

Zlin Aviation S.R.O.

2. Kvetna 685
763 61 Napajedla
Czech Republic

Safety Alert	N°07	30 October 2012
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MANDATORY

- **Airplanes affected:**
all Savage Aircrafts and models

- **Subject:**
Check status of rudder cables.

- **Reason:**
Under extreme service circumstances and high pressure applied on the pedals from the instructor to correct an action of the student, a Savage CUB used for bush flying training has reported a rudder cable failure. Incident had no consequences for the airplane or occupants.

- **Compliance:** Issue date of SA

- **Foreword:**
 - 1) In December 2006 Zlin Aviation sro issued already the Safety Alert n°1, motivated from the detection of a premature rudder cable consumption: alert was instructing about changing the cables to a bigger section (3mm AISI 316 stainless steel, as actually in use), and the pulleys to a new type of phenolic material (as actually in use). The company at that time has provided upgrade kits to customers.
 - 2) Section of cables and complete cable installation has undergone stringent load tests and has proven to perfectly withstand all safety margins required by several certification bodies in different countries. In fact, the size of the cable and related components follows industry standards, is over

engineered for the actual purpose, and a failure was never before reported.

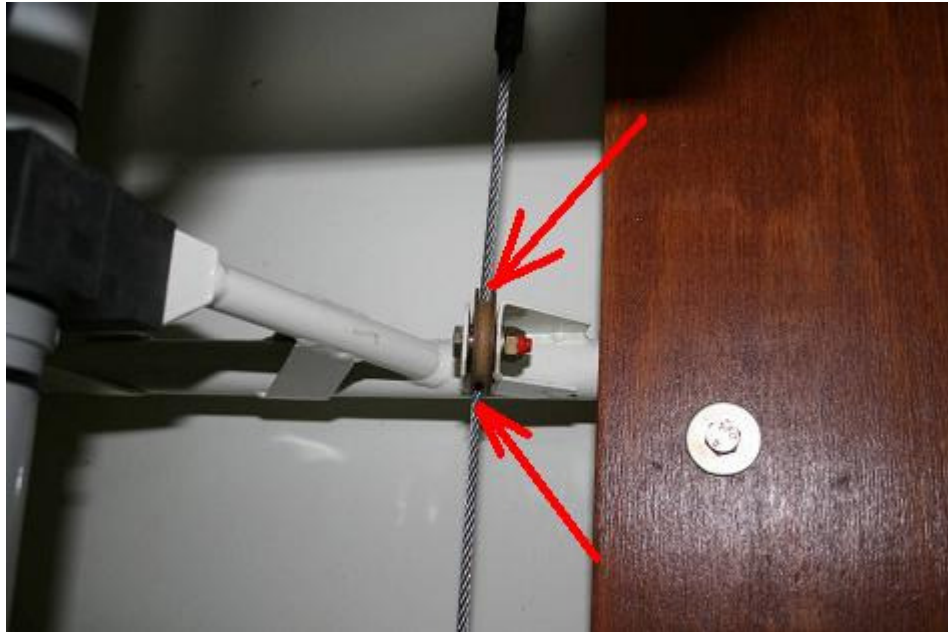
- 3) **IMPORTANT:** The Maintenance Manual specifies that the complete check of the conditions of the rudder cables has to be performed in the daily pre flight checks. We strongly encourage to give importance to your pre-flight check and include this point in it every time. Remember, during the check, to apply pressure to the pedals in order to move it and to see the conditions of the cables underneath the pulleys, where they are supposed to suffer more from friction (see pictures). Check also for proper tension and alignment between cable and pulleys.
- 4) Circumstances of this incident: it is our official opinion, and the pilot agrees with that, that in that case the main cause for the failure has been the excessive pressure applied against the pilot pressure, for correcting a wrong pilot input, together with a pre-existent wear of the cable that was not detected during the pre flight checks. The concurrence of both instant and opposite pressures, together with some wear of the cable (airplane had four hundreds of hours in training and more than 2000 bush flying take offs and landings at the time of that episode), lead to this failure. The second cable, not broken, shows wear in the same place where the failure happened on the opposite side cable, right where the cable goes around the small pulley.
- 5) We do not consider that a failure of that type can happen, if daily checks confirm the good condition of the cables and pulleys. Load tests, calculations, and very long service experience back up our sentence. For that reason we do not consider necessary to issue any technical upgrade at this point. We invite pilots and operators however, to give importance to those checks, particularly in case they know that for the activity they do (many hours of flight training for example), a premature wear can take place in comparison to low use private sport airplanes. If any minor wear in the cable appears, it must be substituted for a new one.

- **Accomplishment:**

- Perform a complete check as described in point 3 of the foreword. For old airplane produced before 2006, double check that Safety Alert N°1 has been applied and cable is 3mm thick.

Picture:

1) Important check points for evaluating the conditions of the cable. Move the rudder or pedals in order to see the cable completely.



Check also the condition of the rudder cables in the tail section.

