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TYPE: **Flight Design CT2K**

- (1) MANUFACTURER: P&M Aviation Ltd, Unit B, Crawford St, Rochdale.  
(UK type approval holder for Flight Design GMBH)
- (2) UK IMPORTER: P&M Aviation Ltd.
- (3) CERTIFICATION: BCAR section S issue 2, JAR-VLA parts C & D.
- (4) DEFINITION OF BASIC STANDARD: CT2K Drawings set issue 2, 18/6/01.
- (5) COMPLIANCE WITH THE MICROLIGHT DEFINITION
- |  |   |
|--|---|
| (a) MTOW   | 450 kg                                  |
| (b) No. Seats  | 2                                       |
| (c) Maximum Wing Loading                                 | 41.6 kg/m <sup>2</sup>                  |
| (d) V <sub>so</sub>                                      | 34 kt CAS                               |
| (e) Permitted range of pilot weights                     | 55 – 100 kg per seat.<br>(180 kg total) |
| (f) Typical Empty Weight (ZFW)                           | 264 kg                                  |
| (g) ZFW + 172 kg crew + 1 hr fuel<br>(14litres / 10kg)   | 450 kg                                  |
| (h) ZFW + 86 kg pilot + full fuel<br>(130 litres / 93kg) | 448kg                                   |
| (i) Max ZFW at initial permit issue                      | 268kg                                   |

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**(6) POWER PLANTS**

Designation	Rotax 912 ULS	Rotax 912 ULS	
Engine Type	4 cylinder 4 stroke horizontally opposed	4 cylinder 4 stroke horizontally opposed	
Reduction Gear	2.43:1	2.43:1	
Exhaust System	Rotax underslung muffler	Rotax underslung muffler	
Intake System	2 x K&N filters	2 x K&N filters	
Propeller Type	Neuform Novaprop TXR2	Warp Drive 3 bladed carbon composite	
Propeller Dia x Pitch	1660mm x 21° at blade undersurface at 75% radius	1676mm x 19° at blade undersurface at tip	
Noise Type Cert No.	<i>174M issue 1</i>	<i>174M issue 2</i>	
AAN approving configuration	<b>27454</b>	<b>AAN BMAA-1003</b>	

**(7) MANDATORY LIMITATIONS:**

- (a) Max Take-Off Weight 450kg
- (b) CG Limits 410mm aft of datum (35% mac)  
257mm aft of datum (22% mac)
- (c) CG datum Leading edge at any point of span
- (d) Cockpit Loadings
 

	Port	Starboard	Total
Min	0kg	0kg	55kg
Max	100kg	100kg	180kg
- (e) Never Exceed Speed Vne 150 kt
- (f) Manoeuvring Speed Va 86kt
- (g) Max speed for full flap Vf 64kt
- (h) Max rough air speed Vc 115kt
- (i) Permitted Manoeuvres Non Aerobatic  
Normal acceleration limits, +3.8 -1.5g
- (j) Fuel Contents (Max Useable) 130ltr

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(k) Power Plant See Table

<b>Engine</b>	Rotax 912 ULS	
<b>Max RPM</b>	5800 (5min) 4800 (Continuous)	
<b>MAX CHT</b>	135°C	
<b>MAX EGT</b>	925°C	
<b>Fuel Spec</b>	95 RON minimum unleaded to BS(EN)228 Premium, Premium plus or 97+ octane 4-star /MOGAS leaded fuel to BS 4040, or AVGAS 100LL. (Unleaded preferred – see engine manual).	
<b>Engine Oil Spec</b>	SAE 10W-40 To API SF or SG See engine manual viscosity table.	
<b>Gearbox oil spec</b>	Integral supply with engine	
<b>Fuel/Oil Mix</b>	N/A	
<b>Coolant Temperature</b>	135 C	
<b>Oil Pressure</b>	Normal 2-5 bar above 3,500 rpm Min 0.8bar at idle Max 7bar	
<b>Oil Temperature</b>	50 – 130 C	
<b>Fuel Pressure</b>	0.15 – 0.4 bar	

(8) INSTRUMENTS REQUIRED:

ASI	Altimeter	RPM	CHT	Compass	Oil press/temp	Fuel Pressure	VSI	Slip ball
Required (0-160kt)	Required	0-6000	0-150 C	Option	0-8bar 0-150C	Option	Option	Recommended

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**(9) CONTROL DEFLECTIONS:**

<b>Control Surface</b>	<b>Datum</b>	<b>Deflection measured at trailing edge +ve = surface downwards</b>
Ailerons	Neutral, measure from flap T.E, flaps up	Up -110mm ±10, Down 50mm ±5
Flaps	Fuselage fairing trailing edge	Flaps fully up = - 60mm +5 (-12°) Flaps 0 (takeoff) = 0 mm +5 (0°) Flaps fully down = 175mm +0-10 (40°)
Stabilator	Measure top surface of ventral fin to lower trailing edge of stabilator.	Up -185mm ±10, Down - 30mm ±5
Trim tab	With stabilator neutral (aligned with fuselage fairing)	Trim full nose up 7mm +-3 Trim full nose down - 25mm +-5
Rudder	Rudder horn aligned with fin, apply full pedal deflection	Left 145mm ±10, Right 145mm±10

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

**10.1 Manuals approved for use with this aircraft.**

- (a) Cyclone Airsports manual ref : CTMan current issue.
- (b) Rotax 912 engine (all versions) operators manual current issue.

**10.2 The following placards are to be fitted (see manual for full set):-**

On main panel:

<b>LIMITATIONS CT2K MOD M198</b>	
<b>MAX AUW</b>	<b>450KG</b>
<b>MAX 100KG PER SEAT, TOTAL</b>	<input type="text" value="180"/>
<b>EMPTY WEIGHT KG (MAX 268)</b>	
<b>NON-AEROBATIC, LIMITS +3.8G, -1.5G</b>	
<b>TOTAL LOAD</b>	<b>FUEL</b>
<b>55- KG</b>	<b>130L(FULL)</b>
<b>130KG</b>	<b>L</b>
<b>160KG</b>	<b>L</b>
<b>180KG</b>	<b>L</b>
<b>Vso FLAPS 40°</b>	<b>34KT</b>
<b>VS1 FLAPS 0°</b>	<b>40KT</b>
<b>VS2 FLAPS -12°</b>	<b>43KT</b>
<b>VF MAX FLAPS</b>	<b>64KT</b>
<b>Va MANOEUVRE</b>	<b>86KT</b>
<b>Vc CRUISE</b>	<b>115KT</b>
<b>Vne</b>	<b>150KT</b>
<b>MAX CONTIN RPM</b>	<b>4800</b>
<b>OIL PRESS</b>	<b>1.5-5BAR</b>
<b>OIL TEMP MAX</b>	<b>130°C</b>
<b>COOLANT MAX</b>	<b>135°C</b>

At each filler cap:

<b>CAPACITY 65L</b>
<b>FUEL TYPE:</b>
<b>Min. RON 95</b>
<b>EN228 PREMIUM PLUS</b>
<b>AVGAS 100LL (SEE MANUAL)</b>

At cowl hatch:

<b>ENGINE OIL</b>
<b>SEMI-SYNTHETIC</b>
<b>SAE 10-40</b>
<b>COOLANT 100%</b>
<b>ANTI-FREEZE</b>

At baggage door:

<b>MAX BAGGAGE</b>
<b>25KG TOTAL</b>

Note that the empty weight in the above placards must reflect the current empty weight of the aircraft, including any modifications/repairs.

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

Service Bulletin CT107	Door Latching (2 pin doors only)	Issued 27/07/01
Service Bulletin CT115	Aileron and Flap Bracket Attachment	Issued 20/05/04
MPD 2004-010R1	Aileron and Flap Bracket Attachment	Issued 12/08/04
Service Bulletin CT119	Nosewheel Assembly	Issued 06/01/05
MPD 2005-001	Nosewheel Assembly	Issued 06/01/05
Service Bulletin CT123	Inspection of Main Undercarriage Legs	Issued 29/01/07
MPD 2007-001	Inspection of Main Undercarriage Legs	Issued 02/03/07
Service Bulletin CT124	Flap Up Limit Cable	Issued 05/12/06
MPD 2006-014	Flap Up Limit Cable	Issued 08/12/06
Service Bulletin CT125	Fuel System	Issued 02/07/07

Note: MPD and SB may be downloaded on the CAA and P&M Aviation Ltd.  
Websites: <http://www.caa.co.uk/docs/33/CAP661.PDF>  
<http://www.pmaviation.co.uk/servicebulletins.php>

(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

Rate of Climb: 900 fpm at 55kt IAS.

Stall or Minimum Flying Speed: 34kt IAS at MTOW / idle.

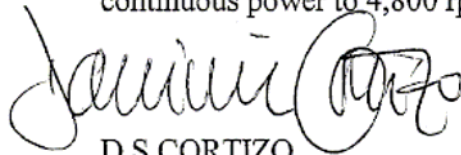
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Issue History

<u>Issue No.</u>	<u>Reason &amp; Signatory</u>
1 22/06/01	Initial issue R J HARDY
2 31/03/03	Change of manufacturer address J BARRATT
3 13/11/03	Warp Drive 3 bladed propeller option, correction to rudder throw J BARRATT
4 31/03/05	Addition of a note in section 10.2, addition of optional modification M131 J BARRATT
5 06/07/05	New Company name P& M Aviation Ltd. J BARRATT
6 05/02/10	Increase of max empty weight to 268kg, limitation of max continuous power to 4,800 rpm, modification and MPD updates.

  
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**ANNEX A – MANDATORY MODIFICATIONS**

1. See section 11 above.

**ANNEX B - APPROVED OPTIONAL MODIFICATIONS**

The installation of all optional modifications is to be inspected by a BMAA inspector and an entry made in the appropriate logbook(s). Note that other approved modifications may exist which are not listed here.

<b>Mod ref</b>	<b>Description</b>	<b>Notes</b>	<b>Issued</b>
CT192	Rubber mounting of radiator	Standard from s/n 02-08-03-01 Optional for earlier a/c	23/1/03
CT164	3 latch door	Standard from s/n 02-01-01-01 Will not fit earlier a/c	01/03/02
M107	Fitting of Warp Drive 3 blade propeller	Optional, issue 2 onwards of handbook required	17/9/03
M110	Oil pressure switch	Optional fit if analogue sensor unreliable	11/07/06
M116	Flexible fuel feed pipes	Optional, recommended.	06/01/05
M131	Slipper clutch	Optional, smoother starting, adds 1.8kg	02/11/04
M134	Plate added to U/C top fitting, vertical bolts to tunnel.	Optional, recommended.	22/12/04
M136	New type nosewheel with integral hub	Optional, recommended.	06/01/05
M143	Stud type retention of nose strut spring.	Optional	14/04/05
M163	1.5mm stainless aileron brackets	See SB 115 issue 2	25/10/06
M186	Fuel cross feed	See SB 125	29/01/07
M188	Circuit breaker panel	Optional	27/02/07
M191	Standard repair schemes	P&M approved repair stations only	28/02/07



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ANNEX C

WEIGHING INFORMATION

1. CG Datum: Leading edge of wing at any point.
2. Weighing attitude: Fuselage cockpit tunnel horizontal
3. Mainwheel moment arm: 570 mm aft of datum
4. Nosewheel moment arm: -870 mm fwd of datum
5. Fuel moment arm: 300 mm aft of datum
6. Crew moment arm: 520 mm aft of datum
7. Baggage moment arm 1200 mm aft of datum (max 25kg)
8. Crew weights: Minimum 55kg / maximum 180 kg
9. Aft CG Limit: 410mm aft of datum (35% MAC)
10. Fwd CG Limit: 257mm aft of datum (22% MAC)