Sight Planning Form

(yellow)	Navigator _____
	Date LMT _____

1. DR Position

		deg		min		
A	DR Lat					N/S
B	DR Lng					E/W

Find DR position on universal plotting sheet.

2. GMT Civil Twilight (CT)

		hour		min		
C	Lng Arc To Time Deg					
D	→ Arc To Time Min					+
CT	Civil Twilight LMT					
E	→ Arc To Time					+W/-E
F	GMT Time at DR					=
G	GMT Date at DR					

Arc to time (hr+min) is added (west) or subtracted (east) from local time.

Keep Twilight to sunrise-sunset timespan in mind.

3.1. LHA Y (Gray Method)

		deg		min		
H	LHA Y Hrs					
I	LHA Y Mins					+
LHA	LHA Y					=

On daily page, lookup GHA Hr Y using the Civil Twilight LMT (cell CT), add minutes increment.
This gives the LHA Y used to lookup selected stars.

3.2. LHA Y (Normal Method)

		deg		min		
J	GHA Y Hrs					
K	GHA Y Mins					+
GHA	GHA Y					=
=B	DR Long					-W / +E
LHA	LHA Y					=
LHA	LHA Y					% 360

4. MOON (Optional)

		deg		min		
L	GHA Hrs					
M	GHA Mins					+
N	GHA Moon					=

3.2 & 4 - only needed for Moon planning

Use 3.2 when planning moon to get GHA Y. Subtract DR Lon from GHA Y (-W / + E) to determine LHA Y. You'll need GHA Y for Moon. Otherwise just use step 3.1
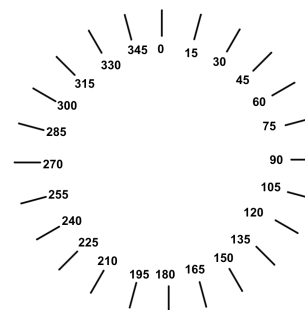
5 & 6. RIGHT ASCENSIONS

		VENUS deg	min	N/S	MARS deg	min	N/S	JUPITER deg	min	N/S	SATURN deg	min	N/S	MOON deg	min	N/S	
P	Decl Hrs																	
	360°	359°	60°		359°	60°		359°	60°		359°	60°					GHA Y (GHA)
S	- SHA													-				- GHA Moon (N)
RA	= RA													=				RA

7. SIGHT PLAN HO 249 Vol1 & Finder (step 7-12)

	+	Name	Hc	Zn	Mag	Seq
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12		**VENUS**				
13		**MARS**				
14		**JUPITER**				
15		**SATURN**				
16		*Moon*				

Step 8-10 for planets

Step 8: Draw in planets; use red plate on disk (mind the N/S lat sides).

Step 9: Dial in RA for planet (moon optional).

Step 10: In slot mark, mark planet, mind the NS direction (see note below).

Step 11-13 for stars (and planets)

Step 11: Switch to blue plate matching latitude (mind the N/S)

Step 12: Dial in LHA Y (result L)

Step 13: Red off Hc (Alt) & Zn (Az)

Note reg. red disk; When marking the body in the slot on the red disk, match the latitude. Towards center for same latitude, away for opposite. Eg. in North latitude, a N decl goes toward center, a S decl goes out.

RA = Right Ascension = 360° - SHA
Hc = Alt = angle over horizon
Zn = Azimuth = direction on horizon

Color Key

(yellow)	Navigator Entry
(blue)	Almanac
(green)	HO 249 Vol 1
=X	Copy from other

eho v11

Sight Reduction Form

DR Position

	deg	min	
DR Lat			N/S
DR Lng			E/W
at LMT			
at GMT			

Position Result

	deg	min	
Lat			N/S
Lng			E/W
at GMT			

Navigator	_____	
Date LMT	_____	
Date GMT	_____	
Course	_____	Speed _____
Height	_____	I.C.(+/-) _____

#		1	2	3	4	5	6
1	**Body**						
	Watch						
	Err						
2	**GMT**						
3	Dip (-)	'	'	'	'	'	'
4	I. C. (+/-)	'	'	'	'	'	'
5	Sum	'	'	'	'	'	'
6	**Hs**	° '	° '	° '	° '	° '	° '
7	App.Alt	° '	° '	° '	° '	° '	° '
8	HP (☾)	+ ( ) -	+ ( ) -	+ ( ) -	+ ( ) -	+ ( ) -	+ ( ) -
9	Alt Corr						
10	Adtl Corr						
11	☾ ☉UL(-30') or Q						
12	Sum	° '	° '	° '	° '	° '	° '
=7	App.Alt	° '	° '	° '	° '	° '	° '
13	Ho	° '	° '	° '	° '	° '	° '
14	V (+/- P ☾)						
15	GHA Hr	° '	° '	° '	° '	° '	° '
16	GHA Min&S	° '	° '	° '	° '	° '	° '
17	SHA★	° '	° '	° '	° '	° '	° '
18	v corr (P ☾)	° '	° '	° '	° '	° '	° '
19	GHA	° '	° '	° '	° '	° '	° '
20	Long (-W +E)	° '	° '	° '	° '	° '	° '
21	LHA	° 00 ' 0	° 00 ' 0	° 00 ' 0	° 00 ' 0	° 00 ' 0	° 00 ' 0
22	d (+/- P☉ ☾)						
23	Decl (N/S)	° '	° '	° '	° '	° '	° '
24	d corr (+/-)	'	'	'	'	'	'
25	Decl (N/S)	° '	° '	° '	° '	° '	° '
26	d (+/-)						
27	Alt (Hc Table)	° ' 0	° ' 0	° ' 0	° ' 0	° ' 0	° ' 0
28	d corr	' 0	' 0	' 0	' 0	' 0	' 0
29	Hc >=Away	° ' 0	° ' 0	° ' 0	° ' 0	° ' 0	° ' 0
=13	Ho	° '	° '	° '	° '	° '	° '
31	Throw (A/T)	, NM	, NM	, NM	, NM	, NM	, NM
32	Z	°	°	°	°	°	°
33	Zn	°	°	°	°	°	°

N. Lat {
LHA > 180: Zn = Z
LHA < 180: Zn = 360 - Z

S. Lat {
LHA > 180: Zn = 180 - Z
LHA < 180: Zn = 180 + Z

Color Key

	Navigator Entry	Hs - Height Sextant	
	Almanac	Ho - Height Observed (Hs with corrections)	
	HO 249 Vol 1	Hc - Height Computed (from tables)	
bold	Copy to other		
=italic	Copy to other		

11	For **Moon or Sun** UL shot, - 30'
	For **Polaris**, use Q table, add to Ho, result is Lat, the end.
22	d is neg if declination is descending
24	d corr is negative if d is negative, see 22
31	if Hc > Ho, throw is Away, else Towards (Hc >= Away) (NM)

22-25 / 29 & 33	For **selected stars**, skip 22-25, use LHA to lookup Hc (29) and Zn (33) from HO249 vol 1.
16 & 25	For **non-selected stars**, add 17 (SHA) to compute GHA (hrs + inc + SHA), then lookup declination in almanac, put in row 25 and proceed with 26