

# Miniplane Harness Adjustment

Proper adjustment is necessary for maximum thrust, flying comfort, and ease of launch.

Had Robinson

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- a. The harness must be suspended from the hang points by some means, the fuel tank filled with fuel, the pilot in full gear including reserve, if used. The harness cannot be adjusted properly unless the weight of the pilot is “all up”. Note: As fuel is used, the harness will tip slightly forward. This is not as important as having the harness/frame perfectly horizontal during takeoff when weight is the maximum and the most thrust is needed. It is at this time that the maximum climb out rate is needed. Having an assistant is helpful when adjusting the harness.
- b. While the pilot is sitting in the harness, use a level to adjust the hang points so that the frame is perfectly level. This will ensure that the thrust from the propeller is exactly perpendicular to the glider overhead. Loosen the head screws on the collars and then move them as needed. In order to ensure that both sides are equally spaced, measure from the center of the collar (the arrow in the photo) to the hole in the suspension arm where it attaches to the frame. Make sure both collars are the same distance. Note that the suspension arms are shaped differently in order to minimize the torque effects of the paramotor – it is not the result of damage in transit or some other defect. This adjustment is critical to getting maximum thrust at takeoff for your Miniplane.



- c. Adjust the leg straps so that they are comfortable. The leg straps have no other function other than for safety and comfort. If they are too loose, the pilot may have difficulty sitting in the harness after launch. If they are too tight, he may trouble running in the harness. When the pilot stands up in the harness, there are other straps that keep the harness from getting too low on the pilot.

- d. Adjust the shoulder straps so that they are comfortable but snug when the pilot is in the sitting position. If they are too loose, then the harness will not be high enough on the pilot's back and will cause problems when launching (it will hit the back of the pilot's legs while running).



- e. Adjust the seat straps so that your legs are at a comfortable angle when sitting in the harness. For long flights it is recommended that a footrest strap be installed. It will prevent the uncomfortable sensation of having your legs hanging from the edge of a chair for long periods. Free flight harnesses do not have this problem because the pilot sits so much further back in the harness. The short seat on the Miniplane is necessary for the launch run. If it were longer, the pilot's legs would be hindered

while running.



- f. The last adjustment must be done while the pilot is standing up. Tighten the straps indicated in the photo below to make the harness/frame high enough so that the pilot can comfortably run while launching. If the shoulder straps are too loose, there will be problems getting this adjustment correct. These can be as tight as the pilot needs. The tighter they are, the higher the harness/frame is on the pilot's back.



- g. There are two chest straps. The main chest strap (the lower of the two) must be tightened just enough to keep the suspension bars from separating around the circular contact point with the frame. In other words, there should be no space

around the circular plastic disk indicated by the arrows in the photo below.



If this strap is too tight or too loose, it will strain the contact point between the bar and the frame. While sitting in the suspended harness, loosen or tighten the main chest strap so that the circular contact points on the bars are flush with the circular contact points on the frame. This adjustment will also affect the spacing between the hang points which will, in turn, affect the safe handling of the glider. The upper chest strap is used to help prevent the shoulder straps from slipping off the pilot when in the standing position.



- h. Finally, sit in the harness again and check all adjustments. Some of these adjustments, such as the seat angle, can be made while flying when safely away from the ground.

Always get proper training before flying a paramotor. Your life can depend on it. This is NOT a casual sport. Remember that cascading events are what often kill and injure pilots. Make sure you thoroughly check your equipment before flying.