and sectional sketches of global and ring phenomena (the Saturn Section furnishes templates with the correct global oblateness and ring geometry to facilitate drawing). All drawings submitted for publication must be originals, not xerox copies.

3. Central meridian (CM) transit timings of details in belts and zones on the globe of Saturn (utilized to deterimine or confirm rotation rates in various latitudes).

4. Latitude estimates or filar micrometer measurements of belts and zones on the globe of Saturn.

5. Colorimetry and absolute color estimates of globe and ring features.

6. Observation of "intensity minima" in the rings (in addition to observations of Cassini's and Encke's divisions).

7. Observational monitoring of the bicolored aspect of the rings of Saturn.

8. Observations of stellar occultations by Saturn's rings.

9. Specialized observations of Saturn during edgewise ring presentations in addition to routine studies.

10. Visual observations and magnitude estimates of the satellites of Saturn.

11. Routine photography, CCD imaging, photoelectric photometry, and videography of Saturn and its ring system.

12. Simultaneous observations of Saturn.

Individuals interested in participating in the A.L.P.O. Saturn programs should contact:

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