GMT	☉ SUN		ARIES	VENUS −3.9		JUPITER −1.9		SATURN 0.3		☽ MOON		Lat.	Moon's		Diff.
	GHA	Dec	GHA ♈	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec				
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′				
12 00	359 42.1	N23 25.1	87 05.5	313 06	N18 43	68 13	N 6 40	336 21	N22 00	234 56	S15 24	N	° ′	° ′	° ′
10	7 12.6	25.1	89 34.6	313 36		70 43		338 52		237 22	24	72	22 03		−2
20	14 42.6	25.2	92 04.4	314 06		73 13		341 22		239 47	27	70	22 56		−12
30	22 12.6	25.2	94 34.0	314 36		75 44		343 53		242 13	29	68	23 26		−00
40	29 42.6	25.2	97 03.7	315 06		78 14		346 23		244 38	30	66	23 50		+05
50	37 12.5	25.2	99 33.4	315 36		80 44		348 53		247 01	32	64	24 08		09
13 00	44 42.5	N23 25.2	102 03.0	316 06	N18 42	83 15	N 6 40	351 24	N22 00	249 25	S15 33	62	00 04		08
10	52 12.5	25.2	104 32.6	316 36		85 45		353 54		251 50	35				
20	59 42.5	25.2	107 02.3	317 06		88 15		356 24		254 15	36	60	00 15		10
30	67 12.5	25.2	109 31.9	317 36		90 46		358 55		256 39	37	58	00 23		11
40	74 42.4	25.2	112 01.5	318 06		93 16		1 25		259 04	39	56	00 31		13
50	82 12.4	25.2	114 31.1	318 36		95 46		3 55		261 28	40	54	00 37		14
14 00	89 42.4	N23 25.3	117 00.8	319 06	N18 42	98 17	N 6 40	6 26	N22 00	263 53	S15 42	52	00 43		15
10	97 12.4	25.3	119 30.4	319 36		100 47		8 56		266 18	43	50	00 48		16
20	104 42.3	25.3	122 00.0	320 06		103 17		11 26		268 42	45	45	01 00		17
30	112 12.3	25.3	124 29.7	320 36		105 48		13 57		271 07	46	40	01 09		19
40	119 42.3	25.3	126 59.3	321 06		108 18		16 27		273 31	48	35	01 17		20
50	127 12.3	25.3	129 28.9	321 36		110 48		18 57		275 56	49	30	01 24		22
15 00	134 42.3	N23 25.3	131 58.6	322 06	N18 41	113 19	N 6 40	21 28	N22 00	278 21	S15 51	20	01 37		23
10	142 12.2	25.3	134 28.2	322 36		115 49		23 58		280 45	52	10	01 48		25
20	149 42.2	25.3	136 57.8	323 06		118 20		26 29		283 10	53	0	01 58		27
30	157 12.2	25.3	139 27.4	323 36		120 50		28 59		285 35	55	10	02 08		28
40	164 42.2	25.3	141 57.1	324 06		123 20		31 29		287 59	56	20	02 19		30
50	172 12.1	25.3	144 26.7	324 36		125 51		34 00		290 24	58	30	02 32		32
16 00	179 42.1	N23 25.3	146 56.4	325 06	N18 40	128 21	N 6 40	36 30	N22 00	292 48	S15 59	35	02 39		33
10	187 12.1	25.3	149 26.0	325 36		130 51		39 01		295 13	16 01	40	02 48		34
20	194 42.1	25.3	151 55.6	326 06		133 22		41 31		297 38	02	45	02 54		36
30	202 12.0	25.3	154 25.3	326 36		135 52		44 01		300 02	03	50	03 09		38
40	209 42.0	25.3	156 54.9	327 06		138 22		46 31		302 27	05	52	03 15		39
50	217 12.0	25.4	159 24.5	327 36		140 53		49 02		304 51	06	54	03 23		40
17 00	224 42.0	N23 25.4	161 54.2	328 06	N18 39	143 23	N 6 40	51 32	N22 00	307 16	S16 08	56	03 30		41
10	232 11.9	25.4	164 23.8	328 36		145 53		54 02		309 41	09	58	03 36		42
20	239 41.9	25.4	166 53.4	329 06		148 24		56 33		312 05	11	60	03 44		44
30	247 11.9	25.4	169 23.1	329 36		150 54		59 03		314 30	12				
40	254 41.9	25.4	171 52.7	330 07		153 24		61 34		316 54	13				
50	262 11.8	25.4	174 22.3	330 37		155 55		64 04		319 19	15				
18 00	269 41.8	N23 25.4	176 52.0	331 07	N18 38	158 25	N 6 40	66 34	N22 00	321 44	S16 16		Moon's P. or A.		
10	277 11.8	25.4	179 21.6	331 37		160 55		69 05		324 08	17				
20	284 41.8	25.4	181 51.2	332 07		163 26		71 35		326 33	19				
30	292 11.7	25.4	184 20.9	332 37		165 56		74 05		328 57	20				
40	299 41.7	25.4	186 50.5	333 07		168 27		76 36		331 22	22				
50	307 11.7	25.4	189 20.1	333 37		170 57		79 06		333 46	23				
19 00	314 41.7	N23 25.4	191 49.8	334 07	N18 37	173 27	N 6 41	81 36	N21 59	336 11	S16 24				
10	322 11.6	25.4	194 19.4	334 37		175 58		84 07		338 36	26				
20	329 41.6	25.5	196 49.0	335 07		178 28		86 37		341 00	27				
30	337 11.6	25.5	199 18.7	335 37		180 58		89 07		343 25	29				
40	344 41.6	25.5	201 48.3	336 07		183 29		91 38		345 49	30				
50	352 11.5	25.5	204 17.9	336 37		185 59		94 08		348 14	31				
20 00	359 41.5	N23 25.5	206 47.6	337 07	N18 37	188 29	N 6 41	96 39	N21 59	350 39	S16 33				
10	7 11.5	25.5	209 17.2	337 37		191 00		99 09		353 03	34				
20	14 41.5	25.5	211 46.8	338 07		193 30		101 39		355 28	35				
30	22 11.4	25.5	214 16.5	338 37		196 00		104 10		357 52	37				
40	29 41.4	25.5	216 46.1	339 07		198 31		106 40		0 17	38				
50	37 11.4	25.5	219 15.7	339 37		201 01		109 10		2 41	39				
21 00	44 41.4	N23 25.5	221 45.4	340 07	N18 36	203 31	N 6 41	111 41	N21 59	5 06	S16 41				
10	52 11.3	25.5	224 15.0	340 37		206 02		114 11		7 31	42				
20	59 41.3	25.5	226 44.6	341 07		208 32		116 41		9 55	43				
30	67 11.3	25.5	229 14.3	341 37		211 02		119 12		12 20	45				
40	74 41.3	25.5	231 43.9	342 07		213 32		121 42		14 44	46				
50	82 11.2	25.5	234 13.5	342 37		216 03		124 12		17 09	47				
22 00	89 41.2	N23 25.4	236 43.2	343 07	N18 35	218 33	N 6 41	126 43	N21 59	19 33	S16 49				
10	97 11.2	25.4	239 12.8	343 37		221 04		129 13		21 58	50				
20	104 41.2	25.4	241 42.4	344 07		223 34		131 43		24 23	51				
30	112 11.1	25.4	244 12.1	344 37		226 05		134 14		26 47	53				
40	119 41.1	25.4	246 41.7	345 07		228 35		136 44		29 12	54				
50	127 11.1	25.4	249 11.3	345 37		231 05		139 15		31 36	55				
23 00	134 41.1	N23 25.4	251 41.0	346 07	N18 34	233 36	N 6 41	141 45	N21 59	34 01	S16 57				
10	142 11.0	25.4	254 10.6	346 37		236 06		144 15		36 25	58				
20	149 41.0	25.4	256 40.2	347 07		238 36		146 46		38 50	16 59				
30	157 11.0	25.4	259 09.9	347 37		241 07		149 16		41 15	17 01				
40	164 40.9	25.4	261 39.5	348 07		243 37		151 46		43 39	02				
50	172 10.9	25.4	264 09.1	348 37		246 07		154 17		46 04	03				
Aver.	14 59.9	0 00.6		15 00.1	56 00.8	15 02.1	9 00.1	15 07.1	0 00.0	14 27.4	56 06.4				

Sun SD 15.8'
Moon SD 16.'
Age 10d

	0m	2m	3m	4m	5m	6m	7m	8m	9m	
°	′	′	′	′	′	′	′	′	′	°
00	0 00.0	0 30.0	0 45.0	1 00.0	1 15.0	1 30.0	1 45.0	2 00.0	2 15.0	00
01	0 00.3	0 30.3	0 45.3	1 00.3	1 15.3	1 30.3	1 45.3	2 00.3	2 15.2	01
02	0 00.5	0 30.5	0 45.5	1 00.5	1 15.5	1 30.5	1 45.5	2 00.5	2 15.5	02
03	0 00.8	0 30.8	0 45.8	1 00.8	1 15.8	1 30.8	1 45.8	2 00.8	2 15.8	03
04	0 01.0	0 31.0	0 46.0	1 01.0	1 16.0	1 31.0	1 46.0	2 01.0	2 16.0	04
05	0 01.3	0 31.3	0 46.3	1 01.3	1 16.3	1 31.2	1 46.2	2 01.3	2 16.3	05
06	0 01.5	0 31.5	0 46.5	1 01.5	1 16.5	1 31.5	1 46.5	2 01.5	2 16.5	06
07	0 01.8	0 31.8	0 46.8	1 01.8	1 16.8	1 31.8	1 46.8	2 01.8	2 16.8	07
08	0 02.0	0 32.0	0 47.0	1 02.0	1 17.0	1 32.0	1 47.0	2 02.0	2 17.0	08
09	0 02.3	0 32.3	0 47.3	1 02.3	1 17.3	1 32.3	1 47.3	2 02.3	2 17.2	09
10	0 02.5	0 32.5	0 47.5	1 02.5	1 17.5	1 32.5	1 47.5	2 02.5	2 17.5	10
11	0 02.8	0 32.8	0 47.8	1 02.8	1 17.8	1 32.8	1 47.8	2 02.8	2 17.8	11
12	0 03.0	0 33.0	0 48.0	1 03.0	1 18.0	1 33.0	1 48.0	2 03.0	2 18.0	12
13	0 03.3	0 33.3	0 48.3	1 03.2	1 18.2	1 33.2	1 48.3	2 03.3	2 18.2	13
14	0 03.5	0 33.5	0 48.5	1 03.5	1 18.5	1 33.5	1 48.5	2 03.5	2 18.5	14
15	0 03.8	0 33.8	0 48.8	1 03.8	1 18.8	1 33.8	1 48.8	2 03.8	2 18.8	15
16	0 04.0	0 34.0	0 49.0	1 04.0	1 19.0	1 34.0	1 49.0	2 04.0	2 19.0	16
17	0 04.3	0 34.3	0 49.3	1 04.2	1 19.2	1 34.2	1 49.3	2 04.3	2 19.2	17
18	0 04.5	0 34.5	0 49.5	1 04.5	1 19.5	1 34.5	1 49.5	2 04.5	2 19.5	18
19	0 04.8	0 34.8	0 49.8	1 04.8	1 19.8	1 34.8	1 49.8	2 04.8	2 19.8	19
20	0 05.0	0 35.0	0 50.0	1 05.0	1 20.0	1 35.0	1 50.0	2 05.0	2 20.0	20
21	0 05.3	0 35.3	0 50.3	1 05.3	1 20.3	1 35.3	1 50.3	2 05.3	2 20.2	21
22	0 05.5	0 35.5	0 50.5	1 05.5	1 20.5	1 35.5	1 50.5	2 05.5	2 20.5	22
23	0 05.8	0 35.8	0 50.8	1 05.8	1 20.8	1 35.8	1 50.8	2 05.8	2 20.8	23
24	0 06.0	0 36.0	0 51.0	1 06.0	1 21.0	1 36.0	1 51.0	2 06.0	2 21.0	24
25	0 06.3	0 36.3	0 51.3	1 06.3	1 21.3	1 36.2	1 51.3	2 06.3	2 21.2	25
26	0 06.5	0 36.5	0 51.5	1 06.5	1 21.5	1 36.5	1 51.5	2 06.5	2 21.5	26
27	0 06.8	0 36.8	0 51.8	1 06.8	1 21.8	1 36.8	1 51.8	2 06.8	2 21.8	27
28	0 07.0	0 37.0	0 52.0	1 07.0	1 22.0	1 37.0	1 52.0	2 07.0	2 22.0	28
29	0 07.3	0 37.3	0 52.3	1 07.3	1 22.3	1 37.3	1 52.3	2 07.3	2 22.2	29
30	0 07.5	0 37.5	0 52.5	1 07.5	1 22.5	1 37.5	1 52.5	2 07.5	2 22.5	30
31	0 07.8	0 37.8	0 52.8	1 07.8	1 22.8	1 37.8	1 52.8	2 07.8	2 22.8	31
32	0 08.0	0 38.0	0 53.0	1 08.0	1 23.0	1 38.0	1 53.0	2 08.0	2 23.0	32
33	0 08.3	0 38.3	0 53.2	1 08.2	1 23.2	1 38.2	1 53.2	2 08.3	2 23.2	33
34	0 08.5	0 38.5	0 53.5	1 08.5	1 23.5	1 38.5	1 53.5	2 08.5	2 23.5	34
35	0 08.8	0 38.8	0 53.8	1 08.8	1 23.8	1 38.8	1 53.8	2 08.8	2 23.8	35
36	0 09.0	0 39.0	0 54.0	1 09.0	1 24.0	1 39.0	1 54.0	2 09.0	2 24.0	36
37	0 09.3	0 39.3	0 54.3	1 09.3	1 24.3	1 39.3	1 54.3	2 09.3	2 24.2	37
38	0 09.5	0 39.5	0 54.5	1 09.5	1 24.5	1 39.5	1 54.5	2 09.5	2 24.5	38
39	0 09.8	0 39.8	0 54.8	1 09.8	1 24.8	1 39.8	1 54.8	2 09.8	2 24.8	39
40	0 10.0	0 40.0	0 55.0	1 10.0	1 25.0	1 40.0	1 55.0	2 10.0	2 25.0	40
41	0 10.3	0 40.3	0 55.3	1 10.3	1 25.3	1 40.3	1 55.3	2 10.3	2 25.2	41
42	0 10.5	0 40.5	0 55.5	1 10.5	1 25.5	1 40.5	1 55.5	2 10.5	2 25.5	42
43	0 10.8	0 40.8	0 55.8	1 10.8	1 25.8	1 40.8	1 55.8	2 10.8	2 25.8	43
44	0 11.0	0 41.0	0 56.0	1 11.0	1 26.0	1 41.0	1 56.0	2 11.0	2 26.0	44
45	0 11.3	0 41.3	0 56.2	1 11.2	1 26.2	1 41.3	1 56.3	2 11.3	2 26.2	45
46	0 11.5	0 41.5	0 56.5	1 11.5	1 26.5	1 41.5	1 56.5	2 11.5	2 26.5	46
47	0 11.8	0 41.8	0 56.8	1 11.8	1 26.8	1 41.8	1 56.8	2 11.8	2 26.8	47
48	0 12.0	0 42.0	0 57.0	1 12.0	1 27.0	1 42.0	1 57.0	2 12.0	2 27.0	48
49	0 12.3	0 42.3	0 57.3	1 12.3	1 27.3	1 42.3	1 57.2	2 12.3	2 27.2	49
50	0 12.5	0 42.5	0 57.5	1 12.5	1 27.5	1 42.5	1 57.5	2 12.5	2 27.5	50
51	0 12.8	0 42.8	0 57.8	1 12.8	1 27.8	1 42.8	1 57.8	2 12.8	2 27.8	51
52	0 13.0	0 43.0	0 58.0	1 13.0	1 28.0	1 43.0	1 58.0	2 13.0	2 28.0	52
53	0 13.3	0 43.3	0 58.2	1 13.2	1 28.2	1 43.2	1 58.3	2 13.3	2 28.2	53
54	0 13.5	0 43.5	0 58.5	1 13.5	1 28.5	1 43.5	1 58.5	2 13.5	2 28.5	54
55	0 13.8	0 43.8	0 58.8	1 13.8	1 28.8	1 43.8	1 58.8	2 13.8	2 28.8	55
56	0 14.0	0 44.0	0 59.0	1 14.0	1 29.0	1 44.0	1 59.0	2 14.0	2 29.0	56
57	0 14.3	0 44.3	0 59.3	1 14.3	1 29.3	1 44.3	1 59.2	2 14.3	2 29.2	57
58	0 14.5	0 44.5	0 59.5	1 14.5	1 29.5	1 44.5	1 59.5	2 14.5	2 29.5	58
59	0 14.8	0 44.8	0 59.8	1 14.8	1 29.8	1 44.8	1 59.8	2 14.8	2 29.8	59
60	0 15.0	0 45.0	1 00.0	1 15.0	1 30.0	1 45.0	2 00.0	2 15.0	2 30.0	60

TABLE 6.—Refraction

To be subtracted from sextant altitude

P_0	Height above sea level in thousands of feet: 0	5	10	15	20	25	30	35	40	45	50	55
	Sextant Altitude											
°	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′
0	90	90	90	90	90	90	90	90	90	90	90	90
1	63	59	55	51	46	41	36	31	26	20	17	13
2	33	29	26	22	19	16	14	11	9	7	6	4
3	21	19	16	14	12	10	8	7	5	4	2 40	1 40
4	16	14	12	10	8	7	6	5	3 10	2 20	1 30	0 40
5	12	11	9	8	7	5	4 00	3 10	2 10	1 30	0 39	+0 05
6	10	9	7	5 50	4 50	3 50	3 10	2 20	1 30	0 49	+0 11	−0 19
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
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
9	6 00	5 10	4 10	3 20	2 40	2 00	1 30	1 00	0 19	−0 13	−0 42	−1 06
10	5 20	4 30	3 40	2 50	2 10	1 40	1 10	0 35	+0 03	−0 27	−0 55	−1 18
12	4 30	3 48	2 50	2 20	1 40	1 10	0 37	+0 11	−0 16	−0 43	−1 08	−1 31
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

CORRECTIONS TO BE APPLIED TO MARINE SEXTANT ALTITUDES

MARINE SEXTANT ERROR	CORRECTIONS	CORRECTION FOR DIP OF THE HORIZON To be subtracted from sextant altitude									
Sextant Number	In addition to sextant error and dip, corrections are to be applied for:	Ht.	Dip	Ht.	Dip	Ht.	Dip	Ht.	Dip	Ht.	Dip
Index Error	Refraction	ft.	′	ft.	′	ft.	′	ft.	′	ft.	′
	Semi-diameter (for the Sun and Moon)	0	1	114	11	427	21	968	31	1 707	41
	Parallax (for the Moon)	8	2	137	12	482	22	1 033	32	1 798	42
	Dome refraction (if applicable)	6	3	162	13	537	23	1 099	33	1 886	43
		12	3	189	14	575	24	1 168	34	1 970	44
		22	4	218	15	645	25	1 239	35	2 061	45
		32	5	250	16	677	26	1 311	36	2 155	46
		43	6	283	17	731	27	1 386	37	2 251	47
		58	7	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	