

- 4.3.5. Remove the sail mount webbing from the leading edge end caps.
- 4.3.6. Undo the zippers on the bottom surface and dismount the crossbar/leading edge junction. Remove the ends of the top and bottom wires from the sail.
- 4.3.7. Remove the keel batten and the top front wire from the sail.
- 4.3.8. Detach the top rear wire, the keel pocket mount webbing and bottom rear wires from the keel tube.
- 4.3.9. Detach the keel tube N2.
- 4.3.10. Detach the kingpost from the kingpost channel and remove the hang loop from the sail.
- 4.3.11. Pull the sail slightly to the nose and remove the nose restraint.
- 4.3.12. Remove the sail from the frame.
- NOTE:** When you feel a resistance, stop and find the obstacles.
- 4.3.13. If you need it remove the mylar from the leading edge pockets.
- 4.3.14. Pack up the sail along the leading edge of the sail. Try to do this without longitudinal folds on the leading edge of the sail.
- 4.3.15. Place the sail into the bag and zip the zipper.
- 4.3.16. Detach the speedbar. Pull the downtubes in.
- 4.3.17. Detach the N2, N3 and N4 leading edge tubes.
- 4.3.18. Detach the N2 crossbar tubes.
- 4.3.19. Disassemble the long battens. For this slide plastic tubing and remove pins from the battens NN 1 and 2.
- 4.3.20. Detach the downtubes from the keel channel, put the wires along the downtubes and place the hang loop spacer around the bottom ends of the uprights.
- 4.3.21. Put two tighten tapes on the bag with the sail, then put two tapes around all tubes, battens, kingpost and speedbar trying to decrease the dimensions of the package. Control that details of the frame do not make local damages of the sail. Use additional washers if necessary. Tighten the package with the tapes (Fig.49).

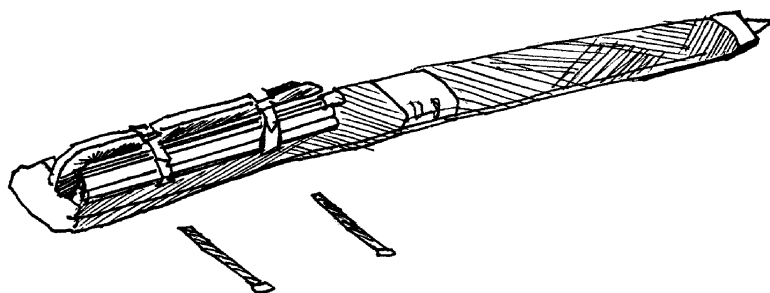


Fig.49

4.3.22. Fold the bag with the sail so that it will cover the tubes from the top. Fold the free end of the bag inside. Tighten the package with the tapes (Fig.50).

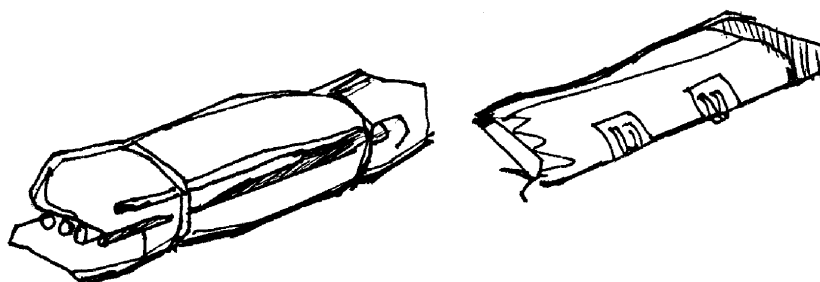


Fig.50

4.3.23. Fit the short (shipping) bag over the package and tighten the bag lace. The glider is packed and ready for shipping.

**NOTE:** WE DON'T RECOMMEND TO PUT THE PACKAGE VERTICALLY, BECAUSE IN SUCH CASE TUBES MAY DESTROY THE SAIL.

## **Section 5. M A I N T E N A N C E**

### **5.1. TUNING**

Properly tuned, the glider is comfortable, well controllable and safe in all permissible flight modes.

All hang gliders "TARGET" are tested and tuned by the manufacturer or dealers. But you may tune the glider by yourself, using variable kinds of tuning described in this manual, if your experience permits. Anyway you should familiarize yourself with the description of tuning. There are a number of things on glider that are adjustable and affect the flight characteristics. Don't change more than one adjustment each time otherwise - you should not be able to understand what adjustment influenced the glider.

**IF YOU DON'T HAVE ENOUGH EXPERIENCE TO TEST HANGGLIDER, ASK MORE EXPERIENCE PILOT TO HELP YOU.**

Test the retuned glider from a familiar site in mellow conditions.

#### **5.1.1. BATTENS**

The battens will need to be trued to the template from time to time. Small variations\* in batten camber will not have a significant effect on flight characteristics. Battens which are assymetric from left to right (especially on the wing tips) will tend to induce a turn during the flight.

(\* +/- 2 cm at trailing edge)

#### **5.1.2. THE BATTEN TENSION**

The batten tension must ensure the effort of nearly 2-3 kg on the loop of the batten tension leech line. If the leech line is too loose, especially on the wing tip battens, there may appear a flutter on the trailing edge. If the luff line is too tight - the handling of the glider may be more hard. Take care that the luff lines of both left and right wings are tightened symmetrically.

#### **5.1.3. SAIL TENSION**

The flight characteristics of the glider depend on the sail tension substantially. If the sail is mounted too tightly, the glider will be "stiff", hard to turn, with a tendency to adverse yaw on turn, especially at low speeds. If the sail is too loose, the handling will feel mushy and disconnected, the glider will not perform as well as it should. But the glider with loose sail is better for first runs and small flights.

The sail tension is adjustable by the different installation of the leading edge tubes N4. Leading edge tubes N4 has 2 holes permitting to change the console length.

Symmetrical leading edge sail tension is important for proper turn trim. The glider with a sail mounted assymmetrically on the leading edges will normally have a turn towards the looser wing. The sail will stretch over operation time, so a new sail which is properly tensioned will eventually become too loose. When you feel that speed and

glide characteristics of the glider become worse, retension the sail. But remember that too tight sail makes the handling more hard. The sail assymetry may be caused by the assymetry of the left-wing and right wing battens and by the bent tubes. Repair the fault.

#### **5.1.4. CONSOLE CAP ALIGNMENT**

If the assymetry is not eliminated by above methods, change angles of the console caps. To do this remove self tapping screws and turn the console caps in opposite directions. If the glider has a left turn during the flight - turn the left plug to the decrease wing geometric twist and right plug - to the increase wing geometric twist. The installation angle should be chosen according to the degree of assymetry, but not more than 45 degrees from the normal position. Fix the cap in the chosen position using the screws.

#### **5.1.5. HANG POINT POSITION ADJUSTMENT**

Trim speed of the glider must be approximately 28 - 30 km/h (18 - 19 mph), at this speed control bar position is in front of the pilots face.

If the control bar wants to go forward - trim speed is too small. Move the kingpost to the next forward hole in the kingpost channel. If the control bar goes backward, the sink rate increases and the handling becomes more heavy - the trim speed is too big. Move the kingpost to the next backward hole in the kingpost channel.

You must find a position of the kingpost at which the trim speed is slightly more than the speed of minimum sink rate. At this speed glider flies stable and handling is easy.

Weight of pilot influences on the necessary position of the kingpost. If the glider is tuned for the pilot of 90 kg of weight, so for the pilot of 60 kg it's necessary to move the kingpost at least one position backwards.

## **5.2. PERIODICAL INSPECTION**

You must make an inspection of the glider:

- prior to beginning flight;
- any time you suffer a hard landing to find a possible deformation of the frame;
- every 3 months or 50 hours of airtime whichever comes sooner.

Periodical inspection includes the inspection of sail and frame which requires the complete breakdown procedure. Inspect all tubes for any residual deformations, dents, signs of corrosion or cracking, especially around bolt holes and sleeve ends. Inspect all wires for broken strands, kinks, corrosion etc. Inspect main and safety pilot straps for wear and replace it if any wear is indicated.

Inspect the sail carefully ( especially after hard or tree landing ! ) for tears and broken stitching, especially along the trailing edge, kingpost hole, the keel section stitches and the sail mount webbing attachment point at the wing tips. Compare batten profiles with the template. The template must be placed on a flat surface. True the battens to the

template, if there are the divergences. Have any discovered defects repaired. Replace broken details using the spares, if the repair is impossible. Go to the manufacturer or our dealers, if there are no necessary spares.

### **5.3. MAINTENANCE**

With correct maintenance your glider will be in a good condition for many years.

We recommend that do you not expose your glider to any more solar radiation than necessary, do not leave it set up for long periods of time in the sun when you are not flying it.

Do not leave your glider on the control bar for a long time when the wind is strong. It will decrease the life of your sail.

After raining or any time your glider gets wet you should dry it thoroughly.

Your sail should never be washed in anything other than fresh water, as any soap or detergent will likely degrade the cloth and may adversely affect the flight characteristics.

If you set up or break down your glider take care not to allow sand, soil and dirt to enter your sail, batten pockets or tubes. Keep thoroughly clean the telescopic connectors, as their dirtying will make the set up or break down difficult or impossible. Swab the tubes with a rag.

### **5.4. STORAGE**

You must store the glider in the bag in a dry room on soft bedding. You may store frame without sail in a 2 metres bag vertically. Before storage dry the sail.

Frame of the glider must not be under load during storage, tubes must not be bent under their own weight.

Range of temperatures for storage - from -10°C to +25°C.

### **5.5. TRANSPORTATION**

You may carry your glider in a bag by any kind of transport, which protects from mechanical damage, soiling and long exposure to rain. It is not desirable to carry the glider without the bag.

## **Section 6. SAIL HEIGHT MEASUREMENT**

The following procedure is to enable a check of your gliders' sail reflex.

Should you wish to check it proceed as follows:

1) rig glider on level ground ready for flight;

- 2) tie glider from nose plate to bring keel level;
- 3) run 10lb fishing line from each pair of luff lines. Draw tight. Measure and record distance between line and top of keel tube.

Ensure the line runs cleanly from the upper surface of luffline sail grommets.  
See figs 51 & 52.

Fig. 51 shows the minimum distances permissible.

If recorded distances are less than those of Fig.51 the glider should not be flown until re-adjusted as follows.

A) if minimum distances are exceeded shim appropriate pair of luff lines using 1 mm washers.

B) if more than 5 mm adjustment per side is required consult your dealer.

The range of permissible sail heights for your glider are recorded in table (A).

Table A

	<b>AEROS TARGET 16</b>	<b>AEROS TARGET 13</b>
Batten number	Permissible range of sail heights above keel tube	
2	(335 mm - 355 mm)	
3	(386 mm - 406 mm)	

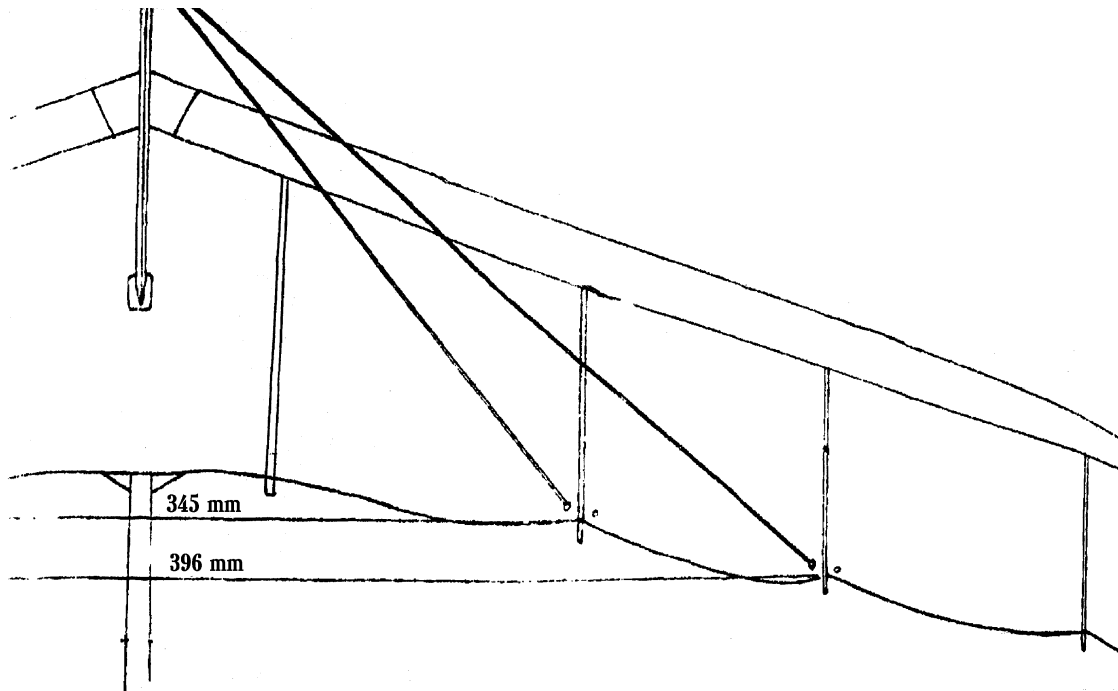


Fig. 51



## HANG GLIDER TARGET 13 / 16.

List of repair parts.

For Target 16	For Target 13	Parts
<b>Std.1000</b>	<b>T13.1000</b>	<b>Sail + mylar + nose cone</b>
Std.0100	T13.0100	Sail
Std.0101	T13.0101	Nose cone
Std.0110	T13.0110	Mylar
<b>Std.2000</b>	<b>T13.2000</b>	<b>All battens</b>
Std.0201	T13.0201	Batten N1
Std.0202	T13.0202	Batten N2
Std.0203	T13.0203	Batten N3
Std.0204	T13.0204	Batten N4
Std.0205	T13.0205	Batten N5
Std.0206	-----	Batten N6
Std.0211	T13.0211	Tip batten
Std.0220	T13.0220	Keel batten
Std.0231	Std.0231	Shovel of top battens
Std.0232	Std.0232	Shovel of keel batten
Std.0233	Std.0233	Fork of top battens
Std.0234	Std.0234	Fork of tip & keel battens
<b>Std.0300</b>	<b>T13.0300</b>	<b>Leading edge tube</b>
Std.0310	T13.0310	Leading edge tube N1
Std.0320	T13.0320	Leading edge tube N2
Std.0330	T13.0330	Leading edge tube N3
Std.0340	T13.0340	Leading edge tube N4 + washout tip
Std.0344/V	T13.0344/V	Washout tip (V – with velcro)
Std.0342/M	Std.0342/M	Tip batten stop detail (M – metal)
Std.0343	Std.0343	Console cap
<b>Std.3500p</b>	<b>T13.3500p</b>	<b>Complete crossbar (painted)</b>
Std.3500	T13.3500	Complete crossbar
Std.0370p	T13.0370p	L or R crossbar tubes (painted)
Std.0370	T13.0370	L or R crossbar tubes
Std.3710p	Std.3710p	Crossbar tube N1 (painted)
Std.3710	Std.3710	Crossbar tube N1
Std.3720p	T13.3720p	Crossbar tube N2 (painted)
Std.3720	T13.3720	Crossbar tube N2
Std.0352	Std.0352	Plastic washer 6 mm thick
Std.0353	Std.0353	Fluoroplastic washer
Std.0365	Std.0365	Tape L = 120 mm
Std.0361	Std.0361	Plate 5 mm thick

Std.0362	Std.0362	Plate 3 mm thick
<b>Std.3400p</b>	<b>T13.3400p</b>	<b>Complete keel tube (painted)</b>
Std.3400	T13.3400	Complete keel tube
Std.0400p	T13.0400p	Keel tube without details (painted)
Std.0400	T13.0400	Keel tube without details
Std.0410p	T13.0410p	Keel tube N1 (painted)
Std.0410	T13.0410	Keel tube N1
Std.0430p	T13.0430p	Keel tube N2 (painted)
Std.0430	T13.0430	Keel tube N2
Std.0431	Std.0431	Keel tube's hook
Std.0432	Std.0432	Quick link
Std.0415 / B	Std.0415 / B	Nose plate, B – bottom
Std.0416	Std.0416	Nose channel
Std.0424	Std.0424	Control bar channel
Std.0425	Std.0425	Kingpost channel
<b>Std.0450p</b>	<b>Std.0450p</b>	<b>Kingpost (painted)</b>
Std.0450	Std.0450	Kingpost
Std.0460	Std.0460	Hang strap
Std.0452 / W	Std.0452 / W	Kingpost cap (W – from Finsterwalder)
Std.0453 / W	Std.0453 / W	Cap cover (W – Finsterwalder)
<b>Std.0501p</b>	<b>Std.0501p</b>	<b>Upright tube L = 1550 mm (painted)</b>
Std.0501	Std.0501	Upright tube L = 1550 mm
Std.0502	Std.0502	Top of the upright
Std.0503	Std.0503	Bottom of the upright
Std.0503-2	Std.0503-2	Bottom of the upright (variant 2)
<b>Std.0553Wp</b>	<b>Std.0553Wp</b>	<b>Speedbar with inner wire (painted)</b>
Std.0550Ep	Std.0550Ep	Complete speedbar without inner wire (painted)
Std.0553	Std.0553	Speedbar tube
Std.0553S	Std.0553S	Base bar (stright tube)
Std.0551	Std.0551	Speedbar fastening
Std.0551-2	Std.0551-2	Speedbar fastening (variant 2)
Std.0554	Std.0554	Rubber grip (L=280 mm)
Std.0559	Std.0559	Speedbar Quick Pin

Std. / N	T13. / N	NOTE: letter N - non-corrosive wire
Std.0600 / N	T13.0600 / N	Crossbar sweep wires
Std.0610 / N	T13.0610 / N	Bottom side wire
Std.0610 / N-2	T13.0610 / N-2	Bottom side wire (variant 2)
Std.0620 / N	T13.0620 / N	Bottom front wire
Std.0630 / N	T13.0630 / N	Bottom rear wires
Std.0640 / N	T13.0640 / N	Top side wire
Std.0650 / N	T13.0650 / N	Top front wire
Std.0660 / N	T13.0660 / N	Top rear wire + reflex wires

Std.0001	Std.0001	Bolt M8 - 74 of LE/X-bar junction
Std.0002W	Std.0002W	Bolt of uprights/keel tube junction
Std.0003	Std.0003	Bolt M6 - 62 of keel tube/rear wires junction
Std.0005	Std.0005	Clevis pin L = 36 mm (kingpost channel)
Std.0006	Std.0006	Selffixed nut M6 (low)
Std.0007	Std.0007	Castle nut M8
Std.0009	Std.0009	Selffixed nut M6
Std.0010	Std.0010	Nut M6
Std.0011N	Std.0011N	Round nut M8
Std.0012	Std.0012	Clevis pin L = 32 mm (uprights)
Std.0013	Std.0013	Bolt M6 - 28 of bottom side wire/control bar
Std.0015	Std.0015	Bolt M6 - 40 of bottom wires/uprights
Std.0017	Std.0017	Big safety ring
Std.0018	Std.0018	Small safety ring
Std.0025	Std.0025	Plastic washer 3 mm thick
Std.0026	Std.0026	Standoff for LE/Xbar junction
Std.0027	Std.0027	Standoff
Std.0028	Std.0028	Metal washer 10 - 6 - 1
Std.0029	Std.0029	Metal washer 12 - 8 - 1
Std.0030	Std.0030	Metal washer 11 - 4 - 2 (for luff lines)
Std.0559	Std.0559	Quick Pin of speedbar
Std.11	Std.11	Clevis pin of nose channel
Std.12	Std.12	Quick pin of nose channel
-----	Sth.31	Clevis pin L = 50 mm (LE3 + LE4)
Std.83W	Std.83W	Bolt M6 - 43 (hang strap)
Std.0710	T13.0710	6 metres bag
Std.0720	Std.0720	2 metres bag
Std.0730	T13.0730	Battens bag
Std.0740	Std.0740	Protective bag for the bottom of uprights
Std.0750	Std.0750	Protective padding
Std.0755	Std.0755	Bag for wing tips
Std.0760	Std.0760	Tighten tape
Std.0770	Std.0770	Protective bag for crossbar end
Std.0771	Std.0771	Crossbar central junction bag
Std.0775	Std.0775	Top of kingpost
Std.0790	Std.0790	Rear wire/keel junction
Std.0795	Std.0795	Speedbar bag
Std.0800	T13.0800	Battens template
Std.0810	Std.0810	Manual