Sight Planning

Fill navigator name and Local Mean Time (LMT) date

Step 1: Determine “DR Position” by

1. Lookup **(CT)** (for Step 2) first and determine hours from the last fix.
2. Plot course and speed on UPS
3. Read **(A**) and **(B)** .

Step 2: Determine “GMT Civil Twilight” by

1. Using DR Long **(B)**, lookup Arc to Time Hours **(C)** and Mins **(D)** in almanac section XXX.
2. Add Hrs and Mins to get Arc To Time **(E)**
3. On the daily page, look up Civil Twilight LMT, using dawn or sunset, note in **(CT)**
4. Determine GMT Time **(F)** and GMT Date **(G)**
    a. If DR Long is West, add **(CT)** to **(E)** to get **(F)**
    b. IF DR Long is East, subtract **(E)** from **(CT)** to get **(F)**
    c. Determine **(G)** depending on **(F)** passing into the previous/following day.
5. “*Keep Twilight to sunrise- sunset timespan in mind*” - the time between twilight to actual sunset/rise varies. Keep this in mind when planning. You will have a long or short time to get ready + sight.

Step 3.1: Determine “LHA ♈” (Gray Method).

1. On the daily page, lookup GHA ♈ *using the time from **(CT)** (local mean time)* for hours **(H)** and lookup minutes **(I)** from corrections.
2. Add **(H)** and **(I)** to get LHA ♈ **(LHA)**

Step 3.2: Determine “LHA ♈” (Normal Method) (optional: *if you want to plan moon too)*

1. On the daily page, lookup GHA ♈ *using the time from **(F)** (GMT)* for hours **(J)** and lookup minutes **(K)** from corrections.
2. Add **(J)** and **(K)** to get GHA ♈ **(GHA)**
3. Copy DR Long from **(A)**
4. Determine LHA ♈ **(LHA)**
    a. If DR Long is West, subtract **(A)** from **(GHA)** to get **(LHA)**
    b. IF DR Long is East, add **(A)** to **(GHA)** to get **(LHA)**
    c. If **(LHA**) > 360° subtract 360°.

Step 4: Determine Moon GHA (optional: *if you want to plan moon too)*

1. On the daily page, lookup GHA Moon *using the time from **(F)** (GMT)* for hours **(L)** and lookup minutes **(M)** from corrections.
2. Add **(L)** and **(M)** to get GHA Moon **(N)**

Step 5 & 6:

1. On the daily page, for each planet and moon, lookup Decl
    a. Minutes are irrelevant since we can’t draw with that precision on the star finder.
    b. Note the N/S

2. For each planet
    a. From lower right corner on daily, copy SHA into **(S)**
    b. Subtract **(S)** from 360° to get **(RA)**
3. For moon
    a. Copy **(GHA)** and **(N)**
    b. Subtract **(N)** from **(GHA)** to get the moon's RA

Step 7: Determine selected stars and their Hc/Zn
1. In H.O. 249 Vol 1, find page for DR Lat **(A)** match N/S
2. Lookup by LHA ♈ **(LHA)**
3. Note stars in **(1-7)**

Optional; Planets and Moon
Step 8-10: Mark planets on XXX disc
1. Use red plate on XXX, *take note of the disc's N/S Lat side*
2. For each planet/moon, dial in the **(RA)**
3. In the slot, mark the planet/moon (VMSJ☾) using the decl **(P)**
4. Take note of the decl N/S and the N/S side of the red disc
5. When marking the body in the slot on the red disk, match the latitude. Towards the center for the same latitude; away for the opposite.
    a. Eg. in North latitude use the N side of the disc
        i. a N decl goes toward center, a S decl goes out.
    b. In South latitude, use the S side of the disc
        i. N decl goes out, S decl goes toward center.

Step 11-13: Determine the Hc and Zn of Planets/Moons/extra stars
1. Swap red disc for blue disc matching the Latitude from **(A)** *take note of the disc's N/S*
2. Dial in the LHA ♈ from **(LHA)**
3. For each planet/moon/extra star (Sirius, Vega) read the Hc and Zn and note in **(8-16)**

Step 14: Determine sight order
1. For each star/planet note the magnitude in **(1-16)**
2. For each star/planet note in the compass dial
3. Pick in order of magnitude and light
4. Dawn, visible horizon starts in east - 90°
5. Dusk, horizon disappears in first in east - 90°

Terminology

• **(X)** Cell labelled X • ♈ Aries • **CT** Civil Twilight • **"Daily page"** Almanac page for GMT Date **(G)** • **DR** Dead Reckoning • **GHA** Global Hour Angle	• **GMT** Greenwich Mean Time • ***Hc*** Altitude = angle over horizon • **LHA** Local Hour Angle • **UPS** Universal Plotting Sheet • **SHA** Sidereal Hour Angle • **RA** Right Ascension • ***Zn*** Azimuth = direction on horizon