

User's Manual for One Man Rigging Aid

EMRAX



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Dear Customer,

Congratulations on your purchase of the EMRAX One Man Rigging Aid.

This is a device for quick and easy assembly of a glider plane. Assembly can be done by only one person in 15 minutes from arrival to the airfield till preparation for the flight. It is a Slovenian product. The device was developed by Mr. Roman Sušnik, dipl. ing. (Company EMRAX d.o.o.; till March 2016 company name was Enstroj d.o.o.). The first prototype was tested on Apis EA1 in 2006. After that it was also tested on a bigger glider plane – Duo Discus.

1. One Man Rigging Aid features

- Remote controlled
- Compact and high-quality product
- Galvanized iron construction and fibreglass cradle
- It can be used on the grass (even higher grass)
- Lifting weight is 150 kg (tested on Duo Discus, ASH etc.)
- It has 19 kg – it is easy to move and to handle
- It can be simply and quickly disassembled into smaller parts (convenient for putting the Rigging Aid in the underneath compartment of the trailer or in the car boot)
- It can be used for most of one and two seaters' glider planes

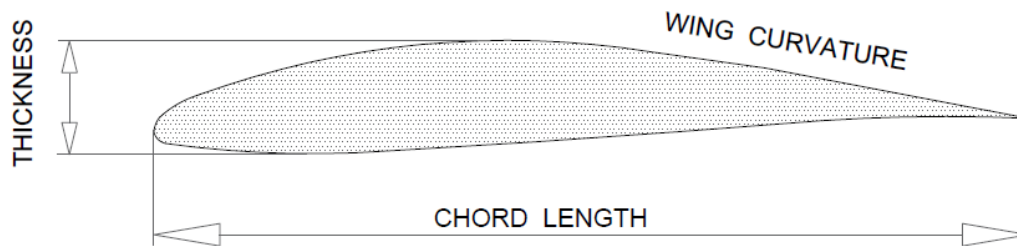


Figure 1: Wing geometry definitions

Manually adjustable parts:	
Cradle	vertical cradle position from 62 to 100 cm (also useable for planes that have wings on higher position)
	horizontal cradle position – 3 positions spaced 80 mm (for different gravity centre of the wing)
	adjustable screws for wing curvature
Wing Clamp	telescopic adjustments to different chord length and thickness of the wing
Horizontal tilt limiter on the vertical iron bar	allows the cradle to stop at desired wing angle
Remote controlled parts:	
Cradle	vertical cradle position adjustments up to 24 cm
	horizontal cradle position adjustments up to 24 cm

* Special customizations can be made - for example customized wing clamp for wings with longer chord line (up to 120 cm). Customizations have to be discussed before placing an order by EMRAX Company.

2. One Man Rigging Aid parts

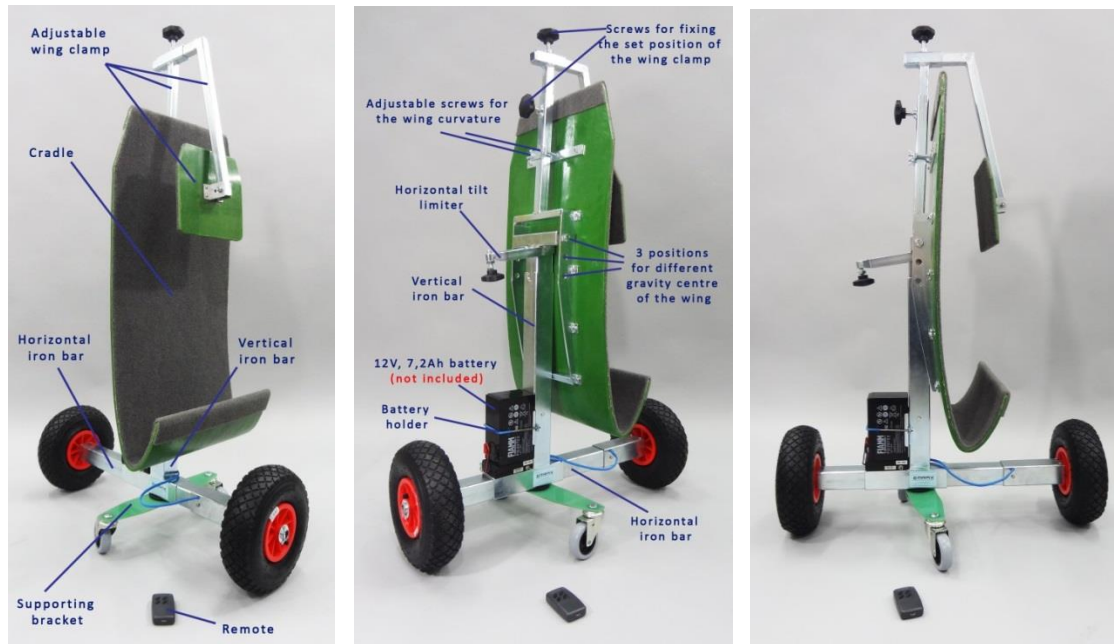


Figure 2: One Man Rigging Aid parts

- **12 V / 7,2 Ah battery is not included.** One charging of the battery lasts for one season (for approximately 50 assemblies).
- We offer also a **wing stand**, which can be ordered separately.

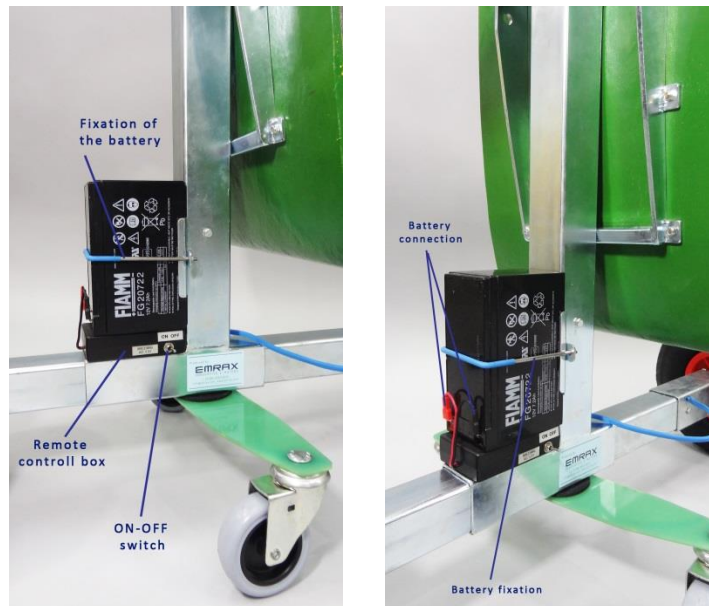


Figure 3: 12 V battery connection and fixation



Figure 4: Wing stand

3. Adjustments of One Man Rigging Aid



Figure 5: Manually adjustable vertical cradle position from 62 to 100 cm



Figure 6: Manually adjustable horizontal cradle position - 3 positions spaced 80 mm

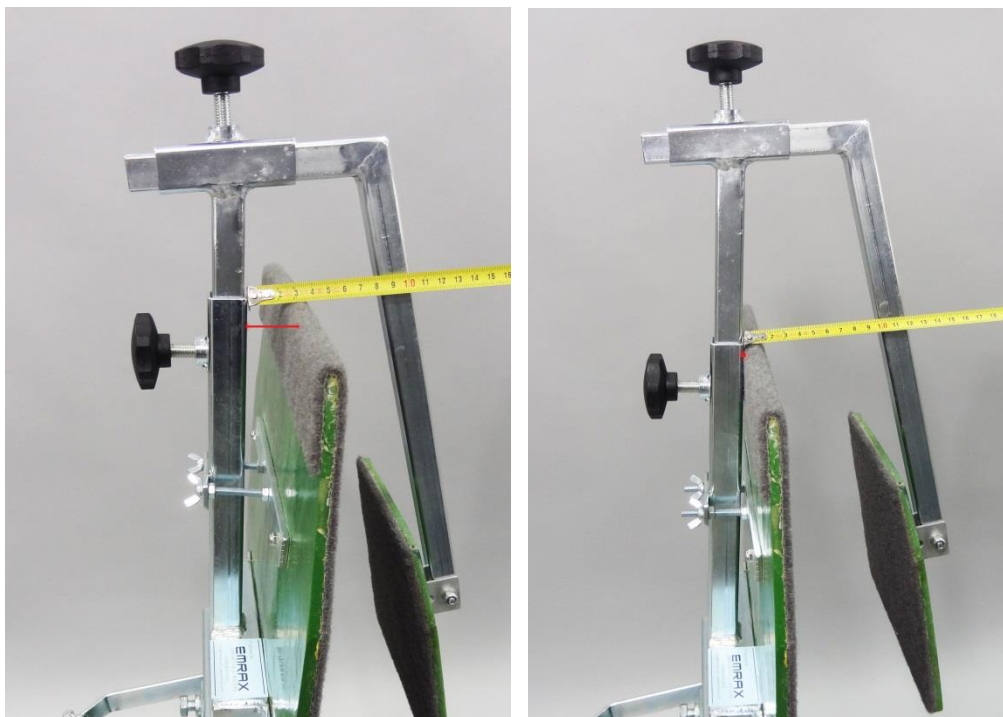


Figure 7: Adjustable screws for wing curvature



Figure 8: Manually adjustable wing clamp for different chord lengths of the wing (up to 100 cm)



Figure 9: Manually adjustable wing clamp for different thickness of the wing

3. How to use the One Man Rigging Aid?

- Step 1: Move the One Man Rigging Aid parallel to the glider fuselage with cradle facing to the plane and place the supporting bracket perpendicular to the horizontal iron bar. Cradle must be in vertical position.
- Step 2: Pull out the wing from the trailer and put it on the cradle at the wing gravity centre position. Secure the wing with the wing clamp.
- Step 3: Wheel the wing on the One Man Rigging Aid away from the fuselage and rotate in to the horizontal position. Position the wing perpendicular to the fuselage and insert the bolts in wing holes in the fuselage. You may need to make horizontal and vertical adjustments of the wing using a remote control to properly align the holes where the bolts will be inserted.
- Step 4: Insert the bolts securely.
- Step 5: Place the wing stand under the wing tip and move the One Man Rigging Aid to the opposite side of the fuselage.
- Step 6: Repeat the procedure with the other wing as described above.
- Step 7: Remove the wing stand and the One Man Rigging Aid from the wings and pull the plane from the fuselage cradle.

! Note:

- When the One Man Rigging Aid is being moved around without a wing on it the supporting bracket must be parallel (in the same line) as the horizontal iron bar.
- Never push the button on the remote control transmitter if the supporting bracket is parallel to the horizontal iron bar.

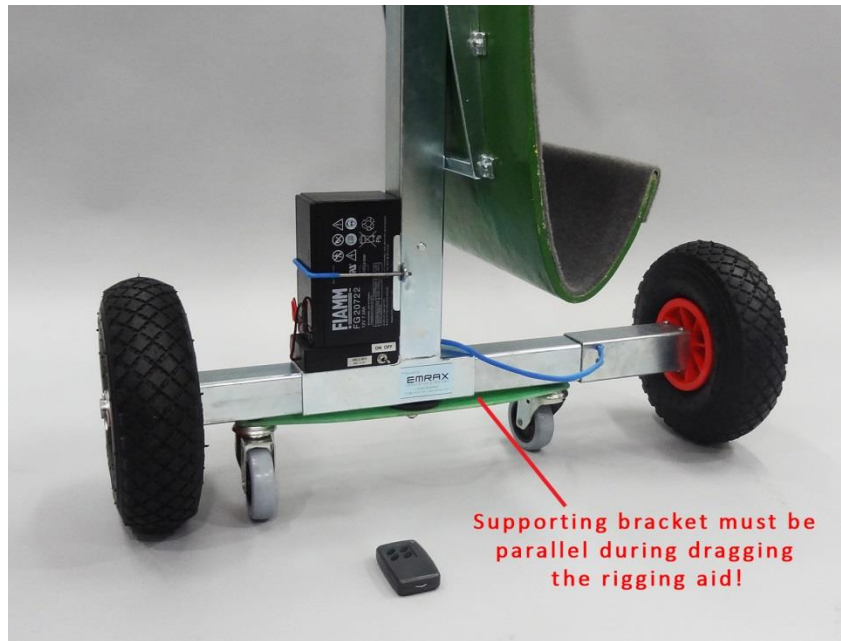


Figure 10: Supporting bracket position must be parallel during dragging the rigging aid. Remote control must not be used in this position of the supporting bracket.

Video of the One Man Rigging Aid usage (no editing was done from the beginning to an end):

https://youtu.be/XyWSmN_3spM

4. How to use Remote Control?

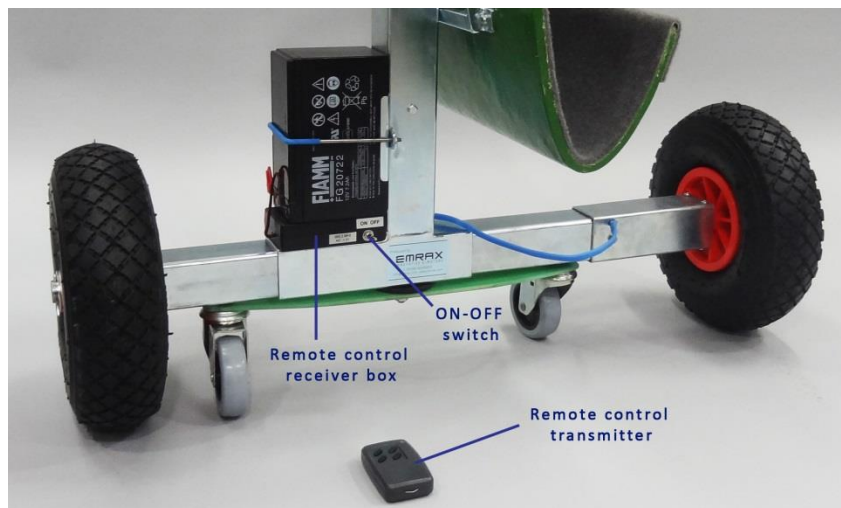


Figure 11: Remote control

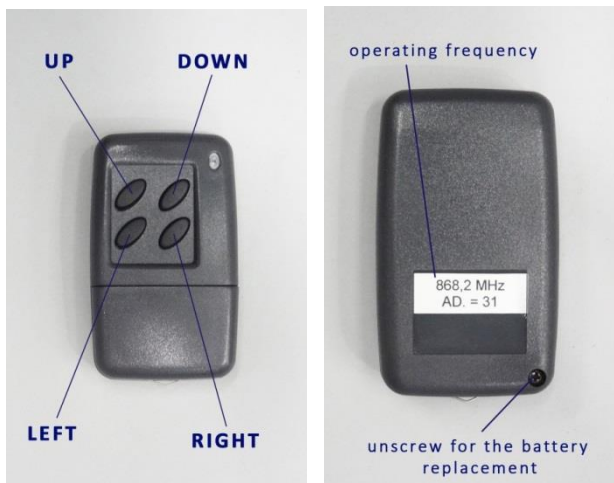


Figure 12: Remote control transmitter

The remote control transmitter has four buttons (up – down, left – right). When you push and hold one button – the motor starts to move one of the axis (vertical/horizontal iron bar) to the desired position. When the button is released the motor stops. If you forget to stop the motor it stops automatically at the end of the axis.

Main technical information of the remote control:

Battery: DC (7,2 Ah; 12 V)

Working temperature: from -40°C to +80°C

Working frequency: depends on the area where it will be used (you have to select the area where the One Man Rigging Aid will be used when placing the order)

Max load current: 6 A

Fuse: 6,3 A

! Note: The main switch on the remote control box must be OFF, when One Man Rigging Aid is not in use. If the switch is not switched off manually, it switches off after half hour automatically. Therefore the main switch needs to be reset before next usage. The switch on the control box has to be put to OFF and then back to ON position; otherwise the remote control will not work.

Global frequency bands

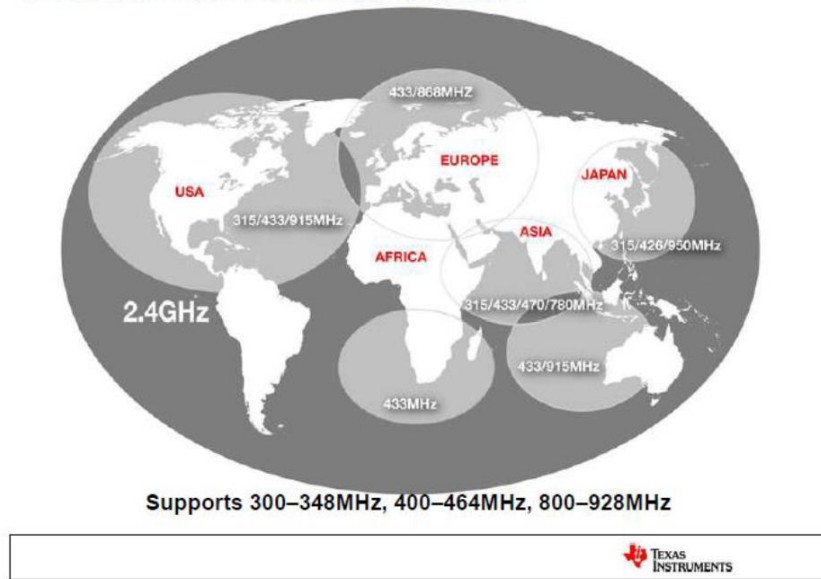


Figure 13: Global frequency bands - you have to select the area where the One Man Rigging Aid will be used when placing the order

5. Testing of One Man Rigging Aid on a bigger glider plane



Figure 14: Testing on Duo Discus glider plane