

SAFETECH 4.9K ST60-X



Please read this manual before first use.

Thank you for choosing Opale-Parachutes.

This user's guide includes all the information you need to assemble and use your parachute rescue kit. A good knowledge of your equipment will allow you to safely obtain most of its performances. Thanks for giving this manual to the new owner in case you decided to sell your kit.

Best regards,
The Opale-Parachutes team.

Safety Information

By buying our material, you must have a liability insurance and you hereby accept the inherent risk of flying radio-controlled models and drones. Using our equipment in a bad way may increase risks. Neither Opale Aero System, nor any other seller will be liable for any damage caused by any accident whatever the circumstances are. The way our equipment is used is incumbent upon the final user, including towards the law.

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Warranty

The parachute kit is warranted against any manufacturing default. If, while using, the pilot cut or damage a bridle, tear any part of the parachute, repair and replacement of damaged parts are not taken in account by the warranty and the user will be charged for it. This kit dedicated to limit the energy of an impact, the user cannot in any circumstances from Opale Aero System any compensation or allowance if his machin is damaged.

Composition of the kit



Kit Content:

- 1 x 1.8m2 (19.4ft2) parachute
- 1 x ejection carbon tube
- 1 x hardware and accessories kit
- 1 x spring
- 1 x carbon piston
- 1 x neopren cap
- 1 x "Remove Before Flight" pin
- 1 x servomotor

Specifications

Tube: <ul style="list-style-type: none"> • Height: 150mm / 5.9in • Diameter: 60mm / 2.4in • Material: Carbon mat 3K • Total weight: 220gr / 0.49lb 	Servomotor: <ul style="list-style-type: none"> • Size: 29x13x30mm / 1.1x0.5x1.2in • Tension: 4.8 à 7.2v • Power consumption: 400mA (armed) • Sprocket: steel, on bearings • operating temperature: -20°C à +60°C • Connector: UNI • Wire length: 215mm / 8.5in • Signal: PWM
Spring: <ul style="list-style-type: none"> • Material: Steel 	Parachute: <ul style="list-style-type: none"> • Wingspan: 1.8m2 / 19.4ft2 • Lines: Dynema • Opening resistance without rupture: 60kg / 132.3lb • Silicon nylon fabric 20D ultralight 32gr/m2 • Fixation line Aramid 300daN

Falling speed / impact energy characteristics according to the drone mass (approximate value):

Masse Totale (kg) (lb)	1.5 3.3	2 4.4	2.5 5.5	3 6.6	3.5 7.7	4 8.8	4.5 9.9	4.9 10.8
Falling speed (m/s)	2.9	3.3	3.7	4.1	4.4	4.7	5	5.3
Impact energy (J)	6	11	17	25	34	44	56	66

Environment protection

The label on the product, on the user's manual or on the packaging, inform you that this material can not be simply thrown away after the end of use stage. It has to be given to a recycling company to recycle the differents electric and electronic components.

According to the labels, most of the components used are recyclable for other purposes. By acting this way, you activately become a part of the environment protection.

The batteries have to be removed from the apparel and have to be given to a company specialized in battery recycling.

Contact your city council or the appropriate departement to know the different recycling places near you.

Registering number WEEE: DE 42316912



Assembling

Install 2 CHC M3x12 screws with M3 nuts.



Place the servomotor.
The sprocket has to be on the left side, as shown on the picture.
Secure it with 2 M3 nuts.



Use the horizontal horn (the other horns provided with the servomotor won't be used).
Cut the half of it with a wire cutter.

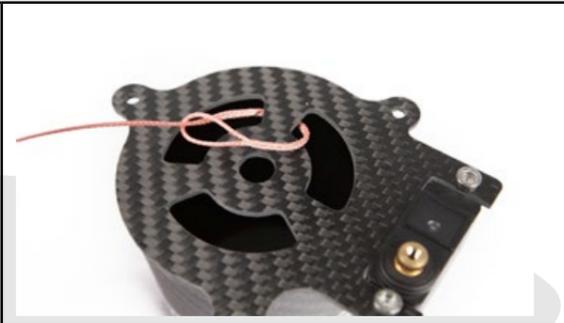
With a 2mm drill bit, drill the middle hole, located from 10mm of the horn fixation axis.



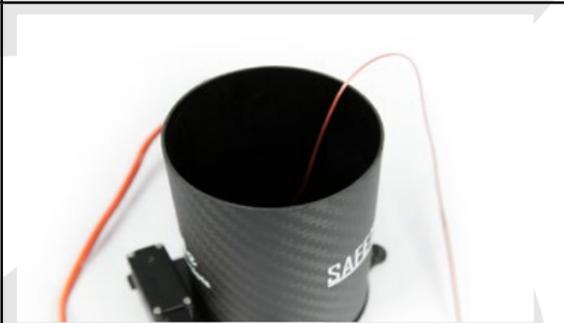
Insert the pin provided with the hardware and accessories kit, as shown on the picture.

Assembling

Attach the line provided to the tube base by passing the line through the loop.



Take out the other end of the line on the opposite side.



Put the carbon piston on the spring.



Attach the piston on the spring with the 3 plastic clamps provided.

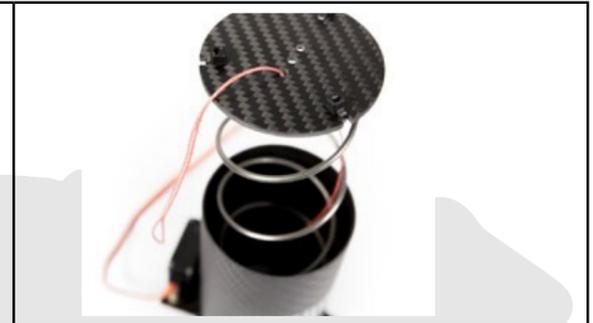


Tighten them firmly and cut the surplus with a wire cutter.



Assembling

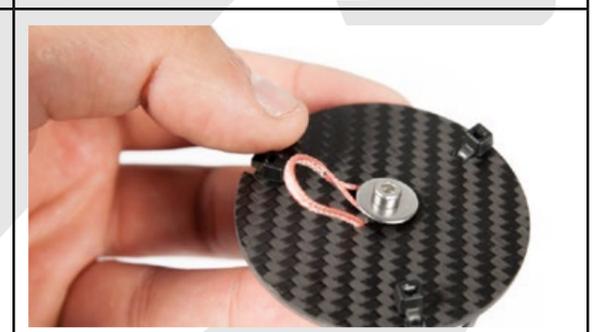
Pass the line through the piston.



Prepare 1 CHC M3x8 with a large M3 washer. Arrange the line loop on the screw, as shown on the picture.



Insert the screw with the line into the piston middle hole.



Screw the arming rod. It is also advised to use some threadlock for this operation.



With the arming tool (sold separately) arm the piston by pushing down firmly the tube on the tool. Caution: the pression exercised is important. Take the necessary precautions.



Assembling

The arming rod has to stand out at the base of the tube..

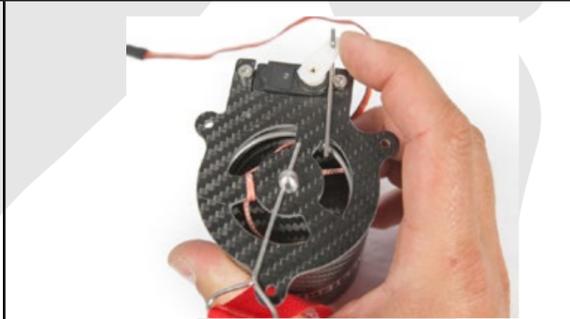


Lock the arming rod with the "Remove Before Flight" pin.



Arrange the horn on the servomotor. Push it up on the highest position. Then place the horn in the position shown on the picture.

This position correspond to the Ejection status.



Check that the horn is able to reach this low position during a move. The pin must be place on the second hole of the arming rod.

This position correspond to the Locking status.



Arrange on top of the tube, a piece of adhesive foam provided.



Assembling

Do the same operation symetrically in relation to the first piece of adhesive foam.



Parachute preparation and installation

Remove the parachute from its pocket and unfold it totally.
Cut the line connecting the parachute to the container.



A parachute properly stocked and aerated, without being permanently held in a constant pressure allows a faster and a more efficient deployment.

Make sure that the lines are not entangled.



Hold the lines with something heavy like a ballast or anything at your disposal.
Arrange on both sides of the lines the parachute panels.



Then place all the panels on one side.
Afterwards toggle them one by one on the other side. This operation allows to properly place the fabrics for an optimal opening.



Parachute preparation and installation

Again divide equally the panels to the left and to the right.
With the first half, do a simple S. And hold those panels with a random mass.



Flip the whole thing delicately and do the same operation with the other side.



The second S is now placed on top of the first one.



Firmly hold the whole thing.

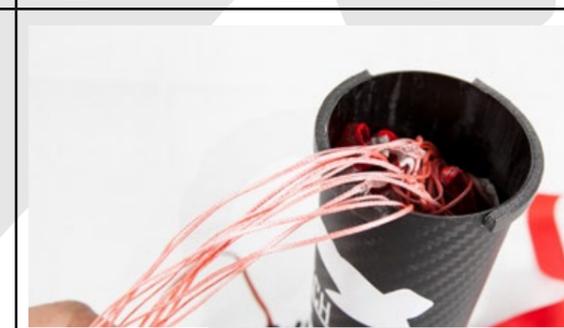


Do several S in the way of the parachute length, as shown on the picture.



Parachute preparation and installation

Arrange the parachute inside the tube, and make sure that the lines and the parachute trailing edge are placed upwards the tube.
Never placed the lines in the bottom of the tube. A piston blocking situation and a non deployment could occur.



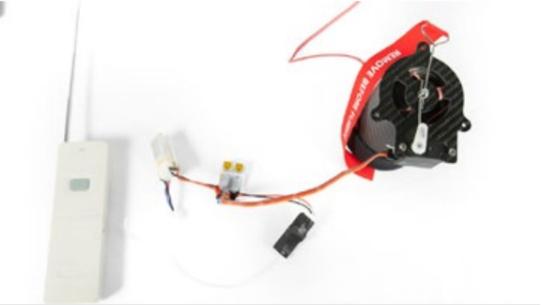
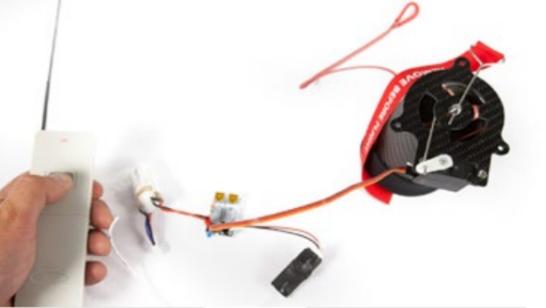
Take the lines end that remain outside the tube.
With your hands, Make 8 around 2 fingers, and make sure not to roll them up.



Parachute preparation and installation

<p>Slide the 8 on top of the parachute.</p>	
	
<p>Cover the tube with the neopren cap. Tighten it firmly.</p>	
<p>Note: Make sure that the fixation line is correctly placed between the tube and the cap.</p>	
<p>Never place the fixation line through the cap.</p>	

Parachute preparation and installation

<p>In locking status the piston is locked with the pin. The servomotor horn can have an angle from 45 to 70° (the angle formed by the servomotor plan and the horn).</p>	
<p>In ejection status, the angle formed has to be -45°. The pin fully release the arming rod.</p>	

Installation on a drone (with universal adapter)

<p>To do an easy installation on different kind of frames, use the universal holder (sold separately). Thanks to its multiple holes, it allows to easily install the tube on most of the frames sold on the market. Choose a solid and steady anchorage, in order to not generate vibrations on the frame.</p>	
<p>Use 3 CHC M3x10 screws with M3 nuts to attach the tube on the holder.</p>	

Installation on the DJI Inspire 1

Composition of the ST60-X adapter kit for the DJI Inspire 1 (ref OP17602)
Composed of carbon fiber parts and hardware kit.



Assemble the tube sockets with the lateral plate.



Do the same operation on the opposite side.



Affix the upper plate and fix it with 4x CHC M3-8 screws and 4x M3 nuts.

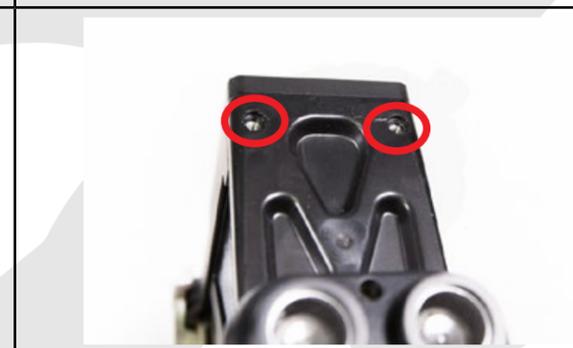


Installation on the DJI Inspire 1

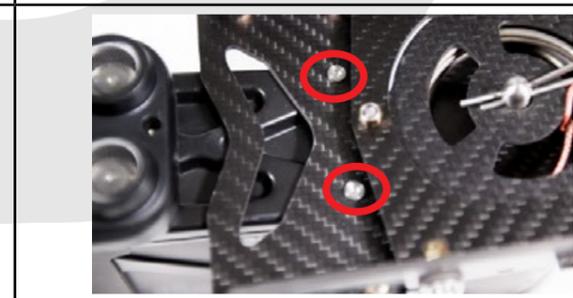
Fix the tube on the socket with 3x CHC M3-8 screws and 3x M3 nuts.



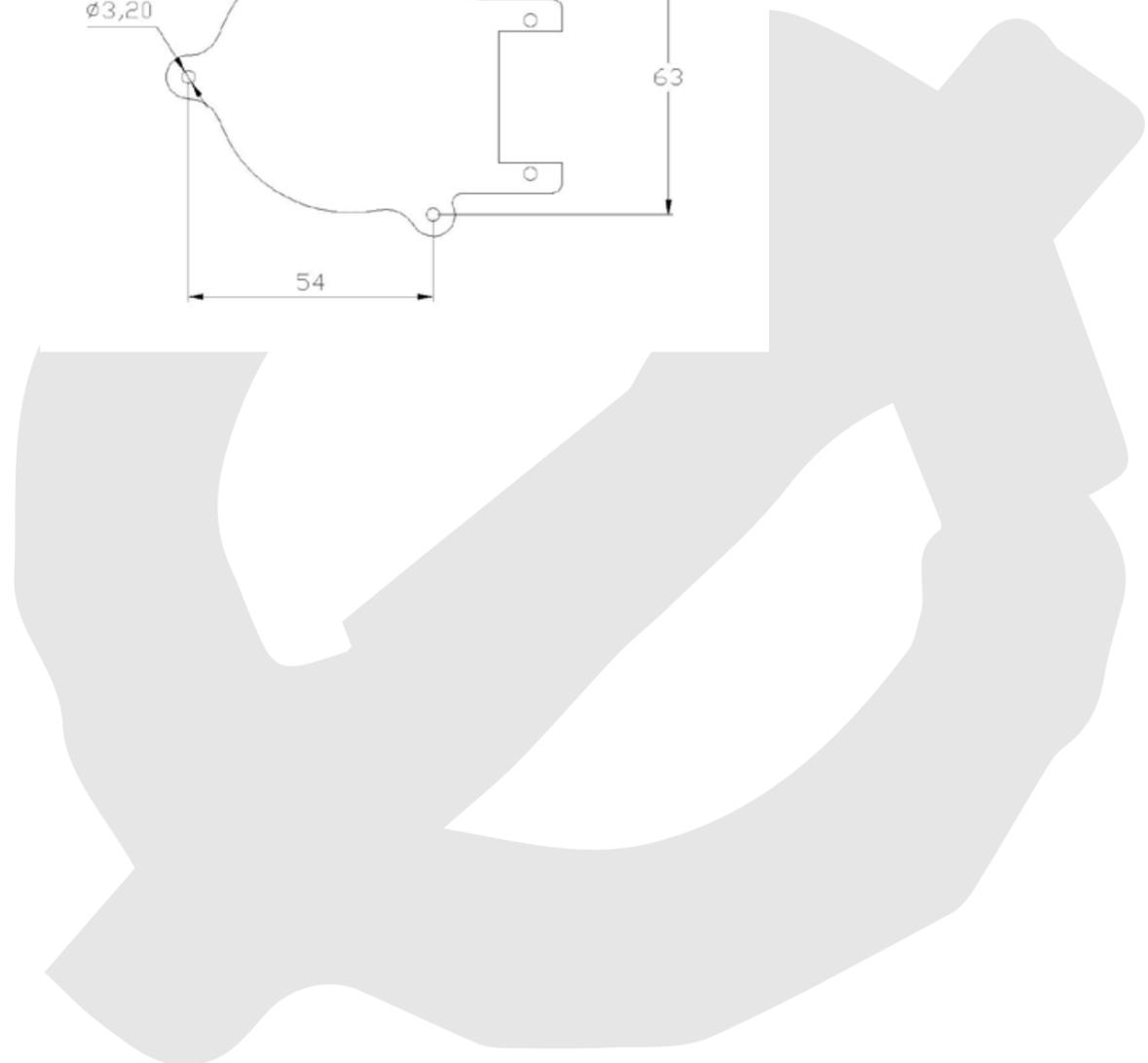
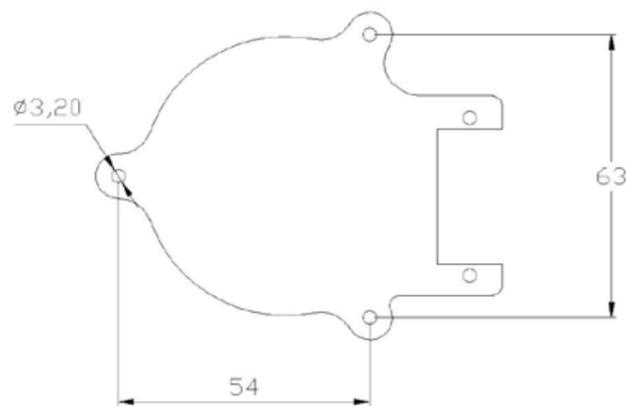
Remove the 2 torx screws initially installed on the Inspire.



Place the socket and fix it with 2 other torx screws (longer ones) preliminarily taken on the shroud of the Inspire.



Flat view



Initiating and standby procedures

Initiating procedure	Standby procedure
Switch on your transmitter and make sure that the trigger button is on the locking position.	Place the "Remove Before Flight" in the arming rod hole.
Power up the receiver or the stand-alone trigger module. Check the binding / radio pairing.	Disconnect the receiver from the battery or from the stand-alone trigger module.
Remove the "Remove Before Flight" pin.	Switch off the transmitter.

Maintenance

In order to guarantee the kit is efficiently operating and for an optimal lifespan, we recommend you to make the following safety inspections and the following maintenance operations:

Parts	Inspections periodicity	Actions
- Servomotor	20 deployments	Check the good working without the pin. No sprocket is damaged. Replace if necessary.
- Piston line	10 deployments	Preventive replacement.
- Piston line	1 deployments	Visual verification of non rupture.
- Parachute	1 deployments	Make a folding.
- Parachute	50 deployments	Check the good condition of the lines and fabrics.
- Parachute	100 deployments	Send it to our workshop for a complete inspection.
- Parachute	200 deployments	Preventive replacement.
- Parachute	2 months	If the parachute is not used for a 2 months period, make an unfolding and a complete folding.
- Spring	50 deployments or 1 year	Preventive replacement.
- Tube	1 deployments	Check the tube, the base must not be detach from the tube.

These operations can be done at our workshop. Please contact your Opale Parachutes team.