

The technical content of this document is approved under the authority of DOA nr. EASA.21J.140 (C730)

8.12 OUT OF PRODUCTION ENVELOPE TYPES

8.12.1 GENERAL INFORMATION

This supplement shall be inserted in the Flight Manual, in Section 8: 'Supplements' with the revisions record sheet amended accordingly.

Information contained herein supplements, or in the case of conflict, supersedes that contained in the basic Flight Manual. For Limitations, Procedures, and Performance Data not contained in this supplement, consult the basic Hot Air Balloon Flight Manual.

Issue 5 of this supplement consists of eight pages.

Supplement 7.12 to Maintenance Manual Issue 10 is required to ensure continued airworthiness.

8.12.1.2 Certification Basis

The types of balloon for which this supplement is applicable have been approved by EASA under the following Type Certificate.

EASA.BA.013	Cameron H Types Cameron V Types Colt 'A' Types Colt 'Bullet' Types Thunder 'A' Types Thunder 'Bolt' Types Thunder AX Series S1 Thunder AX Series S2 Thunder 'Z' Types
EASA .BA.109	Sky -16 Sky -24 Sky -28

8.12.2 LIMITATIONS
Table 1 (additional): Envelope Weight Limits And Volumes

Model	Volume		Standard MTOM		Reduced MTOM		MLM		FAI Class AX
	cu. ft	cu. m	kg	lb	kg	lb	kg	lb	
Colt 17A	17 600	498	160	353	160	353	-	-	3
Cam H20	20 000	566	181	399	181	399	-	-	3
Colt 21A	21 000	595	191	421	191	421	-	-	3
Cam H24	24 000	680	218	481	218	481	-	-	4
Sky 31-24	31 450	891	310	683	310	683	-	-	4
Cam H34	34 000	963	308	679	308	679	-	-	5
Sky 56-24	56 000	1586	560	1235	499	1100	-	-	6
Sky 65-24	65 000	1841	650	1433	499	1100	-	-	7
Sky 70-16	70 000	1982	700	1543	499	1100	-	-	7
Sky 77-24	77 500	2195	750	1653	499	1100	-	-	7
Sky 80-16	80 000	2266	800	1764	499	1100	-	-	8
Sky 90-24	90 000	2549	900	1984	499	1100	-	-	8
Sky 105-24	105 000	2974	1050	2315	999	2202	525	1157	8
Sky 120-24	120 000	3398	1200	2646	999	2202	600	1323	9
Sky 140-24	140 000	3965	1330	2932	999	2202	665	1466	9
Sky 160-24	160 000	4531	1440	3175	999	2202	720	1587	10
Sky 180-24	180 000	5098	1620	3571	999	2202	810	1786	10
Sky 200-24	200 000	5664	1800	3968	999	2202	900	1984	10
Sky 220-24	220 000	6231	1980	4365	999	2202	990	2183	11
Sky 240-24	240 000	6797	2160	4762	1999	4407	1080	2381	11
Sky 260-24	260 000	7363	2340	5159	1999	4407	1170	2579	11
Sky 317-24	317 000	8978	2700	5952	2699	5950	1350	2976	11
Sky 400-32	400 000	11328	3600	7937	2699	5950	1800	3968	12
Sky 500-32	500 000	14160	4250	9370	2699	5950	2152	4744	13

Key: C = Colt, S = Sky and T = Thunder

8.12.3 EMERGENCY PROCEDURES

No change.

8.12.4 NORMAL PROCEDURES
8.12.4.3.5 Envelope Preparation

Caution: The Colt 17A and 21A envelopes are of traditional construction but differ in the lack of continuous nylon load tapes. Since the handling of the envelope must be by the fabric only, caution must be exercised and ground crew properly briefed.

8.12.5 WEIGHT CALCULATIONS

Table 2 (additional): Total Permitted Lift (kg)

Balloon Size	Lift (lb) Per 1000 cu.ft.										
	10	11	12	13	14	15	16	17	18	19	20
17	80	88	96	104	112	120	128	136	144	152	160
20	91	100	112	118	127	136	145	154	163	172	181
21	95	105	114	124	133	143	152	162	171	181	191
24	109	120	131	142	152	163	174	185	196	207	218
34	154	170	185	200	216	231	247	262	278	293	308
220	998	1098	1197	1297	1397	1497	1596	1696	1796	1896	1980
317	1438	1581	1725	1869	2013	2157	2300	2444	2588	2700	2700
500	2268	2494	2721	2948	3175	3402	3628	3855	4082	4250	4250

Table 3 (additional): Total Permitted Lift (lb)

Balloon Size	Lift (lb) Per 1000 cu.ft.										
	10	11	12	13	14	15	16	17	18	19	20
17	177	194	212	230	247	265	283	300	318	336	352
20	200	220	247	260	280	300	320	340	360	380	400
21	210	231	252	273	294	315	336	357	378	399	420
24	240	264	288	312	336	360	384	408	432	456	480
34	340	374	408	442	476	510	544	578	612	646	680
220	2200	2420	2640	2860	3080	3300	3520	3740	3960	4180	4365
317	3170	3487	3804	4121	4438	4755	5072	5389	5706	5953	5953
500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9370	9370

8.12.6 BALLOON AND SYSTEMS DESCRIPTION**8.12.6.2 Envelope**

There are ten out of production envelope envelope types, all of which are of the conventional 'inverted teardrop' shape. Approved volumes and variants are listed in the Type Certificate Data Sheet EASA.BA.013.

Type	No. of Gores	Suspension Cables	Profile
Cameron 'H' Type	15	15	Semi-Bulbous
Colt Bullet	16	8	Smooth
Sky -16	16	16	Semi-Bulbous
Sky -24	24	24	Smooth
Sky -28	28	28	Smooth
Thunder 'A' Type	24, 32	12, 32	Smooth
Thunder Bolt	8	8	Bulbous
Thunder 'Z' Type	16-28	16-28	Smooth
Thunder AX Series S1	12	12	Bulbous
Thunder AX Series S2	20	20	Semi-Bulbous
Colt 'A' Type	16, 24, 28, 32	24, 28, 32	Smooth

8.12.7 BALLOON MAINTENANCE, HANDLING AND CARE

No change.

8.12.9 EQUIPMENT LIST

Table 5 - Envelopes

Envelope Type	Drawing Number	Applicable' Burners	Applicable Baskets
Cameron V-31	CB149	A	A, B, C, D
Cameron V-42	CB369	A	A, B, C, D, E
Cameron V-56	CB134	A, B	A, B, C, D, E, F, G
Cameron V-65	CB166	A, B	A, B, C, D, E, F, G, H
Cameron V-77	CB170	A, B	A, B, C, D, E, F, G, H, I
Cameron V-90	CB817	A, B	A, B, C, D, E, F, G, H, I, J
Cameron H20	CB683	A1	A1
Cameron H24	CB729	A1	A1
Cameron H34	CB730	A1	A1
Colt 17A	CB1122	A	A
Colt 21A	CB1090	A	A
Colt 56 Bullet	CB1226	A, B	A, B, C, D, E, F, G
Colt 77 Bullet	CB1227	A, B	A, B, C, D, E, F, G
Colt 90 Bullet	CB1143	A, B	A, B, C, D, E, F, G
Colt 25A	CB1461	A	A, B, C
Colt 31A	CB1462	A	A, B, C, D
Colt 42A	CB1463	A	A, B, C, D, E
Colt 56A	CB1464	A, B	A, B, C, D, E, F, G
Colt 65A	CB1346	A, B	A, B, C, D, E, F, G, H
Colt 69A	CB1465	A, B	A, B, C, D, E, F, G, H
Colt 77A	CB1342	A, B	A, B, C, D, E, F, G, H, I
Colt 90A	CB1340	A, B	A, B, C, D, E, F, G, H, I, J
Colt 105A	CB1345	B	B, C, D, E, F, G, H, I, J, K
Colt 120A	CB1348	B	C, D, E, F, G, H, I, J, K, L
Colt 133A	CB1349	B	C, D, E, F, G, H, I, J, K, L
Colt 140A	CB1477	B, C	D, E, F, G, H, I, J, K, L, M
Colt 150A	CB1473	B, C	D, E, F, G, H, I, J, K, L, M
Colt 160A	CB1351	B, C	D, E, F, G, H, I, J, K, L, M
Colt 180A	CB1352	B, C, D	D, E, F, G, H, I, J, K, L, M, N
Colt 210A	CB1353	B, C, D	E, F, G, H, I, J, K, L, M, N, O
Colt 225A	CB1466	C, D	G, H, I, J, K, L, M, N, O, P, Q
Colt 240A	CB1128	C, D	G, H, I, J, K, L, M, N, O, P, Q
Colt 250A	CB1459	C, D	H, I, J, K, L, M, N, O, P, Q
Colt 260A	CB1129	C, D	I, J, K, L, M, N, O, P, Q
Colt 275A	CB1467	C, D	K, L, M, N, O, P, Q
Colt 315A	CB1468	C, D	L, M, N, O, P, Q
Colt 350A	CB1469	D	M, N, O, P, Q
Colt 375A	CB1470	D	N, O, P, Q
Colt 400A	CB1471	D	N, O, P, Q
Colt 450A	CB1472	D	O, P, Q

Table 5 - Envelopes (continued)

Envelope Type	Drawing Number	Applicable Burners	Applicable Baskets
Thunder AX6-56A	CB1541	A, B	A, B, C, D, E, F, G
Thunder AX7-77A	CB1542	A, B	A, B, C, D, E, F, G, H, I
Thunder AX5-42 Bolt	CB1544	A	A, B, C, D, E
Thunder AX6-56 Bolt	CB1545	A, B	A, B, C, D, E, F, G
Thunder AX7-65 Bolt	CB1546	A, B	A, B, C, D, E, F, G, H
Thunder AX7-77 Bolt	CB1547	A, B	A, B, C, D, E, F, G, H, I
Thunder AX4-31Z	CB1549	A	A, B, C, D
Thunder AX6-56Z	CB1550	A, B	A, B, C, D, E, F, G
Thunder AX7-65Z	CB1551	A, B	A, B, C, D, E, F, G, H
Thunder AX7-77Z	CB1552	A, B	A, B, C, D, E, F, G, H, I
Thunder AX8-105Z	CB1572	B	C, D, E, F, G, H, I, J, K, L
Thunder AX10-160Z	CB1553	B, C	D, E, F, G, H, I, J, K, L, M
Thunder 42 S1	CB1134	A	A, B, C, D, E
Thunder 56 S1	CB1135	A, B	A, B, C, D, E, F, G
Thunder 65 S1	CB1136	A, B	A, B, C, D, E, F, G, H
Thunder 77 S1	CB1080	A, B	A, B, C, D, E, F, G, H, I
Thunder 84 S1	CB1125	A, B	A, B, C, D, E, F, G, H, I
Thunder 90 S1	CB1113	B	B, C, D, E, F, G, H, I, J
Thunder 105 S1	CB1107	B	B, C, D, E, F, G, H, I, J, K
Thunder 120 S1	CB1137	B, C	C, D, E, F, G, H, I, J, K, L
Thunder 160 S1	CB1138	B, C	D, E, F, G, H, I, J, K, L, M, N
Thunder 180 S1	CB1139	B, C, D	E, F, G, H, I, J, K, L, M, N, O
Thunder 90 S2	CB1082	A, B	A, B, C, D, E, F, G, H, I, J
Thunder 105 S2	CB1089	B	B, C, D, E, F, G, H, I, J, K
Thunder 120 S2	CB1105	B	C, D, E, F, G, H, I, J, K, L
Thunder 140 S2	CB1079	B, C	C, D, E, F, G, H, I, J, K, L, M
Thunder 150 S2	CB1334	B, C	C, D, E, F, G, H, I, J, K, L, M
Thunder 160 S2	CB1140	B, C	D, E, F, G, H, I, J, K, L, M, N
Thunder 180 S2	CB1141	B, C, D	E, F, G, H, I, J, K, L, M, N, O
Thunder 210 S2	CB1142	B, C, D	G, H, I, J, K, L, M, N, O, P, Q
Thunder 225 S2	CB1200	C, D	G, H, I, J, K, L, M, N, O, P, Q
Thunder 250 S2	CB1194	C, D	H, I, J, K, L, M, N, O, P, Q

Table 5 - Envelopes (continued)

Envelope Type	Drawing Number	Applicable Burners	Applicable Baskets
Sky 25-16	A4/EN/2516/A	A	A, B
Sky 70-16	A4/EN/7016/A	A, B	B, C, D, E
Sky 80-16	A4/EN/8016/A	A, B	B, C, D, E, F
Sky 31-24	A4/EN/31/A	A	A, B, C, D
Sky 56-24	A4/EN/56/A	A, B	A, B, C, D
Sky 65-24	A4/EN/65/A	A, B	A, B, C, D, E
Sky 77-24	A4/EN/77/A	A, B	A, B, C, D, E
Sky 90-24	A4/EN/90/A	A, B	A, B, C, D, E, F
Sky 105-24	A4/EN/105/A	A, B	B, C, D, E, F, G
Sky 120-24	A4/EN/120/A	B	C, D, E, F, G
Sky 140-24	A4/EN/140/A	B, C	C, D, E, F, G, H
Sky 160-24	A4/EN/160/A	B, C	F, G, H, I, J, K
Sky 180-24	A4/EN/180/A	B, C, D	G, H, I, J, K, L, M
Sky 200-24	A4/EN/200/A	B, C, D	G, H, I, J, K, L, M, N
Sky 220-24	A4/EN/220/A	B, C, D	H, I, J, K, L, M, N
Sky 240-24	A4/EN/240/A	C, D	J, K, L, M, N, O, P, Q
Sky 260-24	A4/EN/260/A	C, D	M, N, O, P, Q
Sky 317-24	A4/EN/317/A	C, D	M, N, O, P, Q
Sky 400-28	A4/EN/400/A	D	N, O, P, Q
Sky 500-28	A4/EN/500/A	D	N, O, P, Q

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