AIRWORTHINESS APPROVAL NOTE NO: 29023

APPLICANT:	Fly Buy Ultralights Limited
AIRCRAFT TYPE:	Ikarus C42 FB80
REGISTRATION NO:	G-CCNT CONSTRUCTOR'S NO: 0311-6585
OPERATOR:	-
INSTALLER	-
DESIGN ORGANISATION:	Flybuy Ultralights Limited
CERTIFICATE CATEGORY:	Permit to Fly
MODIFICATION NO:	C42/002
MODIFICATION TITLE:	**Approval of a Warp Drive 3 Bladed Propeller on the Ikarus C42 FB 80 Type Approved Microlight**

1. Introduction

The aircraft is largely designed and manufactured for Flybuy Ultralights by Comco Ikarus Gerätebau GmbH, based at Mengen Airport in Southern Germany. It is the natural successor to the Company's market leader, the C22, of which over 1200 examples have been built. To date over 310 examples of the C42 have been built and flown, including those powered by the 100 hp Rotax 912ULS.

The prototype C42 was first flown in 1995; the first production flight took place in Spring 1996. The lead aircraft has completed over 2400 hours.

The Ikarus C42 FB 80 with a Rotax 912UL engine and either a Warp Drive 2 bladed or Arplast Ecoprop 3 bladed propeller was approved by AAN 27832.

This AAN 29023 approves an alternative Warp Drive 3 bladed propeller.

2. Aircraft Build Standard

The Ikarus C42 is a single engine, side by side, two seat microlight aeroplane. It has a strutted high wing, with ailerons and simple flaps. Its tricycle undercarriage is fixed and incorporates shock absorption on all three wheels.

The aeroplane is defined in the Type Approval Data Sheet (TADS), BM-68. The aeroplane used for the test flying of this new propeller, G-CCNT, was also used for the initial approval of the type.

3. Approval Procedures

This modification approval has been carried out in accordance with BCAR Section A Chapter A3-7.

4. Basis Of Approval

4.1 CAA Approval Basis For The Aircraft

The basis of approval of the Ikarus C42 FB 80 aeroplane is BCAR Section S, Issue 2 dated August 1999.

4.2 CAA Design Requirements For Permit to Fly

Any installed equipment for which the Air Navigation Order requires approval must be approved by the CAA.

4.3 Environmental Requirements

The applicable Noise certification standards are BCAR Section N, Issue 5, Chapter N3-6 for two seat microlight aeroplanes.

4.4 Design Requirements Associated With Operational Approvals

Not applicable.

5. Compliance With The Basis Of Approval

5.1 Compliance With The Approval Basis For The Aircraft

The Applicant has provided various documents in support of the modification application.

a. Design Report

The Applicant has provided a document titled “Major Mod Application for Installation of 3 Blade Warp Drive Propeller on Ikarus C42 FB 80” dated 6th June 2004 that describes the modification and includes a Compliance Check List against the relevant requirements in BCAR Section S. It also includes a justification against the noise requirements.

b. Flight Testing

The Applicant has provided a Flight Test Report comprising a completed BMAA Flight Test Schedule for Minor Powerplant Changes (3-Axis), reference BMAA/AW/027a (completed 23/08/04 on G-RBSN) and a supplementary sheet comprising the Company’s Certificate of Clearance for Flight for the testing with this propeller.

5.2 Compliance With Design Requirements For Permit to Fly

Not applicable

5.3 Compliance with Environmental Requirements

This configuration has been approved against existing noise certification data on Noise Type Certificate No. 179M Issue 3.

5.4 Compliance with Design Requirements Associated With Operational Approvals

Not applicable.

5.5 Required Manuals And Other Documents Including Mandatory Placards

a. Flight Manual

C42 Owner's Manual reference OHB/C42/001 Issue 4 or later revision.

b. Placards - Actual text, or reference to drawings of placards

See C42 Owner's Manual.

Placarding must include a warning that the aircraft is not certificated to an international standard.

c. Maintenance Manual

C42 Owner's Manual reference OHB/C42/001 Issue 1 or later revision.

d. Weight and Balance Schedule.

See C42 Owner's Manual for permitted cockpit loads and for Weight and Balance Record.

e. Type Approval Data Sheet

Type Approval Data Sheet BM-68 Issue 3 refers.

6. Conditions Affecting This Approval

6.1 Aerobatic Limitations

Aerobatic manoeuvres are prohibited
Intentional spinning is prohibited
Load factor limitations: +4g / -2g

6.2 Loading Limitations

Maximum Total Weight Authorised:	450 kg
Maximum Empty Weight	268 kg
Minimum Cockpit Load	55 kg
Maximum Cockpit Load	172 kg
CG range limits:	350 mm to 560 mm aft of the datum point which is the wing leading edge.

6.3 Engine Limitations

Maximum take-off (max. 5 minutes)	5800 rpm
Max. continuous	5500 rpm
Max. CHT	150ºC
Min. oil temp.	50ºC
Max. oil temp.	140ºC
Min. oil pressure	2 bar

Max. oil pressure	5 bar

6.4 Air Speed Limitations

Maximum indicated air speed	139 mph (121 knots) IAS
Maximum manoeuvring air speed	94 mph (82 knots) IAS
Maximum indicated air speed flaps extended	72 mph (63 knots) IAS

6.5 Other Limitations

The aircraft shall be flown by day in visual meteorological conditions only.

The aircraft is approved for operation with a maximum of two occupants

7. Continued Airworthiness

The influence of the modification on Airworthiness Directive, Service Bulletin eligibility and other data must be considered and the publications monitored accordingly. The maintenance schedule for the aircraft should include reference to this material additional to the original design

8. Survey

No CAA survey is required.

9. Issue of Permit to Fly

The following actions must be completed prior to issue of the Permit to Fly:

a. All actions and ground test procedures specified by the aircraft manufacturer must be completed satisfactorily.

b. Flight test procedure specified by the aircraft manufacturer must be completed to the satisfaction of the CAA.

c. It must be verified that the documents or amendments to documents, and the placards defined under Section 5.5 above are as specified, including any changes specified under Section 8 above.

10. Approval

Subject to the conditions of Section 6 above, Flybuy Ultralights Ltd modification C42/002 is approved for embodiment on any Ikarus C42 FB80 type approved microlight aircraft, provided that it conforms with the contents of this AAN, and is operated in accordance with the Flight Manual.

N J Davis
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For the Civil Aviation Authority

Date 27 August 2004