MICROLIGHT AIRWORTHINESS APPROVAL NOTE

MAAN NO:1744 ISSUE 1 DATE: 4 December 2003

TITLE: Microlight Airworthiness Approval Note 1744, Sky Ranger - Service Bulletins 001 and 002.

Applicability: All Sky Ranger aircraft

STAGE: Authorisation

1. INTRODUCTION

The Sky Ranger is an amateur-built microlight aeroplane described in Microlight HADS HM4.

The MAAN authorises the issue of two service bulletins by Flylight Airsports (Skyranger UK), which are raised in response to in-service experience of this type. These service bulletins are appended to this MAAN for information and are numbered as follows:

Sky Ranger UK Service Bulletin 001: Installation of diagonal seat-base bracing. (This service bulletin is to be mandatory.)

Sky Ranger UK Service Bulletin 002: Installation of modified aileron cable connections. (This service bulletin is optional.)

2. BASIS FOR APPROVAL

The basis for approval of the Sky Ranger aircraft referred to in this MAAN is BCAR Section S issue 2.

3. DESCRIPTION

3.1 It is possible that under certain conditions, the seat base on Sky Ranger aircraft could 'lozenge' causing it to slip off the rear supports. This could result in the fouling of the port rudder cable that runs under the pilot's seat. Service Bulletin 001 introduces a short piece of aluminium alloy (100mm x 20mm x 1.5mm) to brace each seat, preventing it from distorting.

3.2 Following an incident where an owner cross-connected the aileron cables to the aileron control horn beneath the dashboard in the cockpit, causing roll control reversal, Service Bulletin 002 has been compiled to reduce this risk. The bulletin introduces an arrangement whereby plates are permanently fixed to the end of the port

aileron cable, and equivalent plates are permanently fixed to the starboard side of the aileron horn. This makes it difficult to attach the port aileron cable to the starboard side of the aileron horn, and vice versa.

4. TECHNICAL INVESTIGATION

4.1 The load carrying capacity of the seat is not considered to be significantly affected as the drilled hole is in the upper surface of the principal load carrying tube in this structure, putting the surface in compression under positive 'g' loading. Under negative 'g' loading, the loads induced by the pilot are largely carried by the harness.

Embodiment of this modification is recommended to be required within 3 months of the issue of the Mandatory Permit Directive (MPD) or the next permit renewal, whichever is sooner.

4.2 Load testing of the new aileron cable attachment arrangement has been successfully completed, details of which are held in the BMAA file associated with this MAAN. This new design provides an additional level of protection against miss rigging of the aileron circuit.

5. FLIGHT TESTING

Not required.

6. MANUALS, PLACARDS AND INFORMATION

No amendment is required to any existing operating data.

Embodiment of the Service Bulletins are to be recorded in the aircraft log book.

7. NOISE CERTIFICATION

Not affected.

8. RADIO

Any aircraft radio installation is not affected by this note.

9. INSPECTION

To HADS HM4 in its latest version, plus the Service Bulletins attached as appended to this MAAN.

10. WEIGHT AND BALANCE

Additional weight due to embodiment of either Service Bulletin is considered negligible, with negligible effect on cg.

11. SIGNIFICANT FEATURES AND LIMITATIONS

Not affected.

12. CERTIFICATION

I authorise issue of Sky Ranger Service Bulletins 001 and 002, as appended to this MAAN, by Flylight Airsports Ltd (Sky Ranger UK).

I request CAA issue of a Mandatory Permit Directives (MPD) to support Sky Ranger Service Bulletin 001.

I authorise amendment of HADS HM4 to reflect the instructions contained within this MAAN.

Eur Ing G B Gratton
Chief Technical Officer
British Microlight Aircraft Association

Initial Distribution:

CAA Aircraft Projects Dept (Gatwick)
CAA Applications and Certifications Section (Gatwick)
Sky Ranger Post approval File
MAAN File 1744.
Flylight Airsports Ltd

Skyranger UK Service Bulletin 001

Date: **26/11/2003**

Title: **Diagonal seat-base bracing**

Applicability: **all UK Skyranger aircraft**

Authorisation: **Skyranger UK & BMAA CTO**

Status: **Mandatory**

Reason
The seat base webbing on some Skyranger aircraft is sufficiently slack to allow the square seat base to deform and slip off the rear supports during periods of negative-g loading. This presents a risk of fouling the port rudder cable which runs under the pilot's seat. To prevent this occurring diagonal braces must be fitted to the seat bases.

Parts Required
Steel rivets, 4mm diameter by 8mm long, 4 off.
Diagonal braces, 2 off:
The diagonal braces should be made from 1.5mm thick aluminium sheet or strip, 20mm wide by 100mm long, Figure 1. Two 4mm holes should be drilled in each brace at 80mm centres.

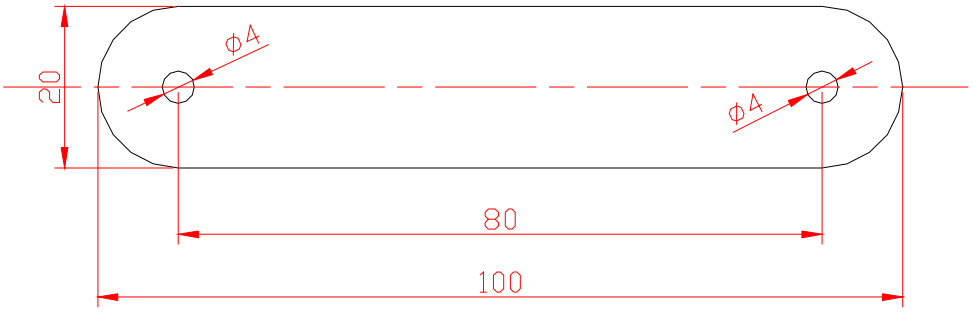

Figure 1; diagonal seat brace.

Parts can be fabricated by the owner, or alternatively contact Skyranger UK who can supply a kit of parts at cost, estimated to be around £3 inc. P&P.

Fitting Instructions
A small diagonal bracing piece should be fitted to each seat base, Figure 2.

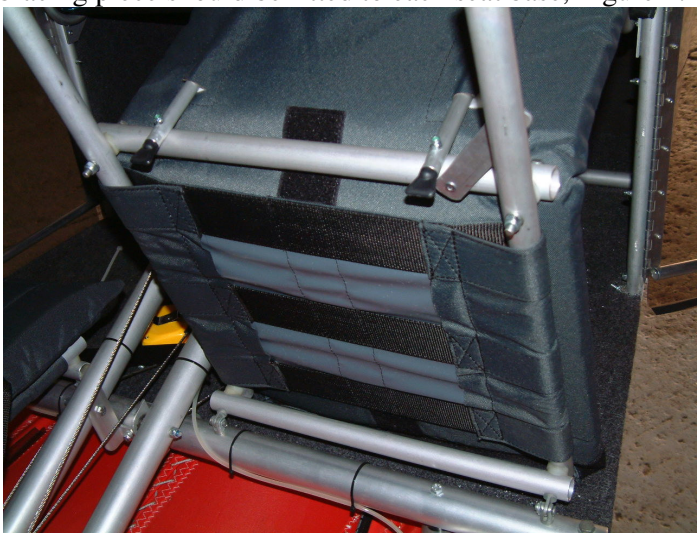

Figure 2; seat base diagonal brace in situ.

One brace should be fitted to each seat, between the top surface of the outboard seat base tube and the undersurface of the seat base rear tube as shown in Figure 2. The brace should be at approximately 45° to the two tubes to which it attaches. Mark the position of the brace on the seat base rear tube, and drill and rivet in place with a 4mm steel rivet. Then, with the seat in position on its supports, mark and drill the other hole to accurately hold the correct position, and secure with another 4mm steel rivet.

Inspection
With the seats in position confirm that they cannot deform sufficiently to allow the rear supports to slip off their mounts.
Due to the simple nature of this modification no independent inspection is required.
Make a note in the aircraft log of the fitment of this modification and sign and date it.

Skyranger UK Service Bulletin 002

Date: **26/11/2003**

Title: **Aileron-cable connections**

Applicability: **all UK Skyranger aircraft**

Authorisation: **Skyranger UK & BMAA CTO**

Status: **Optional**

Reason
In order to further increase the level of safety when rigging and de-rigging the Skyranger a modification to the aileron cable connections at the control stick has been designed. This makes it difficult to miss-rig the ailerons by handing the cable connections.

Parts Required
Pin, 6 mm diameter by 75mm long, with 2mm hole for nappy pin near end, 1off.
Shackle pins, 6mm diameter by 18mm long max., 2 off (plus 2 from existing connections).
Split pins to fit shackle pins, 2 off.
Nappy pins or split rings, to fit shackle pins, 3 off.
Plastic washers, 4 off.
Stainless steel plates, 4 off; the plates should be made from 1.5mm thick stainless steel sheet or strip as per Figure 3.

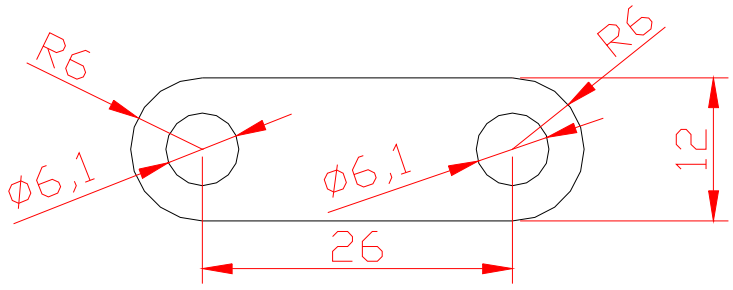

Figure 3; stainless steel plates.

Parts can be fabricated by the owner, or alternatively contact Skyranger UK who can supply a kit of parts at cost, estimated to be around £5 inc. P&P.

Fitting Instructions
The existing shackles at the control stick end of the aileron cables should be removed. Retain the shackle pins. Attach a pair of the stainless steel plates to the port aileron cable using a shackle pin and two plastic washers on the outside of the plates to take up some of the slack, and permanently secure with a split pin, Figure 4. Attach the

other pair of stainless steel plates to the starboard side of the aileron horn beneath the dashboard, again using a shackle pin with a pair of plastic washers outside the plates, permanently secured with a split pin.

Figure 4; aileron cable connections viewed from beneath.

Pass the starboard aileron cable end through the dashboard top, and attach it to the stainless steel plates on the starboard side of the aileron horn using a shackle pin and a nappy pin or split ring.

Pass the port aileron cable through the dashboard top and attach the stainless steel plates to the port side of the aileron horn using a shackle pin and nappy pin or split ring. Note that the dashboard top may need some filing to clear the larger size of the cable fitted with the stainless steel plates.

Remove the bolt above the aileron cable pulleys at the leading edge junctions in the cabin, remove and discard the spacer, and insert the 75mm long pin, Figure 5. If this is too tight, run a 6mm drill or reamer through the holes to ease the fit. Secure the pin with a nappy pin or split ring in front of the upright tube. Removal of this pin allows the aileron cables to be removed from the pulleys when de-rigging, as otherwise the large aileron cable end on the port cable cannot pass around these pulleys.

Figure 5; replacement pin above pulleys.

Inspection

Check that the aileron cables cross above the dashboard, and that the original warning placard indicating that this is required is still fitted and legible.

Check that the aileron cable end connections are all secure and in their proper holes in the aileron horn. Ensure that nappy pins are properly fitted, with their clips engaged.

Check that the control stick can be moved fully side to side without the aileron cables or their fittings binding on anything, particularly the dashboard.

In view of the importance of the control system it is recommended that you have a second person, preferably an inspector, check the fitment of this modification.

Make a note in the aircraft log of the fitment of this modification and sign and date it.