



Recommendation

Applies to take-offs on the **Warp** paraglider

Issued by

Dudek Paragliders www.dudek.eu

Release date

2021.02.19

Concerns:

Warp paraglider wing

Status / Effective Date:

From the date of publication

Problem description

The Warp is a competition paraglider, designed for demanding pilots who appreciate its wide speed range. Therefore, the minimum trim speed of the Warp has been reduced to provide the most favorable sink rate.

During the use of any wing, especially in PPG role, the greatest loads are transferred by the A row suspension lines. Over time these lines tighten strongly at all joints and branches, thus changing their total length. Such a change is often within the tolerance of the measurement, and already at the testing stage we made every effort to take this phenomenon into account. However, wings are used in different ways and, accordingly, change their parameters to different degrees. Additionally, they are influenced by atmospheric factors, which cause shrinkage of the fabric and other materials used to manufacture the

paraglider. All in all, these factors can lead to a significant change in the geometry of the wing itself, so that its operational characteristics are changed too.

Over time, during take-off run with trimmers in the "0" position (fully closed), the wing may tend to rise over the pilot's head only reluctantly and stay behind at high angles of attack. A critical AoA might be reached with a glider still felt quite above the pilot's head. This condition can additionally be aggravated by any amount of the brakes, even just correcting the direction. Therefore, the following notes are included in the User's Guide:

„Take-off trimmers should be opened at least 3 cm (the trimmer scale is spaced every three centimeters). In stronger conditions, faster trimmer settings may be appropriate.“

Important: during launch, take care to raise the wing above your head or even a bit in front. The reflex profile used in Warp has a tendency to increase the angle of attack. Consequently, Warp may lag behind the pilot if this element of launch is not executed correctly.



If your paramotor produces relatively low thrust, taking off in the above-described configuration will be simply impossible (start will be interrupted).

Even worse situation may occur in case of high-powered paramotors, when the pilot decides to compensate for the unfavorable position of the wing going to full throttle. This action may lead to a take-off under a barely flying wing, with airflow detaching from the profile and not generating the correct lift. Such a "flight" usually soon ends with a deep stall, especially when the pilot suddenly reduces thrust.

We urge you to be careful when taking off. If you recognize the problem, we suggest you make the modification described below and follow the recommendations.

Action required

1. When undesirable behavior is observed, in order to reduce possible "stretching" the A row lines it is allowed to shorten the AP1 and AP2 lines by about 10mm (symmetrically on both sides). This is done by winding the loops of each line on the riser quicklocks, as shown in the picture. Ideally, such a modification should be made by an experienced person, instructor or a workshop.

2. Follow the recommendations of the current User Manual (v 06.2020 or newer) posted on the www.dudek.eu website, stating:



„Take-off trimmers should be opened at least 3 cm (trimmer scale is marked every three centimeters).
Faster trimmer settings may be advisable in stronger conditions.“



Execution time:

The modification may be indicated in wings with several dozen hours of flight time, showing a tendency to "lazily" rise overhead or stay behind the pilot, especially when:

- take-off trimmers are fully closed, and/or
- the wing is wet and has an increased weight, and/or
- in freezing temperatures, when the unpacked wing is stiff and fabric creases are difficult to straighten out.

Other documents:

None.