CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM3 ISSUE: 6

TYPE: Tri-Flyer Sprint

(1) MANUFACTURER: Mainair Sports Ltd. Now supported by P & M Aviation Ltd.
Unit B, Crawford Street
Rochdale, Lancashire, OL16 5NU.

(2) UK IMPORTER: N/A

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

(4) DEFINITION OF BASIC STANDARD:
440 Dual Master List of Drawings, Issue 2

(5) COMPLIANCE WITH THE MICROLIGHT DEFINITION

(a) MTOW 338 kg
(b) No. Seats 2
(c) Maximum Wing Loading 20.2 kg/m²
(d) Vso 26 kts (30 mph)
(e) Permitted range of pilot weights 55 – 90 kg per seat.
(f) Typical Empty Weight (ZFW) 134 kg
(g) ZFW + 172 kg crew + 1 hr fuel (litres / kg) 326 kg
(h) ZFW + 86 kg pilot + full fuel (litres / kg) 235 kg
(i) Max ZFW at initial permit issue 146 kg
(6) POWER PLANTS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Tri-Flyer 440</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Type</td>
<td>Fuji Robin EC44PM</td>
</tr>
<tr>
<td>Reduction Gear</td>
<td>2.67:1</td>
</tr>
<tr>
<td>Exhaust System</td>
<td>Rota Flow Underslung</td>
</tr>
<tr>
<td>Intake System</td>
<td>Unique Foam Muffler</td>
</tr>
<tr>
<td>Propeller Type</td>
<td>Mainair Sports Round Tip</td>
</tr>
<tr>
<td>Propeller Dia x Pitch</td>
<td>62” x 27½”</td>
</tr>
<tr>
<td>Noise Type Cert No.</td>
<td>M2</td>
</tr>
<tr>
<td>AAN approving configuration</td>
<td>28478</td>
</tr>
</tbody>
</table>

(7) MANDATORY LIMITATIONS:

(A) Max Take-Off Weight 338 Kg
(B) CG Limits N/A
(C) CG datum N/A
(D) Cockpit Loadings

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Rear</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>55kg</td>
<td>15 kg</td>
<td>70 kg</td>
</tr>
<tr>
<td>Max</td>
<td>90kg</td>
<td>90 kg</td>
<td>180 kg</td>
</tr>
</tbody>
</table>

(E) Never Exceed Speed 51 knots (59 mph)
(F) Manoeuvring Speed 38 knots (44 mph)
(G) Permitted Manoeuvres
- 30° Nose up / 30° nose down
- 60deg Max Bank Angle
- Non Aerobatic
- Normal acceleration limits, +4 / -0g

(H) Fuel Contents (Max Useable) 22 litres
(I) **Power Plant**

<table>
<thead>
<tr>
<th>Engine</th>
<th>Fuji 440</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max RPM</td>
<td>6900</td>
</tr>
<tr>
<td>MAX CHT</td>
<td>218 degC</td>
</tr>
<tr>
<td>MAX EGT</td>
<td>815 degC</td>
</tr>
</tbody>
</table>

**Fuel Spec**

83 MON or 90 RON minimum unleaded to BS(EN)228 or 97+ octane 4-star /MOGAS leaded fuel to BS 4040, or AVGAS 100LL.

**Engine Oil Spec**

Two Stroke Oil ASTM/CEC Standards, API-TC Classification

**Gearbox oil spec**

N/A

**Fuel/Oil Mix**

40/1

**Coolant Temperature**

N/A

**Oil Pressure**

N/A

**Oil Temperature**

N/A

**Fuel Pressure**

N/A

(8) **INSTRUMENTS REQUIRED:**

<table>
<thead>
<tr>
<th>ASI</th>
<th>Altimeter</th>
<th>RPM</th>
<th>CHT / EGT</th>
<th>Compass</th>
<th>Coolant temp</th>
<th>Fuel Pressure</th>
<th>VSI</th>
<th>Slip ball</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>Required</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>(to 90 mph min.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(9) CONTROL DEFLECTIONS: N/A

<table>
<thead>
<tr>
<th></th>
<th>Elevator UP:</th>
<th>Elevator DOWN:</th>
<th>Ailerons* UP:</th>
<th>Ailerons* Down:</th>
<th>Tailplane trim UP:</th>
<th>Tailplane trim DOWN:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>±</td>
<td>±</td>
<td>±</td>
<td>±</td>
<td>±</td>
<td>±</td>
</tr>
</tbody>
</table>

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

10.1 Manuals approved for use with this aircraft.

Gemini/Triflyer Sprint Microlight Manual

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 (litres), fuel type(s), fuel:oil ratio (if relevant) and if MTOW can be exceeded with full fuel and maximum cockpit weight, the fuel loads at MTOW for cockpit weights of 180kg / 170kg / 160kg etc. at 10kg intervals down to the maximum fuel load. An example is shown at Annex D.

(d) Switches

See Annex D.
(11) MANDATORY MODIFICATIONS / SERVICE BULLETINS / AIRWORTHINESS DIRECTIVES ETC:

CAA MPD 1995-005 R1  MK1 Monopole Checks
CAA MPD 1995-016  Front Stub Heavy Landing Checks
CAA MPD 2001-004  Shoulder Straps

Annual Bettsometer test is to be carried out to 1050 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:  400 fps at 34 (39mph) IAS.

Stall or Minimum Flying Speed:  26kts (30mph) IAS at MTOW / idle.
### Issue History

<table>
<thead>
<tr>
<th>Issue No.</th>
<th>Reason and signatory</th>
</tr>
</thead>
</table>
| 1         | 14/09/84 Initial Issue  
J G WRAITH |
| 2         | 05/08/86 Addition of Noise Certification  
J G WRAITH |
| 3         | 10/10/88 Alternative propeller  
F J TUCKER |
| 4         | 30/07/02 Re-issue using new format  
J C BARRATT |
| 5         | 06/07/05 New company name  
J C BARRATT |
| 6         | 18/11/09 To record Modification Number 187, which increases seat load limit to 110kg but still with a total cockpit load of 180g.  

D S CORTIZO
ANNEX A – MANDATORY MODIFICATIONS

Mod 98 Shoulder Straps

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.

Mod 1    Single Lap Seat Belts
Mod 2    Extended Front Stub
Mod 4    Nylon Steering Bearings
Mod 6    Wheel Spats
Mod 7    Rear Seat Steering
Mod 14   Fuji Prop Bolts
Mod 15   Vertical Strut Mk11
Mod 25   Sprung Throttle Mixer Box
Mod 29   Cranked Seat Frame Hinge
Mod 187  Increase Seat Load Limit To 110kg

ANNEX C - WEIGHING INFORMATION

1. CG Datum: N/A
2. Weighing attitude: N/A
3. Mainwheel moment arm: N/A
4. Nosewheel moment arm: N/A (units) (direction) of datum
5. Fuel moment arm: N/A (units) (direction) of datum
6. Crew moment arm: N/A (units) (direction) of datum
7. Crew weights: Minimum 55 kg / maximum 90 kg (maximum reducible, not below 86 kg, if required).
8. Aft CG Limit: N/A (units) (direction) of datum
9. Fwd CG Limit: N/A (units) (direction) of datum
(a) Flight & Engine Limitations Placard (to be visible to pilot)

```
MAX ALL UP WEIGHT  338KG
EMPTY WEIGHT      134KG
STALL SPEED       30MPH
Vne NEVER EXCEED  59MPH
LANDING APPROACH  42MPH
MAXIMUM CROSS WIND
TAKE-OFF/LANDING  10MPH
MAX EGT           815degC
MAX CHT           218degC
MAX RPM           6900

WARNING
THIS IS A NON AEROBATIC
AIRCRAFT
MAXIMUM NOSE UP 30DEG
MAXIMUM NOSE DOWN 30DEG
MAXIMUM BANK ANGLE 60DEG
SPINNING ATTEMPTS
PROHIBITED
NO WHIPSTALLS LOOPS
TAILSLIDES
OR AEROBATIC MANOEUVRES
DO NOT EXCEED MAXIMUM LOAD
```

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

```
FUEL
Capacity __ Litres
40:1 2 Stroke oil
Cockpit Weight (kg) Max. Fuel Load (litres)
180
170
....
.... Or below Full fuel
83 MON or 90 RON minimum unleaded to
BS(EN)228  or 97+ octane 4-star / MOGAS leaded
fuel to BS 4040, or AVGAS 100LL
```

(c) Switches

All switches are to be marked with function and sense (up=on, down=off).
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: 1995–005 R1  MAINAIR SPORTS

Subject: Inspection of the main vertical strut (pylon) for cracks or deformation.


Compliance: Inspect the main vertical strut (pylon) for cracks or deformation in accordance with Mainair Sports Airworthiness Bulletin No 17.

This MPD becomes effective on 29 December 1995 and supersedes CAA AD 003-10-85. Revision 1 (editorial amendment) becomes effective on 18 January 2001.

Enquiries regarding this MPD should be made to the United Kingdom Civil Aviation Authority, Aircraft Maintenance Approvals 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

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: 1995–016  MAINAIR SPORTS

Subject: Front Stub heavy landing overload damage.

Applicability: Mainair Sports Gemini trike microlights up to Serial No 534.

Compliance: Before next flight inspect the front stub in accordance with Mainair Sports Service Bulletin No 34.

This MPD becomes effective on 29 December 1995 and supersedes CAA AD 015-07-90.
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: 2001-004 MAINAIR SPORTS

Subject: Upper torso restraint for passengers.

Applicability: Mainair Sports two seat microlights.

Reason: As a result of a recent fatal accident, AAIB Recommendation 2001-52 has been issued. This recommends that manufacturers of UK registered microlight aircraft provide upper body restraint to the rear seats where forward movement of a passenger could cause injury to the pilot. This recommendation was accepted by the CAA.

Compliance: At the next Permit to Fly renewal or before 25 January 2002, whichever is sooner, install shoulder straps for use by passenger, in accordance with Mainair Sports Service Bulletin No 45.

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

Mainair Sports
Unit B
Crawford Street
Rochdale
Lancashire
OL16 5NU

Tel: 01706 655134
Fax: 01706 631561
Email: flying@mainairsports.co.uk

Record compliance with this MPD in the aircraft log book.

This MPD becomes effective on 7 September 2001.

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.
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>
<tbody>
<tr>
<td>TADS No.</td>
<td>Aircraft Type</td>
</tr>
<tr>
<td>BM2</td>
<td>Gemini Sprint</td>
</tr>
<tr>
<td>BM3</td>
<td>Tri-Flyer Sprint</td>
</tr>
<tr>
<td>BM4</td>
<td>Gemini Flash</td>
</tr>
<tr>
<td>BM5</td>
<td>Panther XL-S</td>
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<tr>
<td></td>
<td></td>
</tr>
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<td>BM9</td>
<td>Pegasus XL-R</td>
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<td>BM10</td>
<td>Pegasus Flash</td>
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<td>BM17</td>
<td>Pegasus Flash 2</td>
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<tr>
<td>BM14</td>
<td>Gemini Flash 2</td>
</tr>
<tr>
<td>BM16</td>
<td>Scorcher</td>
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<td>BM17</td>
<td>Pegasus Flash 2</td>
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<td>BM23</td>
<td>Gemini Flash 2 Alpha</td>
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<td>BM25</td>
<td>Pegasus XL-Q</td>
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<td>BM27</td>
<td>Chaser S</td>
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<td>BM28</td>
<td>Pegasus Photon</td>
</tr>
<tr>
<td>BM31</td>
<td>Chaser S 1000</td>
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<td></td>
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</tr>
<tr>
<td>BM33</td>
<td>Chaser S 508</td>
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<td>BM37</td>
<td>Chaser S 447</td>
</tr>
<tr>
<td>BM38</td>
<td>Pegasus Quasar</td>
</tr>
<tr>
<td>BM42</td>
<td>Pegasus Quasar – TC</td>
</tr>
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</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