

## CHRISTEN EAGLE II

Issue 2 Details of kit stages / manuals added at section 5  
dated 7.12.06

1. USA contact

Aviat Aircraft, PO Box 1240, 672 S. Lashington, Afton, Wyoming, USA. Tel: 307 886 3151

2. Description

The Christen Eagle II is a two seat enclosed cockpit aerobatic biplane, similar in appearance to a Pitts S2, with a welded steel tube fuselage and tail surfaces, and wooden wings, the whole being fabric covered. The Christen Eagle II is built from a comprehensive kit available from Aviat. The Eagle II is cleared by the LAA with Lycoming IO-360 and AEIO-360 engines. A Hartzell constant speed propeller is standard – an MTV-9 propeller is also accepted on one example.

3. Fast Build Kit 51% Compliance

The Christen Eagle II kit is accepted by the FAA as 51% rule compliant and accepted by the LAA as 51% rule compliant on that basis.

4. Build Inspections

Build inspection schedule 1D (wood/metal biplane).

Inspector approval codes A-A or A-W. Inspector signing off final inspection also requires 'first flight' endorsement

5. Build Manual

A very comprehensive set of build manuals covers every step of the assembly of the aircraft. A separate manual covers each sub-kit provided by Christen Industries, as follows:

901	Ailerons	
902	Lower wing	902-R Lower wing ribs
903	Upper wing	903-R Upper wing ribs
904	Fuselage structure	
905	Landing gear	
906	Tail Structures	
907	Fuselage Equipment	
908	Cockpit equipment	
909	Fuel System	
910	Electrical kit	
911	Instruments	
912	Navcom	
913	Seat belts	
914	Fuselage panels	
915	Canopy	
916	Engine mount	

## CHRISTEN EAGLE II

- 917 Engine kit
- 918 Engine equipment
- 919 Propeller kit
- 920 Cowling kit
- 921 Rigging kit
- 922 Fairings kit
- 923 Covering and pre-finish
- 924 Flight kit (includes Flight and Maintenance manuals)
- 925 Tiedown kit

6. Maintenance Manual

Christen Industries provide a maintenance schedule for the Eagle II. Christen Reference 924 Section 8 (Maintenance).

7. Flight Manual

Christen Industries provide a Flight Manual for the aircraft. Christen Reference 924.

8. Mandatory Permit Directives

None applicable specifically to this aircraft type, but note

MPD: 1998-019-R1 Flexible Fuel Tubing Applies to all aircraft

9. LAA Mandatory Modifications

Addition of starter warning light on P1 instrument panel adjacent to starter switch, connected in parallel with the output side of the solenoid.

10. Service Bulletins

Christen Industries produced more than 250 service letters between 1979 and 1984, many of which are trivial (for example promulgating new price lists !) but some of which contain important service information, including:

- 108 Oil system adaptor 501088-001 incorrectly machined ,  
26-11-79  
could cause oil leak from oil temp sensor port.
- 109 Inspection of adequate bolt thread engagement in self locking nut in  
aileron 29-11-79  
pushrod connection to idler arm in lower wing. Minimum 1 ½ bolt threads  
protruding past self locking nut.
- 126 Inspect 30723-501 elevator control linkage idler arm for interference  
19-12-79 with fuselage cross member.
- 127 Inspection of clearance between elevator pushrod and fuselage frame  
20-12-79 at station 78.
- 129 Inspect for cracks in elevator horn. 29-01-80

## CHRISTEN EAGLE II

- 137 Modification of fuselage former to ensure adequate clearance for movement 31-1-80 of elevator pushrod.
- 140 Large diameter washer substituted under head of the bolt that attaches the 8-2-80 propeller control rod end bearing to the governor control arm.
- 148 Inspection of welded pushrod assemblies for incomplete welds to end fittings. 13-3-80
- 160 inspection of fuselage frame to check reinforcing tubes at u/c mount area 29-4-80 have been installed – reinforcing tubes are part of fuselage weldment.
- 169 Mag switch placard identification of left and right magneto transposed. 9-7-80 Should read (clockwise) OFF-RIGHT-LEFT-BOTH-START.
- 174 Addition of inspection rings to fabric wing cover for inspection of wing 23-7-80 internal brace wires.
- 179 Possibility of defective threads in tie rod terminals at flying wire terminals. 16-10-80  
Check that tie rods are either left or right hand threaded and do not have evidence of left and right hand threads in the same part !
- 184 Addition of second washer under head of bolt that attaches the 4-11-80 propeller control rod end bearing to the governor control arm. See also 140 above.
- 192 Revised placards regarding canopy operation and canopy jettison 17-12-80
- 194 Stronger canopy jettison tab p/n 30236-001 replaces p/n 30339-001. 12-1-81
- 234 Introduction of tapered washers at interplane strut attachment to improve fit. 15-6-81
- 249 Change to interplane strut mounting nut type to ease assembly. 14-12-81
- 252 Check wood blocks at internal wing bracing wire attachments to spar for 16-2-81 incorrect grain orientation – wood grain to be perpendicular to length of spar.
- 255 Further clarification of wood grain orientation see #252 above 27-2-82
- 264 New battery clamp adapter to prevent possible battery short. 14-7-82
- 268 Cracks in exhaust manifolds 26-7-82
- 269 Redesign of javelins to avoid cracking problems in javelins. 27-7-82
- 274 Repair of wing trailing edge attachment to prevent loosening – this 15-9-82 is carried out by injecting epoxy with a syringe.
- 295 Up-rated canopy rear hinge following hinge stud failures. 14-3-83
- 302 Revised fitting procedure for up-rated rear canopy hinge 5-4-83
- 312 CO ingestion into the cockpit – recommend fit CO detector 17-5-83
- 317 Inspection of undercarriage support structure for cracks in longerons. 3-6-83
- 318 Check tensioning of wing internal brace wires. 4-6-83
- 364 Reinforcement of undercarriage mountings in fuselage frame 20-11-84
- 369 Cracking of engine baffles and reinforcement of baffles 5-12-84

**CHRISTEN EAGLE II**11. Standard Options

Christen Industries provided several optional sub-kits including cabin hot air system, fairings, radio installation, fuel flow meter etc all of which are as far as we are aware already accepted on existing UK examples. Be sure to check however that radios, transponders etc fitted are of UK or EASA approved type. The Edo-Aire RT786 transponder, for example, is not CAA approved.

12. Special Inspection Points

- Several Eagle II aircraft have turned out to be significantly overweight and in some cases the centre of gravity has been found to be out of limits, when flown two-up. As an aerobatic aircraft it is particularly essential that the aircraft is operated strictly within the weight and cg limits. It may be necessary to strip out unnecessary equipment or to relocate the battery to achieve acceptable results.
- Note the various inspection topics described in the service letters listed above, particularly the possibility of cracking of fuselage longeron tubes in the vicinity of the main undercarriage attachments, see service letter 317. Most UK examples have now been reinforced per service letter 364.
- One aspect that demands particular attention from an inspection point of view is that these aircraft are aerobatic, and are normally used as such. They are regularly subjected to greater loads and stresses than non-aerobatic types. Deferred defects, which may be perfectly safe on a docile type, may have catastrophic implications on an aircraft capable of violently manoeuvring at up to 6g. A particularly high standard of vigilance should be exercised when inspecting aerobatic types especially on the integrity of the structural components and flying control systems. By way of example, a few years ago a Starduster Too aircraft (non-LAA) crashed fatally when flying wires became detached from the wing due to the loss of the retaining bolt. It had been recently imported from the USA and the nut that should have retained the bolt was thought to have been missing for sometime. It is therefore essential that access holes be provided in the wings and other areas in order to permit adequate inspection of critical structural assemblies, such as flying wire and strut attachments.
- Inspectors should also consider the general implications of cockpit safety applicable to an aerobatic aeroplane. A few years ago in the UK a Skybolt aircraft (non-LAA) crashed fatally when, its thought, the fire extinguisher came loose in the cockpit during aerobatics and knocked out the pilot.
- The Christen Eagle II's wing tips have unusually low ground clearance. Due to the risk of ground contact in a groundloop or crosswind landing, special attention should be paid to the lower wing integrity, with wrinkles in the fabric and bruised wingtips being investigated fully. Such incidents could cause damage to the wing spars and these should be carefully checked for cracks and other problems.
- The wheels spats on the Eagle II are used to lock the wheel retaining nuts. If flown with wheel spats removed, wheel nuts must be retained separately. A just-rebuilt Christen Eagle II lost a wheel on take off a few years ago due to failing to observe this factor.

## CHRISTEN EAGLE II

13. Operating Limitations and Placards

Maximum number of occupants authorised to be carried: Two  
 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:

## Aerobatic Limitations

Aerobatic manoeuvres are permitted within manoeuvring load limits of +7 to -5g.

Intentional spinning is permitted

Note: British Standard spin recovery technique may be used.

Baggage compartment must be empty when performing aerobatics.

## Loading Limitations

Maximum Total Weight Authorised: 1600 Lbs

Maximum Total Weight Authorised for Aerobatics: 1520 Lbs

CG Range: Refer to Christen Eagle II weight and cg envelope in Flight Manual.

CG datum: A point 100.0" forward of the leading edge of the lower wing at the root.

## Engine Limitations

Maximum Engine RPM: 2700

## Airspeed Limitations

Maximum Indicated Airspeed: 210 mph (182 Kts)

VA: 155 mph (135 kts)

## Other Limitations

The aircraft shall be flown by day and under Visual Flight Rules only.

Flight in icing conditions prohibited.

Smoking in the aircraft is prohibited.

## Additional Placard

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

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

14. Special Test Flying Issues

Aerobatic and spin testing required in addition to standard flight test schedule.

15. Control surface deflections

Ailerons Up: TBD degrees

Down: TBD degrees

Elevators Up: 26 degrees

Down: 28 degrees

Rudder Left TBD degrees

Right TBD degrees

Elevator tab Up and down TBD degrees

CHRISTEN EAGLE II

Approved:



F.R. Donaldson  
Chief Engineer

----- END -----