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SERVICE BULLETIN

IMPORTANCE	Before next flight
AREA AFFECTED	Flight controls
SB SERIAL NUMBER	Cheetah/001/09-2009

SUBJECT: Elevator control stick hinge bolt inspection.

Table of contents

1) Planning information

- a) Affectivity (aircraft, spares)
- b) Reason
- c) Description
- d) Compliance
- e) Manpower
- f) Weight and balance changes
- g) Publications effected

2) Material information

- a) Replacement parts
- b) Required tooling
- c) Required special tooling

3) Accomplishment instructions

- a) General Information
- b) Work instructions
- c) Final inspections

4) Feedback

1) Planning Information

1a) Affectivity

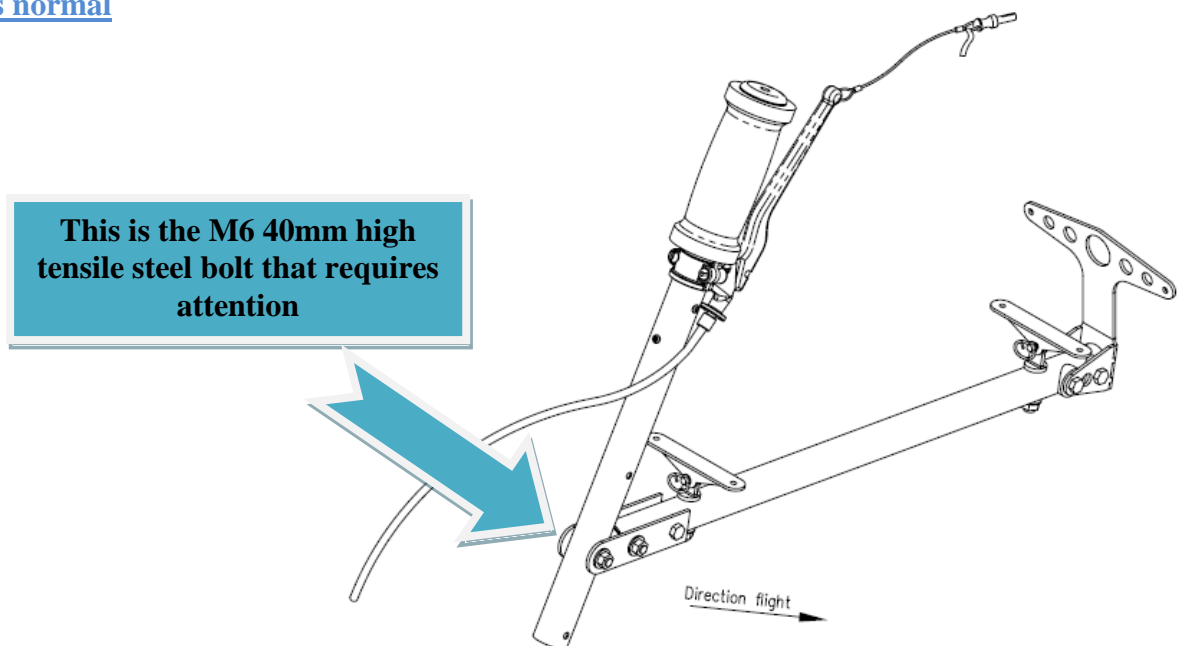
Cheetah XLS aircraft (all)

1b) Reason

Failure of this part will cause loss of pitch control and failure of control of the Aircraft

1c) Description

Rainbow Aircraft has recently conducted a 500 Hour inspection on a Cheetah XLS. During the process of replacing an Elevator cable, it was found that the Elevator / Aileron control stick in the flight deck had a small amount of play. On further investigation it was found that the M6 40mm 8.8 high tensile steel bolt used as the pivoting point for elevator control, has worn away to allow play to form. The bolt has been inspected to determine the severity of the defect. The bolt has been found to have eroded away due to friction. This friction is induced by the cable tension from the elevator cables. [This situation is normal](#)



1d) Compliance

Immediate compliance: Inspect the Elevator control stick, hinge bolt for erosion (wear) as per accomplishment procedures.

Long term compliance: Replace this hinge bolt every 500 hours.

1e) Man power

1 person will be able to accomplish this task. Rainbow recommends 2 people of medium build.

1f) Weight and balance

Weight and balance is not effected

1g) Publications effected

100 hour / Annual inspection checklist. (for A&P approved personnel use)

2) Material information

2a) Replacement parts

One M6 40mm 8.8 high tensile steel bolt (if replacement is required)
One Nylock nut to fit the bolt (Must replace every time)

2b) Required tooling

Rainbow Aircraft only recommends the following tooling to be used as these are the tooling used by us to facilitate the inspection.

One 10mm ring open end, wrench spanner
One 10mm socket and ¼ inch drive ratchet.
Two 10mm ring / open end or sockets can be used in any combination as is comfortable.

2c) Required special tooling

One small torque wrench capable of 10 Nm (Newton meter) or 7.5 Lbf/Ft (Pound feet)

3) Accomplishment procedures

3a) General information

The wear on the hinge bolt has been investigated by the Accountable Manager, Engineering department and Quality assurance. It has been concluded that the wear on this bolt is normal but needs attention. The procedure is to inform you, our valued customer, that there is a situation that you should give attention to, to assure the continued airworthiness and safety of your Cheetah Aircraft.

3b) Work instructions

1. Gain access to the cockpit
2. To facilitate ease of inspection, remove the centre console.
3. Untie the hinge bolt and remove

Caution: The control stick is under cable tension, some force might be required to remove this bolt.

4. Inspect for erosion (wear) in the circumference of the bolt shank.
The erosion (wear) will be in the form of grooves forming on both ends of the shank.
If the bolt shank is smooth with no defects or wear it can be re fitted.
If there are any defects the bolt must be replaced. (See replacement parts)

WARNING: DO NOT RE USE NYLOCK NUTS. The self lock nut must be replaced every time.

5. With new Nylock in place torque to 10 Newton meter or 7.5 Pound feet

3c) Final Inspection

1. Make sure that all cables are still routed correctly.
2. Make sure that there is a minimum of two threads protruding on the end of the Nylock nut
3. Make sure that there are not more than 5 treads protruding from the end of the nut, as the bolt will be too long and might snag on the covers and hinder the full and free movement of the control.
4. Return the interior trim and equipment to normal
5. Do a full control checkout. Check full and free movement several times to assure that the control stick and control surfaces function correctly before next flight

4) Feedback

Rainbow Aircraft would greatly appreciate your feedback to further improve our customer after sale service.

Information required: Cheetah registration number, aircraft hours, findings on the bolt and the repair you chose to take. Send to soutdelange@gmail.com Rainbow Quality Assurance.