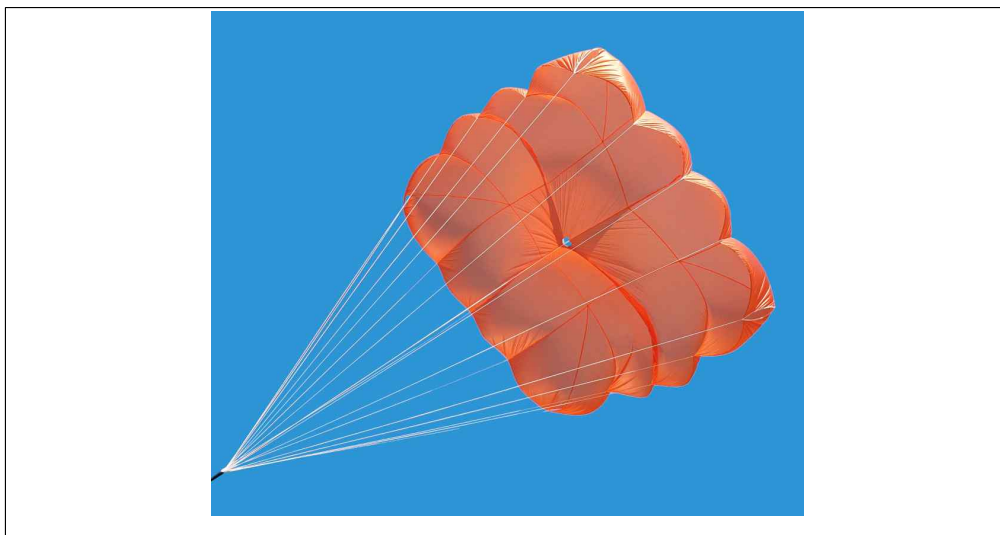


COMMA#^{lite}

User's Manual

Comma# Light 90 / 105 / 125 / 180 / BI
Rescue Parachute Square Type

REV 4. MAY 2023



- Warning -

This parachute has been solely designed for use as an emergency rescue system for paragliders. Do not under any circumstances use this parachute for free fall parachuting, Base jumping or with any other type of aircraft.

Any equipment alteration will result in the respective homologation annulment. The use of this equipment is at your own risk.

Every pilot is responsible for the maintenance and evaluation of the usage of their equipment.

The Comma# Light has been tested and found compliant using the original manufacturer's inner container. Use of any other inner container may produce different results, including failures.

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1. Introduction

This manual provides assembly, intermediate maintenance and packing instructions for Comma# Light Rescue Parachute. This parachute provides the capability to safely rescue a paraglider on emergency situations.

1.1 Performance Data

Suspended Weight Range : 75~210 kg
 Rate of Descent : 5.0 $\pm$ 0.2 m/sec
 Stability Range : $\pm$ 3° Angle of Oscillation
 Opening Time : 3.5~4.5 sec

1.2 Physical Specifications

Model Name	Comma# Light				
Size	90 (S)	105 (M)	125 (L)	180 (XXL)	210(BI)
Shape	Square Type				
Canopy Color	White or Orange				
Area (m ²)	26.8	31.3	37.1	52.6	61.5
Riser Length (cm)	22				
Weight (kg)	1.1	1.3	1.5	2.4	2.6
Suspended Load Range (kg)	75~90	90~105	105~125	140~180	170~210
Diameter(m)	5.33	5.76	6.28	7.02	8.07
Container Volume (cm ³)	3,500	3,900	4,500	7,400	8,200

1.3 Use

The Comma# Light is designed for only paragliding activity. It must not be used nor deployed in velocities reaching over 32 m/s (115km/h). It is explicitly forbidden and cannot be used in free-fall. The maximum load for each size of the parachute is established according to the certification requirements.

The total weight (suspended load) includes: person, clothing, accessories, glider, harness and parachute.

When winch towing, please consider and fully read the instructions of the equipment, namely; harness, paraglider, and towing release manufacturer. If using a front-container, you have to ensure that the rescue parachute can be released in every situation.

During an emergency situation while flying the pilot pulls at the release handle. Therefore the outer container opens and the deployment bag is released. Subsequently, the rescue parachute package is to be thrown with a dynamic move into free airspace. The Comma# Light does not have a steering function.

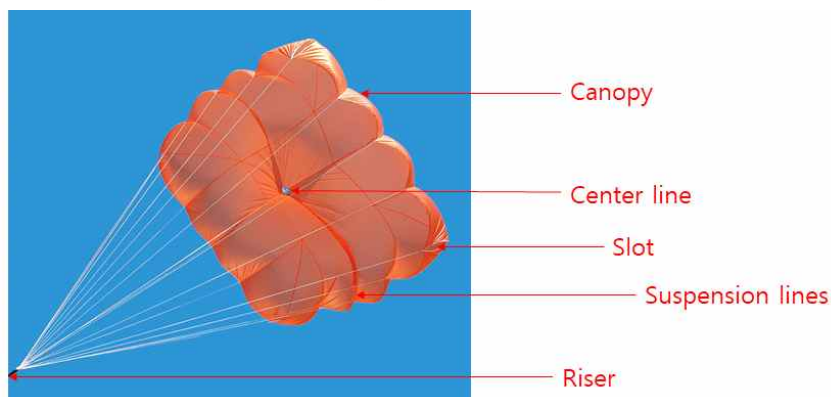
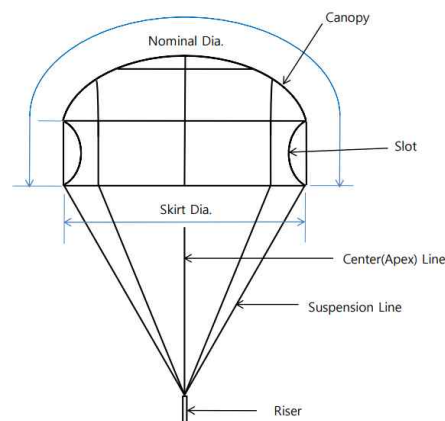
The COMMA# Light is packaged in an internal container attached to a

deployment handle. The inner container is designed to open in all directions. A safety pin at the end of the handle secures the system within an outer container or harness and prevents accidental opening. The handle is also reinforced, making it easy to hold even with gloves on. As an option, you can get external containers, release handles and V-risers from Davinci gliders. Can be attached to the front or side of the harness, depending on preference and harness characteristics. The rescue parachute is manually activated by releasing the handle, pulling the bag out of the container, and throwing it out (along with the handle) in the direction of the airflow.

1.4 Inner Container



1.5 Canopy



Components

1.6 Storage

Comma# Light Rescue Parachute should be protected from weather elements, dust, oil, grease and acid. Unpacked parachute should be kept in a dry, well ventilated location.

1.7 List of Materials

Item	Specification	Supplier
Canopy	Nylon Ripstop Fabric, Coated, 28g/sq.m	Serim/Myeongjin
Reinforcing Tape	Nylon Tape, 12mm	Serim
Suspension Line	Dyneema(UHMW PE) 2mm or 2.5mm(BI)	Serim
Apex Line	Nylon Cord, 7mm	Serim
Riser	20mm Dyneema or 25mm Nylon Tubular	Serim

In our effort to continuously improve our products, processes and services, we invite you to send us your comments. As a properly trained and qualified user of this parachute, you are uniquely suited to provide us with valuable feedback regarding design and/or performance. Send us an email or letter to :

Davinci Products Inc.
sales@dv-gliders.com
www.dv-gliders.com

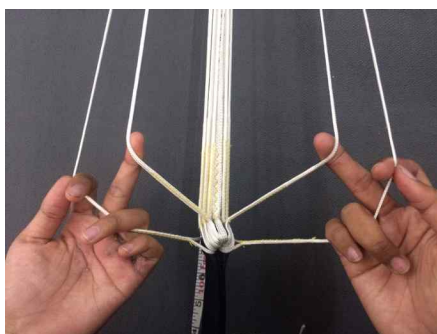
2. Packing Instruction

2.1 4-Line Check

Check suspension lines for proper layout using 4 line check method.

Stretch the rescue parachute out to its full length. Check the suspension lines for damage and tangles by this method.

All lines should be located in the 4 lines and first and last lines at both sides from the riser as illustrated below.



2.2 Folding the Gores

Apply sufficient tension to hold the canopy and suspension lines using the connector link tensioning device or rubber string.

First fold all the panels one by one to the right side of the suspension lines. While doing this, check for any signs of damage or deterioration of the fabric.

By folding each panel to the left side of the suspension lines again one by one, check carefully that each panel is laid evenly and without creases. Check the main seams and inside the panels as well. Make sure that all the skirts are even and all the loops lie in the same direction. And then fold the each end side of the skirt like the picture.



2.3 Long Folding

Fold the canopy in dividing into three equal parts as shown below.



2.4 S-Folding

Fold the canopy into “S” shaped fold so that it can be inserted into the inner container. When you fold to the S shape, the skirt should be located in shown in the picture. And then fold the canopy to be a same size with inner container.



2.5 Stowing the Suspension Lines

Arrange the remaining lines in a uniform length as shown below and fix them with a rubber band.



2.6 Closing the Inner Container

Place the Canopy of folding S shape on the inner container. And Close the canopy with two flaps of inner container and secure with suspension lines using elastic closing loop. Close the canopy with the last two flaps of inner container and secure with suspension lines using the elastic closing loop. The last 40-50cm of the lines is left free.



<pic 2.6.1>



<pic 2.6.2>

3. Maintenance Guidelines

3.1 Care and Maintenance

Take care not to expose the parachute to heat and moisture. If it is wet from the inside of the rescue parachute, it should be dried naturally and repacked. The rescue parachute should be repacked regularly(**every 6 months**).

3.2 Maintenance Guidelines

Stitching and re-stitching on rescue parachute items constructed from cloth, line, and webbing should be accomplished with thread, which matches the original material and original stitching.

II straight stitching should be 6.0-8.0 stitches per inch. Zigzag stitching should extend at least 1/2 inch into undamaged stitching at each end. Re-stitching should be made directly over the original stitching, following the original stitch pattern as closely as possible.

3.3 Life span Guidelines

The life span of the Comma# Light reserve parachute is not to exceed 10 years when the inspections follow 2 year cycle. If past that period, the product **MUST BE** disposed and not to be used again.

3.4 Checking rescue system

In addition to a normal preflight check (see manual of the glider/harness or maybe towing device), please check that the rescue container is closed correctly and the release handle is placed correctly prior to every take-off. If the rescue parachute connection bridle is removed after every flight (for example: when you use a front-container) you must check the correct attachment of the bridle.

3.5 Connect the reserve parachute to the harness

To connect the reserve parachute to the bridle, you must use a shackle with at least 2400 daN ultimate strength.

The shackle has to be secured on both sides with rubber bands or O-rings by means of a Larks Head knot, with fixing tape, or a neoprene jacket to protect against fraying and abrasion.

Direct connection between the main riser and the harness bridle is not recommended, as a wrongly installed knot or shock opening could significantly weaken the system depending on the configuration!

It is important to ensure that the connection is centered, that is, the two connecting lines leading to the shoulder straps are of the same length. If the harness does not have integrated/ designated attachment points for the reserve chute on the shoulder straps, then the reserve chute connecting line can, alternatively, be attached to both main carabiners. If using the main carabiners, again ensure that the connection is centered (equidistant connecting lines).

3.6 Compatibility

The COMMA# Light system is appropriate for integrated reserve parachute containers or front-mounted container. This to ensure that the configuration works properly and that all installations have been carried out correctly by the harness and rescue manual.

The installation of the integrated reserve container and the installation of a rescue should be carried out from the professional certified facility.

Please refer to the harness or the front container user's manual if available.

This requirement is necessary to make sure that no unsuitable harnesses with integrated outer containers are used in combination with our reserve.

Please contact your flight school or Davinci Gliders dealer to prepare for the initial installation.

There you can find, in most cases, a certified compatibility tester.

Be careful with back protector manipulation in your harness when the rescue parachute is already installed. Depending on the design of the harness, protector positioning or the rescue parachute container may affect the ability to easily pull the rescue parachute out.

After any changes, it is absolutely essential to do a simulated deployment under a static swing, ensuring that the parachute release the system operates correctly and the parachute comes out easily.

WARNING – Use of this parachute with any alternative inner container: the speed of opening and opening shock test has been completed using the inner container supplied. Use of any other inner container may produce different results (including failure)

3.7 Spare parts

Except for the rubber bands used for packing, the Comma# Light does not require any spare parts. The inner container is part of a rescue system. Utilizing other manufacturers the deployment systems will invalidate the stability of the rescue.

3.8 Environmental information

Please send disused parachutes back to Davinci Products Inc. We will dispose of them by a professional waste facility.

Finally, we would ask each pilot to take care of nature and our environment. Respect nature and the environment at all times but most particularly at take-off and landing places. Respect others and paraglider in harmony with nature.

Do not leave marked tracks and do not leave rubbish behind. Do not make unnecessary noise and respect sensitive biological areas.

The materials of Comma# Light is made require a special waste disposal. Please send old rescue of Davinci gliders back to us our offices. We will undertake to recycle the glider.