MINISTRY FOR
INNOVATION AND TECHNOLOGY
TRANSPORTATION SAFETY BUREAU

FINAL REPORT

2018-734-4

serious incident

Dunakeszi airfield (LHDK)

29 September 2018

K-7

HA-5087

General information

This investigation is being carried out by Transportation Safety Bureau on the basis of

- Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC,
- Act XCVII of 1995 on aviation,
- Annex 13 identified in the Appendix of Act XLVI. of 2007 on the declaration of the annexes to the Convention on International Civil Aviation signed in Chicago on 7th December 1944,
- Act CLXXXIV of 2005 on the safety investigation of aviation, railway and marine accidents and incidents (hereinafter referred to as Kbvt.),
- Regulation 123/2005. (XII. 29.) of the Ministry of Economy and Transport on the rules of safety investigation of aviation accidents and incidents and other occurrences
- NFM Regulation 70/2015 (XII.1) on safety investigation of aviation accidents and incidents, as well as on detailed investigation for operators,
- In absence of other relevant regulation in the Kbvt., in accordance with Act CXL of 2004 on the general rules of administrative authority procedure and service.
- The competence of the Transportation Safety Bureau of Hungary is based on Government Regulation 278/2006 (XII. 23.), and, as from 01 September 2016, on Government Regulation № 230/2016. (VII.29.) on the assignment of a transportation safety body and on the dissolution of Transportation Safety Bureau with legal succession.

Pursuant to the aforementioned laws,

- Transportation Safety Bureau Hungary shall investigate aviation accidents and serious incidents.
- Transportation Safety Bureau Hungary may investigate aviation and incidents which – in its judgement – could have led to more accidents with more serious consequences in other circumstances.
- Transportation Safety Bureau Hungary is independent of any person or entity which may have interests conflicting with the tasks of the investigating body.
- In addition to the aforementioned laws, the ICAO Doc 9756 and the ICAO DOC 6920 Manual of Aircraft Accident Investigation are also applicable.
- This Report shall not be binding, nor shall an appeal be lodged against it.
- The original of this report was written in the Hungarian language.

Incompatibility did not stand against the members of the IC. The persons participating in the safety investigation did not act as experts in other procedures concerning the same case and shall not do so in the future.

The IC shall safekeep the data having come to their knowledge in the course of the safety investigation. Furthermore, the IC shall not be obliged to make the data – regarding which the owner of the data could have refused its disclosure pursuant to the relevant act – available for other authorities.

This Final Report

was based on the draft report prepared by the IC and sent to all affected parties (as specified by the relevant regulation) for comments.

Copyright Notice

Translation

This document is the translation of the Hungarian version of the Final Report. Although efforts have been made to translate it as accurately as possible, discrepancies may occur. In this case, the Hungarian is the authentic, official version.

Table of Contents

Definitions and abbreviations

AD	*Airworthiness Directive*
ARP	*Airport Reference Point*
AT	*Aero Tow*
BFU	*Bundesstelle für Flugunfalluntersuchung*
CAMO	*Continuing Airworthiness Management Organisation*
EASA	*European Union Aviation Safety Agency*
FCL	*Flight Crew License*
FI(S)	*Flight Instructor (Sailplane)*
IC	*Investigating Committee*
ICAO	*International Civil Aviation Organization*
ITM	*Ministry for Innovation and Technology*
Kbvt.	*Act CLXXXIV of 2005 on the safety investigation of aviation, railway and marine accidents and incidents and other transportation occurrences*
LAPL	*Light Aircraft Pilot License*
LBA	*Luftfahrt-Bundesamt*
LH	*Left-Hand*
LHDK	*ICAO code for Dunakeszi airfield*
LT	*Local Time*
MTOM	*Maximum Take-Off Mass*
RH	*Right-Hand*
TSB	*Transportation Safety Bureau*
UTC	*Coordinated Universal Time*
VFR	*Visual Flight Rules*
WL	*Winch Launch*

Introduction

Occurrence class		serious incident
Aircraft	Manufacturer	Alexander Schleicher (Poppenhausen, Germany)
	Type	K-7
	Registration	HA-5087
	Operator	Malév Repülőklub
Occurrence	Date and time:	29 September 2018, 11:10 LT
	Location:	Dunakeszi airfield (fig. 1)
Fatal injuries related to the occurrence:		there was no injury
Extent of damage to the aircraft involved:		minor damage

Each time indicated in this Report is local time (LT). At the time of the event: LT= UTC+2 hours.

WGS-84 coordinates are used throughout this Report.

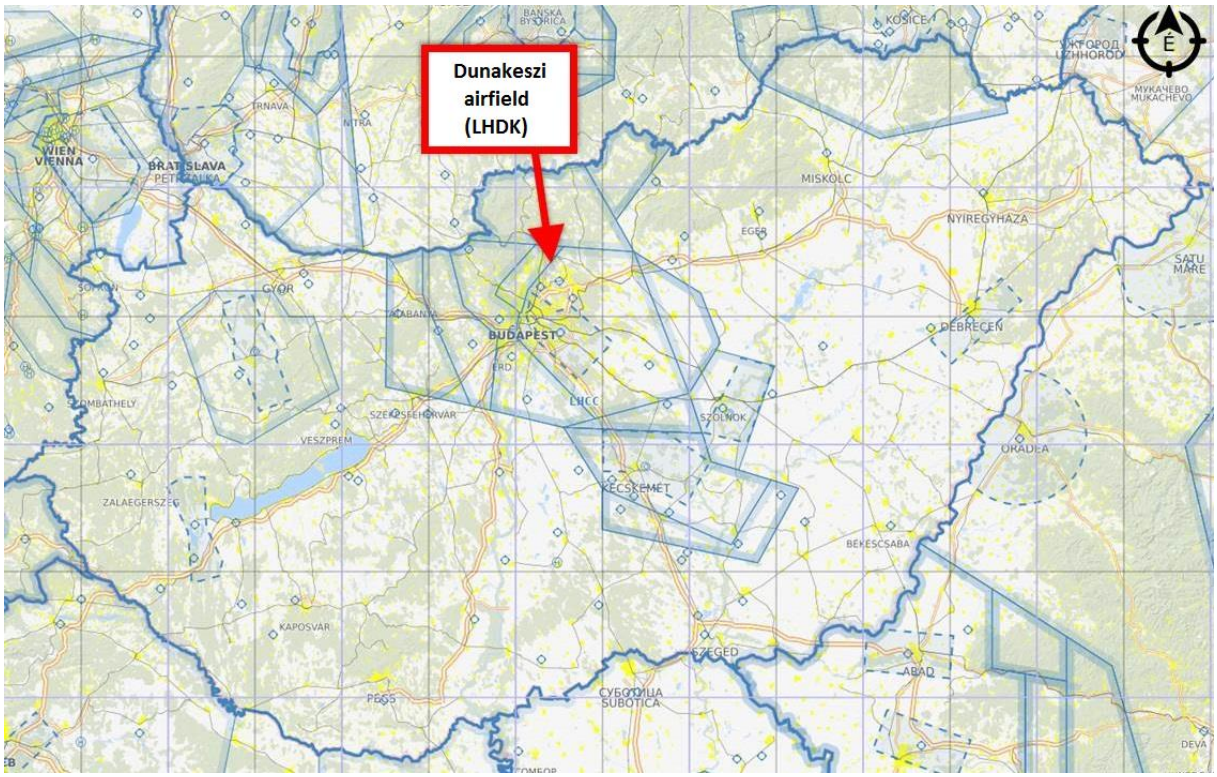

Figure 1: Location of the occurrence in Hungary

Reports and notifications

The occurrence was reported to the duty service of TSB by the flight safety organization of the operator.

TSB Hungary notified:

- the aviation authority of the State of Registry (HU CAA) on 29 September 2018;
- the investigating organization of the State of Manufacture and Design (BFU, Germany) on 1 October 2018;
- the EASA on 1 October 2018.

Investigating Committee

The Head of TSB assigned the following investigating committee (hereinafter referred to as IC) to the investigation of the case:

Investigator-in-charge	**János ESZES**	investigator
Member	**dr. Zsuzsanna NACSA**	investigator
Member	**Ferenc KAMASZ**	investigator

Mr. Kamasz had left TSB during the investigation.

Overview of the investigation process

The IIC took the following actions:

- Performed a site survey, during which the IC:
  - reviewed the occurrence location and conditions;
  - examined the glider; reviewed the documentation of the glider, checked the pilots' documents and the flight log; took photos of the glider and the abovementioned documents;
  - performed eyewitness and participant interviews.
- Performed an additional survey on 1 October 2018, during which the IC:
  - examined the horizontal stabilizer and the damaged elevator;
  - re-attached the elevator and examined the functioning of the tailplane;
  - reviewed the maintenance records and the maintenance manual, took photos of the documents.
- Obtained information related to elevator root rib inspection.
- Took measurements with an accelerometer attached to the tailplane of another K7 glider and analysed the results.
- Reviewed and analysed the collected information.

Short summary of the occurrence

The glider - registration HA-5087 – took off from Dunakeszi airfield with a pilot-instructor and a student pilot on board. Their goal was to conduct a skill maintenance flight. At the moment the winch started, the glider tipped over onto its tailskid as it is normal for the given glider type. The ground crew noticed that the RH elevator detached from the horizontal stabilizer and was hanging on the trim linkage. The glider took off without problems and released the cable. The trim finally broke and the elevator fell to the ground. It was later found behind the fence of the horse racing track neighbouring the airfield. The ground crew called the pilot-instructor on his mobile phone. The student pilot completed the first (right) turn, then the pilot-instructor took the controls, finished the right traffic pattern, and landed uneventfully.

The RH elevator, the attached trim and the trim linkage was damaged. There was no injury.

The IC determined that the detachment of the elevator was caused by the failure of gluing between the elevator's core rib and fabric.

The IC came to the conclusion that the risk of similar occurrences can be diminished if the operators conduct the obligatory root rib inspection described in the manufacturer-issued Technical Note No.18 more frequently. Therefore the TSB suggests that EASA issue a safety recommendation addressing this procedure in an Airworthiness Directive.

1. Factual information

1.1. History of the flight

The K-7 glider - registration HA-5087 – took off from Dunakeszi airfield with a pilot-instructor and a student pilot on board at 11:08, on 29 September 2018. Their goal was to conduct a skill maintenance flight. The student pilot had control at take-off. At the moment the winch started, the glider tipped over onto its tailskid as it is normal for the given glider type. The ground crew noticed that the RH elevator detached from the horizontal stabilizer and was hanging on the trim linkage. The glider took off without problems and released the cable. At this moment, the pilots noticed an unusual sound. The trim finally broke and the elevator fell to the ground. It was later found behind the fence of the horse racing track neighbouring the airfield. The ground crew called the pilot-instructor on his mobile phone. The student pilot completed the first (right) turn, then the pilot-instructor took over, finished the right traffic pattern, and landed uneventfully on RWY 29 normally used by powered airplanes, at 11:09 (see fig. 2).

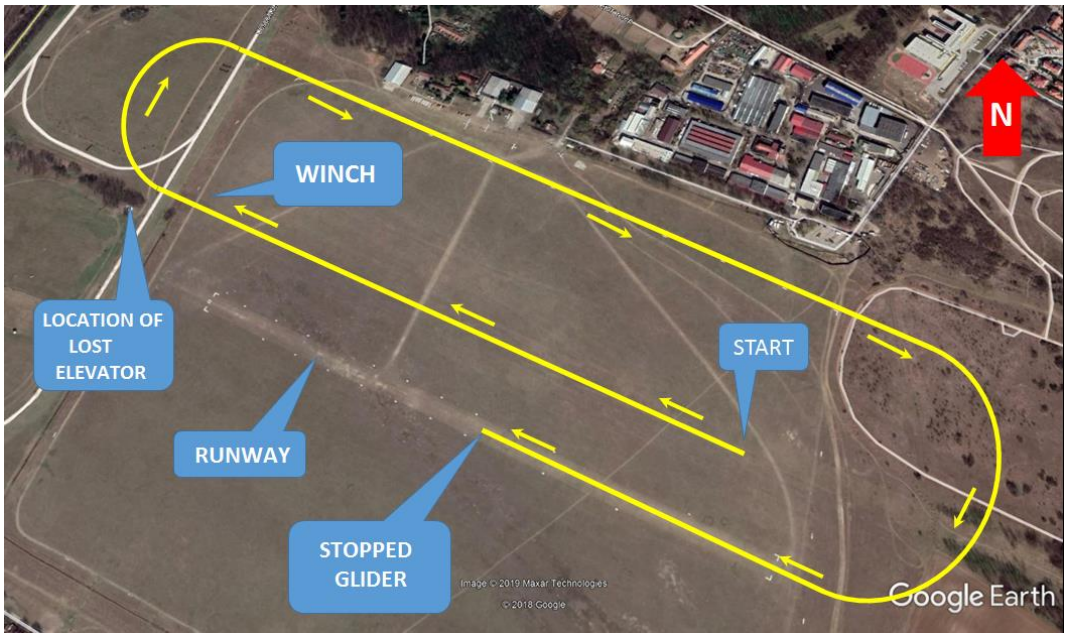

Figure 2: Flight path of glider HA-5087

1.2. Injuries to persons

There was no injury.

1.3. Damage to aircraft

The RH elevator was detached from the horizontal stabilizer (see fig. 3) and fell to the ground.

Figure 3: The glider on the ground. Note the missing RH elevator

The trim linkage was deformed under the weight of the elevator. The trim surface eventually broke (see fig. 4) and the elevator fell to the ground.

Figure 4: The RH horizontal stabilizer. Note the trim linkage with a piece of trim

The elevator was later found at a nearby horse racing track (see fig. 5).

Figure 5: The damaged RH elevator and attached trim

1.4. Other damage

The IC has no information on other damage related to the occurrence.

1.5. Personnel information

1.5.1. Pilot-instructor

Age, citizenship, gender		41, Hungarian male
Licence	type	FI(S)
	valid until	30 JUN 2020
	ratings	cloud flying, AT, WL
Certificates		sailplane instructor
Type and expiry of medical certificate		Class 2 and LAPL, 26 JAN 2019
Flight time / Number of take-offs	last 24 hrs	16 min / 4 take-offs
	last 7 days	34 min / 6 take-offs
	last 90 days	6 h 04 min / 25 take-offs
	total:	2,170 h 33 min / 3,604 take-offs
	total on the given type:	more than 100 h / approx. 500 take-offs

1.5.2. Student pilot No.4

Age, citizenship, gender		25, Hungarian male
Licence	type	-
	valid until	-
	ratings	-
Certificates		student pilot with B exam
Type and expiry of medical certificate		Class 2 and LAPL, 17 JAN 2022
Flight time / Number of take-offs	last 24 hrs	0 / 0
	last 7 days	0 / 0
	last 90 days	0 h 25 min / 6 take-offs
	total:	8 h 12 min / 114 take-offs
	total on the given type:	0 h 58 min / 12 take-offs

1.6. Aircraft information

1.6.1. General information

Class	Glider
Manufacturer	Alexander Schleicher (Poppenhausen, Germany)
Type	K-7
Year of manufacturing	1962
Serial number	7040
Registration	HA-5087

State of Registry	Hungary
Date of registry	7 SEP 1998
Owner	Malév Repülőklub
Operator	Malév Repülőklub

	flight time	number of take-offs
Since manufacturing (1962)	3,153 h 22 min	14,252
Since last overhaul (25 FEB 2000)	947 h 52 min	3,398
Since last inspection of wooden structures (25 MAR 2016)	68 h 12 min	750
Since completion of LBA AD (17 APR 2018)	67 h 08 min	742
Since last 50-hour check (15 AUG 2018)	17 h 09 min	139

1.6.2. Airworthiness information

Airworthiness certificate	number	FD/LD/NS/A/1053/1/2013
	issued on	9 MAY 2013
	valid until	until revoked
	restrictions	none

Airworthiness review certificate	number	LFH/33459/2018-NFM
	issued on	26 APR 2018
	valid until	26 APR 2019
	last revised on	26 APR 2018

1.6.3. Aircraft loading data

Empty mass	311 kg
Maximum take-off mass (MTOM)	480 kg

Loading data of the aircraft had no effect on the occurrence, therefore there is no need for its further elaboration.

1.6.4. Description of the failed system

The elevator is connected to the horizontal stabilizer at two joints that ensure its deflection upwards and downwards (see fig. 6).

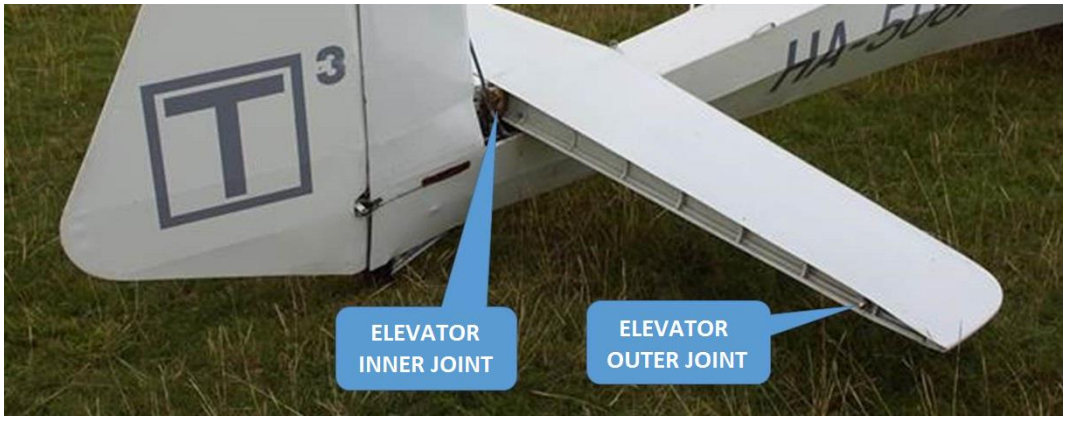

Figure 6: Fixing locations of the RH elevator

The elevator's inner joint links the elevator's core rib with a steel rod by two bolts (see the root rib fixing bolts in fig. 7 and 8). The rotation axis of the elevator is situated between the two bolts. Another two bolts – marked as elevator fixing bolts - connect the LH and RH elevator rods. The elevator linkage is connected to one of these bolts as well.

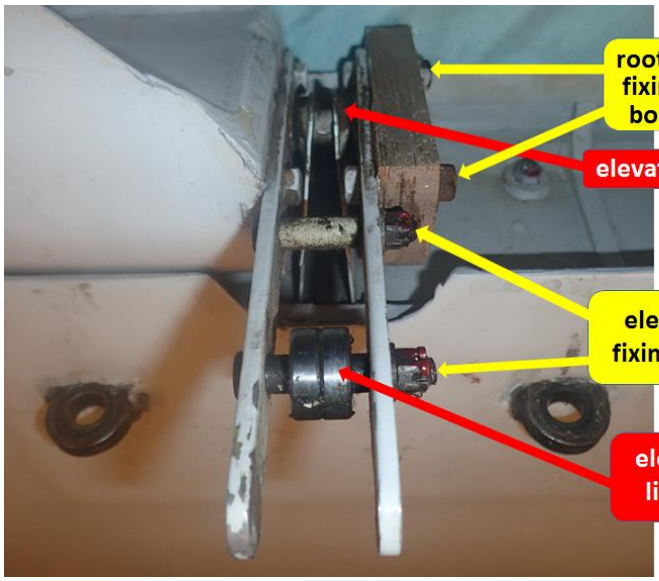

Figure 7: Rear view of root rib

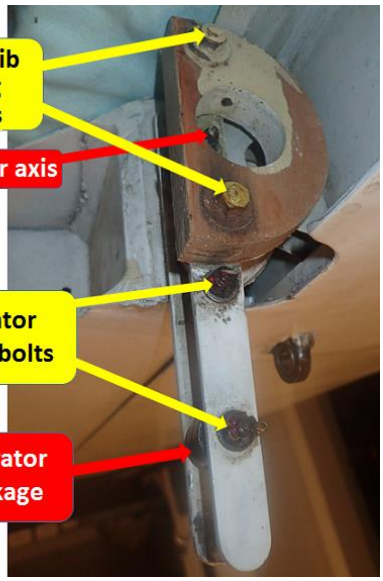

Figure 8: Side view of root rib

The elevator fixing bolts, the steel rods, the core rib fixing bolts and the glue between the core rib and fabric together prevent the elevator from moving sideways along the *z* axis.

The outer joint of the elevator (see fig. 9) is a pin-and-hinge connection, where the pin is located on the elevator while the hinge is fixed onto the horizontal stabilizer. During assembly, the elevator is attached to the horizontal stabilizer from outward direction.

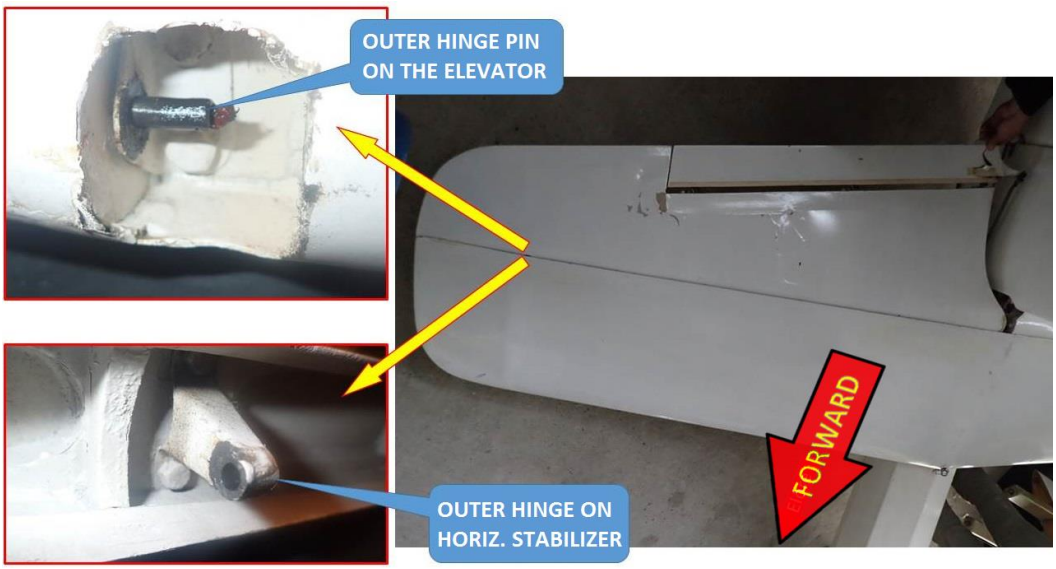

Figure 9: Top view of the RH elevator with fixing locations

The outer joint does not have any safety device that would prevent the elevator from sliding off the horizontal stabilizer.

Therefore, in case the elevator's inner joint fails, the elevator is able to move sideways, Should the movement be more than the free length of the pin of the elevator, it is possible that the elevator is entirely detached from the horizontal stabilizer.

1.7. Meteorological information

The occurrence happened in daytime, in good visibility conditions.

Meteorological conditions had no effect on the occurrence, therefore there is no need for their further elaboration.

1.8. Aids to navigation

The navigation equipment had no effect ont he occurrence, therefore there is no need for its further elaboration.

1.9. Communication

The pilot-instructor was notified on the occurrence via mobile phone call.

1.10. Aerodrome information

The glider took off from and landed at Dunakeszi airfield.

The airfield had a valid operating licence at the time of the occurrence.

ICAO code of the airfield	LHDK
Operator	Malév Repülőklub
Airfield coordinates (ARP)	N 47°37’04”; E 19°08’36”
Altitude above sea level	126 m
Runways	110°; 290°
Runway markings	11/29
Runway size (full area)	800 x 400 m
Runway surface	grass
Runway conditions at the time of occurrence	dry, hard

1.11. Flight recorders

The glider had no flight recorder installed; it is not required for the given aircraft type.

1.12. Wreckage and impact information

There was no wreckage.

1.13. Medical and pathological information

There was no need for pathological examination.

1.14. Fire

There was no fire.

1.15. Survival aspects

There was no injury.

1.16. Tests and research

1.16.1. Examination of the RH elevator

The IC conducted an additional site survey on 1 October 2018 where it examined the glider. The elevator was re-attached to the horizontal stabilizer and its free movement was checked along with play.

The elevator went back onto the core rib smoothly (see fig. 10).

The play of the elevator mechanism was also checked. The play, measured between the trailing edges of left and right elevators, was 15-20 mm, within the normal range.

According to a reliable source, the early versions of K-7 glider were manufactured with pins that had a hole near the end tip. Those pins were suitable for inserting a split thus capable of preventing the elevator from sliding out of the stabilizer' hinge.

The IC determined that the glider involved in the occurrence had pins without holes.

Figure 10: The RH elevator re-attached to the horizontal stabilizer

1.16.2. Measuring acceleration on the horizontal stabilizer

Due to the construction of the K-7 glider, it rests on the main landing gear and the nose skid. When the glider takes off by towing and/or winching, the pullling force of the cable lifts the nose, while at the same time moves the tail downwards. As a result, the glider hits its tailskid, and there is not much the pilot or the ground crew can do about it.

TSB conducted an experiment on 31 August 2019 to determine the extent of dynamic loading the tail receives during winch start.

An accelerometer was attached to the tailplane of another K-7 glider (see fig. 11). The winch start was simulated by lifting and then releasing the tail by hand.

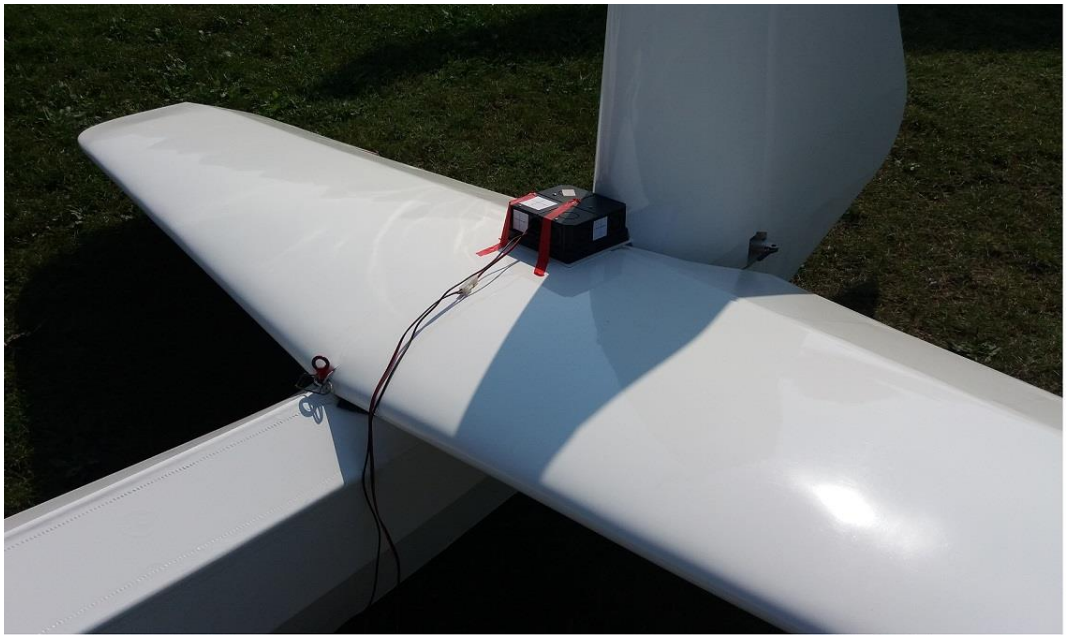

Figure 11: The accelerometer secured to the tailplane of a K7 glider

Measured acceleration reached -48 m/s^2.

The above measurements can by no means be considered representative, however, they are suitable to demonstrate the type and amount of dynamic loading the gliders receive during normal operation when frequent ground movements and a large number of take-offs and landings take place.

1.17. Organizational and management information

The characteristics of the concerned organizations had no effect ont he occurrence, therefore there is no need for their further elaboration.

1.18. Additional information

1.18.1. Actions taken by Aviation Authorities and/or the manufacturer regarding root rib inspection requirement

According to the information available on the aviation authority of Germany (LBA), the authority had issued several airworthiness directives or ADs (in German: Lufttüchtigkeitsanweisung, LTA) related to the separation of elevator root rib and fabric.

- LTA 72-007, 9 FEB 1972. The AD contained a mandatory check of glued parts in the tailplane as well as re-gluing and moisture-proof repair of the fabric as needed, with a tight deadline less than two months.
- LTA 72-007/2, 24 AUG 1989. The AD amended the previous issue to make the inspection to be repeated every three years.
- LTA 72-007/3, 13 DEC 1989. The AD incorporated the full text of the manufacturer-issued Technical Note No.18 (dated 4 OCT 1989). The frequency of inspection is listed in the Technical Note and it is 3 years.

Technical Note No.18 is provided in Annex 1.

LTA 72-007/3 is provided in Annex 2.

1.18.2. Execution of LTA 72-007/3 on the glider HA-5087

According to the maintenance logs, glider HA-5087 was last inspected in accordance with LTA 72-007/3 on 17 April 2018. Since that date the glider had completed 742 take-offs and logged 67 hours and 8 minutes.

1.18.3. LTA 72-007/3 in the maintenance manual of Malév Repülőklub's K-7 gliders

The maintenance manual requires inspection as per LBA 72-007/3 annually.

1.18.4. Execution of LTA 72-007/3 at British Gliding Association

The IC had gathered information regarding similar occurrences in other countries involving the same glider type as well as the actions taken by the concerned organizations and authorities. It was found that British Gliding Association (BGA) issued a document requiring mandatory inspection of glued wooden structures of gliders – including K-7 gliders – following a fatal accident that happened in 2004. The K-7 glider crashed because the RH wing broke in half, however, the investigation could not exclude the possibility of elevator rib - fabric separation as possible contributing factor.

Therefore, BGA required that the LTA 72-007/3 in effect be repeated every year instead of every three years, effective February 2005.

The document establishing the mandatory inspection was accessible at the following link as of 30 July 2020:

https://members.gliding.co.uk/wp-content/uploads/sites/3/2015/04/1430312213_043-07-2004-issue-2.pdf

The final report ont he above mentioned accident was accessible at the following link as of 30 July 2020:

https://members.gliding.co.uk/wp-content/uploads/sites/3/2015/08/K7-2004-BGA.pdf

1.18.5. Pre-flight check of the glider

The pre-flight check of glider HA-5087 was completed by the pilot-instructor on the day of the occurrence.

The first take-off of the day was made by student pilot No.1 alone, then the pilot-instructor flew with student pilot No.2 then with student pilot No.3, all without problems.

It was the fourth take-off of the glider that day, with the pilot-instructor and student pilot No.4 on board, when the occurrence happened.

Pre-flight check requires visual check of the glider during walk-around where the person conducting the check makes sure that the glider is free of any damages. During walk-around it is necessary to check the free and smooth movement of elevators.

1.19. Useful or effective investigation techniques

The IC conducted a test (see paragraph 1.6.12) to get a picture about the extent and character of dynamic load of the tailplane.

2. Analysis

2.1 Fixing points of the elevator

The elevator's structure is described under paragraph 1.6.4 of this report. The fixing points are located in such a way that, should the gluing between the core rib and the outer fabric fail, the elevator can move sideways and outwards as a result of vibration and aerodynamic forces. In the absence of any safety measures, 15-20 mm of movement is enough for the outer elevator pin to slide out of the hinge of the horizontal stabilizer. Further outward movement of the elevator leads to its complete detachment from the core rib and practically from the horizontal stabilizer.

According to a reliable source, the early versions of K-7 glider were manufactured with pins that had a hole near the end tip. Those pins were suitable for inserting a split thus capable of preventing the elevator from sliding out of the stabilizer's hinge.

The IC determined that the glider involved in the occurrence had pins without holes.

The IC was unable to obtain information on why and from what date the manufacturer changed the design of the outer pins.

2.2 Inspection interval of the gluing at the root rib

According to LTA 72-007/3 the tailplane inspection must be repeated every 3 years regardless of the number of take-offs and/or time flown.

The operator of glider HA-5087 uses a maintenance manual for K-7 gliders that makes the tailplane inspection as per LTA 72-007/3 mandatory every year.

The BGA enforces similar frequency for the tailplane inspection (see paragraph 1.18.4).

The occurrence took place on 29 September 2018, less than six months after the last mandatory tailplane inspection. It is the IC's opinion that the increased inspection frequency – annually vs. every three years – considerably reduces the risk of gluing failure in the tailplane, however, the reliability of glued wooden structures is affected not only by elapsed time but also by the dynamic loading of the glider.

The IC analysed the behaviour of the glider during winch launch. The K-7 glider rests on the main landing gear and nose skid. Upon pulling the winch cable the glider tips over onto the tailskid. Moving the glider around by hand or towing results in similar „tail strikes" that add up, taking into consideration the large number of take-offs during a normal day of sailplane operation.

Glider HA-5087 completed 742 take-offs between the last tailplane inspection and the occurrence. The IC believes that the large number of take-offs contributed to the failure of root rib gluing.

The K-7 gliders, due to their age, are typically used nowadays as oldtimer sailplanes. It can be rightfully assumed that a privately owned, wooden oldtimer sailplane receives the necessary care, is stored in proper conditions, and is used only occasionally, for hobby flights., therefore the effect of dynamic loading and environmental conditions are negligible compared to the effect of normal degradation of the gluing. In this case the annual tailplane inspection should be a safe solution to find out any problems with the gluing in time.

There are, however, countries where the K-7 is still a workhorse of basic pilot tranining and where a large number of take-offs and flights of short duration is typical. Dynamic stress (see paragraph 1.16.2) resulting from such type of operation can degrade the glued wooden structures quickly.

The IC believes that the risk of gluing failure in the tailplane can be reduced if the tailplane inspection frequency depends not only on elapsed time but also on the number of take-offs.

Authority supervision of the given glider type belonged to the EASA at the time of the occurrence. Therefore the IC decided to formulate a safety recommendation addressed to EASA in which it is suggested that the frequency of tailplane inspection be determined with consideration of elapsed time and the number of take-offs.

3. Conclusions

3.1. Findings

The pilot-instructor possessed the required ratings and certificates as well as considerable experience for the flight task. The flight was completed in accordance with the relevant rules and regulations.

The glider was found good to fly at th epre-flight check. It had a valid airworthiness certificate as well as a valid airworthiness review certificate. Based on the review of the available documentation, the glider was maintained in accordance with the maintenace manual and programme.

During the glider's 4th winch launch the RH elevator got separated from the horizontal stabilizer and was hanging on the trim linkage. The elevator fell to the ground following the winch cable release.

The flight took place in good visibility conditions, at daytime.

The elevator detachment was caused by the glue failure between the elevator core rib and elevator fabric.

The manufacturer was aware of the problem and its Technical Note No.18 introduced a tailplane inspection, to be repeated every three years. The German aviation authority imported this technical note into its airworthiness directive LBA 72-007/3 therefore making it an obligatory task for every K-7 operator.

BGA changed the frenquency of the inspection from every three years to every year for their gliders, effective from 2005.

The IC reviewed the maintenance logs and found the following:

- The operator of the occurrence glider completes the AD annually instead of every three years.
- The last tailplane inspection in accordance with LBA 72-007/3 was completed on 17 April 2018. The glider logged 742 take-offs and 67 h 8 min flight time between that date and the occurrence.
- The last 50-hour check was completed on 15 August 2018. 139 take-offs and 17 h 9 min flight time was recorded between that check and the occurrence.
- The 50-hour check requires a generic inspection of the glider's wooden structures. It does not include the tasks described in LTA 72-007/3 for which the elevators would have to be removed and thoroughly inspected.

3.2. Causes

The IC came to a conclusion during the safety investigation that the detachment of the RH elevator was caused by the failure of gluing between the elevator's core rib and fabric.

Contributing factors:

- The glider normally rests on the main landing gear and the nose skid. When the winching starts, the glider tips over onto the tailskid. Also, the tailskid often bumps into the ground while ground towing or moving by hand takes place. These conditions, combined with the large number of take-offs, transfer into considerable dynamic loading of the tailplane and as a result weaken the structural strength of the glued parts and structures.

- The glider was manufactured in 1962. The durability of glued structures depends on the mechanical stress caused by the normal operation as well as on the conditions of storage and the deteriorating of the glue itself.

4. Safety recommendations

4.1. Actions taken by the operator and/or aviation authorities during the investigation

The IC has no information on whether the operator or aviation authorities took actions related to the occurrence.

4.2. Safety recommendation(s) issued upon completion of the investigation:

The Investigating Committee of TSB suggests to issue the following safety recommendation upon completion of the investigation:

BA2018-734-4-1: *Transportation Safety Bureau (ITM-TSB) had determined during the safety investigation of the occurrence involving a Scheicher K-7 glider that the failure of the elevator was caused by the failing gluing between the root rib and the elevator's fabric. Therefore*

> **ITM-TSB is recommending the European Aviation Safety Agency to consider modification of Airworthiness Directive 72-007/3 currently in force for Schleicher K-7 gliders. It is suggested that the inspection interval for wooden structures is dependant not only on elapsed time, but also on the number of take-offs.**

It is the TSB's opinion that should the above recommendation be accepted and implemented, the risk of in-flight elevator detachment would substantially diminish.

Budapest, 3rd of December 2020

.....	.....
János ESZES	dr. Zsuzsanna NACSA
IIC	IC member

Annexes

Annex 1: Alexander Schleicher Technical Note No.18

SHEET: 1 of 3	Technical Note for	Alexander Schleicher GmbH & Co. Segelflugzeugbau D-6416 Poppenhausen

Glider model:

Ka 2 u. Ka 2B	TN-No. 11
Ka 6, 6/0, 6B, 6BR, 6CR, 6B-S . .	TN-No. 21
K7	TN-No. 18
K8, K 8B, K 8C	TN-No. 23
K9	TN-No. 1
K11	TN-No. 1
ASK 13	TN-No. 12
ASK 18, ASK 18B	TN-No. 6

Serial number applicability:

Ka 2,	Data-Sheet No. 140,	all serial no.s
Ka 2B,	Data-Sheet No. 203,	all serial no.s
Ka 6,	Data-Sheet No. 205,	all serial no.s
Ka 6/0,	Data-Sheet No. 205,	all serial no.s
Ka 6B,	Data-Sheet No. 205,	all serial no.s
Ka 6BR,	Data-Sheet No. 205,	all serial no.s
Ka 6CR,	Data-Sheet No. 205,	all serial no.s
Ka 6BS,	Data-Sheet No. 205a,	serial no. E1
K7,	Data-Sheet No. 211,	all serial no.s
K8,	Data-Sheet No. 216,	all serial no.s
K8B,	Data-Sheet No. 216,	all serial no.s
K8C,	Data-Sheet No. 216,	all serial no.s
K9,	Data-Sheet No. 221,	serial no. 1
K11,	Data-Sheet No. 668,	serial no. V1
ASK 13,	Data-Sheet No. 267,	all serial no.s
ASK 18,	Data-Sheet No. 307,	all serial no.s
ASK 18B,	Data-Sheet No. 307,	all serial no.s

Subject: Elevator.

Compliance: Prior to the next take-off.

Reason: A glider of the model K7 failed to gain normal flight attitude immediately after tow rope release on winch launch. With the stick full back only the left elevator could be actuated in the correct direction; the right elevator deflected downwards. The reason for this was a loose glue bond at the elevator rib 1 at which the elevator fitting is attached. Similar incidents lead already before to the issue of the LTA 72-7 dated Feb.9,1972.

Action:

1. Remove elevator.
   Check that the glued joint between rib 1 and the leading edge plywood and the elevator spar respectively is in good condition (see Fig.1). Before doing so check whether the LTA 72-7 of Feb.9, 1972 was already previously accomplished (this is not applicable to K9, K11 and ASK 18); if yes then the fabric strip first carefully has to be detached in order to be able to check the glued joint.

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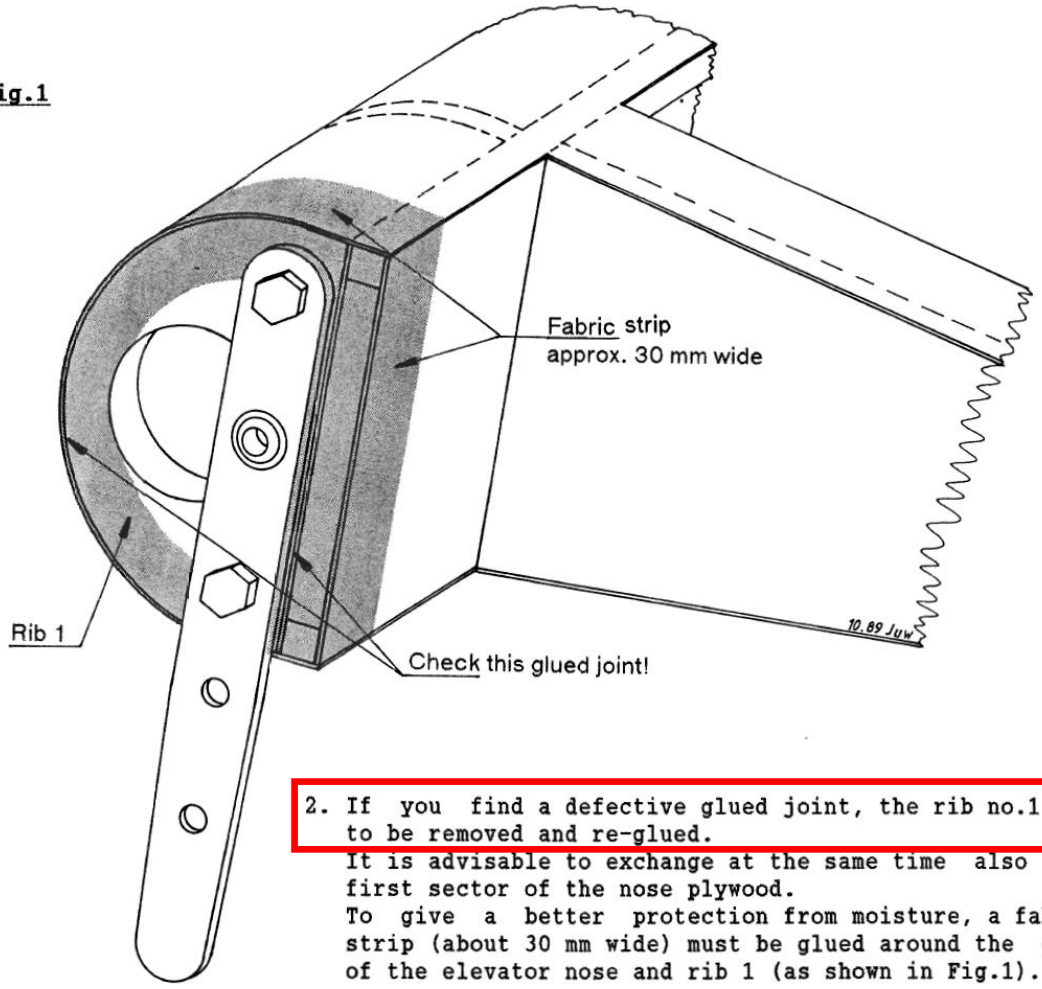
SHEET: 2 of 3	Technical Note for Glider Models as per Sheet 1	**Alexander Schleicher** GmbH & Co. Segelflugzeugbau D-6416 Poppenhausen

Fig.1



2. If you find a defective glued joint, the rib no.1 has to be removed and re-glued.
It is advisable to exchange at the same time also the first sector of the nose plywood.
To give a better protection from moisture, a fabric strip (about 30 mm wide) must be glued around the edge of the elevator nose and rib 1 (as shown in Fig.1).

3. The above action under points 1. and 2. must be repeated every three years during the annual re-inspection.
This copy of the Technical Note must be inserted in the Flight and Operations Manual of the respective glider as an annex and a corresponding entry must be made into the "Amendments to the Manual".

Material & drawings:

Rib 1 made from multi-plywood, 15 m thick, and nose plywood, 1 mm thick, according to DIN L 182/183, class 1/2 or NL 9128, 6.1013. Drawing as above.

Mass and C.G.:

It is not necessary to redetermine the mass and C.G. data.

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SHEET: 3 of 3	Technical Note for Glider Models as per Sheet 1	**Alexander Schleicher** GmbH & Co. Segelflugzeugbau D-6416 Poppenhausen

Notes: Actions 1. and 3. can be accomplished by a person who is familiar with such work.
Action 2. must only be accomplished by a technical aviation service station holding an appropriate license; the accomplishment of all actions must be certified by a licensed aviation inspector in the glider logbook and in the inspection certificates.

Poppenhausen, October 4, 1989

ALEXANDER SCHLEICHER
GmbH & Co.

i.A. L.-W. Jumtow.

The German original of this Technical Note has been approved by the LBA under the date of Oct.17, 1989 (signature: FRIESS). The translation into English has been done by best knowledge and judgement; in any case of doubt the German original is controlling.

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Annex 2: LTA 72-007/3

AIRWORTHINESS DIRECTIVE

72-7/3 Schleicher

Date of issue:
13. Dez. 1989

Affected Sailplane:
German Type Certificate

No. 140,	Ka 2,	all serial nos.
203,	Ka 2B,	all serial nos.
205,	Ka 6,	all serial nos.
205,	Ka 6/0,	all serial nos.
205,	Ka 6B,	all serial nos.
205,	Ka 6BR,	all serial nos.
205,	Ka 6CR,	all serial nos.
205a,	Ka 6BS,	serial no. E1
211,	K7,	all serial nos.
216,	K8,	all serial nos.
216,	K8B,	all serial nos.
216,	K8C,	all serial nos.
221,	K9,	serial nos. 1
660,	K11,	serial No. V1
267,	ASK 13,	all serial nos.
307,	ASK 18,	all serial nos.
307,	ASK 18B,	all serial nos.

Subject:
Elevator

Reason:
Loose glue joints on rip 1 of the elevator

Action:
In accordance with the respektive Technical Note

Compliance:
Before the next start

Technical publications of the manufacturer:
Alexander Schleicher, Technical Note, October 4, 1989 "Elevator"

Model	Ka 2 and Ka 2B	TN No. 11
	Ka 6, 6/0, 6B, 6BR, 6CR, 6B-S . . .	TN No. 21
	K7	TN No. 18
	K8, K 8B, K 8C	TN No. 23
	K9	TN No. 1
	K11	TN No. 1
	ASK 13	TN No. 12
	ASK 18, ASK 18B	TN No. 6

which become herewith part of this AD and may be obtained from Messrs.
Alexander Schleicher GmbH & Co. Segelflugzeugbau,
D-6416 Poppenhausen, Wasserkuppe, Federal Republic of Germany

Accomplishment and log book entry:
Action 1 and 3 to be accomplished by a skilled person.
Action 2 to be accomplished by an approved service station.
The accomplishment of this AD must be certified by a licensed inspector in the powered gliders inspection documents and in the log-book.

Note:
This Airworthiness Directive replaces AD-No. 72-7/2 of August 24, 1989.

Annex 3: British Gliding Association Aircraft Inspection

BRITISH GLIDING ASSOCIATION

British Gliding Association
Aircraft Inspection

Mandatory

Number: 043/07/2004 Issue: Issue 2
Date: 06th February 2015

Subject: Elevator rib 1 inspection

Applicability: Schleicher Ka 2, Ka 2B, Ka 6 series, K7, K7 conversions, K8 series, K9, ASK 13 series, ASK 18 series and all variants of each type as detailed in the AD.

Accomplishment: At next and subsequent annual C of A inspections.

Reason: Issue 1. To detect premature failure of elevator drive rib due to glue failure.
Issue 2. Amendment to increase the scope of inspection due to a failure occurring that the issue 1 did not find.

Instructions: Carry out the requirements of AD 72-7/3 and the applicable Schleicher Technical Note. (TN number will vary according to the aircraft type)

The frequency of the inspection of elevator rib 1 has been increased from 3 years to 1 year between inspections for BGA aircraft. As an option, the fabric covering over the glue joint may be omitted and suitable paint used to seal the joint. The paint must be inspected and replaced annually as necessary.

It is recommended to apply a small load to each elevator input arm in the direction of operation. Also apply a gentle but significant load pulling the root out of the D box tunnel. This action will assist in identifying if a problem with the glue joint exists.

As an extra safety net it is recommended that if the outer hinge pins are long enough, and have split pin holes protruding past the tailplane hinge (the original factory hinges were built this way as standard) then put a small washer and split in them. That way if there was a total glue failure of the rib in flight, the elevator cannot move sideways and disengage.

Record compliance in the glider log book and if there is any sign of failure inform the BGA

Approved by Gordon MacDonald, Chief Technical Officer