BRITISH MICROLIGHT AIRCRAFT ASSOCIATION (BMAA)

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM-92 ISSUE: 4

*Issued on behalf of the UK CAA by the BMAA, UK CAA organisation approval ref. DAI/8909/84*

**TYPES:** **Ikarus C42 FB80 Charlie and Ikarus C42 FB100 Charlie**

| | | |
|---|---|---|
| (1) | MANUFACTURER: | The Light Aircraft Company Limited - DAI/9957/14<br>Hangar 4, Little Snoring Airfield, Fakenham, NR21 0JL<br>(UK type approval holder for Comco Ikarus GmbH) |
| (2) | UK IMPORTER: | N/A |
| (3) | CERTIFICATION: | BCAR Section S Issue 7 & Issue 8 Consultation Document TBC 2022. |
| (4) | DEFINITION OF BASIC STANDARD: | Comco MDL (Master Drawing List) 2021-10-12 |

(5) COMPLIANCE WITH THE MICROLIGHT DEFINITION

| | | |
|---|---|---|
| (a) | MTOW | 560kg |
| (b) | No. Seats | 2 |
| (c) | Maximum Wing Loading | 47.1 kg/m² |
| (d) | Vso | 41 kt CAS |
| (e) | Permitted range of pilot weights | 55 – 220 kg total,<br>Max 120 kg per seat |
| (f) | Typical Empty Weight (ZFW) | 285 kg |
| (g) | ZFW + 200 kg crew + 1 hr fuel | 501 kg C42C FB80<br>503 kg C42C FB100 |
| (h) | ZFW + 100 kg pilot + full fuel<br>(65 litres / 47 kg)<br>(100 litres / 72 kg) | <br>432 kg<br>457 kg |
| (i) | Max ZFW at initial permit issue | C42C FB80<br>344 kg<br>C42C FB100<br>342 kg |

(6) POWER PLANTS

| Designation | *C42 FB100 Charlie* | *C42 FB100 Charlie* | *C42 FB100 Charlie* | *C42 FB100 Charlie* |
|---|---|---|---|---|
| Engine Type | *Rotax 912 ULS* | *Rotax 912 ULS* | *Rotax 912 ULS* | *Rotax 912 ULS* |
| Reduction Gear | *2.43:1* | *2.43:1* | *2.43:1* | *2.43:1* |
| Exhaust System | *Heggerman* | *Heggerman* | *Heggerman* | *Heggerman* |
| Intake System | *Twin carburettor* | *Twin carburettor* | *Twin carburettor* | *Twin carburettor* |
| Propeller Type | *Warp Drive 3 blade* | *Neuform Fixed Pitch 3 blade* | *Neuform Variable Pitch 3 blade* | *Helix Prop H50F 1.75 R-SMI-14-3* |
| Propeller Dia x Pitch | *68" x 26° @ 400 mm radius* | *175 cm x 28.5°/25° @ 365 mm radius* | *180 cm x 24° to 31° @ 365 mm radius* | *175 cm x 14° Fixed Pitch* |
| Max Static RPM | *5150* | *4800 -5100* | *5400* | - |
| Noise Type Cert | *N/A* | *N/A* | *N/A* | *N/A* |
| AAN approving configuration | *AAN BMAA-1100 Issue 1* | *AAN BMAA-1100 Issue 1* | *AAN BMAA-1100 Issue 1* | *AAN BMAA-1100 Issue 1* |

| Designation | *C42 FB100 Charlie* | *C42 FB100 Charlie* | *C42 FB80 Charlie* | *C42 FB80 Charlie* |
|---|---|---|---|---|
| Engine Type | *Rotax 912 ULS* | *Rotax 912 ULS* | *Rotax 912 UL* | *Rotax 912 UL* |
| Reduction Gear | *2.43:1* | *2.43:1* | *2.27:1* | *2.27:1* |
| Exhaust System | *Heggerman* | *Heggerman* | *Heggerman* | *Heggerman* |
| Intake System | *Twin carburettor* | *Twin carburettor* | *Twin carburettor* | *Twin carburettor* |
| Propeller Type | *E-Prop DUR-3-175-C4-T* | *Kiev Prop 283/1800 3 blade* | *Warp Drive 3 blade* | *Neuform Fixed Pitch 3 blade* |
| Propeller Dia x Pitch | *175 cm x 26° @ inner edge of l/e protection* | *180cm x 24° @ 485 mm radius* | *68" x 22° @ 400 mm from hub edge* | *175 cm x 24° @ 365 mm radius* |
| Max Static rpm | *5500* | *4850* | *5250* | *4800* |
| Noise Type Cert | *N/A* | *N/A* | *N/A* | *N/A* |
| AAN approving configuration | *AAN BMAA-1117 Issue 1* | *AAN BMAA-1117 Issue 1* | *AAN BMAA-1117 Issue 1* | *AAN BMAA-1117 Issue 1* |

| | | | | |
|---|---|---|---|---|
| Designation | *C42 FB80 Charlie* | *C42 FB80 Charlie* | | |
| Engine Type | *Rotax 912 UL* | *Rotax 912 UL* | | |
| Reduction Gear | *2.27:1* | *2.27:1* | | |
| Exhaust System | *Heggerman* | *Heggerman* | | |
| Intake System | *Twin carburettor* | *Twin carburettor* | | |
| Propeller Type | *Kiev 3 Prop 263/1700 3 Blade* | *Helix Prop H50F 1.75 R-SSI-12-3* | | |
| Propeller Dia x Pitch | *170 cm x 24° @ 350 mm radius* | *175 cm x 12° Fixed Pitch* | | |
| Max Static rpm | *5000* | - | | |
| Noise Type Cert | *N/A* | *N/A* | | |
| AAN approving configuration | *AAN BMAA-1117 Issue 1* | *AAN BMAA-1117 Issue 2* | | |

(7) MANDATORY LIMITATIONS:

(a) Max Take-Off Weight — 560kg

(b) CG Limits

| | |
|---|---|
| Aft Limit | 540 mm aft of datum (560kg) |
| Fwd Limit | 380mm aft of datum (560kg) |
| | 350 mm aft of datum (472.5kg) |

(c) CG datum — Wing Leading Edge

(d) Cockpit Loadings

| | |
|---|---|
| | Total |
| Min | 55 kg |
| Max | 220 kg |
| | Max 120 kg per seat |
| Baggage | 10kg (with mod embodied) |

(e) Never Exceed Speed — 144 mph (125 kt) IAS
103 mph (90 kt) IAS Flying Without Doors

(f) Manoeuvring Speed — 106 mph (92 kt) IAS
80 mph (70 kt) IAS Flying Without Doors

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

(h) Fuel Contents (Max Usable) — 65 litres (Aerosport Mod C42/011)
100 litres (Aerosport Mod C42/005)

(i) Power Plant

| Engine | Rotax 912 UL | Rotax 912 ULS |
|---|---|---|
| Max RPM | 5800 (5 min)<br>5500 (continuous) | 5800 (5 min)<br>5500 (continuous) |
| MAX Coolant Temp. | 120 ºC | 120 ºC |
| MAX EGT | 880 ºC | 880 ºC |
| Fuel Spec | 90 RON minimum unleaded to EN 228 Normal, Super or Super Plus, AVGAS 100LL, UL91. (Unleaded preferred – see engine manual) | 95 RON minimum unleaded to EN 228 Super or Super Plus, AVGAS 100LL, UL91. (Unleaded preferred – see engine manual) |
| Engine Oil Spec | RON 424, SAE 10 W-40 (See engine manual) | RON 424, SAE 10 W-40 (See engine manual) |
| Oil Pressure | Normal 2-5 bar above 3500rpm Min 0.8 bar below 3500rpm Max 7 bar | Normal 2-5 bar above 3500rpm Min 0.8 bar below 3500rpm Max 7 bar |
| Oil Temperature | 50 ºC -140 °C | 50 °C - 130 °C |
| Fuel Pressure | 0.15 - 0.5bar with fuel pump S/N 11.0036 or later | 0.15 - 0.5bar with fuel pump S/N 11.0036 or later |

(8) INSTRUMENTS REQUIRED:

| ASI | Altimeter | RPM | Coolant Temperature | Oil Temperature | Oil Pressure | Compass | VSI | Slip ball |
|---|---|---|---|---|---|---|---|---|
| Required (0 to 150 mph / 130 kt min.) | Required | Required 0-6000 rpm | Required | Required | Required | Optional | Optional | Required |

CO Detector required if cabin heater fitted (electronic recommended)

(9) CONTROL DEFLECTIONS:

| | | | |
|---|---|---|---|
| Elevator UP: | 30º ± 3º | Tailplane trim tab UP: | 1º to 5º (relative to elevator) |
| Elevator DOWN: | 20º ± 3º | Tailplane trim tab DOWN | 25º ±3º (relative to elevator) |
| Ailerons UP: | 20º ± 2º | Rudder LEFT: | 32º ± 3º |
| Ailerons DOWN: | 14º ± 2º | Rudder RIGHT: | 32º ± 3º |
| Aileron SPADES: | Refer to POH | Balance Tab | 0º ± 2º (with elevator neutral) |
| Flaps (DOWN): | 4.5º, 15º and 42º (relative to the fuselage tube) | | |

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

10.1 Manuals approved for use with this aircraft

(a) C42C 560 Owner's Manual OHB/C42/003 Issue 1, or later approved version

(b) Maintain to Pilot Operators Handbook.

(c) Engine, propeller, parachute system 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)
Contains airspeed, manoeuvring and loading limitations. See Pilot Operators Handbook.

(b) Engine Limitations Placard (to be located near to the engine instruments)
A placard showing the limitations for all indicated engine parameters is to be mounted close to the engine instruments. Also, main limitations are to be shown as coloured markers (red for danger, amber for caution) on the instrument displays. See Pilot Operators Handbook.

(c) Occupant Warning Placard (to be visible to both occupants)
See Pilot Operators Handbook.

(d) Fuel Filler Placard (to be located adjacent to the fuel filler cap)
A placard is to be fitted showing fuel capacity, fuel type(s), and if MTOW can be exceeded with full fuel and 180kg cockpit weight, the fuel loads at MTOW for cockpit weights of 180kg / 170kg / 160kg etc. at 10kg intervals down to the maximum fuel load. See Pilot Operators Handbook.

(e) Parachute Warning Placards (to be located on the exterior of the aircraft)
If an Airframe Mounted Total Recovery Parachute System (AMTPRS) is fitted, placards complying with BCAR Section S Issue 7 (or later) must be fitted. See Pilot Operators Handbook.

(f) Secondary Control Markings
Choke, cabin heat, trim, flaps, fuel shut-off: see Pilot Operators Handbook. Other secondary controls are to be placarded as per the associated Pilot Operators Handbook supplement or normal aviation practice (if no associated Pilot Operators Handbook supplement).

(g) ASI Markings
See Pilot Operators Handbook.

(h) Switches
All switches are to be marked with function and sense (up=on, down=off).

(i) Fuses and Circuit Breakers
All fuses and circuit breakers are to be marked with function and rating.

(j) Fireproof Metal Plate
Showing the aircraft nationality and registration marks (e.g. G-ABCD) to be mounted in a prominent position on the fuselage.

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

See Annex A for required modifications.

**Annual Bettsometer Test**

Stitching only: 1000 grammes using a 1.2mm diameter hook, pull at 90degs to surface of tensioned sail.

(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT (560 kg – ISA – Sea Level)

| | |
|---|---|
| Rate of Climb: | C42C FB80 590 fpm at 70 mph (60 kt) IAS.<br>C42C FB100 680 fpm at 70 mph (60 kt) IAS. |
| Stall or Minimum Flying Speed: | 44 mph (38 kt) IAS at MTOW / idle / full flap. |
| Sink rate | 700 fpm |
| TODR (on short dry grass) | C42C FB80 450m (includes 1.3 safety factor)<br>C42C FB100 290m (includes 1.3 safety factor) |
| LDR (on short dry grass) | 240m (no safety factor) |

Issue History

| Issue | | Reason and Signatory |
|---|---|---|
| 1 | 18/12/2020 | Initial issue.<br>Approved for issue by R. Pattrick BMAA Chief Technical Officer |
| 2 | 29/11/2021 | Modification TMC42-15 Operation at 472.5kg without BPRS added.<br>POH / MM Issue 2 added.<br>SBs added. |
| 3 | 21/10/2022 | Various updates to propeller settings (Warp Drive & Neuform). Addition of E-prop.<br>Updated for 560kg AUW Only. (Issue 2 Applicable to 450/472.5Kg AUW))<br>Addition of Rotax 912UL Variant.<br>Approved for issue by the BMAA Chief Technical Officer |
| 4 | 02/06/2023 | Helix prop on FB80 at 560kg AUW, approved by BMAA AAN 1117 issue 2.<br>Approved for issue by the BMAA Chief Technical Officer |

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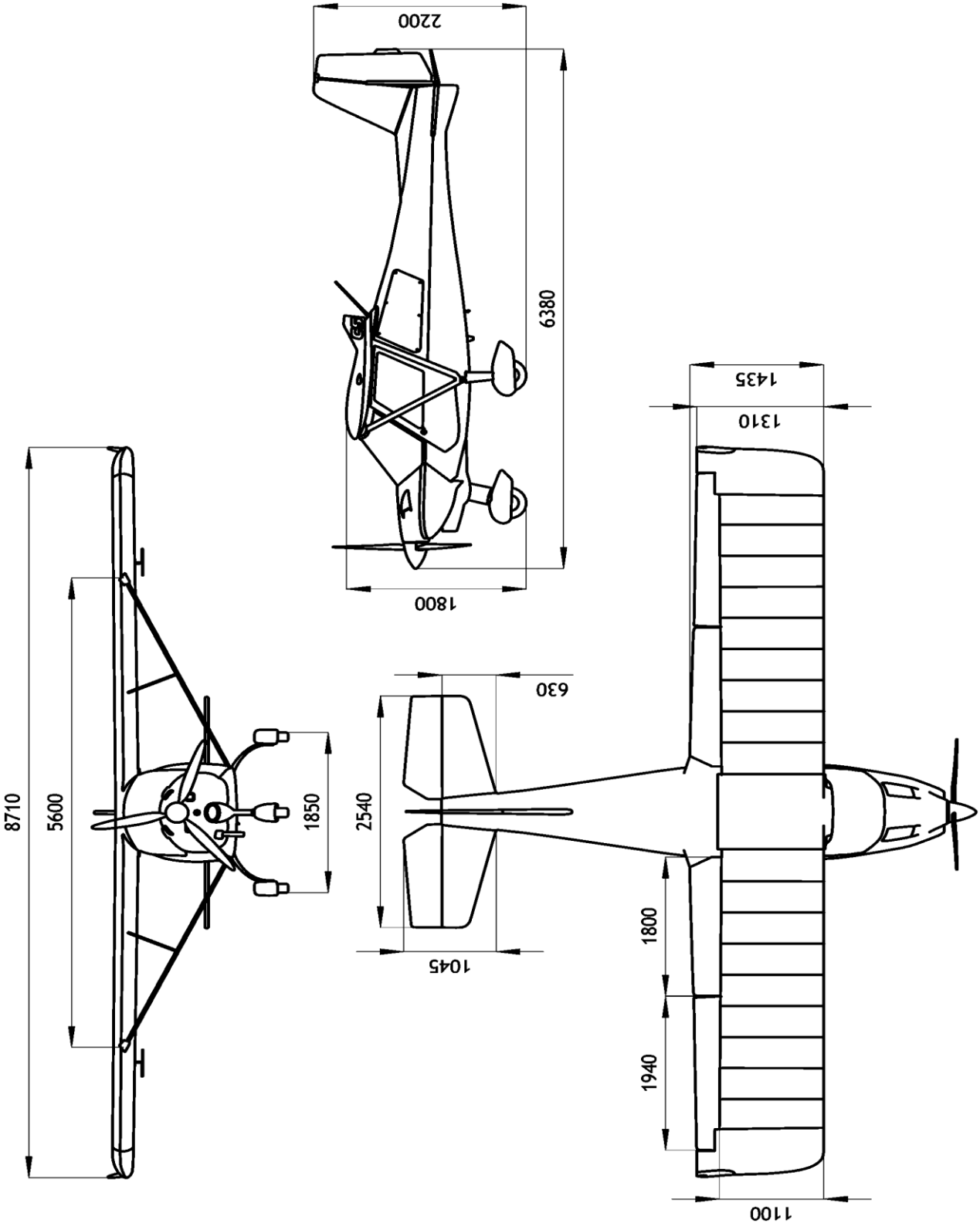
Illustration of Aircraft - 3 View



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## ANNEX A – MANDATORY MODIFICATIONS / SERVICE BULLETINS

### CAA Mandatory Permit Directives (AIRFRAME ONLY)

| | |
|---|---|
| 2016-006-E | Inspection of Neuform Prop Hub for Cracking |
| 2019-005 [1] | Placarding Requirements for Aircraft fitted with a BPRS 4 (for more info see TIL063) |

### Manufacturer Essential Service Bulletins

| | | |
|---|---|---|
| Red Aviation | OSB 30 | Neuform Prop Hub Cracking |
| TLAC | OSB 32 | Inspection of nosewheel steering pushrods |
| TLAC | OSB 33 | Inspection of control surface hinge and horn attachments for corrosion or cracking |

**Latest Bulletins -** https://www.g-tlac.com/login/ (User Name: **G-WOLV** Password: **BMAA**)

## 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 listed here.

### Flybuy/Aerosport Optional Modifications

| | | |
|---|---|---|
| 1. | Landing Light | 42UKA11.10.00 |
| 2. | Strobe | 42D03.05.00 |
| 3. | Falcon Artificial Horizon | C42/003 |
| 4. | Samsonite Luggage Case | C42/004 |
| 5. | Additional 50 Litre Fuel Tank | C42/005 |
| 6. | Vertical Card Compass | C42/012 |
| 7. | Flying Without Doors | C42/019 |

### Performance Aviation Optional Modifications

| | | |
|---|---|---|
| 9. | Beringer Brakes | C42PAUK/004 |

### Red-Air / Red Aviation Optional Modifications

| | | |
|---|---|---|
| 10. | FUNKE ATR833 Radio | C42RAUK/02 |
| 11. | FUNKE TRT800H Transponder | C42RAUK/03 |
| 13. | Electric Flaps | C42RAUK/19 |
| 14. | Dual 65 Litre Fuel Tank (Max limit 100 Litres) | C42RAUK/22 |

[1] with approved Airframe Mounted Total Recovery Parachute System (AMTPRS)

TLAC Optional Modifications

| | | |
|---|---|---|
| 15. | Rudder Pedal Extensions | TMC42-3 |
| 17. | Strut Mount Repair | TMC42 12 |
| 18. | Radio Equipment (Radio, Transponder, ADS-B, PilotAware) | TMC42-13 |
| 19. | BRS-6-1050 Parachute | Option |
| 20. | Junkers 601 Parachute | Option |

## ANNEX C - WEIGHING INFORMATION

| | | |
|---|---|---|
| 1. | CG Datum: | Wing Leading Edge |
| 2. | Weighing attitude: | Stabiliser horizontal |
| 3. | Mainwheel moment arm: | 770 mm aft of datum *(or factory measurement)* |
| 4. | Nosewheel moment arm: | 770 mm forward of datum *(or factory measurement)* |
| 5. | Fuel moment arm: | 950 mm aft of datum |
| 6. | Crew moment arm: | 400 mm aft of datum |
| 7. | Baggage moment arm: | 950 mm aft of datum |
| 8. | Crew weights: | Minimum 55 kg / maximum 220 kg |
| 9. | Aft CG Limit: | 540 mm aft of datum |
| 10. | Fwd CG Limit: | 380 mm aft of datum upto 560kg AUW |
| 11. | Fwd CG Limit: | 350 mm aft of datum upto 472.5kg AUW |

## ANNEX D – EXAMPLE PLACARDS

See Pilot Operating Handbook (POH)

## ANNEX E – POINTS FOR SPECIAL ATTENTION

**Tyre Pressures**

Main wheels 2.0 - 2.5 bar 29 to 36 psi.

Front wheel 1.6 – 2.0 bar 23 to 29 psi.

Shock absorbers – **DO NOT** attempt to adjust, contact TLAC for help as special equipment is required!

**Annual Bettsometer Test**

Stitching only: 1000 grammes using a 1.2mm diameter hook, pull at 90degs to surface of tensioned sail.

**Baggage Allowance**

10kg using approved modification (Samsonite Case or TLAC Basket), weight report and CG to be checked before use.