

**Reference:** BMAA Service Bulletin 2462 Issue 2  
**Title:** Inspection for material type – Control Cable Shackles and Elevator Joiner.  
**Applicability:** All UK Sky Ranger, Sky Ranger Swift and Sky Ranger Nynja  
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**Effective date:** 1 December 2013  
**Classification:** Mandatory

## 1 Introduction

A batch of non-optimum stainless steel alloy entered the production process for a limited time. This can result in a reduction of strength and cracking of the affected parts.

Read and understand the whole of this Service Bulletin before starting work.

This Service Bulletin is raised to issue 2 to extend the inspection to all Sky Ranger series aircraft – irrespective of when the aircraft or its parts were manufactured. This follows some reports that spares from affected batches may have been fitted to some older aircraft and not clearly recorded. Changes from issue 1 are highlighted with marginal lines.

## 2 Details

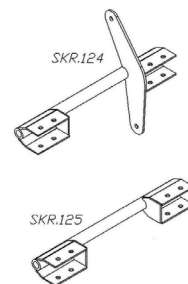
The parts affected are shown below. Both elevator joiner variants could be affected.



**Control Cable Shackle 604**



**Elevator Joiner 124**



**Elevator Joiner variants**

The affected parts were manufactured between 2009 and 2012: Sky Ranger Classic and Swift manufacturer serial numbers (not BMAA HB number) 938 to 1053; Sky Ranger Nynja manufacturer serial numbers 09 to 102. Replacement parts supplied from 2009 onwards are also affected.

Perform the inspections irrespective of when the aircraft or its parts were manufactured.

### 3 Action

Complete the inspection actions in accordance with the procedures in sections 4.1 and 4.2 of this Service Bulletin. This must be completed within the next 5 flight hours or by 31 January 2014, whichever comes first. Note: there is clearly no need to repeat the inspections if they were performed for issue 1 of this Service Bulletin.

#### 3.1 Control Cable Shackles

If any Control Cable Shackles are found to be of the incorrect material they must not be flown with and must be changed before the next flight.

#### 3.2 Elevator Joiner

If the Elevator Joiner is found to be cracked it must not be flown with and must be changed before the next flight.

If the Elevator Joiner is found to be of the wrong material (but not cracked) it must be inspected for cracks before every flight and replaced not later than 31 January 2014.

### 4 Inspection Procedures

The equipment necessary to perform the inspection is a magnet, a magnifying glass and appropriate tools for disassembly and reassembly as required. A small magnet used to hold paper on a metal flip chart or fridge can be used.

#### 4.1 Inspection of Control Cable Shackles

These are found on the rear upper elevator cable, rear ends of both rudder cables and the ends of aileron cables. Also on some aileron cables where cables run parallel with wing leading edges inside the cabin (on the Sky Ranger Nynja and as an option for the Sky Ranger Classic and Swift).

Shackles must be removed from aircraft for inspection. Do this one at a time, refitting the shackle before removing the next, to avoid the risk of incorrect reconnection and possibility of reversed controls.

With the clevis pin removed so shackle is bare, test the shackle with the magnet:

- If the shackle shows no, or weak, attraction to the magnet such that the magnet cannot easily suspend it, the shackle is good.
- If the shackle has strong magnetic attraction such that the magnet can easily suspend it, the shackle is bad and must be replaced before next flight.

An example video of the test can be found here: [tinyurl.com/BMAA-SB-2462](http://tinyurl.com/BMAA-SB-2462)



#### **Shackle fails the test by being easily suspended by the magnet**

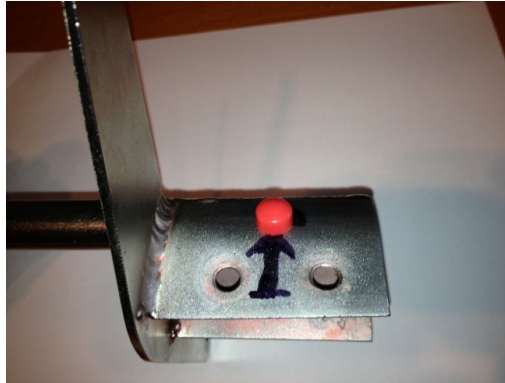
Use new split pins (ensuring correct size are used) on reassembly. After the Control Cable Shackles have been re-fitted, carefully check for correct reassembly, control sense, deflection angles and free control movement before flight.

A second (independent) inspection must be performed before flight as described in section 5.

## 4.2 Inspection of Elevator Joiner

Inspect carefully with the aid of a magnifying glass all welds and the surrounding area (up to 5mm or so from the weld edges) for cracks. If any cracks are found the Elevator Joiner is bad and must be replaced before flight.

If no cracks are found, next check the joiner with the magnet. The parts to check are the welded on plates with the 6mm diameter attachment bolt holes in them. The check may be done in situ without dismantling from the aircraft. But be aware that the bolts will be magnetic, so check some distance away from them (in the position shown in the photo below).



**Test in the area indicated**

- If the magnet does not stick to the plates, then the Elevator Joiner is good.
- If the magnet sticks to the plate, then the Elevator Joiner is bad and must be replaced no later than 31 January 2014. Also, conduct a visual inspection to ensure no cracks exist before each flight. If cracks are subsequently found the Elevator Joiner must be replaced before flight.

If changing the joiner, use new split pins on the control connections, and new nyloc nuts on the securing bolts. Verify correct reassembly, control sense, deflection angles and free movement before flight.

If changing the joiner (or otherwise disturbing the control system) a second (independent) inspection must be performed before flight as described in section 5.

## 5 Second (independent) inspection requirements

The inspections required by this Service Bulletin may be carried out by the Owner. However, as this Service Bulletin requires primary control systems to be disturbed, a second (independent) inspection is required before flight:

- If checking the Control Cable Shackles simply involves their straightforward removal and re-fitment (or replacement), the re-fitment must also be double-checked by an independent, qualified person before flight. See BMAA TIL 065: [www.bmaa.org/files/065\\_1\\_second\\_inspections.pdf](http://www.bmaa.org/files/065_1_second_inspections.pdf). However, if checking the Control Cable Shackles requires more than that – such as control system turnbuckles slackened, re-tensioned and wire locked – the second inspection must be performed by a BMAA Inspector with a 3-axis rating.
- If the Elevator Joiner is replaced a second inspection is required before flight by a BMAA Inspector with a 3-axis rating.

Note: it is the BMAA's intention to mandate this Service Bulletin by asking the CAA to issue a Mandatory Permit Directive (MPD). The MPD will require a BMAA Inspector with a 3-axis rating to confirm that the Service Bulletin has been satisfactorily completed at the next Permit to Fly revalidation inspection.

## 6 Logbook entry

Before flight an airframe logbook entry must be made confirming this Service Bulletin has been implemented. The logbook entry must detail the results of the inspections and list all parts changed. It must be signed by the person carrying out the work and the qualified person or BMAA Inspector (as applicable).

## 7 Replacement parts

The Control Cable Shackles and Elevator Joiner are specific to the Sky Ranger. Replacements must be obtained from Flylight Airsports Ltd.

Consumables such as new split pins and nyloc nuts must be of the correct specification. See BMAA TIL 065: [www.bmaa.org/files/til058\\_1\\_replacement\\_parts.pdf](http://www.bmaa.org/files/til058_1_replacement_parts.pdf).

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