

TITLE Scandal XK Hang Glider Roll Handling.

CLASSIFICATION Advisory.

COMPLIANCE Before further flight if roll handling is poor.

APPLICABILITY Serial numbers up to 7436

INTRODUCTION

Production Scandal XK wings, especially the 14.4 size, have been reported as having poor roll control response when compared to the pre-production wings. The poor handling has been found to be because of:

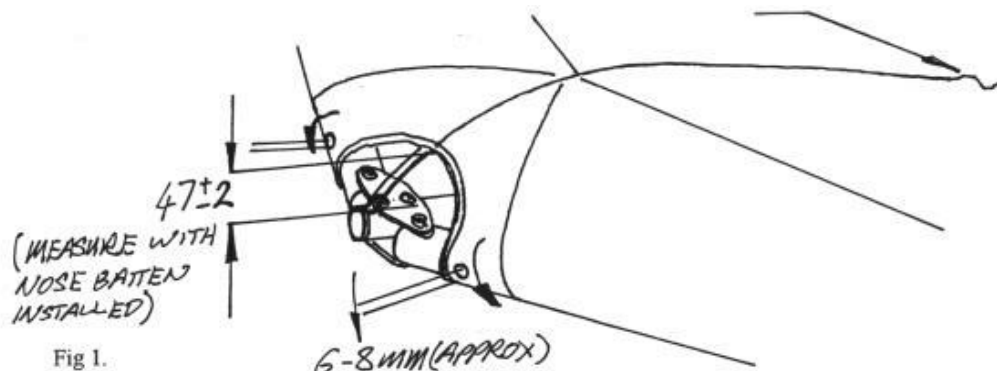
- i) too much undersurface tension, causing the wing to be over-stiff in torsion
- ii) Too tight a connection between the cross boom leveller and the keel preventing correct sideways floating of the keel
- iii) restriction of movement of the tip washout rods preventing movement of the tip.

This service bulletin also contains information on how to regulate the tendency to wind in or out of turns, depending on pilot preference.

ACTION

1) Rig the wing complete for flight. Remove the nose attachment sail screws. Remove the nose batten. Rotate the sail downwards until the gap between the top noseplate and the inside edge of the nose aperture is $47\text{mm} \pm 2\text{mm}$ as defined in fig 1. A dimension over 50mm is known to restrict roll response. Re-drill the nose attachment screws using a 3.3mm drill. This will probably be sufficient distance from the original hole to enable a second hole to be drilled; if not, contact the Factory for a replacement leading edge tube nose insert.

The effect of this is to de-tension the wing undersurface in the chordwise direction, enabling the wing to twist more easily in response to weightshift roll inputs. At the same time, any chordwise wrinkle behind the nose batten on the top surface will be seen to reduce in size.



2) Adjust the straps between the keel and the cross-boom leveller until the gaps between the keel top surface and the leveller saddles are $7\text{mm} \pm 1\text{mm}$ (front) and $10\text{mm} \pm 1\text{mm}$ (back) when the straps are tight, as shown in fig 2. Do not increase the front gap more than specified as the mid-span washout rod setting will be adversely affected. If you think the setting has moved, check the mid-span washout rod height as defined in the pilot's handbook. The effect of lengthening the straps is to allow the keel to float sideways as intended, in response to roll inputs, so allowing the sail twist to move assymmetrically across the span.

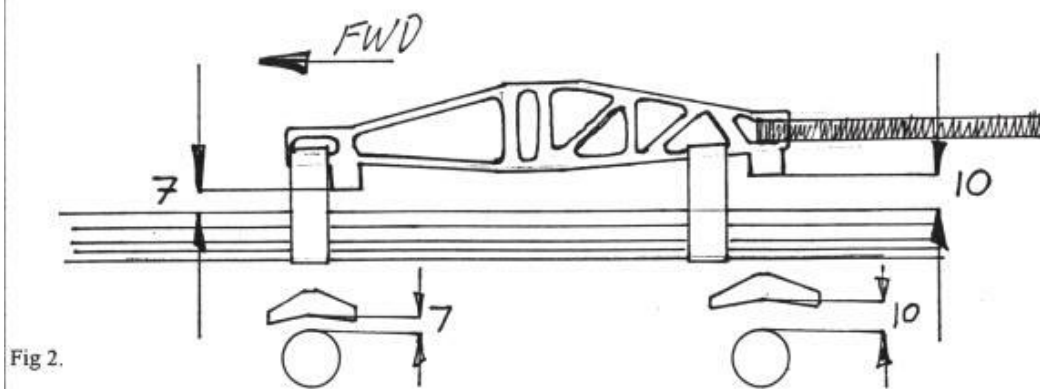


Fig 2.

3) Ensure the tip washout rods are completely free to move up and down in their slots. If not, relieve the slot with a fine file (fig 3). Of course, if these are binding then roll response is impaired.

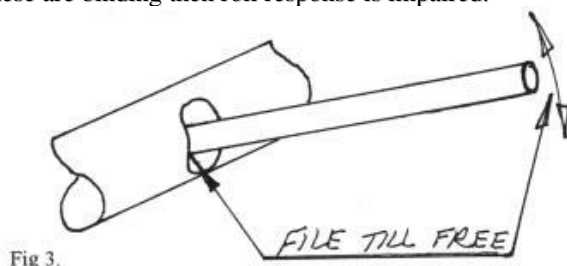


Fig 3.

4) If the undersurface appears tight at the tip region, then the bottom slot for the tip attachment bar can be filed 1-2mm. This allows freer movement of the tip in response to weight shift.

5) Winding in or out of turns:

The tip washout in the wing can be used to regulate the spiral stability. If the wing tends to wind in too much for your taste, then rotating the tips both up 2mm on the scale will make the wing more spirally stable. It will also reduce the trim speed slightly. This adjustment we have found useful to make for optimum handling in weak thermals.

The reason for this is that in a turn the outer (faster) wing will produce relatively less lift than the inboard one, due to the washout.

The batten profiles have been painstakingly developed and it is not advised to make changes, (except where shown in the handbook) without consulting the Factory. The nose batten may tend to flatten more readily than the others, which will generate less lift at the nose and produce a premature stall. Unauthorised changes to profiles will invalidate the BHPA airworthiness approval.

The above work may be carried out by the Factory by arrangement - contact us .

ISSUED BY

DATE 7/5/98

Chief Engineer		Date
Production Director		Date

Sales Director		Date
Managing Director		Date