THE AIRBORNE

C4

OWNER and SERVICE MANUAL Rev 1

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WARNING

THE INFORMATION IN THIS MANUAL NEEDS TO BE FOLLOWED, AND IT IS NOT ACCEPTABLE TO MAKE CHANGES TO THE MATERIALS AND OR PHYSICAL FEATURES OF THIS AIRCRAFT. IN PARTICULAR THE GRADES OF BOLTS THAT HAVE BEEN UTILISED IN THE MANUFACTURE OF THIS AIRCRAFT ARE CRITICAL FOR ITS CONTINUING AIRWORTHINESS. NEVER REPLACE BOLTS WITH ANY OTHER SIZE OR GRADE. GRADE 8 BOLTS ARE NOT INTERCHANGEABLE WITH AIRCRAFT (AN) GRADE BOLTS. THE FATIGUE CHARACTERISTICS OF AIRCRAFT GRADE BOLTS ARE SUPERIOR TO OTHER BOLTS AND ALLOW LONGER SAFE SERVICE LIFE UNDER CYCLIC LOADS LIKE THOSE EXPERIENCED IN AIRCRAFT. THE LENGTH OF THE BOLT IS IMPORTANT. IF A SHORTER BOLT IS USED THE THREAD MAY ENCROACH ON THE LOAD BEARING AREA, WHICH INCREASES THE STRESSES EXPERIENCED BY IT.

MANUAL REVISION HISTORY

Revision No	Description	Applicable Serial No	Date
1	Climax C4, created from Climax flight manual. Section 18 moved for Illustrated Parts Catalogue, Revised tip structure and associated changes to the tuning matrix.	C4-13: 001 C4-13.5: 001 C4-14: 001	May 2007

Table 1 Revision History

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Section 1 DESIGN FEATURES

Designed and manufactured by AIRBORNE WINDSPORTS, the Climax is one of the most advanced high performance topless hang glider on the market. The Climax C4 is the result of further refinements to the design.

Attention to detail and weight saving has allowed the C4 to have excellent static balance. A larger than average VG range provides the C4 with ease of handling and a large flare window without compromising outstanding glide performance throughout the speed range.

The C4 has an elliptical tip, which in the VG full setting allows a very tight mainsail whilst maintaining a progressive washout line right through to the tip.

AirBorne's original cam VG system has been improved allowing an increase in VG travel. Not only does the wing pull exceptionally flat when full on, the VG off setting is quite loose resulting in extremely light handling and improved climb ability. There are several advantages using the cam VG system. The drag in the pulley actuating system and lack of movement in the high load junctions allow for much lower operating pressures. The cam VG system also maintains constant anhedral, which significantly reduces glider oscillation throughout the VG range.

A combination of internal cloth ribs and hook and loop fastener tabs between the upper and lower battens control the under surface blow down at lower angles of attack. Not only does this minimise glider oscillation, the resulting pitch pressure is progressive and predictable.

Wire braced washout tubes (sprogs) are used in the C4. The centre sprog has a compensating system, which causes the sprog to raise approximately 120 mm when the VG is released. Certification pitch testing has confirmed the stability of the system with excellent pitching moment results throughout the VG range.

The C4 is easy to assemble or break down. It may be set up on the A-frame or laid flat, thereby accommodating for personal preference or site characteristics and restrictions. Pip pins and quick clips are used with integrated clip battens to speed up assembly. The sprog tubes are secured by simply closing the zips. Easy operating internal tip levers are used to load the tip rods.

At AirBorne we have a well-developed quality assurance program, ensuring that every glider is built in accordance with the standard it was designed and tested to. This gives even the most experienced pilot a sense of security.

We hope that you have hours of great flying with your new glider. Fly high and safely.

Rick, Russell and Shane Duncan, Rob Hibberd and Paul Mollison,
AirBorne WindSports

Section 2 SPECIFICATIONS

	C4-13		C4-13.5		C4-14	
	METRIC	IMPERIAL	METRIC	IMPERIAL	METRIC	IMPERIAL
SAIL AREA	12.7 sq m	137 sq ft	13.5 sq m	146 sq ft	14.3 sq m	154 sq ft
WING SPAN	9.6 m	31.5 feet	10.00 m	32.8 feet	10.4 m	34.1 feet
ASPECT RATIO	7.3		7.4		7.6	
NOSE ANGLE	128-133 degrees		128-133 degrees		128-133 degrees	
DOUBLE SURFACE %	93%		93%		93%	
BATTENS	22 + 6		24 + 6		24 +6	
GLIDER WEIGHT	33 kg	73 pound	34 kg	75 pound	36 kg	79 pound
PACK UP LENGTH	4.9 m	16.1 ft	5.1 m	16.7 ft	5.3 m	17.3 ft
SHORT PACK LENGTH	3.8 m	12.5 ft	4.0 m	13.1 ft	4.1 m	13.5 ft
RECOMMENDED PILOT HOOK IN WEIGHT RANGE (Includes Equipment)	55-80 kg	121-176 pounds	70-110 kg	154-220 pounds	85-120 kg	187-265 pounds
VNE (Recommended Maximum Velocity)	85 km/h	53 mph	85 km/h	53 mph	85 km/h	53 mph
VA (Recommended Maximum Rough Air Manoeuvring Velocity)	74 km/h	46 mph	74 km/h	46 mph	74 km/h	46 mph
VD (Maximum Steady State Velocity)	125 km/h	78 mph	125 km/h	78 mph	125 km/h	78 mph

Table 2 Specifications

Note: The stall speed of the C4 at maximum recommended wing loading is less than the minimum requirement of 25 mph (40 km/h). The minimum or steady state speed is at least 35 mph (56 km/h) for a prone pilot with correctly adjusted harness.

Conversions: * 0.4536 kg/pound * 25.4 mm/inch * 1.609 km/mile
Va = Test speed x 0.707
Vne = Test Speed x 0.816

Section 3 OPERATING LIMITATIONS

WARNING

Hang Gliding is a high-risk sport. The safe operation of this hang glider ultimately rests with you, the pilot. We believe that in order to fly safely you must maturely practice the sport of hang gliding. You should never fly this hang glider beyond the placard limits. The velocity never to exceed (VNE) for your glider is given in Section 2, as is the maximum speed for manoeuvres or flying in rough air (VA). The indicated airspeeds given are for calibrated instruments mounted on, or near, the base bar of the control frame. It is recommended that you fly your C4 with an airspeed indicator, as it is relatively easy in the VG on configuration to exceed the placard limitations. Flight operations should be limited to non-aerobatic manoeuvres where the pitch angle does not exceed 30 degrees up or down to the horizon and where the bank angle does not exceed 60 degrees. Aggressive stalls and spins should not be attempted. Operations outside the recommended flight envelope, such as aerobatic manoeuvres or erratic pilot technique may ultimately produce equipment failure. Your glider was designed for foot launched soaring and should not be flown by more than one person at a time. It should not be flown backwards or inverted. The setting up and breaking down of a hang glider, transportation on cars and flying itself will have an effect over time on its structural integrity. The glider will require maintenance as outlined in the maintenance section of this manual. Like any aircraft safety depends on a combination of careful maintenance and your ability to fly intelligently and conservatively. The owner and operator must understand that due to inherent risks involved in flying a hang glider, no warranty of any kind is made or implied against accidents, bodily injury and death, other than those that cannot by law be excluded. We hope that your new glider will provide you with many hours of safe flying.

Section 4 WARRANTY STATEMENTS

This warranty extends to new Hang Gliders and/or accessories and equipment manufactured by AIRBORNE WINDSPORTS PTY LTD ("Airborne") and shall not embrace any other accessories or equipment in the sale.

AIRBORNE warrants to the customer the hang glider and/or accessories manufactured or supplied by AIRBORNE to be free from defect in material and workmanship under normal use and service and of merchantable quality and fit the purpose for which they are ordinarily used. This Warranty will apply for a period of ninety (90) days from the date of dispatch of the hang glider not withstanding the number of hours flown but subject to the hang glider remaining the property of the customer. This warranty does not exclude any rights implied in favour of any customer by any applicable Federal and State legislation.

AIRBORNE will make good any parts required because of defective material or workmanship as set out in the Warranty.

THE WARRANTY WILL NOT APPLY TO:
Any mechanical adjustments, parts, replacements, repairs or other servicing that in the judgement of AIRBORNE are made or should be made as maintenance.
Any defect caused by any alteration or modification not approved by AIRBORNE.
Any defect caused by the fitment of parts that are not made or approved by AIRBORNE.
Any defect caused by misuse, accidents, negligence or failure to carry out proper maintenance service.
Damage caused by continued operation of the hang glider after it is known to be defective.
Any defect or consequential loss, damage or injury caused by overloading.
Loss of use of the hang glider, loss of time, inconvenience, damages for personal injuries, loss of property or other consequential damages.
Failure due to wear and tear, accident, fire, incorrect or incomplete rigging and/or assembly, exposure to the elements, operation outside the placarded limitations and repairs attempted or made other than by AIRBORNE or it's authorised agent.

AIRBORNE will replace, free of charge, any original part that is determined by it to be defective under the terms of this Warranty and reserves the right to pay monetary compensation or make good the defect in any manner it deems appropriate.

The customer is responsible for transporting the hang glider or parts to and from AIRBORNE or its authorised agent when making claims under this Warranty. The hang glider or parts are at the customer's risk whilst in transit to and from AIRBORNE or its authorised agent.

NOTE: Warranty service is available to the customer from AIRBORNE WINDSPORTS PTY LIMITED or authorised agent.

Section 5 ASSEMBLY PROCEDURES

The wing can be assembled in two positions, either lying flat or standing on the control frame. Assembling the C4 on the control frame is the most popular method of assembly in light winds. This method is preferable as the sail is less prone to being soiled or damaged during assembly. In higher winds it is preferable to lay the glider flat for assembly with the nose into the wind until ready to launch.

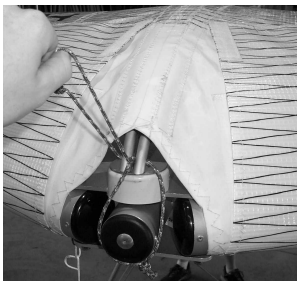
ASSEMBLING ON THE FRAME

UNZIP THE BAG. Lay the wing down with zip up and the nose facing approximately 120 degrees from the wind direction.

ASSEMBLE CONTROL FRAME. Spread the control bar down tubes and insert the base bar. The PIP pins are then inserted from front to rear, with the covers firmly secured. Check that all the rigging wires are outside the control frame.

STAND GLIDER UP. Rotate the control frame to the vertical position and rotate the wing 180 degrees so that it is sitting on the base bar.

REMOVE BAG. Remove the glider bag and unclip all of the ties. The washout strut covers should also be removed at this time.



INSERT NOSE BATTEN. Load the nose battens on the locating pins at this time. If you fail to load the battens prior to tensioning the glider the VG should be pulled full tight before attempting to load the battens.

Figure 1 Nose Batten

SPREAD LEADING EDGES. Carefully spread both leading edges out half way firstly then spread leading edges to their approximate flying position. Check the side wires are not twisted.

IT IS ESSENTIAL THAT THE KEEL AND THE LEADING EDGES ARE KEPT IN THE SAME PLANE OR DAMAGE WILL RESULT.

ATTACH FRONT FLYING WIRES. Ensure that the front flying wires are secure and that the quick clip is positively locked.

INSERT MAINSAIL BATTENS #1 - 4. Remove the battens from the bag. The red battens are for the left side and the green for the right. Insert the battens from the centre to the tip with gentle pressure, until the batten meets resistance. Shake the sail at the trailing edge whilst maintaining gentle pressure on the batten to allow the batten to be inserted over the cross bar.
DO NOT FORCE THE BATTENS!

Figure 2 Attach front flying wires

TENSION CROSS BARS.
The cross bars are now tensioned by pulling the 2:1 pull back rope until the shackle is positioned on the quick clip. Ensure that the catch is positively locked.

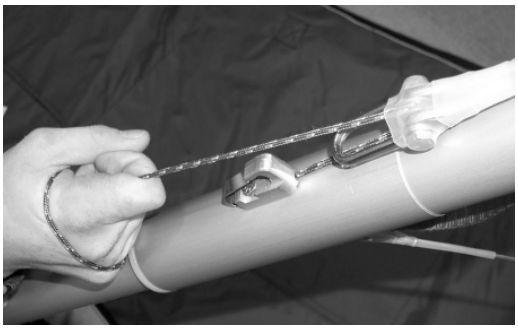


Figure 3 Cross Bar Haul Back

INSERT TIP RODS.
Remove the tip bags and insert the tip rod into the tip plug fitting at the rear of the leading edge. Ensure that the rod is fully inserted.

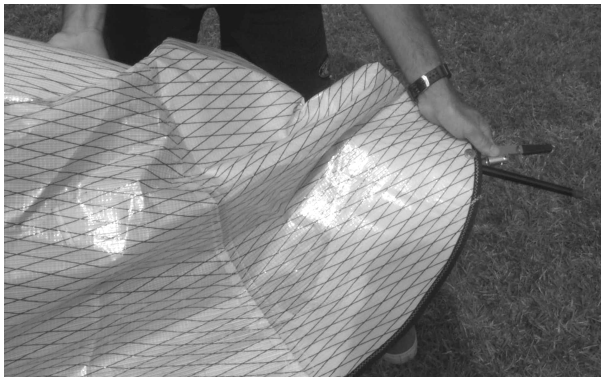


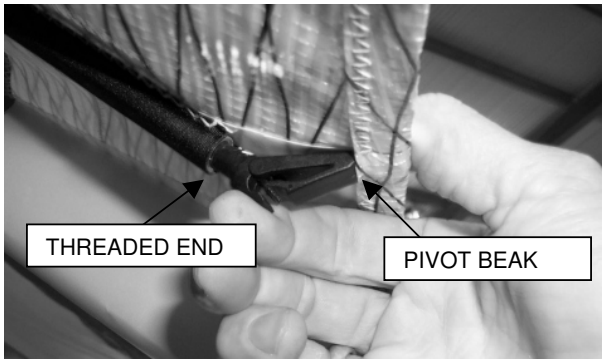
Figure 4 Load Tip Rod

LOAD TIP ROD.
Move to the front of the wing. For the right tip hold the rear leading edge with your right hand and the end of the sail with your left. Align the lever plug and bend the tip tube towards the trailing edge as you tension the tip tube. Locate the plug on the end of the tube. When installing the left tip rod the leading edge should be held with your left hand.

CLOSE TIP LEVER.
Move to the tip. Place your left thumb in the rope loop of the tip lever and close the lever. The lever should be held in the same plane as the trailing edge. Do not let the lever close rapidly as damage may result. Check that the lever is against the fibre tube and is not being forced above or below the tube. Close the zip once the lever is properly closed. Repeat for the left wing using the opposite hands.

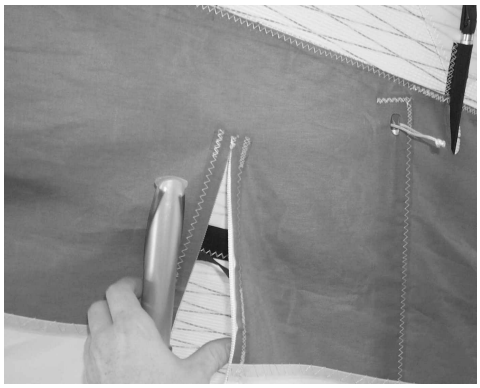
Figure 5 Load Tip Lever

INSERT REMAINING MAINSAIL BATTENS.



Slide batten into sail pocket. Unclip 'pivot beak' from 'threaded end'. Rotate *pivot beak* and locate in sail as shown. While supporting the underside of the batten, clip the *pivot beak* into the *threaded end.*
To adjust batten load tension, release *pivot beak* from sail and rotate batten clip.

Figure 6 Load Batten Tip

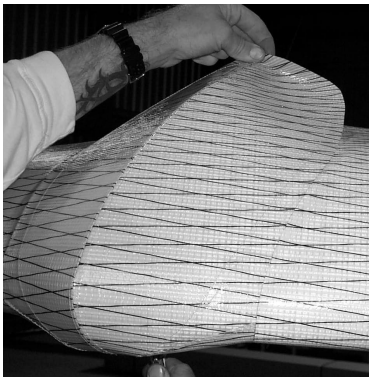


LOAD WASHOUT STRUTS. The sprogs should be rotated into position over the red webbing loops and the zips closed fully. It is a good time to inspect the junctions prior to closing all zips.

Figure 7 Load Washout Struts

INSERT UNDER SURFACE BATTENS.
The under surface battens should be inserted as far as possible. The batten should then be pushed in with your thumb. Use the string to pull the batten to the rear of the pocket.

Figure 8 Insert Under Surface Battens



INSTALL NOSE FAIRING.
Attach the nose fairing applying the top hook and loop fastener first then gently tension over the nose plates and attach the hook and loop fastener to the under surface.

Figure 9 Install Nose Fairing

PRE-FLIGHT INSPECTION.
You are now ready for the wing pre-flight inspection as outlined in the next section. It is imperative that you carry out this inspection every time you rig and before you fly.

ASSEMBLING LYING FLAT

UNZIP THE BAG. Lay the wing down with zip up and the nose facing into the wind. Unzip the bag and unclip centre ties.

ASSEMBLE CONTROL FRAME. Spread the control bar down tubes and insert the base bar. The pip pin is then inserted with the cover firmly secured. Check that all the rigging wires are outside the control frame.

ROTATE GLIDER. Rotate the glider so that the control frame is under the wing. Make sure the rigging is not tangled.

REMOVE BAG. Remove the glider bag and unclip all of the ties. The sprog tube (washout strut) covers should also be removed at this time.

INSERT NOSE BATTENS. Load the nose battens on to the locating pins at this time. Failure to do so will make it difficult to locate the battens after the sail is tensioned.

SPREAD LEADING EDGES. Carefully spread both leading edges out half way firstly then spread leading edges to their approximate flying position. Check the side wires are not twisted.

IT IS ESSENTIAL THAT THE KEEL AND THE LEADING EDGES ARE KEPT IN THE SAME PLANE OR DAMAGE WILL RESULT.

INSERT TIP RODS. Remove the tip bags and insert the tip rod into the fitting at the rear of the leading edge. Ensure that the rod is inserted all of the way.

LOAD TIP ROD. Move to the front of the wing. For the left tip hold the rear leading edge with your left hand and the end of the sail with your right. Bend the tip tube towards the trailing edge as you apply sail tension to the tip rod. Locate the tip lever on to the tip rod. When installing the right tip rod the leading edge should be held with your right hand.

CLOSE TIP LEVER. Move to the trailing edge. Place your right thumb in the rope loop of the tip lever and close the lever. The lever should be held in the same plane as the trailing edge. Do not let the lever close rapidly as damage may result. Repeat loading and closing for the right wing.

INSERT MAINSAIL BATTENS. Remove the battens from the bag. The red battens are for the left side and the green for the right. Insert the battens from the centre to the tip with gentle pressure, until the batten meets resistance. Shake the sail at the trailing edge whilst maintaining gentle pressure on the batten to allow the batten to be inserted over the cross bar. DO NOT FORCE THE BATTENS!

TENSION CROSS BARS. The cross bars are now tensioned by pulling the webbing loop until the shackle is positioned on the quick clip. Ensure that the catch is positively locked. When tensioning with the glider lying flat the keel can be raised approximately 200 mm to allow the side flying wires to be loose.

ATTACH FRONT FLYING WIRES. Lift glider and attach front flying wires. Ensure that the front flying wires are secure and that the quick clip is positively locked.

INSTALL NOSE FAIRING. Attach the nose fairing applying the top hook and loop fastener first then gently tension over the nose plates and attach the hook and loop fastener to the under surface.

LOAD WASHOUT STRUTS. The sprogs should be rotated into position over the red webbing loops and the zips closed fully. It is a good time to inspect the junctions prior to closing all zips.

INSERT UNDER SURFACE BATTENS. The under surface battens are inserted then pulled back into the rear of the batten pocket with the string handle.

PRE-FLIGHT INSPECTION. You are now ready for the wing pre-flight inspection as outlined in the next section. It is imperative that you carry out this inspection every time you rig and before you fly.

Section 6 PRE-FLIGHT INSPECTION

The wing was designed so that drag would be kept to a minimum. This means that most of the pre-flight check points are enclosed.

A thorough pre-flight inspection is mandatory for any aircraft, and the best technique is a circular walk around the wing.

The nose area is the ideal place to start your pre-flight check, followed by each assembly point.

Keep in mind the three most critical set up areas:

THE NOSE QUICK CLIP
CONTROL BAR BASE TUBE FASTENERS
THE CROSS BAR TENSIONER QUICK CLIP.

Starting at the nose we suggest the following checklist (ensuring all bolts and fasteners have the appropriate thread protruding beyond the nut).

Check the nose plate assembly ensuring that the VG routing is normal. Sight along both leading edges checking for similar curves.

Walk towards the tip feeling for dents in the leading edge.

Check cross bar/leading edge junction through the zipper access.

Check sail tip lever is fully closed and the sail is not damaged.

Check the tip rod is properly located and the rear leading edge is undamaged.

Walk towards the keel checking all battens are secured.

Check the sprogs are in order and the zips are fully closed.

Check the cross bar retaining shackle is secured on the quick clip.

Repeat the above steps for the other side wing in reverse order.

Check all lower rigging is correctly routed and free from damage. The most likely area for damage on wires is around the swage and thimble area.

Check control bar corners are correctly assembled with pip pin and cover.

Ensure the hang loop rocker is rotated 90 degrees to the keel and that hang loops are securely positioned and in good order. The hang loop should be free to move in both directions.

Check control bar top assembly and ensure that the down tubes are straight.

Unzip under surface and check cross bar hinge and restraining straps. The VG should be operated and inspected to ensure it is functioning properly.

Ensure that the double surface is zipped up and nose fairing is secure.

Clip your harness into the main and back up hang loops and perform a "hang check". Make sure that your harness is the correct distance from the base bar, your leg loops are secure and your carabiner is locked.

HANG GLIDER DAILY INSPECTION

Inspection of the following items after every assembly of the glider is required:

Check for bends, dents, scratches in all tubes.

Check wire ends for bolt and/or other fastener security.

Check wires for twisted or jammed thimbles.

Check wires are free of kinks, frays, abrasions, broken strands etc.

Nose plate connections; spring clip retains front wires.

Tips secure; tip rod and lever undamaged, zipper closed.

Battens and batten clip ends not broken or bent.

A-frame connection on both sides; spring pins located correctly.

Variable geometry operation (full and free movement).

Rear keel connections; spring clip retains shackle and tensioner cable.

Crossbar tension wire; free of kinks, frays, abrasions, broken strands.

Crossbar operation (free floating).

Sprog tubes, rod ends and clevis pins secure.

Sail condition; no tears, symmetrical appearance.

Harness straps and webbing secure, height adjustment correct.

Emergency parachute secure, correctly mounted and attached, operating handle accessible.

Section 7 BREAK DOWN PROCEDURE

To break down your C4, just reverse the set-up procedure steps as described. Included here are a few guidelines to follow which will save you time and prevent potential wear areas on your sail.

It is possible to leave the nose battens in during daily operations!

Remove nose fairing.

Unzip sprogs and rotate them towards each other. The sprogs remain outside the sail.

Remove four or five tip battens and the under surface battens.

Unload tip lever and remove tip rod.

Fold tip lever towards sail and roll sail whilst keeping tension along the trailing edge. Fit tip bags.

Let off the sail tension and pull each wing in slightly.

Pull out the remaining battens.

Attach top control frame padding.

Fold both wings in symmetrically, bringing both leading edges back at the same time or in small steps side to side.

Place padding over the keel end and rear quick clip. Place sprog covers over sprogs.

Roll the sail up parallel to the leading edge. One tie should be wrapped around the keel and leading edge to hold them together whilst the other side wing is rolled.

Ensure that the sail is rolled into the leading edge pockets. It is important that the ties are not over tensioned as this can damage the mylar insert.

Position glider bag.

Roll glider over and undo control bar PIP pins. Fold base bar rearward. Attach base bar padding around down tube base. Place padding over the speed bar. Undo the two centre ties and fold the control bar down between the leading edge pockets. Lay the wires smoothly to avoid kinking. Secure the centre ties and zip up bag.

The C4 has 1x19 wires to minimize drag. The wires are more prone to kinking and should be treated with care.

For de-rigging flat, attach top control frame padding. Undo nose wires and pull wing forwards then follow steps as previous.
If resistance is encountered during any phase of set up or break down procedure stop and investigate before continuing.

Section 8 SHORT PACKING

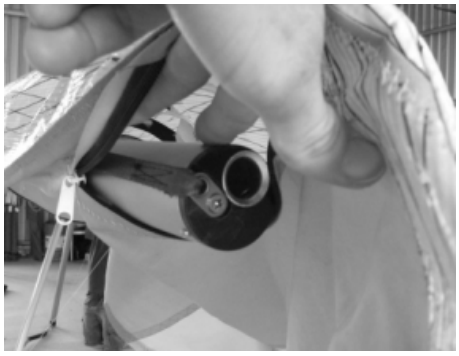
ASSEMBLE FROM SHIPPING LENGTH

If your glider was delivered to you in the short pack form the following procedure should be used.

Unzip bag and remove ties. Remove all padding from the tube ends.

Assemble the control frame as described in the set up procedure section. Rotate the glider on to the control bar, lying flat on the ground.

Spread both leading edges approximately ½ metre. Remove the tip bags, which have been used as protection on the rear of the front leading edges.



Check rear leading edges for R (right) and L (left). Insert rear leading edges in the appropriate side of the front leading edge. Align and push on the leading edge then rotate slightly to ensure it is located correctly. It is impossible to rotate the leading edge if correctly installed. Ensure the outer sprog exits through the zipper as shown in the photograph left (shows RH rear leading edge applicable for serial numbers up to and including 13 14).

Figure 10 Left Side, Rear Leading Edge Installation

(for serial numbers greater than and including C4-13:25, C4-13.5:1, C4-14:21).

Figure 11 Washout Strut, Threaded Cone Connection

Attach inner sprog to sprog cone with the clevis pin and locking ring as shown right.

Figure 12 Sail Leading Edge Tensioning

You are now ready to tension the sail. There is a webbing strap attached inside the sail with a small tang. Tension this tang using a small rope as a handle and attach to the rear leading edges with the self tapping screw. The tang fits into a slot milled into the end of the plastic bung, which locates the tip rod cup. Repeat for the other leading edge. **Ensure sail webbing goes in front of leading edge. Make sure the rear leading edge does <u>not</u> pass through the webbing.**

If you find this technique to tension the sail difficult, the following method can be used:

Remove the nose webbing tangs from their bolts at the nose plate.

Locate the tip webbing tangs with the screws as described previously.

Slowly spread the leading edges out. Ensure the sail is able to move forward as the leading edges are spread and is not caught on the nose pulley or damage will result.

Fit both nose battens onto the locating pins.

The cross bars can now be tensioned. Check once again the sail is OK at the nose.

Locate nose-webbing tangs to original positions then let cross bar tension off.

Your glider can now be fully assembled as outlined in the assembly procedures.

BREAKDOWN FOR SHIPPING

Reverse the procedure described ensuring that all possible wear points are padded.

Be careful when folding the sail as the mylar leading edge insert may be damaged.

When you have finished packing the glider, place the front of the glider bag over the rear of the short packed glider. Zip up bag carefully and place the rest of the bag inside the package (the bag is installed back to front because it is tapered and the glider is more bulky at the rear when short packed).

Section 10 SAIL REMOVAL AND RE-INSTALLATION

Many of the maintenance requirements outlined in this manual will require the removal of the sail from the airframe. When outlining the procedure to remove the sail we assume that you have had some experience in removing a sail from a glider. If you have not we suggest that you have someone help you that does have experience, or have an authorised Airborne dealer remove and re-install the sail for you.

It is important to re-install hardware as you disassemble so that components are not misplaced.

REMOVING THE SAIL

You will need a clear area of approximately 2 metres by 10 metres. A rough surface such as concrete should have a tarp laid down prior to working on the glider.

Lay the glider on the ground and unzip the bag and remove all ties.

Figure 13 Remove Leading Edge Sail Strap

Remove the Phillips screw, which secures the webbing on the rear leading edge. Remove the rear leading edges from the frame.

Figure 14 Remove Side Wires

Remove the side wires from the cross tube and pull the wires outside of the sail.

Figure 15 Remove Rear Wires

Remove the rear wires and keel pocket tang from the rear quick clip. Remove rope attached to quick clip block and tie around keel extension. Remove quick clip bolt from frame.

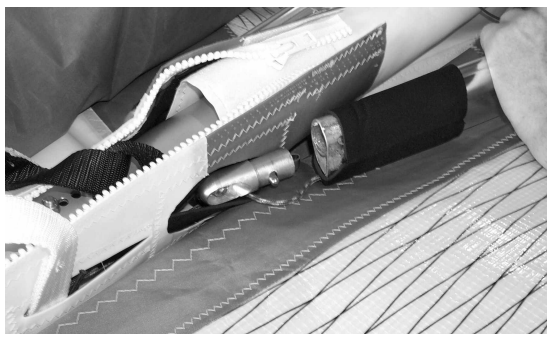


Figure 16 Remove Control Frame

Untie VG knot from the base bar cleat and remove both down tubes.

Figure 17 Remove Hang Loop

Remove hang loop.

Figure 18 Remove Sail Nose Tangs

Remove the sail tangs from the nose plate bolts. Undo the front under surface zip completely. Undo Clip that retains two sail halves. Untie front VG pulley bungie from sail. Untie the nose nappy retention cord from the nose nappy bungie.

Figure 19 Separate Frame from Sail

With the leading edges spread approximately ½ metre, gently slide the frame forward out of the sail. Be careful that the frame hardware, particularly the cam plates and sprogs do not catch on the internal cells or hook and loop fasteners. **Do not force the removal of the frame, otherwise damage will result.**

If the sail is to be sent to the factory for repair the transverse battens should be removed. The mylar can be left in but care should be taken not to damage the mylar when folding the sail.

RE-INSTALLING THE SAIL

Install the transverse battens. Fold the sail so that the mylar pockets are together. The under surface should be on the outside. Lay the sail flat and open up the nose area slightly.

Prepare the frame by taping the sprogs so that they are folded towards each other. If possible it is best to have a cover over each leading edge as this will reduce the chances of the frame snagging on the cells or hook and loop fastened tabs.

Position the frame with the leading edges together and in the correct orientation (ie cross bar to the top of the sail). Slowly slide the frame into the sail through the main centre zip ensuring that the tubes are forward of all hook and loop fasteners and cells. Make sure that the keel passes through the keel pocket. You will need to periodically check that the sail is clearing all internal cells and hook and loop fastened tabs. Be careful and slide the frame in slowly otherwise damage will result. When the frame is around half way inserted into the sail, route the inner sprog tubes through the sprog zips. When the frame is in all the way the sail can be pulled on further at the tip to allow the rear sprogs to exit the respective zips.

After the frame is fully installed attach the rear webbings to the rear leading edge bungs. When tightening the screws ensure that the tangs are located in their slots. Using a piece of string on the nose webbings, tension the leading edge pockets so that the tangs are installed on the nose plate bolts. The nose webbings are easily installed with the crossbars tensioned later in the assembly.

Attach the front pulley bungie to the sail. Re-connect the bottom surface zip checking that the two sides are aligned. Zip-tie between the eyelets so that it secures the excess zip.

Route the side wires through the sail and install them on the cross bar bolts with the side wire positioned between the VG actuating cable and the leading edge. Do not over tighten as the carbon tube can be damaged. Attach the keel pocket tang and the rear wires to the quick clip bolt. Ensure that the quick clip is oriented correctly before tightening. Make sure that the flat spring is located properly.

Attach the down tubes and base bar, then rotate the glider on to the control frame. Spread the wings slowly checking that nothing has fouled and that the hook and loop fasteners and cells are located on the rear side of the cross tubes.

Attach the back up hang loop around the keel and install the main loop to the rocker. Make sure that each side of the main loop passes through the slots in the under surface.

Assemble the glider completely as described earlier in the manual.

Perform a complete and thorough pre-flight of the glider in accordance with the procedures outlined earlier in this manual.

Section 11 FLIGHT TECHNIQUE

TAKE OFF ..DON'T FORGET TO HOOK IN...

The VG should be in the full off position for launching. The C4 has a slightly tail heavy static balance and is very easy to launch. Hold the nose in a slightly elevated position, approximately 20 degrees to the slope with the wings level, accelerate smoothly to a hard run, keeping the nose at the same angle.

It is important that the pilot accelerates smoothly during the launch run. Taking increasingly larger steps until lift off is the preferred method. Too fast an acceleration will cause the nose to rise rapidly with the risk of stall on launch.

TURNS

The C4 can be easily directed into a turn even at slow speeds, however for a fast roll rate and easier handling, it is best to pull on a little extra flying speed.

The C4 will maintain a turn until the turn is removed by pilot input. Allow yourself plenty of margin for safety.

Don't fly too slowly when flying close to the hill or other aircraft.

STALLS

When practising stalls make sure you have sufficient altitude. Push out slowly (approx 1 mph per sec. speed reduction), the glider will tend to mush without dropping a wing. The sink rate will increase in this mush mode more than two fold.

If you push out faster the nose will pitch higher, a gentle pitch down follows until the glider regains flying speed and recovers from the stall. A stall at full VG will result in a much more rapid pitch down and should be avoided.

Never stall the glider with the nose pitched up too high. This is a dangerous manoeuvre and can result in a tail slide and severe tumble. As a guideline, the angle at which the glider stalls results in a similar negative angle to recover.

If you push out too much in a turn the glider will turn tighter unless you are flying very slowly, in which case you may tip stall. So keep on a little extra speed in turns until you get used to the glider.

SPINS

As with all recent gliders the C4 will resist spinning. If you do stall a wing in a turn and enter the initial stages of a spin, move your weight forward and to the high side of the rotation and the glider will recover.

THERMALLING

The optimum speed for thermalling is a little above stall speed; it may be necessary to fly faster than this in rough conditions to maintain good control. Depending on the nature and area of the thermal a bank angle of between 10 and 50 degrees can be used.

LANDING

Landing is easy in the C4. Your final approach should be a straight glide into the wind with airspeed at faster than trim speed. You will feel positive (nose up) bar pressure. The VG should be in the off position.

Reduce air speed slowly by relaxing the bar pressure smoothly. Keep wings level whilst looking straight up your runway.

When the glider reaches trim speed a full flare is required. Flare aggressively in light or no wind, holding the uprights out and up.

It is important that the pilot does not swing the legs forward whilst flaring. This results in the pilot's centre of gravity moving forward which will cause the nose to drop.

Upon touchdown the pilots legs must provide a gentle deceleration, coasting to a stop (no aircraft lands well with the brakes locked on!).

In strong wind it is possible to fly the glider onto the ground slowing up gradually. Be careful not to push out too hard in windy conditions.

Section 12 TUNING

Your C4 was test flown and delivered to you in good trim by either your dealer or by factory pilots. If however, any adjustments are made to your glider, we recommend that they be recorded in your maintenance log at the rear of this manual.

If you feel that the glider requires adjustment to trim in the roll or pitch axis you should check that the problem is not caused by something asymmetrical in the frame or battens. In order of priority, check the following:

Ensure that the wires are correctly routed.

Check the battens against the profile.

Check that the battens have the same tension on both sides.

Check that the keel is straight.

Check that the sail is correctly mounted on the leading edges.

Check that all sprog assemblies are not damaged.

Check leading edges are straight and the rear leading edges are located correctly.

PITCH TRIM

To make the glider trim faster move the main hang strap forward, and to trim slower move the hang loop rearward. The hang loop should be adjusted one hole at a time.

A heavier pilot may make the glider trim slower than a lighter pilot. The heavier pilot causes an increase in twist through extra leading edge flex. Minor changes in hang loop position should be used to fine-tune the glider for the particular pilot.

PITCH STABILITY SYSTEM

Stability in the pitch axis is provided by maintaining twist outboard of the cross bar leading edge junction. Internal washout struts (sprogs) are used to maintain a minimum amount of twist to maintain the required level of pitch stability. Correct attachment and adjustment of the sprogs is essential for maximum stability. **Do not lower your sprogs below the factory standard settings. Lowering your sprogs will result in reduced pitch stability.**

Alterations to the lengths of rigging, airframe or adjustments to the airfoil can also have adverse effects on pitch stability.

CHECKING THE C4 STABILITY SYSTEM

The C4 has a compensated internal sprog. As the VG pulls the sail flatter the inboard sprog automatically lowers with the trailing edge.

The method described here is used to check the sprog angle relative to the keel angle of the glider.

CHECKING THE WASHOUT STRUT (SPROG) ANGLES

Angles may be measured using one of the following tools:

1. Protractor with built in spirit level (these are available from Airborne, part number 108624 PROTRACTOR SPIRIT LEVEL)
2. Digital level
3. Protractor with plumb bob

Inspection steps:

1. Fully assemble the glider ready for flight.
2. Pull the VG on full, until the VG rope stops.
3. Place the protractor/level on the underside of the keel between the cross bar straps as shown in the following photograph. Do not move the glider from this position.
4. Raise the rear keel to horizontal as 0° is a convenient reference point.

Figure 20 Setting Reference Keel Angle

5. With the access zips to the washout struts closed, place the protractor/level on the underside of the washout struts so that it sits with good contact (pressing through the sail) as shown in the following photograph. The wing being measured will need to be raised so that any slack is removed from the side wire. Measure and record at each of the washout strut locations as described in the table below.

Figure 21 Measuring Washout Strut Angle

The table below indicates the minimum differential angle for each of the washout struts referenced to the keel. Compare the measurements taken to the certified angles in the applicable table. Make adjustments to raise the struts as required.

As a guide for the magnitude of adjustment:

- the **inboard** struts change approximately **0.5° per revolution** of the threaded strut cone.
- the **outboard** struts change approximately **1° per revolution** of the threaded strut cone.

	Strut	
	Inboard	Outboard
Glider model	VG on	VG on
C4-13	5.1°	10.5°
C4-13.5	5.8°	12.1°
C4-14	7.4°	13.5°

Table 3 Washout Strut Angles, All Models

How to make a change to the angle of a washout strut:

1. Swing the strut out from the sail.
2. Remove the split ring from the clevis pin. These parts are shown in Figure 11 (the pin locks the adjuster cone and the strut together).
3. Remove the clevis pin.
4. To **raise** the trailing edge, view the washout strut from the rear, rotate the threaded cone anticlockwise until the clevis pin hole reappears, this occurs in 1/2 turn increments.
   To **lower** the trailing edge, view the washout strut from the rear, rotate the threaded cone clockwise until the clevis pin hole reappears, this occurs in 1/2 turn increments.
5. Replace the clevis pin and split pin.
6. Replace the strut in the sail and capture it by doing the zipper up.
7. Tap the sail from above to jiggle the strut into its flattest position. The strut angle is now ready to be sighted and test flown or re-measured (as appropriate).

When making strut adjustments for a turn, it is wise to visually sight the struts to check for gross changes before test flying. To sight the strut settings, stand in front of the glider with the keel horizontal & holding the nose wires. Slowly rotate the nose forward and backward, notice when the trailing edge of each of the strut locations comes into and out of view.

ROLL/YAW TRIM

Turns in gliders occur when they are asymmetrical. If you have a turn in your glider you should confirm that the seven possible variables outlined at the beginning of this section have been checked.

The following tables outline procedures for adjustments. Adjustments should be made to the glider in the sequence as listed. The glider should be tuned firstly in the VG off setting and then checked with the VG ½ and full on. If necessary the sprogs must be tuned as outlined in the second table.

NOTE: We refer to the fast wing as the wing on the high side of the turn i.e. The right wing is the fast wing if the wing is turning left and vice versa.

The tuning table refers to rotation of eccentric rings when viewed from the rear of the leading edge. This is when standing at the wingtip and looking towards the nose of the wing.

ROLL TRIM ADJUSTMENTS

ADJUSTMENTS WHEN THE GLIDER IS CONFIGURED VG OFF TO 1/2 ON			
	ADJUSTMENT METHOD	Remedy left turn	Remedy right turn
MILD TURN VG OFF	DIFFERENTIAL BATTEN TENSION. If the turn is mild, then increasing and decreasing the batten tension on either side can adjust it. If you increase the tension on the slow side you are effectively putting more camber in the airfoil therefore creating more lift on that side. If you decrease the tension on the fast side you are decreasing the camber and reducing the amount of lift. The batten hinge clip can be rotated clockwise to decrease tension or anti-clockwise to increase tension.	**Increase tension** on last 5 battens **on left hand side by 2 turns at a time.** **Decrease tension** on last 5 battens on **right hand side by 1 turn at a time.**	**Decrease tension** on last 5 battens **on left hand side by 1 turn at a time.** **Increase tension** on last 5 battens on **right hand side by 2 turns at a time.**
	TIP PLUG ADJUSTMENT (TIP UP). If further adjustment is required the tip angle on the fast wing is raised. The tip plug can be rotated to raise or lower the tip angle on either wing. To raise the tip angle on the fast wing access the fibreglass tip bung through the zip at the end of the leading edge tube. Remove the Philips screw and adjust as outlined. The standard setting is 1 hole from the zero hole for the C4-all sizes. The fitting should not be adjusted more than two holes from the standard position per adjustment. Note that the direction of rotation varies according to the two tip geometries used according to the serial number on the glider. Reinstall the screw once adjustment is made.	(For serial numbers up to and including C4-13:24 C4-14:20): Rotate the **right tip** fitting **anti clockwise** one hole at a time, as viewed from the rear of the leading edge. (For serial numbers greater than and including C4-13:25, C4-13.5:1, C4-14:21): Rotate the **right tip** fitting **clockwise** one hole at a time, as viewed from the rear of the leading edge.	(For serial numbers up to and including C4-13:24 C4-14:20): Rotate the **left tip** fitting **clockwise** one hole at a time, as viewed from the rear of the leading edge. (For serial numbers greater than and including C4-13:25, C4-13.5:1, C4-14:21): Rotate the **left tip** fitting **anti clockwise** one hole at a time, as viewed from the rear of the leading edge.
	TIP PLUG ADJUSTMENT (TIP DOWN) If the turn persists the tip angle can be lowered on the slow wing. Access the fibreglass tip bung through the zip at the end of the leading edge tube. Remove the Philips screw and adjust as outlined. The standard setting is as above. The fitting should not be adjusted more than two holes from the standard position per adjustment. Reinstall the screw once adjustment is made.	(For serial numbers up to and including C4-13:24 C4-14:20): Rotate the **left tip** fitting **anti clockwise** if viewed from the rear of the leading edge one hole at a time. (For serial numbers greater than and including C4-13:25, C4-13.5:1, C4-14:21): Rotate the **left tip** fitting **clockwise** one hole at a time, as viewed from the rear of the leading edge.	(For serial numbers up to and including C4-13:24 C4-14:20): Rotate the **right tip** fitting **clockwise** one hole at a time, as viewed from the rear of the leading edge. (For serial numbers greater than and including C4-13:25, C4-13.5:1, C4-14:21): Rotate the **right tip** fitting **anti clockwise** one hole at a time, as viewed from the rear of the leading edge.
MORE SIGNIFICANT TURN VG OFF	REAR SECTION ADJUSTMENT. If the turn still persists after the tip plug rings have been rotated the front leading edge step down rear eccentric ring can be adjusted. The angle that the rear section protrudes from the front section can be altered by rotation of the outer eccentric (plastic) ring. The location of this ring is fixed with a small screw. Remove screw and reinstall once adjustment is made.	Use the "Y" tool to rotate the **right** step down ring **anti-clockwise** one hole, as viewed from the rear of the leading edge. This raises the RHS rear leading edge.	Use the "Y" tool to rotate the **left** step down ring **clockwise** one hole, as viewed from the rear of the leading edge. This raises the LHS rear leading edge.
If the glider tends to turn the opposite direction after the rear section adjustment, the tip plugs should be adjusted to straighten the glider.			

Table 4 Tuning Matrix - Frame

SPROG ADJUSTMENT FOR SYMMETRY

("Sprog" refers to the wire braced washout struts)

ADJUSTMENTS WHEN THE GLIDER IS CONFIGURED VG OFF, TURN DURING STRAIGHT ARM DIVE			
MILD TURN VG OFF DURING STRAIGHT ARM DIVE	ADJUSTMENT METHOD	Remedy for left turn	Remedy for right turn
	IN OARD SPROG ADJUSTMENT. The glider should be assembled with the VG off. Unzip the outer sprog and fold forward. Remove the ring and clevis pin from the front of the sprog tube. Make appropriate adjustment and install clevis pin and ring. Install sprog.	Raise the right sprog by rotating the cone anticlockwise by 1/2 turn.	Raise the left sprog by rotating the cone anticlockwise by 1/2 turn.
	INBOARD SPROG ADJUSTMENT. If the glider still turns the opposite sprog can be lowered as described.	Lower the left sprog by rotating the cone clockwise by 1/2 turn.	Raise the left sprog by rotating the cone anticlockwise by 1/2 turn.

ADJUSTMENTS WHEN THE GLIDER IS CONFIGURED VG 1/2 ON TO FULL ON			
MILD TURN VG ON	ADJUSTMENT METHOD	Remedy for left turn	Remedy for right turn
	OUTBOARD SPROG ADJUSTMENT. The glider should be assembled with the VG off. Unzip the outer sprog and fold forward. Remove the ring and clevis pin from the front of the sprog tube. Make appropriate adjustment and install clevis pin and ring. Install sprog.	Raise the right sprog by rotating the cone anticlockwise by 1/2 turn.	Raise the left sprog by rotating the cone anticlockwise by 1/2 turn.
	OUTBOARD SPROG ADJUSTMENT. If the glider still turns the opposite sprog can be lowered as described.	Lower the left sprog by rotating the cone clockwise by 1/2 turn.	Raise the left sprog by rotating the cone anticlockwise by 1/2 turn.

Table 5 Tuning Matrix - Sprogs

If after following the procedure as outlined above the glider still tends to roll one way, please contact your AirBorne dealer or call the AirBorne factory.

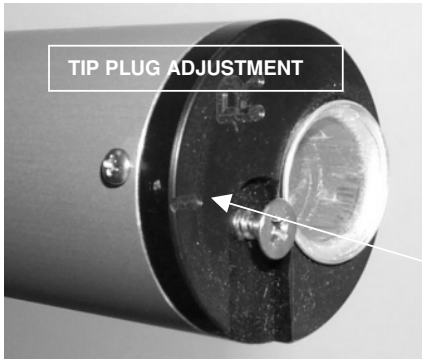


Figure 22 Leading Edge End Cap

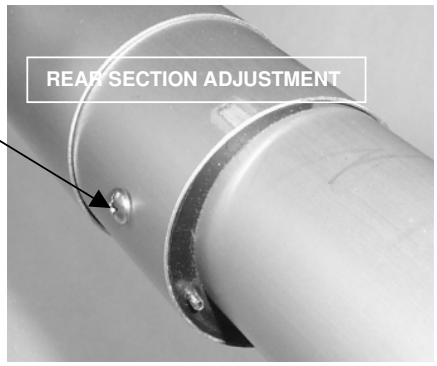


Figure 23 Leading Edge Step Down

TIP LEVER ADJUSTMENT

FIGURE 1

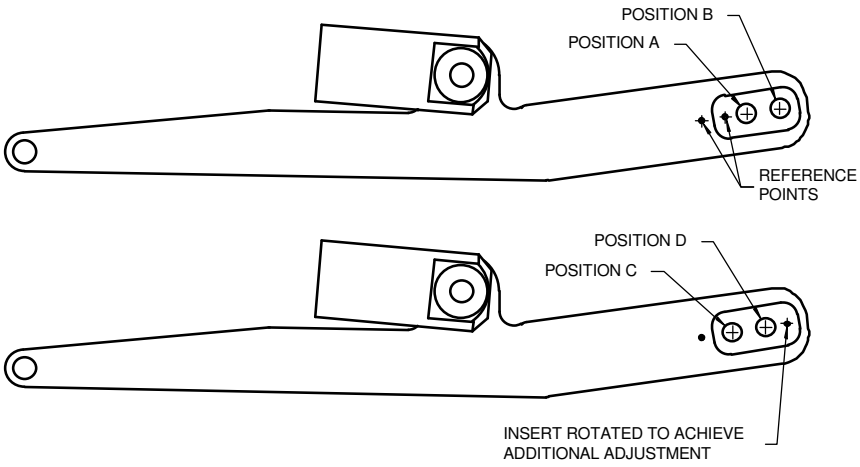


Figure 24 Tip Lever Adjustments

The following table shows standard sail position and variations to the standard setting.

APPLICABLE GLIDER	STANDARD POSITION	ADJUSTMENTS (setting and distance from standard position D)
C4-13: 001 onwards C4-13.5: 001 onwards C4-14: 001 onwards	Position D	Position C +7mm (slacken) Position A +4mm (slacken) Position B -3mm (tighten)

Table 6 Tip Lever Adjustments

Adjusting Batten Tension

Figure 25 Standard Batten Tension

The standard batten tension is defined by the angle that the batten tip sits freely when it is not locked. Battens on either side are locked.
Inner Battens: 20°
Tip Batten: 45°

HANDLING AND PERFORMANCE TUNING

The following table is designed to allow a pilot to reference methods of tuning the C4 to suit the individual. Varying wing loading will affect the way the glider behaves in pitch and roll trim. For example, a heavier loaded glider will tend to increase the flex in the leading edge tube causing more washout. This increase in washout will tend to make the glider more spirally stable. A lightly loaded glider will tend to be less spirally stable requiring more high siding from the pilot.

Adjustments are described assuming that the glider is straight and all adjustments are symmetrical.

TUNING	HANDLING	PERFORMANCE	BAR PRESSURE
CENTER OF GRAVITY	Increase in pitch pressure when CG moved rearward.	No change.	Increase in pitch pressure when CG moved rearward.
	Decrease in pitch pressure when moved forward.	No change.	Decrease in pitch pressure when moved forward.
TIP PLUGS Rotating the tip plug for the tip wand to stand up or down. See Note 1.	Rotating the tip plugs for **tip wands pointed up** reduces high siding on a bank.	Slightly reduced performance.	Increase in bar pressure.
	Rotating the tip plugs for **tip wands pointed down** increases the amount of high siding required.	Slightly better performance.	Reduction in bar pressure.
INNER RING Rotating the inner rings down results in an increase in the leading edge dihedral ie Left leading edge inner ring clockwise & Right leading edge inner ring anti clockwise	Rotating the **inner ring down** reduces high siding on a bank.	Does not affect performance.	No change with small adjustments.
	Rotating the **inner ring up** increases the amount of high siding required.	Does not affect performance.	No change with small adjustments.
LEADING EDGE TENSION	**Increase** in leading edge tension slows roll rate.	A slight increase may improve performance but over tensioning will cause the tip to bend up effectively reducing performance.	No change with small adjustments.
	Decrease in leading edge tension improves roll rate. Larger changes reduce the crispness of the landing flare.	Loss of performance if tension is reduced to the point where the leading edge starts to deform.	No change with small adjustments.

Table 7 Handling and Performance Tuning

Note 1. Tip geometry varies between early and more recent models.
For early models, the tip rod is located on the forward side of the leading edge. Rotating the right tip clockwise lowers the tip rod (providing anhedral (down)).
For late models, the tip rod is located on the rearward side of the leading edge. Rotating the right tip clockwise raises the tip rod (providing dihedral (up)).

Section 13 PERIODIC INSPECTIONS and MAINTENANCE

MAINTENANCE SCHEDULE

1 – Clean and service, 2 – Check as directed, 3 – Check for security, cracks, wear and faulty operation, 4 - Remove, inspect and replace if necessary, 5 - Recommend replacement or overhaul.								
MAINTENANCE REQUIREMENT	**Maintenance Period**							
	Period >	Daily	Monthly	Three Months	Six Monthly	Every Year	Every 2 Years	Every 4 Years
	Flying Days >	1	10	30	50	100	200	400
Wing fabric deterioration and tears			2	2	2	2	4	5
Wing fabric stitching			2	2	2	2	2	
Wing fabric attachment points			3	3	3	3	3	3
Batten clip fittings			3	3	3	3	4	4
Check battens against template supplied				2	2	2	2	2
Wing wires and attachment fittings, including sprog wires		2	3	3	4	5	5	5
Check leading edges, keel & A frame for straightness, dents and corrosion		2	2	2	2	4	4	4
Check leading edges, keel & A frame structural members and check for fatigue cracks radiating from drilled holes.		2	2	2	2	4	4	4
Check centre junction and carbon spars (See notes)		2	2	2	2	4	4	4
Check cross tube leading edge junction (Remove hinge bolt and inspect bushes, bolt and hole)		2	2	2	2 4	3 5	3 5	3 5
Check sprog assemblies including rod ends, clevis pins etc		2	2	2	2	2	2	2
Check inspection zips			2	2	2	2	2	2
Check variable geometry, pulleys and cleats		2	3	3	3	4	4	5
All bolts, nuts, washers & safety pins. At least one thread showing outside each nut.		2	2	2	2	2	2	2
Check hang straps and karabiners for wear or damage		2	2	2	2	4	5	5
Check saddles and fittings for cracks			2	2	2	4	4	5

Table 8 Periodic Maintenance

It is recommended that:

- Items marked 1,2 and 3 should be performed by the owner of the glider;
- Items marked 4 be performed by the owner in conjunction with another pilot; and
- Items marked with a 5 be performed by AIRBORNE or an accredited AIRBORNE service agent.

LOG BOOK

When maintenance is performed always check the appropriate square and make an entry in the maintenance log at the rear of this manual.

NOTES ON PERIODIC INSPECTIONS

AIRFRAME TUBING

Installation & Removal

When removing tubing do not bend or force tubes. If resistance is encountered stop and check for the cause. Do not force the tube.

Inspection

Inspect tubing for cracks, damage from abrasion, elongated holes or distortion in tube surface. Never attempt to repair tubing, always replace with new part. Inspect tubing for corrosion inside and out. If corrosion is present the component should be replaced.

Replacement

Aluminium tube comes in many different sizes and grades. It is important that the correct replacement parts are used.

CARBON CROSS TUBES

Installation & Removal

To comprehensively check the carbon spars and junction, the sail should be removed from the airframe as outlined in this manual.

Inspection

The carbon cross tubes should be thoroughly inspected for cracks. The aluminium plug, which is bonded into the carbon tube at the centre section, should also be thoroughly checked for damage or cracking at the bond line. A torch should be used to check that the tubes show no signs of damage on the inside.

BOLTS

Installation & Removal

After tightening, all bolts should have at least one and a half to two threads showing.
All self-locking nuts should not be installed more than two times.
Be sure not to over torque bolts when installing.

Inspection

Check bolts for worn shanks, bad threads or corrosion.

SAILS

Sail Inspection

Check for tears in the sailcloth and or any loose or unravelled seams.
Check all inspection zippers to see that they function smoothly and close completely.
Inspect tip webbing for damage.

Sail may be repaired with appropriate sail tape or a sewn on patch. AIRBORNE or an authorised agent should be consulted about sail repairs. Keep the sail clean of oil and dirt by washing the sail with soap and water. Keep the sail covered when not in use.
Sails shrink over a period of time due to exposure to the elements (approx 5-10mm per year for high exposure wings).
This results in an increase in leading edge tension and a decrease in trailing edge tension. The sail leading edge tension will have to be adjusted over the life of the sail in order to retain its performance. Refer to fig 1 page 31.

CONTINUED EXPOSURE TO SUN DRAMATICALLY SHORTENS THE LIFE OF SAILS - possibly to as little as six months.

INSPECTION AFTER HARD LANDING

It is necessary to conduct a detailed inspection following any unusual stressing of the hang glider. This full inspection should include all details listed for the six monthly maintenance.

The inspection should be noted in the logbook, and any replacement recorded.

DEFECT REPORTS

Details of any defect which develops in service and which, if kept uncorrected, would compromise the continued safe operation of the hang glider should be reported to AIRBORNE as soon as practicable.

Section 14 TRANSPORTATION AND STORAGE

Avoid damage to your glider by using well-padded racks. Careless transportation can cause considerable damage to your glider.

We recommend that you support the glider in at least 3 places to spread the load. The glider should be transported with the control frame down to minimise the chance of damage to the cross tubes.

Flat straps should be used for tie downs to avoid damage to leading edge mylar.

Store the glider in a dry room off the ground. Air the glider out regularly to avoid mildew, and never store wet.

Section 15 MAINTENANCE RECORD

Date	Details of Repair or Maintenance	Carried out by:

Table 9 Maintenance Log

Section 16 HANG GLIDER COMPLIANCE SCHEDULES

GLIDER MODEL: C4 13

MANUFACTURED BY: AIRBORNE WINDSPORTS Pty Ltd

NOTE: These specifications are intended only as a guideline for determining whether a given glider is a certified model and whether it is in the certified configuration.

Be aware however, that no set of specifications, however detailed, can guarantee the ability to determine whether a glider is the same model, or is in the same configuration as was certified, or has those performance, stability, and structural characteristics required by the certification standards. An owner's manual is required to be delivered with each HGMA certified glider, and it is required that it contain additional airworthiness information.

		Metric	Imperial
Weight of glider with all essential parts and without cover bags and non-essential parts.		33 kg	73 lbs
Leading Edge Dimensions			
Nose Plate anchor hole to crossbar attachment hole		3080 mm	121.26”
Nose Plate anchor hole to rear sail attachment point		5490 mm	216.14”
Outside diameter at nose		60 mm	2.36”
Outside diameter at cross bar		62 mm	2.44”
Outside diameter at rear sail attachment point		12 mm	1.77”
Crossbar Dimensions			
Overall pin to pin length from leading edge attachment point to hinge bolt at glider centre line		2871 mm	113.03”
Largest outside diameter		75 mm	2.95”
Keel dimensions			
The cross bar centre load bearing pin		760 mm	29.92”
The pilot hang loop distance from forward nose plate hole	Fwd Rear	1245 mm 1295 mm	49.02” 50.98”
Sail Dimensions			
Chord length at 3 ft outboard of centre line		1620 mm	63.78”
Chord length at 3 ft inboard of tip		1020 mm	40.18”
Span (extreme tip to tip)		9600 mm	377.95 “
Location of Information Placard		Front RHS crossbar centre	
Location of Test Fly Sticker		Front RHS crossbar centre	
Recommended Pilot Hook in Weight Range		55-80 kg	121-176 lbs
Recommended Pilot Proficiency		Advanced	

Table 10 Compliance Schedule C4-13

NB: Conversions * 0.4536 kg/pound * 25.4 mm/inch * 1.609km / mile

GLIDER MODEL: C4 13.5

MANUFACTURED BY: AIRBORNE WINDSPORTS Pty Ltd

NOTE: These specifications are intended only as a guideline for determining whether a given glider is a certified model and whether it is in the certified configuration.

Be aware however, that no set of specifications, however detailed, can guarantee the ability to determine whether a glider is the same model, or is in the same configuration as was certified, or has those performance, stability, and structural characteristics required by the certification standards. An owner's manual is required to be delivered with each HGMA certified glider, and it is required that it contain additional airworthiness information.

	Metric	Imperial
Weight of glider with all essential parts and without cover bags and non-essential parts.	34 kg	75 lbs
Leading Edge Dimensions		
Nose Plate anchor hole to crossbar attachment hole	3080 mm	121.26”
Nose Plate anchor hole to rear sail attachment point	5490 mm	216.14”
Outside diameter at nose	60 mm	2.36”
Outside diameter at cross bar	62 mm	2.44”
Outside diameter at rear sail attachment point	12 mm	1.77”
Crossbar Dimensions		
Overall pin to pin length from leading edge attachment point to hinge bolt at glider centre line	2871 mm	113.03”
Largest outside diameter	75 mm	2.95”
Keel dimensions		
The cross bar centre load bearing pin	760 mm	29.92”
The pilot hang loop Fwd distance from forward nose plate hole Rear	1245 mm 1295 mm	49.02” 50.98”
Sail Dimensions		
Chord length at 3 ft outboard of centre line	1688 mm	66.5”
Chord length at 3 ft inboard of tip	1063 mm	41.9”
Span (extreme tip to tip)	10000 mm	393.7 “
Location of Information Placard	Front RHS crossbar centre	
Location of Test Fly Sticker	Front RHS crossbar centre	
Recommended Pilot Hook in Weight Range	70-110 kg	154– 220 lbs
Recommended Pilot Proficiency	Advanced	

Table 11 Compliance Schedule C4-13.5

NB: Conversions * 0.4536 kg/pound * 25.4 mm/inch * 1.609km / mile

GLIDER MODEL: C4 14

MANUFACTURED BY: AIRBORNE WINDSPORTS Pty Ltd

NOTE: These specifications are intended only as a guideline for determining whether a given glider is a certified model and whether it is in the certified configuration.

Be aware however, that no set of specifications, however detailed, can guarantee the ability to determine whether a glider is the same model, or is in the same configuration as was certified, or has those performance, stability, and structural characteristics required by the certification standards. An owner's manual is required to be delivered with each HGMA certified glider, and it is required that it contain additional airworthiness information.

	Metric	Imperial
Weight of glider with all essential parts and without cover bags and non essential parts.	36 kg	79. lbs
Leading Edge Dimensions		
Nose Plate anchor hole to crossbar attachment hole	3375 mm	132.87"
Nose Plate anchor hole to rear sail attachment point	5955 mm	234.45"
Outside diameter at nose	60 mm	2.36"
Outside diameter at cross bar	62 mm	2.44"
Outside diameter at rear sail attachment point	12 mm	0.47"
Crossbar Dimensions		
Overall pin to pin length from leading edge attachment point to hinge bolt at glider centre line	3141 mm	123.66"
Largest outside diameter	75 mm	2.95"
Keel dimensions		
The cross bar centre load bearing pin	845 mm	33.27"
The pilot hang loop Fwd distance from forward nose plate hole Rear	1385 mm 1335 mm	48.62" 52.56"
Sail Dimensions		
Chord length at 3 ft outboard of centre line	1780 mm	70.08"
Chord length at 3 ft inboard of tip	1120 mm	44.09"
Span (extreme tip to tip)	10400 mm	409.45"
Location of Information Placard	Front RHS crossbar centre	
Location of Test Fly Sticker	Front RHS crossbar centre	
Recommended Pilot Hook in Weight Range	85-120 kg	187-265 lbs
Recommended Pilot Proficiency	Advanced	

Table 12 Compliance Schedule C4-14

NB: Conversions * 0.4536 kg/pound * 25.4 mm/inch * 1.609km/mile