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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 7 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.021 | 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 |
| 21 | 95 | 105 | 114 | 124 | 133 | 143 | 152 | 162 | 171 | 181 | 191 |
| 20 | 91 | 100 | 112 | 118 | 127 | 136 | 145 | 154 | 163 | 172 | 181 |
| 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 |
| 21 | 210 | 231 | 252 | 273 | 294 | 315 | 336 | 357 | 378 | 399 | 420 |
| 20 | 200 | 220 | 247 | 260 | 280 | 300 | 320 | 340 | 360 | 380 | 400 |
| 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 eleven out of production 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 and and EASA.BA.021

| 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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