

Revision No 2 to Supplement ref. 8.46
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8.46 LINDSTRAND ENVELOPES

8.46.1 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 2 of this supplement consists of six pages.

There are no additional continued airworthiness requirements associated with this supplement.

8.46.1.1 Certification Basis

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

EASA.BA.021:	Lindstrand A Type
EASA.BA.501:	Lindstrand A Type Cloudhopper
EASA.BA.502:	Lindstrand B Type
EASA.BA.503:	Lindstrand C Type
EASA.BA.504:	Lindstrand L Type
EASA.BA.505:	Lindstrand S Type
EASA.BA.506:	Lindstrand X Type

8.46.2 LIMITATIONS

8.46.2.8 ENVELOPE TEMPERATURE AND LOADING

3. The maximum continuous envelope temperature that is permitted is 125°C (257°F).
The never exceed temperature for the envelope is 127°C (261°F).

8.46.2.10 RATES OF CLIMB AND DESCENT

8.46.2.10.3 Conventionally Shaped Balloons (excluding X Types)

1. The maximum rate of climb and descent for balloons up to a volume of 424,000 cu.ft (12,000 m³) is 1000 ft/min (5 m/sec).
2. The maximum rate of climb and descent for balloons with a volume greater than 424,000 cu.ft (12,000 m³) is 800 ft/min (4m/sec).

8.46.2.10.3 X Series Balloons

1. The maximum rate of climb and descent for X Series balloons is 1700 ft/min (8.5m/sec), except where the RDS is fitted, when the maximum rates of climb and descent are limited to 1000 ft/min (5 m/sec).

8.46.2.14 Tethered Flight

1. The LBL 48L envelope must not be tethered.

8.46.2.18 Modifications

1. The balloon must not be flown if it has been modified without the approval of the national airworthiness authority in the state of registration.

8.46.2.19 Power lines

1. The balloon must not be flown into contact with power lines.

8.46.2.20 Night VFR Flight

1. When conducting night VFR flights, navigation lights which satisfy the national regulations must be used.

Table 1: Envelope Weight Limits And Volumes

Variant	Volume		Standard MTOM		Reduced MTOM		MLM		FAI Class. AX
	ft ³	m ³	kg	lb	kg	lb	kg	lb	
48	48 000	1359	413	912	413	912	-	-	6
310	310 000	8780	2671	5890	1999	4406	1335	2944	11
317	317 000	8976	2731	6023	2699	5951	1366	3012	11
330	330 000	9344	2843	6270	2699	5951	1422	3135	12
360	360 000	10194	3102	6840	2699	5951	1551	3420	12
500	500 000	14158	4308	9500	2699	5951	2154	4750	13

8.46.3 EMERGENCY PROCEDURES

No change.

8.46.4 NORMAL PROCEDURES

8.46.4.3.2 Hot Inflation

8.46.4.3.2.1 X Series Envelopes

For the X Type, with its' greater length and smaller maximum diameter, care should be taken when first turning on the burners. If the envelope has been filled with too much cold air, the burner flame can be pushed radially outwards by out-flowing cold air. This can cause burn damage to the flying wire/envelope connection in extreme conditions. The best method for avoiding this is to turn the fan down to a lower speed setting for the start of the hot inflation.

8.46.4.5.7 X Series Envelopes

The X Series Racer balloon has been specifically designed to move vertically through the air quickly. One consequence of this design change is that this balloon shape is much more responsive. When you first fly the balloon, it is advised that you pay close attention to your vertical speed.

8.46.5 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
48	480	528	576	624	672	720	768	816	864	912	960
310	3100	3410	3720	4030	4340	4650	4960	5270	5580	5890	6200
317	3170	3487	3804	4121	4438	4755	5072	5389	5706	6023	6340
330	3300	3630	3960	4290	4620	4950	5280	5610	5940	6270	6600
360	3600	3960	4320	4680	5040	5400	5760	6120	6480	6840	7200
500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000

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
48	218	239	261	283	305	327	348	370	392	414	435
310	1406	1546	1687	1828	1968	2109	2249	2390	2531	2671	2812
317	1438	1581	1725	1869	2013	2156	2300	2444	2588	2732	2875
330	1497	1646	1796	1946	2095	2245	2395	2544	2694	2844	2993
360	1633	1796	1959	2122	2286	2449	2612	2776	2939	3102	3265
500	2268	2494	2721	2948	3175	3401	3628	3855	4082	4308	4535

8.46.6 BALLOON AND SYSTEMS DESCRIPTION**8.46.6.2 Envelope**

There are seven additional Lindstrand envelope types, all of which are of the conventional 'inverted teardrop' shape. Approved volumes and variants are listed in the Type Certificate Data Sheets listed in Section 1 of this supplement.

Lindstrand Types	No. of Gores	Suspension Cables	Profile
A Type	16-32	16-32	Smooth
A Type Cloudhopper	16-32	16-32	Smooth
B Type	16	16	Semi-Bulbous
C Type	12-32	12-32	Smooth
L Type	12	12	Smooth
S Type	20	20	Semi-Bulbous
X Type	24-32	24-32	Smooth

8.46.7 BALLOON MAINTENANCE, HANDLING AND CARE

No change.

8.46.9 EQUIPMENT LIST

Table 5: Envelopes (additional)

Envelope Type	Drawing Number	Applicable Burners	Applicable Baskets
LBL21A	EA-021-A-001	A	A
LBL25A	EA-025-A-001	A	A
LBL31A	EA-031-A-001	A	A
LBL35A	EA-035-A-001	A	A
LBL42A	EA-042-A-001	A, B	A, C, D
LBL56A	EA-056-A-001	A, B	A, C, D
LBL60A	EA-060-A-001	A, B	A, C, D
LBL69A	EA-069-A-001	A, B	A, C, D
LBL77A	EA-077-A-001	A, B	A, C, D
LBL90A	EA-090-A-001	A, B	A, C, D, E, F, G
LBL105A	EA-105-A-001	B	A, C, D, E, F, G
LBL120A	EA-120-A-001	B, C	D, E, F, G
LBL140A	EA-140-A-001	B, C	G, H, I, J
LBL150A	EA-150-A-001	B, C	G, H, I, J
LBL160A	EA-160-A-001	B, C	G, H, I, J, K, L, M
LBL180A	EA-180-A-001	B, C, D	I, J, K, L, M, N
LBL210A	EA-210-A-001	B, C, D	I, J, K, L, M, N
LBL240A	EA-240-A-001	C, D	I, J, K, L, M, N
LBL260A	EA-260-A-001	C, D	I, J, K, L, M, N
LBL310A	EA-310-A-001	C, D	N, O, P, Q
LBL317A	EA-317-A-001	C, D	N, O, P, Q
LBL330A	EA-330-A-001	D	N, O, P, Q
LBL360A	EA-360-A-001	D	N, O, P, Q
LBL400A	EA-400-A-001	D	N, O, P, Q
LBL425A	EA-425-A-001	D	N, O, P, Q
LBL450A	EA-450-A-001	D	N, O, P, Q
LBL500A	EA-500-A-001	D	Q, R
LBL56B	EB-056-A-001	A, B	A, C, D
LBL69B	EB-069-A-001	A, B	A, C, D
LBL77B	EB-077-A-001	A, B	A, C, D
LBL90B	EB-090-A-001	A, B	A, C, D, E, F, G
LBL105B	EB-105-A-001	B	A, C, D, E, F, G
LBL400C	EC-400-A-001	D	Q
LBL500C	EC-500-A-001	D	Q, R
LBL600C	EC-600-A-001	D	R

Table 5: Envelopes (additional)

Envelope Type	Drawing Number	Applicable Burners	Applicable Baskets
LBL48L	EL-048-A-001	A, B	A, C
LBL210S	ES-210-A-001	B, C, D	I, J, K, L, M, N
LBL260S	ES-260-A-001	C, D	I, J, K, L, M, N
LBL317S	ES-317-A-001	C, D	N, O, P, Q
LBL60X	EX-060-A-001	A, B	A, C, D
LBL69X	EX-069-A-001	A, B	A, C, D
LBL77X	EX-077-A-001	A, B	A, C, D