CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM - 31 ISSUE: 3

TYPE: Chaser S 1000

(1) MANUFACTURER: Cosmik Aviation Ltd

(2) UK IMPORTER: N/A

(3) CERTIFICATION: BCAR Section S, Advance Issue, March 1983

(4) DEFINITION OF BASIC STANDARD: CH-001 to CH-830: CH-03-DA Mod 10

CH-831 on: CH-1000 – GA Issue 1

(5) COMPLIANCE WITH THE MICROLIGHT DEFINITION

(a) MTOW 220 kg
(b) No. Seats 1
(c) Maximum Wing Loading 22 kg/m²
(d) Vso 34 mph IAS
(e) Permitted range of pilot weight 55 – 90 kg
(f) Typical Empty Weight (ZFW) 108 kg
(g) ZFW + 172 kg crew + 1 hr fuel (litres / kg) N/A
(h) ZFW + 86 kg pilot + full fuel (23 litres / 17 kg) 211 kg
(i) Max ZFW at initial permit issue 117 kg
## POWER PLANTS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Chaser S 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Type</td>
<td>Mosler MM-CB</td>
</tr>
<tr>
<td>Reduction Gear</td>
<td>N/A</td>
</tr>
<tr>
<td>Exhaust System</td>
<td>Mosler/TAME</td>
</tr>
<tr>
<td>Intake System</td>
<td>EFS2 Carb with foam filter</td>
</tr>
<tr>
<td>Propeller Type</td>
<td>Newton</td>
</tr>
<tr>
<td>Propeller Dia x Pitch</td>
<td>54&quot; x 29&quot;</td>
</tr>
<tr>
<td>Noise Type Cert No.</td>
<td>121M</td>
</tr>
<tr>
<td>AAN approving configuration</td>
<td>21827</td>
</tr>
</tbody>
</table>

## MANDATORY LIMITATIONS:

(A) Max Take-Off Weight 220 kg

(B) CG Limits N/A

(C) CG datum N/A

(D) Cockpit Loadings

<table>
<thead>
<tr>
<th>Min</th>
<th>55 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max</td>
<td>100 kg (including baggage)</td>
</tr>
</tbody>
</table>

(E) Never Exceed Speed 108 mph

(90 mph with Cosmik Aviation Ltd Modification 004)

(F) Manoeuvring Speed 66 mph

(G) Permitted Manoeuvres

Non Aerobatic

Normal acceleration limits, +4 / -2g

(H) Fuel Contents (Max Useable) 23 litres
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(1) Power Plant

<table>
<thead>
<tr>
<th>Engine</th>
<th>Mosler MM-CB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max RPM</td>
<td>3600</td>
</tr>
<tr>
<td>MAX CHT</td>
<td>450°F</td>
</tr>
<tr>
<td>MAX EGT</td>
<td>1325°F</td>
</tr>
</tbody>
</table>

Fuel Spec

- 4-star MOGAS leaded fuel to BS 4040 or AVGAS 100LL
- The engine may be operated on premium or Lead Replacement Petrol for short periods

<table>
<thead>
<tr>
<th>Engine Oil Spec</th>
<th>SAE 20W50 Multigrade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gearbox Oil Spec</td>
<td>N/A</td>
</tr>
<tr>
<td>Fuel/Oil Mix</td>
<td>N/A</td>
</tr>
<tr>
<td>Coolant Temperature</td>
<td>N/A</td>
</tr>
<tr>
<td>Oil Pressure</td>
<td>Min 8 psi</td>
</tr>
<tr>
<td>Oil Temperature</td>
<td>Max 250°F</td>
</tr>
<tr>
<td>Fuel Pressure</td>
<td>0.5 – 1.5 bar</td>
</tr>
</tbody>
</table>

(8) INSTRUMENTS REQUIRED:

<table>
<thead>
<tr>
<th>ASI</th>
<th>Altimeter</th>
<th>RPM</th>
<th>CHT / EGT</th>
<th>Compass</th>
<th>Coolant Temperature</th>
<th>Fuel Pressure</th>
<th>VSI</th>
<th>Slip ball</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required*</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>

* A wrist altimeter may be used provided that:

(a) A cockpit placard states that “Wrist Altimeter Mandatory”, and
(b) A wrist altimeter is part of the aircraft equipment.

(9) CONTROL DEFLECTIONS: N/A
(10) PILOT'S NOTES, MAINTENANCE MANUALS REFERENCES:

10.1 Manuals approved for use with this aircraft.

(a) CH 001 to CH 830, Aerial Arts Ltd. Chaser S 1000 Owner's Manual. Ref. CHAS1000 Issue 1, 12th June 1989

(b) CH 831 on, Cyclone Airsports Ltd Chaser S 1000 Owner's Manual ref. CHAS1000.doc – Issue 2

10.2 The following placards are to be fitted:

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

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

(c) Fuel Limitations Placard (to be located near to filler cap)
   A placard is to be fitted showing fuel capacity (23 litres) and fuel type(s). See Annex D.

(d) Switches
   See Annex D.

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

See Annex A.

Annual Bettsometer test is to be carried out to 1360 grammes with wing sails fitted and tensioned to flight. Test must be to both upper and lower surfaces.

(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

Rate of Climb: 650 fpm at 45 mph IAS.

Stall or Minimum Flying Speed: 34 mph IAS at MTOW / idle.
## Issue History

<table>
<thead>
<tr>
<th>Issue No.</th>
<th>Date</th>
<th>Reason and Signatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15/06/89</td>
<td>Initial Issue. T R Woods</td>
</tr>
<tr>
<td>2</td>
<td>27/01/92</td>
<td>SB Added to Section 11. A Carter</td>
</tr>
<tr>
<td>3</td>
<td>04/11/04</td>
<td>TADS updated to revised format and optional modifications added to Annex B.</td>
</tr>
</tbody>
</table>

NJ Davis
CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM - 31 ISSUE: 3

ANNEX A – MANDATORY MODIFICATIONS / SERVICE BULLETINS / AIRWORTHINESS DIRECTIVES ETC:

2. Service Bulletin CH 012, Replacement of Luff Lines (MPD 2000-001)

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.

1. Cosmik Aviation Ltd Modification 004, Reduction of $V_{NE}$ to 90 mph
2. Cosmik Aviation Ltd Modification 006, Maximum Zero Fuel Weight and Baggage Allowance Clarification

ANNEX C

WEIGHING INFORMATION

Crew weights: Minimum 55 kg / maximum 90 kg
ANNEX D

EXAMPLE PLACARDS

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

<table>
<thead>
<tr>
<th>Chaser S 1000 Mosler MM-CB G-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never Exceed Speed:</td>
</tr>
<tr>
<td>Manoeuvring Speed:</td>
</tr>
<tr>
<td>Empty Weight:</td>
</tr>
<tr>
<td>Max Take-Off Weight:</td>
</tr>
<tr>
<td>Minimum Cockpit Load:</td>
</tr>
<tr>
<td>Maximum Cockpit Load:</td>
</tr>
<tr>
<td>Aerobatics and deliberate spinning prohibited.</td>
</tr>
</tbody>
</table>

* This must match the most recent W&CG report for the aircraft.

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

A placard showing the limitations for all indicated engine parameters is to be mounted close to the engine instruments. This requirement need not be complied with for limitations shown as coloured markers (red for danger, amber for caution) on the instrument displays.

Max CHT 450°F
Max. EGT 1325°F
Max. RPM 3600
Max Oil Temp 250°C

(c) Fuel Limitations Placard (to be located near to filler cap)

Fuel 23 litres
Min 4 star or 100LL

(d) Switches

All switches are to be marked with function and sense (up=on, down=off).
(e) Additional Placards

Adjacent to the fuel cock in RED: ON FUEL OFF

When a fuel flow computer is used, the following placard must be fitted adjacent to the fuel flow display: NOT FOR PRIMARY FUEL MANAGEMENT

In line battery fuseholder to be labelled: 3 AMP FUSE

Adjacent to the hand throttle: OPEN THROTTLE CLOSE

Adjacent to the Ignition Switch in RED: ON IGNITION OFF

On the undercarriage drag link tubes: NO STEP

On the base tube adjacent to the baggage compartment:

BAGGAGE Max Weight ___ kg

(Placard figure to be 117 kg minus actual aircraft zero fuel weight or 10 kg if zero fuel weight is less than 107 kg.)

Adjacent to the mixture control: LEAN MIXTURE RICH

On the right hand engine mount adjacent to the oil filler/dipstick:

OIL 2.4 litres SAE 20W50, fill to mark on dipstick
MANDATORY PERMIT DIRECTIVE

The following action required by this Mandatory Permit Directive (MPD) is mandatory for applicable aircraft registered in the United Kingdom operating on a UK CAA Permit to Fly.

MPD: 1995–011  AERIAL ARTS

Subject:  Hang-point bracket (top box) inspection and replacement.

Applicability:  Aerial Arts Chaser S microlights.

Compliance:  Before next flight inspect the hang-point bracket (top box) in accordance with Cyclone Airsports Service Bulletin No CH006 Issue 3.

This MPD becomes effective on 29 December 1995 and supersedes CAA AD 041-09-89.
MANDATORY PERMIT DIRECTIVE

The following action required by this Mandatory Permit Directive (MPD) is mandatory for applicable aircraft registered in the United Kingdom operating on a UK CAA Permit to Fly.

MPD : 2000-001 AERIAL ARTS / CYCLONE AIRSPORTS / PEGASUS AVIATION

Subject: Replacement of luff lines.

Applicability: Aerial Arts and Cyclone Airsports Chaser S Series microlights and Aerial Arts 110SX / Chaser microlights.

Reason: The pitch stability of the wing fitted to these microlights is sensitive to the tension of the luff lines. New luff lines according to drawing CH0317AQA Sheet 2 Issue C must be fitted. Cyclone Airsports Service Bulletin SB No. CH012 covering this subject was originally issued on 12 September 1996, but not incorporated into MPDs when they were introduced. This MPD retrospectively remedies this situation.

Compliance: Within 25 flying hours from the effective date of this MPD, replace the luff lines in accordance with Cyclone Airsports Service Bulletin SB No. CH012.

A copy of the Service Bulletin and parts can be obtained from:

Pegasus Aviation
Elm Tree Park
Manton
Marlborough
Wiltshire
SN8 1PS

Tel 01672 861578
Fax 01672 861550

Record compliance with this MPD in the aircraft log book.

This MPD becomes effective on 16 March 2000.

Enquiries regarding this MPD should be made to the United Kingdom Civil Aviation Authority, Applications and Certification Section, Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex RH6 0YR. Telephone: +44 (0)1293 573149 Telefax: +44 (0)1293 573993.
MANDATORY PERMIT DIRECTIVE

In accordance with Article 9A(5)(b) of the Air Navigation Order 2000 as amended, the following action required by this Mandatory Permit Directive (MPD) is mandatory for applicable aircraft registered in the United Kingdom operating on a UK CAA Permit to Fly.

MPD: 2004-014 AERIAL ARTS / CYCLONE AIRSPORTS / PEGASUS AVIATION / COSMIK AVIATION

Subject: Understrength control frame uprights.


Reason: It has been established that the control frame uprights on some microlight aeroplanes have been made from material of inadequate strength.

Compliance: Before further flight, inspect the uprights in accordance with Cosmik Aviation Service Bulletin SB/CHA/003 Issue 1.

If fitted with Type 1 or Type 2 uprights, which are undamaged, the microlight aeroplanes may be returned to service.

Damaged Type 1 or Type 2 uprights must be assessed and replaced in accordance with SB/CHA/003 Issue 1.

Type 2 uprights with incorrect aluminium alloy tubes or Type 3 uprights must be replaced before further flight.

Copies of the Service Bulletin may be obtained from:

Cosmik Aviation Ltd
Burnside
Deppers Bridge
Southam
Warwickshire
CV47 2SU

Tel: 01926 614422
Fax: 01926 613781

Record compliance with this MPD in the aircraft log book.

This MPD becomes effective on 29 December 2004.

Enquiries regarding this MPD should be referred to Mr Nigel Davis, Certification and Approvals Department, Civil Aviation Authority, Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR.
Phone: 01293 573309 Fax: 01293 573976 E-mail: nigel.davis@srca.ca.co.uk
MANDATORY PERMIT DIRECTIVE

In accordance with Article 9A(5)(b) of the Air Navigation Order 2000 as amended, the following action required by this Mandatory Permit Directive (MPD) is mandatory for applicable aircraft registered in the United Kingdom operating on a UK CAA Permit to Fly.

MPD: 2004-015  AERIAL ARTS / CYCLONE AIRSPORTS / PEGASUS AVIATION / COSMIK AVIATION

Subject: Understrength kingpost.


Reason: It has been established that the kingpost on some microlight aeroplanes has been made from material of inadequate strength.

Compliance: Before further flight, inspect the kingpost in accordance with Cosmik Aviation Service Bulletin SB/CHA/004 Issue 1.

If fitted with a Type 1 or Type 2 kingpost, which is undamaged, the microlight aeroplane may be returned to service.

A damaged Type 1 or Type 2 kingpost must be assessed and replaced in accordance with SB/CHA/004 Issue 1.

A Type 3 kingpost must be replaced before further flight.

Copies of the Service Bulletin may be obtained from:

Cosmik Aviation Ltd
Burnside
Deppers Bridge
Southam
Warwickshire
CV47 2SU

Tel: 01926 614422
Fax: 01926 613781

Record compliance with this MPD in the aircraft log book.

This MPD becomes effective on 29 December 2004.

Enquiries regarding this MPD should be referred to Mr Nigel Davis, Certification and Approvals Department, Civil Aviation Authority, Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR. Phone: 01293 573309 Fax: 01293 573976 E-mail: nigel.davis@srg.caa.co.uk
Civil Aviation Authority

EMERGENCY
MANDATORY PERMIT DIRECTIVE

Number: 2016-011-E
Issue date: 23 November 2016

In accordance with Article 41(1) of The Air Navigation Order 2016, as amended, the following action required by this Mandatory Permit Directive (MPD) is mandatory for applicable aircraft registered in the United Kingdom operating on a UK CAA Permit to Fly.

<table>
<thead>
<tr>
<th>Type Approval Holder’s Name:</th>
<th>Type/Model Designation(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>P&amp;M Aviation Ltd</td>
<td>Various, see below</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Title:</th>
<th>Clevis Pin / Split Ring Installations – Inspection / Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer:</td>
<td>P&amp;M Aviation Ltd</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applicability:</th>
<th>All Microlights where P &amp; M Aviation Ltd is the Type Approval Holder:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TADS No.</th>
<th>Aircraft Type</th>
<th>TADS No.</th>
<th>Aircraft Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM2</td>
<td>Gemini Sprint</td>
<td>BM43</td>
<td>Mainair Mercury</td>
</tr>
<tr>
<td>BM3</td>
<td>Tri-Flyer Sprint</td>
<td>BM44</td>
<td>Pegasus Quasar 2 TC</td>
</tr>
<tr>
<td>BM4</td>
<td>Gemini Flash</td>
<td>BM45</td>
<td>Cyclone AX3//503</td>
</tr>
<tr>
<td>BM5</td>
<td>Panther XL-S</td>
<td>BM46</td>
<td>Pegasus Quantum 15 (Rotax 2-stroke engines)</td>
</tr>
<tr>
<td>BM9</td>
<td>Pegasus XL-R</td>
<td>BM47</td>
<td>Mainair Blade</td>
</tr>
<tr>
<td>BM10</td>
<td>Pegasus Flash</td>
<td>BM50</td>
<td>Pegasus Quantum 15-912</td>
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<td>BM17</td>
<td>Pegasus Flash 2</td>
<td>BM51</td>
<td>Mainair Blade 912</td>
</tr>
<tr>
<td>BM14</td>
<td>Gemini Flash 2</td>
<td>BM53</td>
<td>Cyclone AX2000</td>
</tr>
<tr>
<td>BM16</td>
<td>Scorcher</td>
<td>BM54</td>
<td>Mainair Rapier</td>
</tr>
<tr>
<td>BM17</td>
<td>Pegasus Flash 2</td>
<td>BM56</td>
<td>Pegasus Quantum 15-HKS</td>
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<tr>
<td>BM23</td>
<td>Gemini Flash 2 Alpha</td>
<td>BM60</td>
<td>Mainair Blade 912S</td>
</tr>
<tr>
<td>BM25</td>
<td>Pegasus XL-Q</td>
<td>BM65</td>
<td>Flight Design CT2K (rudder control)</td>
</tr>
<tr>
<td>BM27</td>
<td>Chaser S</td>
<td>BM66</td>
<td>Pegasus Quik</td>
</tr>
<tr>
<td>BM28</td>
<td>Pegasus Photon</td>
<td>BM70</td>
<td>Quik GT450</td>
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<tr>
<td>BM31</td>
<td>Chaser S 1000</td>
<td>BM72</td>
<td>Flight Design CTSW (rudder control)</td>
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<tr>
<td>BM33</td>
<td>Chaser S 508</td>
<td>BM77</td>
<td>QuikR</td>
</tr>
<tr>
<td>BM37</td>
<td>Chaser S 447</td>
<td>BM80</td>
<td>Quik GTR</td>
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<tr>
<td>BM38</td>
<td>Pegasus Quasar</td>
<td>BM81</td>
<td>PulsR</td>
</tr>
<tr>
<td>BM42</td>
<td>Pegasus Quasar – TC</td>
<td>BM83</td>
<td>Flight Design CTSL (rudder control)</td>
</tr>
</tbody>
</table>
### Reason:
Following maintenance, a clevis pin came out of the RP-4 roll trim system pulley on a QuikR causing a left turn. The split ring securing the clevis pin had come out. It is not known if the ring was disturbed during the maintenance.

The split ring which came out was the same “spiral start” pattern as that which has caused trouble before (see Service Bulletin 139). This pattern of ring has no positive stop, so that simple rotation of the ring (e.g. caused by it getting caught on something) will cause it to disengage. Disengagement of the split ring and subsequent clevis pin departure could affect the control of the aircraft.

### Effective Date:
24 November 2016

### Compliance/Action:
Compliance is required as follows, unless previously accomplished:

1. Before further flight, from the effective date of this MPD, inspect all clevis pin / split ring installations on the aircraft in accordance with paragraph 2 of P & M Aviation Ltd Service Bulletin 144.

2. If the inspection in paragraph 1 reveals any spiral start pattern split rings they must be replaced in accordance with paragraph 2 of P & M Aviation Ltd Service Bulletin 144 before further flight.

3. Record the inspection from paragraph 1 and any necessary rectification action from paragraph 2 in the aircraft technical log in accordance with paragraph 3 of P & M Aviation Ltd Service Bulletin 144.

4. Repeat the actions in paragraphs 1, 2 and 3 at each Permit to Fly revalidation.

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**ENSURE COMPLIANCE WITH THIS MPD IS RECORDED IN THE AIRCRAFT LOGBOOK**

### Reference Publications:

### Remarks:
1. This MPD was not posted for consultation because of the urgency of the requirement.

2. Enquiries regarding this Mandatory Permit Directive should be referred to: GA Unit, Civil Aviation Authority, Safety and Airspace Regulation Group, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR.

   Tel: +44 (0)1293 573988
   E-mail: ga@caa.co.uk