

The technical content of this document is approved under the authority of DOA ref. UK.21J.0140 (C819)

8.14 CLOUDHOPPER

8.14.1 INTRODUCTION

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 9 of this supplement has eight pages.

Supplement 7.14 to Maintenance Manual Issue 10 is required to ensure continued airworthiness.

8.14.2 LIMITATIONS

8.14.2.2 Weather

1. The balloon must not be flown free in surface winds greater than 8 kts (4.1 m/s).
3. The atmosphere must be stable.

8.14.2.7 Crew

3. The maximum number of occupants permitted in the Cloudhopper is one.

8.14.2.10 Rates Of Climb And Descent

1. The rate of descent should not exceed 800 ft/min (4.0 m/s)

8.14.2.16 Cylinders

1. All Aluminium cylinders shall be equipped with an outer, water resistant protective layer at least 25mm thick made from structural cellular foam or similar material.

8.14.3 EMERGENCY PROCEDURES

8.14.3.2.1 Emergency Climb

Emergency climbs should be made by operating the main burner valve and whisper burner simultaneously.

8.14.3.8 Preparation For A Hard Landing

To reduce the severity of the impact avoid any use of the parachute vent and jettison any surplus weight. Absorb the landing impact parachute style with legs together and knees bent.

8.14.3.10 Burner Failure

Shut off fuel to the burner at the cylinder valve or fuel shut-off master valve (if fitted)

Prepare for a hard landing (Section 3.8).

8.14.3.11 Pilot Light Failure

If the pilot light fails the following procedure should be adopted-

1. Shut off the pilot light.
2. Partially open the whisper burner valve.
3. Light the burner with a match or other igniter.

WARNING: Do not use the igniter built into the burner, as it will not ignite the fuel

4. Use the whisper burner valve to control the flight of the balloon.
5. Partially close the whisper burner valve to a fractional setting, to maintain a pilot setting.
6. Land as soon as possible.

8.14.4 NORMAL PROCEDURES

8.14.4.2.2 Basket Rigging

If the cloudhopper is fitted with a folding frame (Mod. C646), unfold the back-frame and fully insert the locking pin into each of the two hinges.

Assemble the burner to the frame using the four locking pins.

Fit the harness to the frame. Two maillon links at mid height of the pilot's back connect the harness to welded loops on the frame (these usually remain connected during transport). The main support of the harness is by two webbing straps which connect to welded loops on the burner assembly with karabiners. Ensure all screw gates are closed.

Strap on the fuel cylinder and lay the Cloudhopper on its back. The upper cylinder strap **MUST** be around the shoulder of the cylinder to prevent upward movement.

The propane cylinder contents gauge is viewed in two adjustable mirrors fitted to the hopper frame. These angle of these mirrors can be adjusted by hand to suit any cylinder.

8.14.4.2.3 Burner Rigging

The burner is integral in the base unit. Quicklinks or karabiners (one oval, one pear shaped) are used to connect the envelope to the Swivel Ring. The link connected to the swivel ring is permanently locked.

Table 1: Karabiner Specifications

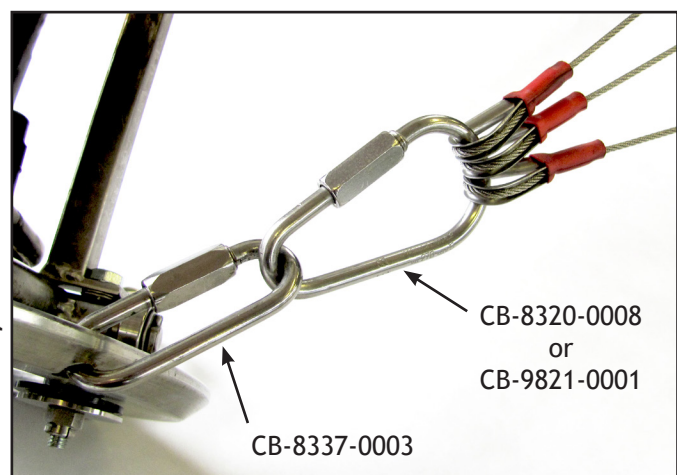
Part No.	Rating	Identification Markings
CB-8337-0003	400 kg	Maillon Rapide WLL 400 kg GO5
CB-8320-0008	270 kg	Maillon Rapide WLL 270 kg P5
CU-9821-001	15 kN	ITALY-AISI 316 Pat.

8.14.4.2.4 Envelope Rigging

Pull the base of the envelope out of the bag and taking care that wires are not crossed and inside the scoop, connect the appropriate flying wires to each link on the swivel ring. Each wire is numbered and the wires are grouped as shown in Table 4.2

Close all screwgates and connect the control lines to the upper links (pear shaped).

Connect the launch restraint to the upper links (pear shaped) ensuring it is not adjacent to the screwgates.



▲ Cloudhopper Envelope Rigging

Table 4.2 Flying Wire Grouping

<i>4-Link System</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
8 Wire	8,1	2,3	4,5	6,7
12 Wire	11, 12, 1	2-4	5-7	8-10
15 Wire	14, 15, 1	2-5	6-9	10-13
16 Wire	14-16, 1	2-5	6-9	10-13
24 Wire	20-24, 1	2-7	8-13	14-19
26 wire	21-26, 1	2-7	8-13	14-20

8.14.4.4.2 Hot Inflation

Hot inflation should be performed by standing astride the Cloudhopper and lifting it by the back frame cross bar. When the burner is aligned with the envelope mouth apply heat using the main blast burner. Allow the Cloudhopper to come upright as the envelope rises.

The pilot should sit in the harness as soon as the balloon is stood up, and the harness should be fastened as soon as the pilot is in the seat. (Refer to figure 2).

Ensure the leg straps pass over the pilot’s legs, through the tape loop on the main support webbing and back to the quick release box.

A velcro “security strap” is fitted over the quick release box to reduce the risk of accidental disconnection of the harness. The harness is disconnected by removing the velcro “security strap” and twisting the harness box to release the tangs.

8.14.4.5 Take-Off

Pre-Take-Off Checks

- Swivel System Operating correctly.
- Harness Correctly fitted and secure.
- Frame Locking Pins Correctly fitted and secure.

The Cloudhopper should be rotated so that the pilot is facing the direction of travel on take off.

During flight the pilot will normally be seated, but if required the standing position may be adopted by slipping forward off the seat. The pilots’ weight is then supported by the two leg loops created by the leg straps passing through the red tape loops.

8.14.4.6.3 Fuel Management

During flight the pilot should note the flight time and fuel contents (using the mirrors) at regular intervals. If at any time there is doubt about the amount of fuel remaining a landing should be made at the first available opportunity.

8.14.4.7 Landing

8.14.4.7.1 Approach To Land

At a height of about 20 feet (6m) the Cloudhopper must be rotated to face backwards to the direction of approach.

Turn off the pilot light and fuel shut-off valve (if fitted).

8.14.4.7.2 Touchdown

Touchdown should be absorbed with the legs, knees slightly bent and stood up in the harness.

On no account should legs be braced with knees straight as this may result in injury.

Do not release the harness until the envelope has fully deflated.

8.14.4.12 TETHER OPERATION

8.14.4.12.2 Rigging

If the Cloudhopper is to be flown on a tether, the tether line must be connected to one of the envelope karabiners at the swivel ring, not to any other point on the hopper unit.

8.14.5 WEIGHT CALCULATIONS

No change.

8.14.6 BALLOON AND SYSTEMS DESCRIPTION

8.14.6.3 Burner

The burner is a single burner unit, based around the Stratus type manifold block. Both the main burner and the Whisper burner are controlled by toggle type handles. These are identified by colour (blue - Whisper valve; red - main blast valve) and texture (smooth - Whisper valve; rough - main blast valve). An optional fuel shut-off valve can be fitted at the inlet to the manifold block which isolates all the valves to prevent inadvertent operation (Mod. C615). A rotary whisper valve control may be optionally fitted on Cloudhoppers using the Stratus Neo manifold block.

8.14.6.5 Basket

The Cloudhopper is constructed around a stainless steel tubular frame in two sections. These are pinned together before flight but can be separated for transportation.

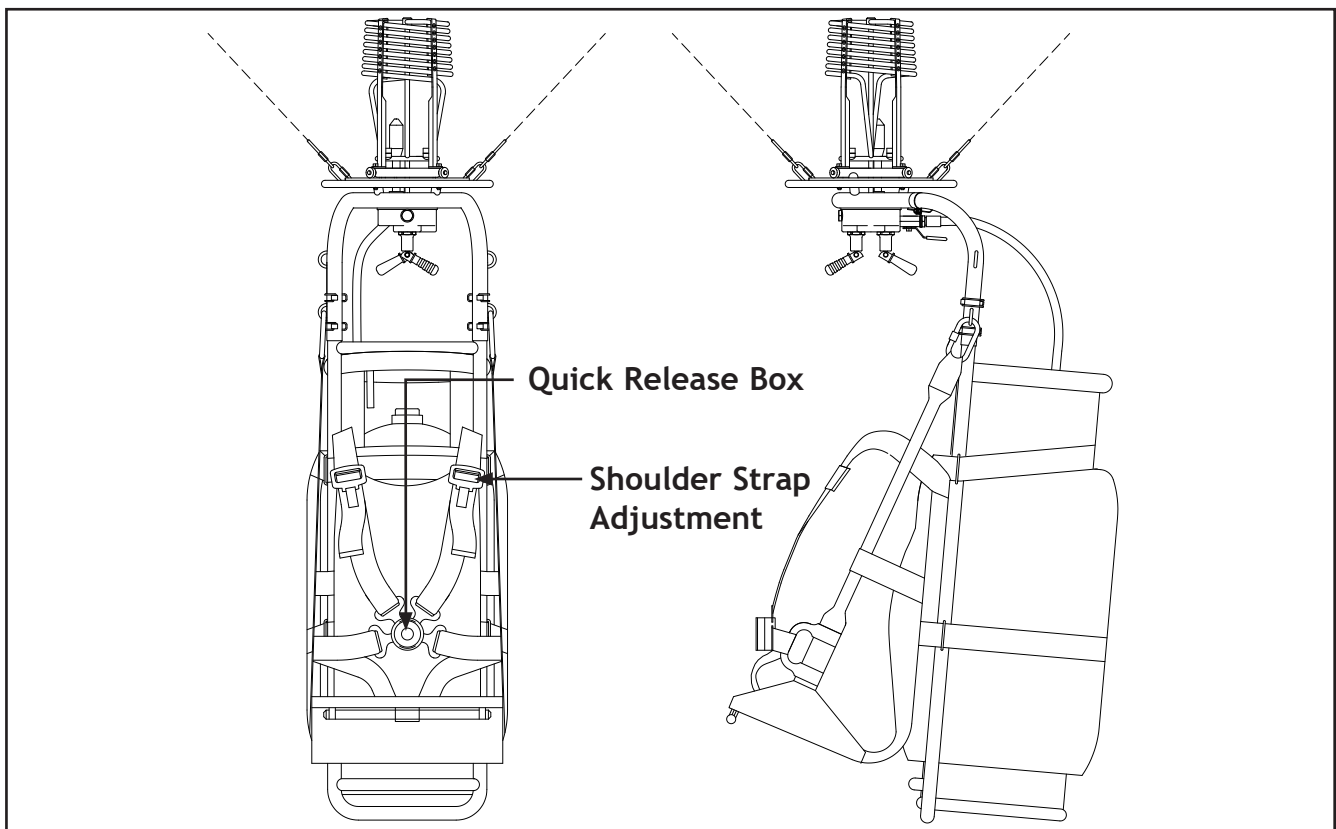
The lower frame engages the fuel cylinder at the lower rim. The cylinder is then secured in position by two cylinder straps. The fuel cylinder can be any approved standard type, as the attachment does not require any modification to the cylinder.

The upper frame incorporates the burner unit, swivel system, envelope attachment and attachments for the pilot harness. All the structural elements are incorporated in an integrated welded assembly. Multiple load paths are provided in the design.

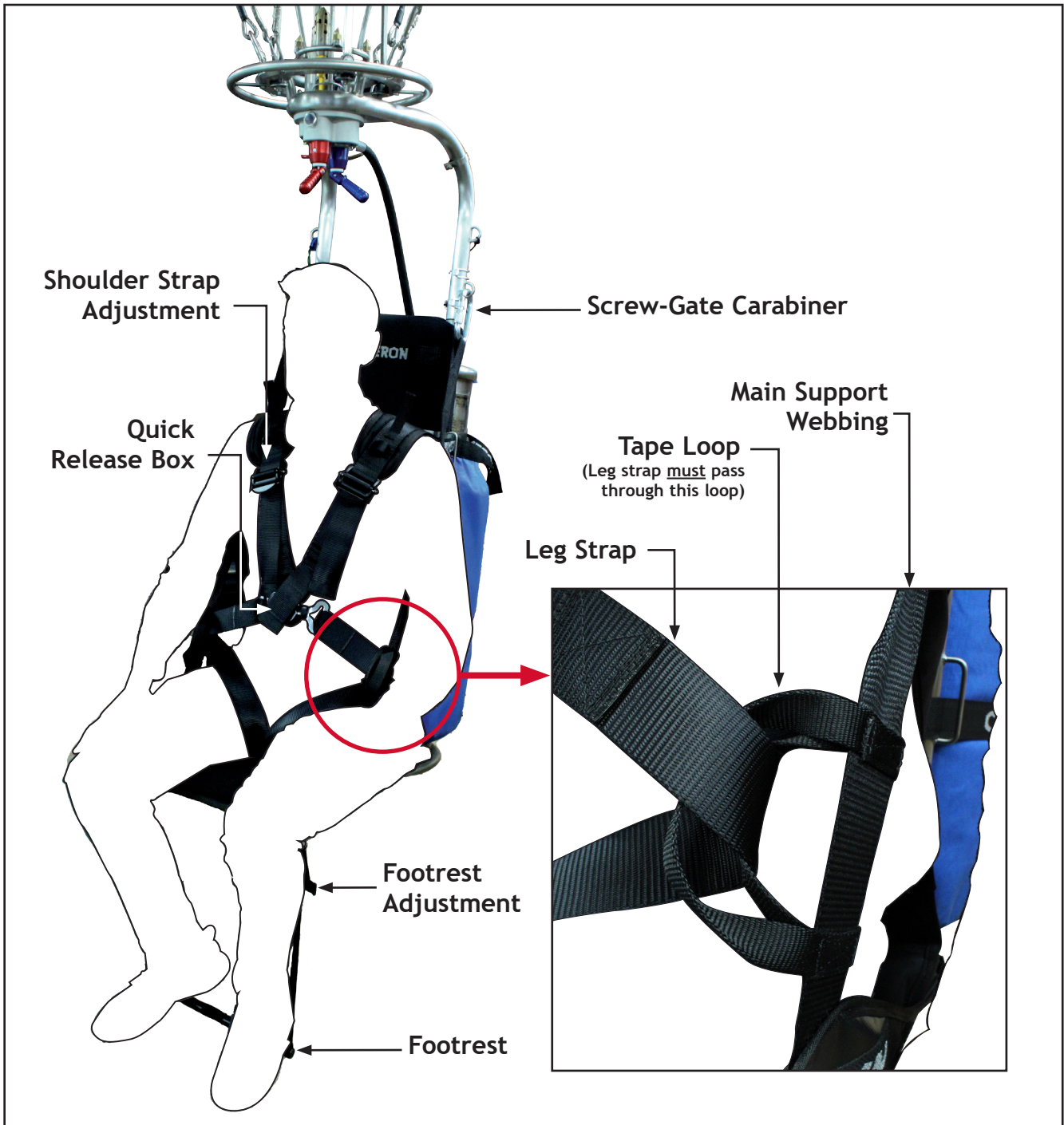
The fuel cylinder contents gauge is viewed in two adjustable mirrors fitted on the overhead frame. The mirrors can be adjusted by hand to suit any particular pilot / cylinder combination.

The pilot harness incorporating a four-point quick release box, seat and footrest is attached to the frame by two screw-gate karabiners and two screw-gate Quicklinks. The harness can be adjusted for size at the two shoulder straps.

The pilot harness may be attached at either of two positions on the frame to suit both tall and short pilots, a zip built into the back panel allows it to be shortened at the same time. An adjustable footrest is also provided and may be stowed under the front edge of the seat when not required and during landing.



▲ Cloudhopper General Arrangement



▲ Cloudhopper Harness Detail

8.14.7 BALLOON MAINTENANCE, HANDLING AND CARE

To clean mud from the fuel cylinder jacket and Cloudhopper harness, let the unit dry completely and then brush the mud away with a stiff brush.

CAUTION: NEVER clean the harness with strong solvent cleaners or other chemicals.

CAUTION: NEVER leave the harness wet or damp for prolonged periods.

NOTE: The use - including handling, transportation and filling - of transportable gas cylinders manufactured prior to 2004 could be prohibited by legislation (e.g. ADR, RID, ADN) in many countries unless the cylinder has been reassessed for conformity against accepted design/manufacturing standards (e.g. pi-marked).

The owner/operator of the cylinder is responsible for establishing if compliance is required and ensuring that compliance is maintained. Cameron Balloons Ltd. is unable to provide advice on this matter and local guidance should be sought in the country of operation.

8.14.9 EQUIPMENT LIST

Basket Cat.	Drawing Number	Basket Description	Applicable Cylinders	Applicable Burner Frames
A. A1	CB8320	Cloudhopper	1, 2, 3	Integral