The original of the Final Report was issued in the Slovak language.
In case of inconsistency original version in Slovak language is applicable.

MINISTRY OF TRANSPORT, CONSTRUCTION AND REGIONAL DEVELOPMENT OF THE SLOVAK REPUBLIC

Aviation and Maritime Investigation Authority
Námestie slobody 6, P.O.BOX 100, 810 05 Bratislava 15

Reg. No.: SKA2013005

F I N A L R E P O R T

on investigation of accident

of aircraft types **Schleicher ASW 27-18E** and **WT-9 Dynamic**

registration No. **D-KJIL** and **OM-DYB**

Date: 26.05.2013

Place: Industrial park Prievidza - West

The investigation of occurrence has been conducted pursuant to Art. 18 of the Act No. 143/1998 on Civil Aviation (Civil Aviation Act) and on Amendment of Certain Acts and in accordance with the Regulation (EU) No. 996/2010 of the European Parliament and of the Council on investigation and prevention of civil aviation accidents and incidents, governing the investigation of civil aviation accidents and incidents.

The final report is issued in accordance with the Regulation L 13 that is the application of the provisions of ANNEX 13 Aircraft Accident and Incident Investigation to the Convention on International Civil Aviation.

The exclusive aim of investigation is to establish causes of accident, incident and to prevent their occurrence, but not to refer to any fault or liability of persons.

This final report, its individual parts or other documents related to the investigation of occurrence in question have an informative character and can only be used as recommendation for the implementation of measures to prevent occurrence of other accidents and incidents with similar causes.

A. INTRODUCTION

Type of aircraft:	towing WT-9 Dynamic	towed Schleicher ASW 27-18E
Registration No.:	OM-DYB	D-KJIL
Operator:	AEROSPOOL, spol. s r.o.	Gilles Navas
Take-off site:	Airport Prievidza / LZPE	LZPE
Planned landing site:	LZPE	LZPE
Flight phase:	competitive flight – interrupted tow flight take-off	
Type of operation:	general aviation / sports and pleasure flight	
Place of air accident:	Industrial park Prievidza - West	
Geographic coordinates of place of accident:	N 48° 45´ 41´´ E 18° 35´ 06´´	
Date and time of accident:	26.05.2013, 09:39	

Note: All time data in this report are stated in the UTC time.

B. INFORMATIVE SURVEY

On 26.05.2013 at 09:39, during the first flight day of FAI Sailplane Grand Prix Slovakia - Prievidza 2013 (hereinafter „FAI 2013“), the pilot with glider type ASW 27-18E, registration No. D-KJIL, made a forced ground landing after the interrupted tow flight take-off in the proximity of airport LZPE - industrial park Prievidza- West.

The organizer of the competition reported the air accident to the Aviation and Maritime Investigation Authority of the Ministry of Transport, Construction and Regional Development of SR.

The following persons were appointed for investigation of the air accident:

Ing. Juraj GYENES
Ing. Ján CHUDÝ

The report is issued by:

The Aviation and Maritime Investigation Authority
of the Ministry of Transport, Construction and Regional Development
of the Slovak Republic

C. MAIN PART OF REPORT

1. FACTUAL INFORMATION

2. ANALYSES

3. CONCLUSIONS

4. SAFETY RECOMMENDATIONS

1. FACTUAL INFORMATION

1.1 History of the flight

On 26 May 2013 the pilot conducted the tow flight take-off with tow aircraft **WT-9 Dynamic** („WT9“) from runway („RWY“) 22R of the airport LZPE in order to allow the pilot of glider **ASW 27-18E,** competition sign **„I“** („ASW“), to fulfil the competition flight mission.

After connection of the launching cable the pilot WT9 set the take-off engine power and started the take-off run on RWY 22R. After disengagement, in the phase of acceleration after unstick, in a height of 1m above the ground the pilot noticed a drop in engine power manifested by the decrease of engine speed from 5 600 r.p.m. to 5 000 r.p.m. and by the loss of vertical climbing speed.

In this flight phase the aero-tow flight was situated approximately in the last quarter of RWY 22R and the pilot of WT9 decided to abort the take-off. He disconnected the launching cable, switched to engine-off mode and made a rebound landing on RWY 22R. Before disconnection of the launching cable he could feel a moderate lift and drift of the rear fuselage. In the ground roll phase the pilot drifted to the left side in the effort to clear RWY for landing of towed ASW. He ended the ground roll operation on RWY 22L. When WT9 came to a halt on RWY 22L the engine was running at the idling speed normally. The pilot cut off the ignition and conducted the required operations before leaving the cockpit.

The pilot of ASW evaluated the cutback of the tow aircraft as an abortion of the take-off, to which he reacted by disconnecting the launching cable and decision to return to the take-off airport by making a left-hand turn and landed in the opposite direction with down-wind speed of 10 kt. In this flight phase he brushed with the left wing against the post of the industrial park enclosure near the airport LZPE and then hit the ground with the front fuselage, causing the breaking of the left wing and fuselage into three parts behind the cockpit. After the impact ASW came to a halt on the ground, rotated by approximately of 150°.

After landing WT9 had damaged front landing gear leg, the pilot was not injured.

ASW suffered an extensive damage, the pilot was not injured.

Daytime: Day
Flight rules: VFR

1.2 Injuries to persons

Injury	Crew	Passengers	Other persons
Fatal	-	-	-
Serious	-	-	-
Minor	-	-	-
None	1/1	-	

1.3 **Damage to aircraft**

ASW – after the forced landing the front fuselage was damaged (fig.1) and the left wing, fuselage and tail control surfaces were broken (fig. 2), (fig. 3) and (fig. 4).

Fig. 1

Fig. 2

Fig. 3

Fig. 4

WT9 – after the bounced landing the front landing gear leg of the aircraft was damaged (fig.5) and (fig 6).

Fig. 5

Fig. 6

1.4 **Other damage**

Damage caused to the industrial park enclosure was notified to the Aviation and Maritime Investigation Authority.

Fig. 7

Fig. 8

1.5 **Personnel information**

Pilot of ASW:

A national of France, male, aged of 56 years,

holger of duplicate GPL aviation personnel licence No. VV: 0206001274, issued by the Civil Aviation Authority of France on 26.07.1998.

Medical certificate of 2nd class, issued on 25.01.2013, with marked validity until 31.01.2015 and with marked limitation of VNL.

Flight experience:

Total flight hours:	10 215 h 00 min
On the day of accident:	0 h 02 min and 1 flight

Pilot WT9:

A national of the Slovak Republic, male, aged of 49 years,

holder of the private pilot licence PPL(A) No. SK 02980451, issued by the Civil Aviation Authority of the Slovak Republic, with marked validity until 15.05.2013.

Medical certificate of 2nd class with marked validity until 01.04.2014 and with marked limitation of VNL.

Flight experience:

Total flight hours:	619 h 51 min and 2 256 flights
For the last 30 days	1 h 44 min
For the last 90 days	2 h 49 min
On the day of accident:	0 h 02 min and 1 flight

1.6 **Aircraft information**

Schleicher ASW 27-18E

Registration No.:	D – KJIL
Serial No:	29578
Year of manufacturer:	2009
Manufacturer:	ALEXANDER SCHLEICHER GmbH&Co Segelflugzeugbau,Germany

Total operating hours since manufacture: 893 h 35 min and 156 take-offs as at 26.05.2013.

ASW was put into operation on 25.03.2009 by issue of the certificate of airworthiness No. 35227 of 25.03.2009 and the certificate of registration of the aircraft in the aircraft register of the Federal Republic of Germany No. 35227 of 25.03.2009, issued by the Civil Aviation Authority of the Federal Republic of Germany.

Certificate of verification of airworthiness No. 53/2013 DE.MG.0511 with marked validity until 24.03.2014.

Board radio station licence No. 19451279 valid until 04.02.2019.
Third party insurance: CATLIN Insurance Company (UK) Ltd, No.HG4000355388/3397.

Calculation of weight of ASW at the time of accident

Empty weight of ASW	336.5 kg
Weight of crew + equipment	74.8 kg
Weight of water ballast: approx. 0 l x 0.999 kg/l	0.0 kg
Total weight of ASW at the time of accident	**598.8 kg**

Maximum permissible take-off weight of ASW 600 kg was not exceeded during the flight.

WT-9 Dynamic Club T

a) Airframe

Registration No.:	OM-DYB
Serial No:	DY - 382/2010
Year of manufacture:	2010
Manufacturer:	AEROSPOOL, spol. s r.o.

Total operating hours since manufacture: 531 h 00 min and 1 423 flights

Certificate of airworthiness No. 1039/01, issued by the Civil Aviation Authority of the Slovak Republic on 30.07. 2011, without time limitation, subject to the verification of airworthiness by authorised legal person with a periodicity not longer than 12 months.

The last verification was implemented on 3 August 2012, validity of OLS prolonged until 3 August 2013.
Third party insurance: Allianz – Slovenská poisťovňa, a.s., No. 411 016 633 valid until 14 March 2014.

b) Engine

Type:	ROTAX 912 S2
Serial No.:	492 3968
Year of manufacture:	2010
Manufacturer:	BRP ROTAX GmbH, A - 4623 Gunskirchen, Austria

The engine was incorporated in the aircraft on 13.06.2013.
Total operating hours of engine: 433 h 00 min.

c) Propeller

Type:	SR 2000D
Serial No.:	3150
Manufacturer:	WOOCOMP s.r.o. Odolená voda, Czech Republic.

The propeller was incorporated in the aircraft on 15.07.2010.
Total operating hours of propeller: 531 h 00 min.

Calculation of weight of WT9 at the time of accident

Empty weight of aircraft	307.7 kg
Weight of crew	88.0 kg
Weight of fuel: cca 55 l x 0.72 kg/l	39.6 kg
Total weight of WT9 at the time of accident	**435.3 kg**

Maximum permissible take-off and landing weight of WT9 (472.5 kg) was not exceeded during the flight.

1.7 Meteorological information

On the critical day our territory was affected by atmospheric low pressure of 1000 hPa with the centre over North-West Poland, moviong to the south-southwest, and by low pressure of 1006 hPa with the centre over Hungary, moving to the east.

The area of air accident at the critical time had weather without precipitation, 5/8 - 6/8 Cu, Sc, with visibility above 40 km. The ground wind at the time of air accident was blowing from the direction of 290° and the wind speed was under 10 kt.

Weather at LZPE:

09:00-10:00
SYNOP 11867 42682 62905 10147 20050 39764 40069 57004 85261 333 85849=

10:00-11:00
SYNOP COR 11867 42781 62905 10158 20042 39764 40068 83261 333 83850 84070=

The critical flight of ASW was conducted in meteorological conditions that can be characterised as stable weather without precipitation and with excellent visibility without meteorological events that could negatively influence the flight of the glider type.

Meteorological conditions had no influence on the occurrence of air accident.

1.8 Aids to navigation

The aircraft were equipped for VFR flights.

1.9 Communications

Aircraft were equipped by onboard radio station enabling a two-way radio communication with all air stations at every moment of flight.

1.10 Aerodrome information

The airport LZPE is a domestic public airport with irregular international operation. A grass RWY 04L/22R with dimensions of 950*85 m is used for the aircraft operation and it was suitable for the critical flight at the time of the air accident.

1.11 Flight recorders and other recording equipment

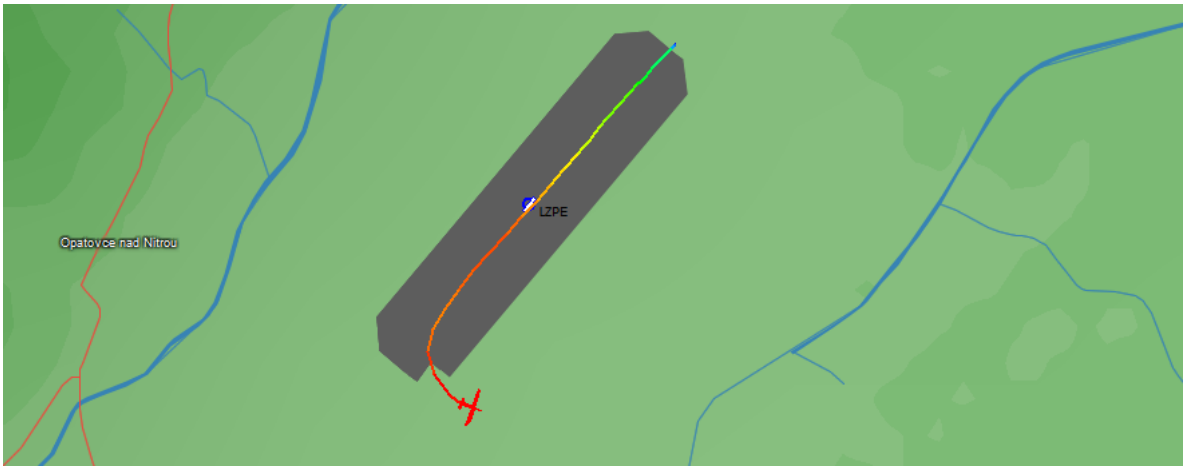
ASW was equipped by IGC-approved GNSS flight recorder - Flarm – IGC, serial No. 3401.

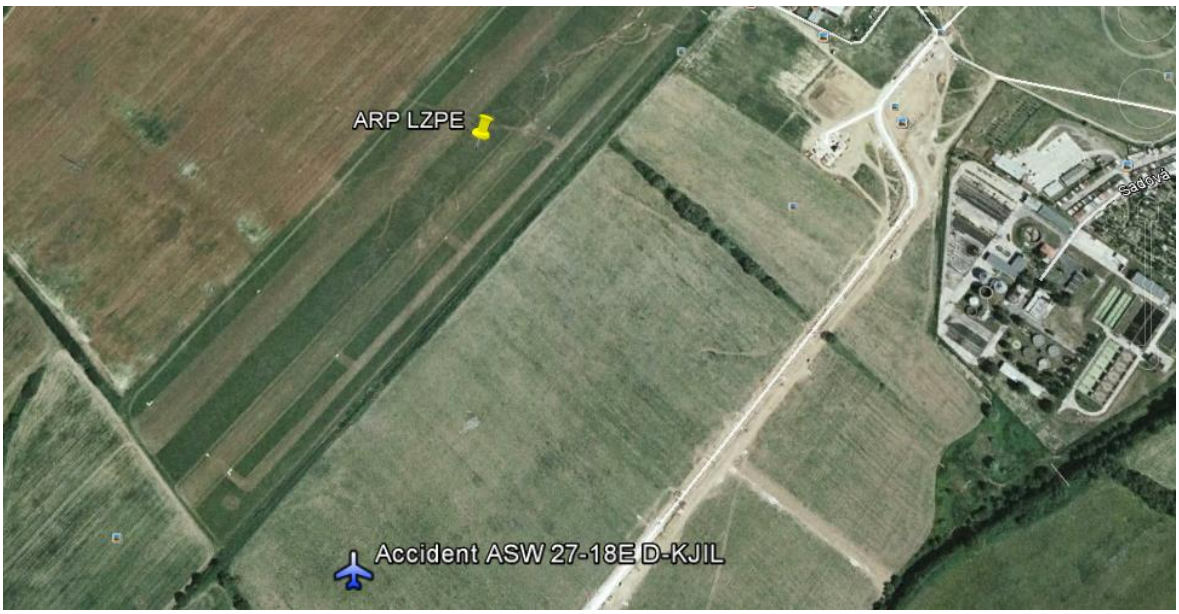
Data in flight recorder, which contained a record from flights of the respective competition day, were evaluated by the organiser of FAI 2013.

1.12 Wreckage and impact information

The place of accident is determined by geographic coordinates: N 48°45´41´´

E 018°35´06´´.





1.13 **Medical and pathological information**

Not applicable.

1.14 **Fire**

No fire broke out.

1.15 **Survival aspects**

Not applicable.

1.16 **Tests and research**

Inspection of WT9 engine

The WT9 engine was inspected on 28 May 2013. The fuel from fuel tanks was sampled and visually checked for the presence of foreign bodies and water (fig. 9) with negative result. Afterwards both carburettors were removed from the engine (fig. 10) for the purpose of inspection of the float chamber. The right float chamber was without finding (fig. 11). In the left float chamber (fig. 12) was detected the presence of vegetable impurities (fig. 13 and fig. 14). After cleaning of the float chamber the carburettors were mounted back in the WT9 engine. After a thorough check of the fuel installation in the engine bay both carburettors were adjusted and the ground engine test was implemented. During the engine test the engine was running without problems in all modes and showing parameters according to the Operating manual of engine ROTAX 912.

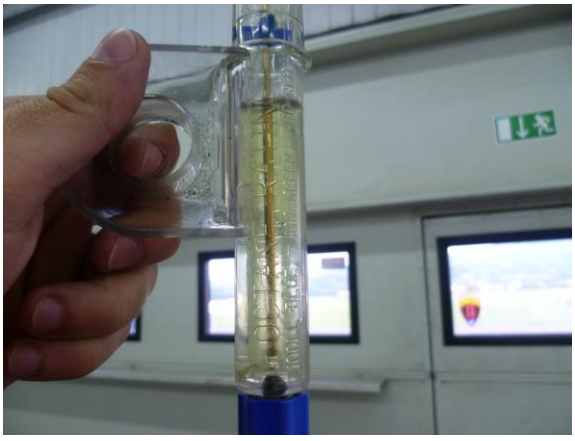


Fig. 9

Fig. 10

Fig. 11

Fig. 12

Fig. 13

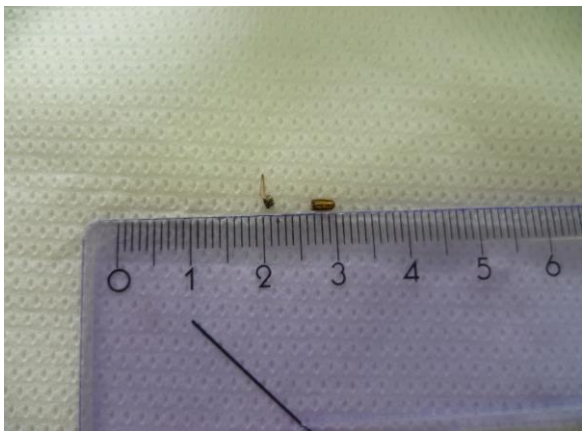


Fig. 14

During the check of carburettors the potential risk of penetration of impurity into the float chamber from the carburettor drip tray through the airbox overflow hose and the float chamber vent hose was detected because they were connected to the same overflow hose. The penetration of impurity could cause an irregular engine run or a drop of its power.

The flight test with WT9 was implemented on 29 May 2013. The engine was running without problems in all modes. All parameters recorded in the flight test report were in accordance with the flight manual of WT9.

1.17 Organizational and management information

The flight operations were implemented in accordance with aeronautical standards valid in the territory of the Slovak Republic. The competition FAI 2013 was organised in accordance with the FAI Sporting Code – General Part and Part 3, Supplement „A“ to the Sporting Code Part 3 and the Local FAI Rules 2013.

1.18 Additional information

Both pilots underwent the breath alcohol test which was implemented by officers of the District Police Department (hereinafter „OO PZ“) in Prievidza. The rest result was negative in both cases.

1.19 Useful or effective investigation techniques

Standard investigation methods were used in cooperation with the organizer of FAI 2013.

2. ANALYSIS

2.1. History of flight

After the unstick from RWY 22R in the take-off phase the pilot **WT9** noticed a drop in engine power and reacted to the situation correctly by aborting the take-off and landing on the runway in front of him.

The pilot of **ASW** observing the abortion of the take-off of WT9 handled the situation under pressure and did not make the landing on remaining RWY 22R in front of him, where he had a sufficient number of suitable surfaces, but instead attempted a landing in the opposite direction with down-wind by making a left-hand turn at a low height, in which he brushed with the left wing against the post of the industrial park enclosure.

2.2. Engine ROTAX 912

During the inspection of **WT9** engine the fuel from fuel tanks was sampled and visually checked for the presence of foreign bodies and water with negative result.

During the analysis of engine carburettors vegetable impurities were detected in the left float chamber, which probably caused the drop of engine power during the take-off.

3. C O N C L U S I O N S / CAUSE OF AIR ACCIDENT

3.1 Findings

Pilot of ASW

- according to submitted documentation had valid qualifications for flights with given aircraft type,
- had sufficient flight experience for tow flights,
- at the time of air accident the pilot was not under the influence of alcohol, drugs or common medicines which could decrease his attention during the flight.

Pilot of WT9

- according to submitted documentation had valid qualifications for flights with given aircraft type,
- had sufficient flight experience for tow flights,
- at the time of air accident the pilot was not under the influence of alcohol, drugs or common medicines which could decrease his attention during the flight.

3.2 **Aircraft**

- had valid documentation and did not show any fault before the air accident,
- fulfilled the conditions of airworthiness before the critical flight.

3.3 **Causes of air accident:**

- the drop of power of WT9 engine was probably caused by the presence of vegetable impurities in the left-hand float chamber with subsequent abortion of the take-off and release of the towed aircraft,
- mishandling of the emergency and poor mastering of flying technique by the pilot of glider during the aborted take-off in the phase of acceleration after unstick.

4. SAFETY RECOMMENDATIONS

On the basis of investigation of causes of the air accident involving

Aircraft types **Schleicher ASW 27-18E** and **WT-9 Dynamic**
Registration No. **D-KJIL** and **OM-DYB**

Date of accident: **26.05.2013**

The manufacturer **Aerospool spol. s r.o**.

- issued BINDING TECHNICAL BULLETIN No. ZBWT9 18A / 2013 for all aircraft equipped by airbox up to the serial No. DY-470/2013 (inclusive), with the exception of aircraft with the following serial numbers:

DY-018/2002; DY-027/2003; DY-133/2006; DY-236/2008; DY-462/2013; DY-465/2013; DY-469/2013;

to prevent the penetration of impurities from the carburettor drip tray into the float chamber through the airbox overflow hose and the float chamber vent hose during the connection of overflows/vents of the airbox and carburettor.

- introduced in its internal fuel filter replacement procedures measures to prevent the penetration of impurities into the fuel system.

Bratislava, 19.08.2013