Gecko

Owner's manual

Moyes Delta Gliders Pty. Ltd.

Version 3


MOYES

CONTENTS

AMENDMENTS

Version	Date	Changes
1	20 March 2016	Initial release
2	11 November 2016	Pictures, Pre-Flight Checklist, Flying the Gecko, Bolt Index & List, Labelled Parts Diagrams
3	16 December 2016	Additional pictures and details on setting up the Gecko

DOCUMENT FORMAT

This document is formatted for double sided printing. The odd numbered pages have a wider margin on the left and the even number pages have it on the right to allow for binding along the edge.

INTRODUCTION

Thank you for choosing the Moyes Gecko. You have chosen wisely. The Gecko incorporates the latest in intermediate hang gliding design technology.

Since 1967, Moyes Delta Gliders have been leaders in hang glider development. We provide a comprehensive international network to service all pilots. We work with some of the best pilots in the world to ensure that our gliders are stringently built and tested to improve their performance, handling, and safety.

This glider is intended for intermediate and experienced pilots who want a glider that is easy to fly and also has the wings to make those longer and faster glides so you can achieve your personal best in cross country flights.

The Gecko bridges the gap between beginner and topless gliders, providing a very capable glider for either the advancing pilot or the advanced recreational pilot.

Please read this manual thoroughly, familiarise yourself with the set up and pack up procedures, and take the time to practice these before going out to your site.

If in doubt about of any aspect of operating your Gecko, consult your manual or seek advice from your Moyes dealer. Moyes is happy to help with advice and hints.

We wish you the very best flying,

The Moyes Team

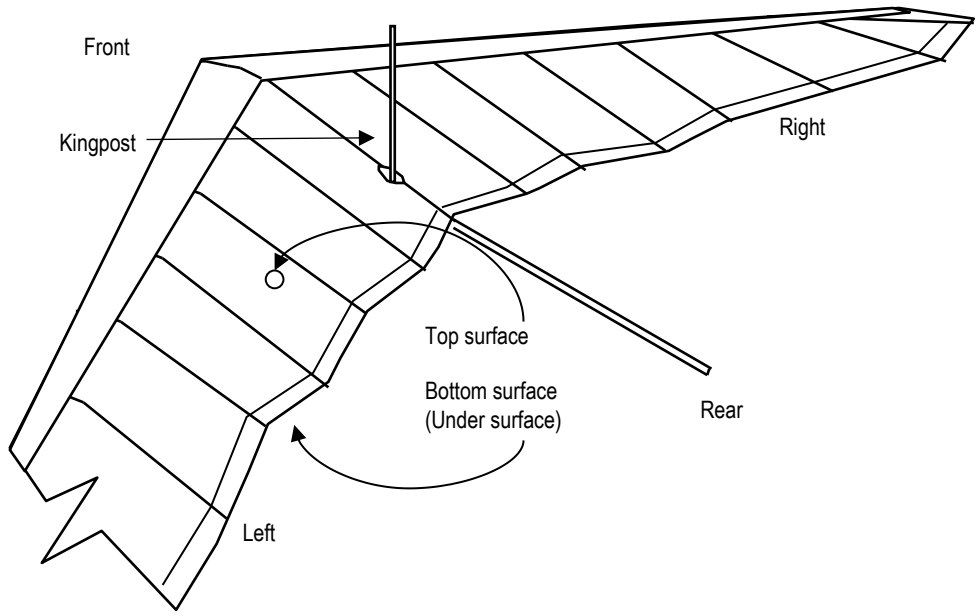
Moyes Delta Gliders Pty. Ltd.
Unit 4 / 5 Clerke Place, Kurnell NSW Australia **T**: +61 (0)2 9668 8686 **E**: moyes@moyes.com.au

www.moyes.com.au

ASSEMBLY FROM SHORT PACK TO FULL LENGTH

You may have received your glider “short packed”. This is when the outer leading edges have been removed and packed in with the rest of the glider so the packed length is shorter. Normally your Gecko will have been assembled to full length by your dealer. If your glider is already full length, skip this section and go to the Set Up Procedures section.

All references to “top”, “bottom/under”, “left” and “right” refer to the side of the glider when set up in flying mode.



1. Unzip the glider bag and roll the glider so that the top is up. Undo the straps and extend the sail.

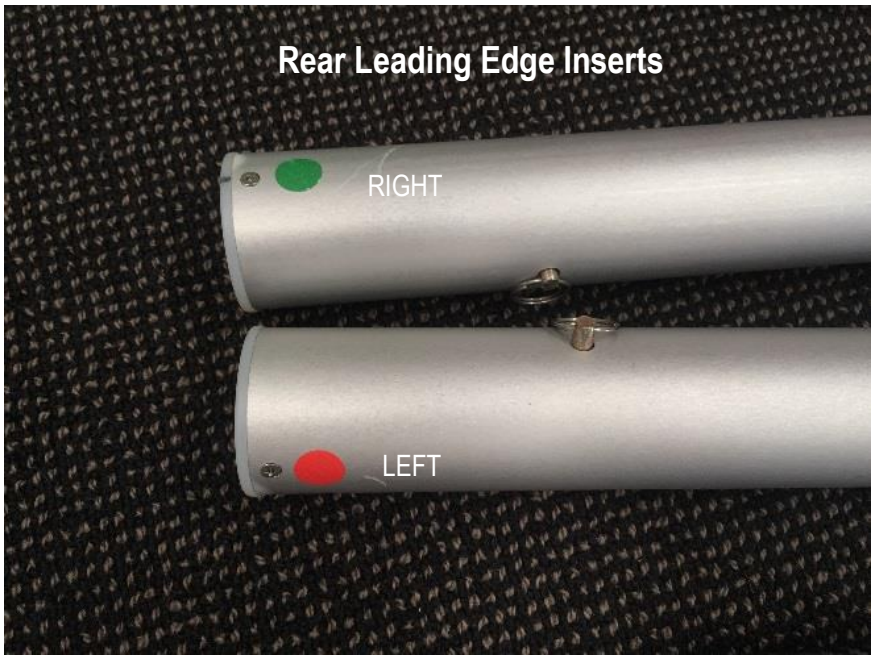
! NOTE

The LEFT and RIGHT sides always refer to the side when the glider is set up and ready to fly and pilot is in the control frame. If you are unsure, identify the kingpost from the rear as a reference for orientation.

2. Remove the rear leading edge tubes which are packed separately in the same box. Remove the packaging.

3. Expose the leading edge/cross bar junction through the inspection zipper. Remove the packaging from the end of the front leading edges.

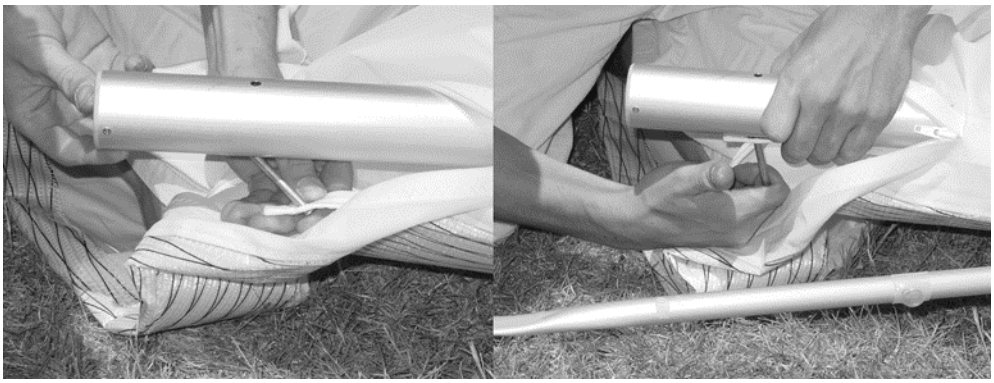
4. Get the rear leading edge tubes and identify the left and right sides by the color of the sticker. LEFT is RED, RIGHT is GREEN. Lay the leading edges on the ground in the approximate place along the wing where they will go. The dive strut cable must be on the top of the leading edge and the dive strut must fold towards the rear.



5. On the sail wing tip, open the zip. Take the rear leading edge and slide it inside the sail. As you proceed, rotate the dive strut forward and hold against the leading edge so it can slide in past the cloth rib.

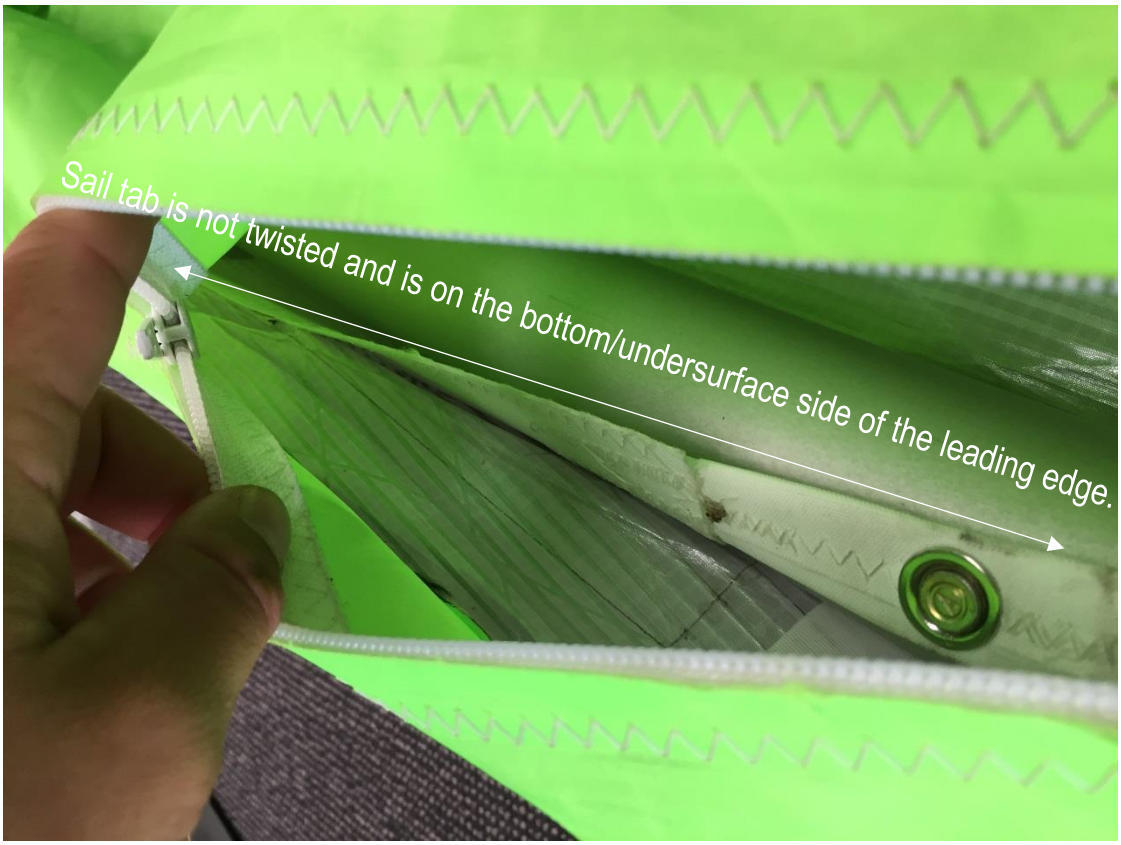
6. Push the rear leading edge into the front leading edge. Continue to slide the back section in until the slot locates the clevis pin in the front section. If the back section is located properly it cannot be rotated. Make sure the rear leading edge is pushed all the way in.

7. At the wing tip, the sail is held in place by a sail tab and a clevis pin that fits through the leading edge. <u>The sail tab goes to the bottom of the leading edge</u>. Insert the pin through the grommet and into the bottom hole of the leading edge at an angle. Straighten the clevis pin while sliding the sail tab towards the leading edge. <u>Ensure the sail tab is not twisted and is on the bottom of the leading edge</u>. It must not be on the top! Secure pin with safety ring.



! CHECK

Verify the sail tabs are on properly. Check again after the glider has been set up.



! ALERT

The proper attachment of the sail tabs are critical to safe operation!

8. Close the zippers at the wing tip and leading edge mid section.The long zipper for the dive strut pocket must be left OPEN.

SET UP PROCEDURE

1. Place the glider (still in the bag) on the ground with the rear into the wind and the zipper up. Undo the zipper.

2. Undo the ties that hold the control frame; remove padding and spread the uprights.

3. Connect the basebar to the corner brackets with the pip pins.
   If the glider is fitted with aerofoil uprights and a round speed bar, note that the basebar will have a top and bottom. When in flying mode the middle bend in the speed bar is forward and is angled downwards slightly.

! NOTE

With standard uprights, the uprights will naturally toe-in. Hold the base bar and the upright, twisting the upright so the connection lines up.

! CHECK

Check that the pip pins are pushed all the way through and secure.

4. Remove the batten bundle and any padding.

5. Lift and roll the glider so that it is standing on the control frame.

! NOTE

It is possible for the glider bag to catch the wind when rotating onto the control frame. The bag may be removed before rotating, however, at least one tie must be secured to prevent the sail from catching the wind. The wind has been known for catching gliders during set up. Don't let it catch you off guard!

6. Attach the nose wire.

7. Manoeuvre the glider so the keel and wing tips face into the wind.
8. Remove the glider bag and any remaining straps. Take it from the nose first to avoid the bag pulling the glider over should it be caught by a strong gust. Remove remaining ties and padding.
9. Move to the nose of the glider. Slip the sail tab over the keel. The sail tab keeps the glider in place and from sliding back. Failure to attach the tab will stretch the sail as it slides back.
10. Insert the nose batten. The batten may need some “feeding” through the sail by pulling the sail forward to remove any wrinkles. The front of the batten fits over the lug on the keel. After initial assembly you may leave the nose batten located on the lug.

! NOTE

It will be impossible to place the nose batten on and sail tab if you forget these steps and continue to set up the glider.

11. Spread the wings, taking care any wires are not snagged or kinked. Ensure that the king post rises straight up. This prevents twisting of the keel mount bracket.

! CHECK

Check the bottom wires are not twisted or kinked.

12. Move to the rear of the glider. At the keel, pull the rear pullback cable coming out of the keel pocket. Pull it back and clip it into the catch (Bailey Block) at the rear of the keel. In strong winds the glider can be difficult to tension. Have a helper gently raise and pull forward one wing.

! ALERT

DO NOT USE EXCESSIVE FORCE WHEN TENSIONING THE GLIDER.

If excess force is encountered check:

- ✓ The side wires are not twisted or kinked.
- ✓ The cross bar retainer wire is not caught on the nose plate assembly.
- ✓ The pullback cable or VG pulleys are not caught in the hang loop assembly.

13. Clip the king post rear wire into the Bailey Block.

! NOTE

Optional: The glider has a removable rear keel section that can be used as a prop to raise the rear of the glider. This makes it easier to insert the battens and access the dive strut.
CAREFUL: Any breeze can cause the glider to fall off the prop and damage the glider.
This approach is best for nil or light wind.

14. Take the battens from their bag. Familiarise yourself with the functioning of the batten flip tips. Do not use force to release them as that will break the clasp. To release them, squeeze the tip and lift. The batten length is adjusted by screwing the tips in and out. The length has been adjusted at the factory and should be correct.

15. Gently insert battens 1-6, moving from the centre of the wing towards the wing tip. Use light force when inserting the battens as this will avoid wear on the batten pockets. Red tipped battens are for the left wing, green for the right. If the battens fail to slide in completely, first check if it is the correct batten for the pocket. It is most likely that the batten has stopped against the back of the leading edge and requires lifting over to the front. To do this either flick the sail up and gently push the batten at the same time, or walk to the front and lift the sail forward bringing the batten tips over the leading edge.

16. Get the carbon fibre tip rod. At the wing tip, open the Velcro that holds the under-surface to the top surface. Slide the fibreglass rod through the Velcro opening and into the end of the leading edge. Make sure the label marked on the fiberglass tip is facing upward. Ensure that the rod is pushed hard against its stop. If you have difficulty locating the rod into the leading edge, open the zipper at the end of the leading edge to access the rod and leading edge hole. Close the zipper.

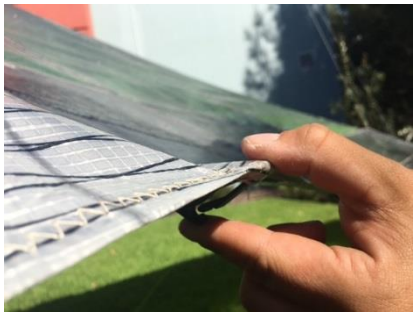
17. Fit the aluminium cup of the tip lever over the end of the tip rod and tension tip by rotating the flat end of the tip lever inboard. For extra leverage, place your thumb through the loop that is attached to the end of the tip lever. Make sure the tip lever is locked against the tip rod. Close the Velcro.

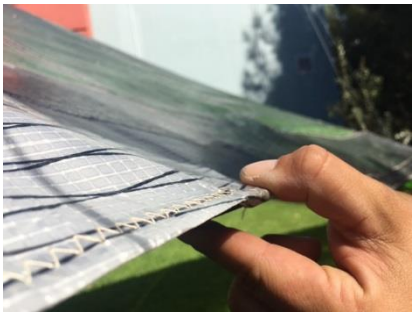
! CHECK

Make sure the tip lever is consistent on both sides when locked. The tip lever will be latched down slightly above or below the tip rod when locked in place.

18. Insert the remaining battens.

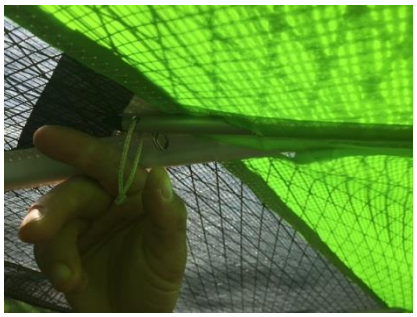
19. Secure each batten by inserting the tip into the trailing edge fold, then rotating the tip end downwards until it locks in place. The batten lengths have been adjusted in the factory and should not need adjusting.

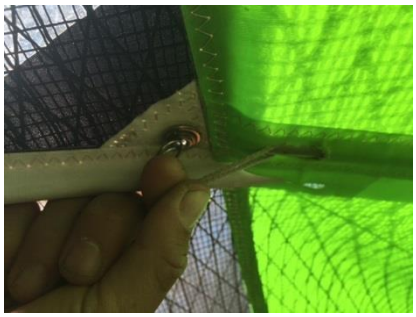




20. At the under-surface of the glider, locate the wire-braced dive struts and place them inside the sail below the webbing loop. Close the zipper and this will create the loop necessary to hold the struts in place.

21. Insert the 4 under-surface battens through the small holes in the under-surface. Once fully inserted, pull each batten back slightly to secure it within the pocket.





22. Insert the speed battens and Mylar inserts on both sides. The Mylar insert pockets are located in the under-surface trailing edge, third panel in from the tips. The speed batten pockets are located between battens 7 and 8. Neither need to be removed once installed.


23. Attach the nose cone.

24. At the centre of the under-surface, open the zipper and remove the padding from the hang loop ‘dingle-dangle’. Rotate the ‘dingle-dangle’ such that it is perpendicular to the keel and the hang loop is not tangled or twisted. Poke your head inside the double surface and inspect the frame. Close the zipper.


25. Clip your harness carabiner into the hang loops. There should be no tension on the back-up safety loop when the harness is in the flying position. Ensure that the carabiner is closed and the hang loop is hanging straight from the keel.

Harness Adjustment

It is best to have your hang loop and harness adjusted as low as possible within the control frame (2 – 7 cm above the base bar). This lower position gives maximum stability and allows greater control input. It also gives better glider feedback.

If you need to raise or lower your harness, change your hang loops. Do not tie knots in them. Your Moyes dealer can supply different length hang loops.

The hang loop backup should be properly secured around the keel. The hang loop main plates are secured to the dingle-dangle with a nut and bolt. The nut should be tight enough to expose thread, but just loose enough to allow the hang loop plates to freely swing forward and back without friction.

PRE-FLIGHT CHECK

Follow the same routine every time you set up. If you are distracted, begin again. A good habit is to touch or point to each component so the check is more than a cursory glance. Items to check include:

Hang Loop	Hang loop properly secured No knots or twists Harness hooked in and locked
Crossbar	Ball centred in socket joint No bends or dents
Control Frame	Upright connections properly secured with visible thread Upright pins in place and secured by safety ring (4 total) Basebar secured to uprights by pip pin
VG	VG tested with stopper knot in place VG set for launching conditions
Nose Wires	Ring attached to Bailey block Free of kinks and fishhooks
Nose Plates	Plates are straight and free of cracks, bends, dents Nose batten attached to top plate Wires and thimbles attached and straight
Leading Edge	Feel along leading edge for dents, bulges, bends Visual inspection within sail for damage Inspect side wire connection Safety rings in place
Wing Tips	Carbon tips properly secured Dive struts properly seated Zippers closed and Velcro fastened
Battens	All battens fastened
Luff Lines	Safety rings attached Free of kinks and fishhooks
Side and Rear Wires	Free of kinks and fishhooks Wires are properly fastened around thimbles
Keel	Tensioning cable straight and shackle fastened to Bailey Block Kingpost wire fastened to Bailey Block
Sail	Free from holes and tears Screws tightly secured to frame at nose, keel, and wing tips Sail tabs are straight and not twisted
Nuts and Bolts	Ensure all nuts and bolts are tight and secure

! NOTE

Never detach the harness from the glider until you are packing up. Climb into your harness AFTER it is attached to the glider. This will avoid the risk of taking off without being attached.

The glider is now ready to fly!

Climb into the harness making sure your legs are through the leg loops. Check harness height, helmet, instruments, wind at launch and broader conditions.

FLYING THE GECKO

The Gecko is an intermediate hang glider with easy handling and outstanding performance. It shines in the climb, exceeding in even the lightest lift. One of the features that makes the Gecko unique is its transformation from zero to full VG. With VG on for best glide, the Gecko covers ground efficiently.

Ground Handling and Launching

The Gecko's launch characteristics are mellow and predictable. The tight side wires will give you good control over "wings level" before launch. With a proper angle of attack the weight of the glider is balanced. The glider will lift at low air speeds and responds quickly to inputs.

In Flight

The glider is trimmed to fly a little faster than stall speed so you should not need to apply much pitch input.

The Gecko banks well in thermals and allows the pilot to conserve energy for long flights.

Towing

The Gecko can be towed by 3 point or pro tow (2 point), depending on pilot preference. When towing, the pilot may want to use a quarter or third VG to reduce bar pressure. However, the Gecko can be towed with zero VG as well.

Landing the Gecko

The success of any landing is linked to the accuracy and planning of the approach. Leave ample time to plan and set up a safe landing with room for variable conditions or misjudgement.

If there is wind be ready for the wind gradient by flying a little faster.

While there is still enough airspeed left to flare, slowly increase your rate of push out bringing it to a full UP and OUT arm extension. If the glider is gusted up or you have too much airspeed, stop pushing (but do not pull in) until that energy has been used, then complete the flare. Never swing your legs forward in anticipation of landing as this can lead to a nose-in.

Laying the Glider Flat

If the wind is over 16 kph (10 mph) and you wish to park the glider safely, it is best to lay the glider flat on the ground with the nose into the wind. To do this, lift the nose cone to expose the nose catch assembly. Whilst holding the keel so the glider can't blow over, remove the nose wire ring from the Bailey Block and carefully walk forward with the nose of the glider allowing the control bar to fold back under the glider until you have lowered the wing to the ground.

For landing, we recommend zero VG in switchy conditions, and a quarter to a third in light or no wind conditions. The Gecko offers a large, obvious flare window, making a crisp and clean flare easy.

If the glider is to be parked for any length of time, or if the wind is quite fresh, it is also advisable to prop the rear of the keel up a few centimetres to prevent the nose from being lifted by the wind. From here the glider can be quickly reassembled or broken down.

PACK UP

Pack up is a reversal of the set up procedure.

1. Turn the wings so that the wind is blowing on to the back of the glider.
2. At the keel, open the under-surface zipper. Turn the dingle-dangle so it is parallel with the keel. Put the padding on the dingle dangle.

3. Remove the nose cone.
4. Remove the under-surface battens. Push them forward at first to release them from the rear pocket.
5. At the wing tips, unzip the dive struts and fold the struts towards the leading edge.
6. Remove batten numbers 5 to 8. Be careful opening the batten flip tips; no force is required other than squeezing. Do not force them open or the clasp will break.
7. **Make sure the dive struts are out**! .
   At the wing tip, open the Velcro under-surface, detention the tip lever and remove the carbon rod.
8. Remove remaining battens.
9. Gather the batten curved ends together and feed them into the bag in a bundle.
10. The nose batten stays in the glider attached.

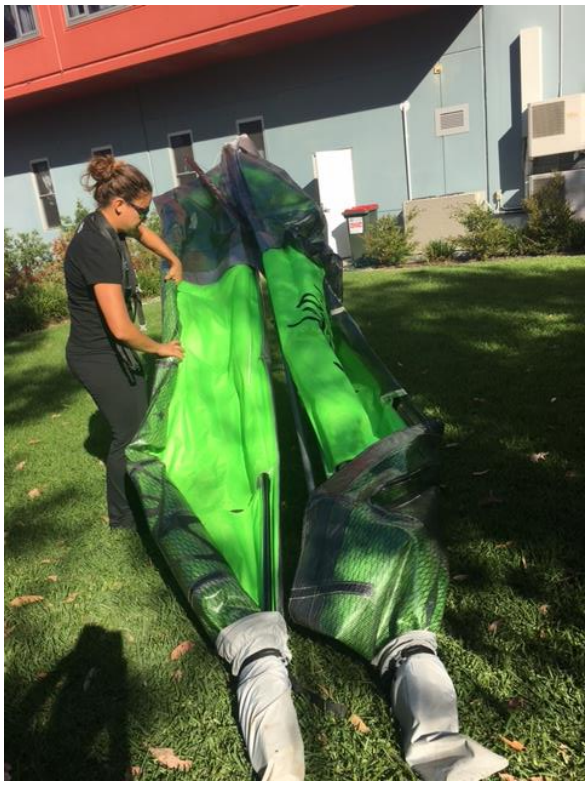
11. At the wing tip, fold the sail leading edge back with the carbon insert pocket parallel to the leading edge. Roll the sail up from the trailing edge towards the leading edge. Wrap the tip around the rolled cloth. Fit the sail and the dive strut into the tip bag.

12. Insert the keel if it has been used as a prop.

13. At the rear of the glider, unclip the crossbar pullback and kingpost rear wire. Slide the keel padding over the Bailey block and tangs.

14. To fold the wings in, go to the rear of the keel and grab the trailing edge on either side. Lift in and up so that the centre section can slide along the keel without binding. If any sail is trapped between the keel and leading edge, pull it out from the top and lay it out to the sides. Bring the leading edges in against the keel.

15. Twist the kingpost 90 degrees and lower it. Place padding cap on end of king post.



16. Roll the sail starting at the already rolled tips until it lays against the leading edges. Roll loosely; tight rolls tend to encourage wrinkles.

17. Attach the sail ties loosely around glider, going from the wing tip to nose. Then tighten the ties, moving from nose to wing tip. Adjust and tidy the sail such that the leading edge Mylar overlaps smoothly with no kinks.

18. Tuck nose cone into the rolled wings.

19. Place the glider bag over the wing tips first then the nose. This prevents the wind from catching the bag and pulling the glider over. Lay the glider over on its back.

20. At the control frame, remove the basebar and put the pip pins back in the uprights. Lay the control frame uprights back along the keel. Undo the ties and re-secure them over the control frame, enclosing the frame inside the sail leading edge. Fit padding to the bottom of the uprights and straddle them over the keel. Pull wires forward and tuck wires carefully inside the sail.

21. Place the battens between the leading edges, with the camber at the wingtip end of the glider. Fit padding to the basebar ends and arrange it next to the battens.

22. Zip up the bag.

SPECIFICATIONS

	Gecko 155
Area	14.4 sq. m 155 sq. ft.
Span	9.66 m 31.7 ft.
Nose Angle	124 degrees
Aspect Ratio	6.5
Glider Weight	29.5 kgs 51 lbs
Optimum Pilot Weight	55 - 86 kgs 120 - 190 lbs
Hook-In-Weight	72-92 kgs 159-203 lbs
Packed-Length	4980 mm 16.3 ft.
Short-Packed Length	3650 or 3920 mm 11.9 or 12.8 ft.
Number of Battens: **Top** **Bottom**	 16 4
Double Surface	70 – 90 %
VNE (Velocity Never Exceed)	85 kph 53 mph
VA (Design manoeuvring speed)	74 kph 46 mph
Trim Speed	32kph 20mph
Stall Speed	26kph 16mph
Max Speed	90 kph 56 mph
Best Glide Speed	40 kph 25 mph
Best Glide Angle	13:1

DESIGN NOTES

This glider meets the Moyes standard for safety and performance.

Pitch stability and dive recovery come from the sail twist and the combination of the luff lines and the dive struts. It is important to understand that any alteration to dive strut settings, luff line lengths or batten profiles may reduce the glider's pitch stability.

The Gecko meets or exceeds all DHV airworthiness standards. DHV is a German airworthiness standard broadly accepted in Europe.

OPERATING LIMITATIONS

The glider has been tested to these limits

- with a positive 30° angle of attack at 100 kph (65 mph);
- with a negative 30° angle of attack at 74 kph (46 mph);
- with a negative 150° angle of attack at 51kph (32 mph);
- Pitching moment tests at 32, 56 and 80 kph (20, 35 and 50 mph) to display the gliders inherent positive pitch stability.

The Gecko has been designed for foot-launched gliding or soaring flight with the following limitations:

The glider must not:

- be flown by more than one person;
- exceed 30 degrees nose up or down to the horizon;
- exceed 60 degrees bank angle to the horizon;
- be flown in excess of V.N.E. of 90 kph (56 mph);
- be flown inverted or backwards;
- be flown with auxiliary power without the approval of Moyes Delta Gliders Pty Ltd.

Adhere to the recommended pilot clip-in weights as detailed in the specification.
Indicated stall speed is approximately 26 kph (16 mph) at maximum loading.

DISCLAIMER

The owner and operator must understand that due to the inherent risk involved in flying such a unique vehicle, no warranty is made or implied of any kind against accidents, bodily injury or death. Operations such as aerobatic manoeuvres or erratic pilot technique may ultimately produce equipment failure and are specifically excluded from the warranty.

This glider is not covered by product liability insurance, nor has it been designed, manufactured or tested to any state or federal government airworthiness standards or regulations.

GENERAL TUNING HINTS

Your Gecko is test flown prior to delivery. Unless it has been damaged in transport it will arrive with standard factory trim.

The flight characteristics for proper "trim" setting are as follows:

- Trim speed without pilot input is approximately 4 kph (2 mph) above stall speed.
- The glider will produce bar pressure to return to this trim setting whether it is slowed below or accelerated above this speed.
- The glider will fly straight unless acted upon by variations in the air.
- The glider will bank evenly, both to the left and right, showing no differing tendency to increase the bank (wind in to the turn) or to flatten out in the turn, thus coordinating identically in both directions.

If you are unsure about making adjustments please seek assistance from your Moyes dealer or at least a more experienced pilot.

Whenever you make adjustments, only change one thing at a time.

Check the simple things first

Batten tensions: The flip tips should be as loose as possible without leaving any wrinkles in the sail on top of the batten pocket. To adjust the batten length wind the flip tip in or out (they are threaded) Check the tip batten is inserted correctly (with the bend down).

Batten shape: Compare the battens of each wing and make sure they match. If there are differences you will need to check them against the profile that came with your glider.

Do not alter the dive strut setting or luff lines from original setting and specifications. Alteration of these could affect the glider's pitch stability and would possibly go undetected in normal flight conditions.

Trim Speed

Your glider is delivered with the correct trim setting. Do not alter this without first discussing it directly with Moyes or your Moyes dealer.

Trim speed adjustment can be achieved by moving dingle-dangle forward to increase trim speed or aft to reduce trim speed. Each hole position is equivalent to approximately a 1.5mph (2.5kph) change of trim speed.

After many hours of flight time the trim speed may change as the sail deforms. This is a normal process for all gliders.

Bent or Damaged Leading Edge

A bent leading edge will create a turn. Mild bends may not be obvious when the glider is assembled.

Remove the leading edges (start with the one on the side to which the glider seems to turn) and check them for bends or dings. If you cannot find a bend, one of them may have been stressed and as a result, now displays a slightly different flexing characteristic to the other. (You will find directions for sail removal and leading edge removal in the Maintenance section.)

If the leading edge is bent beyond straightening (i.e. if grazing of the anodising is evident then the bar is likely to be beyond salvage.) or, is dinged then it will need replacing either as a front or back section, or both.

To straighten, place the centre of the bend mid-way between two well-padded supports, with the bend curving up, apply a steady downward force releasing once the bar flexes just beyond a similar deflexion in the opposite direction to the bend. Carefully inspect the tube to assess any improvement and repeat, becoming gentler as the bend is reduced. Never over-straighten and if the bar seems to return to straight or beyond without much effort then it has been over-stressed and will need replacing. Always look for signs of crazing and feel for deformation around the vicinity of the bend.

! NOTE

This repair is very delicate and should only be attempted if the bar is only slightly bent. It is always a good idea to consult your Moyes dealer before rushing in.

Turning Adjustments

If your glider has a developed a turn in one direction or the other, please check the previously mentioned basics.

There are several options for adjusting turns and these are;

- Outer eccentric ring setting
- Dive strut setting

You may need advice from Moyes or your Moyes dealer who will be more than happy to provide assistance.

GLIDER CARE

General Hint: If you are replacing any components, keep the old one so that you can check the dimensions of the new one when it arrives.

Post Flight

After coastal flying and particularly on sand dunes, the glider will be covered with a thin layer of salt spray. Wipe down the tubes and wires with a towel or cloth. Clear sand out of the wing tips and fittings so that it does not spread through the glider.

Storage

Keep the glider in its bag and store in a dry place out of the sun. It is best if the glider is stored on padded racks where the air can circulate. Avoid leaving the glider on the floor or ground for any length of time as this allows ground moisture to work its way in. Don't keep the glider in air tight tubes or bags; the slightest moisture trapped can cause mildew.

If you fly on the coast it is advisable to regularly flush your glider with fresh water. Leave the glider open in the sun to dry COMPLETELY, including the inside of the bars, before packing away.

If the glider is damp after a day's flying, dry it in the sun the next day. If this is not possible, place the glider bag zipper down on your storage rack, open the zipper full length and release all the glider ties. Loosen up the sail so that air can circulate as much as possible. Set-up and dry properly on the first sunny day.

Sail Care

Avoid contact with any oils, solvents, caustic or acidic substances. This includes salt water, salty sand, animal dungs, and preservative treatments such as Armour All. If the sail must be washed, use fresh water. For stubborn stains a weak detergent may be used provided it is THOROUGHLY rinsed from the sail cloth.

Sail materials are deteriorated by ultra violet light, keep the glider in its bag when not being flown and out of the sun.

For small rips and tears on non-stressed areas, sticky-back sail repair tape can be used. A sail maker should make any repairs to larger tears or damage on high-stress areas, such as along the trailing edge and at sail mounting grommets.

Use the protective padding supplied when packing up your glider and check that no sail is caught between metal fittings. Abrasion caused during transportation is common. Watch for rub spots on the sail or frame and add padding or change you pack up method to stop them.

Battens

The battens usually hold their shape well unless there has been an incident or undue wind pressure on the back. If reshaping is required, warm the tube first by rubbing and avoid over working the tube.

Sand in the batten pockets abrades the pocket ends. When inserting battens wipe off dirt and sand.

Rigging Wires

If there is any fraying or kinks, replace the wire immediately. Keep a constant eye for damage to the outer plastic coating or any discolouration as these are a sign that damage may exist either from an external force or from corrosion.

If the thimble has been elongated, then the cable, thimble and nico-press have been exposed to a force of over 300-400 lbs. Once again, replacement of the wire is advised.

If your wires are immersed in salt water, it is advisable to at least replace your bottom side wires.

Tubing

For heavy coastal use, you might try polishing exposed tubes with car wax to create a barrier. You can also coat the inside of tubes with linseed oil. This is a job for non-flying days.

Contact with salt air and water are a major concern and removal of the tube end caps will be required to thoroughly flush out with fresh water. Corrosion and electrolysis set up amazingly fast.

Transportation

Use good padding between the glider and racks. Three support points should be used, with the glider being firmly tied at all three points. Avoid unequal overhang at the ends.

The glider can be transported on its back or bottom. When it is sitting on the racks feel around the pressure points for fittings and move the glider for or aft to get the least wearing position.

MAINTENANCE SCHEDULE

Every 50 hours (or 6 months):

- Check battens against template.
- Inspect the sail. Apply sail repair tape to any small rips or tears. Check the stress areas of the sail, luff line attachment, sail mount screw grommets, king post opening. Tears or nicks in the trailing edge will need professional sail repair. Wire slots are also prone to wear under certain conditions. Critical damage should be repaired by a professional sail maker.
- Batten cords at wing tip.
- Inspect crossbar tensioning rigging and fittings.
- Crossbar ball and socket joints, nuts, and bolts, and associated components.
- Check all tubing for dings, bends and wear damage.
- Inspect cables for broken strands with special attention to the thimbles and attachment points. Check any areas with plastic coating damage more closely.
- Check that thread shows beyond all locknuts and that safety pins and rings are serviceable and not prone to accidental opening.

Every 100 hours (or 12 months):

- Replace side wires.
- Recommended: a complete strip down of the glider removing all components and tube end caps so that every component can be fully inspected.
- The annual inspection can be done by you but preferably your Moyes dealer or a qualified hang glider technician.

CHECKING THE STABILITY SYSTEM

The stability system is the dive struts and the luff lines.

The dive struts are set at an angle relative to the keel. This is correctly set at the factory and should not be changed without factory advice. This angle is set with an inclinometer.

Luff line lengths

The luff line length is fixed and cannot be adjusted.

SPARE PARTS ORDERING

You should order your spare parts from your Moyes dealer.

Gliders have a unique serial number located on the nose plate and on the sail. The number is the same on both.

- On the nose plate, the serial number is attached with a sticker
- On the sail, the serial number is located inside the under-surface zipper at the nose.

Photograph courtesy of www.flygirl.co.za

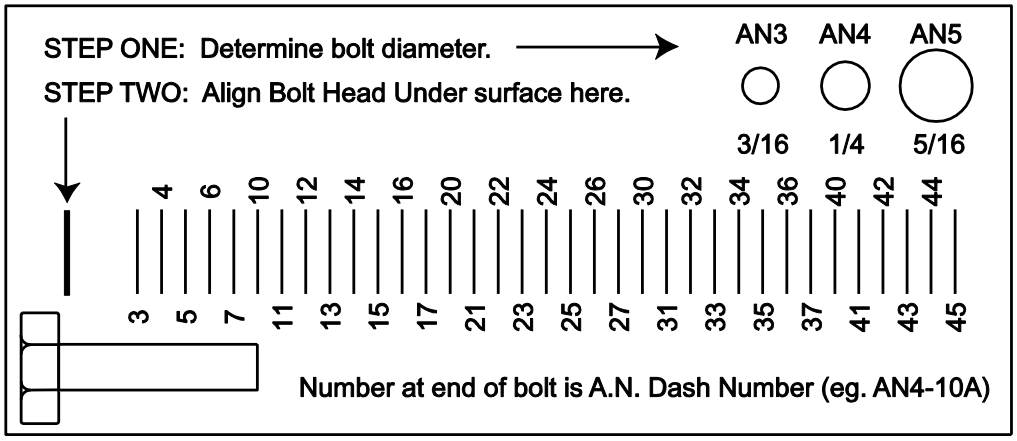
The serial number format is like this;

Database number				Month / Year manufacture				Model ID				Sequence no.		
6	1	3	4	0	8	1	6	G	1	5	5	1	2	9

When ordering a part, specify the following details;

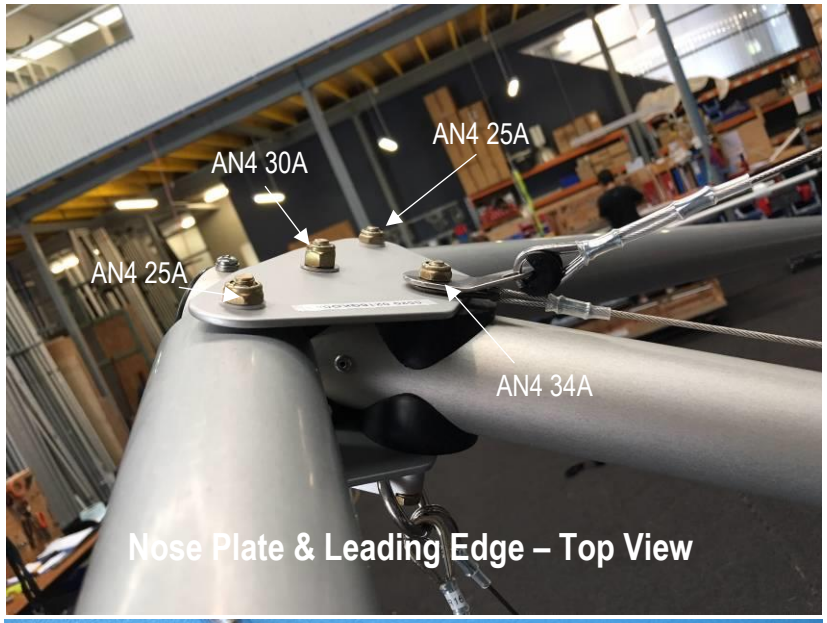
- Glider serial number
- Model – Gecko
- Size – 155
- Upright - Aerofoil or Zoom uprights
- Speedbar - carbon, fast or round.
- Left or right
- If you know the name of the person who ordered the glider new, that can also be helpful information as the factory can reference the original order specifications.

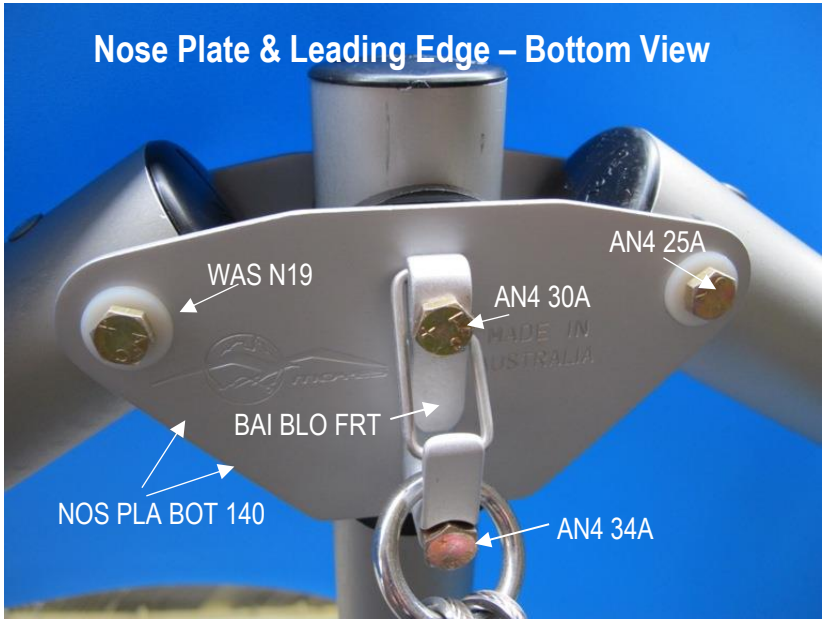
BOLT DIAGRAM

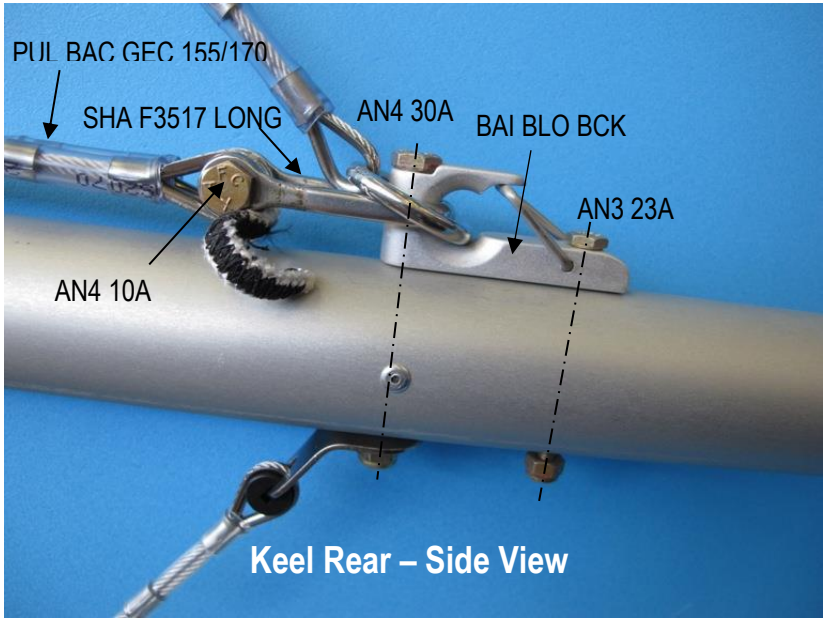


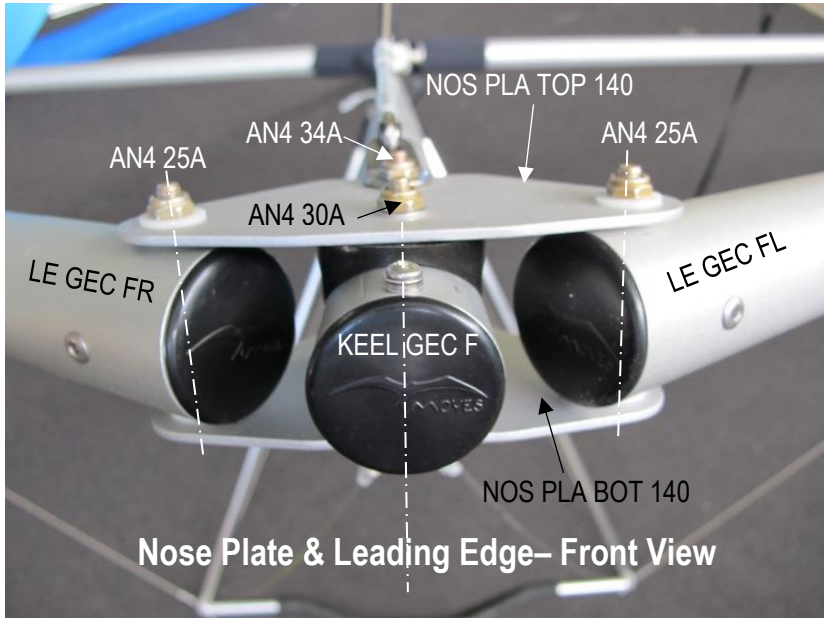
BOLTS AND PINS LIST

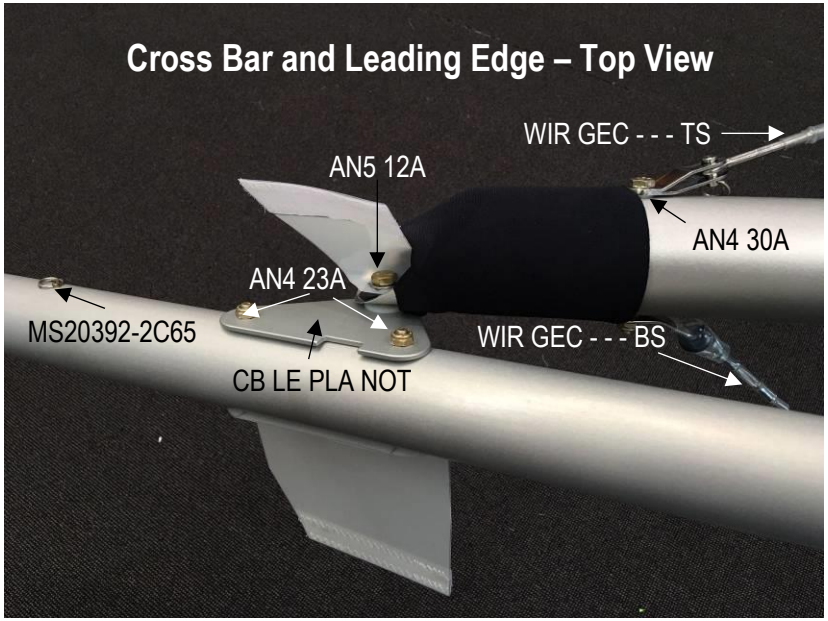
Junction	Part No.	Qty.	Nut	Washers
Nose Plate & Leading Edge				
Nose Plate/Leading Edge	AN4-25A	2	HALF	2 MED PL
Nose Plate/Keel/Front	AN4-30A	1	FULL	
Nose Plate/Keel/Back	AN4-34A	1	HALF	
Keel/Bailey Block Front	AN4-30A	1	FULL	
Keel Rear				
Keel/Bailey Block Back	AN3-23A	1	FULL	1 SS
Pullback Shackle	AN4-10A	1	HALF	
Keel/Kingpost Bracket	AN4-31A	1	HALF	1 SS
Cross Bar & Leading Edge				
Leading Edge/Cross Bar Plate	AN4-23A	4	HALF	4 SS
Cross Bar Leading Edge Hinge	AN5-12A	2	FULL	1 Pla Spc, 2 SS, 1 Pla Spc
Leading Edge/Mid-Section	MS20392-2C65	2	RING	
Cross Bar Center				
Cross Bar/Center (Right Hand) Rear	AN4-30A	1	FULL	2 PLASTIC
Cross Bar/Center (Right Hand) Front	AN4-30A	2	FULL	1 SS
Cross Bar/Center (Left Hand)	AN4-30A	1	FULL	2
Cross Bar/Center Ball	AN4-25A	1	HALF	1 SS
Cross Bar/Center/Hinge	AN4-12A	1	HALF	1 Pla Spc, 1 SS
Cross Bar/Top Wire Mount	RF347	2	RING	
Cross Bar/Top Wire Mount	AN4-30A	2	HALF	2 SS, 2 SML PL
Strut & Leading Edge				
Strut/Leading Edge	AN4-11A	2	HALF	
Strut/Outboard Ball Joint	ROD END – PM5G			2 x 3.8mm SS Spacer
Strut/Outboard Cone/Tube 26mm	MS20392-2C33	2	RING	
Apex				
Zoom Uprights	MS20392-2C25	4	RING	
Dingle Dangle Hangloop	AN5-34A	1	HALF	
Dingle Dangle Keel	AN4-25A	1	HALF	1 SS
Dingle Dangle T Connector	AN4-12A	1	HALF	1 SS
Kingpost Bracket				
Zoom A Frame	AN4-11A	1	HALF	
Keel/Control Bar (A-Frame)	Upr End Pin Zoom Top AN3	2	FULL	1 Spacer, 1 SS Plastic
King Post	AN5-31A	1	HALF	1 SS (5/16-5/8)
Top VG Pulley Keel Screw	PAN 8G 3/4			
Misc. Not Pictured				
Leading Edge/Sail Tension Retainer	MS20392-3C69	2	RING	
Strut/Outboard Wire	MS20392-3C27	2	RING	
Strut Outboard Wire/Leading Edge	MS24694S-131	2	HALF	1 SS, 2 PLST
Sail Screw Nose	CSK 10G 16 x ¾			4 WAS N11, Plastic Spacer
Sail Screw Keel	CSK 4G ¼			1 WAS N11
King Post	MS20392 3C15/3C11			
Tip Wand Holder	MS24694-554 (AN3)	2	HALF	N11

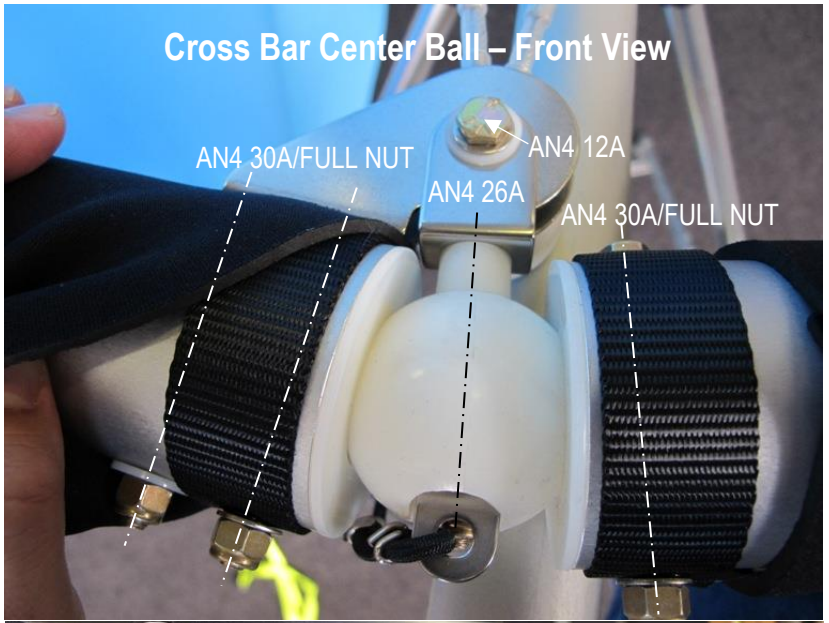

AN4 30A
AN4 25A
AN4 25A
AN4 34A
Nose Plate & Leading Edge – Top View

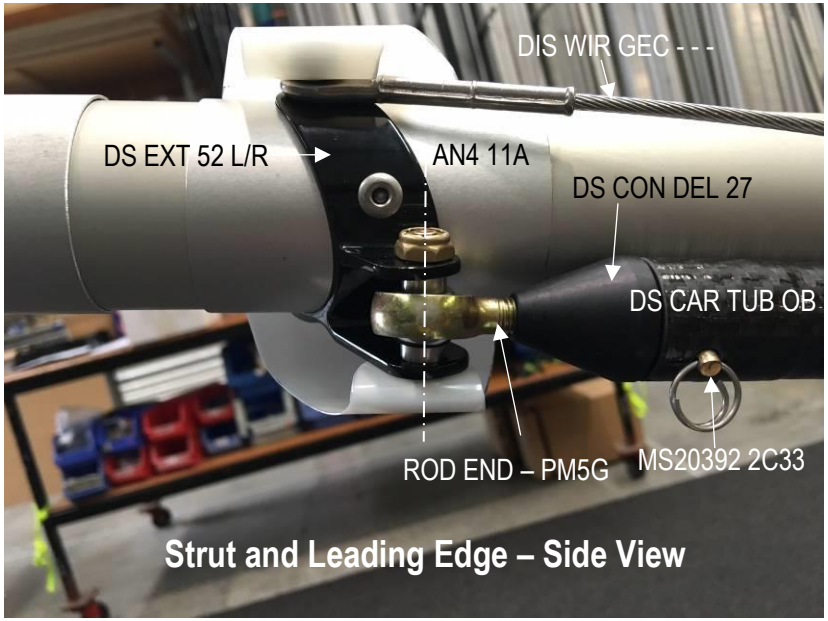

Nose Plate & Leading Edge – Bottom View
WAS N19
AN4 25A
AN4 30A
BAI BLO FRT
NOS PLA BOT 140
AN4 34A

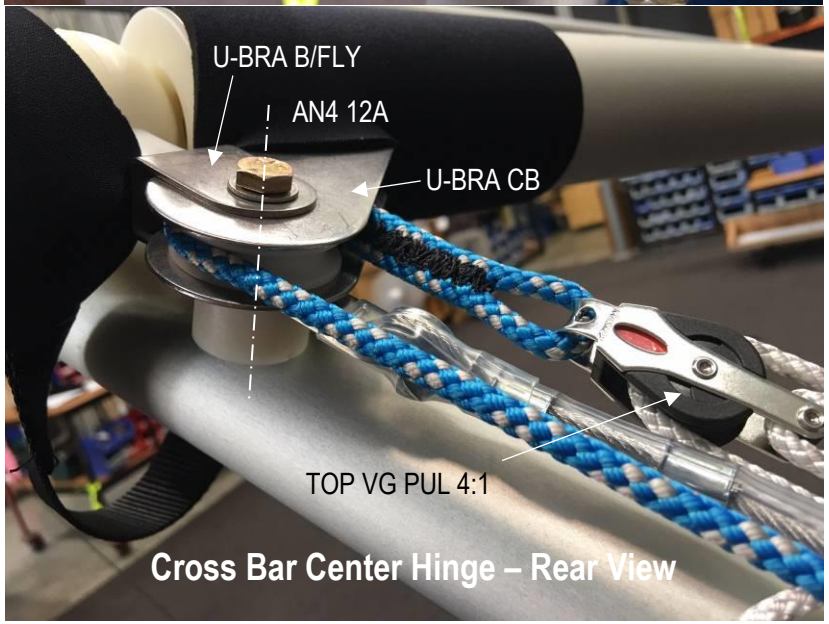

PUL BAC GEC 155/170
SHA F3517 LONG
AN4 30A
BAI BLO BCK
AN3 23A
AN4 10A
Keel Rear – Side View

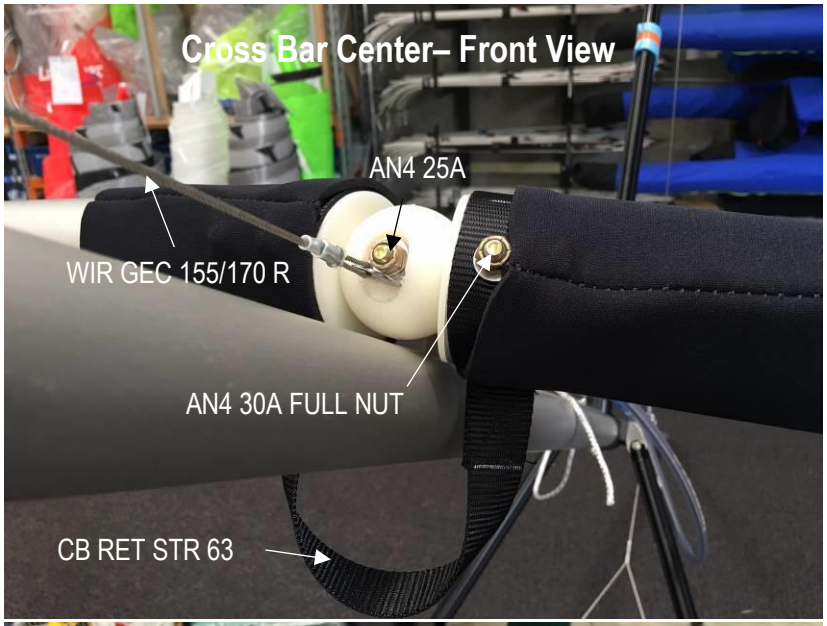

NOS PLA TOP 140
AN4 34A
AN4 25A
AN4 25A
AN4 30A
LE GEC FR
LE GEC FL
KEEL GEC F
NOS PLA BOT 140
Nose Plate & Leading Edge– Front View

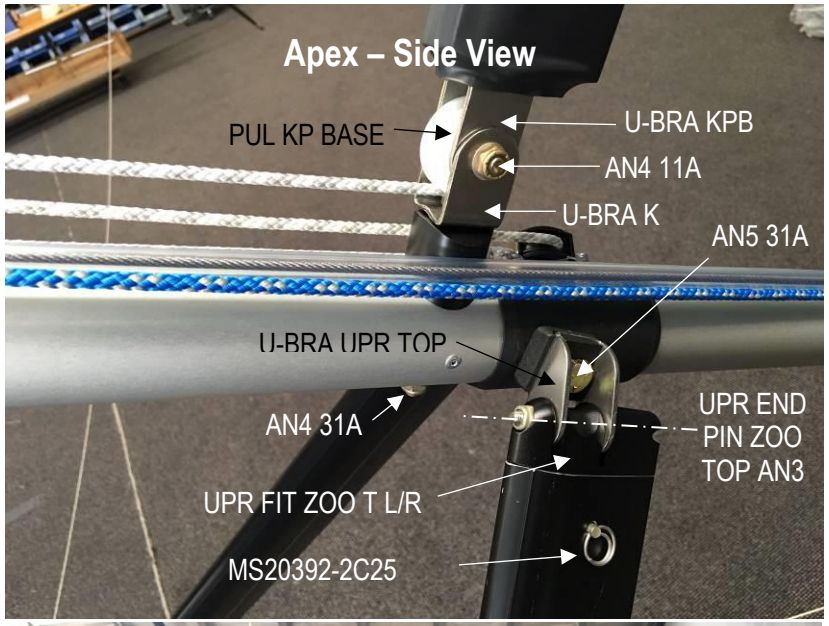

Cross Bar and Leading Edge – Top View
WIR GEC - - - TS
AN5 12A
AN4 30A
AN4 23A
MS20392-2C65
WIR GEC - - - BS
CB LE PLA NOT

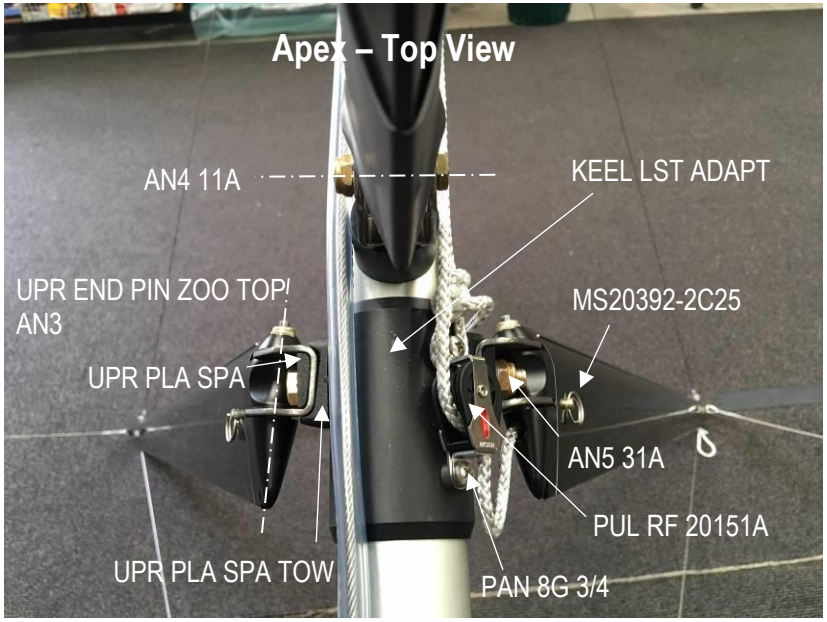

Cross Bar Center Ball – Front View
AN4 30A/FULL NUT
AN4 12A
AN4 26A
AN4 30A/FULL NUT


DIS WIR GEC - - -
DS EXT 52 L/R
AN4 11A
DS CON DEL 27
DS CAR TUB OB
ROD END – PM5G
MS20392 2C33
Strut and Leading Edge – Side View

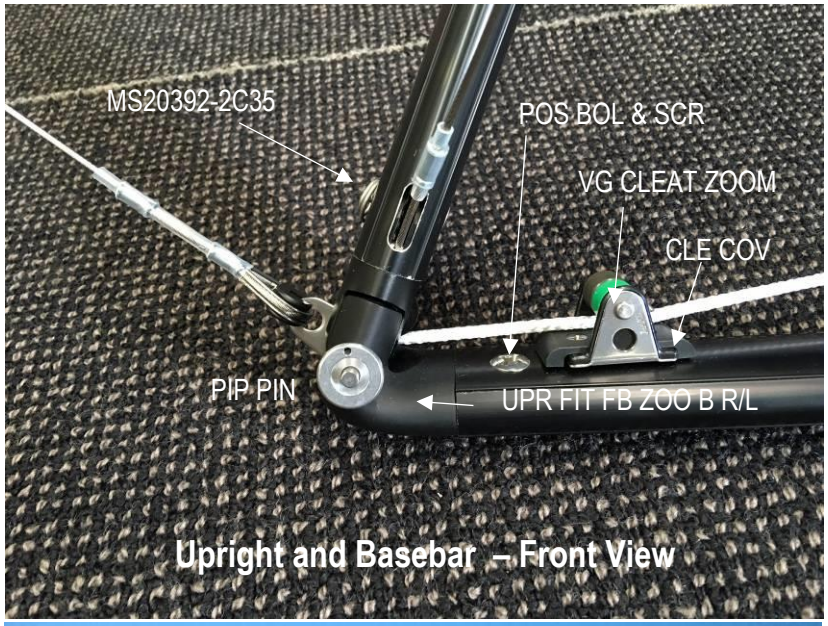

U-BRA B/FLY
AN4 12A
U-BRA CB
TOP VG PUL 4:1
Cross Bar Center Hinge – Rear View

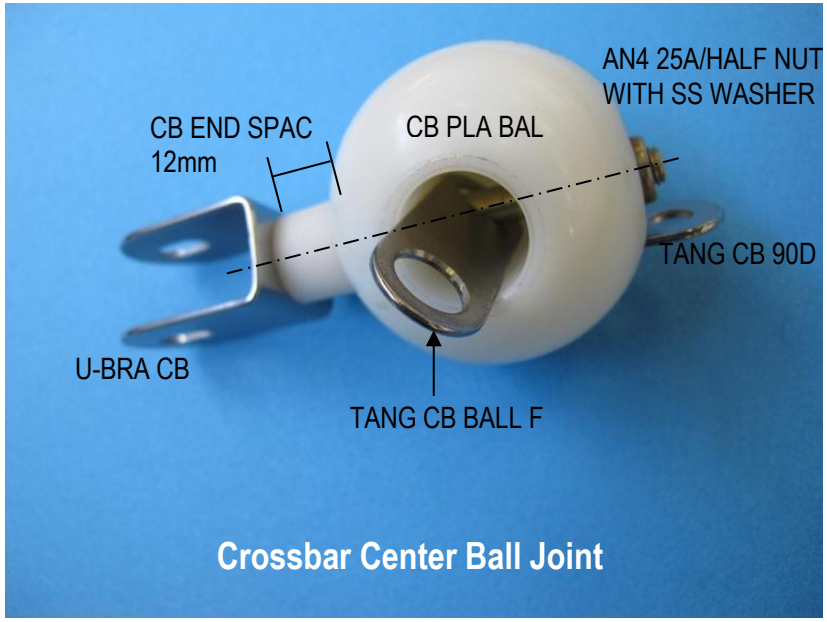

Cross Bar Center– Front View
AN4 25A
WIR GEC 155/170 R
AN4 30A FULL NUT
CB RET STR 63


Apex – Side View
PUL KP BASE
U-BRA KPB
AN4 11A
U-BRA K
AN5 31A
U-BRA UPR TOP
AN4 31A
UPR END PIN ZOO TOP AN3
UPR FIT ZOO T L/R
MS20392-2C25


Apex – Top View
AN4 11A
KEEL LST ADAPT
UPR END PIN ZOO TOP AN3
MS20392-2C25
UPR PLA SPA
AN5 31A
PUL RF 20151A
UPR PLA SPA TOW
PAN 8G 3/4


Kingpost – Side View
KP TOP ZOO


MS20392-2C35
POS BOL & SCR
VG CLEAT ZOOM
CLE COV
PIP PIN
UPR FIT FB ZOO B R/L
Upright and Basebar – Front View


AN4 25A/HALF NUT
WITH SS WASHER
CB END SPAC
12mm
CB PLA BAL
TANG CB 90D
U-BRA CB
TANG CB BALL F
Crossbar Center Ball Joint

GECKO PARTS LIST

PART	DESCRIPTION	PART #
	GECKO SAIL	
GECKO SAIL	GECKO SAIL -	SAIL GECKO 155/170
MYLAR INSERTS	LEADING EDGE INSERTS (PAIR)	MYL INS GEC 155/170
NOSE CONE	NOSE CONE	NOS CON GEC 155/170
	MANUAL	
GLIDER MANUAL	GLIDER MANUAL - ALL GLIDERS	MAN GEC 155/170
	HANG LOOP	
HANG LOOPS	HANG LOOP	HAN LOO GEC
	PACK UP GEAR	
GLIDER BAGS	GLIDER BAG	GLI BAG GEC 155/170
	WATERPROOF GLIDER BAG	WP BAG GEC 155/170
	CROSS COUNTRY BAG	CC BAG GEC 155/170
GLIDER TIES	GLIDER TIES EACH (5 X PER GLIDER)	GLI TIE
PADDING PIECES	PADDING - BASE BAR PROTECTOR (POCKET)	PAD BB
	PADDING - KEEL PAD (CONE)	PAD K
	PADDING - A-FRAME BOTTOM (RECTANGULAR)	PAD AFB
	PADDING - A-FRAME TOP FOR DINGLE DANGLE	PAD AFT
	PADDING - KING POST TOP same as PAD BB	PAD KPT
	PADDING SET FOR RX, RS, LS - 2 X PAD BB, 1 X PAD KEEL, 1 X PAD AFB, 1 X PAD AFT	PAD SET
	TIP BOOTS (PAIR)	TIP BOO GEC
	FASTNERS	
BOLTS	AN3 BOLTS	AN3-
	AN4 BOLTS	AN4-
	AN5 BOLTS	AN5-
	BOLT - MS20005-60 (centre section bolt)	MS20005-60
	NAS 517-5-32 SCREW BOLT (x-bar outer l/edge)	NAS517-5-32
	NAS 623-4-38 SCREW BOLT (inboard dive strut)	NAS623-4-38
SCREWS	SCREW MS24694-S54 (tip wand holder)	MS24694-S54
	SCREW MS24694-S106 (centre section rib)	MS24694-S106
	SCREW MS24694-S131 (centre l/edge / dive strut outboard)	MS24694-S131
NUTS	AN3 HALF NUTS - MS21083N3 (AN364-1032A)	AN3 NUT HALF
	AN3 FULL NUTS - MS21044-N3 (AN365-1032A)	AN3 NUT FULL
	AN4 HALF NUTS - MS21083N4 (AN364-428A)	AN4 NUT HALF
	AN4 FULL NUTS - MS21044N4 (AN365-428A)	AN4 NUT FULL
	AN4 CASTLE NUTS - AN310-4	AN4 NUT CAS
	AN5 HALF NUTS - MS21083N5 (AN364-524A)	AN5 NUT HALF
	AN5 FULL NUTS - MS21044N5 (AN365-524A)	AN5 NUT FULL

	AN5 CASTLE NUTS - AN310-5	AN5 NUT CAS
	LUG NUT - MS21071L3 (lug nut for plastic upright fitting)	MS2107SL3
CLEVIS PINS	CLEVIS PIN - MS20392 -2C	MS-2C
	CLEVIS PIN - MS20392 -3C	MS-3C
PIP PIN	PIP PIN - Be64/38 no cap ZOOM	PIP PIN 38 ZOOM
SCREWS	SCREWS	SCREWS
SAFETY PINS	SAFETY PIN AN416-1	SAF PIN
SAFETY RING	SAFETY RING 14mm (SMALL CIRCLIP)	SAF RIN 14
	SAFETY RING 14mm FOR DIVE STICK	SAF RIN 14 DS
	SAFETY RING 21mm (LARGE CIRCLIP)	SAF RIN 21
BISSELL PIN	SPRING PIN-BISSELL PIN - ROLLED PIN	BIS PIN
	A-FRAME	
A-FRAME	A-FRAME - ZOOM & CARBON SPEED BAR	A-FRA ZOO/CAR
	A-FRAME - ZOOM & FAST BAR	A-FRA ZOO/FAST
	A-FRAME - ZOOM & ROUND SPEED BAR	A-FRA ZOO/ROU
	UPRIGHTS	
ZOOM UPRIGHTS-BLACK	ZOOM UPRIGHT	UPR GEC ZOO 155/170
	SPEEDBARS	
CARBON SPEED BAR	CARBON SPEED BAR (BLANK)	SB CARB BLANK
	CARBON SPEED BAR WITH ZOOM FITTINGS	SB CARB & ZOOM FIT
FAST SPEED BARS	BLACK FAST SPEED BAR WITH ZOOM FITTINGS	SB FAST & ZOOM FIT
FAST SPEED BARS	BLACK FAST SPEED BAR WITH CLEAT NO FITTINGS	SB FAST & CLE
ROUND SPEED BAR	ROUND SPEED BAR WITH ZOOM FITTINGS	SB ROU & ZOOM FIT
ROUND SPEED BAR	ROUND SPEED BAR COMPLETE, NO FITTINGS	SB ROU BLACK
	HARDWARE FOR ZOOM UPRIGHTS (INDICATE LHS/RHS)	
FOLDABLE A-FRAME FITTINGS	FOLDABLE UPRIGHT FITTING ZOOM - BOTTOM	UPR FIT ZOO FB B R/L
	FOLDABLE SPEED BAR FITTING - ZOOM/CARBON BAR	SB FIT ZOO CAR FB R/L
	FOLDABLE SPEED BAR FITTING - ZOOM/FAST BAR	SB FIT ZOO FAST FB R/L
	FOLDABLE SPEED BAR FITTING - ZOOM/ROUND BAR	SB FIT ZOO RND FB R/L
ZOOM A-FRAME FITTINGS	UPRIGHT FITTING ZOOM - TOP	UPR FIT ZOO T R/L
ZOOM HARDWARE	BUSH - UPRIGHT END ZOOM SS 11.5mm LONG	BUS UEZ 11.5
	BUSH - UPRIGHT END ZOOM (cut cross on one end)	BUS UEZ 21
	BUSH - S/S ROD PULLEY ROD 22.5mm LONG (knurled)	BUS UEZ 22.5
	PULLEY-ZOOM BOTTOM FITTING (HK415)	PUL HK415
	POST BOLT & SCREW	POS BOL & SCR
	POST BOLT	POS BOL
	POST SCREW	POS SCR
	UPRIGHT END PIN ZOOM TOP	UPR END PIN ZOOM TOP

	WIRE SLUG -ZOOM 13mm LONG BEVEL SOLID	WIR SLU ZOO 13
	A-FRAME HARDWARE	
A-FRAME HARDWARE	BUSH UPRIGHT END 25mm long x 3/16"id x 1/4"od	BUS UE 25
	BUSH DELRIN - 25mm x 1/4 id x 5/16 od (side wire)	BUS DEL 25
	NYLON TANG LOCATOR (inside s/bar)	NYL TAN LOC
	U-BRACKET UPRIGHT TOP	U-BRA UPR TOP
	PULLEY - A/FRAME CNR WITH R3 BEARING	PUL R3
	PULLEY - RF20151A	PUL RF20151A
VG CLEAT	VG CLEAT LANCE (GREEN) - ZOOM	VG CLEAT ZOOM
	CLEAT COVER	CLE COV
PULL-BACK (on keel)	PULL BACK GECKO - ROPE, WIRE & PULLEY	PUL BAC GEC
TOP VG	GECKO TOP VG PULLEY 3:1 - TOP ROPE & PULLEY	TOP VG PUL 3:1
	TOP VG ROPE ONLY - GECKO	TOP VG ROP ONLY GEC
BOTTOM VG	GECKO BOTTOM VG 3:1 - PULLEY & WIRE	BOT VG PUL 3:1
	BOTTOM VG ROPE ONLY - GECKO	BOT VG ROP ONLY GEC
	BATTENS	
BATTEN SETS	BATTEN SET - GECKO	BAT SET GECKO -___
GECKO BATTENS	GECKO - KEEL BATTEN	BAT GEC___- K
	GECKO - MAINSAIL NO 1-8	BAT GEC___- M-
	GECKO - UNDERSURFACE NO 1-2	BAT GEC___ U-
	GECKO - TRANSVERSAL SET OF 2	BAT GEC___- TRA
	GECKO - CARBON SPEED BATTEN	BAT CAR SPE
BATTEN MISC.	BATTEN PATTERN	BAT PAT GEC 155/170
BATTEN END - FLIP BACK	BATTEN END - FLIP BACK LEVER	BAT END FB L
	BATTEN END - FLIP BACK SCREW	BAT END FB S
	BATTEN END - FLIP BACK ALUMINIUM SLEEVE 8.3mm	BAT END FB A 8.3
	BATTEN END - FLIP BACK ALUMINIUM SLEEVE 9.3mm	BAT END FB A 9.3
	BATTEN END - FLIP BACK COMPLETE - L & S & A SL	BAT END FB C
	CROSS-BAR	
CROSS-BAR	CROSS- BAR HALF (RHS/LHS) - GECKO	CB GEC 155/170 L/R
	CROSS-BAR L/EDGE PLATES -NOTCH	CB LE PLA NOT
	CROSS-BAR RETAINING STRAP 63MM	CB RET STR 63
	CROSS-BAR CENTRE PLASTIC BALL 50mm	CB PLA BAL
	CROSS-BAR END SPACER	CB END SPAC
	NEOPRENE COVER - CROSS-BAR	NEO COV CB
	TANG CROSS-BAR BALL (CENTRE) FLAT	TANG CB BALL F
	TANG DOUBLE RF347 TOP SIDE WIRE + PIN	TANG RF347
	U-BRACKET - BUTTERFLY HINGE	U-BRA B/FLY
	U-BRACKET - CROSS-BAR HINGE	U-BRA CB
	BUTTERFLY HINGE CENTER SECTION PULLEY	PUL CB BT HIN

	TIPS	
CARBON TIP WANDS	CARBON TIP WAND - ALL	CAR TIP WAND
	BE 6161-DOUBLE DETENT BUTTON FOR 50-60mm TUBE	BE 6161-50
	TIP HOLDER ALUMINIUM (TRUMPET)	TIP HOL
BE 6161	TIP LEVER - LS/LST (alum)	TIP LEV LS
TIP HOLDER	PLASTIC LOCATOR DONUT 50mm (0°) CONCENTRIC	DON 50-0
TIP LEVER	ECCENTRIC PLASTIC TUBE LOCATOR -OFFSET DONUT 1.5°	DON 50-1.5
DONUTS	ECCENTRIC PLACTIC TUBE LOCATOR -OFFSET DONUT 2°, 2.5°, 3°, 4°	DON 50-
	DINGLE DANGLE	
DINGLE DANGLE	DINGLE DANGLE COMPLETE	DIN DAN COM
	DINGLE DANGLE TOP	DIN DAN TOP
	DINGLE DANGLE BASE	DIN DAN BAS
	DINGLE DANGLE SADDLE - 44	DIN DAN SAD - 44
	DIVE STRUTS	
DIVE STRUTS	CARBON DIVE STRUT SET - 2 x tubes, cones, wire, 8 x clevis pins & rings	DS CAR SET GEC 155/170
	SINGLE CARBON DIVE STRUT FITTED - 1 x tube, cone, wire; 2 x clevis pins & rings	DS CAR SIN GEC 155/170
CARBON DIVE STRUTS	SINGLE CARBON DIVE STRUT TUBE ONLY - OUTBOARD	DS CAR TUB OB GEC 155/170
DIVE STRUT CONE	DIVE STRUT CONE - DELRIN 27mm (current model)	DS CON DEL 27 155/170
DIVE STRUT MOUNT	DIVE STRUT EXTRUSION MOUNT - LS 52mm BACK - LHS/RHS	DS EXT 52 L/R
DIVE STRUT WIRE	DIVE STRUT WIRE - LS/LST	DS WIR 155/170
DIVE STRUT PARTS	ROD END BALL JOINT	ROD END - PM5G
	KEEL	
GECKO KEEL	KEEL - GECKO - COMPLETE	KEEL GEC 155/170 C
	KEEL - GECKO - FRONT	KEEL GEC 155/170 F
	KEEL - GECKO - BACK	KEEL GEC 155/170 B
KEEL ROPE	KEEL ROPE - GECKO	KEEL ROP GEC
KEEL HARDWARE	BAILEY BLOCK- FRONT SPRING CLIP	BAI BLO FRT
	BAILEY BLOCK- BACK SPRING CLIP	BAI BLO BCK
	BE 6161 - DOUBLE DETENT BUTTON FOR 42-44mm TUBE	BE 6161-42
	END CAP 1 5/8 KEEL REAR	END CAP 1 5/8R
	END CAP 1 5/8	END CAP 1 5/8
	KEEL PLUG	KEEL PLUG
	UPRIGHT PLASTIC SPACER	UPR PLA SPA
	UPRIGHT PLASTIC SPACER TOWED IN	UPR PLA SPA TOW
	PULLEY RF20151A	PUL RF20151A

	KINGPOST	
KINGPOST	KING POST - GECKO	KP GEC 155/170
	KING POST TOP - FOR ZOOM	KP TOP ZOO
	U-BRACKET KING POST	U-BRA K
	U-BRACKET KING POST BASE	U-BRA KPB
	KING POST BASE PULLEY	PUL KP BASE
	NEOPRENE COVER - KINGPOST BASE	NEO COV KPB
	KING POST BASE - BLACK PLASTIC TUBE	KP BAS BLK PLA
	KING POST STANDARD BLACK PLASTIC GECKO	KP STA BLK PLA
	KING POST SLIDER BLOCK - GECKO ZOOM	KP SLI BLO ZOO
	LEADING EDGE	
NOSE PLATES	NOSE PLATE TOP 140	NOS PLA TOP 140
	NOSE PLATE BOTTOM (SLOTTED) 140	NOS PLA BOT 140
LEADING EDGE	GECKO - L/EDGE - COMPLETE (RHS/LHS)	LE GEC 155/170 C R/L
	GECKO - L/EDGE - FRONT SECTION (RHS/LHS)	LE GEC 155/170 F R/L
	GECKO - L/EDGE - BACK (RHS/LHS)	LE GEC 155/170 B R/L
	RING PLASTIC 50mm EXCENTRIC	RING EXC PLA
	WIRES	
WIRES	GECKO - TOP WIRE SET	WIR GEC-155/170 PTST
	GECKO - TOP WIRE FRONT	WIR GEC- 155/170 PTF
	GECKO - TOP SIDE WIRES & LUFF LINES	WIR GEC-155/170 PTS
	GECKO - TOP BACK	WIR GEC-155/170 PTB
	GECKO - BOTTOM WIRE SET	WIR GEC-155/170 BST
	GECKO - BOTTOM FRONT WIRES (PAIR)	WIR GEC-155/170 BF
	GECKO - BOTTOM SIDE WIRE (PAIR)	WIR GEC-155/170 BS
	GECKO - BOTTOM BACK WIRES (PAIR)	WIR GEC-155/170 BB
	GECKO - CROSS-BAR RESTRAINER	WIR GEC-155/170 R

PURCHASE RECORD

Please complete this section for future reference.

Glider Model and Size	
Purchase Date	
Serial Number	
Dealer (purchased from)	
Dealer Address	

MAINTENANCE LOG

Date	Work Completed	By

----- End of Manual – Happy flying! -----