

## Short summary of the occurrence

Early in the morning on 2 August 2020, a flight instructor and his student pilot started training flights in a type SF-25E Falke aircraft with registration mark HA-1227 at Farkashegy airfield. They carried out 5 take-offs in the first round on that day, flew traffic circuits and performed emergency tasks. During the first take-off in the second round, both the flight instructor and the student pilot perceived that the aircraft was pulling to the right during climb; the flight instructor took over control of the aircraft and returned to the destination airport. During the landing, the aircraft drifted to the right on the airstrip, then it left the airstrip, its right wing hit a bush and it came to a halt.



*Figure 1: The aircraft after the event  
(Source: the student pilot involved)*

According to the Investigating Committee of Transportation Safety Bureau (hereinafter: "IC") the cause of the event was that the flight instructor had pushed the foot pedals of the rudders asymmetrically. The IC found no circumstance which would warrant a safety recommendation.

## Factual information

<b>Occurrence category:</b>	Serious incident			
<b>Date of occurrence:</b>	2 August 2020, 08:15LT <sup>1</sup>			
<b>Location of occurrence:</b>	Farkashegy airfield (LHFH); Hungary			
<b>Type and registration of aircraft:</b>	SF 25E Falke, HA-1227			
<b>Year of manufacture, serial number:</b>	1975, 4312			
<b>Type and number of engines:</b>	Single, Limbach L2000 EA 1			
<b>Purpose of flight:</b>	Non-commercial (training)			
<b>People</b>		<b>Crew</b>	<b>Passenger</b>	<b>Other</b>
	<b>Number:</b>	1	1	None
	<b>Injured:</b>	None	None	---
<b>Damage to property:</b>	<b>Aircraft:</b> Significantly damaged <b>3<sup>rd</sup> party damage:</b> None			
<b>Licence and ratings of PIC:</b>	Valid flight instructor licence and medical certificate			
<b>Age and citizenship of PIC:</b>	60 years old, Hungarian			
<b>Flight experience of PIC:</b>	<b>Total</b>	<b>On the type</b>	<b>Last 90 days</b>	<b>Last 7 days</b>
	<b>Flying hours:</b>	672	93:15	44:50
<b>Sources of information:</b>	Report, on-site investigation, witness interviews, additional survey, records of surveillance cameras of the airfield			

<sup>1</sup> Local Time; each time indicated in this Report is local time (LT). At the time of the event: LT= UTC+ 2 hours.

## History of the flight

On 2 August 2020, the flight instructor involved in the event and his student pilot started common flights in a type SF-25E Falke aircraft with registration mark HA-1227. After the pre-flight checks, they flew traffic circuits for training; the one-hour long flight was uneventful.

They intended to fly more traffic circuits after a short rest. After igniting the engine, at 08:12, the flight instructor and the student pilot taxied to airstrip 15 of the airport and commenced the take-off (**Hiba! A hivatkozási forrás nem alálható.**). According to the flight instructor's account, the student pilot carried out taxiing and take-off under his supervision. During the initial climb after the take-off, they found that the aircraft was pulling to the right. Then the flight instructor took over control of the aircraft and returned to the destination airport. During the approach to airstrip 33, the flight instructor shut the engine off and, as he states, he started the touchdown with the flaps extended. After the touch-down, the aircraft drifted to the right on the airstrip, then left it and its right wing hit a bush. The aircraft halted due to the impact; nobody was injured.

According to his account, the flight instructor felt during the flight ending up in an event that, despite a fully pushed pedal of the LH rudder, the aircraft was still turning to the left around its vertical axis.

## The scene and the wrecks

After touch-down, the aircraft ran off the airstrip, crashed to a bush outside the service area and halted after a 90-degree rotation. The aircraft was removed from the scene of the event and carried to a hangar at the airport before the IC arrived. The IC obtained the photos taken by the flight instructor and the student pilot, and those photos indicated the geographical coordinates of the location where they had been shot. Accordingly, the aircraft came to a rest at the spot with the coordinates N47°29'20.59" E018°54'51.36"<sup>2</sup>.

## Aircrew

The flight instructor has flown since 1976 and has considerable professional experience. He had a valid licence and medical certificate at the time of the event.

The student pilot commenced his training with the training organisation in 2020; he had not passed the theory test yet, and he had gained his flight experience in the aircraft involved in the event.

## Aircraft

The SF-25 model, designed in the early 1970s and manufactured in Germany is one of the widest spread powered sailplanes in Hungary. It is a two-seat aircraft and can be equipped with 48 kW to 80 kW engines.

The aircraft was airworthy before the event. It had a valid airworthiness certificate. Its documents showed that it had been equipped and maintained in compliance with effective rules and accepted procedures.

According to the flight manual<sup>3</sup> of the aircraft involved in the accident, the controls of the aircraft must be checked before take-off.



Figure 2: Flight track of the HA-1227  
(Source of map: Google Earth)

<sup>2</sup> WGS-84 coordinates are used throughout this Report.

<sup>3</sup> Aircraft Flight Manual and Maintenance Manual (24 /11/2009) 2.3 Start and climb paragraphs

## Aerodrome

Farkashegy airfield (LHFH) is located 3 kilometres south-southeast of Budakeszi, at 215 metres above MSL. Its single grass airstrip is sized 1000x200 metres, with the orientation 15/33 (149°/329°).

## Malfunctioned equipment

The IC inspected the controls of the aircraft during an additional survey. The inspection of the rudders and its structural elements revealed no anomaly or structural deficiency which could be linked to the event concerned.

## Weather and visibility

The day of the event was overwhelmingly sunny, but cirrostratus clouds appeared on the west and northwest, initially just in a few places, but in more and more places in late afternoon. No rain was reported. The peak temperatures were between 26 and 31°C. The intensity of the eastern wind in Budapest between 8 am and 9 am was 3 to 4 m/s.

## Surveillance camera records

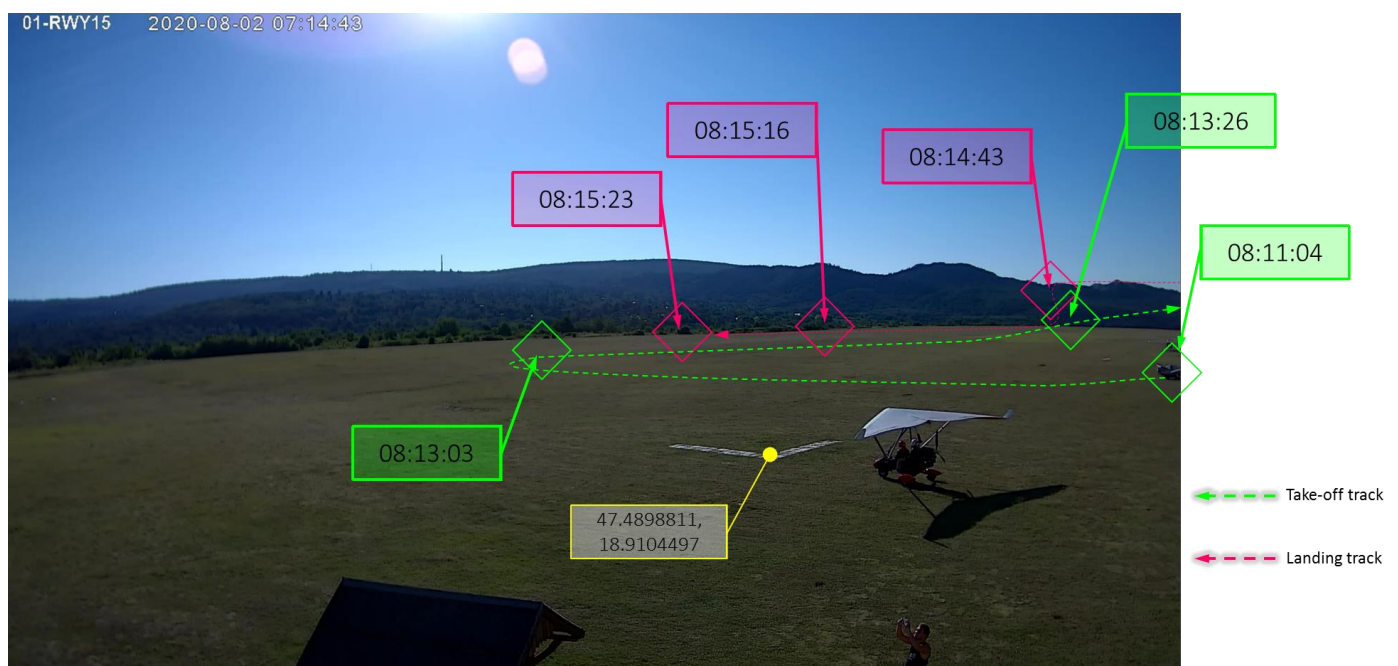


Figure 3: flight tracks of the HA-1227 during take-off and landing  
(Source: surveillance camera records; the indicated times correspond to the time stamp of the camera)

Two surveillance cameras installed at the airport also recorded the event and the IC obtained those records in the course of the investigation. According to the records:

- The engine of the aircraft was started at 08:11:06;
- The aircraft commenced taxiing from its parking space to airstrip 15 at 08:12:14;
- No motions referring to pre-flight check of the aircraft controls can be seen between the time of the engine start and the start of the take-off;
- The aircraft moved in straight line as well in the course of taxiing to the airstrip;
- The aircraft moved in almost straight line from the start of the take-off to its lift-off;
- After lift-off, the aircraft started to fly in a left bank, slightly crosswise (from 08:13:26), and after ca. 20 seconds, it disappeared from the camera view, approaching the right-hand side of the airstrip;
- The aircraft approached the airstrip 33 at an acute angle, from the right, at 08:14:43;
- The aircraft touched down at the RH side of the airstrip 33, with its left wing lower than the other, at a speed higher than usual, at about 08:15;
- At 08:15:22, the aircraft crashed into a bush on the RH side of the airstrip with its right wing, which made it turn 90 degrees to the right and halt.

## Organisation

On 10 August 2020, the training organisation held a meeting where the event was analysed in the presence of several flight instructors (including the one involved in the event). As part of the reconstruction of the event, the flight instructor concerned was asked to sit in the aircraft seat and set the rudder pedals in home position. Participants saw that in the pedal position which seemed symmetrical to the flight instructor, the rudder was significantly deflected to the right. In this position of the rudder, the left foot of the flight instructor was on the LH rudder pedal, and his right foot was on the metal brace of the RH rudder pedal (Figure 4). A record of this test was subsequently sent to the IC both by the flight instructor and the training organisation.

The flight instructor's explanation to this phenomenon was that, due to his bodily characteristics, he could not check the balance of the pedals visually and erroneously supposed it was symmetrical.

Following the aforesaid flight instructor meeting, the training organisation made all of its contracted flight instructors aware of the lessons learnt from the event.

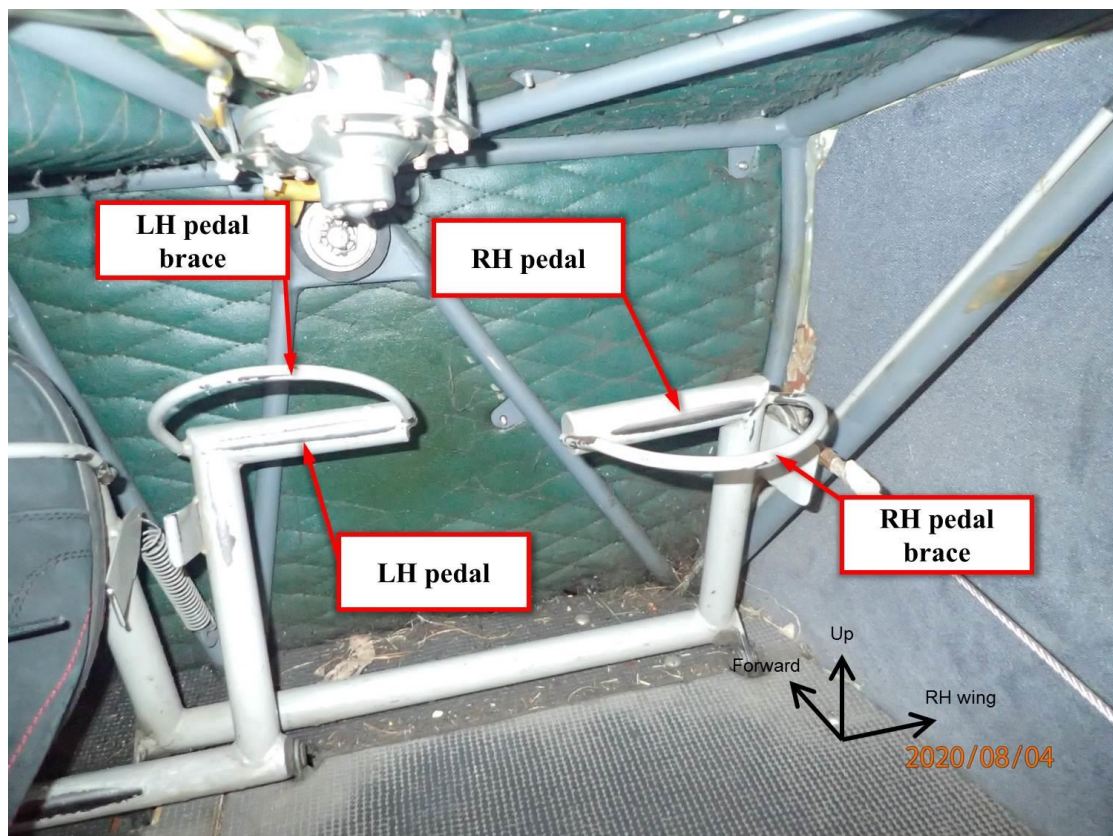


Figure 4: Rudder pedals for the RH seat of the aircraft

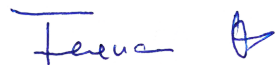
## Analysis

The IC saw no control motions in the records of the airport surveillance cameras which would prove the pre-flight check of the aircraft controls by the aircrew before the take-off of the flight concerned. The pilot did not mention any control anomaly relating to his flights prior to the concerned flight ending up in a serious incident. After the event, the IC examined the controls of the aircraft in the presence of the representative of the aircraft's owner and found no anomaly. The test carried out and documented by the training organisation makes it plausible that when the flight instructor placed his feet on the pedals he did it in an asymmetrical way, thus creating the control anomaly detected.

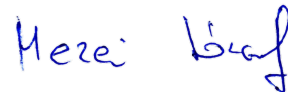
According to the records, the aircraft moved in a straight line as well during taxiing and take-off roll, which suggests that the flight instructor had not kept his feet on the rudder pedals yet. Between the start of the take-off run and initial climb, the flight instructor probably stepped on the rudder pedals improperly, by placing one foot on the pedal and the other on the brace of the other pedal, thus producing an asymmetrical pedal position. The aircraft began to turn around its vertical axis, which the pilot first attempted to compensate for by letting the left wing lower. The right-turn tendency caused by inappropriate pedal use was maintained until the halting of the aircraft. Because the flight instructor landed his aircraft (which was lightly turned right around its yaw axis from the intended heading) right of the centreline of the airstrip at a speed higher than usual, the chances of leaving the airstrip early and hitting a terrain obstacle increased, as well as the severity of the associated consequences.

According to the flight instructor's account, the taxiing and the take-off were performed by the student pilot. The IC's position is that when the flight instructor placed his feet on the pedals during take-off, he prevented the student pilot from positioning the left pedal adequately for maintaining the course. After taking over control of the aircraft, the flight instructor pushed the pedals asymmetrically on a continuous basis: his left foot pushed the pedal, while his right foot pushed the brace on the pedal. As he erroneously perceived the pedal deflections equal, he took that position as the neutral position of the rudder. According to the IC's position, the tendency of the aircraft to turn right could have been eliminated by pushing the LH pedal harder, therefore, after excluding any technical malfunction, the IC conclude that adequate use of the LH pedal was prevented by the flight instructor's placing his feet on the pedals inappropriately.

The position of the IC is that no environmental effects (e.g. wind direction or wind speed) contributed to the event, i.e. the cause event was that the flight instructor had placed his feet on the rudder pedals asymmetrically.



Miklós Ferenci  
Investigator-in-Charge



József Mezei  
IC Member

The sole objective of the safety investigation is to reveal the causes and circumstances of aviation accidents or incidents and to initiate the necessary technical measures and make recommendations in order to prevent similar cases in the future. It is not the purpose of this activity to investigate or apportion blame or liability.

### 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 7<sup>th</sup> December 1944,
- Act CLXXXIV of 2005 on the safety investigation of aviation, railway and marine accidents and incidents (hereinafter referred to as Kbv.),
- NFM<sup>4</sup> 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 Kbv., in accordance with Act CL of 2016 on General Public Administration Procedures.

The competence of the Transportation Safety Bureau of Hungary is based 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 aforesaid 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 retain 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.

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### Translation

The present document is a translation from Hungarian. Although efforts have been made to provide a translation as accurate as possible, discrepancies may occur. In such eventuality, the Hungarian version is considered overriding.

<sup>4</sup> Ministry of National Development