



**LAA TYPE ACCEPTANCE DATA SHEET**  
**TADS 172**  
**KITFOX 1, 2, 3, 4, 4-1200, 5, 7,**  
**SERIES 7 SUPER SPORT**

Issue 7	New format. SBs, SLs and Safety Spot articles.	Dated 03/12/19	JH
Revision A	References added to Series 7 Super Sport variant, addition of turtledeck option in section 3.2, addition of Service Alert 61 in section 3.3, additional inspection points in section 3.4.	Dated 02/03/21	FD

This TADS is intended as a summary of available information about the type and should be used during the build, operation and permit revalidation phases to help owners and inspectors. Although it is hoped that this document is as complete as possible, other sources may contain more up to date information, e.g. the manufacturer's website.

Section 1 contains general information about the type.

Section 2 contains information about the type that is **MANDATORY** and must be complied with.

Section 3 contains advisory information that owners and inspectors should review to help them maintain and operate the aircraft in an airworthy and safe condition. If due consideration and circumstances suggest that compliance with the requirements in this section can safely be deferred, is not required or not applicable, then this is a permitted judgement call. This section also provides a useful repository for advisory information gathered through defect reports and experience.

## **Section 1 - Introduction**

### 1.1 UK contact

There is no current dealer for the Kitfox in the UK. Kitfox Aircraft in the USA sell kits and parts.

Tel: +1 208 337 5111  
Fax: +1 208 337 5116  
Website: [www.kitfoxaircraft.com](http://www.kitfoxaircraft.com)  
Address: 123 Airport Way, Homedale, Idaho, 83628, United States

### 1.2 Description

The Kitfox is a kit-built, lightweight, tube and fabric aircraft with STOL capabilities. The early models of Kitfox were built from kits supplied initially by Denney Aircraft, latterly by Skystar Aircraft Corp. Drawings are not available. The airframe of the original Kitfox was derived from the structurally almost identical Avid Flyer. Both aircraft are relatively conventional high wing, side by side 2-seaters. The wings are readily folded for transport or storage. Both aircraft feature an unusual flaperon arrangement where the full span flaperons are suspended a couple of inches below the trailing edge of the wing. The Kitfox Mk 1, 2 and 3 are all outwardly very similar, while the Mk 4 introduced an improved type of flaperon and flaperon control system and a flat-bottomed wing section in place of the original undercambered type. The Mk 4-1200 incorporates further structural reinforcements, while the Speedster is a clipped-wing version of the Mk 4 (not to be confused with the Optima mod, see 'Optima Wing Modification' section). Engines accepted for use on the Kitfox depends on type but include the Rotax 532, 582 and 912.

The Kitfox has a complex welded 4130 steel tube truss fuselage and welded steel tube tail surfaces, both of which are supplied complete in the kit and (optionally) come powder coated. The wings are built around two 6061 T-6 tubular aluminium spars. The jig-built plywood ribs are supplied ready to bond to the spars. Internal bracing within



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the wings is provided by diagonal tubes riveted and bonded in place. The wing structure is assembled using epoxy adhesive, which is supplied with the kit. Full span flaperons are fitted, actuated by rods connecting at the root end. The flying control system is complex and rather delicate in appearance. A bungee-sprung undercarriage is fitted to most examples, an alternative cantilever leg type gear being optional on some models. The Kitfox is covered with lightweight fabric, and thanks to the use of wide rib cap strips, fabric can be attached to ribs by fabric cement method, rib stitching is not required.

Some Kitfox Mk 1 and 2 models are eligible for approval in the microlight category and about a half dozen examples have transferred. All Kitfox 3 and later models are only Group A eligible.

In order to classify as a microlight,

- a. The aircraft must have the full-length wing of the Kitfox Mk 1 or 2, i.e. the wingspan must not have been clipped.
- b. The flaperons must be operable as flaps as well as ailerons.
- c. The aircraft must be issued with a Permit to Fly stating that it is a microlight in the title block of the front page of the Permit to Fly.
- d. It must also be issued a CAA Noise Certificate showing correct data with regard to propeller, engine, intake and exhaust detail.

The Mk 5, Mk 7 and Series 7 Super Sport are later developments of the type incorporating changes to increase maximum speed, payload and improved low speed handling. The similar Vixen is a tricycle undercarriage variant of the type.

The Kitfox Series 7 Super Sport is a kit-built, tube and fabric aircraft with STOL capabilities. The Kitfox Series 7 Super Sport may only be built from kits supplied by Kitfox LCC, previously Skystar Aircraft Corp. Drawings are not available. The aircraft is a conventional high wing, side by side 2-seater. The wings are readily folded for transport or storage. The aircraft features an unusual flapperon arrangement where the full span flapperons are suspended a couple of inches below the trailing edge of the wing. Engines presently accepted by the LAA for use on the Kitfox Mk 7 and Series 7 Super Sport are the Rotax 912-ULS and 914-UL. Other engine types are promoted by the manufacturers but have not been assessed by LAA at this time. Substantially heavier engines may not be acceptable due to the LAA having restricted the max gross weight of the aeroplane to 1400 Lbs.

The Kitfox Series 7 Super Sport has a complex welded 4130 steel tube truss fuselage and welded steel tube tail surfaces, both of which are supplied complete in the kit and (optionally) come powder coated. The wings are built around two 6061 T-6 tubular aluminium spars. The jig-built plywood ribs are supplied ready to bond to the spars. Internal bracing within the wings is provided by diagonal tubes. The wing structure is assembled using epoxy adhesive, which is supplied with the kit. Full span flapperons are fitted, actuated by rods connecting at the root end. The flying control system is complex and rather delicate in appearance. A tailwheel undercarriage is normally fitted, using a cantilever leg type main gear. An alternative nosewheel type undercarriage is available but has not been assessed by LAA. The Kitfox is fabric-covered overall, and thanks to the use of wide rib cap strips, fabric can be attached to ribs by fabric cement method, rib stitching is not required.

The design maximum gross weight of the Kitfox 7 and Series 7 Super Sport is 1550 Lbs, as with the later Mk 5 models. Substantiation for the later 1550 Lbs max gross weight has not been accepted by the LAA, therefore the 7 and Series 7 Super Sport design is restricted



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by LAA to 1400 lbs max gross weight at this time. This provides adequate payload with the Rotax 912-ULS or Rotax 914-UL engines.

The Kitfox 7 and Series 7 Super Sport are only eligible as an SEP aeroplane, they cannot be registered as a microlight.

There are no UK examples of the Mk 6.

Note that the only propeller(s) approved for an individual aircraft are those listed on the individual aircraft's Operating Limitations document or in the [PTL/1](#) (Propeller Type List) for the type.

## **Section 2 – Mandatory information for owners, operators and inspectors**

At all times, responsibility for the maintenance and airworthiness of an aircraft rests with the owner. A Condition of a Permit to Fly requires that: *"the aircraft shall be maintained in an airworthy condition"*.

### 2.1 Fast Build Kit 51% Compliance

Not applicable, these aircraft were only supplied in slow-build kit form with the fuselage and tail surfaces supplied as pre-welded assemblies but the wing requiring assembly from components.

### 2.2 Build Manual

Supplied with kit.

### 2.3 Build Inspections

Build inspection schedule 9 (tubular aircraft).  
Inspector approval codes A-A or A-W or A-K. Inspector signing off final inspection also requires 'first flight' endorsement

### 2.4 Flight Manual

Flight Manual supplied with Mk 3, 4 and 4-1200 kit. For Mk1 and 2 aircraft, build manual contained basic information, for further advice see Ed Downs book 'How to Fly a Kitfox'.

### 2.5 Mandatory Permit Directives

None applicable specifically to this aircraft type:

Also check the LAA website for MPDs that are non-type specific ([TL2.22](#)).



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**2.6 LAA Required Modifications (including LAA issued AILs, SBs, etc)**

All modification/inspection information below, except for MOD/172/023, was compiled in the early 90s and was/is sent to builders on project registration. MOD/172/023 was sent to all Kitfox owners during October 2002. These modifications are only applicable to the Kitfox 1,2,3,4 and 4-1200.

<b>Subject</b>	<b>Reference</b>
Placards Mandatory	<a href="#">MOD/172/001</a>
Placards Recommended	<a href="#">MOD/172/002</a>
Stainless Steel Firewall	<a href="#">MOD/172/003</a>
Heat Shields	<a href="#">MOD/172/004</a>
Water Header Tank	<a href="#">MOD/172/005</a>
Cooling System Pressure Test	<a href="#">MOD/172/006</a>
Cooling System Bleed Procedure	<a href="#">MOD/172/007</a>
Water Header Tank Inspection Hatch	<a href="#">MOD/172/008</a>
Wiring Harness	<a href="#">MOD/172/009</a>
Flaperons	<a href="#">MOD/172/010</a>
Flap Control Gate	<a href="#">MOD/172/011</a>
Elevator Reinforcement	<a href="#">MOD/172/012</a>
Tailwheel Spring	<a href="#">MOD/172/013</a>
Main Fuel Tank	<a href="#">MOD/172/014</a>
Wing Tanks	<a href="#">MOD/172/015</a>
Securing Engine Accessories	<a href="#">MOD/172/016</a>
Elevator Trim Tab	<a href="#">MOD/172/017</a>
Flaperon Attachment Reinforcement	<a href="#">MOD/172/018</a>
Flaperon Torque Tube Bearing Inspection	<a href="#">MOD/172/019</a>
Fuel Tank Sloshing Sealant Failure	<a href="#">MOD/172/020</a>
Control Column Assembly	<a href="#">MOD/172/021</a>
Clearance check at Flaperon pushrod	<a href="#">MOD/172/022</a>
Lift strut threaded rod-end inspection	<a href="#">MOD/172/023</a>

**2.7 Additional engine operating limitations to be placarded or shown by instrument markings**

**Notes:**

- Refer to the engine manufacturer's latest documentation for the definitive parameter values and recommended instruments.
- Where an instrument is not fitted, the limit need not be displayed.

With Rotax 582 engine:      Max CHT: 150°C (normal 110-130°C)  
   Max difference 10°C  
   Max EGT:650°C (normal 500-620°C) max diff. 25°C  
   Max Coolant temp: 80°C

With Rotax 912-UL:            Maximum CHT: 150°C  
   Max Coolant Temp: 120°C (with 50/50 Glycol/water)  
   Oil Temp Limits: 50°C to 140°C (Normal 90-110°C)  
   Oil Pressure 2-5 Bar  
   Minimum Fuel Pressure: 0.15 bar

With Rotax 912-ULS:        Maximum CHT: 135°C  
   Max Coolant Temp:120°C (with 50/50 Glycol/water)



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Oil Temp Limits: 50°C to 130°C (Normal 90-110°C)  
Oil Pressure 2-5 Bar  
Minimum Fuel Pressure: 0.15 bar

With Rotax 914-UL engine: Max Manifold Pressure: 1300 hPa  
Max Continuous Manifold Pressure: 1150 hPa  
Maximum EGT: 950°C  
Maximum CHT: 135°C  
Max Coolant Temp: 120°C (with 50/50 Glycol/water)  
Oil Temp Limits: 50°C to 130°C (Normal 90-110°C)  
Oil Pressure 1.5-7 Bar (1.5-5 Bar normal)

**2.8 Control surface deflections**

Ailerons	TBD
Elevators	
Elevator tab	
Rudder	
Flap	

**2.9 Operating Limitations and Placards**

(Note that the wording on an individual aircraft's Operating Limitations document takes precedence, if different.)

1. Maximum number of occupants authorised to be carried: 2
2. The aircraft must be operated in compliance with the following operating limitations, which shall be displayed in the cockpit by means of placards or instrument markings:

2.1 Aerobatic Limitations  
Aerobatic manoeuvres are prohibited.  
Intentional spinning is prohibited.

2.2 Loading Limitations  
Maximum Total Weight Authorised:  
Mk 1 and 2: 950 Lbs \*  
Mk 3 and 4: 1050 Lbs  
Mk 4-1200: 1050 Lbs or 1200 Lbs depending on engine fit  
Mk 5: 1400 Lbs depending on engine fit  
Mk 7: 1400 Lbs depending on engine fit

\* Some very early Kitfox Mk 1 aircraft are cleared with a gross weight of only 850 Lbs.

CG Range:  
Mk 1, 2, 3 and 4: 10.2 inches to 14.2 inches aft of datum. Datum is front face of wing leading edge tube.  
Mk 4-1200: 10.7 to 16.0 inches aft of datum. Datum is wing leading edge  
Mk 5: 11.0 to 16.0 inches aft of datum. Datum is wing leading edge  
Mk 7: 9.5 to 15.5 inches aft of datum. Datum is wing leading edge



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- 2.3 Engine Limitations  
For Rotax 912-UL/ULS  
Maximum Engine RPM: 5800.  
Maximum continuous engine RPM: 5500  
For Rotax 532/582  
Maximum Engine RPM: 6800.  
Maximum continuous engine RPM: 6500.
- 2.4 Airspeed Limitations  
Maximum Indicated Airspeed ( $V_{NE}$ ): Mk 1, 2 and 3: 100 mph  
Mk 4: 100 or 125 mph  
depending on engine fit  
Mk 5 and 7: 140 mph  
Max Indicated Airspeed Flaps Extended: 75mph
- 2.5 Other Limitations  
The aircraft shall be flown by day and under Visual Flight Rules only.  
Smoking in the aircraft is prohibited.

Additional Placards:

"Occupant Warning - This Aircraft has not been Certificated to an International Requirement"

A fireproof identification plate must be fitted to fuselage, engraved or stamped with aircraft's registration letters.

2.10 Maximum permitted empty weight

See [TL 3.16](#) for empty weight requirements.

**Section 3 – Advice to owners, operators and inspectors**

3.1 Maintenance Manual

Simple schedule provided in Pilots Manual. For further guidance refer to LAMS schedule. Refer to build manual for rigging instructions. For engine consult engine manufacturer's schedule.

3.2 Standard Options

List of standard manufacture's options that can be installed without the need for a mod application (also applies to aircraft post-build).

- There are a number of different fuel system options available on the various marks of Kitfox. The simplest system involves a single moulded polythene tank in the forward fuselage, the fuel level in the tank being visible to the pilot directly via a slot in the instrument panel. A common option fits either one or two additional wing-root mounted tanks, which feed by gravity either into the polythene fuselage tank or a small header tank. Header tanks may either be fitted at the front or the rear of the cockpit, although the rear mounted position is favourable, as it enjoys a more direct fuel pipe routing from the wing tanks and so a reduced likelihood of vapour



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bubbles developing. Many individual Kitfox builders have fitted a low-level fuel warning switch in the header tank to warn the pilot if fuel feed problems are causing the header tank to start to empty. Some fit a pilot-controllable vent valve and overboard drain to the header tank so that the pilot can vent any air out of the fuel system in flight if the low-level switch activates. Other Kitfoxes have the header tank permanently vented to one of the wing tanks.

- A number of Kitfoxes have also been fitted (either at build or retrospectively) with the so-called 'Optima' modification (designed by John Scott) which alters the wing section to 'flat bottomed', clips the wingspan and flapperons and fits alternative wing tips. The Optima modification significantly improves flight handling and cruise performance with only a minimal degradation of STOL performance. Kitfox Mk 1 and 2 aircraft fitted with the Optima modification are not eligible for transfer to the microlight category.
- Alternative cantilever type 'Grove' undercarriage.
- Turtledeck part number 11153.xxx, as listed in Kitfox parts catalogue.

3.3 Manufacturer's Information (including Service Bulletins, Service Letters, etc)

In the absence of any over-riding LAA classification, inspections and modifications published by the manufacturer should be satisfied according to the recommendation of the manufacturer. It is the owner's responsibility to be aware of and supply such information to their Inspector.

<i>Ref</i>	<i>Date</i>	<i>Description</i>	<i>Applicability</i>
<a href="#">SB01</a>	Jul 14, 87	Plastic spinner recall	Mk 1 with 3-blade props with plastic spinner
<a href="#">SB02</a>	Dec 27, 88	Fuel valve/line modify	Serial #'s 0 - 300
<a href="#">SB03</a>	Mar 15, 89	Velocity never exceeded	Mk. I & II
<a href="#">SB04</a>	Sept 05, 89	Elevator weldment	Mk. I & II serial #'s 0-484
<a href="#">SB05</a>	Oct 03, 89	Fuel tank filler cap	Mk. I & II (prior to this bulletin)
<a href="#">SB06</a>	Mar 15, 90	582 gearbox recall	582 & 532 engines, serial #3799005,3799500
<a href="#">SB06a</a>	Feb 07, 91	Left control pivot assembly	Mk. I, II & III
<a href="#">SB07</a>	Sep 03, 91	Cotton flox.	Mk III & IV shipped between 4/1/91 - 09/01/1991
<a href="#">SB08</a>	Sep 03, 91	Sloshing compound	All models shipped prior to 9/1/91
<a href="#">SB09</a>	Sep 12, 91	Flaperon hanger rib	Mk. I, II & III
<a href="#">SB9a</a>	Aug 28, 91	Flaperon hanger rib	United kingdom owners
<a href="#">SB10</a>	Jan, 91	Inspect & replace alum wing tanks	All models with aluminium tanks
<a href="#">SB11</a>	Jan 08, 92	532 & 582 carburettor air vent tube	All models with Rotax 582 & 532
<a href="#">SB11a</a>	Jan 29, 92	912 carburettor air vent tube	All models with Rotax 912 engines
<a href="#">SB11C</a>	Jan 08, 92	Rotax Carburettor Venting	All Rotax equipped models.



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<a href="#">SB12</a>	Dec 24, 91	912 throttle cable	All models with Rotax 912 engines (prior to this bulletin)
<a href="#">SB16</a>	Jun 10,92	Great American propellers	Mk. I & II with KFM engines
<a href="#">SB17</a>	Jun 10,92	Side rail mounts	Mk. III with 582 engines
<a href="#">SB18</a>	May 26, 92	Speedster wing tips	Speedster models (prior to this bulletin)
<a href="#">SB19</a>	Jun 17, 92	Magnetic drain plug	Specific 912 Rotax engines
<a href="#">SB20</a>	Aug 14, 92	Mass balance system	All models
<a href="#">SB21</a>	Aug 19, 92	Flaperon hinge bearings	Mk. I, II & III
<a href="#">SB21a</a>	Aug 28, 92	Flaperon hinge bearings	All models (prior to this bulletin)
<a href="#">SB22</a>	Aug 28, 92	Matco brake calliper	All models
<a href="#">SB23</a>	Sep 23, 92	912 engine mount bolts	912 engines, # 4005177 to engines prior to this bulletin
<a href="#">SB24</a>	Oct 08, 92	Landing gear weldment recall	A/c shipped between 9/3/92 & 10/1/92
<a href="#">SB25</a>	Nov 03,92	Model IV style flaperons	Model IV wings (short flaperons)
<a href="#">SB26</a>	Nov 11,92	Lift strut attach bracket to fuselage	A/c manufactured between 9/1/92 & 10/16/92
<a href="#">SB27</a>	Dec 08, 92	Capstrip alignment	A/c manufactured between Aug 92 & Nov 92
<a href="#">SB28</a>	Dec 11, 92	Rudder pedal guide pulley safety tab	Model IV serial #'s 1400 - 1722
<a href="#">SB29</a>	Dec 14, 92	Fuel line routing/wing tanks and header tank	All models (prior to this bulletin)
<a href="#">SB30</a>	Jun 11, 93	Retractable float main gear mechanism	Retractable floats 1100 series SN's 0110492 - 441093
<a href="#">SB31</a>	Sept 8, 93	Aircraft identification plates	All a/c manufactured between 5/91 & 8/93
<a href="#">SB32</a>	Sept 8, 93	Aft Elevator Control Tube	S5 Vixen Models SN: ECV001-ECV009, GCV010, HCV011, HCV012, ICV013-ICV015
<a href="#">SB33</a>	Oct 22, 93	Control Stick Pivot Connect Tube	S5 Vixen Models SN: ECV001-ECV009, GCV010, HCV011, HCV012, ICV013-ICV018, JCV019-JCV022
<a href="#">SB34</a>	Jan 5, 94	Possible cracking of the .118 windshield used on kitfox tm	All m4 speedsters and any model with the pn 54030.000 speedsters polycarbonate windshield
<a href="#">SB35</a>	Jan 5, 94	Inboard Flaperon Hinge	All models including S5 Vixen using M4 style Flaperons Installation with the symmetrical airfoil
<a href="#">SB36</a>	Jan 4, 94	Vixen Web and Angle Kit	All S5 Vixen Models
<a href="#">SB37</a>	Jan 5, 94	Possible Cracking Vixen Nose Gear Fork	All S5 Vixens
<a href="#">SB38</a>	May 15, 94	Rudder Pedal Reinforcements	S5 Vixens SN: DBT001, ECV001-ECV009,FCV008,GCV010, HCV011 - HCV012,ICV013 - ICV018, JCV019 - JCV022, KCV024, LCV023
<a href="#">SB39</a>	Aug 25, 94	Rotax 912 lubrication systems	All M4
<a href="#">SB41</a>	Sept 6, 94	Swaged fittings on the float cross brace cables	All float equipped models





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<a href="#">SB42</a>	Aug 30, 94	Possible fuel valve leaking	All models with pn: 46018.000 fuel valve
<a href="#">SB42a</a>	Oct 20, 94	Correction to sb42	All models with pn: 46018.000 & 47012.000 fuel valves
<a href="#">SB43</a>	Jan 20, 95	Wing lock back brace	S5 taildraggers through 01/95
<a href="#">SB44</a>	Aug 25, 95	Rotax 912 ignition leads	All rotax 912 powered a/c with ignition units mounted to engines
<a href="#">SB45</a>	Sept 21, 95	Elevator idler bell crank mounting bolt	M1, M2, M3
<a href="#">SB47</a>	May 17, 97	Cable swaging procedures	M4, s5 vixen, s5 models
<a href="#">SB49</a>	May 1, 97	Rotax 912 exhaust systems	All Rotax 912 powered models
<a href="#">SB52</a>	Aug 11, 98	Nicopress sleeves	All kitfox models
<a href="#">SB54a</a>	Mar 4, 01	912uls & 912 ul engine installations	All a/c using 912uls & 912ul engine installation kits shipped prior to may 2001
<a href="#">SB55</a>	Dec 1, 01	Series 5 vixen/voyager tricycle gear	All series 5 vixen/voyager tricycle gear a/c
<a href="#">SB56</a>	Nov 11, 02	Lite fuel pump primer	All lite a/c
<a href="#">SB58</a>	May 5, 03	Nose gear piston rod bearing	
<a href="#">SB60</a>	Oct 10, 10	Fuel tank preparation	All fuel tanks produced from November 2007
<a href="#">SA61</a>	Jan 27, 21	Altering aerodynamics	

<a href="#">SL01</a>		Finger Strainers	Early Mod. I (prior to letter)
<a href="#">SL02</a>		Fuel Tank Installation	Early Mod. I (prior to letter)
<a href="#">SL03</a>		Spark Plug & Shields	Early Mod. I (prior to letter)
<a href="#">SL04</a>		Sinner	Early Mod. I (prior to letter)
<a href="#">SL05</a>		Elevator control Tube	Mod. I Serial #'s 56 - 112
<a href="#">SL06</a>	Nov 07, 86	532 Rubber Intake Flange	Specific Serial # Rotax 532 engines
<a href="#">SL07</a>	May 06, 87	Wing Tank Fuel Caps	Mod. I (prior to letter)
<a href="#">SL08</a>	May 06, 87	Lift Strut Modification	Mod. I Serial #'s 2 - 116
<a href="#">SL09</a>	June 09, 87	Plastic Spinners	Mod. I with 3 blade Prop & plastic spinner
<a href="#">SL10</a>	Aug 14, 87	Wing Tank "T" Fittings	Mod. I (prior to letter)
<a href="#">SL11</a>	Aug 20, 87	Wing Tank Recall	Mod. I (prior to March 23, 87)
<a href="#">SL12</a>	Jun 30, 88	¼" Propeller Bolts	Mod. I & II (prior to letter)
<a href="#">SL13</a>	N/A		
<a href="#">SL14</a>	Dec 27, 88	E-33 Aluminium Rear Spinner Bulkheads	Mod. I & II serial #'s 2-263,278-281
<a href="#">SL15</a>	Mar 27, 89	Wing Tanks and Header Tanks	Mod. I & II serial #'s 2 - 270
<a href="#">SL16</a>	Jun 07, 90	Electric Starter	Specific Rotax engines 503,532 & 582 (prior to letter)
<a href="#">SL17</a>	N/A		
<a href="#">SL18</a>	Jul 22, 91	Pre-flight Inspection of Rudder Cables	Mod. I, II & III



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<a href="#">SL19</a>	Sep 03, 91	Oil Injection System	All models with Rotax engine (prior to letter)
<a href="#">SL20</a>	Sep 19, 91	Shock Cords	Mod. III & IV (prior to letter)
<a href="#">SL21</a>	Oct 16, 91	Cotton Flox - Micro Balloons	Mod. III & IV serial #'s 1143 - 1420
<a href="#">SL22</a>	Oct 21, 92	Header Tank and Fuel Line Routing	All models using a Header tank
<a href="#">SL23</a>	Dec 07, 92	Dual Brake Braking Problem	All models equipped with dual brake system
<a href="#">SL24</a>	Dec 14, 92	Prop Installation, Torquing Procedures and Maintenance	All models
<a href="#">SL25</a>	Dec 3, 93	Lift Strut Attachment	All models
<a href="#">SL25A</a>	Dec 9, 93	Lift Strut attachment (Revised) 1. Wing Dihedral 2. Lift Strut Adjustment	1. All non S5 Kitfox's 2. All models
<a href="#">SL25B</a>	Dec 9, 93	Lift Strut attachment (Revised) 1. Wing Dihedral 2. Lift Strut Adjustment	1. All non S5 Kitfox's 2. All models
<a href="#">SL26</a>	Oct 10, 94	Nose Gear Piston	S5 Vixen SN: ECV001 - LCV023
<a href="#">SL27</a>	May 1, 94	Airspeed Indicators and Pitot Static System Replaced by 27A	All Kitfox TM Owners
<a href="#">SL27A</a>	Sep 9, 94	Airspeed Indicators and Pitot Static System (Revised).	All Kitfox TM Owners
<a href="#">SL28</a>	May 1, 94	Sound Absorbing Kit	All Kitfox using Rotax 912 with optional pre-sewn Sound insulation material installed on the firewall.
<a href="#">SL29</a>	Apr 6, 94	Vixen Documentation & Upgrade	All S5 Vixen owners
<a href="#">SL30</a>	May 1, 94	Aft CG Limit	All M4 -1200 models
<a href="#">SL30A</a>	Sep 7, 94	Aft CG Limit (Revised)	M1,M2,M3,M4,C4
<a href="#">SL31</a>	Aug 15,94	Tail Skid Bushing	All S5 Vixen 1200# models
<a href="#">SL32</a>	Jun 23, 94	Elevator Push-Pull Tubes	All S5 models
<a href="#">SL33</a>	Jun 24, 94	Fuel Valve Mounting Bushing	All S5 Vixen 1200# models
<a href="#">SL34</a>	Aug 19. 94	Series 5 Horizontal Bushing	All S5 models
<a href="#">SL35</a>	Aug 19, 94	Rotax 582 Choke Control	M1,M2,M3,M4,C4
<a href="#">SL36</a>	Aug 22, 94	Cable Guides	All S5 models
<a href="#">SL37</a>	Aug 22, 94	Series 5 Wing Folding	All S5 models
<a href="#">SL38</a>	Sep 12, 94	Elevator Control Stop Bushing	All S5 models
<a href="#">SL39</a>	Sep 14, 94	Belly Stringer Forward Attach Angle	All S5 models
<a href="#">SL40</a>	Nov 19, 94	Bridge Rectifier	All models
<a href="#">SL41</a>	Oct 19, 94	Charging System	All models



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<a href="#">SL42</a>	Nov 9, 94	Centre Firewall Section	All S5 engine kits prior to 31 Nov 94
<a href="#">SL43</a>	Nov 28, 94	Series 5 Speedster Rudder	All S5 Speedsters
<a href="#">SL44</a>	Nov 29, 94	Series 5 Connect Tube Threads	All S5 fuselage kits prior to 31 Nov 94
<a href="#">SL45</a>	Sep 21, 95	Ensuring Proper Fuel System Performance	All models with wing tanks
<a href="#">SL46</a>	Sep 1, 95	Possible Fatigue of Vixen Nose Gear Fork	All S5 Vixens
<a href="#">SL47</a>	Aug 22, 95	Rudder Pedal Torque Tube Cracking	M1,M2,M3,M4,C4
<a href="#">SL48</a>	Aug 22, 95	Welded Landing Gear	All Taildragger A/C with welded landing
<a href="#">SL49</a>	Aug 25, 95	Rotax Service Bulletins	All models powered by Rotax engines
<a href="#">SL50</a>	Aug 28, 95	Matco M62 Wheel installation	Models with Matco W62 wheels
<a href="#">SL51</a>	Sep 11, 95	Series 5 Round Cowl, Rotax 912 Exhaust System	S5 models using Round Cowls & Rotax 912 Engines
<a href="#">SL54</a>	June 6, 99	Field Service Report Request	S5 Models
<a href="#">SL55</a>	August 6, 99	Weight and Balance	S5 Vixen & Voyager

### 3.4 Special Inspection Points

- Inspectors should check all components supplied in the kit carefully for quality before construction starts. One or two of the early examples were snagged for poor welding quality - in one case a complete fuselage had to be rejected. Wing spar tubes were in one case found to have been unacceptably damaged on receipt.
- The build manual is reasonably clear and few construction problems have been reported, although builders need to take great care with the assembly of the wings which require critical drilling and alignment, particularly the fitting of spar tube reinforcements, wing strut attachments and root fittings. Ensure when first assembling and fitting wings that correct wing dihedral is achieved and that there is no unwanted sweep-forward or sweep-back.
- Check any 'squashed and bent' tube ends (e.g. the internal wing bracing struts of some models) carefully for signs of minute cracks caused during manufacture, and dress out any damage to prevent cracks growing from these points in service.
- Ensure that all blind rivets are 'set' squarely and fully, and check that rivet heads are seated properly with a feeler gauge.
- Inspectors must stress to builders the importance of proper surface preparation and cleanliness during all bonding operations.
- Another point to watch is careful assembly of the flying control system.
- The build manual is not particularly detailed regarding engine installation and fuel system details etc. See Rotax installation manual and Rotax installation checklist for guidance, and LAA-required mods.
- The folding wing and flaperon arrangement give rise to a complex flaperon control system with many joints and short pushrods. In practice, once satisfactorily rigged, the system requires little maintenance, but the inspector should ensure adequate fits and clearances throughout with freedom from backlash etc. Pushrods should not foul the structure when the wing is folded.



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- The main undercarriage bungees are not long-life items and may wear rapidly particularly if the exit holes are too small or if they chafe against any structure.
- Refer to construction manual and service information concerning rigging and control surface range of movement. On Kitfox Mk 1, 2 and 3 models, drooping the flaperons to act as flaps reduces aileron effectiveness and increases adverse yaw, both undesirable characteristics. To avoid this, many owners of these models have rendered the drooping capability of the flaperons inoperable by locking the droop lever in the retracted position. This is encouraged by LAA, but not mandatory.
- In addition to the manufacturer's maintenance schedule presented in the Pilots Manual, LAMS should be used as a guide to required inspections and this is reflected in the checklist in Section 1 of the LAA's permit renewal application form. Denney and Skystar service information should also be reviewed. Rotax engines should be maintained to the Rotax maintenance schedule. Maintenance of the airframe is typical of a fabric-covered wood and metal airframe.
- Problems have been experienced with cabin doors opening in flight if the latches are not properly adjusted, this causes no particular hazard (it is intended that the aeroplane is able to be flown with doors open in hot weather) but can be alarming if not anticipated. This is most likely to occur during sideslip manoeuvres.
- Due to the openings in the fuselage fabric covering around the undercarriage bungees and wing roots, particular care must be taken to check that exhaust fumes are not entering the cockpit, which has caused difficulties with several examples. It is recommended that a CO detector be fitted. If problems are experienced, sealing the various leakage paths and fitting an extended exhaust tailpipe (approximately eight inches long) has been found to provide a cure.
- Problems have been experienced with fuel flow between the wing tanks and header tank being interrupted by vapour bubbles forming in the pipework, causing engine failure once the contents of the header tank are exhausted. It is essential to check that the fuel pipes connecting the main and header tanks are free of air bubbles and fuel is flowing as desired, particularly after the wings have been folded and unfolded. Some owners blow into the wing tank vent pipes during their pre-flight checks to help clear the fuel pipes of air bubbles.
- Heavy landings are indicated by bent tubes in the vicinity of the undercarriage attachments and bungee attachment structure. Be wary of loosening or detachment of the bonded joints between wing ribs and spars, particularly where the root ribs attach to the rear spar which take a considerable torsion load when the wings are folded especially if fuel is left in the wing tanks. One Kitfox suffered glue failure in this area before its first flight, probably due to having been 'hangered' in a dark-coloured container in bright sunshine, causing ambient temperatures inside the container in excess of the epoxy's 'transition' temperature. Remember that the epoxy used to assemble these kits is just as vulnerable to high temperature as the epoxies used in the wet lay-up of composite aircraft, and similar care must be taken.
- An Australian Kitfox suffered in-flight break-up due to failure of the carry-through tube in the fuselage where the wing struts attach, due to internal corrosion of the steel tubing. This tube is normally sealed at both ends during the welding of the fuselage, so that corrosion should not be able to take place unless it is penetrated by subsequently installed pop-rivets or similar. No internal corrosion in this area is acceptable.
- Problems have been experienced with fuel leaks from tanks, release of fuel tank 'sloshing sealer' inside tanks and deterioration of fuel hoses through chemical attack (replacement by aeronautical spec fuel tubing such as 'Aeroquip' is desirable).
- Failure of the rather crude fuel cocks have occurred either through detachment of the round 'plugs' supposedly press-fitted into the case of the valve, degradation of their 'O ring' seals when immersed in fuel, or misalignment of the valve stops causing the valve to be partially shut when apparently on the 'fully open' stop. Any sudden

change in the 'feel' of the valve may indicate that the 'O ring' seal is displaced and must be checked before further flight.

- Pay particular attention to the proper maintenance of the flying control system including freedom from jamming, stiffness, binding of rod-end spherical bearings etc. One AN3 pivot bolt in the flying control system of a Kitfox cracked in service, fortunately without accident. It would not be out of order to insist on critical pivot bolts being withdrawn annually for inspection and being replaced at the first sign of significant wear or other distress.
- Many Kitfox aircraft on the LAA fleet are now at least 20 years old and are likely to be due for recovering - especially those which have been tied down outside for any length of time. This will also give an opportunity to examine the underlying structure for condition. The 'Bettsometer' can be used to check the fabric strength while doing minimal damage, to the fabric being tested. Contact: Clive Betts of Brighton, tel. 01273 726343.
- As the design employs certain very lightweight design features, in common with most kitplanes of this era particular care needs to be taken to monitor condition in service and replace components as they become worn or develop cracks.
- The fact that the aircraft has folding wings means that it may be more prone to damage while in transport or in storage than a machine kept permanently rigged and hangered. One Kitfox crashed almost certainly as a result of damage caused by a prior road accident in which its trailer was shunted by a car driven by the owner's wife. Another Kitfox's main spar tube had to be scrapped after it was dented by a collision with a gatepost while being towed.
- Note in particular mandatory recurring MOD/172/023 **Lift Strut Threaded Rod End Inspection** required at each annual check, this follows a wing strut failure in flight. Details are available from LAA and are contained in full in the LAA inspector's SPARS book. **Compliance:** - Initial inspection within 5 flying hours from receipt or at permit renewal whichever soonest. Pilot visual pre-flight thereafter and Inspector visual inspection at permit renewal.
- Rotax 582 installations with C-type gearbox require the side attachment-type engine mount, as used on later Kitfox variants.
- If a moveable horizontal stabiliser is fitted, pitch trim stops must be fitted in case of trim runaway: these may be physical stops or limit switches.

See also 'News updates' [5/8/92](#) and [10/8/93](#).

### 3.5 Operational Issues

- The early model Kitfoxes were popular aeroplanes which initially suffered a high accident rate in the UK largely because it was built and flown in numbers by inexperienced people, without appreciation of the handling qualities of the type, or the hazards of strip flying. A proper 'check-out on type' from someone familiar with the Kitfox should be undertaken, especially by those without plenty of previous tailwheel experience. Particular care should be taken not to operate in windy conditions until experience is gained. The book by Ed Downs, 'How to Fly A Kitfox' (available from LCC Aircraft) is recommended.
- The throttle control on these aircraft is of 'vernier' type which while allowing accurate fine adjustment, can cause 'finger trouble' when coarse power changes are needed rapidly, for example when landing in gusty conditions.
- If wing-folding is undertaken then carefully check before further flight that apart from the wing leading edge pins being properly locked in place, the fuel pipes from



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wing fuel tanks have not become kinked at the wing hinge or created an air lock at this point.

- Check for signs of CO contamination in cockpit, if exhaust smell is noticed this must be corrected by attention to exhaust system and cabin seals.
- Check fuel system feeds from all tanks without developing air locks or accumulating air in header tank.
- With early model Kitfoxes, due to reducing elevator authority in the flare when power off, it is recommended that when the cg is further forward than 10.5 inches AOD, the aircraft is landed with flaps up.

The following *Safety Spot* articles are relevant to Denney Kitfox aircraft:

*Light Aviation* [September 2011](#)

*Elevator Trim Cable Ferrule Failure*

Ferrule on the elevator trimmer failed. Loss of trimmer control could cause pitch instability in stick free condition

*Light Aviation* [November 2011](#)

*Optima Mod Failure*

Optima Mod using foam inserts in wings to reduce the under camber and improve low speed handling failed. Foam inserts in one wing had completely disintegrated and fabric was not well adhered.

*Light Aviation* [December 2013](#)

*Undercarriage Bungee Failure*

Ferrule on undercarriage bungee cut through shock cords and would likely have failed on the subsequent landing. Incorrect swaging method used caused the damage.

*Light Aviation* [Jan 2015](#) & [Apr 2016](#)

*Loss of control after take off*

Kitfox with underperforming engine failed to climb away after aborted landing. Likely due to the wear on the poppet valves and valvetrain, combined with the out of limits ring gap. The pilot had also on the sortie accidentally exceeded the engine CHT.

### 3.7 Standard Modifications

None approved on this type at the current issue.

----- END -----

Please report any errors or omissions to LAA Engineering: [engineering@laa.uk.com](mailto:engineering@laa.uk.com)