



Concept Owners Manual

Congratulations on your purchase of an Airwave Gliders *Concept*.
We hope to provide you with many hours of enjoyable flying.

If you ever need any spare parts or advice do not hesitate to contact your
nearest Airwave dealer, or contact us direct.

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Technical specifications

	Concept 39	Concept 49	Concept 59
Imperial Units			
Wing Area	136 Sq Ft	149 Sq Ft	159 Sq Ft
Wing Span	32.8 Ft	33.75 Ft	34.58 FT
Aspect ratio	7.9	7.65	7.52
Certified Pilot Weight Range	120-220 Lbs	140-260 Lbs	180-300 Lbs
Maximum Speed VNE	60 Mph	60 Mph	60 Mph
Minimum Speed	16 Mph	16 Mph	16 Mph
Glider Weight	69.7 Lbs	74 Lbs	79 Lbs

	Concept 39	Concept 49	Concept 59
Metric Units			
Wing Area	12.64 Sq m	13.85 Sq m	14.77 Sq m
Wing Span	9.99 m	10.29 m	10.54 m
Aspect ratio	7.9	7.65	7.52
Certified Pilot Weight Range	54-100 Kg	64-118 Kg	81-136 Kg
Maximum Speed VNE	27 m/sec	27 m/sec	28 m/sec
Minimum Speed	7 m/sec	7 m/sec	7 m/sec
Glider Weight	31.7 Kg	33 Kg	36 Kg

Flight limitations

Flight operations must be limited to non-aerobatic manoeuvres.

It is recommended that these gliders be flown by pilots who are trained to the B.H.P.A. XCPC standard, or equivalent.

Load should only be applied to the glider through the pilot's hang point. Towing devices which load the glider elsewhere can be dangerous.

This glider must not:

- exceed 30 degrees nose up or down to the horizon.
- exceed 60 degrees bank angle left or right to the horizon.
- be flown inverted or backwards.
- be flown with auxiliary power unless designed, installed and tested by the factory.

This glider was test flown by

Date Place

SECTION 1 : RIGGING INSTRUCTIONS

Your *Concept* has been designed to be rigged simply and efficiently. The instructions given below provide you with the step-by-step procedure for rigging your glider. By closely following these instructions, you can ensure that your glider will rig easily and that you will not cause damage to the structure.

The *Concept* may be set up in either of two ways. The first procedure is preferable, in which the glider is left on the ground, nose into the wind until ready to launch. In this procedure, the control frame is set into position last and it reduces possible damage to the glider in the event of a sudden gust of wind. The second technique is with the control frame set into position at the beginning of the procedure. This allows the glider to be set up off the ground which is better in lower wind conditions or on rough terrain and it is effective in keeping the sail clean.

1) Place the glider in its bag on the ground with the nose into the wind and the zip facing upward. Unzip the cover bag, remove the battens from the nose area, undo the glider ties and assemble the control frame. **NOTE :** Check that all the rigging is outside of the control frame triangle and check that the bolts, or pip pins are fully assembled, and that the base bar is the right way up. (the trimmer cleat should line up with the trimmer rope).

2) Roll the glider over so that it is the right way up and flat on the ground. Ensure that the control frame is central and that the rigging is unsnagged. Thread the trimmer rope into the cleat and tie a stop knot.

3) At this stage you must decide to rig the glider standing on its 'A' frame or flat on the ground. If you decide on the former, then stand the glider on its 'A' frame, but do not fasten the nose catch. Both rigging procedures now continue in the same way.

4) Remove the cover and all the ties. Carefully walk each wing half way out to its approximate flying position before walking them all the way out. **AT THIS STAGE IT IS ESSENTIAL TO ENSURE THAT THE KEEL AND LEADING EDGES ARE ALWAYS IN THE SAME PLANE OR DAMAGE WILL RESULT.**

5) Raise the kingpost and check the battens against template and for symmetry. Place all **green** battens in the **right** wing. Working from the centre to the tip insert all the top battens with gentle pressure until they meet resistance but do not insert the tip battens. Lift the sail at the trailing edge and gently shake, this enables the batten to slide into place over the cross tube. **DONOTUSE FORCE!** Do the same with the **red** battens in the **left** wing. All battens are secured in position with a "double purchase" method. To secure, place the bottom loop onto the batten end fitting and pull the top loop over and into the fitting notch.

6) Lift the nose batten with the attached string onto the location on the keel.

7) You should now find the cross tube tension webbing appearing immediately at the rear of the keel pocket. It is automatically pulled into this position by the elastic cord which runs down into the rear of the keel tube. Pull on the webbing loop handle. Keep about 50 cm to the rear of the glider for max leverage with your knees against the base bar. Pull the cross tube tensioner cables back until the shackle can be inserted into the alloy catch on the keel tube. The spring pin will lock the shackle in its proper position.

8) To install the tip batten, look through the leading edge pocket at the wing tip and guide the tip batten onto the tip batten hook. Secure it with the double string. These strings are often quite tight and the easiest way to get them onto the batten end is by using a straight lower surface batten looped through the end of the string as a handle.

9) You can now detach the tip strut from the velcro tabs on the leading edge and install them in position, above the spare ribs deployment string.

10) Now deploy the spare ribs by gently pulling on the spare ribs deployment strop along the keel, until they are totally deployed. If any resistance occurs, lift the trailing edge and shake it gently. The spare ribs should then be set in position correctly. Attach the deployment strop thimble to the hook at the end of the keel.

11) If required you can now install the winglets. Fold the tongue of the winglet out of the body. Pull on the rubber sleeve tab and insert the metal tongue between the rubber sleeve and the glider leading edge tube. Insert lower part of the winglet body in between the top and bottom surfaces of the sail and push in to fullest extent. Now gradually slide the body of the winglet toward the rear of the wing tip between top and bottom surface.

12) If it is not already standing, lift the glider onto the control frame (be careful of snagging the tip battens), ensure that all the lower riggings are untangled. Attach the forward lower rigging by putting the goose catch inside the goose channel and securing with the pip pin provided.

13) Install the glider's nose fairing, starting with the two top velcro tabs and gently pulling the fairing down and around the nose plate to connect the two bottom velcro tabs on the shroud to its corresponding tab sewn on the double surface.

14) Insert the three lower surface battens carefully, as there is the possibility of missing the batten pocket as battens enter the sail. Push the batten until it reaches the end of the pocket. With the batten installed correctly, the cord loop should be visible behind the double surface.

Never fly your *Concept* with the double surface zip undone or without its nose fairing as this adversely affects the glider's pitch stability characteristics.

Your *Concept* is now ready for a preflight inspection. It is important that this is carried out every time you rig the glider and before you fly.

SECTION 2 : PREFLIGHT INSPECTION

The nature of the *Concept* is such that many of the pre-flight checkpoints common to other flex wings are hidden to eliminate parasitic drag. A thorough pre-flight procedure is mandatory with all aircraft, and the best technique is a circular walk around the glider.

Start at one location, the nose plate is ideal, and check each assembly point available for inspection.

Keep in mind the **THREE MOST CRITICAL** set-up factors. These are the nose catch, the control frame base tube bolts and the cross tube tensioner. As stated in the set-up procedure, **ENSURE THAT ALL SECURING PINS ARE PROPERLY POSITIONED AND CANNOT PULL THROUGH.**

To follow the preflight checklist :

- 1) Base tube pip pins inserted and secured. Trimmer rope threaded through cleat.
- 2) Centre zipper closed.
- 3) Nose catch and nose cone rigged and fitted.
- 4) Sight down leading edges.
- 5) Feel side wires for kinks and frays.
- 6) Sight wing bolts and pitch tabs, close zippers.
- 7) Check for correct and secure installation of winglets.
- 8) Batten bungees and strings secured.
- 9) Spare ribs correctly deployed.
- 10) Rear rigging tension and deployment strops attached.
- 11) Reverse procedure for other wing.
- 12) **Hook in and hang check !**

SECTION 3 : FOLD DOWN PROCEDURE

To fold down your *Concept* just reverse the set-up procedure steps as described. Included here are a few guidelines to follow which will save you time and prevent wear areas on your sail :

- 1) Pull out undersurface battens.
- 2) Detach winglets.
- 3) Release spare ribs deployment stop.
- 4) Go to wing tip and fold in tip struts then pull spare rib deployment string towards the tip until spare ribs are released.
- 5) Pull tip batten and battens No 10 (No 9 for 39FR) through No 6. Roll sail under itself and install tip covers.
- 6) Release cross bar tension stop.
- 7) Pull battens No 5 through No 2.
- 8) Release tension string on batten No 1 but leave in sail.
- 9) Fold down king post and release nose rigging.
- 10) Fold wings in and roll sail.
- 11) Leave nose batten in on nose stand.
- 12) Put king post cover and glider bag on.
- 13) Roll over and de-rig control frame.
- 14) Fold control frame back and pull rigging neatly forward.
- 15) Install protective pads and zip up glider bag.
- 16) Carry on car, zipper down.

REMEMBER NEATNESS COUNTS!

SECTION 4 : TRANSPORTATION AND STORAGE

The *Concept* should always be laid zipper facing down especially during transportation.

Avoid hard spots pressing on the glider at any time and have as many supports as possible. During transportation use rope or webbing rather than elastic to secure the glider and tie both ends of the glider to a support or down to the ends of the vehicle in order to stop the glider flexing. If the glider bag is loose and the glider is travelling at high speed on a car roof, it will chafe the glider's sail. This 'glider flog' can be easily prevented by tying up the bag. It is preferable to keep the glider dry and ensure that the glider is dry before storing.

SECTION 5 : FLYING TECHNIQUES

Take Off

The *Concept* has neutral static balance and is very easy to launch in both calm and windy conditions. When you hold the glider prior to your take off run, you should have the nose slightly elevated and the wings level. **AGAIN MAKE SURE THAT YOU ARE HOOKED IN!** Run hard and ease the bar out for lift-off.

Turns

The *Concept* has straight-forward flight characteristics, typical for a defined aerofoil flex-wing. The glider can be easily directed into a turn, even at very low flying speed. However, to obtain the best handling characteristics and fast roll rate, it is advisable to pull in for a little extra flying speed. To enter the turn, pull on some speed, move to one side and push out slightly, then centralise. The *Concept* will maintain in a turn of a required bank angle and radius until the turn is removed. It is possible to trim the neutral bank angle of the glider by adjusting the TRIM TIPS, see the section "Handling/Speed & Glide". Give yourself an extra margin of safety and DON'T fly your glider at the slowest possible airspeed when scratching for lift close to the terrain.

Straight Flight

The *Concept* requires relatively light pitch inputs. This means that it is quite easy to increase airspeed rapidly and the useable speed range of the glider is quite wide. Until fully familiar with the flight characteristics of the glider, care should be taken when accelerating to higher speeds. Practise accelerating your glider in smooth conditions until you are fully familiar and comfortable with it. You will find the *Concept* to have excellent straight line stability at speed. For max glide performance pull the trimmer on all the way.

Thermalling

This is best done with the trimmer slack and is also very straight-forward. The optimum speed for thermalling is a little above the min sink flying speed, but it may be necessary to fly faster than this in rough conditions to maintain good control. Once a turn is initiated a bank angle of anywhere between 10 and 50 degrees can be used, depending on the nature and diameter of the thermal. The *Concept* is a precise glider to fly. It can accelerate quickly from small pilot inputs and will turn fast. It is a well coordinated and very easy glider to fly but requires precise pilot inputs and should be treated with respect whilst learning to fly it.

Trimmer Operation

Your *Concept* is fitted with a Magic Trimmer system. Use the trimmer to maximise straight line gliding performance between thermals. For maximum manoeuvrability, landing and thermalling performance, leave the trimmer fully off. For optimised gliding performance, pull the trimmer on all the way, but expect a slight deterioration in turning coordination.

Stalls

The stall characteristics of the *Concept* are very straight forward. If you push out slowly it is hardly possible to stall the glider at all and the *Concept* will mush without a tendency to drop a wing. If you push out harder, the nose of the glider will come up a little higher. This is followed by a pitch down and the glider will regain flying speed. The stall break is sharper and the recovery longer with the trimmer on. The stall speed will increase by approx 5 - 6 mph when the wing is wet. Never stall your glider completely with the nose pitched-up very high. This is one of the most uncontrollable and dangerous manoeuvres for any tail-less aircraft and can result in a tail slide and severe tumble. Stalls in a coordinated turn are difficult to do by mistake. If you push out too much in a turn the glider will turn tighter, unless you are flying very very slowly in which case you may enter a spin (see Spins).

Spins

The *wing* will strongly resist spinning. However should you stall one wing in a turn, move your weight forward and the glider will recover quickly from a spin (half a turn) without entering extreme attitudes and without extreme loss of height. This is due to the *Concept's* positive roll-yaw coupling and a neutrally balanced roll characteristic. The tendency to stall the inside wing, in a turn, is increased when the trimmer is on.

Landing

This is a simple matter. Your final approach should be a straight glide into the wind at faster than best glide airspeed. Bleed your speed off slowly, wings level and ground skim onto your chosen landing spot. In light or no wind conditions a full flare is required. When it is time to flare, flare aggressively and abruptly and hold the 'A' frame out.

IMPORTANT NOTICE

As with any high performance aircraft, special care should be taken to note the operating limitations which have been ascertained by careful testing.

Flight operations should not exceed those laid down in the operating limits at the front of this manual.

No aircraft is totally safe; there are inherent risks involved in flying a hang glider. It is quite possible to fly the *Concept* beyond its operating limits, **DO NOT DO IT**. The responsibility for safety rests ultimately with the pilot who must decide whether the aircraft he/she is about to fly has been properly maintained, preflight checked and is in an airworthy condition.

SECTION 6 : TUNING

The *Concept* has undergone a rigorous test-flying programme in a wide range of conditions. As a result, it is precisely tuned to achieve maximum flying performance. Therefore, it should not be necessary to make any changes in your glider's tuning or configuration. If, however, you have any questions, please contact your authorised Airwave dealer.

If any adjustments are made on your glider, we recommend that they be noted in your Maintenance Log which you will find at the end of this Manual. It is then easy to go back and trace occasional problems.

Turns

If your *Concept* develops a slight tendency to want to turn. Check the following : Check your battens against the batten pattern. Check that the batten elastic tensions are the same on both sides. Check that the keel is straight. Check that the leading edges are straight. When you have checked that everything is correct and if your glider still has a turn, then it may be necessary to adopt the following technique.

Your *Concept* is fitted with adjustable lockable **MAGIC TRIM TIPS**. These fittings allow you to tune turns out of the glider :

To adjust the **TRIM TIPS** : partially unscrew the stainless steel locking screws and push them in (this releases the locking wedge), the fitting is then free to turn. To lock the tips, do up the stainless steel locking screws. **The TIPS should be locked for flight.**

Turn adjustment

If your glider has a right hand turn

Turn the right hand **TRIM TIP** anti clockwise approx 2mm (viewed from end)
OR Turn the left hand **TRIM TIP** 2mm anti clockwise.

If your glider has a left hand turn

Turn the left hand **TRIM TIP** 2mm clockwise
OR Turn the right hand **TRIM TIP** 2mm anti clockwise.

To gradually tune out a turn, use increments of 2mm only, use the reference line on the leading edge as a guide.

After tuning both tips should visually look the same. Large asymmetrical differences should be avoided. **Consult your Airwave dealer if in doubt.**

Pitch Trim

This is accomplished by moving the king post base block within the adjustable heart bracket. This requires the use of two 7/16" AF (11mm AF) spanners in order to undo the bolt securing the king post base block. To make the glider fly faster, simply move the king post base block forward one hole. The distance tube in the base block will prevent the pullies falling out of the cluster. The trim speed will change by approx 5mph between the forward and rearwardmost positions.

Other factors that will affect pitch trim are : leading edge tension, trim tip angle and wing loading.

Adding a small shim to the leading edge will increase the trim speed. Flattening the trim tips will increase the trim speed.

A pilot at max wing loading should need to move the hang point forward.

Note : the back-up loop is hung from the keel and always located directly behind the adjustable heart bracket.

By adjusting both TRIM TIPS to give more washout at the tips, the stability of the glider will be improved.

Handling / Speed & Glide

By 'flattening' the tips the performance of the glider will be improved. These adjustments will affect :

Trim speed (flattening the tips will speed up the glider)

Coordination (flattening the tips will steepen the bank)

Roll inputs (flattening the tips will stiffen the roll)

Our experience has shown that setting the trim tips at a position which allows easiest thermalling for your weight will in the end produce optimum performance.

SECTION 7 : MAINTENANCE SCHEDULE

Your new *Concept* will require very little in the way of maintenance if you care for it properly in your day to day use. Here are some general points to follow in maintaining your new *Concept* which will help ensure the safety of your flying and the performance retention of your glider. We suggest you follow this maintenance schedule faithfully. Your care will always pay off in the future.

Every 10 Hours

- Check all battens against the batten pattern.

Every 50 Hours

- Inspect all cross tube support cable components (tang, pins, nuts, bolts, cross tube plates, and cable itself).
- Inspect all batten elastics.
- Check all tubing for possible wear damage which could occur during set-up, fold-down, or transportation.
- Inspect sail mounting grommets and webbing at tips.

Every 100 Hours or yearly

A complete inspection of your glider is recommended, check all components, replace any worn or bent bolts or locknuts connecting 2 moving parts together (i.e. cross tube / leading edge bolt, etc.).

If any tube is badly scratched, dented, or damaged, it should be replaced.

Check all rigging and replace flying wires (mainspans and tension strop).

Check the critical airframe measurements. (See Airframe Maintenance).

Critical sail tears should be mended by a professional sailmaker. (See also Sail Maintenance).

Check spare ribs.

Check trimmer ropes and compensator lines for abrasions and wear.

Please contact your Airwave dealer for a complete and professional inspection of your glider.

Sail

1) If you must wash the sail, wash it with a light detergent only. Better still, wipe the sail down frequently with a soft, damp cloth and that will keep detergent washing to a minimum.

2) Acetone or alcohol can be used to remove stubborn stains without harming the sail. (do not use any solvents on the mylar portions of the sail).

3) **Rinse very thoroughly after cleaning with any detergent or solvent.**

4) For oil stains or particularly resilient grass or insect marks you can use a product called 'Bogod spot remover'. Available from marine hardware stores or your Airwave dealer.

5) Apply sail repair tape to any rips or tears in your sail. This will prevent fraying on the edges where the tear is located. However, do not worry about small tears continuing unless they are located at stress points around the tip panel, nose or trailing edge panel.

6) Keep an eye on all the grommets and all areas of the sail that take extra abuse.

7) The best thing you can do for your sail is to always use the glider bag. Do not carry your glider on top of a car, even for short distances, without one. Sun and weather cause more deterioration than hours of flying. Keep your *Concept* covered when not in use.

8) Be careful and precise when you re-pack your glider after each flight. Keep all the padding that arrived with the glider when it was new, pack everything the same way. A few extra moments when you de-rig the glider will give you many extra hours of noiseless and anxiety-free flight.

Cables

1) Naturally any frays or kinks in your cables should be examined with great care and any frayed cables should be replaced immediately.

2) Airwave recommend that the flying wires are replaced every 100 hours or yearly, whichever comes first. Each cable has a breaking strength in excess of 400 Kg. Actual non-acrobatic in-flight loads seldom exceed 200 kg. Inspect the thimbles; if elongation is evident then the cable should be replaced. If you must constantly set your glider up and break it down in rough, rocky areas, you will need to replace your cables more frequently than someone who flies the grasslands. Most damage is done to cables by 'heavy landings' or crashes. Use your best judgement - those cables hold the frame together.

Spare Ribs

The spare rib tip heights should be checked only without the sail and with the trimmer off. Lay the opened airframe on the ground, detach cross tubes at wing bolt and mainspans and totally deploy the spare ribs and attach the deployment strop to the hook on the keel. Then, measure the height from the ground to the spare rib tips. The inner spare rib is No 1 and the Outer is No 2 for the 39 and No 3 for the 49 and 59. The measurements for their heights are given in Section 10. Check spare ribs for damage and retaining bungee for fraying.

Airframe

Examine your tubes for dents, wear spots, corrosion and bends. With the glider lifted to make sure that the mainspans are tight, the anhedral is the distance between the bottom of the keel and a tight string held between the two wing bolts. The bend in the keel is measured with a tight string between the aft lowers exit hole and the bottom of the keel behind the nose plate. The measurement is taken at the 'A' frame.

Concept 39

Concept 49

Concept 59

Anhedral
Keel bend

Hardware and Bolts

1) For all practical purposes, Airwave hardware exceeds all required and maximum load tests in hang gliding (flight) applications. "AN" bolts, however, are not indestructible and bending them even in light crashes is common. Check them periodically to be safe. Discard and replace any bent bolts.

2) All bolts, of course, should show an exposed thread above the locknut during pre-flight.

3) All bolts should be tightened to remove slack from the joint and no more. Do not over or under tighten bolts.

4) Do not re-use nyloc nuts.

Battens

When inserting battens, place them in their pockets smoothly and gently to avoid wear on the sail and on the batten ends. Pushing them rapidly into the pockets an angle will wear out the stitching on the edge of the pockets. The friction will wear the batten ends rapidly, and will damage the sail itself.

Annual Inspection

Even if yours is the best kept *Concept* you should have the glider stripped down for a full inspection at least once a year. This can be done by yourself or preferably us, or by one of our professional Airwave dealers.

SECTION 8 :

TAKING APART AND REBUILDING YOUR GLIDER

Preparation

In order to best perform this operation, you must first assemble the base bar, and place your glider "right side up" on two saw horses located 1 m from both ends, with all ties removed and with the leading edge spread approx. 30 cm apart. (You can actually perform the same operation on a clean floor or lawn.) Next, you need to flip the sail on the outside and the top of the airframe in a manner to expose the under-surface facing upwards. Your glider is equipped with X-tube to Leading Edge junction inspection zippers, open the zippers and move the sail around to allow you to work on the X-tube to L.E. junction. You may want to dismount the sail at the L.E. tips and slip the sail slightly forward to provide better working access to the X-tubes junction.

Stripdown

1) Remove the lock nuts that are retaining both side cable tangs onto X-tube bolt. Slip the top side and mainspan cables off the sail and replace nuts.

2) Undo the double surface zip and the small velcro keel pocket. With a pen, mark the compensator line, where it is tied to the double pulley block. Then untie the compensator line where it attaches to the trimmer,

3) Remove the screws securing the sail at the nose plate junction, and keel pocket, turn the glider over the 'right' way up,

4) Now you must detach the lower rear rigging from the keel tube. The wire is fastened to the keel with a short clevis pin located directly below the machined slot.

5) You can now proceed to slip the sail off the rear of the airframe, taking great care not to catch the sail on any parts of it. Be especially careful when nearing the cross tubes centre junction, the control bar apex and the wingbolt area.

Rebuilding the glider

The re-assembly procedure of your *Concept* is best achieved by simply reversing the steps described above. When the glider is complete, rig it as if to go flying. Inspect all joints and connections. Check the anhedral, keel bend. Please remember that the disassembly and re-assembly of your glider provides the best opportunity to give it an extensive and thorough inspection to each and every component.

Take advantage of it !

SECTION 9 : GLIDER BREAKDOWN

It is possible to short pack your *Concept* to under 4m for transportation or storage purposes.

Procedure :

To break the glider down :

- 1) Slide the end fitting off the TRIM TIP. Undo outboard glove line and inboard glove at quick link positions.
- 2) Remove the leading edge outer section, by removing location pins and sliding out the outer leading edge.
- 3) Cover the end of the inner section to avoid chaffing the inside of the sail.
- 4) Fold the sail leading edge back on itself, around a large radius (to avoid creasing) and continue to pack as usual.

When packing the (tubular) leading edges into the glider, any unprotected edges may chafe the sail during subsequent transportation.

To reassemble the glider :

- 1) Slide the leading edge outer back into the inner, and relocate the fixing pins and refix the spare rib gloves and lines.
- 2) Slide the end fitting back onto the TRIM TIP.
- 3) Proceed to rig the glider as usual.
- 4) Carry out a full pre-flight check before flying the glider.

When breaking your *Concept* down, the TRIM TIPS are not undone or adjusted in any way, thus ensuring the glider is always rebuilt in the same state of tune as the last time it was flown.

Hint : if your glider is tuned with a lot of leading edge tension it may prove quite hard to either remove or relocate the end fitting to the TRIM TIP. Removing the nose screws will make this easier but the glider will then have to be fully rigged before they can be put back in place.

CUSTOMER'S PURCHASE RECORD

Fill this section in for future reference

1st Owner	Date
2nd Owner	Date
3rd Owner	Date
<i>Concept</i> Serial No.	Size
Main Body Colour	Leading Edge Colour
Double Surface Colour	

Tuning Notes and Maintenance Record

Date and
By whom

Conditions for the continuing validity of the BHPA Certificate of Airworthiness

1. The Glider shall be maintained in an airworthy condition.
2. All repairs must be to Airwave Gliders original standards.
3. Major repairs to the sail shall only be carried out by Airwave Gliders or an Airwave authorised sail loft.
4. Modifications must be a CARVING A FUTURE THROUGH THE AIR approved by an airworthiness inspector nominated by the B.H.P.A.
5. Repairs and /or modifications must not impair standards of airworthiness or operational safety.
6. Change of ownership shall be notified to Airwave Gliders.

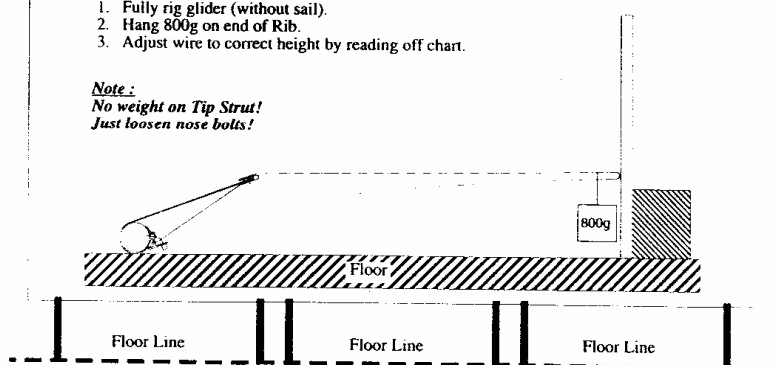
Spare Ribs Check

Concept 39	Concept 49	Concept 59
	Inner 268mm	Inner 268mm
	Center 240mm	Center 240mm
	Outer 215mm	Outer 215mm
Inner 182mm		
Outer 162mm		
Tip Strut 130mm	Tip Strut 125mm	Tip Strut 125mm

1. Fully rig glider (without sail).
2. Hang 800g on end of Rib.
3. Adjust wire to correct height by reading off chart.

Note:

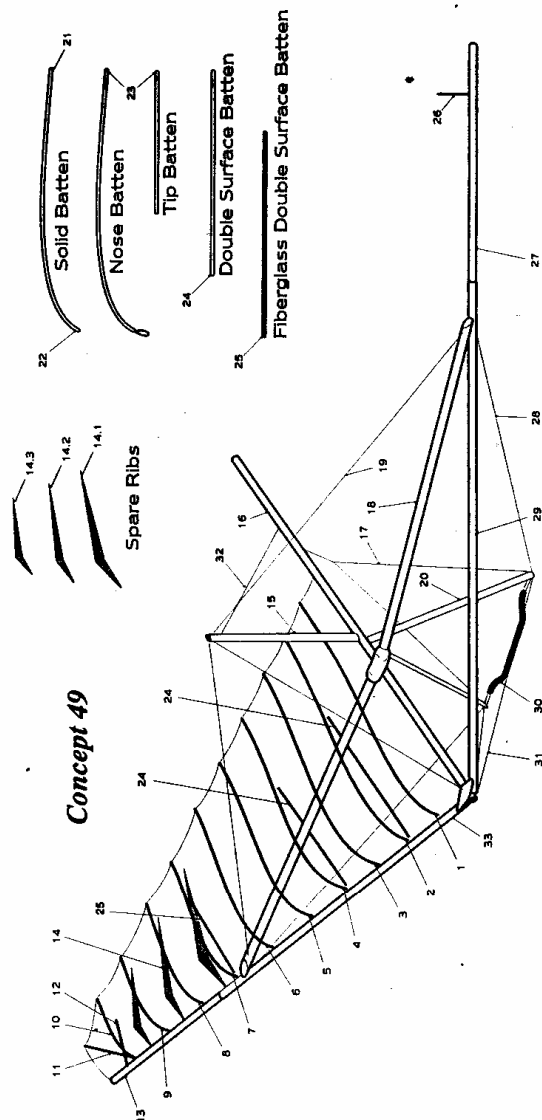
No weight on Tip Strut!
Just loosen nose bolts!



SECTION 11 : PARTS AND DRAWINGS.

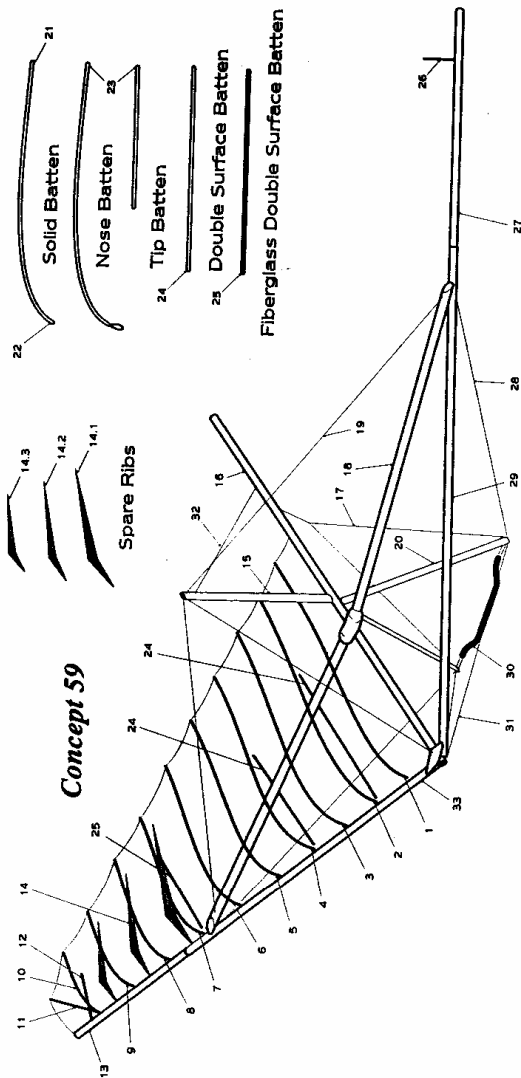
Use the following pages to identify part numbers for any spares you may require.

Always quote as much information about your glider as possible when ordering spares.



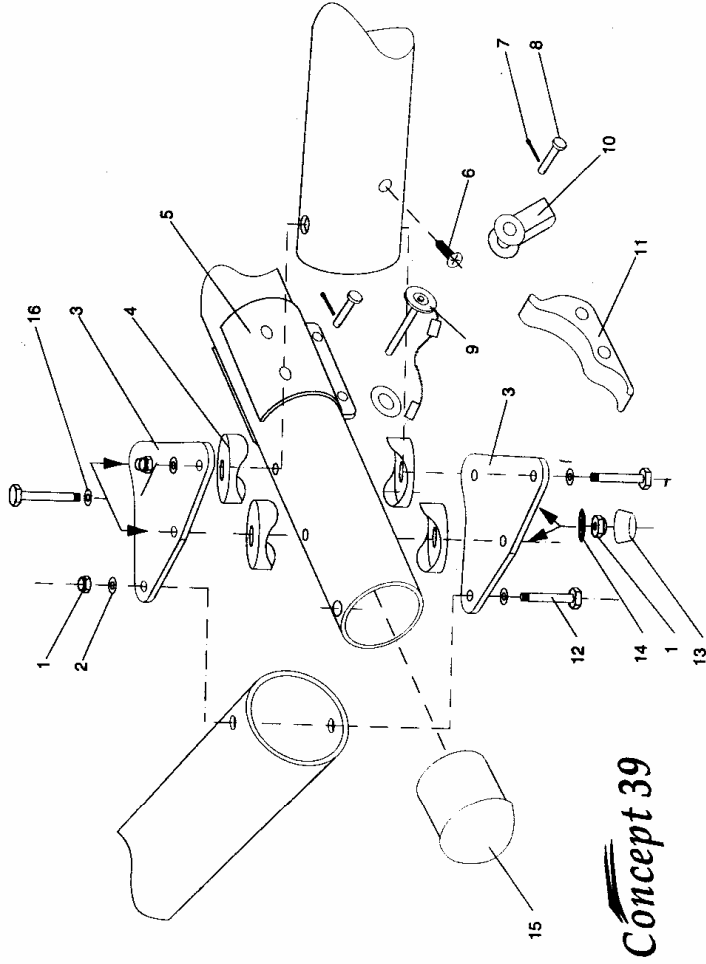
General Assembly

No	Part Number	Description
1	CON49 B1	Concept 49 No1 Batten
2	CON49 B2	Concept 49 No2 Batten
3	CON49 B3	Concept 49 No3 Batten
4	CON49 B4	Concept 49 No4 Batten
5	CON49 B5	Concept 49 No5 Batten
6	CON49 B6	Concept 49 No6 Batten
7	CON49 B7	Concept 49 No7 Batten
8	CON49 B8	Concept 49 No8 Batten
9	CON49 B9	Concept 49 No9 Batten
10	CON9 B10	Concept 49 No10 Batten
11	TB CF	Carbon Fibre Tip Batten
12	CF STS	Carbon Fiber Tip Strut
13	CON 49 LE O RH	Concept 49 Leading Edge Outer Right Hand
14	SR SET	Spare Rib Set
14.1	SR 1	No 1 Spare Rib
14.2	SR 2	No 2 Spare Rib
14.3	SR 3	No 3 Spare Rib
15	CON49 K POST	Concept 49 King Post
16	CON49 K	Concept 49 Keel
17	CON49 SP RG AL	Concept 49 Spare Rigging Aft Lowers
18	CON49 XT LH	Concept 49 Cross Tube Left Hand
19	CON49 SP RG TL	Concept 49 Spare Rigging Top Larerals
20	KL UP LRG	Klassic Upright Large
21	PM BTR GRN	Batten Tip Rear Green
	PM BTR RED	Batten Tip Rear Red
22	PM BTF GRN	Batten Tip Front Green
	PM BTF RED	Batten Tip Front Red
23	PM AG 1/2T	Batten Tip 1/2"1.0X"
24	CON49 DS 1	Concept 49 No 1 Double Surface Batten
	CON49 DS 2	Concept 49 No 2 Double Surface Batten
25	CON 49 FG DS	Concept 49 Fibre Glass Double Surface Batten
26	CF STS	Carbon Fiber Tip Strut
27	CON49 LE O LH	Concept 49 Leading Edge Outer Left Hand
28	CON49 SP RG MS	Concept 49 Spare Rigging Main Span
29	CON49 LE I LH	Concept 49 Leading Edge Inner Left Hand
30	M KL12 SB	Speed Bar 1400mm
31	CON49 SP RG FL	Concept 49 Spare Rigging Front Larerals
32	CON49 SP RG TA	Concept 49 Spare Rigging Top Aft
33	CON49 LE I RH	Concept 49 Leading Edge Inner Right Hand



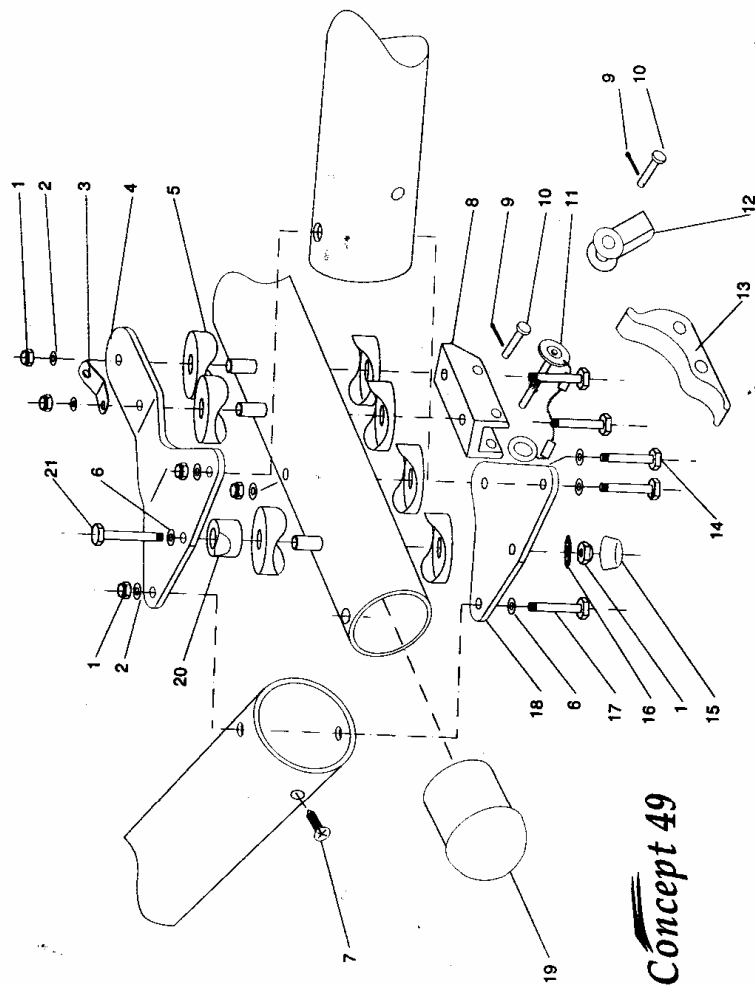
General Assembly

No	Part Number	Description
1	CON59 B1	Concept 59 No1 Batten
2	CON59 B2	Concept 59 No2 Batten
3	CON59 B3	Concept 59 No3 Batten
4	CON59 B4	Concept 59 No4 Batten
5	CON59 B5	Concept 59 No5 Batten
6	CON59 B6	Concept 59 No6 Batten
7	CON59 B7	Concept 59 No7 Batten
8	CON59 B8	Concept 59 No8 Batten
9	CON59 B9	Concept 59 No9 Batten
10	CON59 B10	Concept 59 No10 Batten
11	TB CF	Carbon Fibre Tip Batten
12	CF STS	Carbon Fiber Tip Strut
13	CON 59 LE O RH	Concept 59 Leading Edge Outer Right Hand
14	SR SET	Spare Rib Set
14.1	SR 1	No 1 Spare Rib
14.2	SR 2	No 2 Spare Rib
14.3	SR 3	No 3 Spare Rib
15	CON59 K POST	Concept 59 King Post
16	CON59 K	Concept 59 Keel
17	CON59 SP RG AL	Concept 59 Spare Rigging Aft Lowers
18	CON59 XT LH	Concept 59 Cross Tube Left Hand
19	CON59 SP RG TL	Concept 59 Spare Rigging Top Larerals
20	KL UP LRG	Klassic Upright Large
21	PM BTR GRN	Batten Tip Rear Green
	PM BTR RED	Batten Tip Rear Red
22	PM BTF GRN	Batten Tip Front Green
	PM BTF RED	Batten Tip Front Red
23	PM AG 1/2T	Batten Tip 1/2"1.0X"
24	CON59 DS 1	Concept 59 No 1 Double Surface Batten
	CON59 DS 2	Concept 59 No 2 Double Surface Batten
25	CON 59 FG DS	Concept 59 Fibre Glass Double Surface Batten
26	CF STS	Carbon Fiber Tip Strut
27	CON59 LE O LH	Concept 59 Leading Edge Outer Left Hand
28	CON59 SP RG MS	Concept 59 Spare Rigging Main Span
29	CON59 LE I	Concept 59 Leading Edge Inner
30	M KISS SB	Speed Bar 1500mm
31	CON59 SP RG FL	Concept 59 Spare Rigging Front Laterals
32	CON59 SP RG TA	Concept 59 Spare Rigging Top Aft
33	CON59 LE I	Concept 59 Leading Edge Inner



Nose Construction

No	Part Number	Description	No	Part Number	Description
1	NT 1/4" NYL	1/4" Thin Nyloc Nut	12	BT 4 26 A	Bolt AN 4 26 A
2	WA M6	Washer M6 thin	13	PM MV NCW	Nutcap
3	AF TORNP	Torque Noseplate	14	PM MV NCW	Nutcap Washer
4	WA SW 36	Saddle Washer Medium	15	PM C40	End Plug 1 1/2" Dome
5	AF NC	Nose Channel	16	WA M6 B	Washer M6 thick
6	SF SMF AB8	Screw S/Tappers 8x3/4 ss			
7	SF SP	Split Pin			
8	SF CP 7/8"	Clevis Pin 1/4x7/8"			
9	SF PP 22 ASSY	Pip Pin 22mm + Washer			
10	SF LS 23	Shackle Long			
11	AF GC	Catch Goose			

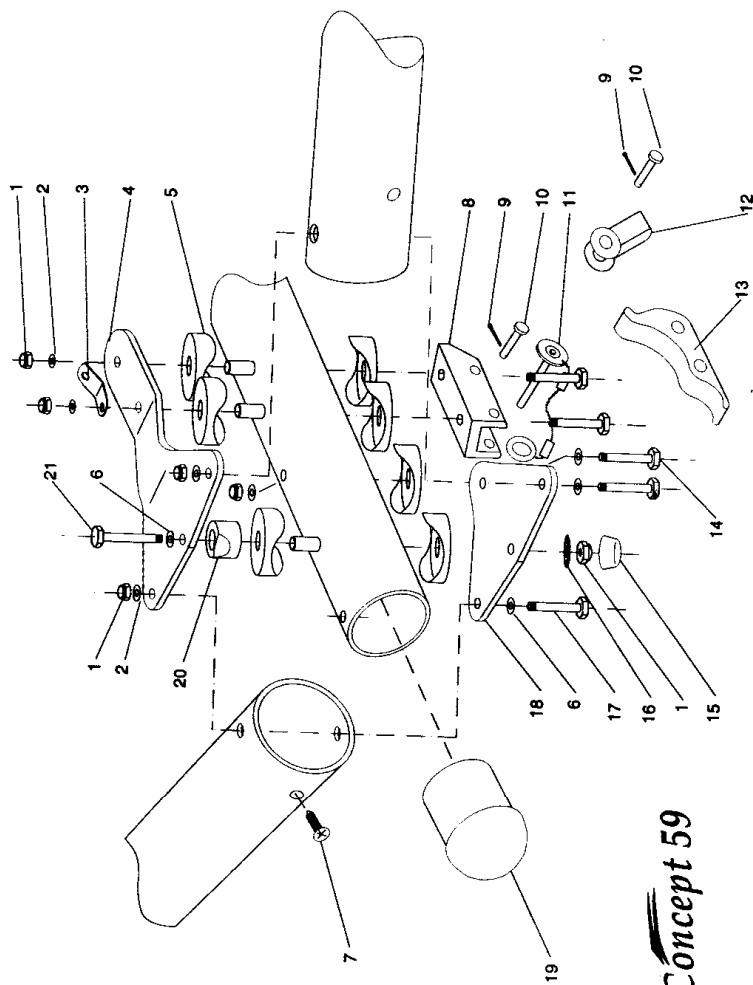


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Nose Construction

No	Part Number	Description	No	Part Number	Description
1	NT 1/4" NYL	1/4" Thin Nyloc Nut	14	BT 4 26 A	Bolt AN 4 26 A
2	WA M6	Washer M6 thin	15	PM MV NCW	Nutcap
3	SF BT	Bent Tang	16	PM MV NCW	Nutcap Washer
4	AF TORNP B	Torque Noseplate Bent	17	BT 4 32A	Bolt AN 4 32 A
5	WA SW 36	Saddle Washer Medium	18	AF TORNP	Torque Noseplate
6	WA M6 B	Washer M6 Thick	19	PM C40	End Plug 1 1/2" Dome
7	SC SMF AB8	Screw S/Tappers 8x3/4 ss	20	WA 1 1/4" 10mm	Front Bolt Thick Plastic Washer
8	AF NC	Nose Channel	21	BT 4 31A	Bolt AN 4 31 A
9	SF SP	Split Pin			
10	SF CP 7/8"	Clevis Pin 1/4x7/8"			
11	SF PP 22 ASSY	Pip Pin 22mm + Washer			
12	SF LS 23	Shackle Long			
13	AF GC	Catch Goose			

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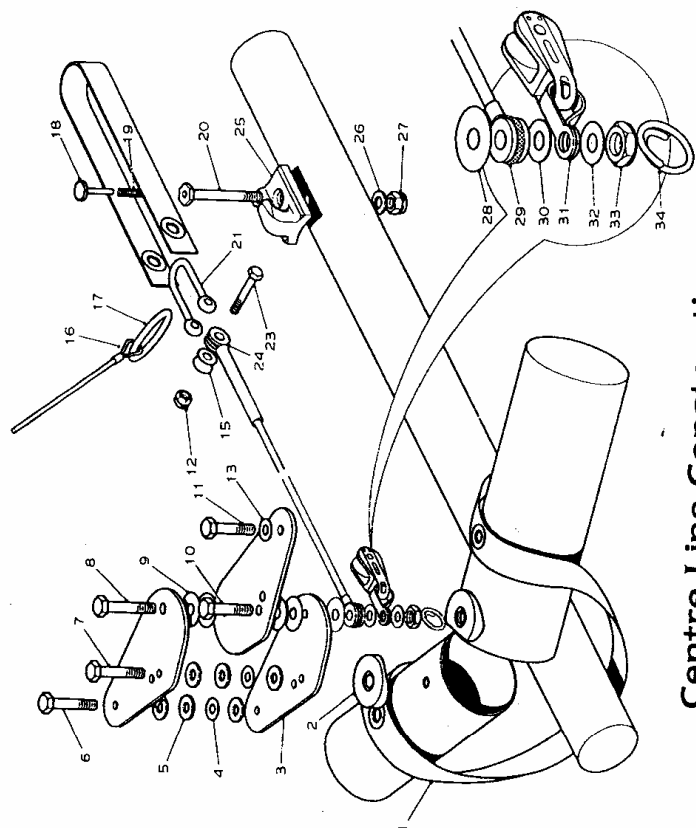
Concept 59

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Nose Construction

No	Part Number	Description	No	Part Number	Description
1	NT 1/4" NYL	1/4" Thin Nyloc Nut	14	BT 4 26 A	Bolt AN 4 26 A
2	WA M6	Washer M6 thin	15	PM MV NCW	Nutcap
3	SF BT	Bent Tang	16	PM MV NCW	Nutcap Washer
4	AFTORNP B	Torque Noseplate Bent	17	BT 4 32A	Bolt AN 4 32 A
5	WA SW 36	Saddle Washer Medium	18	AFTORNP	Torque Noseplate
6	WA M6 B	Washer M6 Thick	19	PM C40	End Plug 1 1/2" Dome
7	SC SMF AB8	Screw S/Tappers 8x3/4 ss	20	WA 1 1/4" 10mm	Front Bolt Thick Plastic Washer
8	AF NC	Nose Channel	21	BT 4 31A	Bolt AN 4 31 A
9	SF SP	Split Pin			
10	SF CP 7/8"	Clevis Pin 1/4x7/8"			
11	SF PP 22 ASSY	Pip Pin 22mm + Washer			
12	SF LS 23	Shackle Long			
13	AF GC	Catch Goose			

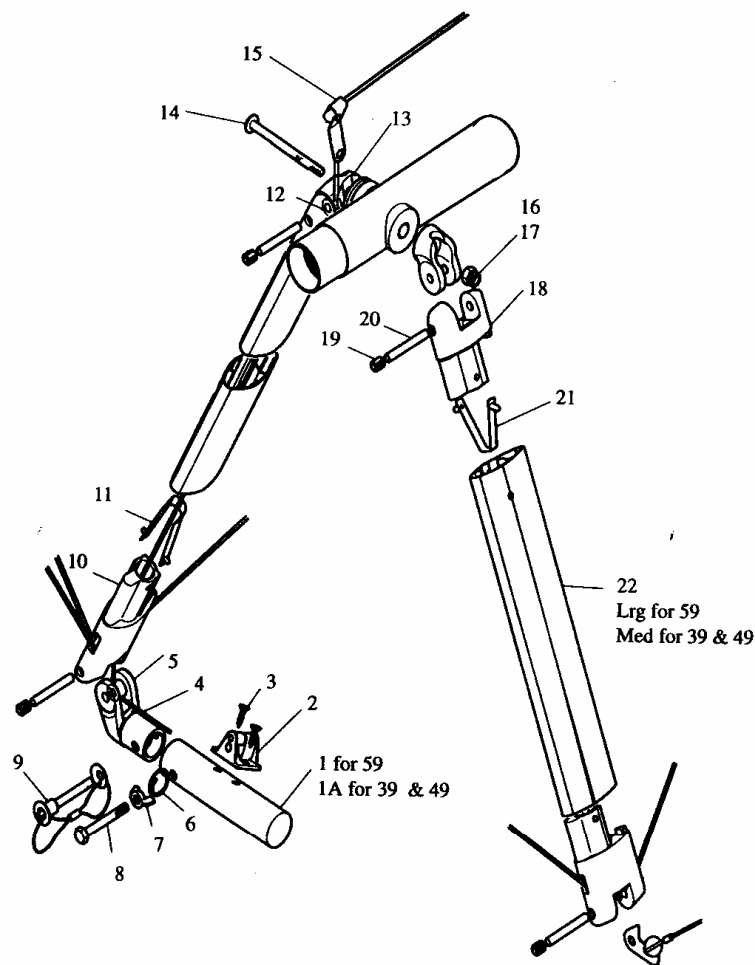
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Centre Line Construction

Centre Line Construction

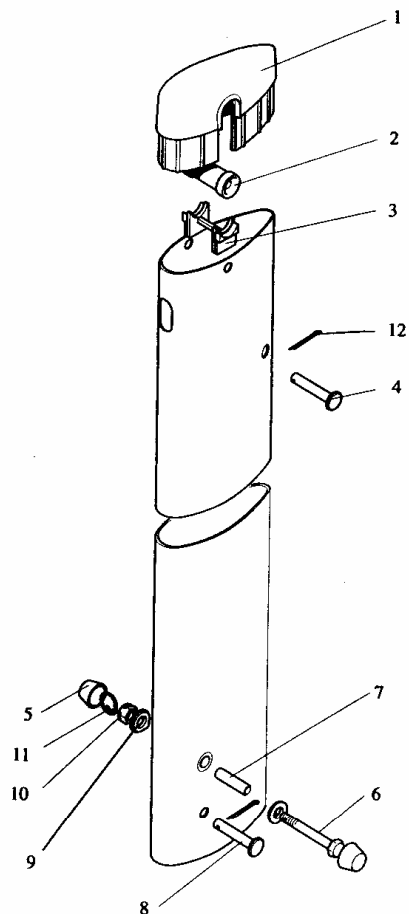
Key No	Part number	Description	Key No	Part number	Description
1	SLXTWL	Webbing Loop C/Tube	19	SF CBS	Catchbolt Spring
2	WA SW 39	Washer Saddle Large	20	BT CB21	Catchbolt AN5 21A
3	AF CXT	Cross Tube Plates	21	SF SH S	Forged Shackles Small
4	WA 1/4"	Washer 1/4 Plastic	23	BT 3 13A	Bolt AN3 13A
5	WA 1/4"	Washer 1/4 Plastic	24	AF AS	Dead Eye
6	BT 4 10A	Bolt AN4 10A	25	AF HC	Hook Clamp
7	BT 4 10A	Bolt AN4 10A	26	WA M8	Washer 8mm
8	BT 4 13	Bolt AN4 13	27	NT 5/16"	5/16 AerotightNut
9	WA MW	Washer Mylar	28	WA MW	Washer Mylar
10	BT 4 12A	Bolt AN4 12A	29	AF AS	Dead Eye
11	BT 4 12A	Bolt AN4 12A	30	WA M6 B	Washer M6 Thin
12	NT A125 D66	3/16 AerotightNut	31	BL RF 1950	Block and shackle
13	WA M6 B	Washer M6 Thin	32	WA M6	Washer 6mm
15	AF TSS	Trimmer Sheave Small	33	NT 1/4" NVL	1/4" Thin Nyloc Nut
17	SF RR	Rigging Ring	34	SF SR 1	Split Ring
18	SF CBB	Catchbolt Button			



A Frame Construction

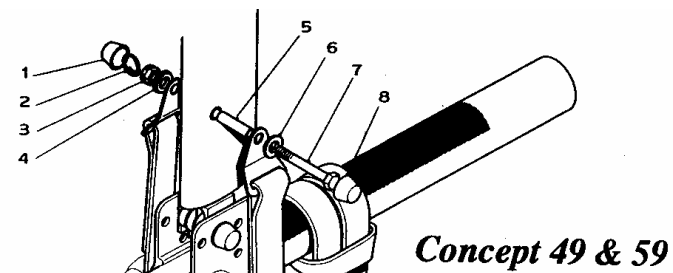
A Frame Construction

Key Number	Part Number	Description
1	M Kiss SB	Speed Bar 1500mm
1A	M KL12 SB	Speed Bar 1400mm
2	SF R3596	Jam Cleat
3	SC AB 6X1/2	Screw Self Tapper
4	RP MT 4MM	Rope 4mm (7M)
5	AF FEL	Fork Plug Lower
6	SF SR 1	Split Ring
7	NT WN	Wing Nut
8	BT 4 14A	Bolt AN4 14A
9	SF PP36 ASSY	Pip Pin 36mm
10	AC 185BMC	Casting Bottom End
11	SF PBS	Spring Clip
12	AF TSWB	Trimmer sheave Brg Wide
13	AF FPTs	Fork Plug Top Slotted
14	BT 4 34A	Bolt AN 4 34A
15	SF AGD192	Sheave Tang
16	WA M6 THIN	Washer M6 Thin
17	NT 1/4	Nut 1/4" Aerotight
18	AC 185TMC	Casting Top
19	SF SC 8MM	Socket Set Screw *mm
20	SF PQD	Pin Quick Detachable
21	SF PBDS	Spring Clip
22	KL UP	Fast Foil Upright

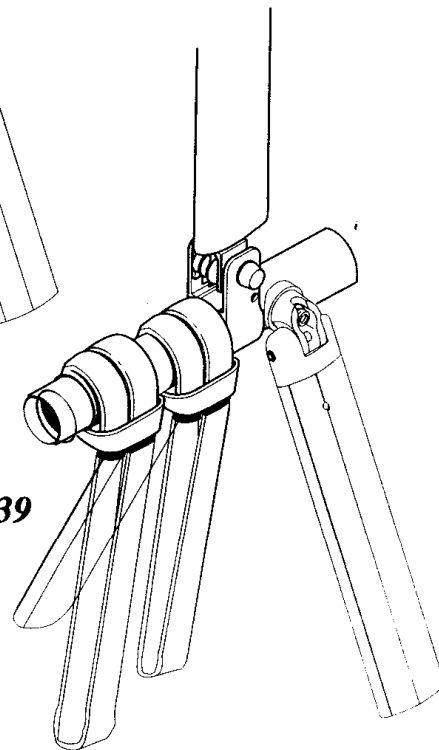


King Post Construction

No	Part number	Description
1	PM AKPP	Plug Aerofoil King post
2	AF AFKP	King post top slug
3	PM AKPP1	Plug Insert Aero KP
4	SF CP 4.6*19	Clevis Pin 4.6mm*19mm
5	PM MV NCW	Nut caps and washers
6	AN4 17	Bolt AN4 17
7	BU 1 3/16	5/16 Bush KP-Trimmer
8	SF CP 1 1/4	Clevis Pin 3/16 * 1 1/4"
9	PM MV NCW	Nut caps and washers
10	NT A125 D66	3/16 Aerotight Nut
11	SF SR 1 25	Split ring small
12	SF SP	Split Pin

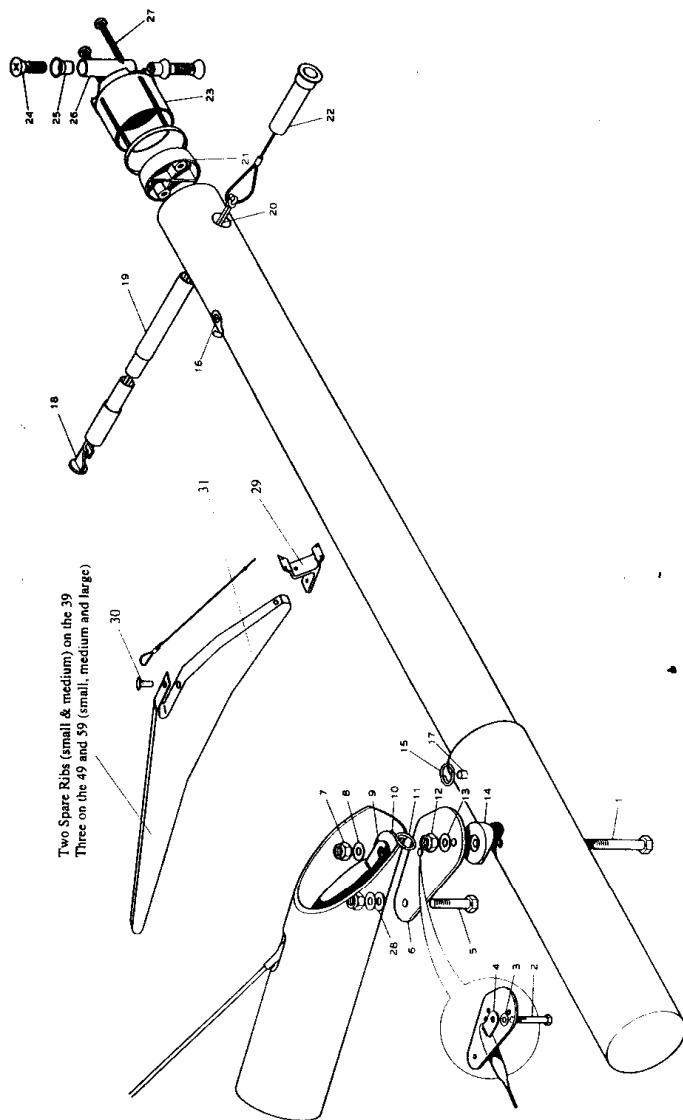


Concept 39



Kingpost Hang Point Arrangement

No	Part Number	Description
1	PM MV NCW	Nut caps and washers
2	SF SR 1 25	Split Ring Small
3	NT 1/4" NL	1/4" thin nyloc nut
4	PM MV NCW	Nut caps and washers
5	BU 1 3/16	5/16" Bush KP-Trimmer
6	PM MV NCW	Nut caps and washers
7	BT 4 17	Bolt AN4 17
8	PM MV NCW	Nut caps and washers
9	HS SB	Hang Strap Spacer Bar



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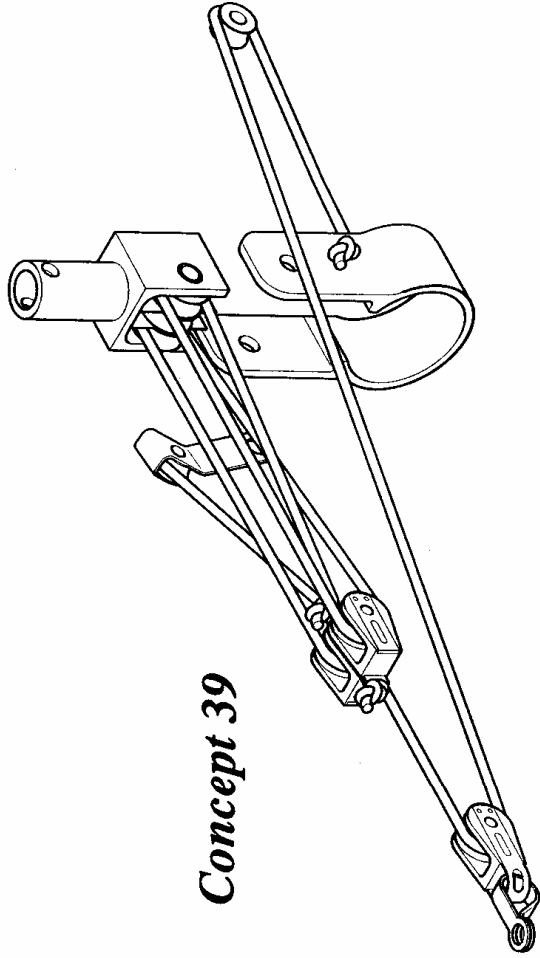
Wing Bolt, Spare Ribs and Tip Construction

Wing Bolt, Spare Ribs and Tip Construction

No	Part Number	Description	No	Part Number	Description
1	BT 4 26	Bolt AN4 26	17	SF CP 5/8	Clevis Pin carbon stl cad plat
2	BT 4 10A	Bolt AN4 10A	18	PM TSH	Tip Strut Hook
3	WA M6	Washer 6mm	19	MK CF STS	Carbon Fibre Tip Strut
4	SF BT	Bent Tang	20	RP BE 4MM	Shock Chord 4mm
5	BT 4 6A	Bolt AN4 6A	21	PM WE	Wedge for Trim Tip
6	AF CXTP	Cross Tube Plates	22	AF STS	Tip Strut Pigot
7	NT 1/4	1/4 Aerotight Nut	23	PM EC	End Cap
8	WA M6	Washer 6mm	24	SC 6*25MM	Machine Screw 6*25mm
9	SF BT	Bent Tang	25	PM CSS	Ball Tip Spacer
10	WA 1 1/4	Washer 1 1/4 Plastic Ref 7809"	26	AF ES	End Spacer
11	SF SR 1	Split Ring	27	SC 1 1/4 10	Screw Self Tapper
12	NT 1/4 NYL	1/4 Thin Nyloc Nut	28	WA 1/4	Washer 1/4 Plastic
13	WA M6	Washer 6mm	29	AF SRL	Spare Rib Lug
14	WA SW 39	Washer Saddle Large	30	SF CP 4.6*19	Clevis Pin
15	SF SR 1	Split Ring	31	CF SPARE RIB	Carbon Fibre Spare Rib
16	SF TBH 15	Hook Tip Batten 27-60			

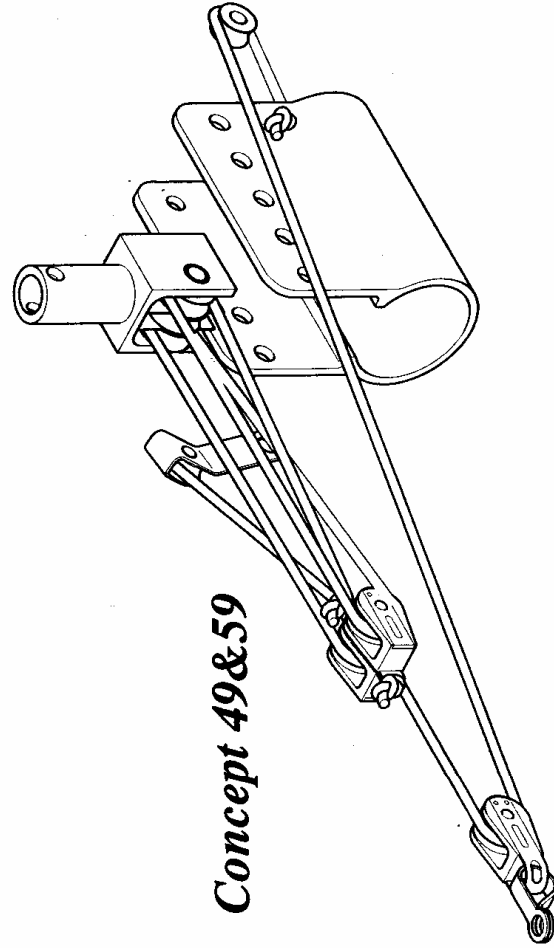
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Concept 39



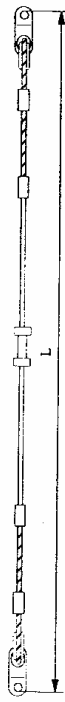


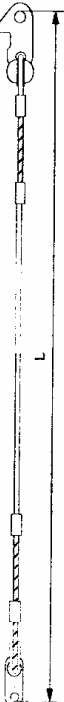
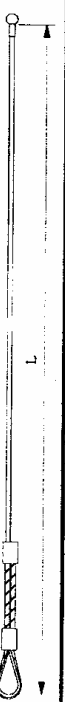

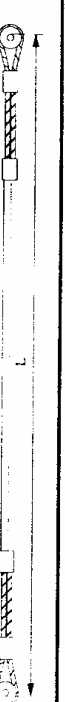
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Concept 49&59



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Trimmer Layout

Description	Cut details	Lengths (mm)		
		39	49	59
Top Lateral		6445	6515	6705
Top Front		1800	1880	1875
Top Aft		1624	1519	1530
Main Span		2614	2570	2763
Forward Lower		2048	1891	2045
Aft Lower		310	310	310
		1865	2038	2115
Cross Tube Tension Strop		1495	1440	1440
NOTE: All dimensions are in millimeters and are from bearing point to bearing point. Dimensions may vary - check for noted length on strop when reordering.		Concept		

A FEW LAST WORDS

Your Airwave *Concept* is a sophisticated high performance hang glider, that will give you years of safe and enjoyable soaring, provided that you treat it properly and always maintain a healthy respect for the demands and potential dangers of flying. Please remember that aviation is always potentially dangerous and that your safety depends on you.

With proper care and maintenance your *Concept* will remain for some years at a high level of airworthiness. The *Concept* has been tested internationally to beyond all current airworthiness standards, and these represent the best accumulated knowledge of what constitutes airworthiness in a hang glider. There is a lot that is still unknown, for example: what is the effective lifetime of a hang glider, and how much material degradation is acceptable without compromising airworthiness? We are sure, however, that there are forces in nature which can severely compromise your safety, regardless of the quality of design or condition of the aircraft you are flying. Your safety is ultimately your own responsibility. We strongly recommend that you fly conservatively, both in your choice of the conditions in which you fly, and in the safety margins you allow in your flying.

You are reminded that you fly a hang glider at your own risk.

We recommend that you only fly with a harness and helmet that have been tested for strength and that you always fly with an emergency parachute system.

At Airwave, our best source of feedback is from you, the pilot. If you have any comments or suggestions, please send them to us. We are always very pleased to listen to what you have to say.

SEE YOU IN THE SKY!

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