

SkyMax Star

Frame assembly
and engine mounting
manual

SkyMax
paramotors

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Congratulations on your purchase of SkyMax paramotor! Thank you for your trust and choosing SkyMax Star highest quality paramotor. We guarantee that you have made a right choice!

SkyMax Paramotors is part of a company, specialized on manufacturing products for nuclear, oil and gas, aerospace industries. We use the most advance technologies and high spec machinery for precise manufacturing. Paramotors are designed by experienced engineers in cooperation with SkyMax Test Pilots. Each paramotor and its frame undergoes rigorous quality control checks during every stage of production.

Lightweight and rigidity are achieved by using unique frame design, as well as using titanium and aircraft grade aluminum — materials widely used in aerospace industries.

Thank you for choosing SkyMax product!

I. SAFETY RULES

Please, read the safety rules before flight.

Do not hesitate to contact us or SkyMax distributor if you have any questions.

- SkyMax paramotors should be used only with the wings designed for power flight and certified for the take-off weight, not exceeding to total weight of the pilot, paramotor and any extra load.
- We strongly recommend pilots to fly with reserve parachute installed. Regardless of the fact that wing failure is rare, reserve parachute may save your life.
Pilots should use helmets, designed for paramotoring as well as the boots with proper heel and ankle support and gloves, protecting hands.
- Preflight control is very important. Please, check and maintain your equipment in accordance with the Safety Check List of this Manual.
- Before you start your engine, please, make sure that in the propeller zone there are no straps, clothes or whatever could be sucked by propeller.
- Always shout a loud «Clear prop!» before starting the engine.
- Before you start the engine, please, check your harness, carbines, straps to make sure that everything is fastened.

- Do not fly over the water, forest or other potentially dangerous terrain at low altitude. Do not fly in a controlled airspace or above the built-up territories. You should always have a safe landing spot in sight in case of any emergency.
- Always check and be aware of the weather. Please, remember that the weather may change quickly. Do not fly under unsuitable weather conditions.
- Always fly within the limits of your skills to enjoy your flight.
- SkyMax Paramotors do care for your safety, from the paramotor design stage to day-to-day use. That is why we ask you to perform the following checklist before each flight.
- Please, do not start the engine and do not take-off before you go through the checklist.

1. Harness	<ul style="list-style-type: none"> • Check all the harness to frame connection points and harness to carabines connections. Inspect it for damage
2. Frame	<ul style="list-style-type: none"> • Inspect the frame, spars and cage for damage
3. Fuel system	<ul style="list-style-type: none"> • Check the condition of the fuel pipes • Check if the fuel pipe with the filter reaches the bottom of the tank • Put the necessary amount of fuel for the flight
4. Throttle	<ul style="list-style-type: none"> • Inspect the throttle for damage. Check that it moves freely inside the sleeve. • Inspect throttle cable for twists and brakes.

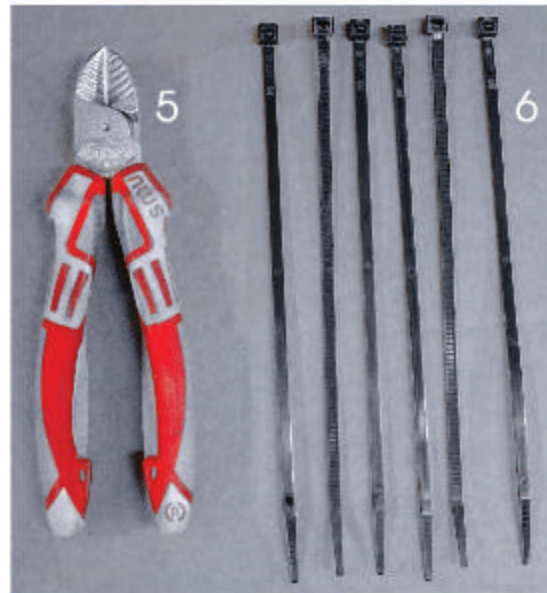
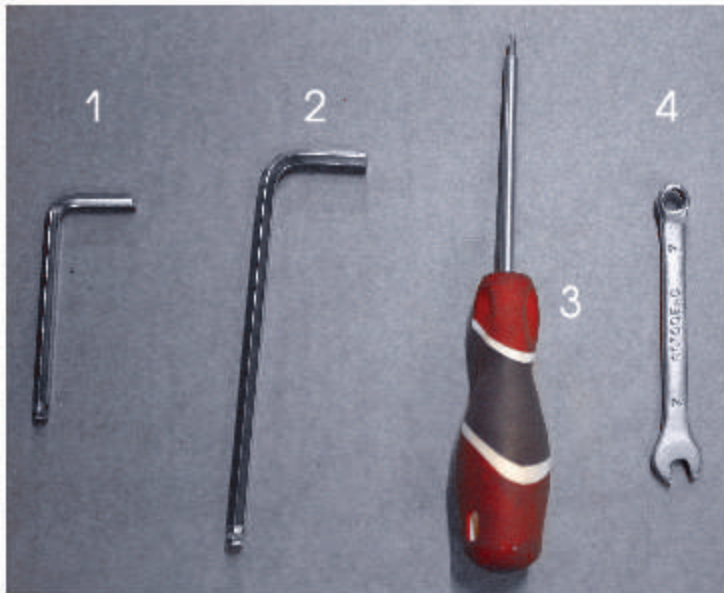
<p>5. Engine starting system</p>	<ul style="list-style-type: none"> • Check the starter cord for damage • Slowly pull the starter cord out and check if it rolls backward • Check the spark-plug cap
<p>6. Engine</p>	<ul style="list-style-type: none"> • Check all engine gaskets for leaks • Check if the airbox is secure • Inspect engine mounting blocks for damage. They should be in a good condition • Check if all the bolts and screws are fastened • Inspect the exhaust system for damage
<p>7. Propeller</p>	<ul style="list-style-type: none"> • Check if the propeller is installed correctly • Make sure that the front edge of the propeller is clear and has no signs of damage • Check if the propeller bolts are tightened

II. FRAME ASSEMBLY MANUAL

Short video-manual of Star frame assembly is available following the link:
<https://www.youtube.com/watch?v=zW2Sb3RiJk8&t=2s>

II.1. TOOLS AND MAIN PARTS OF THE FRAME.

You will need the following tools for frame assembly:



1. Allen key 4.0. (comes in the kit) — 1 pc.
2. Allen key 6.0. — 1 pc.
3. Screwdriver TORX 10 — 1 pc.
4. Spanner 7.0. — 2 pcs.
5. Cutting pliers (or any other tool for cutting plastic ties) — 1 pc.
6. Plastic cable ties — 6 pcs.
7. General purpose threadlock of medium bond strength (for example, Loctite 243) — 1 pc.

If you have received a Star frame as a kit, you will find the set of parts, fasteners and spacers for frame assembly in the box.

Transportation box containing Star frame



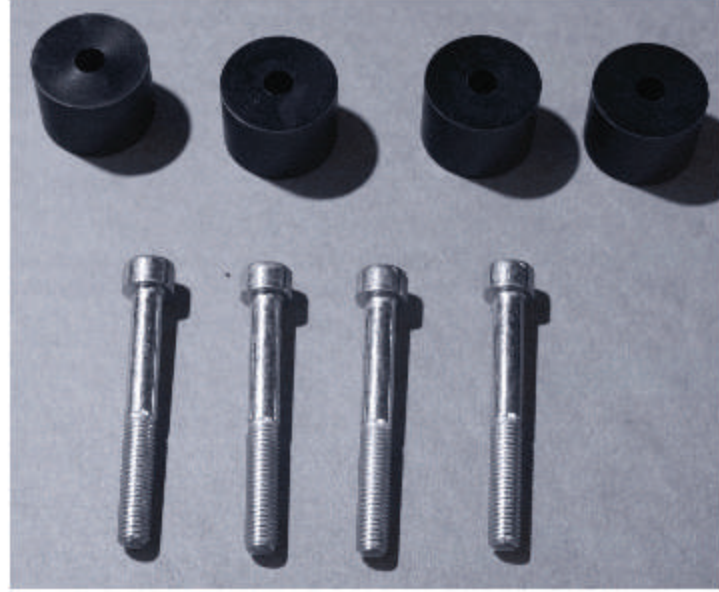
Star frame parts



Unpacked Star frame parts



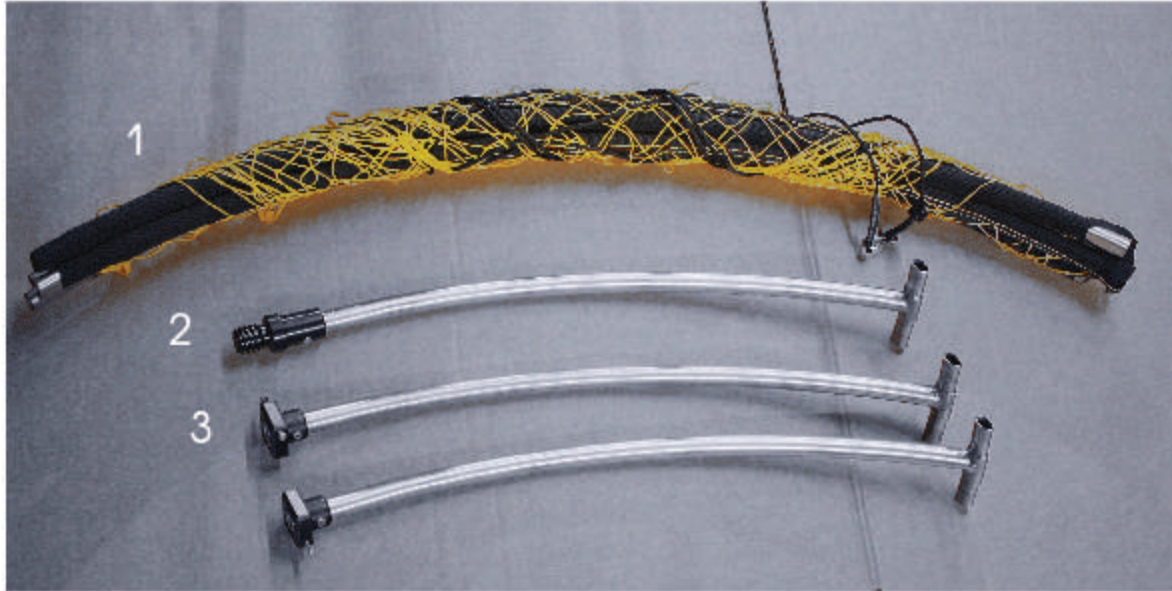
Spacers and M8 screw set for engine mounting



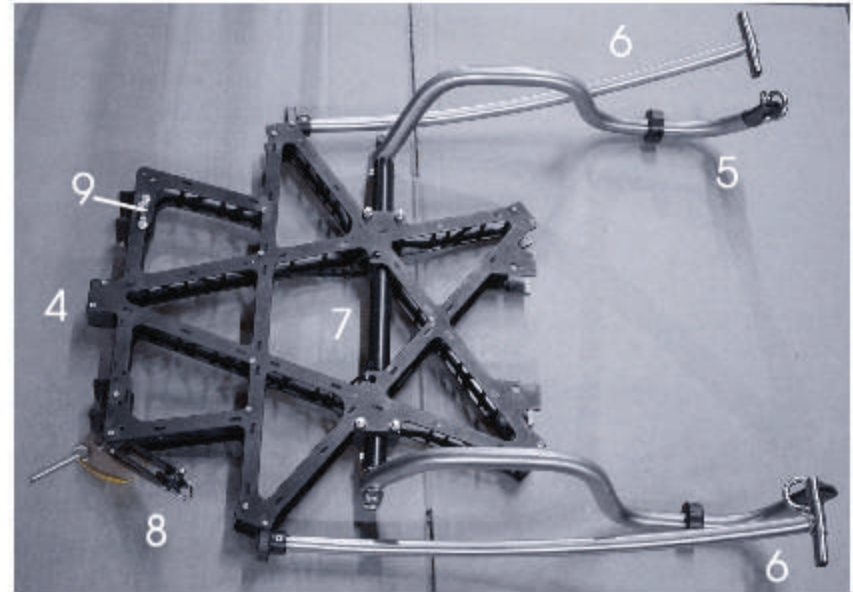
Allen key 4.0



The frame is partly assembled. You have to install and join together just a few parts:

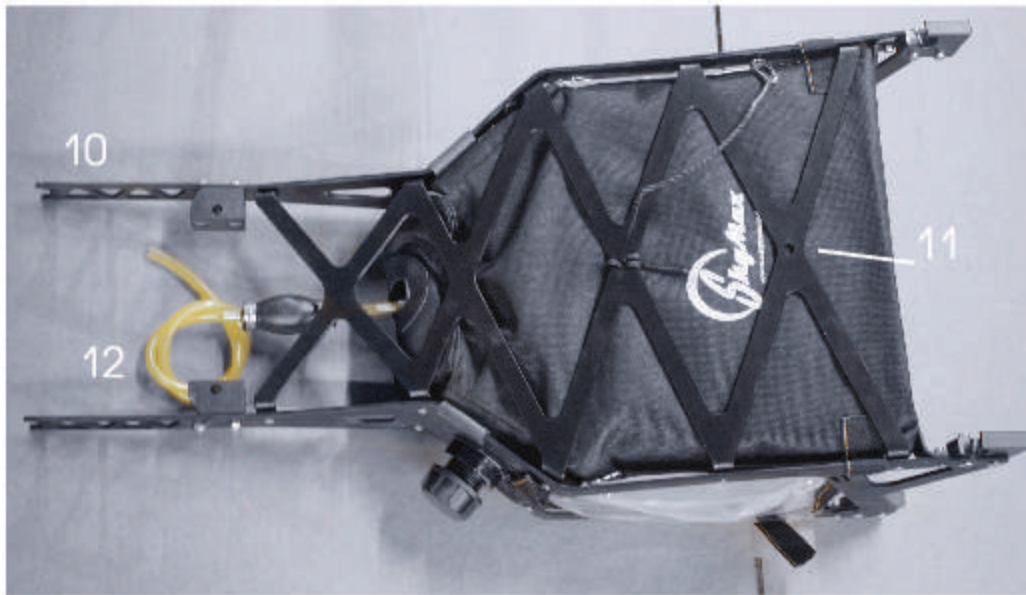


- Netting with the lower cage section (1) — 1 pc.
- Top spar with connector (2) — 1 pc.
- Lower spars with connector (3) — 2 pcs.



- Upper part of the frame («Star») (4) with 2 S-bars (5) and 2 side spars (6).

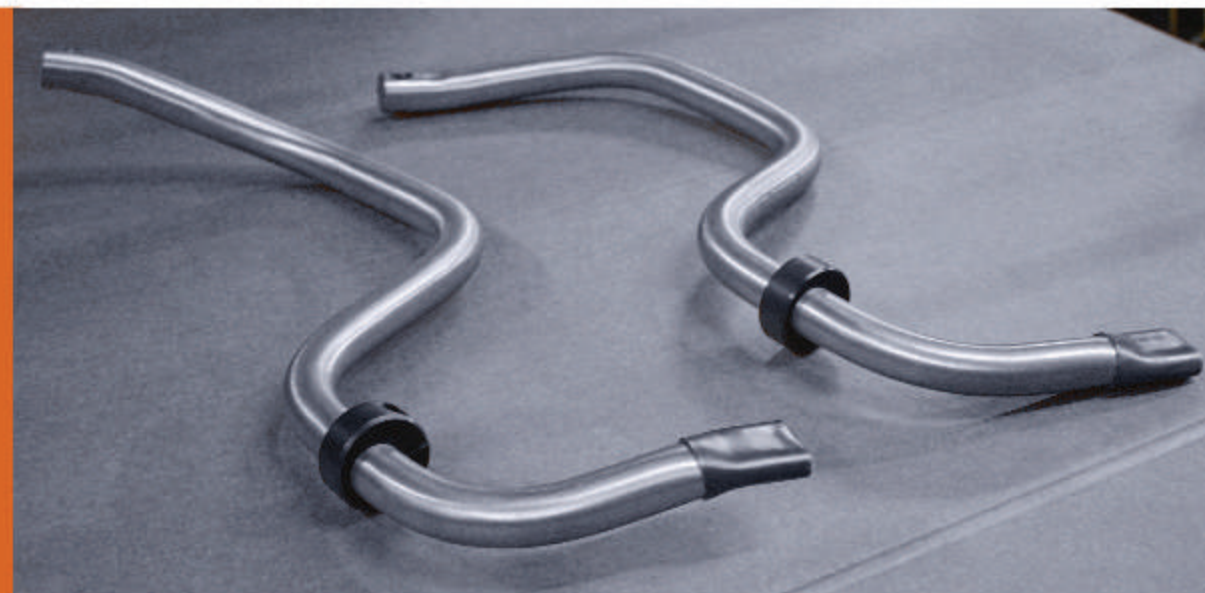
- Cross bar (7), starter cord bracket with pulley (8) and airbox bracket (9) are already installed on the upper part of the frame.



- Lower part of the frame (10) holding SkyMax soft fuel tank (11) and fuel system (pipe and pump) (12).

ATTENTION!

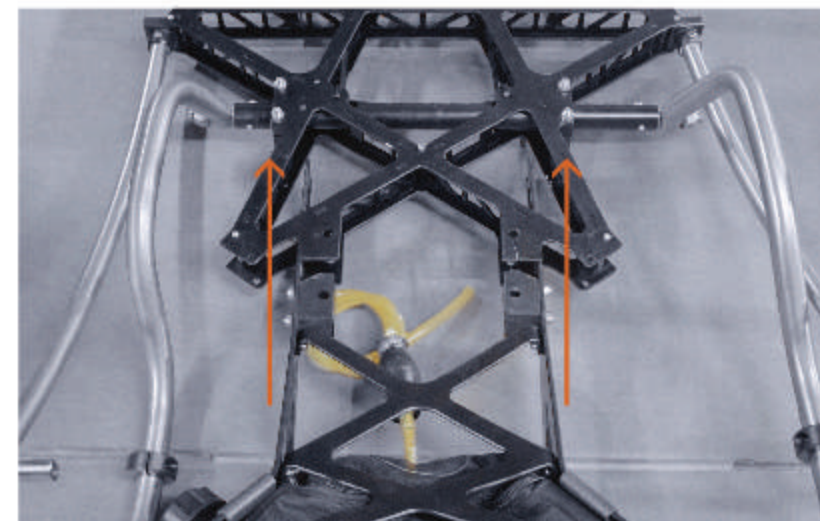
S-bars used on SkyMax Star frame are not symmetrical. Left and right arms are handed and differs from each other in order to compensate the engine torque.



II. II. STAR FRAME ASSEMBLING.

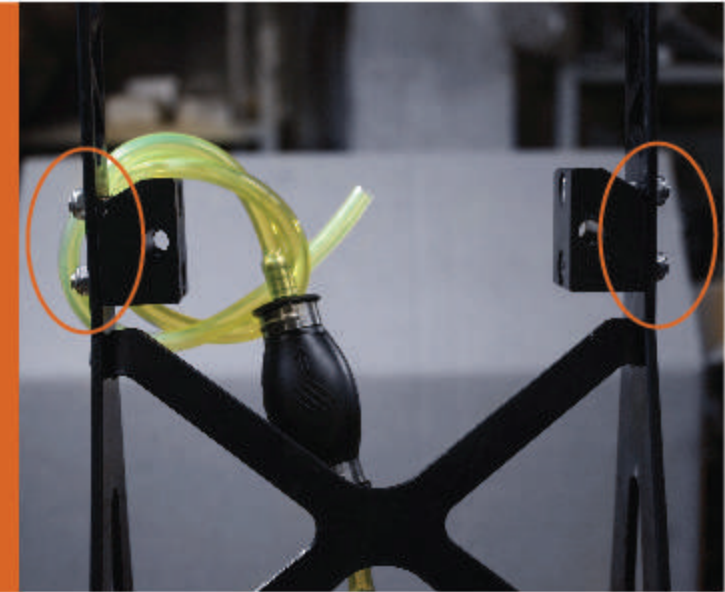
II. II. I. Join the lower frame part with the upper part («Star») so the lower part slides into the upper part and joining holes of both sections are aligned. Fuel tank with SkyMax logo and the netting tightening cord should face the engine side.

Joining the lower and upper parts of the Star frame

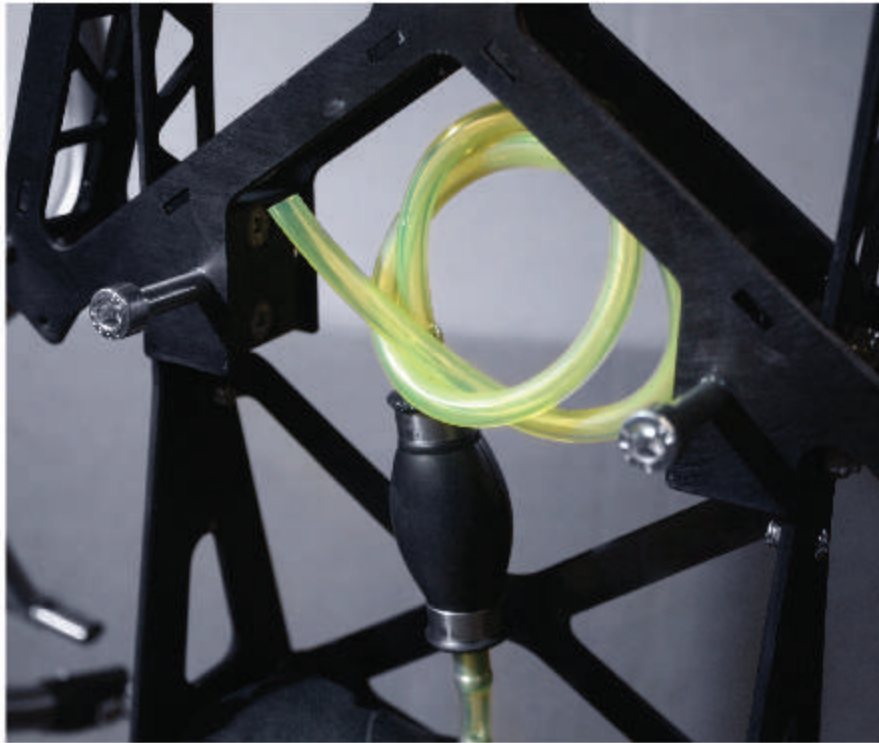


ATTENTION!

All frames have been assembled at the factory prior to shipping, to make sure all the parts fit each other. If joining bolt holes are not fully aligned, please, untighten the highlighted screws on the left and right sides of the lower frame part and join the lower and the upper parts of the frame.



Joining the lower and upper parts of the frame with M8 bolts



Insert M8 bolts into the holes, connecting upper and lower parts of the frame.

Later on you should put on spacers on each of these bolts and install the engine, using two more bolts and spacers from the kit.

To install Vittorazi Moster 185 engine you will use 4 bolts and 4 spacers. Two of them hold the frame parts together and are used for engine mounting as well; the other two are used to mount the engine only.

To install the Vittorazi Atom 80 engine you will need 6 bolts. Two of them hold the frame parts together and are used for engine mounting as well; the other four are used to mount the engine only. No spacers are used with Atom 80.

II. II. II. LOWER SPARS INSTALLATION.

At times, because of the shipment terms, two upper side spars are not installed onto the upper «Star» part of the frame. In this case, please follow the same lower spars installation procedure described below. Firstly, you have to identify which spar is right and which one is left. It can be easily done by checking the location of screws, holding the spars in the frame.

Lower spar with screws



Applying threadlock to the screws



Remove the screws installed in a spar, using TORX 10 screwdriver.

Install the spar in to the frame as shown at the right picture.

Apply the threadlock to the screws and tighten them up.

«Open» spar position



«Closed» spar position



When you installed both left and right (lower) spars to the frame, they are in «open» position. Pull up the ends of the spars till they click into the frame. Now they are in a working or «closed» position.

II. II. III. UPPER SPARS INSTALLATION.

The upper spar has a thread to screw it into the frame.



Install it by screwing it in clockwise

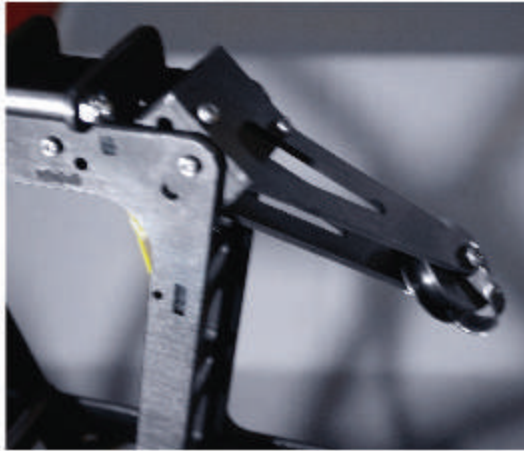


Installation of the upper spar to «Star» frame

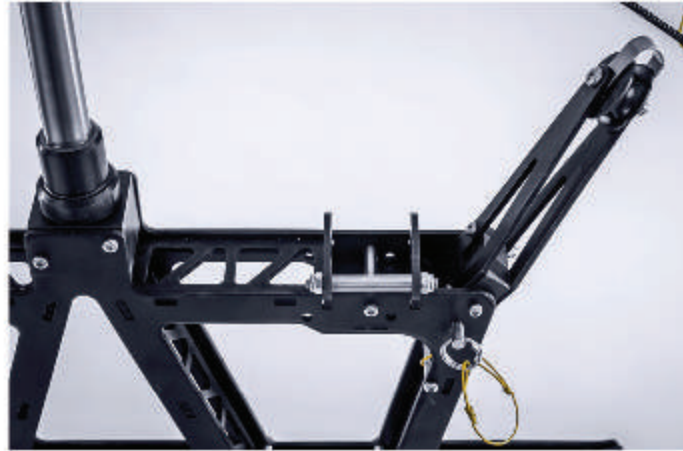
II. II. IV. STARTER CORD BRACKET.

When the frame is transported, the starter cord bracket is in a folded position. Pull it up to the working position and secure it with a pin as shown at the picture below.

Starter cord bracket in a folded position



Starter cord bracket in a working position



II. II. V. CAGE ASSEMBLY.

Please, start from the lower cage section. Insert it into the slots at the bottom of the frame, according to the marks on the section. Click the lower cage section into the frame applying some force and twisting it towards yourself. Insert the T shaped ends of the spars into the ends of the lower cage section. You might need to use some force.

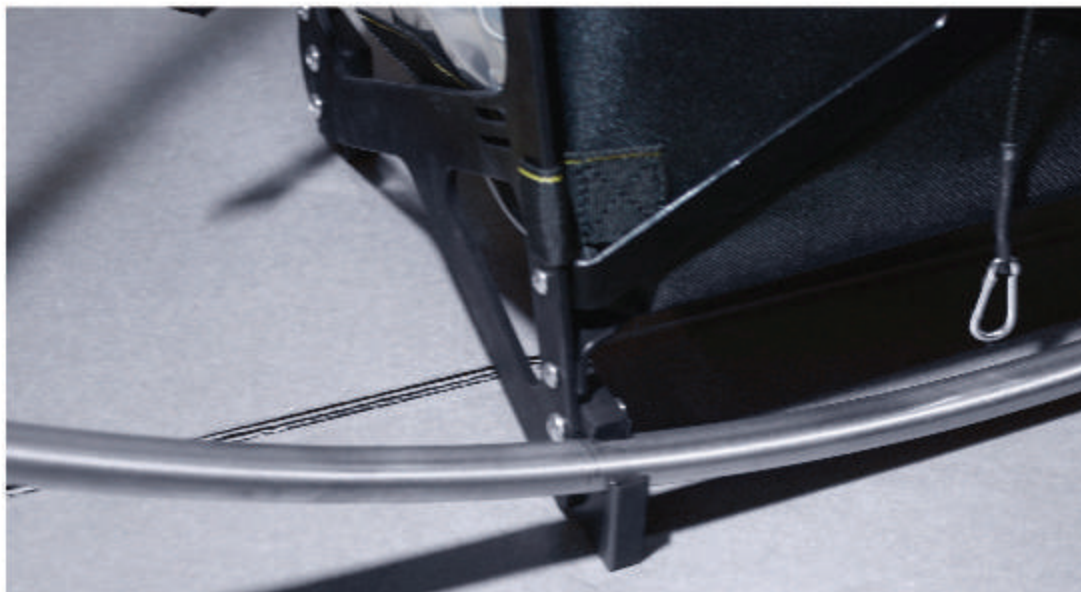
Insert the lower section into the slot of the frame



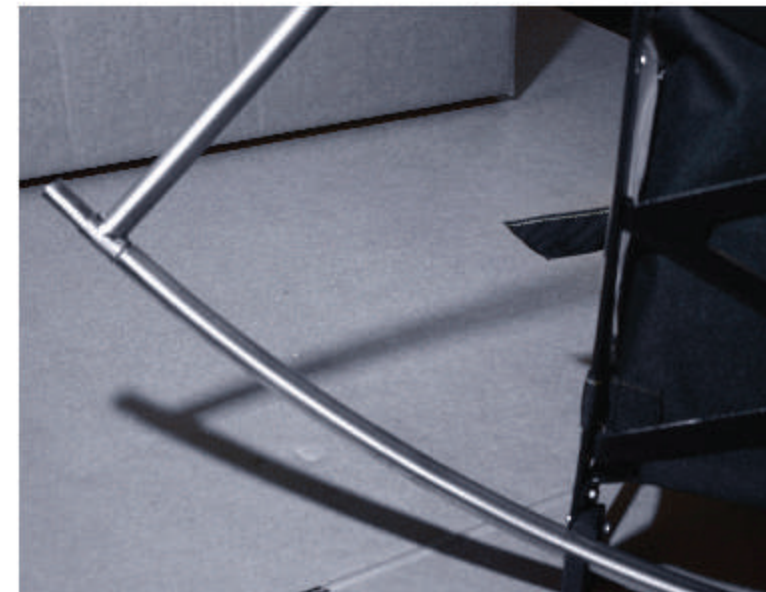
Mark on a lower cage section



Twist and lock the section using some force



Lower cage section in a working position



Unfold the netting with upper and side sections of the cage. Two sections should be on the left side and two of them on the right side.

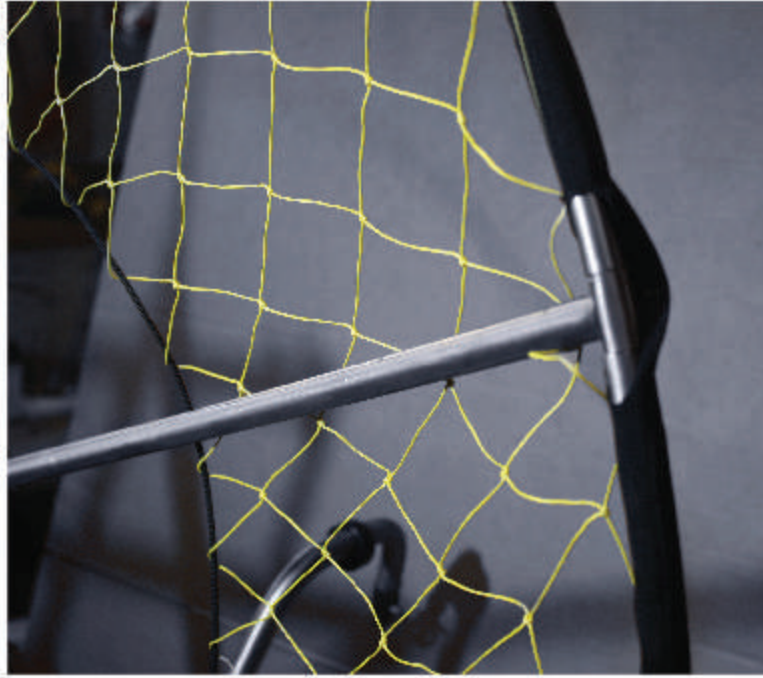
Start installing the netting with connecting it to the upper spar and then connect it to the side and lower spars. Assembling the frame in this order is quicker and easier, especially in the beginning when you might need to apply some force to assemble and disassemble your frame.



Connecting the netting to the upper spar



Netting connected to the side spar



Netting connected to the lower spar



Please note that the netting should be at the front (not on the engine side). Metal parts of the cage (connection of cage sections to the spars) should be covered at the front with the netting sleeve.

Net-tightening cord carbine position after net is installed to the spars

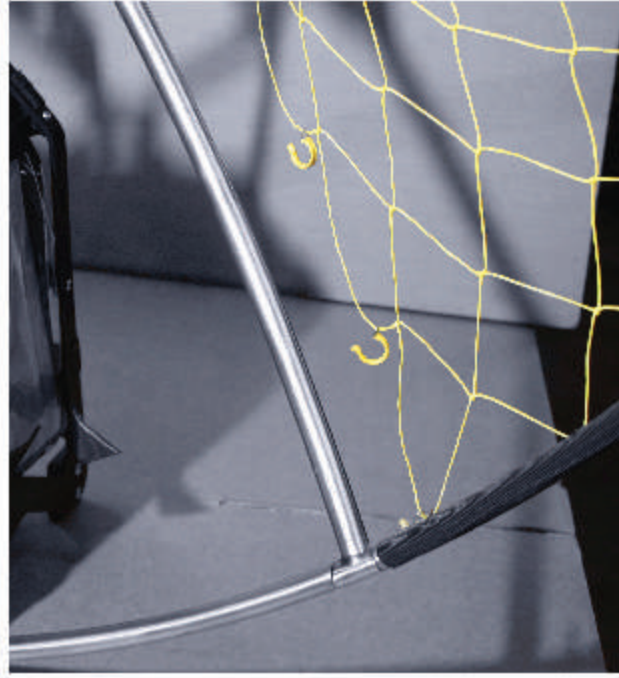


Working position of the net tightening cord and carbine after it is reconnected at the engine side

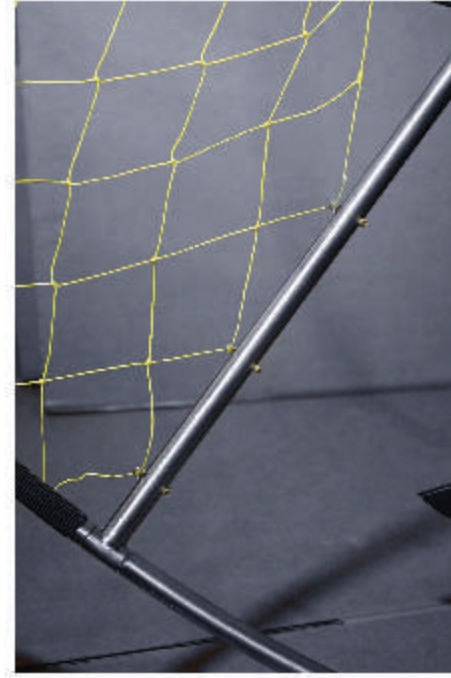


After the netting is installed, it has to be tensioned. Unlock the carbine, disconnect the ends of tightening cord, pass the ends of the cord underneath the lower spars at the engine side and connect the ends of the cord with the carbine.

Clips at the edge of the netting



Clips connecting the edge of the netting to the spar, clipped on position



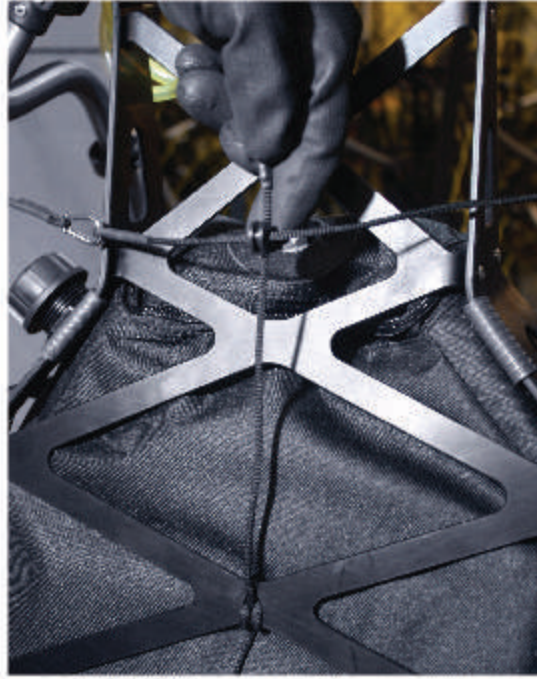
Clip the three clips at each side of the netting to the lower spars of the cage. Please, note that you should do it BEFORE tensioning the netting, otherwise you will need more force to clip those clips onto the spars and it will be more difficult to distribute the netting evenly along the spar.

The last thing to do is to tension the netting. The tensioning cord with carabine is attached to the lower part of the frame. Pass it through the pulley on the netting tightening cord. Pull the tensioning cord and click the carabine into the frame. The hole for the carabine is located at the lower part of the frame.

Now the netting should be well tensioned and should not be slack. If necessary, you can adjust the tension by changing the length of the tensioning cord. In order to do it you have to retie the knot connecting it to the frame.

Congratulations! Your «Star» frame is assembled!

Pass the tensioning cord through the pulley on the main netting tightening cord



Click the carabine into the hole in the lower part of the frame



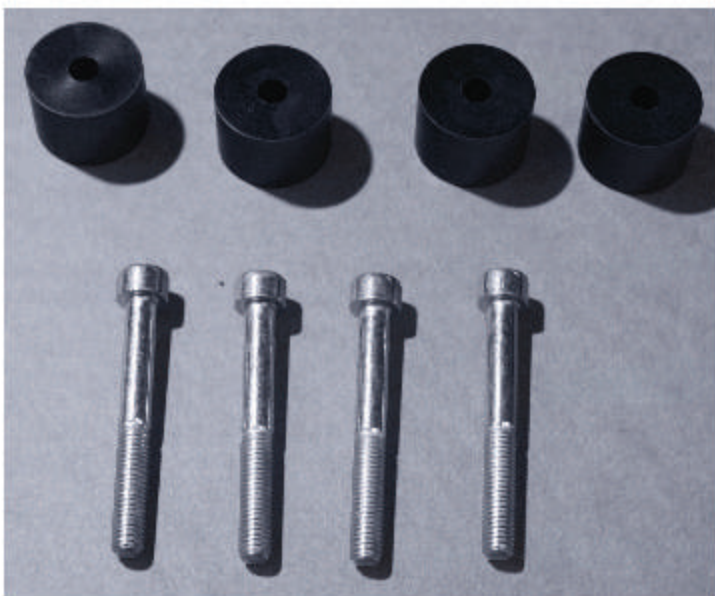
III. ENGINE INSTALLATION

SkyMax frames are produced to be use with the exact engine model, specified in the purchase order. Therefore, engine mounting points in Star frames have different location and number, depending on the engine's model. Please find the generic order of the engine installation below. As an example, we used Vittorazi Moster 185.

If you have any queries, please, do not hesitate to contact us. Please find the factory contacts on the last page of this Manual.

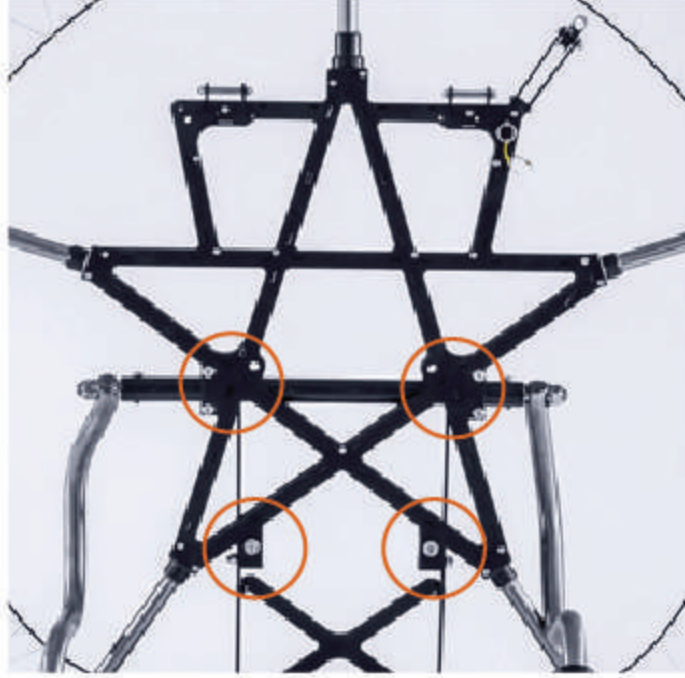
To install Vittorazi Moster 185 we supply the set of 4 x M8 bolts and 4 spacers to mount the engine onto the frame. For some engines the set is different (for example, for Vittorazi Atom 80 we supply 6 x M8 bolts and no spacers).

The set of M8 bolts and spacers for Moster 185 engine mounting

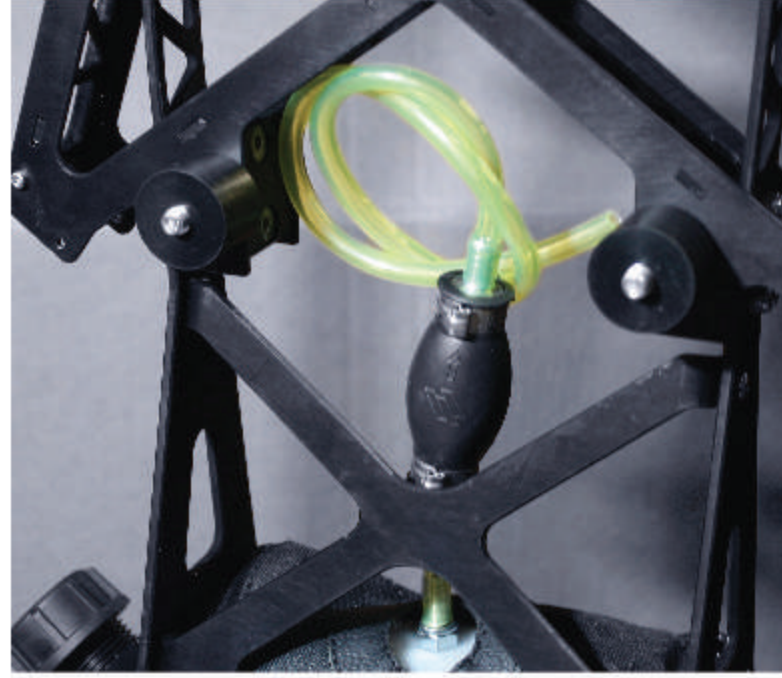


Use bolts to join the upper and lower parts of the frame and for engine mounting. There are two more holes to mount the engine above the cross bar. For further details, please, see point II.II.I.

Engine mounting holes



Bolts with put on spacers for engine mounting



Insert M8 bolts into the engine mounting holes in the frame. Put the spacers (if needed) onto the bolts. Insert the bolts into the engine mount blocks, screw them in and tighten them up.

Airbox bracket on the Star frame



There is a bracket to secure the airbox on the Star frame. If you need to connect the airbox to the frame, please, use one of the plastic ties, included in the kit, as shown on the picture to the right.

Connecting the airbox to the Star frame



Connecting the fuel pipe
to the frame with a plastic tie



With the latest models of Vittorazi engines,
there is no need to secure the airbox to the frame.

Fuel pipe have to be connected to the carburetor.
Please secure it to the frame with a plastic tie.

IV. THROTTLE INSTALLATION

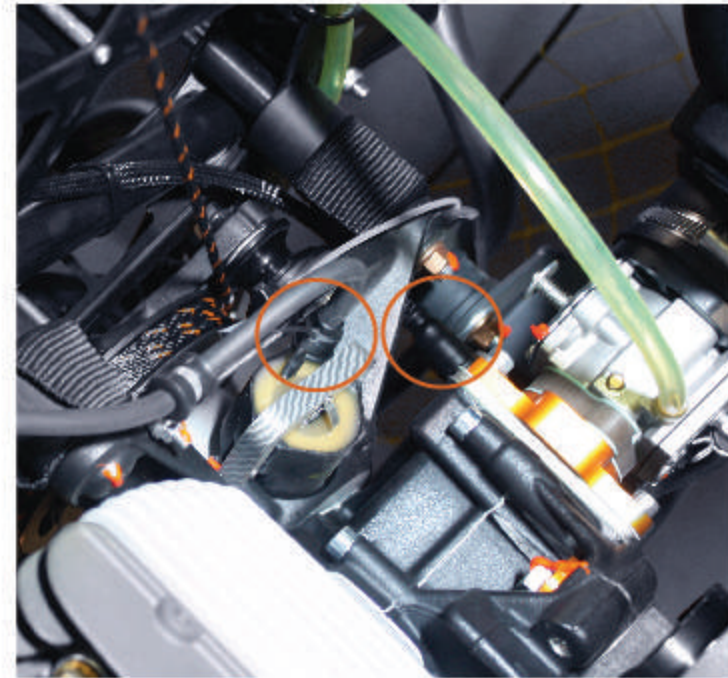
To achieve long term reliability with throttle, please put it through the SkyMax Star frame in a way recommended in this manual. Throttle installation is shown using the example of Vittorazi throttle and Moster 185 engine.

If you have any queries, please, do not hesitate to contact us. Please find the factory contacts on the last page of this Manual.

Throttle cable put through SkyMax «Star» frame

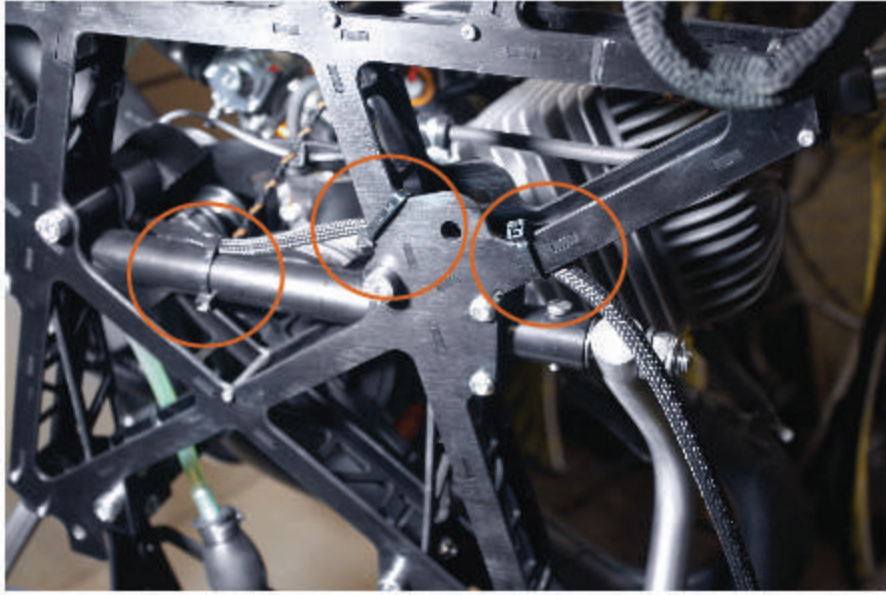


Throttle cable connection points to Moster 185 engine:
«-» to the engine body, «+» to the ignition coil



To install the throttle please, insert it into the frame above the cross bar and pull it out in a central gap of the Star frame as shown on the picture below. The metal wire in the sleeve («-») should be connected to the engine's body. Thin cable («+») goes to the ignition coil.

Throttle cable fixed to the frame
with plastic ties



To secure the throttle cable, please fix it to the frame with plastic ties included into the kit as shown in the picture on the left. Throttle cable can be installed inside frame in the same manner to be used with left or right hand.

V. HARNESS MOUNTING

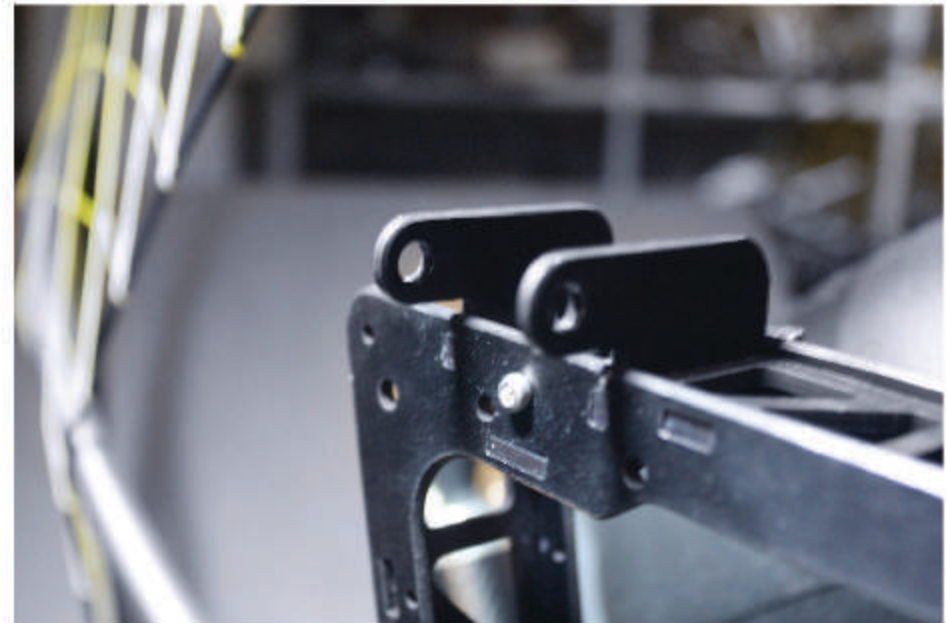
SkyMax Star frame harness mounting is shown with an example of SkyMax harness. If you use different harness and have any questions, do not hesitate to contact SkyMax. Please find the contacts on the last page of this manual.

Harness mounting studs are already installed to the harness mounting brackets. Unscrew and remove the nuts from both sides the stud, using two 7.0 spanners, then remove the stud from the bracket.

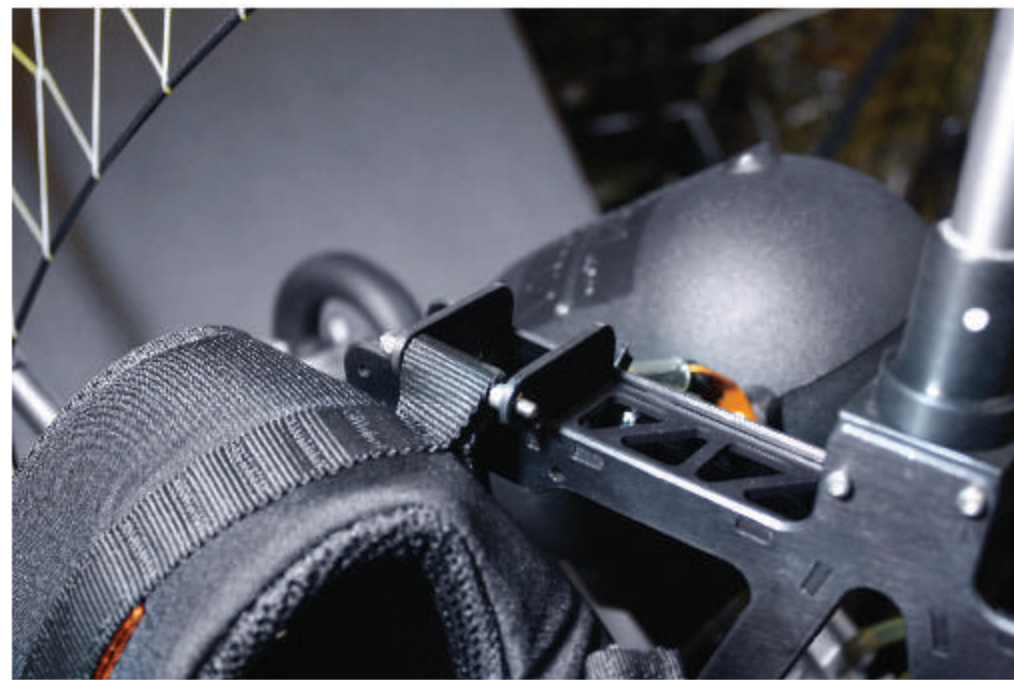
Harness mounting bracket with the stud



Harness mounting bracket with the stud removed



Put the stud into the loop on the harness shoulder strap and install it back into the harness mounting bracket. Put the nuts to the stud and tighten them up. Repeat this procedure with the other side connecting the harness to the bracket.



Shoulder straps attached to the frame

Loop the main hang point of the harness around the S-bar and put the carabine into the loop as shown at the picture below. Please note that the carabines are not included into the paramotor kit! Do the same with the harness hang point on the other side.



Connecting the harness hang point to S bars



Ω-shaped shackles are installed at both ends of S bars. Unscrew and remove the shackle from S-bars using pliers. Connect the appropriate part of the harness to the shackle. Mount the shackles back to S-bars and tighten them up. We recommend to apply the thread locker to secure them.

Harness attached to the Ω-shaped shackle



Applying the threadlock to Ω-shaped shackle



Attach the lower strap of the harness to the frame. Pass the strap through the triangle shaped gap off the lower frame and fix it with the plastic buckle. Perform the same on the other side.

Lower strap
of the harness



Lower harness strap
installation



The last thing to do is to fix the «Walking» strap. To do this just pass it on the inside of S bars and attach it to the hole on the lower part of the frame as shown on the picture below.



«Walking» strap attached to the frame

VI. WARRANTY COVERAGE

The purpose of this chapter is to avoid some of the most frequent misunderstandings, concerning warranty coverage.

This warranty covers the damages of the frame caused by: components which are defective for shape or material, for project not conforming to the indicated use, not correctly assembled from the factory.

No responsibility can be attributed to the manufacturer or to the dealer of the frame for every problem or damage caused to people/things/animals during the whole life of the frame.

For any adversities caused by the frame, the manufacturer or distributor is not responsible of such action, then the direct or indirect damages caused to people/things/animals will not be indemnified.

Some types of services which are not covered by the warranty are hereby described. For any question about the warranty coverage, contact the authorized dealer or directly the factory, that can provide further information.

All the parts replaced, both defective or non-compliant, during the interventions of warranty, will become property of SkyMax Paramotors.

All shipping charges due to warranty claims for frames, or frame parts, will be borne by the customer.

The damages caused by the following reasons are not covered by the warranty:

- normal wear of parts;
- use non original spare parts;
- neglect, lack of maintenance, accidents, abnormal operation, improper installation or maintenance, other causes that can influence the performances of the frame;
- improper use or mistreatment of the frame;

- wrong regulations or setting, omission of generic controls;
- use of accessories or component not approved for this frame;
- alteration or removal of the components;
- modifications to the frame which are not authorized by SkyMax Paramotors;
- further maintenance interventions, required by the client besides those covered by the warranty.

The following damages, are not covered by warranty or compensation:

- to people/things/animals caused by the generic use of the frame;
- to people/things/animals caused by a collision with the propeller or by any part detached by the frame;
- to the cage, components of the aircraft and/or to the propeller caused by the collision with any part detached from the frame;
- costs for recovery, shipments, phone or rental charges of any type, drawbacks or waste of time or other indirect damages.



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