

No: 000232

CHRISTEN INDUSTRIES, INC.
1048 SANTA ANA VALLEY ROAD
HOLLISTER, CALIFORNIA 95023
TELEPHONE: (408) 637-7405

By: FLC Date: 06-15-81 Page: 1 of 1

Send To: PRODUCTS 901 THRU 926

C-0002

C CHRISTEN INDUSTRIES INC.
U 1048 SANTA ANA VALLEY RD.
S HOLLISTER, CA 95023
T

Subject: DESIGN MODIFICATIONS
OF EAGLE II AIRCRAFT
BY HOMEBUILDERS

It has been observed that a number of recently completed aircraft have included substantial modification to the basic Eagle II aircraft design as supplied in Christen Kits. These modifications have included addition of lighting systems, relocated and different antennas, addition of upholstery in the cockpit area, additional flight and engine instruments, additional avionics equipment, addition of tape-cassette audio systems, and use of multiple-coat paint finishes.

The Christen Eagle II is intentionally designed as a light-weight aircraft. Any design modification which increases aircraft weight will reduce the useful load and will naturally result in reduced aerobatic performance.

The Christen Eagle II is also intentionally designed so that the normal loaded CG is located relatively close to the aft CG design limit so as to enhance aerobatic performance by maximizing pitch response. Most homebuilder design modifications consist of equipment or materials added aft of the normal CG location, thus tending to shift the CG further aft. Provided such modifications do not shift the CG beyond the loaded aft CG design limit, the aircraft will recover from any type of spin, using normal spin recovery procedures.

Homebuilders are cautioned that ANY MODIFICATION WHICH AFFECTS WEIGHT AND BALANCE MUST BE EVALUATED TO CONFIRM THAT THE RESULTING LOADED AIRCRAFT WEIGHT AND CG LOCATION WILL BE SAFE FOR FLIGHT. If required to maintain the CG location within safe limits, a compensating relocation of other weight in the aircraft should be made. For example, the battery might be moved forward and placed under the fuel tank or in the engine compartment. If the CG is shifted aft significantly beyond the loaded aft CG design limit, spin recovery may be seriously impaired.

For homebuilder reference, aircraft CG design data is tabulated in the 924 Flight Manual and in the 70154-001 Interim Flight Manual Data.

In forthcoming product manual revisions, the attached text will be added to manual General Information Sections regarding homebuilder modifications.

Enclosures:

Manual General Information text

SAMPLE TEXT

X.X Design Modifications

The Christen Eagle II has been designed to optimize aerobatic handling qualities. The aircraft is intentionally relatively light in weight, and the normal loaded CG (center-of-gravity) location is farther aft than that found in most aircraft types. This normal loaded CG location is within safe limits to permit normal spin recovery.


Christen Industries recommends that no design changes be made, and Christen Industries cannot be responsible for possible adverse effects of modifications made by homebuilders. No design changes are permissible in critical areas. In particular, the engine and propeller must be of the make and model specified; selection of a different make or model for the engine or propeller are prevented by a signed purchase agreement which is executed by all Eagle builders.

WARNING

If any design modification is considered necessary, a thorough evaluation regarding the effect of the change on both performance characteristics and flight safety must be made. Any and all changes must be evaluated in relation to their possible effect on (a) structural integrity, (b) operation of control mechanisms, (c) final weight, and (d) loaded CG location.

Final weight and loaded CG location are of particular concern, since most changes that homebuilders consider tend to increase weight and shift the CG aft. Because the Christen Eagle II is designed with a normal loaded flight CG near the aft limit, any change that shifts the CG further aft may result in a hazardous and unacceptable CG location. If the loaded aircraft CG is shifted significantly beyond the design limit for safe flight (as discussed in the 924 Flight Kit manual), recovery from spins may be impaired.

(Continued on next page.)

PRODUCT SERIES EAGLE AIRCRAFT	PRODUCT NAME XXXXXXXXXXXXXXXXXXXXXXXXXXXX	CHRISTEN 	
PRODUCT NUMBER 9XX	MANUAL SECTION GENERAL INFORMATION	REVISION X XXXXXX	PAGE XXX


SAMPLE TEXT

Design Modifications (cont'd)

Remember that the combined effect of several seemingly minor modifications may result in a significant weight increase and a significant CG shift. Added instruments or avionics equipment always increase weight and generally shift the CG aft. (The normal CG location is about even with the rear cabane strut.) Even heavy exterior painting or the addition of special finishing materials to the cockpit will tend to shift the CG aft.

If modifications are absolutely essential, and if the modifications affect weight and balance, homebuilders should consider a compensating weight shift to maintain an acceptable balance condition. For example, if heavy equipment is added aft of the normal CG location, the battery might be relocated forward under the fuel tank or in the engine compartment.

Please contact the Christen factory for additional information if any design changes are planned.

PRODUCT SERIES	PRODUCT NAME	CHRISTEN 	
EAGLE AIRCRAFT	XXXXXXXXXXXXXXXXXXXXXXXXXXXX		
PRODUCT NUMBER	MANUAL SECTION	REVISION	PAGE
9XX	GENERAL INFORMATION	X XXXXXX	XXX