



Light Sport Aircraft MAINTENANCE MANUAL ISSUE 1.0

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Part # 110789

DATA PACKAGE

This manual constitutes one part of the complete data package that accompanies the aircraft. Following is a list of each of the components that are required.

- **Aircraft Operating Instructions**
- **T-Lite Maintenance Manual**
- **T-Lite Illustrated Parts Catalogue**
- **Wing Maintenance Manual**
- **Wing Illustrated Parts Catalogue**
- **Engine Owners Manual**
- **TinyTach Manual**
- **Variometer Manual – If Installed**
- **Parachute Manual – If Installed**

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Table 1 T-Lite Data Package

INTRODUCTION

This manual contains factory recommended procedures and instructions for ground handling, servicing and maintaining the T-LITE Base section of this aircraft. The procedures described are to be used in conjunction with the National Airworthiness Authority (NAA) of the country of registration. Any NAA maintenance requirement takes precedence over this manual.

This manual should be used in conjunction with an appropriate wing, and therefore the operator is directed to reference the wing maintenance manual for any issues that are related to the wing component of the aircraft.

NOTE

Where the aircraft is operated under Part 103 certification, the maintenance standards as prescribed in this manual are recommended but not mandatory.

Skills

Only people with an adequate skill level should perform maintenance on this aircraft. A sound understanding of mechanical systems, and good experience with the necessary tools and procedures is required - as the continuing airworthiness of the aircraft relies on the competence of the person performing the maintenance. Assessment and judgement of the condition of each individual component is required, which necessitates a sound understanding of the purpose of each component in the system. All maintenance and repairs must be carried out in accordance with good aeronautical practices.

Skills and authorisations specific to Special Light Sport Aircraft

Maintenance tasks are rated in the categories listed below, according to the applicable category of registration and skill levels required to perform those tasks:

Owner— FAA regulations authorize SLSA aircraft owners who hold at least a sport pilot certificate to perform maintenance as outlined in 14 CFR Part 43. To perform inspections on aircraft condition, functional checks and maintenance in between inspections carried out by LSA Repairman Maintenance certificate holders.

LSA Repairman Maintenance— This certification authorizes a certificate holder to perform line maintenance, repairs and alterations to S-LSA as the task allows. Includes 100 hourly and yearly inspections on S-LSA.

A&P—Mechanic Certificate with Airframe and or Powerplant rating. To perform heavy Maintenance on airframes or powerplant as the rating allows.

Task Specific—Applicable to the following ratings:

LSA Repairman Maintenance with appropriate task specific training or;

A Mechanic Certificate with appropriate task specific training.

Authorizes the holder of mechanic certificate or a repairman certificate who has received task specific training, to perform the tasks approved under that training. Allows a repairman certificate holder to perform heavy maintenance, repairs and alterations on the SLSA.

E.g. The Mechanic Certificate holder may obtain Task Specific training on Bailey engines, to allow overhaul etc.

Skills and authorisations specific to Experimental Special Light Sport Aircraft

LSA Repairman Inspection— To perform line maintenance and inspections to be completed on an E-LSA by a responsible owner, who holds an FAA repairman certificate (light sport aircraft), with an inspection rating or equivalent.

There are no requirements for minimum certification to perform any other task on an experimental aircraft. However, Airborne recommend that only people with an adequate skill level should perform maintenance on this aircraft as described at the start of this section.

Other Categories of Registration

This aircraft is a Light Sport eligible aircraft. This manual is created to be compliant to the standards applicable to Special Light Sport Aircraft.

The category of registration may be quite varied; as such the maintenance requirements of this aircraft are to be applied in conjunction with the requirements of the National Airworthiness Authority (NAA) of the country of registration. Any NAA maintenance requirement takes precedence over this manual.

In the event that the owner is permitted to perform maintenance in their country and category of registration, if there are any doubts regarding the required and appropriate maintenance then the safety of the aircraft may be jeopardised in continuing with self-maintenance. In this situation an Airborne Dealer should be contacted for the correct procedures and or servicing.

Tooling

There are no specialised tools needed for the maintenance described in this manual, following is a list of the type of tools that may be required.

- Ring / Open ended Imperial Spanner set
- Ring / Open ended Metric Spanner set
- Torque wrench
- Air Pump (Schrader Style Valve)
- Various petroleum lubricants
- Dry Lubricant – lubricant which doesn't attract dust after application.
- Tie wire, zip ties
- Wire and swages and tooling
- Hex key set (metric and imperial)
- Petrol resistant thread sealant tape
- Various general care items

This list may not be comprehensive.

Service Difficulty Reporting

Any service difficulties or defects should be reported to Airborne using the form contained in the appendix

WARNING

REPAIRS SHOULD NOT BE CONDUCTED UPON THE FOLLOWING ITEMS AS THEIR STRUCTURAL INTEGRITY IS CRITICAL TO SAFETY.

THE MAST STRUCTURES, HANG POINT, BASE TUBE, FRONT FORK ATTACHMENT ASSEMBLY, LANDING GEAR STRUTS.

OTHER MINOR REPAIRS CAN BE CARRIED OUT IN ACCORDANCE WITH FAA AC 43.13 1B

Format

The manual has been prepared using the ATA format, which provides a standard layout of the chapters to be included, and their content. Some of the chapters are not included as they are deemed to be not applicable to this aircraft. The content is compliant with Light Sport Aircraft standard. Skill levels required to perform tasks are applicable to the levels of qualification issued under the Light Sport Aircraft System.

The information in this manual is based on the data that was available at the time of its publication. The latest amendments to this manual will be issued on the Airborne website in PDF format. This should be printed out and added to the manual. Therefore it is important that operators keep a regular check on the website for any amendments that have been made. If any errors or omissions are found in this manual please advise the factory.

WARNING

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

MANDATORY SERVICE BULLETINS

AS THE SERVICE HISTORY OF THE AIRFRAME EVOLVES AIRBORNE WILL FROM TIME TO TIME ISSUE MANDATORY SERVICE BULLETINS, WHICH DETAIL ANY CHANGES TO THE MAINTENANCE MANUALS, PILOT'S OPERATING HANDBOOK, OR ANY OTHER DETAILS THAT AIRBORNE DEEMS NECESSARY FOR OWNERS TO BE NOTIFIED OF.

THE WEB ADDRESS FOR SERVICE BULLETINS IS:

[HTTP://WWW.AIRBORNE.COM.AU/](http://www.airborne.com.au/)

IT IS THE RESPONSIBILITY OF THE OPERATOR TO KEEP UP TO DATE WITH ANY BAILEY DIRECTIVES THROUGH THE BAILEY AVIATION WEBSITE.

USE OF METRIC/ IMPERIAL UNITS

This Service Manual uses the metric unit system as the basic system of measurement. Where common usage or available instrumentation refer to the Imperial system, both units are quoted. The following conversion factors are presented as a ready reference to the conversion factors that have been used in this manual.

1 Pound (lb)	=	0.4536 Kilogram (kg)
1 Pound per sq in (psi)	=	6.895 Kilopascal (kPa)
1 Inch (in)	=	25.4 Millimetres (mm)
1 Foot (ft)	=	0.3048 Metre (m)
1 Statute mile	=	1.609 Kilometres (km)
1 Nautical mile (NM)	=	1.852 Kilometres (km)
1 Millibar (mb)	=	1 Hectopascal (hPa)
1 Millibar (mb)	=	0.1 Kilopascal (kPa)
1 Imperial gallon	=	4.546 Litres (l)
1 US gallon	=	3.785 Litres (l)
1 US quart	=	0.946 Litre (l)
1 Cubic foot (ft ³)	=	28.317 Litres (l)
1 Degree Fahrenheit (F)	=	(1.8 X C)+32
1 Inch Pound (in lb)	=	0.113 Newton Metres (Nm)
1 Foot Pound (ft lb)	=	1.356 Newton Metres (Nm)

Table 4 Imperial / Metric Conversions

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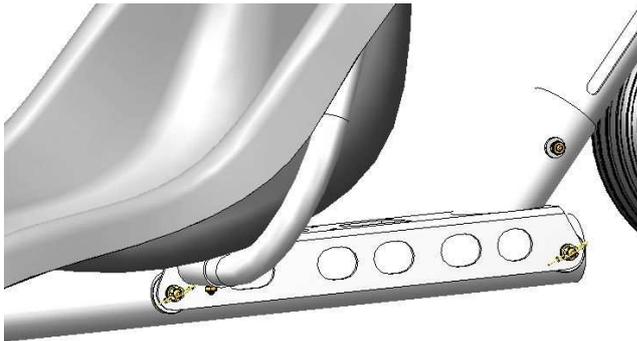
0. ASSEMBLY AND TEST FLIGHT / COMPONENT OVERVIEW

00.00.00 Trike Base Assembly And Disassembly

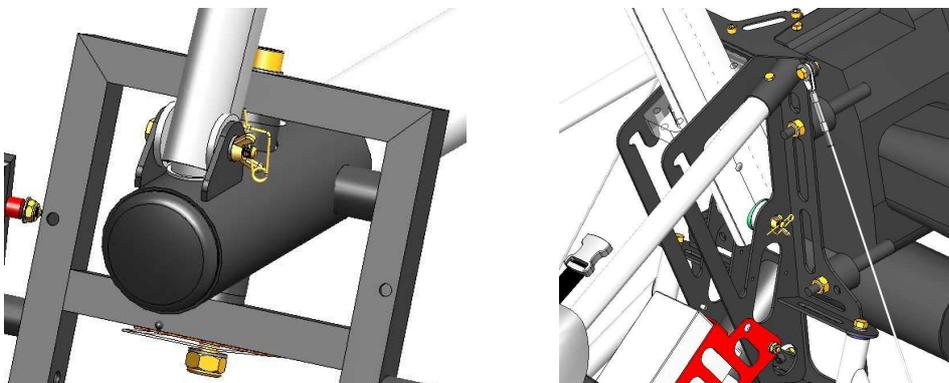
The T-Lite is simple and quick to disassemble and assemble. Following is the point procedure used. An area of approximately 2m x 3m is all that is necessary for disassembly and assembly, but ground surfaces should be clean and smooth to avoid damage to components.

Assembly

- Check ignition is off.
- If front base tube has been removed, re-attach. The base tube bolts (x2) should be tightened till the saddles contact the channel, taking care not to overtighten which may squash the base tube.
- Fold out wheels and struts and attach clevis pin on aft base tube that secures rear landing gear.
- Attach prop by fitting each half together, then place joined halves onto the prop hub.
NOTE: T-Lite stickers must face to the rear.
Tighten prop bolt until the rubber squashes approximately 0.5mm and, and insert R-clip.
- Attach mast and front pole assembly using mast pivot bolt and front pole attachment. Nuts should be tightened finger-tight only. Attach safety clips through slots in castellated nuts.
- Attach seat.
- Re-connect the fuel isolation valve. NOTE: When the fuel isolation is disconnected there will still be enough fuel in the lines and float bowl to run the engine for a few minutes, ie, enough to start a take-off run but not finish it.



Base tube bolts and castellated nuts tightened until the saddles contact the channel only. Do not overtighten, split rings fitted.



The front pole bolt and mast pivot bolt, wing nuts finger-tight, safety pins fitted.

Trike base pre-flight

- All nuts secured with safety pins or split rings.
- Landing wires in fit condition, no damage or kinks.
- Wheels and tyres in good repair.
- Over-centre lever engaged.
- Battery secure.
- Fuel tank secure.
- Soft sides and seat clips are all fastened.
- Propeller properly fitted (T-Lite stickers facing rearward).
- Steering full and free.

Disassembly

- Check ignition is off.
- Disconnect fuel at fuel isolation valve and remove fuel tank. Take care that fuel may leak out the breather if the fuel tank is tipped far over.
- Remove seat.
- Remove front pole and mast assembly by undoing mast pivot bolt and front pole attachment.
- Remove prop by undoing R-clip and put in protective bag.
- Remove clevis pin on aft base tube that secures rear landing gear and fold-in wheels and struts. Be aware the base may rock back onto the exhaust muffler.

NOTE

The front base tube can be removed if desired but care must be taken as the throttle cable and instrument cluster will still be attached to the front end assembly.

00.10.00 General Spare Parts Service

Spare parts may be purchased from your local dealer network. Visit the Airborne Website at:
<http://www.airborne.com.au/pages/dealerselect.cfm>
Accessed from the homepage under Microlights / Dealer listing.

Typical Consumables

Consumable	Airborne Part Number	External Supplier Part Number
SPARK PLUG NGK CR7E (BAILEY V4)	110964	NGK CR7E
SPARK PLUG (BAILEY V5) NGK CH7SA	111041	NGK CH7SA
TYRE 4IN X 3.2IN N SERIES	110489	"DELI" Brand
TYRE TUBE INNER 4IN SUIT TYRE 4.00X3.2	110490	7128
AIR FILTER	110966	Genuine K&N
FUEL FILTER	104020	
ENGINE OIL	110872	OIL SHELL ADVANCE ULTRA4 SAE 10W-40 1LTR
BATTERY GELL CELL 12V 07AHR	110486	

Table 5 Typical Consumables

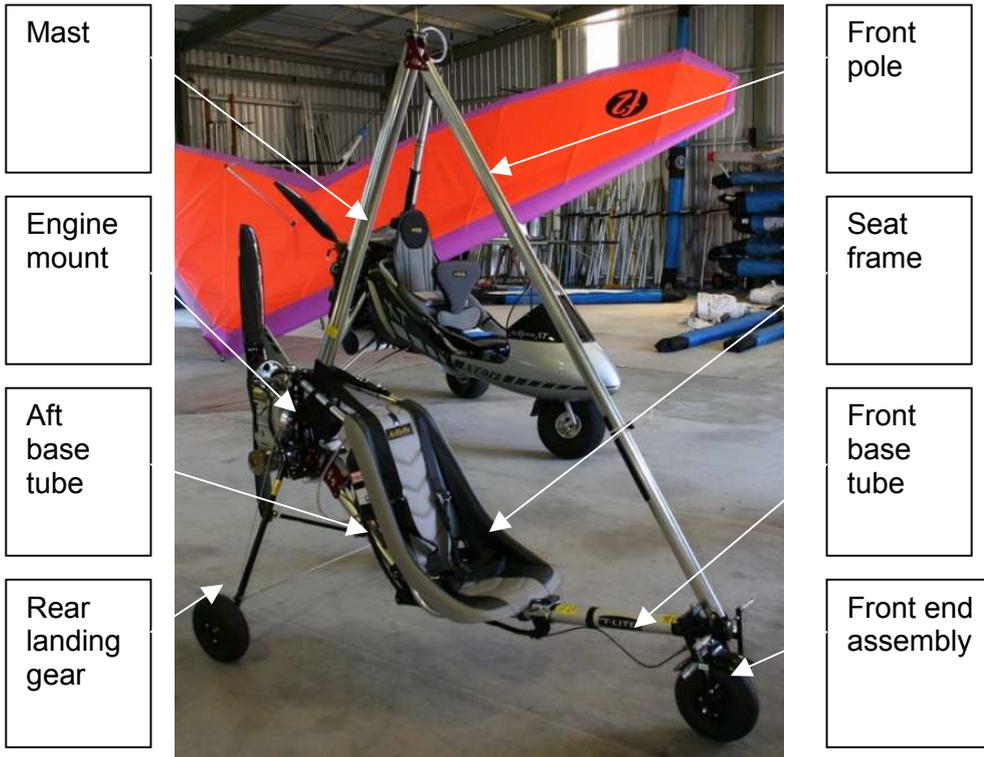
Additional consumables are applicable to engine maintenance and heavy maintenance. Refer to the engine operation and maintenance manual.

00.20.00 Component Overview

Important areas of the trike base have been identified in this section to aid maintenance personnel. This list is not comprehensive.

Aircraft Structure

Main structural members



Cockpit



Steering and foot levers

Brake lever – if fitted

Foot rests



Throttle lever

Front fork

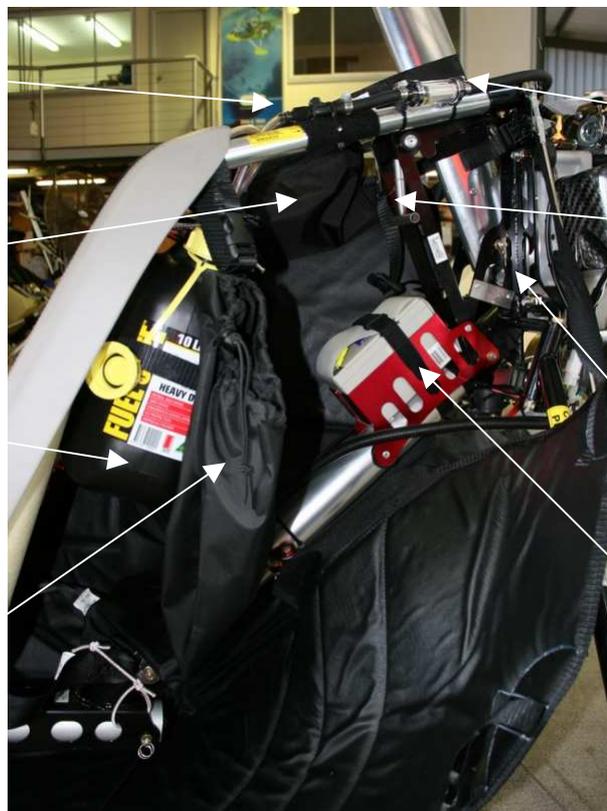
Behind the seat

Fuel isolate valve

Log book bag

Fuel tank

Under seat bag



Fuel filter

Over-centre lever

Engine mount

Battery

Power plant

Carburettor

Air filter

Fuel lines

Oil sight window

Muffler



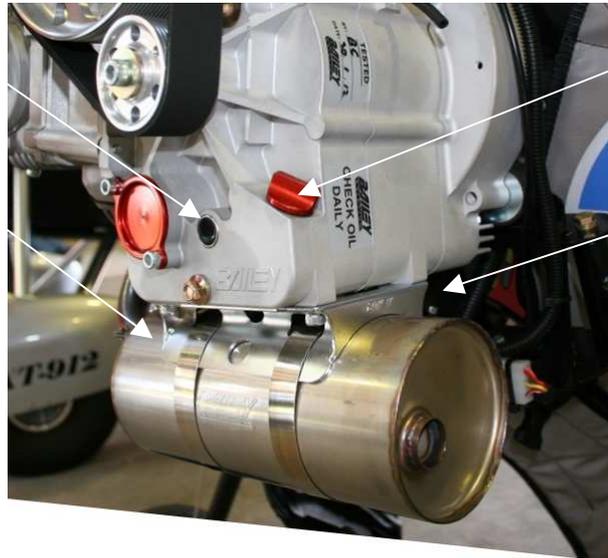
Propeller

Reduction drive

Spark plug

Oil fill cap

Fuse



4. AIRWORTHINESS LIMITATIONS

4.00.00 General

This section sets forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure required for type certification.

4.10.00 Log of Effective pages – Airworthiness Limitations

4.20.00 Airframe Limitations

Component	Life (hours)	Requirement
Heart Bolt (1 off)	100	Mandatory Replacement.
Masts and Base Tube	953	Check Service Bulletins (See note). Return to service if no SB action required.
Trike Structure, Excluding Masts and Base Tube Structures	8338	Check Service Bulletins (See note). Return to service if no SB action required.

Table 7 Airframe Limitations

The Airborne Windsports XT series airframe was analysed using FAA fatigue analysis “Fatigue Evaluation Of Wing and Associated Structure on Small Airplanes FAA Report # AFS-120-73-2”, in order to estimate the time life limits for the major components of the airframe, this is detailed in Airborne report 04-144ds. This has been used to provide the estimates for this lower load, lighter series of trike bases. The estimates that have been made do not take into account any extreme loads, which will reduce the fatigue life of the airframe. The fatigue life of these components is dependent upon rigid adherence to maintenance schedules.

The bolts that are listed are known through history of operation to be affected more through mechanical wear than through fatigue, and therefore the time life for these components is less than the calculated values for the airframe.

As the service history of the airframe evolves these time-life estimates are expected to be revised, amendments should be checked for regularly.

Note: See the Airborne web site for Service Bulletins <http://www.airborne.com.au/pages/directive.php>

5. TIME LIMITS/MAINTENANCE CHECKS

5.00.00 General

The time limits and maintenance schedule provided are in addition to any regulation of the governing body where the aircraft is being flown. Some components are subject to overhaul intervals as specified by their manufacturers, Table 5.10.00 gives the overhaul or replacement intervals for these components. The pilot of the aircraft must ensure that the required maintenance is carried out and documented in the correct manner.

Extreme operating conditions may reduce the time limits for components, unscheduled maintenance is detailed in Section 5.50.00. AirBorne will from time to time amend these maintenance checks as the service history of the aircraft evolves. It is the responsibility of the pilot to ensure compliance with new directives (information is available on the website <http://www.airborne.com.au/>).

5.10.00 Time Limits

The following components are time limited and should be overhauled or replaced as indicated. This table may be updated to include more components in the future as MANDATORY SERVICE BULLETINS are amended.

Component	Life	Requirement
Engine	As specified by the manufacturer.	Overhaul or Replace
Engine Accessories	As specified by the manufacturer.	Overhaul or Replace
Propeller	As specified by the manufacturer. See section 5.20.20 of Maintenance Manual	Overhaul or Replace
Fuel and Oil Hoses	Five years or to be replaced during engine overhaul – replacement	Replace
Parachute (if fitted)	As specified by the manufacturer.	Overhaul or Replace

Table 8 Time Limits of Components

5.20.00 Scheduled Maintenance Checks

Airborne microlights have been designed to permit easy inspection, and operators should have no difficulty in assessing problems or recognising damage if visual checks are carried out correctly.

Maintenance checks may require partial disassembly of the aircraft. Inspection should include a thorough visual check of the condition of the component and the attachment point in adequate lighting conditions. Cleaning of the component may be required for proper inspection. Significant scratches, cracks, galling or any other mechanical wear of the component is reason for replacement.

General care should include:

- Washing down the tube work with warm water and a mild detergent followed by rinsing with fresh water.
- Fabric sponged with warm water and a mild detergent and rinsed with fresh water.
- Treat all exposed metal components (including the engine) on the trike base (only) with a dewatering compound such as WD40 or CRC spray. This guards against corrosion and makes cleaning much easier.
- Lubricate the throttle cables regularly using light machine oil.

Apart from the consequences of heavy landing, or of exceeding flight limitations, the major factors requiring attention are corrosion, fatigue and wear.

There are no known fatigue problems with Airborne WindSports nanolights, but excessive loads and vibration can weaken the structure. Regular inspection for hairline cracks in areas under high stress, such as bolt holes, tube junctions, etc is recommended.

Many components can be replaced with ease, for difficult repairs or if the repair process is not fully understood consult your Airborne distributor or the Airborne factory.

The airworthiness of microlights is only valid provided that all necessary maintenance, modification and service requirements are fulfilled.

These requirements include:

- Maintenance of aircraft as per the Maintenance Schedule in this handbook.
- Modification as detailed in any relevant Service Bulletins.
- Modification to approved details, obtained from Airborne WindSports Pty Ltd
- Repairs necessary to replace minor damage, wear or ageing
- Servicing, replacement and overhaul, inspection and checking in compliance with the maintenance schedule
- Any Airworthiness Directive (AD) issued by CASA or the NAA in the country of registration.

5.30.00 Maintenance Privileges

This manual lists task to be performed on the maintenance schedule, the minimum qualification required to perform that task is prescribed. A simple explanation of maintenance privileges permitted according to LSA category of registration is described in the table below:

	Experimental LSA				Special LSA			
	Sport Pilot	Owner Sport Pilot	LS – I Sport Pilot	–S - M / A&P / part 145 repair	Sport Pilot	Owner Sport Pilot	LS – I Sport Pilot	–S - M / A&P / part 145 repair
Modifications								
Daily Inspections								
Preventative Maintenance								
Repairs, Major Maintenance.								
100 hour inspection								
Annual Inspection								

Table 8 Maintenance Privileges by Registration Category



Authorized to perform.



May perform only if the Repairman Inspector is the owner of the aircraft.



May perform only if the modification is included in the aircrafts Maintenance Manual or if the repairman is authorized to do so by the manufacturer.



May perform if the Repairman Inspector is the owner of the aircraft and not using the aircraft for compensation (training or towing), or

When using the Experimental aircraft for compensation (Training or towing) until January 31 2010, the inspection must be performed by an LS - M / A&P or part 145 repair facility.



Not authorized to perform.

Owners and pilots are permitted to perform preventative maintenance tasks as prescribed by FAA document: Part 43, Appendix A Sec. A43.1

5.30.10 Limitations Due to Registered Category

S-LSA

Maintenance on a Special LSA, 100 hourly and annual inspections are to be performed by the holder of a LSA Repairman Maintenance certificate or an appropriately rated A&P mechanic.

Note: owners and pilots are permitted to perform preventative maintenance tasks as prescribed by FAR document: Part 43, Appendix A Sec. A43.1

E-LSA

The owner of an aircraft registered as an Experimental LSA has operations limited to private use and has additional maintenance privileges.

Where the experimental registered aircraft is used for compensation (training or towing) during the transition period the option c) below does not apply to 100 hourly inspections.

The 100 hourly or annual inspections on an E-LSA are to be performed by:

- a) the holder of a LSA Repairman Maintenance certificate, or
- b) an appropriately rated A&P mechanic, or
- c) the owner when the owner is the holder of a LSA Repairman Inspection certificate.

The pilot of the E-LSA aircraft is responsible to see that the maintenance and inspection has been performed on this aircraft as per the maintenance schedules prescribed in this maintenance manual. The maintenance schedule tasks remain applicable, where there is no minimum level of qualification required to perform maintenance on E-LSA, however a minimum skill level continues to apply to tasks. Only people with an adequate skill level should perform maintenance on this aircraft. A sound understanding of mechanical systems, and good experience with the necessary tools and procedures is required - as the continuing airworthiness of the aircraft relies on the competence of the person performing the maintenance. Assessment and judgement of the condition of each individual component is required, which necessitates a sound understanding of the purpose of each component in the system. If there are any doubts regarding the required and appropriate maintenance then the safety of the aircraft may be jeopardised in continuing with self-maintenance. In this situation an Airborne Dealer should be contacted for the correct procedures and or servicing.

All maintenance and repairs must be carried out in accordance with good aeronautical practices.

5.30.20 Description of Task Classification

Preventative Maintenance

The preventative maintenance that is permissible to be performed by pilot certificate holders is defined in FAA document Part 43, Appendix A Sec. A43.1.

Line Maintenance

Includes inspections, servicing of fluids. Tasks where specific instructions are described in the manual that do not require specialized training, for replacement, repair of parts and structure or alterations described in the manual. Includes compliance with service directives that prescribe repairmen as the minimum qualification to perform the task.

Heavy Maintenance

Tasks that require a repairman rating with specialized training or mechanic with A&P rating, such as major engine work, repair of landing gear assemblies.

5.30.40 Qualification Descriptions

Certification Required to Perform Light Sport Aircraft Maintenance Tasks

- [O] **Owner**—Items that can be expected to be completed by a responsible owner who holds a pilot certificate but who has not received any specific authorized training.
- [R] **E-LSA Repairman Inspection** - Applicable to E-LSA registration. Repairman Inspection—Items that can be expected to be completed on an ELSA by a responsible owner, who holds an FAA repairman certificate (light sport aircraft), with an inspection rating or equivalent.
- [R] **S-LSA Repairman Maintenance**- Applicable to S-LSA registration. Repairman Maintenance—Items that can be expected to be completed on a S-LSA or E-LSA by a responsible individual, who holds a FAA repairman certificate (light sport aircraft), with a maintenance rating or equivalent.
- [A&P] **Mechanic Certificate with Airframe and or Powerplant Training** - A&P—Items that can be expected to be completed by a responsible individual who holds a mechanic certificate with airframe or powerplant ratings, or both, or equivalent.
- [RS] **Part 145 Repair Station** – Items that can be expected to be completed by a responsible organization that holds a part 145 repair Station approval.
- [TS] **Task Specific** – Items that can be expected to be completed by a responsible individual who holds either a mechanic certificate or a repairman certificate and has received task specific training to perform the task.

When specifying the “task specific” level of certification, the specific training is also specified where it is appropriate.

Note that **dealers may be authorized** by the manufacturer to perform a maintenance or modification task for which they are specifically trained. These tasks are not necessarily included in the Maintenance Manual.

This Maintenance Manual is created with the focus to maintain Special Light Sport Aircraft (S-LSA). This category of registration allows the aircraft to be used for hire and reward. Maintenance requirements are given in the maintenance schedule tables. Note that the level of qualification is given for each of the tasks.

Notice that this manual prescribes owner maintenance and repairman maintenance. The minimum applicable repairman ratings for each category of registration are as follows:

E-LSA registered - LSA Repairman Inspection certificate (**LS-I**).

S-LSA registered - LSA Repairman Maintenance certificate (**LS-R**).

In both cases of E-LSA and S-LSA, a person who holds a mechanic certificate with A&P rating, or a part 145-repair station may perform maintenance and inspections on the LSA.

The 100 hourly or annual inspections on a S-LSA are to be performed by the holder of a LSA Repairman Maintenance certificate, an appropriately rated Mechanic with Airframe and Powerplant (A&P) rating, or a part 145 Repair Station.

The holder of a sport pilot certificate may perform preventative maintenance on an aircraft owned or operated by that pilot and issued a special airworthiness certificate in the light-sport category. Items of preventative maintenance that may be performed by an owner are listed in FAR 43 appendix A, Section A43.1 (c)

5.40.00 Engine Periodic Inspections and Maintenance

Refer to the engine operation and maintenance manual for the tasks and checklists to be filled when conducting engine maintenance. The engine operation and maintenance manual are provided with this aircraft documentation package

5.50.00 Log Book

When maintenance is performed always fill out the appropriate check sheet supplied in Appendix A at the rear of this maintenance manual. The aircraft logbook should also be filled out when maintenance has been done.

When Service Bulletins have been completed both the maintenance manual and the log book should be filled out. A copy of the Service Bulletin form should be sent to the factory to be stored with the aircraft QA papers.

A separate maintenance manual is supplied with the wing. The wing maintenance log should be filled out in the wing maintenance manual and aircraft log book.

5.60.00 Maintenance Task Legend

Your nanolight should be maintained in accordance with the following schedules. When registered under LSA, the following schedules are mandatory. The following codes are used in these schedules:

Code

- 1 Oil lubricate, clean and service.
- 2 Check as directed.
- 3 Check for insecurity, cracks, wear legibility and faulty operation.
- 4 Remove, inspect and replace if necessary.
- 5 Recommend replacement or overhaul.
- 6 Mandatory Replacement

Refer to engine operation and maintenance manual.

Certification required to perform Light Sport Aircraft maintenance tasks

- [O] Owner
- [R] E-LSA Repairman Inspection (experimental registered aircraft only)
- [R] S-LSA Repairman Maintenance
- [A&P] Mechanic Certificate Airframe and or Powerplant
- [TS] Task Specific

WARNING
DISCONNECT SPARK PLUG LEAD FOR ALL MAINTENANCE AND INSPECTION PROCEDURES!

5.60.10 Engine Maintenance Schedule

The engine operation and maintenance manual should be used for specific maintenance required for the engine.

POWER PLANT MAINTENANCE SCHEDULE	Manual Section Reference	AIRCRAFT OR ITEM HOURS OF OPERATION						
		25	100	200	300	400	500	600
Engine maintenance	72.00.10	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Loose bolts / nuts	20.10.10	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Engine rubber mounts	71.20.00	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Engine platform, mounting plates. Check for cracks		2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Electrical cable harness	71.50.00	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Fuel lines – no cracks / tight (See 5.10.00 for time limits)	28.20.00	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]
Fuel tank no leaks or cracks	As directed	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]
Fuel filter	28.20.00	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Throttle cable (Few drops of light machine oil)	12.20.40	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Air filter	12.20.50	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Exhaust system	78.00.00	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Muffler springs and safety	As directed	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]
Engine Tachometer Operation	As directed	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Engine Hour Meter Operation	As directed	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Propeller bolt torquing	61.10.30	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	5[R]	2 [R]
Propeller inspection for nicks and abrasions (see 61.20.00 if repair required)	61.10.10	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]
Propeller removal, disassembly and inspection	Section 61						4 [R]	
Oil Level	12.40.50	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]	2 [R]

Table 9 Power Plant Maintenance Schedule

Time Limit for Rubber Parts

For checking the engine mount rubbers, see “Mounts” Section 71.20.00, for other rubber components related to the engine, see below.

See engine operation and maintenance manual.

Time Limit for Oil

See section 12.10.20 for oil details.
See engine operation and maintenance manual.

Time limit for maintenance Intervals

See engine operation and maintenance manual.

5.60.20 Trike Base and Landing Gear Maintenance Schedule

The procedure should be repeated from 500 to 1000 hours.

TRIKE BASE FRAME MAINTENANCE SCHEDULE	Manual Section Reference	AIRCRAFT OR ITEM HOURS OF OPERATION						
		25	100	200	300	400	500	600
Inspection Items								
Trike base tube for bend or cracking (see 4.20.00 for time limits)	As directed	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]
Trike mast for bends or cracking (see 4.20.00 for time limits)	As directed	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]
Rear struts for bends or hole elongation (see 4.20.00 for time limits)	As directed	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]
Brake system (where fitted).	As directed	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]
Mast brace for bend or cracking. (see 4.20.00 for time limits)	As directed	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]	3 [R]
Heart bolt (see 4.20.00 for time limits)	As directed	4 (O)	6 (O)	6 (O)	6 (O)	6 (O)	6 (O)	6 (O)

Table 10 Trike Base frame Maintenance Schedule

Special Instructions

5.70.00 Fatigue

The fatigue life calculations given in Section 4. Airworthiness Limitations, give life estimates for the masts, attachments to the wing and base tube structure of 953 hours. Service announcements may increase the fatigue life as the service history of the airframe evolves.

5.80.00 **Unscheduled Maintenance Checks**

Unscheduled maintenance is required due to abnormal flight loads such as severe turbulence or heavy landings. The pilot will be responsible for identification of these extreme operating conditions and identification of the effected components. Where damage is found further checks should be carried out upon areas that may also be affected.

Thorough checks should also be carried out after transportation of the aircraft, and after extended storage periods.

5.80.10 Inspection After Heavy Landing

Check rear landing gear for normal operation. Check base tube for bends or crazing. Check all attachment points and members of the undercarriage system. Check all welded lugs for bending or cracking of paint, which may indicate permanent deformation of the area. If any permanent deformation is identified then a more rigorous inspection of the rest of the aircraft is necessary, as permanent deformation indicates that extreme forces have been experienced by the aircraft.

5.80.11 Checking for Deformation

Attachment Points

Check attachment points for the wing to the base, including the main hang bolt, wheel axles and bearings. The wing should also necessarily be checked after any heavy landing because the forces are transmitted through to the wing structure.

Check the main structure including the base tube, landing gear attachment points and engine mount. A straight edge may be used on the tubing to ascertain straightness. Check all other components attached to the base are in place and properly secured.

Seat

If the airframe has experienced unusual loads then the seat frame should be checked thoroughly. The weight of the pilot during impacts may deform the seat frame.

5.80.20 Inspection after heavy turbulence.

Check all components attached to the base are in place and properly secured, any other items that may have shifted due to in flight movement should also be checked on a regular basis.

Turbulence is more likely to structurally affect the wing of the aircraft rather than the base. The wing maintenance manual should be consulted for instructions that pertain to the wing.

6. DIMENSIONS AND AREAS

6.00.00 General

This section gives general dimensions for the base of the aircraft. Imperial and metric measurements are included. Also included is the overview of the components, which make up the trike base.

Ground Line The major line through which points are measured from, being the points where the wheels would rest on level ground.

6.10.00 Major Dimensions

T-Lite / Core

DIMENSIONS	Metric	Imperial
Wing Span	9.5 m	31.1 ft
Wing Area	15.60 sq m	168 sq ft
Aspect Ration	5.7	
Wing Weight	34 kg	75 lbs
Overall Height (Control Bar Fwd)	3.45 m	11.3 ft
Trike Width	1.25 m	4.10 ft
Trike Length	2.22 m	7.28 ft
Wheel Track	1.15 m	3.77 ft
Wheel Base	1.65 m	5.41 ft
Trike Height	2.18 m	7.15 ft
Cockpit Width	0.54 m	1.77 ft
Wing (Packed) Length	5.7 m	18.7 ft
Wing Length (Short Packed)	4.1 m	13.5 ft

Table 11 Major Dimensions

7. LIFTING AND SHORING

7.00.00 *General*

The base may be lifted using the main attachment point for the wing or alternatively parts of the base may be lifted for local maintenance such as changing tyres. There are specific areas that have been designated for these purposes.

7.10.00 *Jacking*

Front wheel:

The front wheel is lifted by hand using the front pole. The base's balance point allows easy lifting by hand. Alternatively a strap may be placed around the base tube for long-term elevation of the front end.

Rear wheels:

The rear wheels may be lifted from the ground by using an appropriate support placed under the muffler of the engine.

Lifting the entire base

The entire base may be elevated from the ground using the main attachment point, the aircraft should be elevated no more than is necessary.

9. TOWING AND TAXIING

9.00.00 *General*

Moving the trike is a relatively simple operation due to its very light weight and high manoeuvrability. Moving is easily achievable by one person. If the front of the trike is lifted from the ground care should be taken to prevent the propeller from contacting the ground.

9.10.00 *Towing*

Pulling and pushing the trike:

Moving the base (with or without the wing) is facilitated by lifting the front wheel and walking the base.

9.20.00 *Taxiing*

Taxiing the trike may be performed with or without the wing attached to the base. The trike should never be taxied with excessive speed. Taxiing is a part of the training necessary for flying this aircraft, if a maintenance engineer without trike flying experience is working on the trike they should push the trike and not taxi it, as the control sense may be different to what they are accustomed to.

9.30.00 *Ground Transportation*

The base may be transported overland by disassembling it, or on a suitable trailer, ute or wagon. During transport the trike base should be firmly held at both the front and the rear to prevent movement. Tie down straps should only be placed around the axles at the front and both rear to secure the base.

Tie down straps with a ratchet system should be used so preload can be applied, this allows the tyres to be compressed slightly so as to firmly hold the base in place during transport.

10. PARKING AND MOORING

10.00.00 General

This chapter provides information concerning the correct procedures for parking, securing, storage and transport of the aircraft, without packing the trike up. If any maintenance is to be performed on the trike base it is recommended that the wing is removed. For derigging and storage see sections 9.2 and 9.3 of the pilots handbook.

10.10.00 Parking

NOTE

Because of the light nature of the aircraft the trike and wing in combinations is very susceptible to tipping by wind if not parked and / or tied down appropriately.

Wing Down Park

Park the trike at 100° - 130° to the anticipated wind direction and chock the wheels. The wing tip should then be placed onto the ground on the side of the prevailing wind. The bungee cord and fastener are then used to secure the base bar to the front mast pole. This method of parking the aircraft allows the wind to flow spanwise across and over the wing, minimising the chance of air getting under the wing and tipping or blowing the whole unit. For other situations such as strong winds, pack up and hangaring, consult the pilots handbook.

NOTE

The wing tip may be pinned to the ground using a peg such as a tent peg. This will stop the wing from shifting.

Tail To Wind Park

CAUTION

THIS METHOD SHOULD ONLY BE USED WHEN THERE IS LITTLE OR NO WIND. BE AWARE THAT WIND DIRECTION AND SPEED MAY CHANGE RAPIDLY.

Park the trike at 180 degrees to the wind direction (propeller towards the wind) and chock the wheels. Attach the base bar to the front mast pole, and secure with the bungee (same method as above, except at the centre). This method causes the wind to flow over the back of the wing. This method is only appropriate for very short periods of time in nil wind conditions.

10.20.00 Mooring

A trike should not be left in the open in fully set up condition for any extended period of time. Consult the Aircraft Operating Instructions for instructions on disassembly, pack up and or hangarage. Additionally if the trike is to be prepared for transport, section 9.3 should be consulted for the correct preparation and mooring procedures for trailers and transportation.

10.30.00 Long term Hangarage

Full covers for the base are advisable, which are available as after market items from Airborne. The engine manual should be consulted for long-term storage practices for the engine.

11. REQUIRED PLACARDS

11.00.00 General

The placards that are present on this aircraft are a legal requirement showing safety information, emergency information and identification of the aircraft. The placards must be repaired or replaced if they become illegible or damaged in service. Replacement placards may be purchased from an Airborne dealer or direct.

11.10.00 Required Placards

The placards on the aircraft are designed to provide information regarding general aircraft limitations and other details for the safe operation of the aircraft.

The placards that are required for operation of this aircraft are available in the Pilot's Operating Handbook, Section 2, "Placards".

12. SERVICING

12.00.00 General

This chapter provides servicing procedures necessary to replenish or service the aircraft and its equipment as required.

The operational integrity of the aircraft systems can be seriously impaired if contaminated fuel, oil, fluids and lubricants are used or if they do not meet the required specifications. Mixtures of various brands and types of materials is undesirable and should be avoided wherever possible even though the use of such mixtures may be technically acceptable. Specified lubricants will meet requirements for extreme hot or cold temperature operations. Use of substitutes or other lubricants may cause malfunction, or excessive wear.

12.10.00 Replenishing

12.10.10 Fuel System Replenishment

Fuel Specification

The T-Lite has a single fuel tank, capacity 10 L.

FUEL	
Preferred Fuel Type	Leaded or Unleaded minimum 98 Octane
Optional Fuel Type	The engine is capable of running on lower than 98 octane fuel rating but requires modification to the ignition timing and there will be a slight reduction in power. Contact Bailey Aviation for details.

Table 12 Fuel Specification

Fuel Sampling/Draining

The fuel tank is removable by design so there is no draincock. Remove the tank to check the quality of the fuel, and to drain fuel if necessary. It is especially important to remove any water that may have become introduced.

Checking the Fuel

The fuel tank needs removing, rinsing and inverting every 50 hours to remove any debris and/or water. If the fuel has been sitting for an extended period without use it may be advisable to replace it with fresh fuel.

Draining the Fuel

Ensure that a suitable receptacle is found for the fuel that is to be drained, remove the tank and pour into the receptacle. Ensure that there are no ignition sources and that the fuel is handled / disposed of correctly.

12.10.20 Engine Oil System Replenishment

The oil capacity is 600cc. This is checked using the sight level window at the rear of the engine. The oil is also used for internal engine cooling so oil level must be kept at its maximum level and be changed in accordance with the maintenance schedule of the engine manual. The top-up cap is located on the right hand side of the engine. The engine manual also details the oil change procedure.

Oil Type

The specified oil is:

SAE 10W/40 or 10W/60 fully synthetic 4 stroke motorcycle oil

NOTE

Strict adherence to oil type is recommended.

Oil Specifications

Oils used and supplied through Airborne are:

Castrol Power 1 Racing Motorcycle Oil 5W-40 fully synthetic
OR

Shell Advance Ultra4 SAE 10W-40

Check oil and replenish as required. Consult the engine manual for maintaining the oil and oil level. Use caution around the hot exhaust when removing the oil top-up cap.

12.10.40 Coolant Replenishment

The Bailey engine is forced air-cooled. Care should be taken to ensure the oil level is maintained to aid cooling. Prolonged ground running should be avoided.

12.10.60 Tyre Inflation

The recommended tyre inflation pressure is 15 PSI (103kPa) for both the front and rear tyres. When checking the tyre pressures the opportunity should be taken to examine the tyres for wear, cuts, bruises, slippage and other defects.

12.20.00 Scheduled Servicing

12.20.10 General

This section provides details necessary to carry out routine scheduled periodic maintenance on the T-Lite airframe and is to be read in conjunction with the MAINTENANCE SCHEDULES (Section 5.). Should any conflict occur between information in this section and the Maintenance Schedules, the latter will take precedence.

12.20.20 Battery Service

The battery supplied is a 12V, 7 AH gell cell acid battery, which requires no maintenance.

CAUTION

WHEN REPLACING BATTERIES USE ONLY SEALED GEL TYPE BATTERIES TO AVOID THE ESCAPE OF CORROSIVES ONTO THE AIRCRAFT STRUCTURE.

12.20.30 Airframe Lubrication

This section identifies areas deemed necessary for lubrication and the appropriate frequency of lubrication.

Most of the pivots on the trike are open bush type pivots.

On initial assembly the following joints are assembled with a coating of petroleum jelly for ease of disassembly for maintenance or repair: fork pivot bolt, front and rear wheel axles, mast hinge bolt and brake cable.

Each of the wheels on the trike has fully sealed bearings in place that should not require user service as they have been lubricated and sealed by the manufacturer.

If no lubrication interval is specified for a component, lubricate as required and when assembled or installed.

General Lubrication Notes:

- All lubrication points should be serviced when overhauled.

12.20.40 Cable Lubrication

The throttle cable has been lubricated with light machine oil on initial assembly.

12.20.50 Air Filter

Dust and dirt that make their way into the engine are probably the greatest cause of premature engine wear. The value of maintaining the air filter in good condition cannot be overstressed. The condition of the air filter should be checked as per the maintenance schedule, and if extreme operating conditions are experienced they should be checked more frequently. Also check the condition of the air filter after any extended hangarage.

12.20.60 Air Filter Service Instructions

These service instructions apply to K&N air filters.

- (1) Tap the element to dislodge any large embedded dirt, then gently brush with a soft bristle brush.
- (2) Spray K&N air filter cleaner liberally onto the entire element and let soak for 10 minutes.

CAUTION

DO NOT USE PETROL, STEAM, DETERGENTS OR OTHER CLEANING SOLUTIONS OR SOLVENTS. ANY OF THESE PRODUCTS CAN CAUSE HARM TO THE COTTON FILTER OR SHRINKAGE OR HARDENING OF THE RUBBER END CAPS.

(3) Rinse off the element with low-pressure water. Tap water is OK. Always flush from the clean side to the dirty side. This removes the dirt and does not drive it into the filter.

(4) Shake off all excess water and let the element dry naturally.

CAUTION

DO NOT USE COMPRESSED AIR, AN OPEN FLAME OR OTHER HEAT SOURCES. COMPRESSED AIR WILL CREATE HOLES IN THE ELEMENT WHILE EXCESS HEAT WILL CAUSE THE COTTON FILTER TO SHRINK.

NOTE

DO NOT OIL.

12.20.70 Cleaning

Powder Coated Surfaces

The powder coated exterior surfaces of the aircraft can be washed using a mild detergent and water, alternatively an automotive liquid detergent may be used.

Engine

An engine and accessories wash down should be performed regularly to remove any oil, grease, and other residue. Periodic cleaning allows proper inspection of the engine components and can be an aid to discovering defects during inspection as well as reducing the potential for an engine fire during aircraft operation.

The engine may be washed down using a suitable solvent, then dried **thoroughly**.

During cleaning, the intake and the electronics should be protected with a thin plastic film.

WARNING

DO NOT USE PETROL OR ANY OTHER HIGHLY FLAMMABLE SUBSTANCES FOR WASH DOWN. DO NOT ATTEMPT TO WASH AN ENGINE THAT IS STILL HOT OR RUNNING. ALLOW THE ENGINE TO COOL FULLY BEFORE CLEANING. PERFORM ALL CLEANING OPERATIONS IN A WELL-VENTILATED WORK AREA, PREFERABLY OUTSIDE, AND ENSURE THAT PERSONAL PROTECTIVE CLOTHING IS WORN AND THAT FIRE FIGHTING SAFETY EQUIPMENT IS READILY AVAILABLE.

CAUTION

PARTICULAR CARE SHOULD BE GIVEN TO ELECTRICAL EQUIPMENT BEFORE CLEANING. SOLVENT SHOULD NOT BE ALLOWED TO ENTER ANY OF THE ELECTRICAL EQUIPMENT. ELECTRICAL COMPONENTS SHOULD BE PROTECTED BEFORE SATURATING THE ENGINE WITH SOLVENT. ANY OIL, FUEL, AND AIR OPENINGS ON THE ENGINE AND ACCESSORIES SHOULD BE COVERED BEFORE WASHING THE ENGINE WITH SOLVENT. CAUSTIC CLEANING SOLUTIONS SHOULD BE USED CAUTIOUSLY AND SHOULD BE NEUTRALISED AFTER USE.

Propeller

The propeller should be cleaned occasionally with water and a mild detergent to remove dirt, grass and bug stains. The opportunity should be taken to visually check the condition of the propeller during cleaning.

Upholstery

All vinyl surfaces can be wiped with a product such as Armour-all surface protectant. The seat is a structural part of the airframe and care should be taken to avoid any substance that will degrade it.

WARNING

THE PROPELLER IS NOT FIBREGLASS AND SEPARATE INSTRUCTIONS IN SECTION 61 HAVE BEEN INCLUDED FOR THE REPAIR OF THE PROPELLER. DO NOT USE FIBREGLASS OR POLYESTER RESIN ON THE PROPELLER AS IT IS STRUCTURALLY INFERIOR FOR THE LOADS ON THE PROPELLER AND THE RESINS MAY BE INCOMPATIBLE, AND THEREFORE UNSAFE.

20. STANDARD PRACTICES - AIRFRAME

20.00.00 General

This chapter provides standard torque values and safetying procedures that are to be used in all areas of the aircraft unless otherwise specified. The use of these standard values and procedures will ensure the security of installation and prevent overstressing of components.

20.10.00 Torquing Procedures

Correct torquing of fasteners is critical, if a bolt or fastener is too loose it may cause unnecessary movement resulting in wear or fatigue, while over-tightening may cause tensile failure of the bolt, or crushing of components. Torques should be determined using an accurate torque wrench during installation. The torque required after the nut is fully on the shaft, but not against the mating surface should be added to the final torque value.

General Torquing Procedures

General Torquing Exceptions

1. Joints with hinges or bearings, where the specified torque value would prevent free operation.
2. Bolts, nuts and screws that attach plastic or fibreglass or aluminium tube components, where the softer material would be damaged by specified torques.
3. Engine bolts are to be torqued to the engine manufacturers specifications, and may need to be sequenced.

Applicable to the following BOLTS and SCREWS: AN3 thru AN20 AN42 thru AN49 AN73 thru AN81 AN173 thru AN186 NAS1303 thru NAS1320 NAS6600 thru NAS6608 AN509 AN525 MS20073 MS20074 MS24694 MS27039 NAS1300 NAS6605								
Applicable to the following NUTS: Tension Nuts - AN310 AN315 AN363 AN365 MS20365 MS20500 MS21042 MS21045 NAS679 NAS1021 Shear Nuts - AN316 AN320 AN364								
TORQUE LIMITS RECOMMENDED FOR INSTALLATION (BOLTS LOADED PRIMARILY IN SHEAR)								
FINE THREAD SERIES								
Tension Type Nuts					Shear Type Nuts			
	Nm		in lbs		Nm		in lbs	
Thread	Min	Max	Min	Max	Min	Max	Min	Max
8-36	1.4	1.7	12	15	0.8	1	7	9
10-32	2.3	2.8	20	25	1.4	1.7	12	15
1/4-28	5.6	7.9	50	70	3.4	4.5	30	40
5/16-24	11.3	15.8	100	140	6.8	9.6	60	85
3/8-24	18.1	21.5	160	190	10.7	12.4	95	110
7/16-20	50.8	56.5	450	500	30.5	33.9	270	300
1/2-20	54.2	78	480	690	32.8	46.3	290	410
9/16-18	90.4	113	800	1000	54.2	67.8	480	600
5/8-18	124.3	146.9	1100	1300	74.6	88.1	660	780
3/4-16	259.9	282.5	2300	2500	146.9	169.5	1300	1500
COARSE THREAD SERIES								
Tension Type Nuts					Shear Type Nuts			
	Nm		in lbs		Nm		in lbs	
Thread	Min	Max	Min	Max	Min	Max	Min	Max
8-32	1.4	1.7	12	15	0.8	1	7	9
10-24	2.3	2.8	20	25	1.4	1.7	12	15
1/4-20	4.5	5.6	40	50	2.8	3.4	25	30
5/16-18	9	10.2	80	90	5.4	6.2	48	55
3/8-16	18.14	20.9	160	185	10.7	12.4	95	110
7/16-14	26.6	28.8	235	255	15.8	17.5	140	155
1/2-13	45.2	54.2	400	480	27.1	32.8	240	290

Table 13 Torque Table

NOTE

Castellated nuts requiring cotter pins should be tightened initially to the lower value. Torque can then be increased up to the maximum limit in order to install the cotter pin. A thick or thin washer may be added under the nut as required in order to maintain within tolerances.

20-20-00 Safetying Procedures

All bolts and nuts, except the self locking type, should be safetied after installation. This prevents them from loosening in flight due to vibration.

Front Pole and Mast Bottom

The bottom of the mast and front pole are safetied using castellated nuts and safety clips.

Mast Top

The wing is locked in place with wing nut and safety clip. The wing safety strap is secured using a shackle, pip-pin and cap.



Self Locking Nuts

Self locking nuts are used at joints that subject neither the nut or the bolt to rotation in service. Self locking nuts may be reused but not if they can be run on the thread by hand without using tools. After a self locking nut has been tightened at least one full thread pitch of the male thread must protrude through the nut locking feature.

20-30-00 Control Cables And Terminals

Control cables on the trike base include throttle cable, and brake cable if fitted. These need to be checked regularly for excessive friction and wear. The cables may be lubricated with light oil if necessary. Wear is most likely to occur at the ends of the cables at the attachment points.

20-40-00 Rust Proofing

During manufacture all of the steel components have been treated with rust proofing agent inside the tubing, the exterior is protected with powder coat paint.

Where steel components are removed or inspected the opportunity should be taken to inspect the interior; use a high quality rust proofing agent and apply after inspection has been completed. If the aircraft is operated in coastal areas and / or has had exposure to corrosive environments rust proofing is especially necessary.

24. ELECTRICAL POWER

24.00.00 General

The T-Lite trike base has a 12V electrical system essentially comprising of a 12V battery, the alternator and accessories. A detailed description and schematic are available in the Aircraft Operating Instructions, section 7.12. The engine manual should be consulted for the maintenance of the engine's electrical system.

24.10.00 Maintenance

The maintenance of the electrical system should include periodic inspection of the wiring loom for chafing and other damage throughout its entire length. Pay special attention to the areas that are subject to possible wear points such as sharp corners or proximity to parts that move. It should be noted that the electrical wires may be subject to wear through vibration in flight.

Wiring that is damaged should be replaced and if any wear points are identified then a product such as spiral wrap should be used to cover the area. The advantage with the use of spiral wrap is that it allows inspection of the wires even after it is installed.

25. EQUIPMENT/FURNISHINGS

25.00.00 General

Section 5.20.00 contains general care instructions, which should be referred to for washing and treating surfaces.

25.10.00 Flight compartments

The structural integrity of the webbing on this aircraft is critical for safe operation. All of the webbing should be inspected for signs of wear, fraying, cuts, or other mechanical damages, as well as any significant UV damage that may have occurred.

NOTE

It is preferable to store the aircraft away from direct sunlight.

25.10.10 Seat

The seat structure consists of a seat frame assembly, which is attached to the engine mount. The seat itself consists of fibreglass which is attached to the seat frame. The padding of the seat is non-structural.

25.10.30 Safety cable

The top of the mast has safety cabling for the unlikely event of failure of the main mast bolt.

25.10.40 Operation of Seatbelt

The Aircraft Operating Instructions should be consulted for correct usage instructions for the seat belts.

27. FLIGHT CONTROLS

27.00.00 General

For information on the flight controls system refer to the relevant wing maintenance manual.

27.10.00 Engine Controls

The engine is controlled through a cable actuated foot throttle lever. The cable and lever should be checked for free operation, and ensure that there are no kinks in the cable. Light machine oil may be used to lubricate the cable.

NOTE

If any sign of wear or damage is evident then the cable assembly should be replaced.

28. FUEL SYSTEM

28.00.00 General Description

This section pertains to the components which store and deliver fuel to the engine.

The fuel system is simple and easily visually inspected. Fuel rate sensing transmitting and indicating are covered in chapter 73.

Features:

- Capacity 10 Litres.
- Useable fuel 9.5 Litres.
- Fuel isolation valve.
- Fuel filter.
- Breather system.
- The engine manual contains the fuel pump. Consult the manual for instructions.
- Sight gauge for remaining fuel.

CAUTION

THE FUEL FILTER IS DIRECTIONAL, IT MUST BE INSTALLED SO THAT THE FUEL FLOWS IN THE CORRECT DIRECTION.

WARNING

DO NOT PERFORM ANY MAINTENANCE ON THE FUEL SYSTEM IN CONJUNCTION WITH MAINTENANCE ON THE ELECTRICAL SYSTEM. NO SMOKING OR IGNITION SOURCES WITHIN 50FT OR 15M FROM THE AIRCRAFT.

FUEL WILL DEGRADE WING MATERIAL AND UPHOLSTERY IN THE TRIKE, CARE SHOULD BE TAKEN TO PREVENT ANY SPILLAGES.

28.10.00 Fuel Storage

Tank

The storage system consists of a single fuel tank located behind the seat.

NOTE

The actual fuel tank has no provision for repair, if the fuel tank is damaged in any way that makes it unsafe it should be replaced, contact Airborne.

Fuel Cap

The fuel cap has a breather line attached that allows air to enter the tank, while preventing fuel escaping.

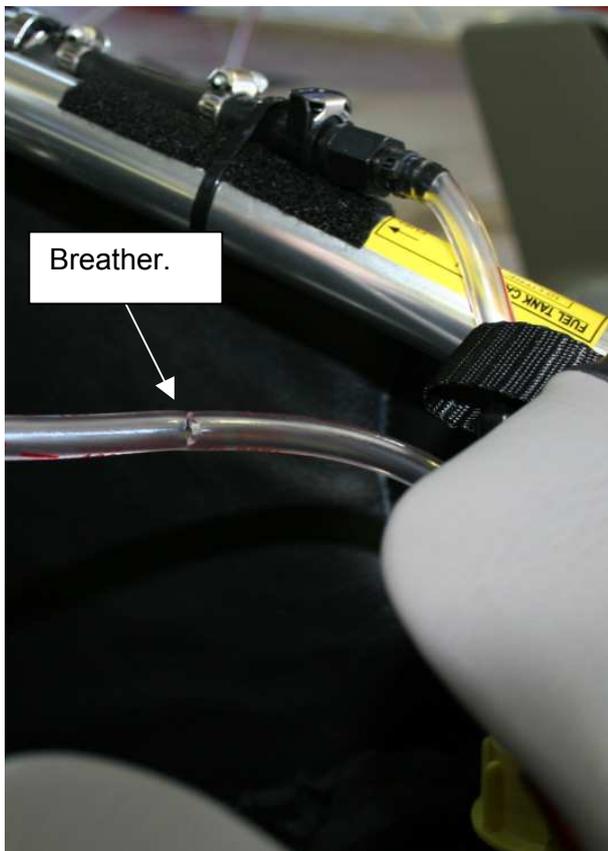
Fuel Connection / Isolation Valve

The fuel line has a quick-connect fuel isolation valve that acts as fuel cut-off and disconnection point, to allow easy tank removal, while preventing fuel escaping.



28.10.10 Venting

The tank is protected from negative pressures by the breather valve in the fuel line, which allows air in if the pressure is lower inside the tank than out.



28.10.20 Draining and Checking

The fuel tank needs removing, rinsing and inverting every 50 hours to remove any debris and/or water. If the fuel has been sitting for an extended period without use it may be advisable to replace it with fresh fuel.

28.20.00 Distribution

The fuel supply is taken from a weighted pick-up in the bottom of the tank, and is protected from large contaminants by a fuel filter. The fuel is drawn by the engine fuel pump system. The engine manual should be consulted for maintenance and operating procedures for the fuel pump system.

CAUTION

ELIMINATE IGNITION SOURCES AND BE AWARE OF THE FUMES THAT EMANATE FROM THE FUEL TANK.

Breather Lines

The breather lines are attached to the breather fittings without adhesives, interference fit and zip ties are used to secure them.

Fuel Hoses

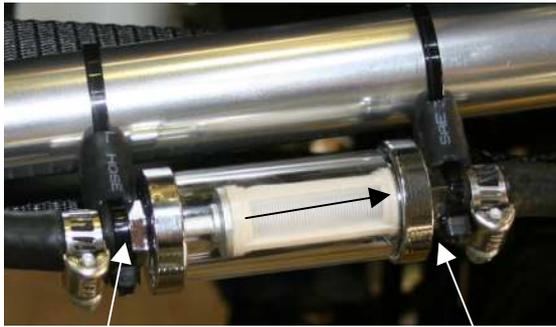
The sequence of the fittings is critical for correct function of the fuel system. The fuel lines and components are secured using hose clamps.

Areas that should be checked with extra care are the interfaces between the hose and the motor. These areas are stressed to a greater degree than the rest of the tubing and are more likely to have cracks and / or wear. If fuel lines need to be replaced contact Airborne for the correct specifications, and / or replacement components.

Fuel Filter

CAUTION

THE FUEL FILTER IS DIRECTIONAL, AND HAS “IN” AND “OUT” MARKED ON IT WHICH IS VERY IMPORTANT. IF THE FUEL FILTER HAS BEEN INSTALLED INCORRECTLY IT SHOULD BE CLEANED PRIOR TO REINSTALLATION, OR REPLACED, TO AVOID DEBRIS BEING FLUSHED INTO THE ENGINE.



To engine.



Fuel In.

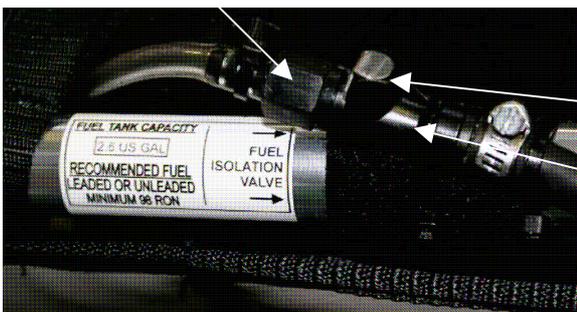
Fuel Out.
Note filter mesh
is to the rear.

The first item after the tank is the fuel isolation valve, then the fuel filter, correct operation and maintenance is extremely important for reliable operation of the engine. The fuel filter should be removed and checked for debris every 100 hours. The filter should be removed and cleaned at any time debris is seen during the preflight inspection. If any debris is present the filter may be flushed using fuel to remove the debris. If there is any damage to the filter or there are debris lodged in it then it must be replaced to avoid damage to the engine. If debris is present the rest of the system should be investigated to ascertain their source.

Fuel Safety Cut-off Valve

Prior to the fuel filter is the fuel isolation valve that serves as a disconnection point for removing the tank, and as a fuel safety cut-off and is used both during transportation, and during any fuel or fire emergency to starve the engine of its fuel supply.

Male end.



Female end.

Connect/disconnect button.

One-way valve.

Maintenance:

Operation

Make sure that the valve is secure, seals firmly, and doesn't leak.

Flow Checks

Should there be any doubts about the fuel supply to the engine, i.e. a lack of power at any RPM range, then the fuel isolation valve (as well as all other fuel line components) should be checked to ensure that there is free flow of fuel. At least one side of the valve should be disconnected and the valve visually inspected in both the open and closed positions. When the valve is clear it should be large enough that it will in no way restrict the flow of the fuel. When installed the valve should be disconnected to starve the engine of fuel to ensure that the valve closes fully – perform this test while on the ground only.

Stiff Operation

Should the valve become stiff to operate it may be dismantled and cleaned as required, however should there be any damage or wear evident, it should be replaced.

Loose Operation

Ensure that the valve is not loose in its operation. The valve must be firm enough that it requires a positive closing force, and will not be able to vibrate to become disconnected.

28.40.00 Indicating

The main fuel level indication method is a visual check of the level on the right side of the base, behind the seat.



31. INDICATING/RECORDING SYSTEMS

31.00.00 General

This chapter provides coverage of the instruments, the instrument panel, and all controls mounted on it.

The instrument panel is very minimal and is located on the base tube near the seat front and consists of engine hour meter / tachometer, ignition switch and engine start button. A Hall airspeed indicator is mounted to the wing control bar for airspeed.

32. LANDING GEAR

32.00.00 General

The nanolight uses a tricycle undercarriage with optional braking system via a nose wheel disc brake unit.

32.10.00 Undercarriage

General Maintenance

With the weight removed from each wheel, check each of the components is not loose. Also check each of the bearings, tyre wear and the condition of the brake line if fitted.

Where excessive looseness is found, the bushes and attachment points should be checked for wear and replaced if necessary. In practice this will mean that any pivot point should not have more than 1/2mm of movement, when load is applied. The main areas that need to be checked for looseness are the mast pivot, and the main mast pivot hole. The wheels should be lifted from the ground when testing the movement.

32.10.10 Structure

Rear

The fittings are manufactured from AS 1163 steel, welded and bolted to the struts. The rear undercarriage is wire-braced to maximise strength and minimise weight. The rear undercarriage is designed to be retracted to minimise space when transporting.

Front

The front steering assembly is manufactured from welded AS 1163 Steel. It is a regular fork type assembly with welded lugs and bushes for attached parts. The fork carrier assembly has acetal bushes pressed into it for attachment onto the main frame.

If it is appropriate to reinstall parts, clean and lubricate them prior to reassembly. Check nylon washers for wear, replace as required.

Damage

Both the front and rear undercarriage allow for minor damage that does not result in dimensional changes of the materials (permanent deformation). Tell tale signs of permanent deformation include chipped paint around highly stressed areas and crazing of alloy members. Any permanent deformation warrants full checking of all possible effected parts.

32.20.00 Nose Gear

The steering is foot activated. Press left to turn right, press right to turn left.

32.40.00 Wheels and Brakes

An optional front wheel disk brake system is used on the aircraft. Depressing the brake lever on the left hand side of the footrest actuates the brake.

Use wheel chocks when leaving the aircraft unattended for a period of time.

Tyres

Front and rear Airborne part name TYRE 4IN X 3.2IN N SERIES, # 110489
Tubes Airborne part name TYRE TUBE INNER 4IN SUIT TYRE 4.00X3.2, # 110490
Pressure – 15 PSI

Because the tyres on the trike contact the runway in an uneven manner, the rear tyres may be swapped with each other in order to utilise all of the tread. This should be done before the tyre becomes worn.

34. NAVIGATION AND PITOT STATIC

34.00.00 General

This chapter provides information on the airspeed indicator.

34.10.00 Airspeed Indicator

The Hall **Air Speed Indicator** is a clear vertical graduated tube with an inlet and outlet for air. A red disc rises or sinks in the tube as the indicated airspeed increases or decreases.

NOTE

To work accurately the airspeed indicator must be placed so the inlet tube points directly to the front.

53. FUSELAGE

53.00.00 General

The fuselage structure of the T-Lite has a relatively simple design. There are five main components that define the overall structure of the aircraft base. This does not include the landing gear, which is included in chapter 32.

53.10.00 Main Frame

There are five main materials that are used in the structure, the five main components from front to back are:

Fork Carrier

The fork carrier attaches to the front end of the base tube, to it attaches the front landing gear and the front mast brace.

Front Mast Brace

The front mast brace is the stabilising member that joins the front of the trike to the top of the mast. The front mast brace is mainly constructed of 6061 T6 aluminium.

Base Tubes

These are the main longitudinal structural beams, to which all of the other structures are attached.

Mast

The mast attaches to the rear of the base tube and provides the main tension member for attachment to the aircraft's wing. It is constructed from 6061 T6 aluminium.

Engine Mount Structure

The engine mount structure is attached to the rear of the base tube and to the mast. It is constructed mainly from mild steel (AS 1163).

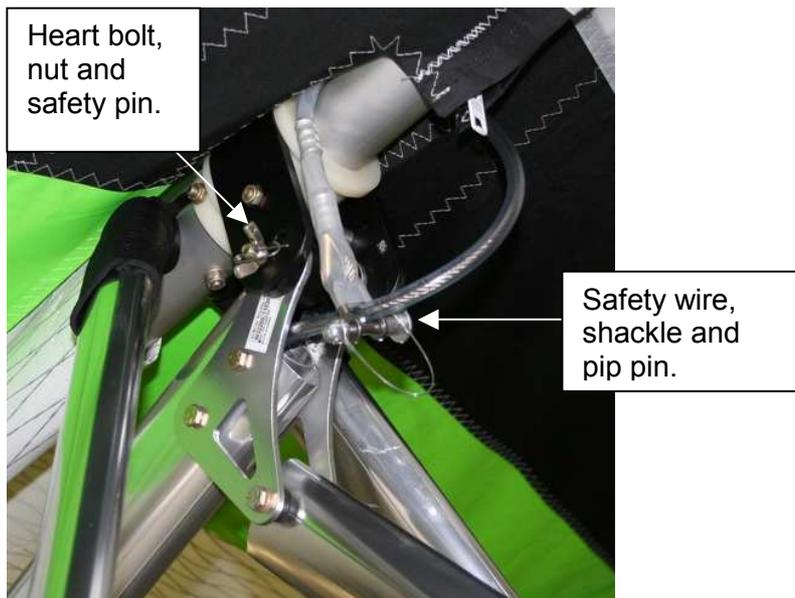
53.40.00 Attach Fittings

53.40.10 General

This section describes the structures on the fuselage used for the attachment of wings, landing gear, engine and rotor pylons and for the support of equipment within the fuselage.

53.40.20 Wing

The trike base is attached to the wing using an aircraft grade bolt that attaches to the wing's U-bracket. The attachment arrangement allows the mast to move forwards/backwards and sideways relative to the hinge point. There is also the safety cable, included for the unlikely event of the main attachment failing. For instructions regarding the attachment and maintenance of the main bolt, refer to the wing maintenance manual and the Aircraft Operating Instructions.



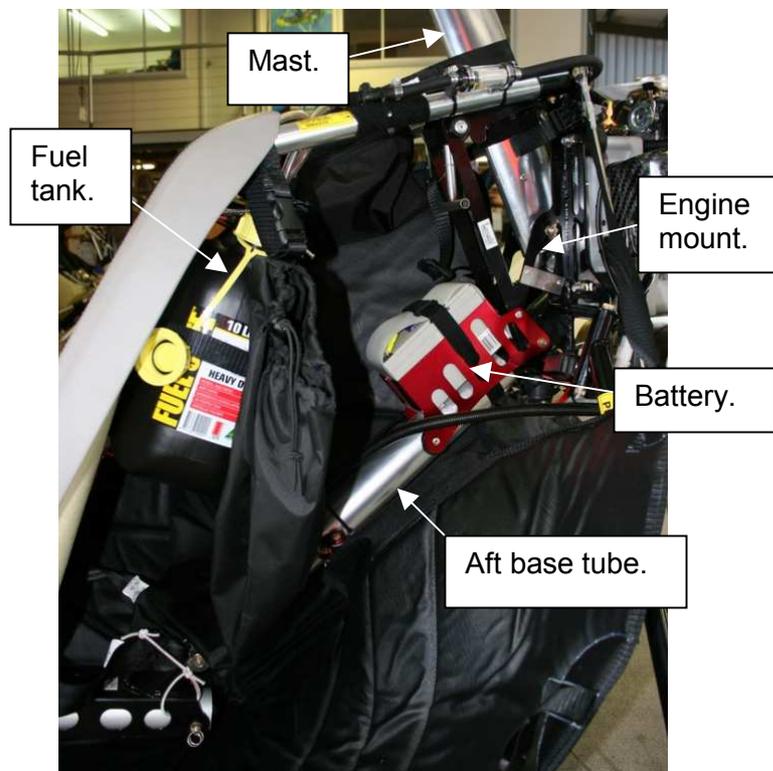
53.40.40 Landing Gear

The landing gear is non retractable. The front landing gear is attached to the main frame through acetal bungs and a bolt assembly. The rear is attached through bushed pivots.



53.40.50 Engine mount

The engine is attached to the engine mount, which is in turn attached to the base tube of the aircraft.



53.40.60 Support of equipment within the Fuselage

1. Seat Attachment

The seats are attached to the engine mount and to the base tube of the trike.

2. Instrument Bracket

The TinyTach is attached to the aircraft as part of the instrument panel and is located at the bottom front of the seat. It is held in place using a strap.



61. PROPELLERS

61.00.00 General

The propeller is a carbon fibre composite, two bladed propeller. The blades slot together to form the propeller hub.

Airborne blade description: PROP BLADE HELIX 1.30M L-M-08-2, part # 110562



WARNING

IF THE ENGINE IS TO BE ROTATED AT ANY TIME, IT SHOULD ONLY BE ROTATED IN THE SAME SENSE (DIRECTION) AS IT RUNS.

61.10.00 Propeller Service

61.10.10 Inspection

The intervals at which the propeller must be removed for inspection are specified in the Maintenance Schedule.

With the propeller removed from the aircraft and each of the components separated the blades and hub should be inspected for damage paying particular attention to those areas which are not visible when the propeller is installed.

WARNING
**WHEN WORKING ON THE PROPELLER
REMOVE THE SPARK PLUG LEADS FROM
THE SPARK PLUG.**

61.20.00 Propeller Assembly Procedure

Refer to the Aircraft Operating Instructions for propeller fitting details.

61.40.00 Blade Damage and Repair

The condition of a composite propeller is important for safe flight. The pilot of the aircraft needs to check the condition of the propeller prior to each flight and ascertain its airworthiness. In general deep scratches across the chord of the propeller are most significant, along with leading edge dents and damage that may lead to delamination.

Leading edge damage is repairable as long as it is not larger than the specified sizes and that the propeller is not delaminated. In general if the damage size on the surface of the propeller is not exceeded then it will be better to leave the surface alone, as filling minor scratches will likely cause more damage. The plies of the propeller are approximately 0.15mm thick each. If any doubts exist as to the condition or repair procedure for the propeller either return the propeller to Airborne, or consult a LAME engineer or equivalent who has experience with composite materials.

61.40.10 Balancing

Balancing of the propeller should not be necessary if the damage allowances are adhered to, repairs should only be to replace what has been removed.

If there is any doubt or if propeller balancing is necessary it is best done by a person who is experienced with composites and with Level 2 LAME qualifications or equivalent. An epoxy compatible, clear spray paint applied at the tips is best, with the surface of the propeller prepared gently with 600 grade sandpaper, and cleaned to remove any oil residue.

61.40.30 Damage Allowances

All propellers will eventually suffer damage from a variety of causes and in differing degrees of damage. Varieties of damage such as water, stones, gravel & sand makes it very difficult to specify maximum damage levels before the blade should be discarded rather than repaired. For a guide see the FAA Advisory Circular AC 43.13-1B Par 8-71 through 8-109.

The design and construction (unlike wood, metal and many other composite props) is to progressively increase strength from tip to root. As such a solid tip strike is not likely to destroy the hub or root of the blade (leading to a catastrophic failure), damage is far more likely at the tip (as tip speed is much higher) but less critical at the tip as it has less forces acting upon it (compared to the root / hub). As all forces are focused on the root and hub sections – these areas are not to be damaged. If any doubt exists as to the airworthiness of a propeller, have it properly assessed prior to flight.

61.40.40 Surface Scratches

The inner 250mm of the prop should not be damaged any further than minor nicks and scratches. This is because it carries the most forces. This area is harder to damage than further out on the radius because

the speeds are lower. As a guide there should be no more than three scratches of 0.1mm deep, and 25% of the chord in this area of a blade.

From 250mm out from the hub to the tip of the propeller the depth allowance is slightly greater at 0.15mm and extending a maximum of 25% of the chord. Slightly more damage is allowable toward the tip. There should not be a concentration of scratches in one area.

61.40.50 Leading Edge Damage

Maximum allowed leading edge dent in the carbon fibre portion of the propeller is 3mm within 250mm of the root to 8mm at the tip. The depth of the dents allowable varies linearly from 250mm to 840mm (the outer diameter of the propeller), the equation for the allowable dent is as follows.

1. Measure the location from the prop hub (mm).
2. $Depth = 3 + (0.00847 \times (Location\ from\ Centre - 250))$.

The number of dents allowable depends upon their size. It is suggested that two or three per propeller blade would be maximum.

61.40.40 Repair

For a standard configuration propeller, to repair all dents and scratches a slow cure EPOXY resin must be used. Available from Airborne is a General Purpose Epoxy (180, 360 and 1000gm packs). Damage over 3mm MUST be filled with slurry made from a suitable Epoxy plus fine milled glass fibres (Available from Airborne is a BOS Repair Kit containing the appropriate epoxy, Glass Powder and instructions). For cosmetic scratches and dents use Talc with the epoxy. Always follow the resin instructions and apply to a clean dry surface. When cured, carefully sand the filler back to match the blade apply new LE Tape.

NOTE

If in doubt, or if the propeller has more damage than is able to be fixed by the maintainer then return the propeller to AirBorne for evaluation, possible repair and or overhaul.

Ground Run

After adjustments or maintenance and prior to flight the engine should be run up to check the propeller is functioning normally. The tracking of the propeller should be checked.

The aircraft should be securely chocked and the engine run up to full speed. Ensure the engine temperature is at the required operation temperature. Check that the propeller is functioning normally with minimum vibration.

71. POWER PLANT

71.00.00 General

This chapter provides information on the installation of the engine, but not the engine itself, or its accessories. Information on these may be found in successive chapters.

71.00.10 Engine Run Up

Refer to the Bailey Aviation engine manual and Aircraft Operating Instructions for run up procedures. The engine should not be ground run for extended periods.

71.00.20 Engine Removal/Installation

Engine removal and installation is straight forward and obvious but the following procedure may assist:

Removal

1. Ensure that the emergency fuel isolation valve is OFF.
2. Remove the propeller and mount.
3. Disconnect all fluid flexible lines, cap and identify.
4. Disconnect all instrumentation cables from the engine.

5. After the four engine mounts have been undone, the engine may be carefully removed. The engine manual should be consulted for the correct bolt sizes and methods.

While the engine is off

Check the condition of the engine mount, and the engine mount rubbers (see section 71.20.00), replace or repair as necessary.

Installation

The installation of the engine is the reverse of removal.

71.20.00 Mounts

The engine mount is of welded steel construction. The engine is supported on the engine mount assembly at four points through rubber shock mounts. These shock mounts should be inspected regularly for deterioration, excessive sagging and other damage. It is recommended – but not considered mandatory - that these be replaced at 200 hour intervals. Any damage or distortion to the engine mount structure should be repaired promptly, as apart from any loss of structural integrity, distortion or misalignment of the engine mount structure could impose abnormal stresses on the engine itself.

71.40.00 Attach Fittings

The engine set-up is standard as per Bailey Aviation specifications.

71.50.00 Electrical Harness

The electrical harness for the system is routed between the fuel tank and the engine, it incorporates the engine's system, including the start system and the TinyTach wiring loom. The wiring loom is easy to find and access. The harness should be checked for security and ensure no wear points. The electrical schematic can be found in the Aircraft Operating Instructions section 7.14.1

72. ENGINE MAINTENANCE

Engine Power

Spark plug should be the type recommended by the manufacturer. Adjusting a carburettor is a specialised job and can have a large effect on the power developed by the engine. Altitude can also affect the power available. When moving to a field with a different elevation it may be necessary to retune the carburettor.

It is recommended that only a qualified person should tune the engine. For Special Light Sport Aircraft maintenance, refer this task to a Mechanic with power plant rating.

72.00.00 General

The power unit is a Bailey 4V-200 22HP engine designed and built in the United Kingdom. The Bailey 4V-200 is a 4-stroke, forced air-cooled, single cylinder, 4-valve, single overhead cam design of 200cc displacement. The Bailey engine is fitted with a belt reduction drive to deliver smooth progressive thrust. The engine is fitted with electric start, and a single carburettor with an external dry filter. This power unit is complemented with a twin-blade propeller designed for the engine.

73. ENGINE FUEL SYSTEMS

73.00.00 General

The 10L fuel tank is designed to be removable for ease of transport, filling and fuel inspection. It hangs on a bracket behind the seat and is secured using a bungie around the handle, and a strap and clip

around the body of the tank. The tank has a clear hose fitted to the side that allows easy indication of fuel level.

73.20.00 Controlling

The control of the throttle for the engine is cable actuated by the pilot. The throttle is actuated by foot.

73.30.00 Indicating

The remaining fuel indication is via the sight hose on the pilot's right hand side of the base, behind the seat.

74. IGNITION

74.00.00 General

The power supply of the engine after starting is self sufficient within the engine. No external power supply is required for the engine to operate. The engine maintenance manual should be consulted for the maintenance of the engine's electrical system. (Section 12.60.00 of the maintenance manual).

74.30.00 Switching

Main Switch

The main switch of the aircraft is located on the instrument panel, this is used to start and stop the engine.

76. ENGINE CONTROLS

76.00.00 General

The fuel supply system of the trike is a cable actuated carburettor system.

76.10.00 Power Control

Power control is achieved in following.

Throttle

There is one method to actuate the throttle, the foot actuated throttle. Fully forwards opens the throttle, and fully aft closes the throttle.

Choke

There is an auto-choke that stops operating 30 seconds after starting.

76.10.10 Inspection and Maintenance

In order that the throttle cables operates correctly it must:

- Not be kinked or damaged.
- Be adequately lubricated internally and not binding.
- Have the outer properly and securely clamped at both ends.

NOTE

The throttle cables that are supplied on the T-Lite are not user serviceable, though they can be maintained.

After maintenance its necessary to carefully check the operation of the cables, and to ensure that they are correctly secured to the appropriate linkages. Check that the control can be easily operated through its full range of operation.

76.20.00 Emergency Shutdown

Emergency shutdown of the fuel system is either achieved by shutting the motor down, which will stop the fuel pump, or by disconnecting the fuel isolation valve which will starve the engine of fuel.

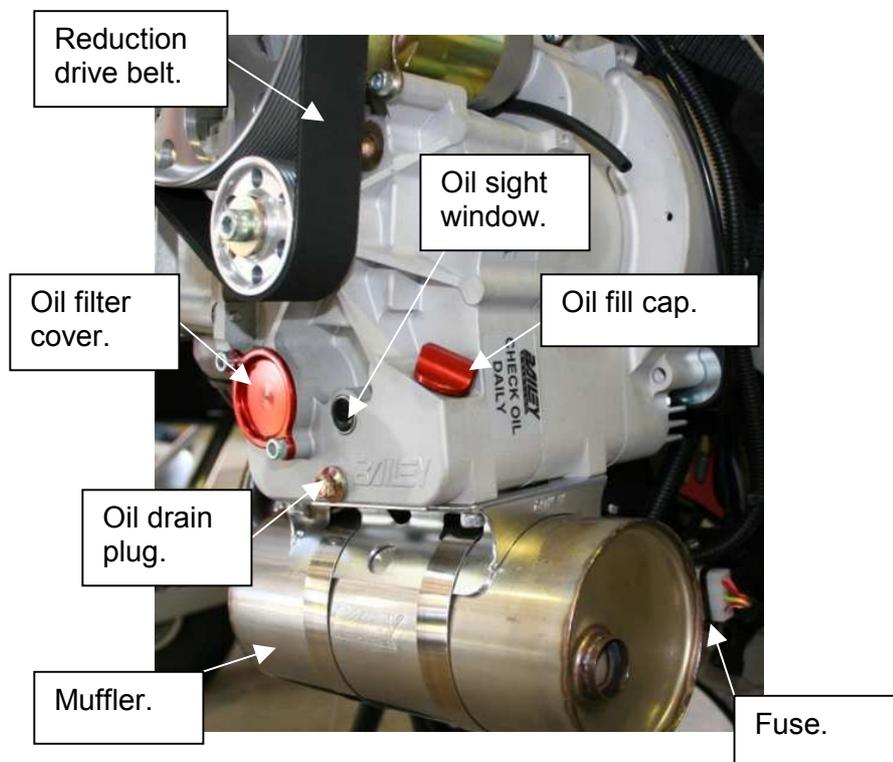
NOTE

There will still be some fuel remaining in the float system of the carburetors if the engine is not starved of fuel to shut it down.

77. ENGINE INDICATING

77.00.00 General

The engine's operation is monitored by the TinyTach and measures engine RPM and engine hours, Consult the TinyTach Installation and Operating Instructions for more information.



78. EXHAUST

78.00.00 General

There is one muffler system that is fitted at the bottom of the engine. Inspect the general condition of the muffler for corrosion and holes that may be present. Ensure that it is correctly secured.

79. OIL

79.00.00 General

79.10.00 Storage

The oil level is checked by sighting the oil level in the oil sight window. The oil level should be checked prior to each flight. Refer to Section 12.10.20, Engine Oil System Replenishment for instructions and replacement information.

79.20.00 Distribution

The oil filter that is fitted is a Honda Part No. 15412-MEB-671, the filter should be changed as per the engine manual, at regular intervals as per the maintenance schedule section of this manual.

80. STARTING

80.00.00 General

A button start is located on the instrument panel. When the master switch is on, pushing the start button will energise the starter system.

Bailey documentation should be used for the maintenance of the starter system.

95. SPECIAL PURPOSE EQUIPMENT

95.10.00 Nil

End of T-LITE Maintenance Manual