



Civil Aviation Authority

AIRWORTHINESS APPROVAL NOTE NO: 29503

APPLICANT: Pipistrel d.o.o.

AIRCRAFT TYPE: Alpha BCAR-S 164

REGISTRATION NO: G-RTEN

CONSTRUCTOR'S NO: AT1640001

OPERATOR:

INSTALLER:

DESIGN ORGANISATION: Pipistrel

CERTIFICATE CATEGORY: Permit to Fly

MODIFICATION NO:

MODIFICATION TITLE: **Type Approval of Pipistrel Alpha BCAR-S 164 Microlight and Approval for the Issue of a Permit to Fly**

1. Introduction

The Pipistrel Alpha BCAR is a two seat side-by-side high wing microlight aeroplane with tricycle landing gear. It is manufactured by Pipistrel d.o.o. in Slovenia who hold a BCAR A8-21 Approval (ref., DAI/9963/16) for both design and production.

The aircraft is powered by the Rotax 912UL2-01 engine and is fitted as standard with an airframe mounted total recovery parachute system (AMTPRS).

Pipistrel produce a range of aircraft with many parts in common, mainly comprising the long wing motorglider "Sinus" types, and the short wing microlight / Light Sport Aircraft "Virus" types.

Pipistrel was founded in 1992, after earlier production activities, and the Sinus/Virus aircraft types were developed around 1995-1997.

The Alpha BCAR-S aircraft is a UK-specific version, based primarily on the Alpha Trainer. The Alpha BCAR-S has many parts in common with the "Virus SW 121" which is EASA Type Certified.

The aircraft may be optionally fitted with electrically operated airbrakes as approved under this AAN.

The Alpha BCAR-S microlight with tricycle landing gear, a Rotax 912UL2-01 engine and an AMTPRS is approved by this AAN 29503.

2. Aircraft Build Standard Definition

The basic build standard of the aircraft is defined in Pipistrel Alpha BCAR-S Master Drawing List DWG-164-02-40-001_A00.

The following modifications are approved as optional modifications under this AAN.

<u>Modification No.</u>	<u>Description:</u>
1	Electric Airbrakes
2	Main landing gear wheel fairings
3	Baggage compartment: rigid floor, aileron rod rigid protections, anchor points laminated on fuselage to restrain luggage
4	Wingtip navigation lights
5	Strobe lights
6	Anti-collision light
7	Landing light
8	Artificial horizon
9	Variometer
10	Radio
11	Transponder
12	USB ports
13	12 V socket
14	Floor mats
15	BPRS – note fitted as standard, (ref., para 1 above and TADS No. BM-89 page 1 footnote).
16	ELT

3. Approval Procedures

Pipistrel provided documentation specific to the Alpha BCAR-S variant and supporting documentation from compliance demonstration programmes conducted on the components common to the other types.

The Pipistrel document “COS-164-02-20-001_A00 Compliance Summary” is the master compliance document of the Alpha BCAR-S 164.

The majority of the compliance data presented was generated against CS-LSA. This was driven by the incorporation of many components already approved by EASA against CS-LSA during the Virus SW 121 type certification.

The compliance data for the Virus SW 127, which is the amateur built version of the Virus SW 121, was reviewed by the BMAA for issue of a UK Permit to Fly.

The higher weights and speeds of the Virus SW 121 & SW 127 variants result in conservative requirements for the Alpha BCAR-S. Therefore credit was given for the EASA approved items with reduced sampling and review of the associated documentation and giving suitable further credit for Pipistrel's EASA and CAA Approvals.

CS-LSA compliance data generated for components not approved by EASA was sampled and reviewed in more detail.

BCAR Section S requirements varying from, or additional to, those in CS-LSA were discussed with Pipistrel and the resulting compliance information was incorporated into the most appropriate CS-LSA requirement paragraph response sections by revision of the COS-164-02-20-001 Compliance Summary document.

4. Basis Of Certification/Validation/Approval

4.1 CAA Certification/Validation/Approval Basis For The Aircraft/Modification

The basis of approval of the Alpha BCAR-S microlight is BCAR Section S Issue 6 and CS-LSA Amendment 1.

4.2 CAA Design Requirements For the issue of a Permit to Fly

CAA Generic Requirements in CAP 747 as applicable.

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

4.3 Environmental Requirements

The noise requirements of the Air Navigation (Environmental Standards for non-EASA Aircraft) Order 2008 are applicable to this aircraft.

4.4 Design Requirements Associated With Operational Approvals

Not applicable.

5. Compliance With The Basis Of Approval

5.1 Compliance With Approval Basis For The Aircraft

The Pipistrel document "COS-164-02-20-001_A00 Compliance Summary" and the reports referenced therein provide evidence of compliance with the requirements of BCAR Section S Issue 6. This report and samples of the related compliance data as discussed in Section 3 above have been reviewed and accepted by the CAA.

Flight testing

The flight test reports referenced in COS-164-02-20-001_A00 are acceptable to the CAA.

5.2 Compliance With Design Requirements For the issue of a Permit to Fly

Not applicable

5.3 Compliance with Environmental Requirements

Noise Type Certificate No. 199M is applicable to this aircraft type and has been developed based on comparative noise testing, (report TR-164-18-40-001 Issue A00 refers).

5.4 Compliance with Design Requirements Associated With Operational Approvals

Not applicable.

5.5 Required Manuals And Other Documents Including Mandatory Placards

5.5.1 Flight Manual – Pilot's Operating Handbook POH-164-00-40-001_A00 dated 20/07/2018 or later approved revision. Optional electrically actuated airbrakes POH supplement ref., POH-161-00-40-001_A00 or later approved revision.

5.5.2 Placards – Placards to be fitted are detailed in section 2 Pilot's Operating Handbook, (and in the POH supplement for electrically actuated airbrakes when this option is fitted).

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

5.5.3 Maintenance Manual – Alpha BCAR-S Aircraft Maintenance Manual AMM-164-00-60-001_A00 dated 20/07/2018 or later approved revision, (and AMM-161-01-00-001_A00-AMM Supplement for electrically actuated airbrakes when this option is fitted).

5.5.4. Weight and Balance Schedule – For this aircraft G-RTEN, the weight and CG was declared in "WBR-164-08-10-0001" dated 11/07/2018.

See the Pilot's Operating Handbook for a permitted cockpit loads example. Actual permitted cockpit loads are reported on the corresponding cockpit placard.

Note; the 200kg max cockpit load quoted in Section 6.2 below cannot be achieved as a consequence of the MTWA loading limitation and is further limited by the addition of fuel weight and baggage bay contents - both weight and CG must be checked for acceptability, hence sample Wt / CG check calculations provided within the POH.

5.5.5 Type Approval Data Sheet - Type Approval Data Sheet BM-89 Issue 1 refers.

6. Conditions Affecting This Approval

6.1 Aerobatic limitations

Aerobatic manoeuvres are prohibited.

Maximum angle of bank is 60°

Intentional spinning is prohibited

Load factor limitations: +4g/-2g

6.2 Loading limitations

Maximum Total Weight Authorised: 472.5 kg with AMTPRS installed

Maximum Basic Empty Weight (Rotax 912UL2-01): 292.5 kg with AMTPRS installed as standard.

Minimum Cockpit Load: 55 kg

Maximum Individual Occupant weight: 110 kg

Maximum Cockpit Load: 200 kg

CG Limits Aft Limit: 368 mm aft of datum
 Forward Limit: 267 mm aft of datum
The CG datum is the wing leading edge at the root.

6.3 Engine limitations

Rotax 912UL2-01

Maximum take-off (max. 5 minutes)	5800 rpm
Maximum continuous	5500 rpm
Maximum Coolant temp.	120°C
Minimum oil temp.	50°C
Maximum oil temp.	140°C
Min oil pressure (0-3500 rpm)	0.8 bar
Min oil pressure (>3500 rpm)	1.5 bar
Max. oil pressure	7 bar
Fuel pressure	0.15 bar – 0.5 bar

6.4 Airspeed limitations

Maximum indicated air speed V_{NE}	134 knots IAS
Maximum manoeuvring air speed V_A	88 knots IAS
Maximum indicated air speed flaps extended V_{FE}	70 knots IAS
Electric Airbrakes ¹ – Maximum speed with airbrakes extended V_{AE}	70 knots IAS
⁽¹⁾ – with the optional electrically actuated airbrakes modification fitted)	

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

See Alpha BCAR-S Aircraft Maintenance Manual AMM-164-00-60-001_A00 dated 20/07/2018 or later approved revision.

8. Survey

This aircraft G-RTEN being the first of the type to be registered in the UK was surveyed by the CAA on 02/10/2018.

Arising from the survey the following changes are required to the aircraft and documentation: - change Weight and Balance Schedule Reference to WBR-164-08-10-0001, (ref., para 5.4.4 above).

9. Issue of Permit to Fly/Authorisation of Release to Service

The following actions must be completed (and specified on the AAN) prior to initial issue of the Permit to Fly:

- a. All actions and ground test procedures specified by the aircraft manufacturer must be completed satisfactorily.
- b. 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.
- c. No further CAA flight testing for Type Approval is required. Flight test procedures specified by the aircraft manufacturer must be completed for individual aircraft.

10. Approval

Subject to the conditions of Section 6 above, this aircraft, and any other Pipistrel Alpha BCAR-S 164 completed to the same build standard, is approved for the issue of a Permit to Fly, provided that it is operated in accordance with the limitations specified/referenced and that it conforms with the contents of this AAN.


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Design

For the Civil Aviation Authority

Date: 11 October 2018

EASA approval is not required – EC 216/2008 Annex II clause (d).