THE

Blade Race by Airborne

OWNERS MANUAL

AIRBORNE WINDSPORTS
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Note: Throughout this manual reference to Blade indicates Blade Race unless specifically stated otherwise.

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following: 1) Ensure that the wires, including luff lin 18
10.1 Pitch TrimStandard position of king post is in the middle holed hole.To make the glider trim faster move the king post base forward one hole on the channel. To trim slower move the king post base rearward one hole. It is extremely important that the M6 Allen Screws are coated with a locking solution such as 18
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Section 12 TRANSPORTATION AND STORAGE Avoid damage to your glider by using well padded racks. We recommend that you support the glider in at least 3 places to spread the load. 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. SAFE FLYING TEAM AIRBORNE Section SEQ 1_0 * Arabic \n 13 MAINTENANCE RECORD tc \l1 24
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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, stab 28

Section 1 DESIGN FEATURES

The Blade Race is the latest high performance hang glider from AirBorne Windsports. The Race version of the Blade series boasts a better glide, improved handling and a sink rate comparable to gliders with considerably larger sail area.

The Blade utilises Defined Flex Technology which has been developed by AirBorne to control leading edge flex during varying in flight loads. The new composite rear leading edge is of a tapered construction which has been designed to vent gust loads in turbulence whilst maintaining stiffness in the lateral direction. This results in impressive handling in turbulence with improved high speed glide performance.

The leading edge is constructed from 57mm aluminium front leading edge with the composite rear leading edge tapering from 54mm down to 30mm at the tip. The result is a very tight sail through the centre and mid span region with controlled flexibility in the tip region.

Other features of the Blade are a raised pilot suspension point and an internally compensated luff line system with a 2:1 mechanical reduction.

The raised suspension point has been designed in conjunction with a new airfoil to increase roll rate and reduce pitch pressure at higher speeds. The suspension system incorporates the back up loop as one tidy unit with maximum strength and minimum drag.

The new luff line compensation system allows the luff lines to be adjusted more precisely for varying trailing edge twist during variable geometry operation. The compensator system is permanently attached and the reduction system is cleverly mounted inside the king post. Easy set up and tight for and aft rigging are also a feature of the new system.

The Blade maintains all the fast set-up features which have become a trade mark of AirBorne hang gliders. It can, as with all AirBorne gliders, be assembled flat or on the control frame.

AirBorne's quality assurance program, which is unique to the industry, ensures that every glider is built in accordance with the standard it was designed to. This gives even the most experienced pilot a sense of security when flying an AirBorne glider.

Safe flying.

Team Airborne.

Section 2 SPECIFICATIONS

	BLADE Race 132		BLADE Race 141		BLADE Race 153	
	METRIC	IMPERIAL	METRIC	IMPERIAL	METRIC	IMPERIAL
SAIL AREA	12.28 sq meter	132 sq ft	13.12 sq meter	141 sq ft	14.25 sq meter	153 sq ft
WING SPAN	9.36	30.70 feet	9.71 m	31.86 feet	10.12 m	33.20 feet
ASPECT RATIO	7.20		7.20		7.20	
NOSE ANGLE	128 degrees		128 degrees		128 degrees	
DOUBLE SURFACE %	82%		82 %		82 %	
BATTENS	25		29		31	
GLIDER WEIGHT	28 kg	62 pound	33 kg	73 pound	35 kg	77 pound
ASSEMBLY TIME	7 min		7 min		7 min	
PACK UP LENGTH	5.3 meter	17.39 feet	5.5 meter	18.05 feet	5.7 meter	18.70 feet
SHORT PACK LENGTH	3.7 meter	12.14 feet	3.9 meter	12.80 feet	4.0 meter	13.12 feet
RECOMMENDED PILOT HOOK IN WEIGHT RANGE (Includes Equipment)	50-85 kg	110-187 pounds	65-105 kg	143-231 pounds	80-120 kg	176-264 pounds
MINIMUM SPEED (At max recommended weight)	36 km/h	22 mph	40 km/h	25 mph	43 km/h	27 mph
MAXIMUM SPEED (At min weight)	75 km/h	47 mph	78 km/h	49 mph	87 km/h	54 mph
VNE (Velocity Never to Exceed)	86 km/h	54 mph	86 km/h	54 mph	86 km/h	54 mph
VA (Maximum rough air manouvering speed)	74 km/h	46 mph	74 km/h	46 mph	74 km/h	46 mph

Conversions: * 2.205kg/pound * 25.4mm/inch * 1.609km/mile
* Va = Test speed x .707 * Vne = Test Speed x.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 placarded 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. During your initial flights on the glider it is recommended that you fly with an airspeed indicator until you are able to recognise the control feel that produces the airspeeds shown.

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 which cannot by law be excluded.

We hope that your new glider will provide you with many hours of safe flying.

AIRBORNE.

Section 4 WARRANTY STATEMENT

This warranty extends to new **Blade 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 its 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.

Signed for and on behalf of

AIRBORNE WINDSPORTS

Section 5 ASSEMBLY PROCEDURE

The wing can be assembled in two positions, either lying flat or standing on the control frame.

Assembling the Blade 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.

Our suggested sequence is as follows:

1) UNZIP THE BAG. Lay the wing down with zip up and the nose facing approximately 120 degrees from the wind direction. The nose should be facing into the wind when assembling flat. Unzip the bag and un clip centre ties.

2) ASSEMBLE CONTROL FRAME. Spread the control bar down tubes out attach base bar to knuckle. The pip pin is then inserted with the cover firmly secured. Check that all the rigging wires are outside the control frame.

3) 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. If assembling flat ensure that control bar is central and the wires are not tangled.

4) REMOVE BAG. Remove the glider bag and un clip remaining ties.

5) SPREAD LEADING EDGES. Carefully spread both leading edges out half way then spread leading edges to their approximate flying position.

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

6) RAISE KING POST. Raise the kingpost and attach the reflex bridles.

7) 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!** When securing the battens place the bottom loop on first and tension by placing the top loop into the batten end fitting.

   It is advised not to insert the last cambered tip batten and tip strut until the cross bars are tensioned.

8) TENSION CROSS BARS. The cross bars are now tensioned by pulling the "top" rope which is designed to produce a 2:1 mechanical advantage during tensioning. The rope should be pulled 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.

9) ATTACH REAR TOP WIRE. The rear top wire should now be attached to the rear Quick Clip block.

10) INSERT TIP STRUTS. Insert the tip battens and tip struts. The tip strut should be located on the nylon hook which is attached to the leading edge. The tip strut is secured with a double bungie as outlined previously.

11) INSERT UNDER SURFACE BATTENS. The under surface battens should be inserted beyond the velcro which secures the batten. The string should be left outside the pocket.

12) ATTACH FRONT FLYING WIRES. The ring on the front flying wires can now be inserted in to the Quick Clip Block. Ensure that the catch is positively locked.

If the glider has been assembled flat it should now be lifted on to the control frame. Be aware of the tip battens! Make sure you have a firm grip on either the nose loop or keel when raising the nose from the flat position in strong winds.

13) INSERT NOSE BATTEN. Insert the nose batten tail end first and locate it on the fitting on the front of the keel. A visual check of the variable geometry system is advisable at this point.

14) INSTALL NOSE FAIRING. Attach the nose fairing applying the top velcro first then gently tension over the nose plates and attach the velcro to the undersurface.

15) PREFLIGHT 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

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:

1) The **nose quick clip**

2) Control bar **base tube connecters.**

3) The cross bar **tension quick clip.**

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

1) Check the nose plate assembly ensuring that the king post wire is not kinked. Sight along both leading edges checking for similar curves.

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

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

4) Check sail tip webbing is undamaged and is located properly in the slot. Ensure clevis pins are fully inserted into the tip bung and neoprene cover and velcro is in place.

5) Crouch down and lift tip to eye level to inspect that the tip strut is properly located and that the rear leading edge is undamaged.

6) Walk towards the keel checking all battens are secured with double bungie.

7) Check all luff lines attachments are in order and **not caught under any battens.**

8) Check that the cross bar retaining shackle and rear top wire are secured on the quick clip.

9) Check the rear top rigging and that the reflex bridle carabina is properly closed. Check compensator wire and pulley are operational and in good order.

10) Check king post base. **Ensure the two the two Allen Headed screws are secure**. Check compensator pulley is rotating freely and wire is in good condition.

11) Repeat steps #2 - #7 for the other side wing in reverse order.

12) 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.**

13) Check Control Bar corners are correctly assembled with pip pin and cover in place.

14) Ensure hang loop is secure and in good order. **Check attachment point on King Post.**

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

16) Unzip undersurface and check cross bar hinge and retaining strap. Operate VG system to ensure it is functioning properly.

17) Ensure that the double surface is zipped up and the nose fairing is secured.

18) 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 carabina is locked.

7..1 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;
- Tips secure;
- Battens and bungies;
- A-frame connections at the top and base on both sides;
- Variable geometry operation (full and free movement);
- Rear keel connections;
- Cross-bar tension wire;
- Cross-bar operation (free floating);
- King post connections;
- Luff Lines - attached and tension correct;
- Sail condition;
- Harness straps and webbing secure, height adjustment correct;

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

Section 8 BREAK DOWN PROCEDURE

To break down your Blade, 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 batten in during daily operations! It is, however, important to remove the nose batten from the fitting on the front of the keel.

1) Remove nose fairing.

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

3) Pull out all the battens.

4) Attach top control bar padding.

5) Disconnect reflex bridle and attach rear quick clip padding.

6) Fold both wings in symmetrically, bringing both leading edges back at the same time.

7) Roll the sail up from the last luff line. Roll the luff lines into the sail. This will avoid tangling of the luff lines during the set up procedure. One tie should be wrapped around the keel and leading edge to hold them together whilst the other side wing is rolled.

8) Place padding over the end of the keel.

9) 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.

10) Place glider bag in position.

11) Roll glider over, undo control bar pip pin. Fold base bar rearward. Attach base bar padding around down tube base. Place padding over the end of the base bar. Undo the two centre ties and fold the control bar down between the leading edge pockets. Secure the centre ties and zip up bag.

For de-rigging flat, attach top control bar padding. Undo nose wires and remove nose fairing. Pull wing forwards then follow steps as above.

If resistance is encountered during any phase of set up or break down procedure stop and investigate.

Section 9 ASSEMBLY FROM SHIPPING LENGTH

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

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

2) Assemble the control frame as described in the **set up procedure section 5 (2).** Rotate the glider on to the control bar, lying flat on the ground.

3) Spread both leading edges approximately 1/2 metre. Remove the tip bags which have been used as protection on the rear of the front leading edges.

4) Check rear leading edge bungs for **R** (right) and **L** (left). Insert rear leading edges in the appropriate side of the front leading edge with the slot on the rear leading edge facing towards the keel. Push on the leading edge and rotate slightly to ensure it is located correctly. It should be impossible to rotate the leading edge if correctly installed.

5) You are now ready to tension the sail. There are two webbing loops on the tip of the sail. The inside loop is for the sail tension and the outward loop is used to apply tension to locate the primary sail tension loop. A glider tie should be passed through the outward loop. Place one hand on the rear of the leading edge and the other through the tie. Pull sail firmly until the inside loop is located on the end of the leading edge. Rotate sail until the webbing is correctly located in the slot. Secure velcro tabs on the inside of the leading edge. Repeat for the other leading edge.

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

i) Remove the two front leading edge screws.
ii) Locate the tip webbing in the slot on the rear leading edge.
iii) 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 front wire tang.**
iv) The cross bars can now be tensioned. Check once again the sail is OK at the nose.
vi) Insert nose screws then let cross bar tension off.

6) Your glider can now be fully assembled as outlined in the Set Up Procedure.

BREAKDOWN FOR SHIPPING

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

Be sure to remove the nose batten from the sail and place in batten bag. 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 bulkier at the rear when short packed.

Section 10 FLIGHT TECHNIQUE

Take Off..Don't forget to hook in...

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

It is important that the pilot accelerates smoothly during the launch run. Too fast an acceleration will cause the nose to rise rapidly with the risk of stall on launch.

Turns

The Blade 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 Blade 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 scratching close to the hill.

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, this is followed by a gentle pitch down until the glider regains flying speed and recovers from the stall.

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 is about the same as the angle it will recover.

If you push out too much in a turn the glider will turn tighter unless you are flying very slow, 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 the later design gliders the Blade 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. The VG is usually fully off for thermalling but up to 1/3 VG can be used to make the glider roll in to the turn more for stronger thermals. 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 Blade.

Your final approach should be a straight glide into the wind faster than trim speed, approx 25 mph (40 km/h). The VG should be in the off position.

Reduce air speed slowly keeping wings level.

When the glider reaches trim speed a full flare is required. Flare aggressively 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.

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 11 TUNING

Your Blade was test flown and delivered to you in good trim. 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 asymetrical in the frame or battens. In order of priority, check the following:

1) Ensure that the wires, including luff lines, are correctly routed;

2) Check the battens against the profile;

3) Check that the batten bungies have the same tension on both sides;

4) Check that the keel is straight;

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

6) Check leading edges are straight and the rear leading edges are located correctly;

12.1 Pitch Trim

Standard position of king post is in the middle holed hole.

To make the glider trim faster move the king post base forward one hole on the channel. To trim slower move the king post base rearward one hole. It is extremely important that the M6 Allen Screws are coated with a locking solution such as "Locktite" when reassembled. The Locktite will ensure that the Allen Screws will not come loose during set up and breakdown.

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. The king post should be moved forward one hole.

13.2 Pitch Stability System

Stability in the pitch axis is provided by reflex in the root section. Alterations to the lengths of rigging, airframe or adjustments to the airfoil can have adverse effects on pitch stability.

Reflex bridles provide pitch stability at low angles of attack. Correct attachment and adjustment of the reflex bridles is essential for maximum stability.

To check the reflex bridles should be checked with a tape hooked over the top front wire immediately in front of the kingpost and measured to the intersection of the batten pocket seam and the sail trailing edge. **The glider should be in full VG off configuration.**

Bridle Checking Specifications

BLADE Race 132	Measurement from front wire	
Batten Number	Metric	Imperial
3	1675 mm	65.94 "
4	2100 mm	82.68 "
5	2635 mm	103.74 "
6	3255 mm	128.15 "

BLADE Race 141	Measurement from front wire	
Batten Number	Metric	Imperial
3	1550 mm	61.02 "
5	2200 mm	86.62 "
6	2770 mm	109.05 "
7	3405 mm	134.05 "

BLADE Race 153	Measurement from front wire	
Batten Number	Metric	Imperial
4	1870 mm	73.62 "
6	2520 mm	99.21 "
8	3695 mm	145.47 "

14.3 Roll/Yaw Trim

Through time and use it is possible that you glider may become "unbalanced". The glider may turn one way or roll into a bank easier in one direction than the other. It is possible that the cloth may stretch asymmetrically if the pilot, over an extended period of time, consistently thermals in one direction. Hard landings or high "G" loads may also cause abnormal cloth stretch.

There are a couple of techniques which can be used to remedy a turn in your glider. It is important that you check the points 1 to 6 at the beginning of this section before attempting the following adjustments.

1) DIFFERENTIAL BATTEN TENSIONING. The tension can be increased on the elastics on the last three tip battens to remove a turn. This increase in tension increases the camber which causes more lift. This should be attempted on the slow wing.

2) TIP PLUG ADJUSTMENT. The tip plug can be rotated to increase or decrease lift on either wing. To remove a persistent turn the fast wing should have the tip fitting rotated upward to decrease the lift on that side. To remedy a right hand turn, for example, is to rotate the left hand tip fitting anti-clockwise if viewed from the rear of the leading edge. The tip fitting should be rotated a maximum of two holes from the standard position. The right side can be rotated anti-clockwise if the turn persists.

Ensure that the clevis pin is inserted fully after adjustment and that the neoprene cover is over the pin.

NB If the glider turns to the right we refer to the right wing as the slow wing.

Section 15
PERIODIC INSPECTIONS and MAINTENANCE

16.1 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 Elastics		3	3	3	3	4	4
Check Battens against template supplied		2	2	2	2	2	2
Wing wires and attachment fittings	2	3	3	4	4	5	5
Check leading edges, keel & A Frame for straightness, dents and corrosion		2	2	2	4	4	4
Remove leading edges, cross bar, keel & A Frame structural members and check for fatigue cracks radiating from drilled holes.				2	4	4	4
Check reflex bridle luff lines for kinks	2	2	2	2	2	2	2
Check Inspection Zips		2	2	2	2	2	2
Check Variable Geometry and compensator ropes, 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
Check hang straps and karabiners for wear or damage		2	2	2	4	5	5
Check Saddles and fittings for cracks		2	2	2	4	4	5
Check Security of King Post Base Grub Screws	2	2	2	2	2	2	2
Check Bottom Down Tube fitting and security of grub screws	2	2	2	2	2	2	2

It is recommended that:

(a) those items marked 1,2 and 3 be performed by the owner of the glider;

(b) those items marked 4 be performed by the owner in conjunction with another pilot; and

(c) those items marked with a 5 be performed by **Airborne** or an accredited **Airborne** service agent.

Log Book

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

17.2 Notes on Periodic Inspections

18.3.2 Airframe Tubing

19.4.3.1 Installation & Removal

When removing tubing do not bend or force tubes. When installing do not distort tubing from its original shape.

20.5.4.2 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 in and out. If corrosion is present the component should be replaced.

21.6.5.3 Replacement

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

22.7.6 Bolts

23.8.7.1 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.

24.9.8.2 Inspection

- Check bolts for worn shanks, bad threads or corrosion.

25.10.9 Sails

Sail Inspection

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

The 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.

CONTINUED EXPOSURE TO SUN DRAMATICALLY SHORTENS THE LIFE OF SAILS

26.11 Inspection after Hard Landing

It is necessary to do a detailed inspection following any unusual stressing of the Hang Glider this full inspection should include all details listed for six monthly maintenance.

The inspection should be noted in the log book, and any replacement to be recorded.

27.12 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 28 TRANSPORTATION AND STORAGE

Avoid damage to your glider by using well padded racks.

We recommend that you support the glider in at least 3 places to spread the load.

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.

SAFE FLYING

TEAM AIRBORNE

Section 29 MAINTENANCE RECORD

Date	Details of Repairs or Maintenance	Carried out by.

Section 30 HANG GLIDER COMPLIANCE SCHEDULES

31.1 Blade Race 132

GLIDER MODEL: Blade Race 132

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.		28. kg	62. lbs
Leading Edge Dimensions			
Nose Plate anchor hole to crossbar attachment hole		3015. mm	118.700"
Nose Plate anchor hole to rear sail attachment point		5230. mm	205.90"
Outside diameter at nose		60. mm	2.365"
Outside diameter at cross bar		60. mm	2.365"
Outside diameter at rear sail attachment point		34. mm	1.338"
Crossbar Dimensions			
Overall pin to pin length from leading edge attachment point to hinge bolt at glider centre line		2725. mm	107.284"
Largest outside diameter		63.5mm	2.500"
Keel dimensions [1]			
The cross bar centre load bearing pin	Loose	980. mm	38.58"
	Tight	1120. mm	44.09"
The pilot hang loop	Fwd	1315. mm	51.77"
	Rear	1345. mm	52.95"
Sail Dimensions			
Chord length at 3 ft outboard of centre line		1640. mm	64.566"
Chord length at 3 ft inboard of tip		975. mm	38.385"
Span (extreme tip to tip)		9360. mm	368.504"
Location of Information Placard			Rear Keel
Location of Test Fly Sticker			Front Keel
Recommended Pilot Hook in Weight Range		50-85 kg	110-287 lbs
Recommended Pilot Proficiency		Int/Adv	Hang 3/4

NB: Conversions 2.205kg / pound - 25.4 mm / inch

1 least and greatest allowable distances, whether variable through tuning or through in-flight variable geometry, from the line joining the leading edge nose bolts to:

32.2 Blade Race 141

GLIDER MODEL: Blade Race 141

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		3188. mm	125.512"
Nose Plate anchor hole to rear sail attachment point		5376. mm	211.654"
Outside diameter at nose		60. mm	2.365"
Outside diameter at cross bar		60. mm	2.365"
Outside diameter at rear sail attachment point		34. mm	1.338"
Crossbar Dimensions			
Overall pin to pin length from leading edge attachment point to hinge bolt at glider centre line		2907. mm	114.448"
Largest outside diameter		63.5mm	2.500"
Keel dimensions [2]			
The cross bar centre load bearing pin	Loose Tight	955. mm 1130. mm	37.60" 44.50"
The pilot hang loop	Fwd Rear	1328. mm 1372. mm	52.28" 54.00"
Sail Dimensions			
Chord length at 3 ft outboard of centre line		1740. mm	68.500"
Chord length at 3 ft inboard of tip		975. mm	38.385"
Span (extreme tip to tip)		9710. mm	382.283"
Location of Information Placard			Rear Keel
Location of Test Fly Sticker			Front Keel
Recommended Pilot Hook in Weight Range		65-105 kg	143-231 lbs
Recommended Pilot Proficiency		Int/Adv	Hang 3/4

NB: Conversions 2.205kg / pound - 25.4 mm / inch

2 least and greatest allowable distances, whether variable through tuning or through in-flight variable geometry, from the line joining the leading edge nose bolts to:

33.3 Blade Race 153

GLIDER MODEL: Blade Race 153

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.		35. kg	77. lbs
Leading Edge Dimensions			
Nose Plate anchor hole to crossbar attachment hole		3378. mm	132.992"
Nose Plate anchor hole to rear sail attachment point		5644. mm	222.204"
Outside diameter at nose		60. mm	2.365"
Outside diameter at cross bar		60. mm	2.365"
Outside diameter at rear sail attachment point		34. mm	1.338"
Crossbar Dimensions			
Overall pin to pin length from leading edge attachment point to hinge bolt at glider centre line		3087. mm	121.535"
Largest outside diameter		63.5mm	2.500"
Keel dimensions [3]			
The cross bar centre load bearing pin	Loose Tight	1060. mm 1230. mm	41.73" 48.43"
The pilot hang loop	Fwd Rear	1372. mm 1402. mm	54.02" 55.17"
Sail Dimensions			
Chord length at 3 ft outboard of centre line		1775. mm	69.881"
Chord length at 3 ft inboard of tip		975. mm	38.385"
Span (extreme tip to tip)		10120. mm	398.425"
Location of Information Placard			Rear Keel
Location of Test Fly Sticker			Front Keel
Recommended Pilot Hook in Weight Range		80-120 kg	176-264 lbs
Recommended Pilot Proficiency		Int/Adv	Hang 3/4

NB: Conversions 2.205kg / pound - 25.4 mm / inch

3 least and greatest allowable distances, whether variable through tuning or through in-flight variable geometry, from the line joining the leading edge nose bolts to: