CIVIL AVIATION AUTHORITY – SAFETY AND AIRSPACE REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM-89 ISSUE: 2

Type:		Pipistrel Alpha BCAR-S 164
(1)	MANUFACTURER	Pipistrel d.o.o., Goriška cesta 50a, SI-5270, Ajdovščina, Slovenia.
(2)	UK IMPORTER	Fly About Aviation Ltd.,
(3)	CERTIFICATION	BCAR Section S Issue 6
(4)	DEFINITION OF BASIC STANDARD	Pipistrel Master Drawing List DWG-164-02-40-001_A00

(5) COMPLIANCE WITH THE MICROLIGHT DEFINITION

(a)	MTOW	450 kg / 472.5 kg[1]
(b)	Number of seats	2
(c)	Maximum Wing Loading	50.9 kg/m^2
(d)	Stall speed, V_{S0}	34.5 kt CAS
(e)	Permitted range of occupant weights	0 - 110 kg (each) (min cockpit load 55 kg, max 200 kg)
(f)	Typical Empty Weight (ZFW)	286.5 kg
(g)	ZFW + 172kg crew + 1hr fuel (Rotax 912UL2-01 8kg/hr)	466.5 kg
(h)	ZFW + 86kg pilot + full fuel (50 litres/36kg)	408.5 kg
(i)	Max ZFW at initial permit issue	292.5 kg

[1] With approved Airframe Mounted Total Recovery Parachute System (AMTPRS) fitted as standard

(6) POWER PLANTS

Designation	Rotax 912UL2-01
Engine Type	4 cylinder 4 stroke horizontally opposed
Reduction Gear	2.27:1
Exhaust System	Steel collector box with flexible joints
Intake System	Rotax / Bing standard CD carburettors, K&N filters
Propeller Type	Pipistrel FP02-80 wood 2-blade
Propeller Dia x Pitch	166 cm x 19°
Noise Type Cert No.	199M
AAN approving configuration	29503

(7) MANDATORY LIMITATIONS

(j) Maximum Take-off Weight (MTOW) 450 kg / 472.5 kg [2]

(a) CG Limits Aft limit 368 mm AoD
Forward limit 267 mm AoD

(b) CG Datum wing leading edge at root

(c) Cockpit Loadings min cockpit load 55 kg
max cockpit load 200 kg
max occupant weight 110 kg (each)

(d) Never exceed speed, V_{NE} 134 kt IAS

(e) Flap limiting speed, V_{FE} 70 kt IAS

(f) Manoeuvring speed, V_A 88 kt IAS

(g) Electric Airbrakes[3] – Maximum speed with airbrakes extended V_{AE} 70 kt IAS

[2] With approved Airframe Mounted Total Recovery Parachute System (AMTPRS) fitted as standard
[3] Note reduced cockpit weights result due to addition of fuel as noted in Section 10.2 (d) below, as placarded in Annex D to this TADS and as described in the POH.
[4] With electrically actuated airbrakes fitted as an approved option / modification

(h) Permitted manoeuvres — Maximum bank angle 60°
Non Aerobatic
Normal acceleration limits, +4g / -2g

(i) Fuel Contents — 50 litres (48 litres max usable)

(j) Power plant

Engine	Rotax 912UL2-01
Max RPM	5800 (5 min) 5500 (continuous)
Max Coolant Temp.	120°C
Max EGT	880°C
Fuel spec	90 RON minimum unleaded to EN 228 Normal, Super or Super Plus, AVGAS 100LL, UL91. (Unleaded preferred – see engine manual)
Engine oil spec	RON 424, SAE 10W-40 (See engine manual)
Oil pressure	Normal 2-5 bar above 3500rpm Min 0.8 bar below 3500rpm Max 7 bar
Oil temperature	50 - 140°C
Fuel pressure	0.15 - 0.5bar

(8) INSTRUMENTS REQUIRED

ASI	Altimeter	Slip ball	RPM	Coolant Temp.	Oil Temp.	Oil Pressure	Fuel Gauge
0- 141 kt minimum	Required	Required	0-6000 rpm minimum	Required	Required	Required	Required

A compass is recommended.

(9) CONTROL DEFLECTIONS

See Aircraft Maintenance Manual for details of varying flaperon limits with aileron/flap interaction.

Elevator	UP:	25°±1.5°	Flaperons	MAX UP:	13°±1.5°
Elevator	DOWN:	15° ±1.5°	Flaperons	MAX DOWN:	36°±1.5°
Aileron (0 flap)	UP:	13° ±1.5°	Rudder	LEFT:	25°±1.5°
Aileron (0 flap)	DOWN:	10° ±1.5°	Rudder	RIGHT:	25°±1.5°
Flap	UP:	0°			
Flap	DOWN:	25°±1.5°			

(10) PILOT'S NOTES, MAINTENANCE MANUALS, REFERENCES

10.1 Manuals approved for use with this aircraft

(a) Alpha BCAR-S Pilot's Operating Handbook POH-164-00-40-001_A00 dated 20/07/2018 or later approved revision.

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

(c) Engine, propeller and other fitted equipment manufacturer's Operating and Maintenance Manuals as appropriate to fitted powerplant and equipment, at their current issues.

10.2 The following placards are to be fitted:

(a) Flight Limitations Placard (to be visible to the pilot)
See Annex D.

(b) Engine Limitations Placard (to be located near to the engine instruments)
See Annex D.

(c) Fuel Limitations Placard (to be located near to fuel gauge)
See Annex D.

(d) Fuel/Cockpit Load Trade-off Placard (to be visible to the pilot)
See Annex D

(e) ASI Markings
See Annex D.

(f) Switches
See Annex D.

(11) MANDATORY MODIFICATIONS / SERVICE BULLETINS / AIRWORTHINESS DIRECTIVES ETC.

See Annex A.

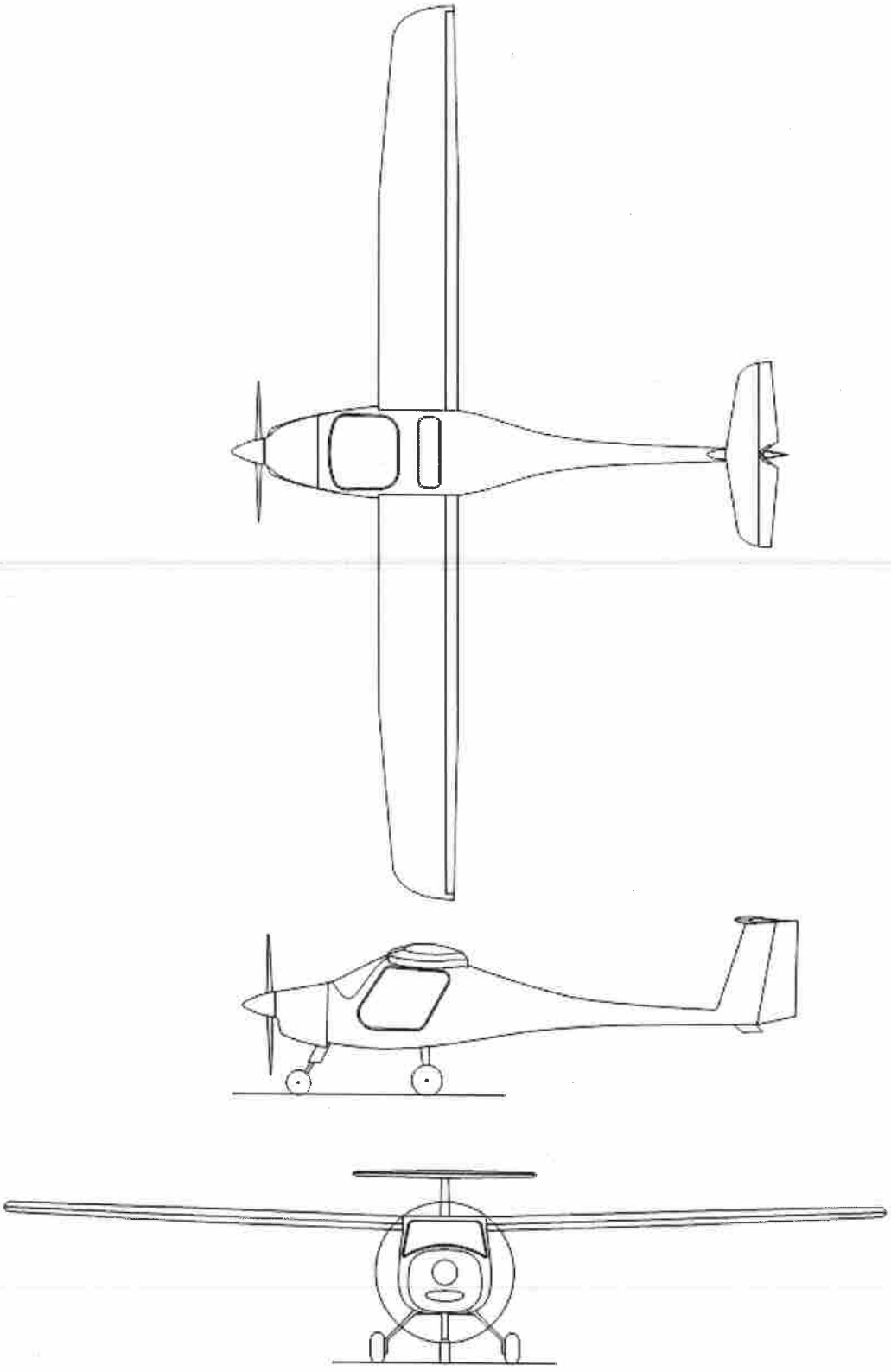
(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

Rate of Climb:	1220 fpm at 76 kt IAS
Stall or Minimum Flying Speed:	30 kt IAS at MTOW/idle/landing configuration.

Issue History

Issue No.	Date		Reason and Signatory
1	23/08/2018		Initial issue. A Goudie
2	11/10/2018		Revised engine designation to 912UL2-01 IAW Rotax Operators Manual OM-912 part no. 8999700 Ed 4 Rev 0, Nov 1, 2016 A Goudie

Illustration Of Aircraft – 3 View



ANNEX A - MANDATORY MODIFICATIONS / SERVICE BULLETINS / AIRWORTHINESS DIRECTIVES ETC.

Nil.

ANNEX B - APPROVED OPTIONAL MODIFICATIONS

The installation of all optional modifications is to be inspected by an inspector from an Organisation approved by the CAA for the purpose and an entry made in the appropriate logbook(s). Note that other approved modifications may exist which are not mentioned here.

Modification No.	Description:
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 - fitted as standard
16	ELT

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ANNEX C - WEIGHING INFORMATION

CG Datum:	wing leading edge at root
Weighing attitude:	Fuselage axis horizontal, see Aircraft Maintenance Manual for levelling procedures
Main wheel moment arm:	480 mm aft of datum, typical
Nose wheel moment arm:	1020 mm forward of datum, typical
Fuel moment arm:	1130 mm aft of datum (50 litres nominal capacity, 36kg)
Crew moment arm:	370 mm aft of datum
Baggage moment arm:	930 mm aft of datum
Crew weights:	0 - 110 kg (each) (min cockpit load 55 kg, max 200kg)
Max baggage weight:	10kg
Aft CG Limit:	368 mm aft of datum
Forward CG Limit:	267 mm aft of datum

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ANNEX D - EXAMPLE PLACARDS

(a) Flight Limitations Placard (to be visible to pilot)

(b) Engine Limitations Placard (to be located near to the engine instruments)

Instruments are individually colour marked accordingly

(c) Fuel Limitations Placard (to be located near to fuel contents gauge)

Example, depending upon aircraft equipment.

(d) Fuel Limitations Placard (to be located near to fuel tank filler)

(e) ASI Markings

The ASI must be marked with the main IAS limiting speeds as follows:

- V_{SO} to V_{FE} - white arc
- V_{FE} to V_{NO} - green arc
- V_{NO} to V_{NE} - yellow arc
- At V_{NE} - red radial line

(f) Switches

All fuses and circuit breakers are to be marked with function and rating.

(g) Miscellaneous

Fireproof metal plate showing the aircraft registration to be mounted in a prominent position.

Parachute recovery system release control and exterior of the aircraft (adjacent to the rocket/parachute exit point) must be placarded as per the aircraft manual.

The additional limitations, warnings, and secondary controls and switches are to be placarded as per the aircraft manual or normal practice otherwise.