

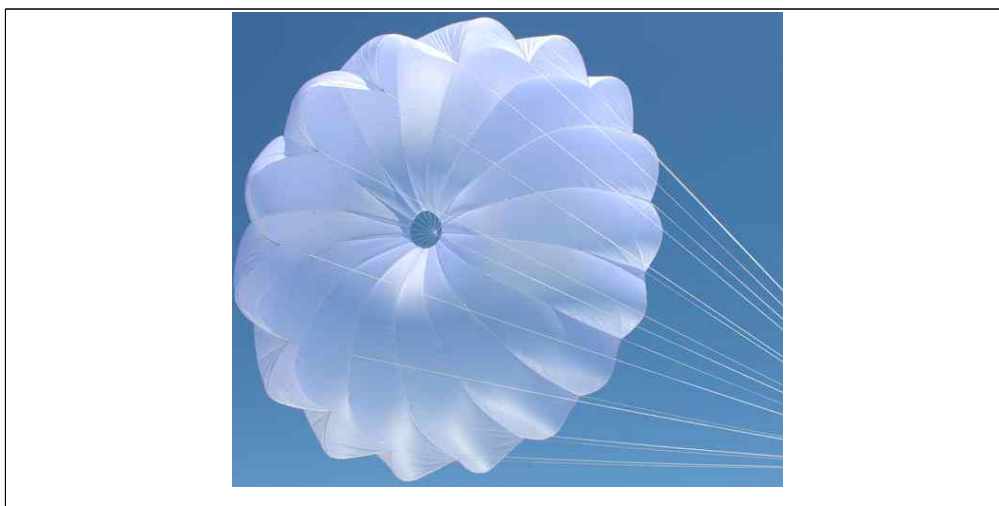
# COMMA

## User's Manual

Comma 90 / 110 / 130

Rescue Parachute Circular Type

REV 3. Nov 2019



**- 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 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 Rescue Parachute. This parachute provides the capability to safely rescue a paraglider on emergency situations.

### 1.1 Performance Data

Suspended Weight Range : 70~130 kg  
 Rate of Descent : 5.0 ± 0.2 m/sec  
 Stability Range : ± 5° Angle of Oscillation  
 Opening Time : 3.5~4.5 sec

### 1.2 Physical Specifications

Model Name	Comma		
Size	90 (S)	110 (M)	130 (L)
Shape	Parabolic(PDA)		
Canopy Color	White or Yellow		
Area (m <sup>2</sup> )	28.0	33.9	40.3
No. of Gores	14	16	18
Gore Length (m)	299.0	326.5	354.2
No. of Suspension Lines	14	16	18
Suspension Line length (m)	5.53	6.10	6.66
No. of Apex Line	1	1	1
Riser Length (cm)	22		
Weight (kg)	1.55	1.78	2.10
Suspended Load Range (kg)	70~90	90~110	110~130
Container Volume (cm <sup>3</sup> )	4,000	5,300	6,900

### 1.3 Use

The Comma 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 side of the parachute is established according to the certification requirements.

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

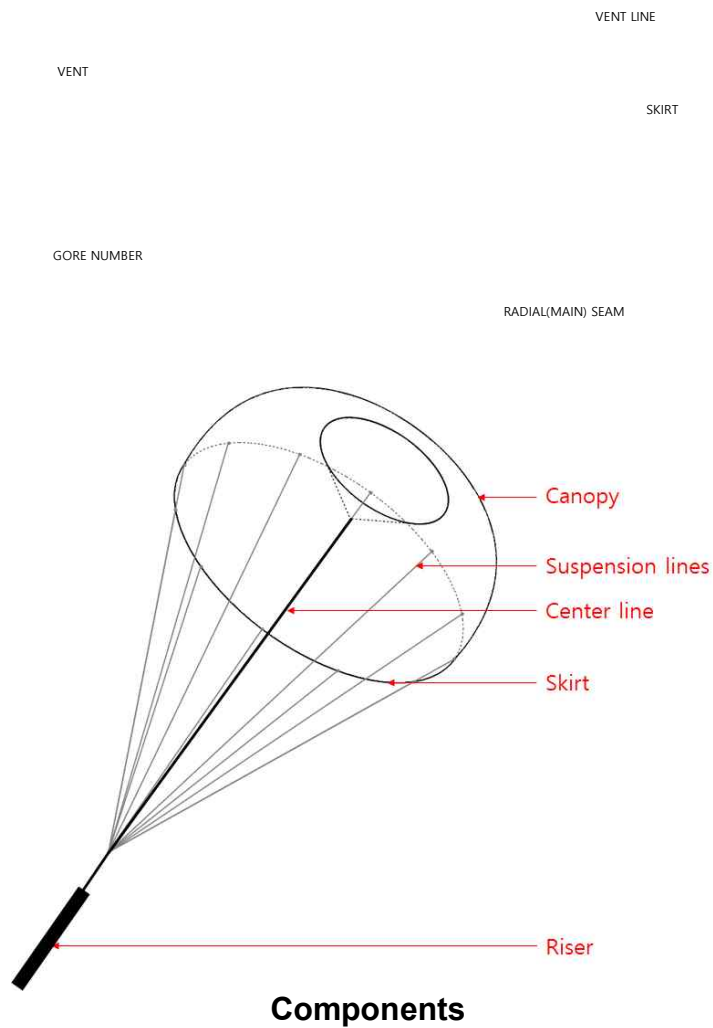
When winch towing, please consider and fully read the instructions of the equipment, namely; harness, paraglider, and towing release manufacturer. If using a front-container, you have to ensure that the rescue parachute can be released in every situation.

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 does not have a steering function.

### 1.4 Inner Container



### 1.5 Canopy



## 1.6 Storage

Comma 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	Ripstop Nylon Fabric, 3RS Coating, 37g	Myeongjin Textile
Reinforcing Tape	Plain Nylon Tape, 12mm Wide	YOKSIN
Suspension & Vent Line	Nylon Cord, 3mm Dia	cousin
Apex Line	Nylon Cord, 7mm Dia	edelrid
Riser	Tubular Nylon Webbing, 20mm Wide	Seokwang

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 :

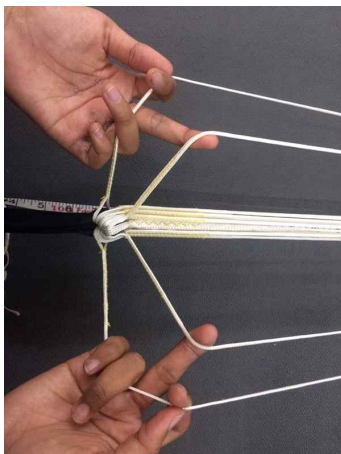
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## 2. Packing Instruction

### 2.1 4-Line Check

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

Suspension lines 1-16 are divided into two groups, 1-8 in the left group and 9-16 in the right group(Comma 110). Remove any twists and tangles in the lines. Check for canopy inversion.



## 2.2 Folding the Gores

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

Move to the lower lateral band (Skirt) of the canopy and fold leaving lines 1-8 in the left line group, and lines 9-16 in the right. Insert the two groups of lines into a line separator. Place packing weight on suspension lines next to line separator.



## 2.3 Long Folding the Canopy

Fold the canopy in dividing into three equal parts as shown below. And then fold the left and right sides.



## 2.4 S-Folding and Stowing the Canopy

Fold the canopy into “S” shaped fold so that it can be inserted into the inner container as shown below. And then put it in the inner container as shown below.



## 2.5 Stowing the Suspension Lines

Close the canopy with two flaps of inner container and secure with suspension lines using elastic closing loop. And then arrange the remaining lines in a uniform length as shown below and fix them with a rubber band(25×3×1mm).



## 2.6 Closing the Inner Container

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.



## 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 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 parachute items constructed from cloth, line, and webbing should be accomplished with thread, which matches the original material and original stitching, when possible.

All 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 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 Compatibility**

The installation of the integrated reserve container and the installation of a rescue should be carried out from the professional certified facility. This to ensure that the configuration works properly and that all installations have been carried out correctly by the harness and rescue manual.

### **3.6 Spare parts**

Except for the rubber bands used for packing, the Comma does not require any spare parts. Only certified rubber bands of 25x3x1mm size are recommended. They can be ordered from us.

The inner bag is part of a rescue system. Utilizing other manufacturers the deployment bag will invalidate the stability of the rescue.

### **3.7 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 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.