European Aviation Safety Agency

EASA

TYPE CERTIFICATE DATA SHEET

KAVANAGH HOT AIR BALLOONS

Manned Free Hot Air Balloon

Type Certificate Holder: **Kavanagh Investment Trust**
P.O. Box 53
Mount Kuring-Gai
NSW, 2080
Australia

Manufacturer: **Kavanagh Balloons Australia Pty Limited**
10 Marina Close
Mount Kuring-Gai
NSW, 2080
Australia

For Variants: Kavanagh Type B
Kavanagh Type C
Kavanagh Type D
Kavanagh Type E
Kavanagh Type EX
Kavanagh Type G

Issue: 1, 3 September 2010

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SECTION 1: GENERAL (ALL TYPES AND VARIANTS)

I. General

1. Data Sheet No: EASA.IM.BA.110 Issue Date: 3 September 2010

2. Type / Variant or Model

   (a) Type: Kavanagh Type B, Kavanagh Type C, Kavanagh Type D, Kavanagh Type E, Kavanagh Type EX, Kavanagh Type G.

   (b) Variant or Model: Refer to Sections 2 to 7 and Note 3.

3. Airworthiness Category: Standard

4. Type Certificate Holder: Kavanagh Investment Trust
   P.O. Box 53
   Mount Kuring-Gai
   NSW, 2080
   Australia

5. Manufacturer: Kavanagh Balloons Australia Pty Limited
   10 Marina Close
   Mount Kuring-Gai
   NSW, 2080
   Australia

6. Australian Certification Date: 11 April 2008

7. CASA Application Date: 14 September 2007

8. CASA Recommendation Date: -

9. EASA Certification Date: 3 September 2010

10. Eligible Serial Numbers: 332 plus 378 and subsequent. See Note 2.

II. Certification Basis

1. Reference Date for Determining the Applicable Requirements: 14 September 2007

2. Australian CASA TypeCertificate Data Sheet No: VL507

3. Australian CASA Type Certification Basis: CASR Part 31

4. Airworthiness Requirements: CAO 101.54, incorporating BCAR Part 31, Issue 2, dated 12 May 2003

5. Special Conditions: None

6. Reversion and Exemptions: None

7. Equivalent Safety Findings: None

III. Technical Characteristics and Operational Limitations

1. Type Design Definition:	Refer to Sections 2 to 7 and Note 3
2. Description:	Manned Free Hot Air Balloons of conventional shape with semi-bulbous or bulbous profiles. Volumes range from 56 000 to 450 000 ft³ (1 586 to 12 743 m³). Envelopes are fitted with Rip Panel, Parachute, Smart Vent or Lite Vent. Envelope options include inlaid, overlaid, painted or inkjet printed artwork, scoop skirt and rotation vents. The envelope is attached to the burner load frame/basket using stainless steel cables and steel karabiners. Burners (heaters) are specified in single, double, triple or quadruple configurations dependent on envelope size. Each unit incorporates a main burner, liquid fire burner and pilot light as a minimum. Baskets are generally of traditional woven cane construction in Open, Single Tee, or Double Tee partitioned configurations. Stainless steel basket suspension cables connect to the load frame and envelope cables with karabiners. Pressurized fuel cylinders, manufactured from stainless steel or aluminium are available in volumes from 47 to 82 litres. The cylinders have the facility to withdraw the fuel as liquid or vapour as required. (See V. Note 5) Additional equipment is mounted in the basket as required.
3. Equipment:	Equipment is listed in the Kavanagh Balloon Hot Air Balloon Flight Manual - Issue 1, March 2008 or later EASA approved revision.
4. Envelope:	Refer to Sections 2-7 and Kavanagh Balloons Flight Manual Issue 1 and Supplements, or later EASA approved issue.
5. Burner:	Refer to Sections 2-7 and Kavanagh Balloons Flight Manual Issue 1 and Supplements, or later EASA approved issue.
6. Basket:	Refer to Sections 2-7 and Kavanagh Balloons Flight Manual Issue 1 and Supplements, or later EASA approved issue.
7. Weights:	Refer to Sections 2 to 7. Note: GCW = Gross Certificated Weight, MLW = Minimum Landing Weight.
8. Envelope Temperature:	The envelope temperature must not exceed 120 °C.
9. Minimum Crew:	One (Pilot).
10. Maximum occupants:	Not to exceed maximum takeoff weight and limitations. Refer to Kavanagh Balloons Flight Manual Issue 1 and Supplements, or later EASA approved issue.
11. Fuel:	Commercial Propane.
12. Other Limitations:	As a minimum, all balloons must carry a number of fuel tanks fitted with regulated vapour outlets equal to the number of vapour supply hoses on the burner. As a minimum, all balloons must carry at least one fuel tank for each liquid supply hose on the burner. Additional fuel tanks of each type may be carried.

IV. Operation and Service Instructions

1. Kavanagh Balloon Hot Air Balloon Flight Manual - Issue 1, March 2008, or later EASA approved revision.

2. Kavanagh Balloons Maintenance Manual Issue 4, Revision 0, dated 1 March 2007, or later revision.

V. Notes

Note 1: For the purpose of maintenance and inspection a logbook must be maintained with each balloon envelope. If the bottom end components (basket burner, fuel tanks, and instruments) are interchanged with other balloon envelopes, they must be listed in the log book of each envelope with which they are used or, alternatively, a separate log book must be maintained for the components being interchanged.

Note 2: Serial numbers are allocated sequentially in production and are prefixed with the model designation, i.e. E210-370.

Note 3: Table 1 shows the part numbers and the link of these components to their respective approved drawings.

Note 4: Sections 2-7 show eligible equipment for each envelope model and these are shown as letter designations, all of which are listed in the Kavanagh Balloons Hot Air Balloon Flight Manual - Issue 1, March 2008 or later EASA approved revision.

Note 5: Kavanagh fuel cylinders [part numbers 55L-KP3629 (55 l); 76L-KP3628 (76 l) and 82L-KP3630 (82 l)] must be fitted with KA5030 vapour regulator assemblies (i.e. those using Bullfinch Tinyreg, model FG1510/11) when used in EASA Member States.

Table 1: Component Designations

BURNERS		
Designation	**Part Number**	**Drawing Numbers**
A	KBS1-1 KBS1-2	KAV-C-42-003
B	KBS2-1 KBS3-1	KAV-C-42-002 KAV-GEN-40-001
C	KBS2-2 KBS3-2	KAV-C/D-42-002 KAV-GEN-41-001
D	KBS3-3	KAV-GEN-42-001
E	KBS3-4	KAV-GEN-42-002

BASKETS		
Designation	**Part Number**	**Drawing Numbers**
A	KLW1010 KLW1110 KLW1210 KOB1010 KOB1110 KOB1210	KAV-GEN-31-002 KAV-GEN-31-001
B	KOB1410 KOB1510 KOB1610 KOB1810	KAV-GEN-31-001
C	KMT1812 KMT2012 KST1812 KST2012 KST2014 KST2212 KST2214	KAV-GEN-31-005
D	KST2415 KST2515	KAV-GEN-31-005
E	KST2715 KST2816 K4DT2715 K4DT2815 K4DT2915 K4DT3215	KAV-GEN-31-005 KAV-GEN-31-004 KAV-GEN-31-004
F	K8DT3615	KAV-GEN-31-003
G	K8DT4015 K8DT4315 K8DT5015	KAV-GEN-31-003 KAV-GEN-31-003

LOAD FRAMES		
Designation	**Part Number**	**Drawing Numbers**
A	K4LF7661	KAV-GEN-43-001
B	K4LF7676	KAV-GEN-43-001
C	K4LF1010	KAV-GEN-43-002
D	K4LF1012	KAV-GEN-43-002
E	K8LF2010	KAV-GEN-43-003

SECTION 2: KAVANAGH TYPE B

CASA Australia Type Certificate Data Sheet reference: VL507

Manned free balloon with twenty four horizontally cut semi bulbous gores. The Type B balloons are defined in the general assembly drawing KAV-B-10-001. The definition of all models is listed in Table 2. The burner, basket and load frame variants are also listed in tables in Section 7 of the Kavanagh Balloons Hot Air Balloon Flight Manual - Issue 1, March 2008 or later EASA approved revision.

Table 2: Kavanagh Type B Definitions, Limitations and Eligible Equipment

Model	Vol [ft³]	Vol [m³]	Drawing	GCW [kg]	MLW [kg]	Burner	Basket	Load Frame
B-77	77 500	2 195	KAV-B-20-004	760	-	B,C	A,B	A,B
B-105	105 000	2 973	KAV-B-20-002	1 030	-	C	B	A,B
B-350	350 000	9 911	KAV-B-20-003	2 800	1 400	D,E	F,G	E
B-400	400 000	11 327	KAV-B-20-001	3 100	1 550	E	F,G	E

SECTION 3: KAVANAGH TYPE C

CASA Australia Type Certificate Data Sheet reference: VL507

Manned free balloon with twelve horizontally cut bulbous gores. The Type C balloons are defined in the general assembly drawing KAV-C-10-001. The definition of all variants (models) is listed in Table 3. The burner, basket and load frame variants are also listed in tables in Section 7 of the Kavanagh Balloons Hot Air Balloon Flight Manual - Issue 1, March 2008 or later EASA approved revision.

Table 3: Kavanagh Type C Definitions, Limitations and Eligible Equipment

Model	Vol [ft³]	Vol [m³]	Drawing	GCW [kg]	MLW [kg]	Burner	Basket	Load Frame
C-56	56 000	1 586	KAV-C-20-001	550	-	A,B,C	A	A,B
C-65	65 000	1 841	KAV-C-20-001	635	-	A,B,C	A	A,B
C-77	77 500	2 195	KAV-C-20-001	760	-	B,C	A,B	A,B

SECTION 4: KAVANAGH TYPE D

CASA Australia Type Certificate Data Sheet reference: VL507

Manned free balloon with sixteen horizontally cut bulbous gores. The Type D balloons are defined in the general assembly drawing KAV-D-10-001. The definition of all variants (models) is listed in Table 4. The burner, basket and load frame variants are also listed in tables in Section 7 of the Kavanagh Balloons Hot Air Balloon Flight Manual - Issue 1, March 2008 or later EASA approved revision.

Table 4: Kavanagh Type D Definitions, Limitations, Eligible Equipment and Serial Numbers

Model	Vol [ft³]	Vol [m³]	Drawing	GCW [kg]	MLW [kg]	Burner	Basket	Load Frame
D-77	77 500	2 195	KAV-D-20-001	760	-	B,C	A,B	A,B
D-84	84 000	2 379	KAV-D-20-001	824	-	B,C	B	A,B
D-90	90 000	2 549	KAV-D-20-001	902	-	C	B	A,B
D-105	105 500	2 973	KAV-D-20-001	1 030	-	C	B	A,B

SECTION 5: KAVANAGH TYPE E

CASA Australia Type Certificate Data Sheet reference: VL507

Manned free balloon with twenty horizontally cut bulbous gores. The Type E balloons are defined in the general assembly drawing KAV-E-10-001. The definition of all variants (models) is listed in Table 5. The burner, basket and load frame variants are also listed in tables in Section 7 of the Kavanagh Balloons Hot Air Balloon Flight Manual - Issue 1, March 2008 or later EASA approved revision.

Table 5: Kavanagh Type E Definitions, Limitations and Eligible Equipment

Model	Vol [ft³]	Vol [m³]	Drawing	GCW [kg]	MLW [kg]	Burner	Basket	Load Frame
E-120	120 000	3 398	KAV-E-20-001	1 175	-	C	B,C	B,C
E-140	140 000	3 964	KAV-E-20-001	1 300	-	C	B,C	B,C
E-160	160 000	4 531	KAV-E-20-001	1 400	700	C,D	C,D,E	B,C
E-180	180 000	5 097	KAV-E-20-001	1 450	725	C,D	D,E	C,D
E-210	210 000	5 947	KAV-E-20-001	1 900	950	C,D,E	D,E	D
E-240	240 000	6 796	KAV-E-20-001	2 000	1 000	D,E	E,F	D,E
E-260	260 000	7 362	KAV-E-20-001	2 200	1 100	D,E	E,F	D,E
E-300	300 000	8 495	KAV-E-20-001	2 500	1 250	D,E	E,F	D,E

SECTION 6: KAVANAGH TYPE EX

CASA Australia Type Certificate Data Sheet reference: VL507

Manned free balloon with twenty horizontally cut bulbous gores. The Type EX balloon is defined in the general assembly drawing KAV-EX-10-001. The definition of all variants (models) is listed in Table 6. The burner, basket and load frame variants are also listed in tables in Section 7 of the Kavanagh Balloons Hot Air Balloon Flight Manual - Issue 1, March 2008 or later EASA approved revision.

Table 6: Kavanagh Type EX Definitions, Limitations and Eligible Equipment

Model	Vol [ft³]	Vol [m³]	Drawing	GCW [kg]	MLW [kg]	Burner	Basket	Load Frame
EX-65	65 000	1 841	KAV-EX-20-001	638	-	B,C	A,B	A,B

SECTION 7: KAVANAGH TYPE G

CASA Australia Type Certificate Data Sheet reference: VL507

Manned free balloon with twenty eight horizontally cut bulbous gores. The Type G balloon is defined in the general assembly drawing KAV-G-10-001. The definition of all variants (models) is listed in Table 7. The burner, basket and load frame variants are also listed in tables in Section 7 of the Kavanagh Balloons Hot Air Balloon Flight Manual - Issue 1, March 2008 or later EASA approved revision.

Table 7: Kavanagh Type G Definitions, Limitations and Eligible Equipment

Model	Vol [ft³]	Vol [m³]	Drawing	GCW [kg]	MLW [kg]	Burner	Basket	Load Frame
G-450	450 000	12 743	KAV-G-20-001	3 700	1 850	E	G	E

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