

CORRECTIONS TO BE APPLIED TO SEXTANT ALTITUDE A167

REFRACTION

To be subtracted from sextant altitude (referred to as observed altitude in A.P. 3270)

R_o	Height above sea level in units of 1 000 ft.												R_o	$R = R_o \times f$			
	Sextant Altitude													f			
														R			
	0	5	10	15	20	25	30	35	40	45	50	55		0.9	1.0	1.1	1.2
0	90	90	90	90	90	90	90	90	90	90	90	90	0	0	0	0	0
1	63	59	55	51	46	41	36	31	26	20	17	13	1	1	1	1	1
2	33	29	26	22	19	16	14	11	9	7	6	4	2	2	2	2	2
3	21	19	16	14	12	10	8	7	5	4	2 40	1 40	3	3	3	3	4
4	16	14	12	10	8	7	6	5	3 10	2 20	1 30	0 40	4	4	4	4	5
5	12	11	9	8	7	5	4 00	3 10	2 10	1 30	0 39	+0 05	5	5	5	5	6
6	10	9	7	5 50	4 50	3 50	3 10	2 20	1 30	0 49	+0 11	-0 19	6	5	6	7	7
7	8 10	6 50	5 50	4 50	4 00	3 00	2 20	1 50	1 10	0 24	-0 11	-0 38	7	6	7	8	8
8	6 50	5 50	5 00	4 00	3 10	2 30	1 50	1 20	0 38	+0 04	-0 28	-0 54	8	7	8	9	10
9	6 00	5 10	4 10	3 20	2 40	2 00	1 30	1 00	0 19	-0 13	-0 42	-1 08	9	8	9	10	11
10	5 20	4 30	3 40	2 50	2 10	1 40	1 10	0 35	+0 03	-0 27	-0 53	-1 18	10	9	10	11	12
12	4 30	3 40	2 50	2 20	1 40	1 10	0 37	+0 11	-0 16	-0 43	-1 08	-1 31	12	11	12	13	14
14	3 30	2 50	2 10	1 40	1 10	0 34	+0 09	-0 14	-0 37	-1 00	-1 23	-1 44	14	13	14	15	17
16	2 50	2 10	1 40	1 10	0 37	+0 10	-0 13	-0 34	-0 53	-1 14	-1 35	-1 56	16	14	16	18	19
18	2 20	1 40	1 20	0 43	+0 15	-0 08	-0 31	-0 52	-1 08	-1 27	-1 46	-2 05	18	16	18	20	22
20	1 50	1 20	0 40	+0 23	-0 02	-0 26	-0 46	-1 06	-1 22	-1 39	-1 57	-2 14	20	18	20	22	24
25	1 12	0 44	+0 19	-0 06	-0 28	-0 48	-1 09	-1 27	-1 42	-1 58	-2 14	-2 30	25	22	25	28	30
30	0 34	+0 10	-0 13	-0 36	-0 55	-1 14	-1 32	-1 51	-2 06	-2 21	-2 34	-2 49	30	27	30	33	36
35	+0 06	-0 16	-0 37	-0 59	-1 17	-1 33	-1 51	-2 07	-2 23	-2 37	-2 51	-3 04	35	31	35	38	42
40	-0 18	-0 37	-0 58	-1 16	-1 34	-1 49	-2 06	-2 22	-2 35	-2 49	-3 03	-3 16	40	36	40	44	48
45		-0 53	-1 14	-1 31	-1 47	-2 03	-2 18	-2 33	-2 47	-2 59	-3 13	-3 25	45	40	45	50	54
50		-1 10	-1 28	-1 44	-1 59	-2 15	-2 28	-2 43	-2 56	-3 08	-3 22	-3 33	50	45	50	55	60
55			-1 40	-1 53	-2 09	-2 24	-2 38	-2 52	-3 04	-3 17	-3 29	-3 41	55	49	55	60	66
60				-2 03	-2 18	-2 33	-2 46	-3 01	-3 12	-3 25	-3 37	-3 48	60	54	60	66	72
							-2 53	-3 07	-3 19	-3 31	-3 42	-3 53					

f	Temperature in °C.												f	
	0	5	10	15	20	25	30	35	40	45	50	55		
0.9	+47	+36	+27	+18	+10	+3	-5	-13					0.9	Where R_o is less than 10' or the height greater than 35 000 ft. use $R = R_o$.
1.0	+26	+16	+6	-4	-13	-22	-31	-40	For these heights no temperature correction is necessary, so use $R = R_o$.				1.0	
1.1	+5	-5	-15	-25	-36	-46	-57	-68					1.1	
1.2	-16	-25	-36	-46	-58	-71	-83	-95					1.2	

Choose the column appropriate to height, in units of 1 000 ft., and find the range of altitude in which the sextant altitude lies; the corresponding value of R_o is the refraction, to be subtracted from sextant altitude, unless conditions are extreme. In that case find f from the lower table, with critical argument temperature. Use the table on the right to form the refraction, $R = R_o \times f$.

CORIOLIS (Z) CORRECTION

To be applied by moving the position line a distance Z to starboard (right) of the track in northern latitudes and to port (left) in southern latitudes.

G/S KNOTS	Latitude					G/S KNOTS	Latitude				
	0° 10°	20° 30°	40° 50°	60° 70°	80° 90°		0° 10°	20° 30°	40° 50°	60° 70°	80° 90°
150	0 1	1 2	3 3	3 4	4 4	550	0 3	5 7	9 11	12 14	14 14
200	0 1	2 3	3 4	5 5	5 5	600	0 3	5 8	10 12	14 15	16 16
250	0 1	2 3	4 5	6 6	6 7	650	0 3	6 9	11 13	15 16	17 17
300	0 1	3 4	5 6	7 7	8 8	700	0 3	6 9	12 14	16 17	18 18
350	0 2	3 5	6 7	8 9	9 9	750	0 3	7 10	13 15	17 18	19 20
400	0 2	4 5	7 8	9 10	10 10	800	0 4	7 10	13 16	18 20	21 21
450	0 2	4 6	8 9	10 11	12 12	850	0 4	8 11	14 17	19 21	22 22
500	0 2	4 7	8 10	11 12	13 13	900	0 4	8 12	15 18	20 22	23 24

STANDARD DOME
REFRACTION

To be *subtracted* from sextant altitude when using sextant suspension in a perspex dome.

Alt.	Refn.	Alt.	Refn.
°	'	°	'
10	8	50	4
20	7	60	4
30	6	70	3
40	5	80	3

This table must not be used if a calibration table is fitted to the dome, or if a flat glass plate is provided, or for non-standard domes.

BUBBLE SEXTANT ERROR

Sextant Number	Alt.	Corr.
	°	'

CORRECTIONS TO BE APPLIED
TO MARINE SEXTANT ALTITUDES

CORRECTION FOR DIP OF THE HORIZON

To be subtracted from sextant altitude.

Ht.	Dip	Ht.	Dip	Ht.	Dip	Ht.	Dip	Ht.	Dip
Ft.	'	Ft.	'	Ft.	'	Ft.	'	Ft.	'
0	1	114	11	437	21	968	31	1 707	41
2	2	137	12	481	22	1 033	32	1 792	42
6	3	162	13	527	23	1 099	33	1 880	43
12	4	189	14	575	24	1 168	34	1 970	44
21	5	218	15	625	25	1 239	35	2 061	45
31	6	250	16	677	26	1 311	36	2 155	46
43	7	283	17	731	27	1 386	37	2 251	47
58	8	318	18	787	28	1 463	38	2 349	48
75	9	356	19	845	29	1 543	39	2 449	49
93	10	395	20	906	30	1 624	40	2 551	50
114		437		968		1 707		2 655	

CORRECTIONS

In addition to sextant error and dip, corrections are to be applied for:

- Refraction
- Semi-diameter (for the Sun and Moon)
- Parallax (for the Moon)
- Dome refraction (if applicable)

MARINE SEXTANT ERROR

Sextant Number

Index Error

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