TECHNICAL DESCRIPTION

INSTRUCTIONS FOR PACKING AND USE

Rescue parachute

PLUS

STRATOS 07 S.R.O.

Contents

…….

Update / mutation

Update No.	Date	**Information about update/mutation**

INTRODUCTION

Flying. Floating free in mid air. Those who have already had the opportunity to fly know that there is nothing more beautiful nor is there anywhere else where it is so easy to escape so easily from reality.
To some one it may seem easy. Take a glider or a paraglider and take off. However, it is necessary to keep many risk factors which are unsurpassable from flying, in mind. One of the objective dangers is a collision for example. Here the safety parachute must fulfill its sole function, i.e. to help save the pilots life and reduce injury.

ABOUT OUR COMPANY

STRATOS O7 s.r.o.
Na Folimance 13
120 00 Prague 2
Czech Republic

The aim of STRATOS 07 is to develop and produce systems of high quality that can match the top products available. In order for us answer a number of questions relating to the rate of descent, opening time? Durability and impact on opening, we have carried out numerous tests on all the materials used as well as the completed reserves. As part of the test programme dozens of jumps from a helicopter were carried out using a dummy. In that way we simulated many diverse situations in which the reserve chute must operate absolutely without fail.

Our aim was not to design the smallest or lightest reserve, but to construct an exceptionally safe chute. To achieve tills we had to use new materials from several world-wide sources with well proven track records and technology, the emphasis being on quality. The results of our research and development have culminated in the PLUS series of parachutes.

ABOUT THE PARACHUTE PLUS

We produce parachutes PLUS in integral series and in the size from 25sqm till 66sqm. The size of the parachute is chosen as to carry the mass of the pilot with equipment to the earth without damage of life and health. These rescue parachutes have been tested according to valid standards. Nevertheless the firm enlarged the range of the tests to get absolute safety, that it is an absolutely reliable product, where only quality components have been used. And these are manufactured in the firm Stratos 07 by professional staff on modern machinery.

DESCRIPTION AND OPERATION OF THE PLUS CHUTE

The PLUS is a new generation safety parachute with a central rope and an area ranging from 23 to 66 square metres. The chute itself is packed up in an inner container, which fulfils an important role - it allows the packaged chute to leave the immediate vicinity of the pilot.The construction of this container is important, as the method of deploying the parachute affects the opening time of the canopy. All our containers are designed so as to allow a release without problems in the case of an accident. An important part of such a design is correctly constructed handle. The PLUS parachutes have a handle attached to the container in two places, these are as close to each other as possible and thus the direction of the throw can be controlled easily. Most manufacturers fold and secure their parachute ropes using two elastic fasteners. This in our opinion may be dangerous, because the fasteners can become tangled or even knotted, which could lead to a failure of the system. This cannot happen with the PLUS inner container , where each rope fold is held by its own elastic fastener. When used, the rope folds are released one after the other in a rapid succession. The outer container is equally important in ensuring that the parachute cannot fail. It protects the chute from harsh environments as much asis possible, and enables a rapid release of the chute in the case of an accident. Our container is made of high quality waterproof textile. The material protects the chute to a large extent from moisture, and prevents machanical damage and soiling during normal use. The closing to the container has been designed with extreme care. The hooks which are often used may potentially cause a failure of the system, that is why we have special needles manufactured for us, with which we have been able to eliminate this danger entirely. Our container is made of high quality waterproof textile. The material protects the chute to a large extent from moisture, and prevents machanical damage and soiling during normal use. The closing to the container has been designed with extreme care. The hooks which are often used may potentially cause a failure of the system, that is why we have special needles manufactured for us, with which we have been able to eliminate this danger entirely.
A robust closing system is also important for another reason-opening by accident. This can be in many cases as dangerous as a failure. We believe that this aspect of the mechanism must not be skimped on. The force required to open the system is approximately 70H , which is ideal. In addition, it is impossible to attach the system to the harness incorrectly, because them outer container is designed in such a way that it is possible to open it from all directions. We would like to draw your attention to another detail i.e. the pocket on the front of the container. It can be used not only for personal belongings (eg.Instructions or money), but also for a safety rope in case of an emergency landing in trees.

To place the rescue parachute into harnesses of other firms, produces the firm Stratos 07 an inner container, which is possible to install easily into these harnesses and provide them with an handle provided by the firm Stratos 07, or by the producer of the given harness.

CENTRAL ROPE

The modern tendency in the current design of safety parachutes is towards using a central rope. What are the reasons?
Firstly, it reduces opening time. Consequently a parachute with a central rope cansave a pilot's life at surprisingly low altitudes. The opening time is 50% shorter

than that of classic round chutes. This however means an increase in opening force which may be dangerous to a pilot in an upright position. To eliminate this danger we used materials of high elasticity and an appropriate canopy shape. In addition, we use a high number of ropes in order to spread the loading evenly over the canopy. Thus the force of the impact on opening is reduced to a safe level. We should not forget another advantage. Parachutes with a central rope achieve remarkably favourable sinking parameters.

INSTRUCTIONS FOR USE

As described above, the parachute itself is wrapped up in an inner container, which is enclosed by an outer container. The chute is used as follows:

1. Grab the handle of the inner container and pull this out from the outer container,
2. Cast the inner container in the direction of least obstructions.
3. The canopy parcel will fly to a sufficient distance from the glider.
4. When the canopy (still inside its inner container) reaches a distance sufficient to stretch the connecting rope the inner container will open.
5. The released canopy opens up (being pulled by the central rope) rapidly and the ropes become tight within a fraction of a second.
6. The PLUS parachute, being of quality construction, rapidly reaches a stable sink speed.

In collisions; when further flight may become uncontrollable we recommend using the reserve immediately, especially at low altitudes. When used in conjunction with a paraglider it is necessary to ensure that the glider does not re-open and thus hinder a smooth descent on the reserve.

STORAGE

If you will not use the parachute for a longer time, it is necessary to place (store) it on later given conditions:

- the parachute must be unpacked
- the parachute must be placed in a portable satchel or bag
- near by the parachute must not occur any oils, petrol, fat, solvents, etc.
- it is forbidden to place the parachute under the direct ultraviolet radiation (sunshine)
- it is forbidden to place the parachute near of heating elements (stoves, radiators etc.)
- store the parachute at the temperature of +10° till +22° Celsius and at the relative humidity of 40% till 75% (average value 55%).

If you will observe above maintained rules, your parachute will serve you absolutely safely for many years.

AIRING AND DRYING

When the chute becomes wet, it is necessary to dry it out immediately in order to avoid deterioration caused by mould etc. The canopy and ropes should be spread out in a dry and clean room to air and dry thoroughly. In suitable weather conditions this can be done outdoors, though in shade and not in direct sunlight.

CLEANING

Fats, oils and chemicals can significantly reduce the strength of various parts of parachute. Chutes damaged in such a way must be thoroughly checked by the manufacturer. The canopy must only be cleaned using clean water. The outer container can be cleaned using general detergents providing it is then rinsed thoroughly with clean water.

CHECKS

The connection between harness and connectting rope, together with the closing to the outer container, must be checked before every flight. In addition, every four months the chute must be opened, aired, and repacked. This must be logged in the parachute logbook. The chute must be checked by the manufacturer in the following circumstances:

* after each use (including use for training purposes).
* after any damage or modification.
* biannually by the manufacturer.

(Please send the logbook with the chute)

ALLOWED TIME OF OPERATION

Allowed time of operation is given by 8 years, but after this time it is possible to extend the allowed time of operation according to the state of the parachute always at the most **by one year .**

Precondition is the use and storage according the directions of the producer. If you will take care of the rescue parachute according to these directions, in that case we know from our experience, that even after this time the stouts parameters meet the requirements and it is possible to extend the operating time of the parachute.

This extending may do only the producer, who will put this extending into the parachute diary.

REPAIRS

Repairs may only be carried out by the manufacturer.

The packing of the parachute influences outstandingly the reliability of the whole rescue system. Therefore we recommend to pack the parachute at the producer, or do it by a person trained and authorized by him.

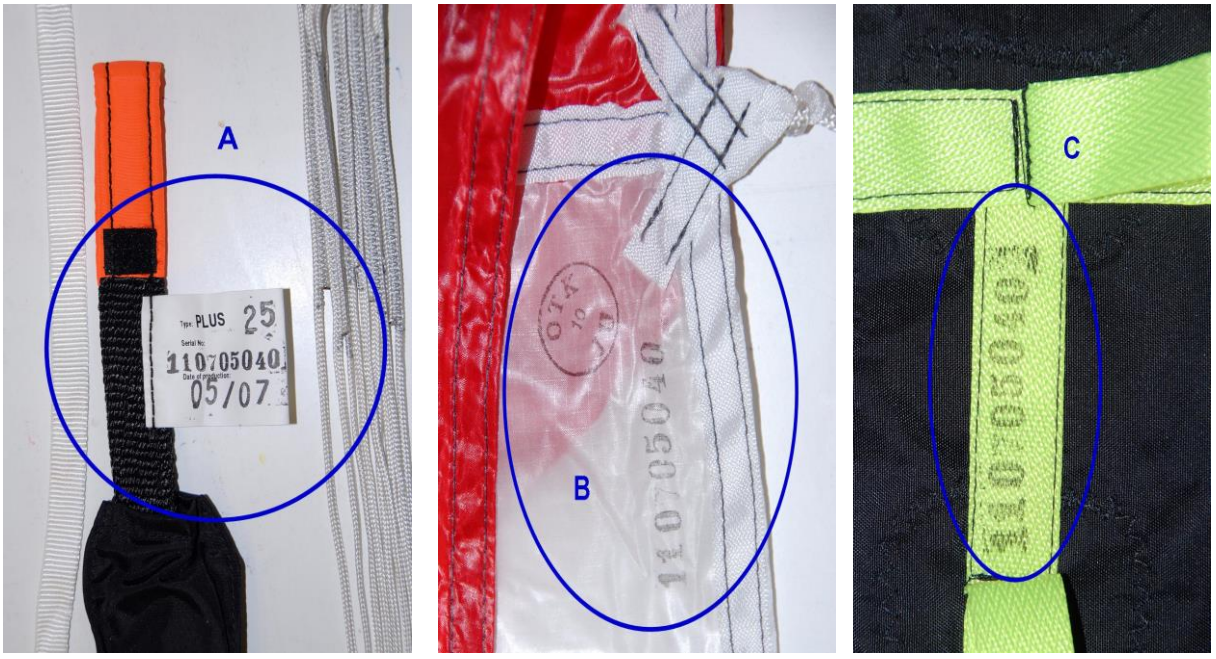
INSPECTION OF THE PARACHUTE BEFORE THE PACKING

Before every packing must be done a control of the parachute and its components. The inspection must be done in following steps.

You spread out the parachute on the packing desk so, that all components are separated and stretched out to allow a control in the following order:

1. On the canopy, the container and connections control the labels with the serial number (they must show identical data) and they must correspond with the data in the parachute diary. (see the picture A,B,C).
2. Control the fabric of the canopy, if it is not damaged or contaminated.
3. Control the integrity of carrying lines, of the central line and their fixing on the canopy and at the anchor rope.
4. Control the state of the inner and the outer container.
5. Control the releasing handle, closing pin and the connection with the harness.

If any damage, which should compromise the safety of the parachute, is detected, the chute must be returned to the manufacturer to be repaired. The same applies to damage where it is difficult to establish whether safety would be affected. Correct packing is essential for the system's reliability. Therefore we recommend that the chute is packed only be trained personnel or by the manufacturer.



PACKING OF THE PARACHUTE

We put the canopy of the parachute on the packing desk and anchor the top of the parachute. The canopy will make a triangle. We separate the carrying lines to the left and right half of the canopy. We cross to the right side the carrying lines from the left half, outside of the main field (see fig1). We insert the carrying line of the main field into the device for packing and bedding of carrying lines (fig2). Than we take by the right hand the next carrying line, with the left hand we take the fabric that way as to keep it tight (fig3) and we lay it down on the main field, the carrying line we insert into the device and we stretch by the left hand the rim and after it the whole field. We pay attention during this folding that the particular fields make smooth and not twisted triangles from the parachute base to the tip. We repeat this sequence till the folding of the left half of the canopy.

fig. 1

fig. 2

fig.3

After straightening of the left half we grasp by the right hand carrying lines of the right side and fold it over as well with the fabric to the left side (fig4). We stretch the triangle of the canopy (the canopy basis which is laying on the desk) and we put the carrying line into the device (fig5). We fold the canopy triangles of the right side and we insert the carrying lines into the device (fig6).

fig.4

fig.5

fig.6

The folding continues till the last field. We grasp the carrying lines of the left half by the left hand and of the right half by the right hand and by a changing pull form the canopy to smooth and regular triangles. The carrying lines we spread out on the packing desk to a wide open V and the central line goes through the middle. No lines should be twisted (fig7). We grasp the anchor rope and by pulling in the direction of the arrow we stretch it that way, as to stretch the lines and give them the same length as has the central line (fig8). By this stretching we pull the tip of the canopy into the middle part of the canopy (fig9).

fig. 7

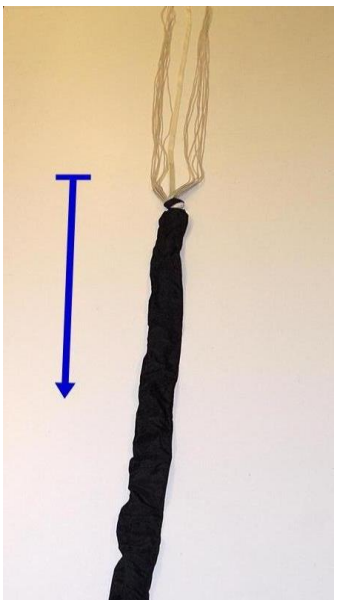


fig.8

fig.9

You move to the upper part of the parachute, find the main field (it is laying on the packing desk) and you begin to smooth the fabric after pulling of the canopy tip inside by the same art as the canopy basis when packing of the canopy (fig10). After folding of one side you move to the other side and you as well fold the fabric (fig11). You must pay attention, that there are on the fabric no folds without logic and that the canopy is fold without any crossing of the fabric and that the field is smooth (fig12).

fig. 10

fig.11

fig.12

At the anchor rope you grasp the carrying lines this way, that you hold in the left hand the left half and in the right hand the right half. By the thumbs you lift the line No.1 and the line No.18 (20 and more according to the size of the parachute). The central line lays in the middle and does not cross any of the carrying lines (fig13). With lines held in this way, we proceed to the canopy till the parachute basis and control that the carrying lines are not twisted, the lines No.1 and No.18 (20…) are above and the central line goes through the middle into the canopy (fig14).

fig. 13

fig. 14

We grasp the left half of the canopy and fold it over by one fifth. We keep this, that the fold is a straight triangle (fig15, 16). We make by the same way a fold more (fig17).

fig. 15

fig. 16

fig.17

We make on the right side a fold by one fifth (fig18), than we make another one by one fifth and these both folds we lay on the folded left side(fig19). We take out the packing device and the canopy will remain folded along the whole length in close folds (fig20).

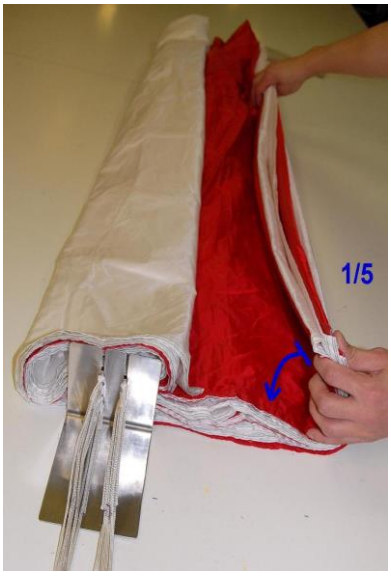


fig. 18

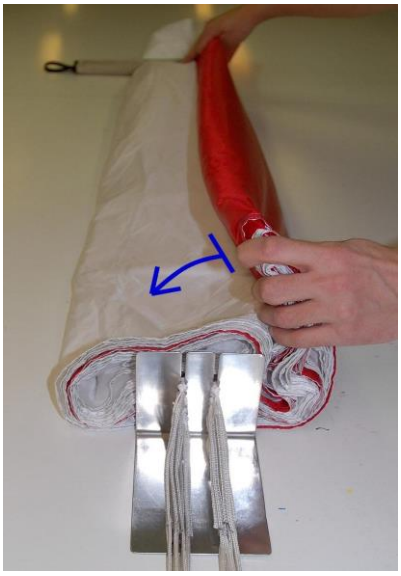


fig. 19

fig.20

We make a control of the folds on the parachute basis (fig21), stretch the carrying lines inclusive the central line as to make them stretched in one bunch and without any crossing the whole lengthways (22).

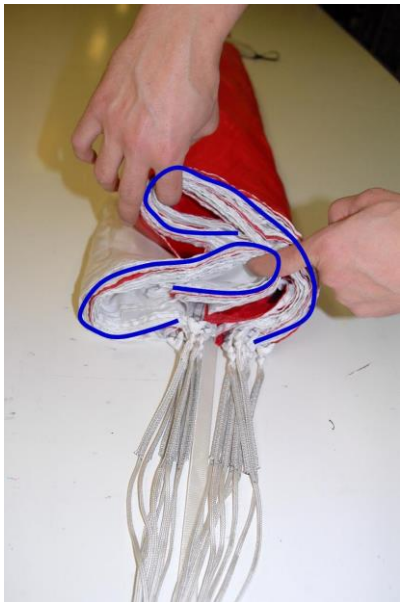


fig. 21

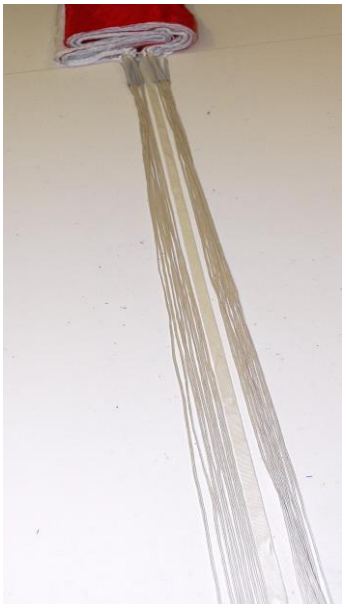


fig. 22

We lay the hand from above on the folded canopy, the other hand we put under the canopy and we make a fold in such a way, that the part of the canopy, which still lays on the desk, will be above 25 cm long (fig 23, 24). Next “S” folds we make in the same way, but so as to narrow the folded parachute by next folds placed on the lower ones. The canopy folded in this way we secure by a placed weight (fig25).

fig.23

fig.24

fig. 25

We lay before the folded canopy the inner container. We spread it out and it must be open as an letter envelope with rubber lugs in the direction to the carrying lines (fig26). We lay the canopy closely before the rubber lugs than we grasp the carrying lines and make a bending to allow us to make the first fold of carrying lines (fig27). Curved carrying lines we put into the rubber lug, when the size of the lug is 5 till 7cm (fig28).

fig. 26

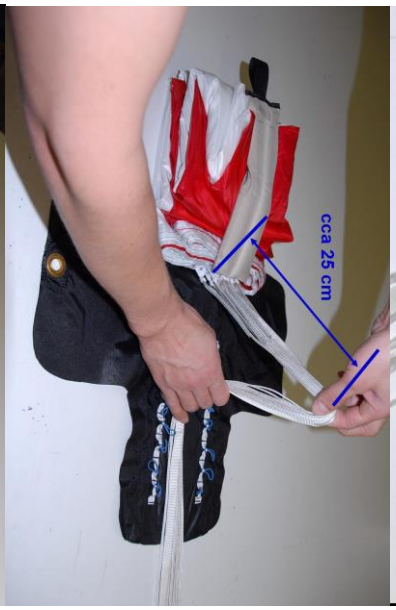


fig. 27

fig.28

We have formed a lug of the carrying lines, their bunch we pulled over to the other side (fig29) and we shall measure the length for creation of the second lug (fig30) and after it we drag the lug into the rubber lug of the inner container (fig31). We must pay attention, that the carrying lines are uninterruptedly taut and that there are on them no twists.

fig. 29

fig. 3O

fig. 31

In the same way we place the carrying lines with the central lines into the remaining rubber lugs and we control that there are none twists and that the carrying lines are placed without bending and distinctly (fig32). We grasp the canopy from below and move it on the central part of the “open letter envelope”, closely on the front end of the carrying lines placing and we make from the lines before the first lug a little fold in the shape of a “S” (fig33).

fig. 32

fig. 33

We grasp the back part of the open inner container and we bend it over the folded canopy. We control, if the closing rubber lug (fig34) is anchored there. We grasp the front part of the container (there are laced up the carrying lines) and we lay it on the folded canopy and we pass through the through-ring the closing rubber lug (fig35). We grasp the right part of the inner container and we pull it over the folded canopy in the such a way, that we pull on the rubber lug into the through-ring (fig36).

fig. 34

fig.35

fig.36

We grasp the last (forth) flap and we pull it over the folded canopy (fig37). By the through-ring we pull through the rubber lug and we pull through this lug carrying lines (fig38). The carrying lines go out from under the flap, where they are on the inner side laced on. We form a lug in the closing rubber lug, by which we close the whole inner container. The closing lug is 5-7cm large (fig39) and the remained length of carrying lines for knotting on the anchor line should not be longer than 15-20cm.

fig. 37

fig. 38

fig. 39

We smooth on the closed inner container all flaps in such a way, that the parachute will be without any bumps and that no fabric will show under the canopy. An ideal shape we can reach by tapping with an open palm, when we form in this way the closed parachute into the required shape, as to make its shape correspond with the exterior container and by this should be secured a perfect function of the rescue parachute. On the fig 40 is the packed parachute PLUS how it should look for building into the exterior container.

fig. 40

Type	Area	Maximum permitted load	Maximum speed	Descent rate	Weight
Plus 25	25m²	90 kg	150 km/hod	5,5 m/sec	2.7 kg
Plus 31	31m²	100 kg	150 km/hod	5,5 m/sec	3,2 kg
Plus 34	34m²	140 kg	150 km/hod	6.0 m/sec	3,5 kg
Plus 35	35m²	100 kg	150 km/hod	5,5 m/sec	3,4 kg
Plus 48	48m²	150 kg	150 km/hod	5,5 m/sec	4,0 kg
Plus 66	66m²	300 kg	150 km/hod	5,5 m/sec	4,9 kg

WARNING

By using the parachute you risk your health and you run the danger of death. You will lessen the risk:

1) You must always make sure, that the folding of all parts of the rescue parachute and its

packing is in accordance with the instructions of the producer.

2) Learn to use and control your equipment by yourself.

3) Play exactly by the directions and the safety rules while manipulating with the parachute.

WARRANTY CERTIFICATE

The product was made according to the approved design documentation with a registered patent. The manufacturer guaranties the proper function and flawless operation for 5 or 6 years and the manufacturer may extend the warranty period for another 5 or 6 years.

The warranty does not cover:

- **Flaws caused by improper use.**
- **Flaws caused by unprofessional manipulation, or modification(s) of the product.**
- **Flaws caused by improper handling and manipulation which is not in line with the product design.**
- **If the damage was caused by the transportation.**
- **Due to improper storage.**

When claiming the warranty service or repair it is necessary to present the warranty certificate with the date of purchase with the signature and the dealers stamp.
The warranty period extends for the time the product was in the service or repair.
The warranty information is also on sticker label on the container.

PLUS …….

Manufacturer

STRATOS 07 S.R.O.

Na Folimance 13

Prague 2

120 00

Czech Republic

Approved by……

Repack interval……

Serial number……

Date of manufacture ……

_____

Signature + stamp:

Notes: