PEGASUS XL-Q

Operator's Manual

Pegasus Aviation, Elm Tree Park, Manton, Marlborough, Wiltshire SN8 1PS, UK
Telephone: +44 (0)1672 861578 Fax: +44 (0) 1672 861550
email: info@pegasusaviation.co.uk www.pegasusaviation.co.uk

SOLAR WINGS

PEGASUS XL-Q-LC OPERATORS HANDBOOK.

CONTENTS

SECTION.

SOLAR WINGS

OPERATORS HANDBOOK

PEGASUS XL-Q
ROTAX 462 LIQUID COOLED ENGINE (HIGH POWERED)

1.0. GENERAL: The Pegasus XL-Q is an advanced weight shift controlled, swept flex wing. When coupled to its trike unit the aircraft may be flown solo or dual. Its rugged construction is complemented by a short take off and landing run and excellent rate of climb, allowing pilots to carry out a wide variety of operations from airfields quite often inaccessible to conventional aircraft. Using more appropriate airfields the Pegasus XL-Q can also be used as a safe and reliable training machine.

1.1. THE WING:

1.1.1. THE SAIL: The XL-Q is the product of one the most experienced flex-wing design teams in the world today. The sail fabric is cut with exacting accuracy from a stabilised polyester using a tight, virtually non-porous and tear-resistant weave construction. Double-stitched seams using a compatible thread ensure complete panel join integrity. Sail reinforcement is achieved by including extra material at high stress points. The aerofoil section is defined by preformed aluminium and preformed aluminium composite battens, with chordwise tension being maintained by attachment to the trailing edge. The predictable low speed stall exhibited by the XL-Q, is achieved mainly by the clean lines of the aerofoil's leading edge radius and owes as much to the design and production teams expertise as it does to the insertion of a full length Mylar insert.

1.1.2. THE AIRFRAME: All the main tubing used in the airframe is HT 30 TF aluminium alloy supplied by British Aluminium from aircraft quality billets using a special process of mandrel extrusion followed by being drawn to agreed industry specifications. All external tubing and main inserts are anodized to give maximum protection against corrosion. There are no welded components in the frame, and sheet fittings are plated, anodized or stainless steel. All bolts are of high tensile steel. Rigging wires are PVC covered where necessary to afford protection to the occupants and to also serve as an anti-kink measure.

1.2. THE TRIKE:

1.2.1. POWER UNIT: The engine is a Rotax liquid cooled twin-cylinder two-stroke of 462.8cc rated at 51 bhp at 6,500 rpm. (max. rpm 7,000). The drive utilizes a purpose built gear box with a 2.58: 1 reduction and a two-bladed propeller. Forced vibrations from the power unit are isolated from the main frame by mounting the engine on four Lord anti-vibration rubbers.

1.2.2. ENGINE CONTROLS: The primary throttle control is foot-operated (forward for full power and rearward for power off) and complemented by the friction-damped cruise control hand throttle (forward on and rearward off) on the port side of the seat frame. The mixture control is on the starboard side of the seat frame (rearwards for choke on/forwards choke off). An ignition kill-switch (up for on/down for off) is fitted on the front seat base bracket immediately below the pilot's knees. The engine start system is a pull-start running from a pulley close to the front pilot's feet.

1.2.3. THE ROLLING CHASSIS: The main framework of the trike, is a monopole structure of aluminium alloy tubes, using multiple inserts at high stress points to achieve a high strength to weight ratio. Padded tandem seats are suspended in a foldable seat frame. The undercarriage comprises of rear wheels fitted to stub axles, the main axle itself is a wire-braced aluminium strut. The steerable front wheel incorporates trailing-link spring suspension. Pneumatic tyres (22 psi) on all wheels are light weight, low hysteresis rubber.

1.2.4. THE FUEL TANK AND SYSTEM: Fuel is fed from a single 47.0 litre fuel tank fitted with a self venting but leakproof cap and mounted behind the monopole and below the engine. The fuel system has a fuelcock, external filter backed up by an internal strainer fitted to the end of the fuel tank pick-up pipe. External pipes are fire-resistant and the fuel content is measured from a sight-gauge on the side of the tank.

1.2.5. FUEL: 97 Octane, 4 star petrol mixed at a ratio of 50:1 with a non detergent good quality 2 stroke oil is the recommended fuel/mixture for the Rotax 462 engine.

****IMPORTANT****

FILTERED FUEL ONLY SHOULD BE ADDED TO THE FUEL TANK.

1.2.6. SEAT BELTS: A single lap strap is provided for the front pilot, whilst a lap and shoulder strap is supplied for the rear pilot.

1.2.7. COCKPIT AND FAIRING: The composite nose cone is made of light weight GRP and as with the polyester/foam side fairing, its primary use is to give the pilot a degree of weather protection.

2.0. GENERAL INFORMATION:

2.1. WING:

Wing Span:	33.95 ft.	10.35 m.
Sail Area:	164.0 sq ft.	15.24 sq. m.
Aspect Ratio:		7.0
Weight:	106.9 lbs	48.2 kg

2.2. TRIKE:

Length (erect):	102 ins	260 cm
Length (fold down):	102 ins	260 cm
Width:	69 ins	175 cm
Track:	63 ins	160 cm
Height (erect):	100 ins	255 cm
Height (fold down):	70 ins	178 cm
Weight (dry):	216 lbs	99.8 kg
Max Hang Point Load:	697 lbs	317 kg
Minimum payload:	156 lbs	55 kg

2.3. ENGINE:

Model.	Rotax 462
Capacity	462.8 cc
Max Rpm.	7000 Rpm.
Max Continuous Rpm	6500 Rpm.
Max Cylinder head Temp.	365 Degrees F.
Fuel Tank Capacity.	47.0 Litres.
Usable Fuel.	46.5 Litres.
Unusable Fuel.	0.5 Litres.
Fuel.	97 Octane. 4 star petrol.
Fuel Petrol/Oil Mix Ratio.	50:1

FILTERED FUEL ONLY TO BE ADDED TO THE FUEL TANK.

NOTE:

For all other engine data refer to the engine manufacturers handbook supplied as a supplement to the aircraft operators handbook.

2.4. RUNNING GEAR:

Tyre Pressures. 22 psi

2.5. PLACARDS AND LOCATIONS:

PLACARD.	LOCATION.
Flight Limitations.	Upperside of base tube in front of Front Pilots seat.
Engine Limitations.	Upper side of base tube in front of Front Pilots seat.
Aircraft Weights.	Upper side of base tube in front of Front Pilots seat.
Fuel Type and Mix Ratio.	Adjacent to Fuel filler cap.
Fuel Capacity.	Adjacent to Fuel level indicator.
Fuel Cock On/Off Positions.	On Fuel Cock mounting plate.
Ignition Switch On/Off Positions.	On Ignition Switch.

Placards

SOLAR WINGS
MARLBOROUGH WILTS 0672 54414

MODEL PEGASUS XL-Q-LC

FLIGHT LIMITATIONS

MAXIMUM AVAILABLE PAYLOAD	180 KG
MINIMUM PAYLOAD	55 KG
DO NOT EXCEED Vne	90 MPH

DO NOT PITCH NOSE DOWN OR NOSE UP MORE THAN 30 DEGREES FROM HORIZONTAL OR EXCEED 60 DEGREES ANGLE OF BANK

FLY SOLO FROM FRONT SEAT ONLY

NO NEGATIVE g OR AEROBATIC MANOEUVRES

NO WHIPSTALLS

NO STALLED SPIRAL DESCENTS

ENGINE LIMITATIONS

FUEL MIXTURE RATIO	50:1

AIRCRAFT WEIGHTS

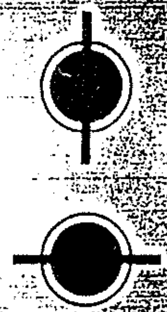
DRY EMPTY WEIGHT	148 KG
MAXIMUM TAKE OFF WEIGHT	365 KG

WING SERIAL NO
TRIKE SERIAL NO

FUEL CAPACITY
47 LITRES
MIXTURE
50:1 RATIO
RECOMMENDED FUEL
97 OCTANE 4 STAR
NON DETERGENT OIL TO BE USED

FUEL TAP POSITIONS

FUEL ON



FUEL OFF

2.6. PERFORMANCE:

2.6.1. GENERAL:

Best safe descent rate power off at max. auw:	400 fpm.	2.03 mps
Airspeed for best safe descent rate power off:	40 mph	64.0 kph
Take off distance to clear 50 ft at max. auw:	497 ft.	151.0 m
Landing distance from 50 ft (no brakes) at max. auw:	624 ft.	190.0 m
Flight manoeuvre loads:	+4 g. -2 g	
Vne:	90 mph.	144.0 kph
Cruise at max auw:	58 - 60 mph.	93 - 96 kph
Cruise at min auw:	58 - 60 mph.	93 - 96 kph

2.6.2. STALLS:

Wings level stall speed power off at max. auw:	30 mph	48 kph
Height loss during power off recovery at max. auw:	0 ft.	0 m
Wings level stall speed power on at max. auw:	30 mph	48 kph
Height loss during power on recovery at max. auw:	0 ft.	0 m
Wings level stall speed power off at min. auw:	22 mph	35 kph
Height loss during power off recovery at min auw:	0 ft.	0 m
Wings level stall speed power on at min. auw:	25 mph	40 kph
Height loss during power on recovery at min auw:	0 ft.	0 m
30 degree banked stalls power off at max auw:	30 mph	48 kph
Height loss during power off recovery at max. auw:	0 ft.	0 m
30 degree banked stalls power on at max auw:	31 mph	50 kph
Height loss during power on recovery at max. auw:	0 ft.	0 m
30 degree banked stalls power off at min. auw:	26.5 mph	47 kph
Height loss during power off recovery at min. auw:	0 ft.	0 m
30 degree banked stalls power on at min. auw:	28 mph	45 kph
Height loss during power on recovery at min. auw:	0 ft.	0 m

NOTES ON STALLS:

i) The aircraft is control-limited so that a true stall is not possible without an accelerated entry. The aircraft will continue to fly under control, although the roll response will be slow.

ii) Under full power the aircraft will continue to climb in this condition.

iii) With no power the aircraft will descend in a controlled mush.

iv) It is important to understand that the data recorded during stall tests, was ascertained using the CAA requirement of a reduction of airspeed by 1kt per second until the stall is attained. If radical and therefore unauthorized stalls are undertaken, the aircraft may then lose significant height before recovery is made. See also Para 7.6. Page 14. Stall characteristics

3.0. AIRWORTHINESS OPERATING LIMITATIONS.

The CAA. requires the pilot to respect the following limitations:

The aircraft is to be flown only under visual flight rules (VFR).
The minimum equipment required to operate under VFR. conditions is:
1 - Air speed indicator.
1 - Altimeter.
(The altimeter may be a wrist altimeter worn by the pilot).
Aerobatic manoeuvres including whipstalls, stalled spiral descents and negative g's are not permitted
Do not pitch nose up or nose down more than 30 degrees from the horizontal.
Do not exceed more than 60 degrees of bank.

Max empty weight	150 kgs.	
Max take off weight	365 kgs.	
Min total occupant weight	55 kgs.	
Max total occupant weight	180 kgs.	
Max number of occupants	2	
Vne.	90 mph.	144 kph
Max wind operating conditions	28 mph.	45 kph

90 degree cross winds of upto:

	Min AUW.	Max AUW.
Taxiing.	17 mph/27 kph	17 mph/27 kph
Take Off.	11 mph/18 kph	13 mph/21 kph
Landing.	11 mph/18 kph	13 mph/21 kph

........have been safely demonstrated.

When flown solo the aircraft must be flown from the front seat only.
No baggage allowed.

4.0. RIGGING THE AIRCRAFT:

4.1. GENERAL: As you rig your aircraft, you should always be meticulous in your inspection of each component. This is the best time to see potential faults which may be missed when the aircraft is fully rigged. Never allow yourself to be distracted during assembly of your aircraft and always rig to a repeatable sequence. Do not rely on the pre-flight check to find faults, but look carefully at all aspects of your aircraft as you put it together. Great care should be taken with wings which are left fully rigged, for checks cannot be omitted on that account, and the full inspection procedures should be followed. The design brief for the Pegasus XL-Q called for easy inspectability, so those components not open to view may be reached from zipped inspection panels.

Special attention should be paid to the following:

4.1.1. The symmetry of the wing and the angle of the kingpost.

4.1.2. All tubes straight, undented and without cracks.

4.1.3. All cables unkinked, unfrayed and with undamaged sleeves.

4.1.4. All nuts and bolts secure and locked appropriately.

4.1.5. All quick-release fittings secure.

4.1.6. Hang-point and heart-bolt undamaged and secure.

4.1.7. All sail seams intact, with no frayed stitching.

4.1.8. No tears in the sail.

4.1.9. Double check 4.0.7. and 4.0.8. in sail areas of high stress. Particular areas of high stress are:

4.1.9.1. Both tip fabric areas including tip fastening.

4.1.9.2. Both leading edge upper surfaces.

4.1.9.3. At the nose of the wing check that the securing screws and grommets have not become detached from the sail.

4.1.9.4. The trailing edge stitching, grommets and shock cords.

4.1.9.5. Keel pocket, particularly at the point of attachment to the upper surface.

4.1.9.6. Keel pocket to keel tube fastening.

4.1.9.7. The point of attachment in the root area of the undersurface to the upper surface.

4.1.9.8. All cable entry and exit points with particular regard to the rear upper rigging cable entry.

4.1.9.9. The area above the cross spar centre ball.

4.1.10. Sail tension settings correctly aligned and symmetrical.

4.1.11. Battens undistorted, undented and in good condition.

4.2. WING RIGGING:

4.2.1. Select a clean, dry area and lay the wing down, opening the zip to reveal the control frame and underside of the wing.

4.2.2. Open out the control frame and attach the base bar to the corner joints.

4.2.3. Lift the wing from the front and rotate it so that the wing is now laying on the ground with the assembled control frame flat on the ground underneath.

4.2.4. Remove all the sail ties and open each wing about a metre. Lift the spring retained kingpost and checking that the cross spar restraint cables pass cleanly either side, locate the king post onto the spigot.

4.2.5. Ensure that the upper cables are free from kinks and with the over-centre lever in the open position locate the king post crown into the top of the king post.

4.2.6. Open the wings in 4 stages, one wing at a time to prevent damage to the cross tube and fittings.

4.2.7. Ensure that all wires are untangled and free from twist, particularly at the connections.

4.2.8. Excluding the nose batten, fit all the top surface battens, starting with the out-board main battens and working in-board towards the root. Do not force the battens if they seem hard to push fully home.

4.2.9. On all the complete aluminium upper surface battens fit the single lower elastic and on all aluminium/composite battens fit the end caps. If the elastics appear over tight at this stage, leave the elastics off until after the final tensioning of the cross spar, when it is easier to push the battens finally home and requires less effort to fit the elastics.

4.2.10. After fitting the upper surface battens, unzip the keel fin access panel and remove the safety pin from the cross spar restraint cable stud. Using the nylon cord pull back the cross spar until the keyhole tang can be located on the restraint cable stud. Make sure that:

a). The tang is located in the stud recess.
b). The restraint cables are not twisted.
c). The safety pin secures the cable onto the stud and is re-fitted correctly into restraint cable stud.
d). The fin access panel is zipped up.

4.2.11. With the cross spar now tensioned, ensure that the previously fitted battens are pushed fully home and that the upper and lower elastics are fitted to the aluminium battens and all remaining end caps fitted to the aluminium/composite battens.

4.2.12. Locate the tip sticks onto the sockets, ensuring they are seated firmly down to the limit.

4.2.13. Proceed to the front of the wing, lift and support the nose of the wing on the knee. Locate, fit and push fully home the nose batten, finally locating the front end onto the spigot provided on the keel tube.

4.2.14. The wing may now be erected fully by raising it allowing the control frame to swing forward. Do not lift the nose too high while doing this, lest the rear of the battens sustain damage from contact with the ground. Hook the S-catch onto the rear pin of the nose channel and then, to tension the rigging, lever the S-catch forwards and lock it by passing the pip-pin through the S-catch and S-catch Channel. This operation is helped by having an assistant lift the keel at the rear at the same time as you lift the nose.

4.2.15. Fit the upper velcro on the nose cone to the top side wing velcro and ensuring symmetry pull the lower part of the nose cone around lower front rigging cables. Join the rigging cable slot with the velcros provided and attach the underside velcro to the wing undersurface velcro.

4.2.16. Adjust either the upper or lower wing attachment velcro to give the smoothest and most symmetrical fit.

4.2.17. In light winds the nose can be lowered and the wing allowed to rest on the nose and control frame. In turbulence or strong winds it is best to have an assistant hold the wings level at the nose whilst the under surface battens are located.

4.2.18. Push fully home the undersurface battens so that the curved aluminium section is facing rearwards and downwards. Fit the single elastic to each undersurface batten rear.

4.2.19. Proceed to the rear of the wing and tension the overcentre lever in the rear top rigging.

4.3. TRIKE RIGGING:

4.3.1. Although the trike is capable of being folded, the preferred method of storage and transportation is for the trike to be in its fully rigged state. Rigging the trike is therefore the relatively simple operation of raising and lowering the monopole whilst connecting the trike to the wing.

4.3.2. To erect the trike from the folded state, the monopole upright should be raised and locked geometrically by pushing down on the seat-frame hinges. Fit the compression tube and ensure that the upper and lower securing pins and rings are fitted correctly. It is particularly important that the two lower pins pass through both the lower and upper sections of the front strut. Tension the one-inch strap under the seat squab.

Note: In the event of there being any significant wind, the trike rigged in the above state without the wing being attached, makes it considerably easier to carry out the engine run-up and any remedial action required, without worrying about the control of the wing.

4.3.3. To convert the tandem seat for solo operation, release the velcro which secures the rear seat backrest to the upright monopole and locate the two webbing pockets built into the underside of the rear seat base. Lift the rear seat up and forwards until its base lines up with the front seat back-rest, then insert the two alloy tubes provided into the pockets and push fully home. The rear seat backrest can now be folded backwards to form a fairing secured by its velcro to the seat webbing. Ensure that the one-inch webbing under the seat squab is fully tensioned. After the rear seat harness is made secure, the aircraft is ready for single-seat operation.

4.3.4. The fully-rigged wing may now be parked nose down. If there is to be a delay before fitting the wing to the trike, and if the wind strength is above 7 mph, the wing should be laid flat; if the wing is laid flat in winds above 16 mph the nose should be tethered.

4.4. CONNECTING THE WING TO THE TRIKE:

4.4.1. Before mating the wing to the trike, complete the walk-around inspection of the wing as detailed in the pre-flight checks. Then position the wing on its control frame, into wind, with its nose on the ground. Move the propeller to the horizontal position and with the main tube of the trike folded down, and ignition switched off, wheel the trike in behind the wing, rolling the front wheel over the control bar. Lift the main tube high enough to connect to the hang-point on the wing, and secure with the bolt, wing nut and safety ring. There are two holes in the keel tube at the hang-point which allow preselected trim: for normal operations the front hole should be used. Go to the nose of the wing, and then rotate the wing about its control bar until the keel tube rests on the propeller hub. Do not use force, and in strong winds maintain a firm grip on the wing. The front wheel will roll back behind the control bar, and the rear wheels should now be chocked. Lift the wing, either by the control frame uprights or base bar, and push down the seat frame hinges. Lift the seat squab and tension the webbing through the buckle. Fit the compression tube and secure with the pins and rings as outlined in 4.3.2. The securing of the control bar with the front lap strap, is a sufficient enough to stabilize the wing in light winds while the pre-flight checks are carried out.

5.0. PRE-FLIGHT INSPECTION:

5.1. PRE-FLIGHT INSPECTION (WING): Assuming the machine is now fully assembled and is ready for the final pre-flight checks. Start at the nose and move around the wing making the following checks:

Nose catch secure and locked
Leading-edge spar undented
Cross-spar junction secure (zip flap closed)
Sail secure on tip
Washout rod secure and undamaged
Battens secure
Luff lines secure
Crossboom tensioner secure
Keel pocket and fin components undamaged
Top rigging over centre lever is tensioned
Hang-point secure and freely rotating
Control frame locked
Control frame cables secure
Luff lines secure
Battens secure
Washout rod secure and undamaged
Crossboom junction secure
Leading edge spar undented
Nose batten and nose cone secure and correctly fitted
Top rigging secure

5.2. PRE-FLIGHT INSPECTION (TRIKE): After returning to the nose, move around the trike making the following checks:

Ignition off; engine controls closed
Compression tube secure
Front tyre inflated and in good condition
Front forks and suspension in good condition
Drag links secure
Axles secure
Rear tyres inflated and in good condition
Seat-frame secure
Cables secure
Control cables -- no kinks
Engine mountings secure
Exhaust secure
Carburettor secure
Propeller secure and undamaged
Plugs and leads secure
Fuel tank secure; fuel contents adequate
Engine coolant at correct level, no leaks and radiator cap secure.
Water pump/rotary valve gear oil reservoir, correct and cap secure.

The aircraft is now ready for engine starting procedures.

6.0. ENGINE STARTING:

6.1. The engine should not be started without the pilot being strapped into the front seat. Any passenger should also be strapped in and briefed. All controls should be checked closed and ignition should be off.

6.2. Ensure that the engine is primed with fuel. Unless the engine is hot, apply full choke. Check visually that the propeller area is clear and call "Clear Prop" loudly. Switch on the ignition when the area is clear, take hold of the starting handle, pull gently until it is felt to engage and lock, and then pull forcefully. Repeat until the engine starts. If the engine refuses to start, close the controls and switch off the ignition before investigation.

6.3. When the engine starts, increase the rpm to a little above tickover and gradually decrease the choke until the engine idles normally with the choke fully closed. Warm up the engine. Before flight a full-throttle check is carried out for at least two minutes. The front of the aircraft should be held securely. During this operation the pilot must be mentally prepared to switch off the ignition at very short notice. If the engine is stopped after a period of running, the ignition should be switched off at tickover. Switching off at high rpm floods the engine and makes restarting difficult.

6.4. The engine maintenance manual should be consulted for information on Gearbox oil, water pump/rotary timing valve drive gear oil reservoir levels and specifications, carburettor tuning, timing etc.

7.1. GENERAL FLIGHT CONTROL: It is important that the wing is tuned to ensure equal wing section and therefore balance trim (See section 10.). A wing which exhibits a constant turn when flying 'hands off' will be tiring to fly and uncomfortable in turbulence, particularly when landing or taking off. A properly tuned wing will fly completely 'hands off' throughout the whole range of power settings, although a slight tendency to turn owing to the torque reaction of the engine will always be present. The roll control response will increase as the speed increases, and turns are very easy to co-ordinate. Prior to moving the bar sideways to roll, speed should be increased by pulling back slightly. Once the aircraft has started to roll it should be pitched around the turn by moving the bar forwards. This action should be a smooth, fluid action; the bar movement completely related to both speed and angle of turn. Steeper turn angles require more speed, more roll and more pitch. Shallow turns, less of all three. Great care must be taken to ensure both sufficient speed for the rate of turn required and to ensure that too much 'pitch' (bar forward is not applied or the wing will stall in the turn. Clean and co-ordinated roll control can be accomplished easily by thoughtful practice, and pays dividends in smooth and efficient flying. Microlighting is, in general, a fair-weather sport. Light rain will influence flying control by making control inputs heavier, although the effect is minimal. Ice, however, is more serious and can occur through icing conditions, or by flying a wing which is wet from the bag, without giving it time to dry out. Severe icing can affect handling and speeds markedly and at the first sign you should cease flying or fly below icing conditions.

7.2. FLIGHT CONTROLS: The Pegasus XL-Q microlight wing is controlled by standard 'weight-shift' techniques. The speed of response and lightness of action should be borne in mind for those pilots converting from other makes of wing.

<u>Control Bar Movements</u>	<u>Aircraft Response</u>
Bar pulled rearwards	Nose pitched down - aircraft speeds up
Bar pushed forwards	Nose pitch up - aircraft slows down
Bar pushed across to the right	Aircraft rolls to the left
Bar push across to the left	Aircraft rolls to the right

It is absolutely essential that 3-axis pilots undertake a weight-shift conversion course on a dual-control machine before flying the Pegasus XL-Q. Flex-wing pilots unfamiliar with the type should undertake a mandatory check flight before becoming P1.

7.3. GROUND HANDLING: Flex wing microlights are unique in their ground handling ability. In winds over 5 mph, always turn the aircraft until one wing is resting on the ground which will help stabilise the craft until you are ready for flight. A ground picket or weight (fuel can or similar) is very useful to tie the wing tip to in order to prevent damage to the tip and to hold the wing steady. When taxiing cross wind do not make the mistake of letting the up-wind wing go down as this will greatly increase the chances of the craft ground looping. Instead, try to hold the wings dead level as this will present the minimum obstruction to the cross wind. When taxiing down wind, push the bar out to prevent the wind getting under the sail and putting you out of control.

7.3.1. FOOT OPERATED BRAKE: To prevent the aircraft rolling further than desired during taxiing on hard surfaces and slight inclines, a simple foot operated brake acting on the front wheel tyre, has been introduced. The brake also acts as an added safety feature during engine run-up. The mechanism consists of a spring return, foot operated lever, which pivots on the left fork and applies frictional force via a metal tubular arch to the top of the front tyre.

7.3.1.1. OPERATING LIMITATIONS:

7.3.1.2. TAXIING:

(i) The foot brake should not be applied at speeds above 15 mph.

(ii) To avoid the possibility of tipping the aircraft over, do not apply the foot brake when the aircraft is being turned during taxiing. The foot brake should only be applied whilst the aircraft is travelling in a straight line.

(iii) Due to the drop in braking efficiency in wet and icy conditions, extra stopping distance should be allowed for.

7.3.1.3. ENGINE RUN-UP:

(i) Operators should note that above 4000 engine rpm the aircraft may tend to creep forward.

(ii) Due to the drop in braking efficiency in wet and icy conditions, allowances should be made by the operator for creep to occur at a lower rpm than stated in (i) above.

7.3.1.4. INSPECTION:

The amount of wear that takes place on the tyre and footbrake will vary from one aircraft to another, depending on the type of surface the aircraft normally takes off and lands on. Close inspection of the contact area of the brake should be made at intervals of no more than 5 hours.

7.4. TAKE OFF: At sea level, on firm ground with grass of moderate length, the take-off run in zero wind at Max AUW. (365 kg.) may be 180 Metres. Flown solo with a 90 kg. pilot in the same conditions, a take-off run as little as 40 Metres is possible. The take-off run is considered to be the horizontal distance covered by the aircraft, from being stationary until it reaches a height of 15 metres above the average elevation of the runway used. These figures could be shorter if the take-off should be from tarmac, but longer if from wet ground. A significant headwind would reduce the length of the take-off run considerably. Crosswind components of up to 11 mph at Min Auw. and 14 mph at Max Auw. are within limits. The cruise control should not be used during take-off. Take-offs are straight forward. The correct technique on smooth surfaces is to allow the wing to trim in pitch during the initial stages of the take off run so as to reduce the drag and increase the acceleration. At around 20 mph, push forward fully until the aircraft un-sticks. On rougher ground, push the bar out to its fullest extent for the whole takeoff run. The Trike unit will then swing forward under the wing. Allow the base bar to float back as this happens, adjusting bar pressure to maintain a steady climb at around 45 mph. Allowing a steep climb to develop at a slow airspeed after takeoff is dangerous. If the engine fails, the aircraft will pitch nose down through a large angle before taking up a glide. Roll control is also impaired at low airspeed. Therefore DO NOT PERFORM STEEP CLIMB-OUTS.

7.4.1. SOLO FLIGHT TAKE-OFF: It is normal for the aircraft to be flown solo from the front seat, there being no ballast required if the pilot weight is above 55 kg. The initial rotation of the trike to a nose-up attitude will be more pronounced when flying solo. For the initial 200 ft of climb, the attitude of the trike should be controlled to allow for the possibility of engine failure. The full-power setting may have to be reduced to achieve a safe climb angle. The Min AUW. stall speed is around 24 mph.

7.5. EN-ROUTE: During all aspects of flight the aircraft must be flown so that in the event of engine failure or loss of power, safe landing areas are always within reach. Providing the aircraft is being flown sensibly, an engine failure is not serious, any competent and well-trained pilot should be able to cope.

7.5.1. DESCENT RATE: Fully loaded the engine-off sink rate is around 400 feet per minute and increases rapidly as speed is increased.

7.5.2. PITCH: Whether flown solo or dual, pitch control is very smooth and positive, progressive and slightly damped, providing good "feel" at all times and in all manoeuvres. Pitch control is lighter when flown solo than dual.
DO NOT PITCH NOSE UP OR NOSE DOWN MORE THAN 30 DEGREES FROM THE HORIZONTAL.

7.5.3. ROLL CONTROL AND TURNS: Whether flown solo or dual, roll control presents no difficulty. At normal cruising speeds of 45mph upwards, turns may be initiated by simply moving the trike in the required direction. As the turn develops, the bar should be eased out to maintain the desired airspeed. As the desired bank angle is reached, the turn control input should be relaxed. Increasing bank angles require increasing bar-out pitch control forces to coordinate the turn. Roll control becomes slower at low airspeeds, so the bar should be pulled in slightly to increase airspeed before commencing the turn. For roll-out the trike is moved towards the higher wingtip, and the nose is lowered as the horizon levels.
When the aircraft is flown solo, the roll response is faster for the same control force. Roll response is also less damped especially at high speeds (65mph +). Small control inputs should be used. Co-ordinated turns can be achieved with a maximum bar movement of 3 inches.

DO NOT EXCEED MORE THAN 60 DEGREES OF BANK.

7.5.4. TRIM: The Pegasus XL-Q may be flown with the same hang-point setting, whether dual or solo. New wings are supplied from the factory on the rear hang-point. This is because the initial tightness of the wing gives low washout and hence a high trim speed, typically 55mph IAS. During the initial 20 hours or so of flying, the sail will bed in and the trim speed will reduce. When the trim speed has dropped to 50mph or less, the front hang-point can then be used. No ballast is required for single-seat use when the payload is above 55 kg.

7.5.5. EFFECT OF POWER ADJUSTMENT ON PITCH: As the thrust line is set low, the effect of reducing power is to lower the nose of the trike, and an increase in power will cause it to rise. There is no need to alter the control bar position as power is adjusted.

7.5.6. CRUISE CONTROL: The engine rpm can be set with the cruise control lever and then the pressure on the foot pedal may be removed until an increase in rpm is required. Thereafter, the rpm will always return to the cruise setting when foot pressure is removed. To obtain the full rpm range on the foot pedal, the cruise control lever must be in the fully-off position.

7.6. STALL CHARACTERISTICS: Fully loaded, the stall occurs at 30 mph. and is clean and easily handled. As the speed is reduced, aft bar pressure increases, noticeably so immediately prior to the stall. You will also notice a slight nodding tendency and a stiffening of roll response. As the wing stalls, the nose pitches down and corrective action is to bring the bar back slightly to prevent the aircraft re-entering the stall state. If the control bar is held lightly enough to damp out oscillations, the aircraft will automatically recover from a stall and return to trimmed flight. Slight wing drop may be found but is easily corrected. The Pegasus XL-Q wing is remarkably stable, and even if stalled in a turn will not spin, but pitch down, increase air speed and roll out into a shallow turn or straight flight.

7.7. LANDING: The hand-operated cruise control should not be used during landing. Make your approach airspeed about 50-55 mph, and be aware of wind gradient during strong wind days. The flare is conventional, but the light pitch response can cause over correction and 'ballooning'. As soon as the wheels touch down pull back on the control bar, this will eliminate bounce and slow down the aircraft. High airspeed on finals is of great importance for engine-off landings, the approach speed must not be allowed to decay, and there must be a margin to permit rotation before touchdown.

7.7.1. CROSS-WIND LANDING: The Pegasus XL-Q copes well with cross-wind landings, but sensible pilots take great care to land exactly into wind wherever possible. If a cross-wind landing is unavoidable, make a conventional approach, but be ready for the twisting of the Trike unit as soon as the rear wheels touch. Whenever possible utilise whatever into-wind distance you can. Cross-wind components of upto 11 mph min. AUW. and 14 mph max. AUW are within limits, but exercise great care in stronger conditions. Because of the high torsional loads which can be imparted to the trike upright tube and wing keel tube, always carry out a detailed inspection after every cross-wind landing.

8.0. POST FLIGHT INSPECTION: After flight, and particularly if you have had a heavy landing or suspect damage may have occurred through ground handling or cross wind landings, you must inspect the aircraft thoroughly. Please check the maintenance and repair section in this manual and pay special attention to the areas of inspection outlined in section 4.1..

9.0. DE-RIGGING THE AIRCRAFT: The de-rigging procedure is a direct reversal of that for rigging. As with the preparation before flight, it is also important when de-rigging that the pilot carries out an inspection.

9.1. Remove the compression tube and release the one-inch webbing under the front seat. With the rear wheels chocked, lower the wing until the control frame base is on the ground. Unbolt the trike from the hang-point and wheel out the trike unit.

9.2. After detaching the wing from the trike, reverse the procedures listed in para's 4.2.1. to 4.2.19 above. When preparing the wing for stowage in the bag, furl the wing fabric carefully, ensuring that the protection patches are correctly positioned at the following positions:

a) Control frame knuckle joints.
b) Suspension bracket and upper control frame.
c) Washout rod plugs.

Rigging cables should be stowed simply and, especially at the control frame logically.

10.0. TUNING THE WING:

10.1. NEW AIRCRAFT:

PRIOR TO DELIVERY TO THE CUSTOMER ALL NEW AIRCRAFT ARE FLOWN AND SET UP BY EITHER THE FACTORY OR BY APPOINTED DEALERS. A FULL CHECK FLIGHT IS CARRIED OUT AND ADJUSTMENTS MADE TO THE WING TO ENSURE THAT IT IS PROPERLY TRIMMED OUT AND FLIES HANDS OFF AT THE RIGHT SPEED. OWNERS ARE DISCOURAGED FROM MAKING ANY ADJUSTMENTS AND ACCORDINGLY IF YOU FEEL YOUR NEW PEGASUS AIRCRAFT IS NOT PERFORMING AS IT SHOULD, IT IS ESSENTIAL THAT YOUR DEALER IS IMMEDIATELY INFORMED. IF NECESSARY THE DEALER WILL ARRANGE FOR THE AIRCRAFT TO BE RETURNED TO THE FACTORY FOR TESTING.

THE FOLLOWING NOTES ARE FOR GUIDANCE ONLY AND SINCE TUNING OF FLEX WINGS IS A COMPLICATED AND EXACTING SCIENCE, NO ADJUSTMENT SHOULD BE MADE WITHOUT A FULL UNDERSTANDING OF THE PRINCIPLES INVOLVED.

10.2. WING TRIM: A well tuned wing will fly in a straight line hands off and will respond to control inputs equally in each direction. However, fabric can stretch slightly with age and battens can alter shape and get bent or distorted. The most common problem with flex wings is the tendency for the wing to acquire a turn one way which can be irritating and tiring on a long flight. Turns like this can almost always be tuned out and are invariably due to batten shape. However, it may be that airframe damage has occurred so the first thing to do is to check the frame carefully, inspecting for bends and distortion particularly in the leading edges. If the frame is alright, you should check the battens against the template and adjust accordingly. If the battens match the template, the fault may be due to wing stretch and you may have to compensate by altering the battens beyond the template shape. Maximum allowance is 15mm.

10.2.1. Tuning Guide. **For successful tuning, the weather conditions must be smooth, small adjustments must be made one at a time, and notes must be made immediately any changes have been made and check flown. The loading of the aircraft must also be similar for trials to have comparable results.**

Example: At high speed, the aircraft turns to the right. At low speed, the turn is not so pronounced.

Solution, use the tip four battens 7-10 on the starboard side to tune out the turn. The tip battens tend to affect the wings yaw stability by differential drag. Decamber, or add reflex to those on the starboard side slightly. The reduced drag due to reduced camber on the starboard side will counteract the turn by allowing the starboard wing to lead the port wing slightly. The starboard wing will then produce more lift at a greater distance from the C.G than the port wing, so correcting the turn. Increasing the camber of the port tip battens will also help but is best avoided as the trim speed will be increased.

Example: The aircraft turns right at low speed. The turn is less pronounced at high speed.

In this case battens 5 and 6 can be used to counteract the turn. Increase lift on the starboard wing by increasing the camber slightly. Reduce lift on the port wing by reducing camber slightly. These battens do not affect the yaw so much, and so can be used directly.

If a turn is incurable by making small adjustments, it may be necessary to return the wing to our approved agents or ourselves to have it checked out and corrected.

10.3. PITCH TRIM: Adjustment to trim is made by moving the nylon trike block on the wing keel. Moving the block forward will increase the 'hands off' trim speed and rearwards decrease it. **DO NOT INCREASE THE TRIM SPEED BY INCREASING CAMBER FROM THE PLAN AS PITCH STABILITY WILL BE REDUCED. DO NOT DECREASE TRIM SPEED BY DE-CAMBERING THE TIP BATTENS AS THIS WILL AFFECT HIGH SPEED YAW STABILITY. The Pegasus XL-Q wing requires very little adjustment to pitch and alterations from the series test flight status should not be made without consultation with the factory or our approved agents.**

10.4. LEECH LINES: The whole pitch stability of the aircraft depends on the leech lines and no adjustment should be made without consultation with the Solar Wings Factory. Incorrect leech line adjustment can be exceedingly dangerous.

10.5 **WARNING:** Those operators who wish to tune the XL-Q should contact a Solar Wings agency for additional advice. Before any tuning is attempted, a careful and thorough check of the airframe is essential. A sudden indication that the wing requires tuning may be the result of damage caused in an unreported accident or in a heavy landing.

11.0. MAINTENANCE:

11.1. GENERAL: Apart from the consequences of heavy landing, or of exceeding flight limitations, the major factors for attention are corrosion and fatigue. There is no inherent fatigue problem with the Pegasus XL-Q, but excessive loads and vibration can weaken the structure, and a regular watch for hair-line cracks, most likely in areas under high stress, such as around bolt holes, will give warning. All XL-Q components can be replaced without difficulty. Repairs should be undertaken by the Solar Wings factory or a Solar Wings approved repair agency.

11.1.1. ALUMINIUM TUBEWORK: Care and consideration in de-rigging and transportation will pay huge dividends in airframe life. Any damage to any one of the structural members is serious and can usually only be repaired by replacement. Tubes suffer from abrasion or indentation, the first accelerating fatigue fracture and the second reducing the strength of the part. If you bend, dent or damage the tubular members in any way, seek immediate professional advice before flying again and have replacement parts fitted.

11.1.2. FASTENERS: Only fasteners purchased from Solar Wings either direct or through an approved stockist should be used for replacement. Any fastener which is bent or shows sign of wear or corrosion should be immediately replaced. Nylock nuts should only be used once and wire locked nuts must be re-locked into place.

11.1.3. RIGGING CABLES: The main danger with the rigging lies in kinking the cable, usually caused by careless rigging and de-rigging. Once a cable has a kink, the strands are damaged and replacement is the only cure. The side cables are particularly important and should receive a frequent detailed inspection. Check for cable damage along the length but the main failure area lies immediately adjacent to the swaged fitting. Look carefully for signs of strand fracture at this position. Corrosion is a serious problem particularly in coastal areas and shows itself as a white powdery deposit. Corrosion cannot be cured and replacement is the only answer.

11.1.4. FITTINGS: Many fittings on Pegasus aircraft are manufactured from aluminium alloy and then anodised. Damage can occur through scratching or by the stress of an unduly heavy landing or crash, or by general wear. Look for elongated holes and stress lines in the aluminium. Damaged items should be replaced.

11.2. WING:

11.2.1. GENERAL: Careful attention to the recommended rigging and derigging sequences will protect the wing from the risk of unnecessary damage. The wing must always be transported inside its bag, and the bag zip must face downwards to prevent the entry of rainwater. During transportation, or when stored on slings, the wing must be supported at its centre and at two points not more than one metre from each end. Supports should be softly padded, and any support systems used for transport, such as roof racks, must use attachment straps which are sufficiently secure to eliminate the possibility of damage from vibration and abrasions.

11.2.2. WING FABRIC MAINTENANCE: Despite the best care you can take, you will still have accidents with the odd wall or wire fence or your protection pads may slip and you will be faced with slight damage to the fabric. Where this takes place depends on how it can be repaired, high load areas such as a trailing edge being critical. Any cuts or tears through the trailing edge, sail fixing points or similar high load areas must be repaired at either the Solar Wings factory or a Solar Wings approved workshop. Small damage to panels, leading edge cover etc. can be repaired with self adhesive tape which is cut to size, pressed into place on the clean dry sail and warmed gently with a hair dryer to melt the adhesive, being careful not to apply too much heat. We define small damage as abraded holes no more than 10mm diameter and small cuts no longer than 15mm. Anything larger should be inspected by a qualified engineer.

11.2.3. STITCHING DAMAGE: All the seams are firstly joined with a double sided sail adhesive tape and then double zig zag sewn. Thread damage never ever gets better and eventually runs. Since the wing is held together with stitches, its pretty obvious what will happen when the stitching fails. If you abrade a seam, then have the damage repaired before it gets worse. Small non loaded areas can often be repaired in-situ by the tedious but effective method of hand sewing back through the original stitch holes. Never use anything but matching polyester thread which is available from Solar Wings or any good workshop or sail makers.

11.2.4. WING FABRIC CLEANING: The best answer to dirty sails is to keep them clean, but if all else fails and you need to wash your wing, then select a dry day and have access to a good hose and clean water supply. Never use strong soaps or detergents since soap residue can re-act with ultra violet light and degrade your fabric. We recommend a very mild liquid soap (washing up liquid) and a soft sponge. Gently wash the fully rigged wing, frequently hosing clean. Copious amounts of clean water will not harm the wing and can be very beneficial in removing sand and grit which may get trapped inside the leading edge pocket usually in the nose or wing tip areas. Ensure the wing is completely dry before de-rigging.

11.2.5. BATTENS: Battens form the wing shape and hence dictate the whole performance of the wing. They need treating with care, and since they are subject to constant tension both during flight and rigging, tend to lose their shape and flatten out. It is essential that they are reformed at frequent intervals and checked against the template. The best way to reform is to hold the batten against your knee and, whilst applying pressure to bow the batten, slide it side to side over the area you want to bend. Direct point bending will usually result in either a poor shape or a broken batten.

11.3. TRIKE:

11.3.1. GENERAL: The Pegasus trike has been designed to permit easy inspectability, and operators should have no difficulty in assessing problems or recognising damage if visual checks are carried out conscientiously. General care should include:

Washing down the tube work with warm water and a light detergent followed by rinsing with fresh water.

Fabric sponged with warm water and a mild detergent and rinsed with fresh water.

The pod and wheel spats washed and polished using commercially obtainable shampoos and polishes.

The cockpit area should have all litter removed.

11.3.2. ENGINE: For engine maintenance details see engine manufacturers manual.

11.3.3. PROPELLER: The condition and torque settings of the propeller bolts should checked with the frequency recommended in the inspection schedules laid out below. NOTE: When checking the torque it is important to understand that the bolts are tightened into the propeller driving flange and the backing nuts are merely additional security. Therefore these backing nuts must be slackened off prior to torque checks being carried out and replaced after completing the checks.

Torque should be applied in the following manner:

First tighten all bolts in stages.
Initially to 6ft lbs and finally 10ft lbs.
Using the following sequence:
1 - 4 - 2 - 5 - 3 - 6

Other general maintenance should include replacing the leading edge tape as required by inspection and regular wiping off of the propeller with a damp cloth to remove insect and other foreign body build-up. If left unchecked, both the condition of the tape and particle build-up can significantly reduce propeller efficiency.

11.4. LUBRICATION:

11.4.1. TRIKE: a). The rear axle bearings should occasionally be lubricated using a commercial lithium based grease. Frequency of greasing will depend entirely on the amount of taxiing time.

b). The rear steering bar, foot throttle, cruise control and choke lever pivots should be lubricated with machine oil weekly.

c). All other bearings are life sealed and require no additional lubrication.

d). Refer to the engine manufacturers handbook for gearbox, water pump/rotary valve drive gear lubrication details.

e). The hangpoint bush at the top of the upright tube should have a light application of general purpose grease every 10 hours.

11.4.2. WING: a). The keel tube suspension bracket nylon requires to be sprayed monthly with a commercial silicon spray.

11.5. RECOMMENDED INSPECTION SCHEDULES:

Solar Wings strongly recommends that all parts are visually inspected and assessed by an approved Solar Wings or BMAA inspector and any repairs carried out as outlined in section 12.

11.5.1. TRIKE AND WING: Complete strip down and inspection including replacement of appropriate mandatory lifed components: 500 hours.

11.5.2. TRIKE:

11.5.2.1. ENGINE:

Engine: For inspection schedules refer to the engine manufacturers manual.
Engine mountings: Cracks, bond failure and reduced stiffness: 25 hours.
Engine controls: Cable fraying, adjustment and operating freedom: 25 "
Engine electrical connections: Tightness and corrosion: 25 "
Engine airfilters: Clean and re-oil as per Filter manufacturers instructions: Maintenance periods are a function of environment and are therefore cleaned upon inspection or a minimum of: 50 hours.

11.5.2.2. FUEL SYSTEM:

Fuel filters: Clean or replace if necessary:	25 hours.
Fuel lines: Cracks end fitting security and joints.	25 "
Fuel tank including vents: Clean and check vent function:	25 "
Fuel pump diaphragm: Check for cracks and signs of perishing:	50 "
Fuel tank: Remove and flush out with clean petrol.	10 "
Fuel tank retaining strap: Check and re-tighten.	10 "

11.5.2.3. TRANSMISSION:

Propeller: Check for leading edge damage, delamination and splits:	25 hours.
Propeller: Check propeller fasteners for tightness:	10 "
Gearbox bearing: Check for play:	50 "
Gearbox oil level:	10 "

11.5.2.4. FRAME:

All tube work: Check for bent and damaged tubes:	50 hours.
Drag links and all fixing: Elongation of holes and tube damage:	50 "
Seat frame and seat belts including hinge plates and dome bolts: Tube cracks and elongation of holes:	25 "
Seat base bracket: check for damage and welds:	50 "
Hang point bolt and bush: Grease and check for wear and damage:	10 "

11.5.2.5. CABLES:

All cables: Check for broken strands, thimble damage and stretch:	25 "

11.5.2.6. STEERING:

Front forks: Check for straightness, elongation and cracks:	25 "
Front Brake: Check contact area for wear:	5 "
Connecting link: Check for cracks, and rod end security:	25 "
Rear steering bar pivot: Check for cracks and straightness:	25 "

11.5.2.7. WHEELS AND TYRES:

Tyres: Check for splits, perishing and pressures:	25 "
Wheel hubs: Check for damage:	25 "
Wheel bearings: Check for play and grease:	25 "

11.5.2.8. BODYWORK:

Pod: Check for Splits and general soundness:	50 "
Spats: Check for splits and general soundness:	50 "
Side fairing: Check for general soundness:	50 "

11.5.3. WING:

11.5.3.1. FRAME:

Visual check on all exposed parts and those parts accessible through inspection zips: Check tube and fastener condition:	25 hours.

11.5.3.2. CABLES:

Lower: Check for broken strands, thimble damage and stretch:	25 hours.
Upper: Check for broken strands, thimble damage and stretch:	25 hours.
Restraint: Check for broken strands, thimble damage and stretch:	25 hours.

11.5.3.3. FASTENERS:

All fasteners: Check for wear, straightness and signs of fatigue:	25 hours.

NOTE: These inspections do not obviate the need for the Pre-flight and Post flight inspections outlined in sections 5 and 8.

11.6. RECOMMENDED COMPONENT LIFE:

11.6.1. GENERAL: In the main, the safe working life of the structural components of the Pegasus XL-Q is dictated by the environment in which the aircraft is used and the care taken during day to day operations. Inspection therefore, is an essential tool in deciding the continued use of most components. However, by the nature of their material, construction and position within the structure, certain components have a critical fatigue life and it is mandatory that these components are replaced within the time stated below.

11.6.2. WING:

Crossbooms	2000 hours
Leading Edges	1000 "
Control Frame Base Bar and fittings	1000 "
Keel	1000 "
Rigging Wires	500 "
Trike Suspension Bracket	500 "

11.6.3. TRIKE:

Upright Tube to Wing Connection Block	500 hours
Upright Tube and Upright Tube to Base Tube Plates	500 "
Front Strut and connecting channels	1000 "
Base Tube and Steering Head	1000 "
Seat Frame	1000 "

12.0. REPAIR:

12.1. WARNING - THE PEGASUS XL-Q AIRFRAME IS DECEPTIVELY SIMPLE, BUT LIKE ALL AIRCRAFT REQUIRES SKILLED AND QUALIFIED ATTENTION. WE DO NOT RECOMMEND SELF REPAIR OR RE-ASSEMBLY BY OTHER THAN SOLAR WINGS OR SOLAR WINGS NOMINATED REPAIR AGENTS. NO REPLACEMENT PARTS SHOULD BE FITTED UNLESS THEY ARE FACTORY SUPPLIED AND IDENTIFIED.

12.2. WING:

No repairs are to be undertaken by the operator.
Sail repairs are only to be undertaken by the Solar Wings factory.
Repairs by replacement only.
Replacement parts must be obtained from Solar Wings Ltd. or a Solar Wings appointed agency.
Bent aluminium tubes must never be straightened, always replaced.
Frayed cables and cables with damaged or twisted thimbles must be replaced.

12.3. TRIKE:

No repairs are to be undertaken by the operator.
Repairs by replacement only.
Replacement parts must be obtained from Solar Wings or a Solar Wings appointed agency.
Bent aluminium tubes must never be straightened, always replaced.
Frayed cables and cables with damaged or twisted thimbles must be replaced.

APPENDIX A.

The Cyclone electric carburetter heater.

Appendix for the 47 litre plastic fuel tank fitted to the Pegasus XL-Q

1. General.

The plastic fuel tank replaces the original alloy 47 litre design, offering:

1) Easier and more accurate level gauging by means of an integral sight gauge:

2) Drain feature for checking fuel for water, or tank draining.

3) Unusable fuel quantity 500cc even in steep climbs.

4) Simplified external venting system.

5) Absence of separate internal baffles and vent pipes.

6) Improved mounting system.

2. Weights.

The tank itself weighs 4.5kg which is 0.7 kg less than the original alloy design. The tank volume is the same, so the weight of the aircraft is reduced by 0.7kg.

3. Performance.

The performance is unaffected by the replacement tank.

4. Handling.

The handling, stability and control are unaffected.

5. Maintenance.

1) The fuel should be sampled for water each day and after refuelling, by draining a small sample into a clear container. Water will form a layer or globules in the bottom. Emulsions may be caused through mixing of incompatible two stroke oils.

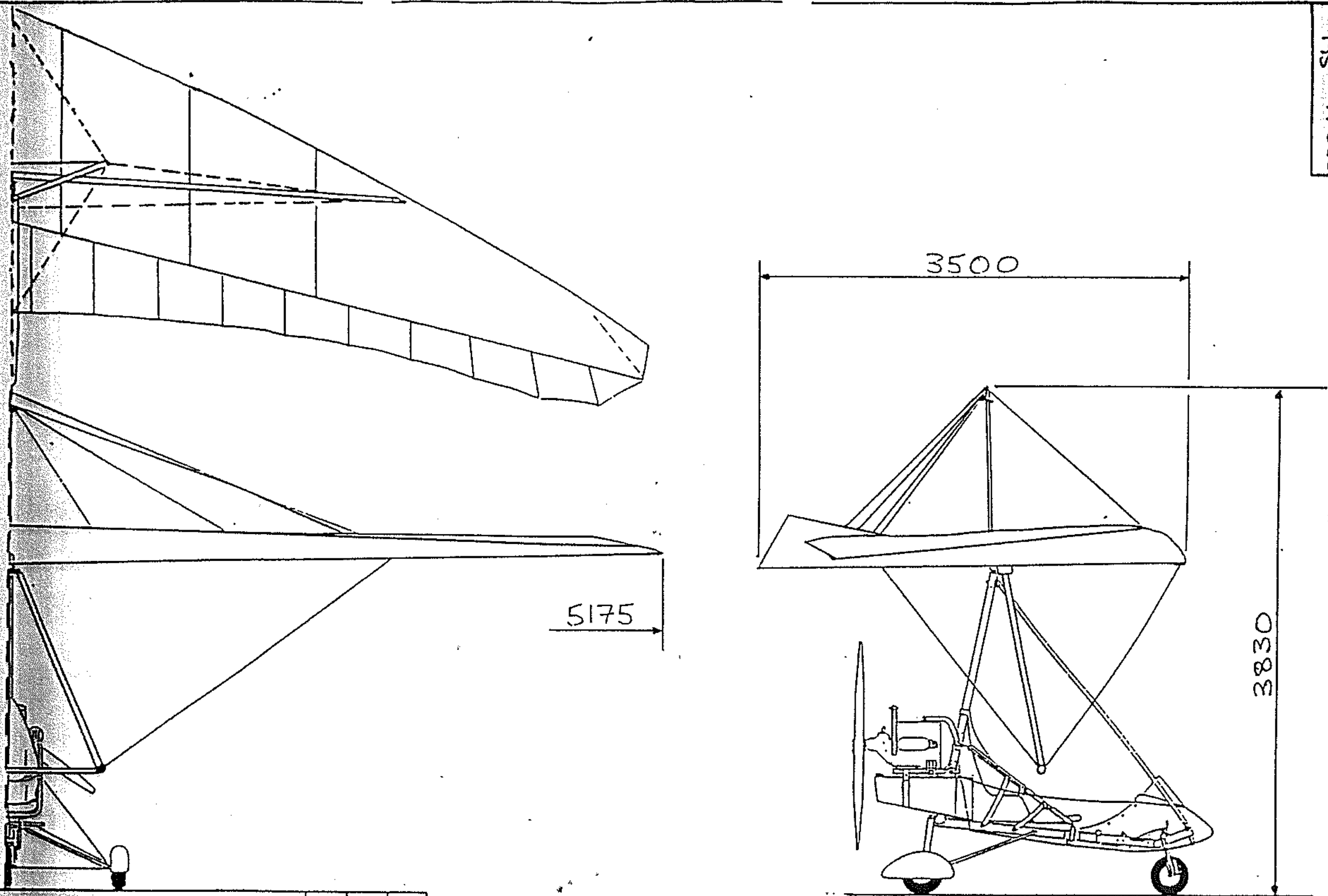
2) The drain valve should be checked for leakage and security each time it is operated.

3) The tank should be inspected for clogging of the fuel pick-up pipe strainer by inspection through the filler neck every 25 hours.

4) The mountings, especially the lower bobbins and rear strap, should be checked for condition and security every 25 hours.

5) The tank should be inspected for signs of abrasion or chafing every 50 hours.

6) The main bottom mounting bolt must be removed and inspected for corrosion, deformation or cracking, at least once a year when the permit is renewed.



DRG No. SW 88031

ALL DIMS IN MM.

No.	DESCRIPTION	CHK'D	APP'D	DATE
A	INITIAL ISSUE		WB	29/4

REVISIONS

PEGASUS XL-Q L/C
GENERAL ASSEMBLY

DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
MLD			WBrad	19/04/88	NTS

DRAWING No. SW-88031