Ref. No 37/05/ZZ

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FINAL REPORT

Investigation into the incident of aircraft PA 23, registration OE-FFY, at LKPR on 9 February 2005

Prague
March 2005

A) Introduction

Operator:	Niederösterreichischer Fallschirmspringer Club (NÖFSC)
Aircraft type:	Piper Aircraft Corporation, PA-23-250
Registration:	OE-FFY
Place of Incident:	Prague/Ruzyně Airport (LKPR)
Date and Time:	9.2. 2005, 11:25 (All times in this report are UTC)

B) Synopsis

On 9 February 2005 Air Accidents Investigation Institute of the Czech Republic (AAII) received from Air Navigation Services of the Czech Republic a report on the incident of a PA-23 airplane of the Austrian operator NÖFSC. The pilot, who was flying under IFR from ODENSE Aerodrome (EKOD) to Vienna Aerodrome (LOWW) was allowed to fly under VFR following coordination between ACC Berlin and ACC Prague. After a ten minutes´ flight in FIR Prague at FL 070, the pilot reported a smell of leaking fuel on the plane saying there might be an engine problem and asked for permission to fly to LKPR.

Air traffic controller FIC Prague gave the pilot instructions to fly to LKPR and coordinated safe landing with APP Prague and TWR LKPR. The pilot got approach instructions and the plane landed on RWY 24 at 11:38. The airport rescue and fire service provided the plane with assistance. Based upon the announcement, investigation into the incident was opened.

On 10 February 2005 the AAII sent a notification to Aircraft Accident Investigation Branch (AAIB) Austria and requested information concerning the incident.

The cause of the incident was investigated by an AAII commission comprising:

Investigator in charge: Ing Stanislav Suchý

Member: Ing. Lubomír Střihavka

The Final report was releised by:

ÚSTAV PRO ODBORNĚ TECHNICKÉ ZJIŠŤOVÁNÍ PŘÍČIN LETECKÝCH NEHOD
Beranových 130
199 01 PRAHA 99

On the 29 March 2005.

C) The Final report includes the following main parts:

1) Factual information
2) Analysis
3) Conclusions
4) Safety recommendation
5) Annexes (to copy No.1 stored in AAII archive)

1 Factual information

1.1 History of the incident

On 9 Feb 2005, an PA-23 aircraft flew under IFR from the Odense airport (Denmark) to the Vienna airport (Austria). At 11:00:23 ATC ACC Berlin informed, before handing over OE-FFY to ACC Prague, that the OE-FFY pilot could not use frequencies ending at 25 and 75 kHz for communication. Since there is no other frequency allocated for communication with ACC Prague, OE-FFY was allowed, after coordination, to fly under VFR. At 11:13:39 the OE-FFY pilot got in touch with traffic controller FIC Prague (FID) on the frequency 126.1 MHz and was cleared to fly to VLM point on FL 070. At 11:21:12 the pilot got instruction from FID to tune in to Praha Radar frequency of 127.575 MHz. The pilot reported that the frequency could not be used and therefore was cleared to continue communication with FID.

At 11:23:25 the pilot reported a smell of leaking fuel in the cabin, expecting a problem with an engine. He asked for clearance to fly direct to Praha Ruzyně airport. FID instructed the pilot to fly to OKL at heading 220° and to transfer to the TWR TEC frequency of 118.1 MHz.

At 11:27:38 the pilot contacted TWR TEC, reported a problem with the engine and requested urgently LKPR approach clearance. TWR TEC cleared the aircraft to descend to 4,000 ft, then 3,000 ft and gave a clearance to RWY 24 ILS approach. At 11:28:41 TWR TEC informed other operators about the security landing of the aircraft. Answering a question what sort of assistance he requests, the pilot said he expected landing with the right engine out. TWR TEC suggested landing at Vodochody airport but the pilot was against and asked to land at LKPR. Then answering a question from TWR TEC the pilot said there were two persons on board and fuel was leaking from the right wing. TWR TEC put the airport rescue and fire team on alert at 11:29:30. The aircraft was vectored for RWY 24 ILS approach and at 11:34:33 the pilot was cleared to land. The aircraft landed at 11:38:20 and assisted by the fire and rescue team it was escorted to the parking area South. Fuel leak from the aircraft was not found during taxiing. The operation dispatcher inspected RWY 24 and at 11:42 operation on RWY 24 was resumed.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	0	0	0
Serious	0	0	0
Minor/ None	0/2	0	0

1.3 Damage to aircraft

There was no damage to the aircraft.

1.4 Other damage

There was no other damage.

1.5 Personnel information

1.5.1 The pilot, aged 67, was a holder of ATPL, had a PIC qualification for the type and a valid medical certificate. He has flown as many as 23,000 hours. He had many

years of experience with flying transport aircraft with MTOW over 5,700 kg.

1.5.2 The other person aboard did not perform activities connected with airplane control.

1.5 Aircraft information

1.6 1 General

Type and Model:	PA-23-250
Registration:	OE-FFY
Manufacturer:	Piper Aircraft Corporation
Serial number:	27-7405365
Year of manufacture:	1974
Total flight time:	5354 h 52 min

1.6.2 Powerplat

Engines/Type:	TIO-540-C1A
Serial number:	L-6145-61A a L-4737-61A
Total hours:	Both engines 2046 h 12 min
Propellers/Type:	Hartzell HC-E2YR-2RBSF
Serial number:	BP 5689 a BP 6824
Total hours:	Both 1040 h 52 min

1.6.3 Aircraft and fuel system

The pilot presented a valid airworthiness certificate, airplane maintenance certificate, operation release and insurance. As far as maintenance information is concerned the pilot said that in Denmark some work had been done in the cockpit to make a hole in the floor to install a camera.

The fuel system of the aircraft of the given production number is made up of two INBD tanks, two OUTBD tanks and two wing TIP tanks stored in the right and left wings. The pilot said that at taking off from the EKOD Aerodrome the tanks were full of fuel and at landing at LKPR there was only little fuel left in the right wing. On 26 February 2005 a technician of the Diamond Maintenance GmbH&CoKG service organization checked the aircraft and found no leak in the fuel system. Fig. 1 shows setting of fuel valve actuators and “Crossfeed” actuators in position ON on landing.

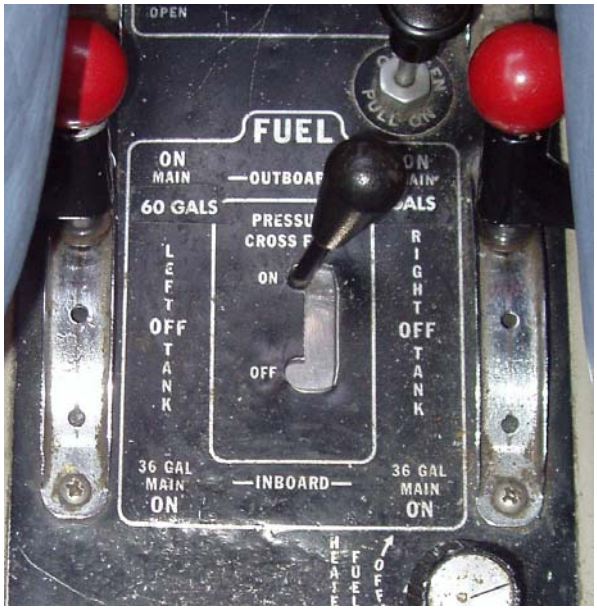
Combining the fuel valve actuators position makes it possible to supply fuel:

- to each engine separately from the corresponding set of tanks – ON/INBD or ON/OUTBD;
- to both engines from a set of tanks placed in one half-wing only – ON/Crossfeed
- stop fuel supply from a particular set of tanks – OFF/INBD or OFF/OUTBD.

After landing the fuel meters indicated:

Left and right inboard tanks:	“1/4”
Left outboard tank (incl. tip):	“Full”
Right outboard tank (incl. tip):	“1/4”

Photo Fig. 1



Checking the fuel in tanks the serviceman filled up the following amount of fuel:

Left part of the wing:		Right part of the wing:	
INBD tank	98 l	INBD tank	102 l
OUTBD tank	17 l	OUTBD tank	102 l
Tip tank	11 l	Tip tank	63 l

1.6.4 Radios

The aircraft was equipped with two radio-sets King (KX 155 and KX 165) with a frequency range from 118.000 to 136.975 MHz. To choose the separation step of 25 kHz it is necessary to pull the set button. The pilot did not set the requested frequency of 127.575 MHz.

1.6 Meteorological information

According The Czech Hydrometeorological Institute of Air Weather Service was following meteorological conditions during landing of aircraft at LKPR:

The surface winds:	170°/ 4 kt
The visibility:	5 - 8 km
Weather conditions:	overcast , coud bases Sc 2300 – 2500 ft AGL, dissmised about 11:30 – 12:00.
Icing:	NIL

1.7 Aids to navigation

Radio-navigation at LKPR had no effect on the incident.

1.8 Communications

The communication between the pilot and air traffic services was on frequencies FIC Prague 126.1 MHz and Ruzyně Tower 118.1 MHz. Some of the pilot´s messages were difficult to read.

1.10 Aerodrome information

At time of the incident RWY 24 was in use at LKPR.

1.11 Flight recorders

Flight recorders were not used. To analyse the incident APP airport radar records and radio-navigation correspondence of TWR were used.

1.12 Description of incident site

NIL

1.13 Medical and pathological information

NIL

1.14 Fire

The airport rescue and fire unit found there had been no fuel leak after landing and during taxiing and no fire risk when the aircraft had stopped on the parking area.

1.15 Survival aspects

Based upon the OE-FFY pilot report the airport rescue and fire unit was informed about the PA-23 security landing on RWY 24 and put on alert.

1.16 Tests and research

NIL

1.17 Organizational and management information

NIL

1.18 Additional information

NIL

1.19 Useful or effective investigation techniques

The incident has been investigated in accordance with Annex 13.

2 Analysis

2.1 The analysis made dealt with the circumstances relating to the pilot work, aircraft conditions at security landing, information about fuel leak during the flight and right wing tanks getting empty.

2.2 The pilot and flying duty

2.2.1 The pilot was qualified for the flight.

2.2.2 The pilot did not know how to tune the radio and therefore got permission to fly under VFR in the region FIR Praha.

2.2.3 After evaluating the emergency fuel situation, the pilot decided not to continue to the scheduled arrival airport according to the flight plan but to land at LKPR.

2.2.4 The flight between the announcement of emergency situation and landing lasted 15 minutes during which, according to the pilot, the fuel reserve in the right wing tanks ran down to a level indicating the possibility of the right engine giving out. The pilot informed ATS about a possible landing with the right engine out and insufficient fuel reserve without stating more details.

2.3 The aircraft

2.3.1 The radio stations, whose frequencies ending at 25 and 75 kHz the pilot was unable to use for communications during the flight, worked properly at a later check.

2.3.2 Inspection of the fuel system revealed no defects that could have caused fuel leakage in the right wing tanks in flight. The smell in the cockpit may have been due to the cabin heating system. The fuel consumption assessed by the operation manual was in good agreement with the actual fuel drop in the tanks. Given the little fuel left in the right wing, one may suppose that either engine took fuel from the right wing tanks. Looking into the problem it was not possible to verify the position of fuel valve actuators and the “Crossfeed” cock prior to emergency situation or if they were manipulated to take corrective steps.

3 Conclusions

3.1 The commission has come to the following conclusions:

- The pilot had adequate qualification for the flight;
- The aircraft had valid certificates of airworthiness, maintenance, and release to operation;
- The way of handling the radio stations and fuel system by the pilot indicates insufficient knowledge of the operation;
- The pilot assessed the fuel reserve as too low to continue to fly to the scheduled arrival airport;
- Analyzing the pilot´s reports it was not possible to determine positively the way the fuel valves were operated to supply fuel to either engine up to the moment the plane stopped at the parking area;

3.2 The causes

- Investigation into why the amount of fuel dropped in the right wing tanks failed to find a reason. Propable that could have been provoked by a wrong setting of the fuel cock actuators and “Crossfeed” cock during the flight.

4 Safety recommendantions

Taking corrective action for the purpose of accident prevention is up to the NÖFSC operator.