

of the Czech Republic

Ref. No 411/06/ZZ

FINAL REPORT

**Investigation of Accident A/C Cessna 150H, Registration Mark OK-CTD,
after landing on 15th August 2006**

Prague
November 2006

A) Introduction

Operator: private
Aircraft manufacturer and model: Remis Aviation Francie, type Cessna F 150H
Registration Mark: OK-CTD
Place: aerodrome Strunkovice (LKST), Czech republic
Date and time: 15/08/2006, 12:13 (all times are UTC)

B) Synopsis

On 15 August 2006, A/C Cessna F 150H was landing at LKST Airport. After touching down, as the airplane was in its landing run phase, the strut of its landing gear right-hand leg broke off. None of the crew members was injured during the landing, but the fuselage and horizontal tail unit were damaged.

The final report on the accident issued AAll based :
Beranových 130, 199 01 Prague 99, Czech Republic
fax: +420 266 199 234

The cause of the incident was investigated by an Air Accident Investigation Institute commission comprising:

Commission chairman: Mr. Ing. Lubomir Strihavka
Commission member: Mr. Milan Pecnik

C) The report includes the following main parts:

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

1 Factual information

1.1 History of the flight

On 15 August 2006 the pilot made a navigation flight with taking off and landing at LKST Airport. After executing the navigation flight the pilot landed on LKST RWY 15. From what the pilot said it follows that after touch down the plane had travelled some 70 m. At that instant the pilot noticed a double crack and after the plane covered another 50 m it stopped in the south-east part of RWY 15.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others (inhabitants, etc)
Fatal	0	0	0
Light/no injury	0/1	0/0	0

1.3.1 Damage to Aircraft

The strut of right-hand undercarriage leg broke off, 95 mm away from its fixation into the fuselage. After the accident, the separated leg along with the landing gear's wheel and brake lay around 27 m behind the airplane. The separated landing gear strut had hit the right-hand side of the horizontal tail unit and damaged it.



Pic.No 1- leg broke off, 95 mm away from its fixation

Pic.No 2- horizontal tail unit and

1.4 Other damage

NIL

1.5 Personnel information

Commander (PIC): Woman, aged 31 years, holder of valid PPL with SEP rating. At the time of accident she accumulated a total of 57:16 hours of which 12:28 hours on type Cessna 150/152.

1.6 Aircraft information

Type Cessna F 150H, registry OK-CTD, serial number 296, manufacturer Reims Aviation France, year of manufacture 1968.

Aircraft total flight time prior to the occurrence was 13,656 hours, 46 minutes, number of landings registered in the Czech Republic was 616, total number of landings had not been ascertained. The last technical inspection in the scope of annual overhaul to CAA-TI-011-2/97 was made on 24 July 2006 at a total flight time of 13,635 hours 32 minutes.

Airworthiness and insurance certificates were valid.

The airplane had landing gear struts mounted, P/N 0441186-1 (left) and P/N 0441186-2 (right).

1.7 Meteorological information

Conditions: CAVOK;

Visibility: over 10 km;

Wind: 250 deg./4m/sec;

temperature: +15 °C;

Light conditions: day.

1.8 Aids to navigation

NIL

1.8 Communications

The radio communications between the pilot and AFIS LKST were conducted on frequency 123.5 MHz

1.9 Aerodrome information

The airport surface was grassy and sufficiently resistant. The airport was serviceable on the date of occurrence; its conditions had no relevance to the accident.

1.11 Flight recorders

The airplane is not fitted with a flight data recorder.

1.12 Description of accident area

The final position of the plane following the accident was around 200 m from TRH RWY 13 LKST.



Pic. No 3- final position

1.13 Medical and pathological information

NIL

1.14 Fire

NIL

1.15 Survival aspects

NIL

1.16 Tests and research

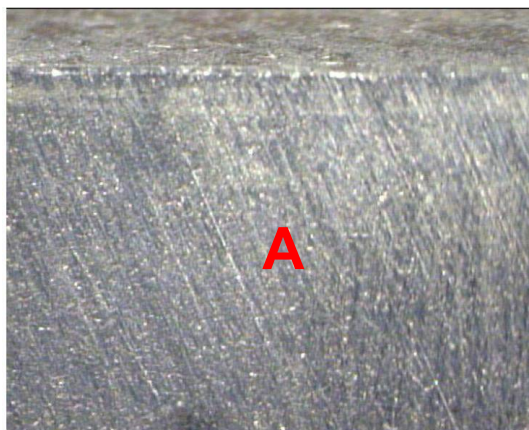
Fracture Surface Analysis

The expert group had commissioned VZLU, a.s. Praha (Aeronautical Research and Test Institute in Prague) to conduct an expert analysis of the strut and undercarriage fractured surfaces. The analysis confirmed material fatigue of the parts concerned.



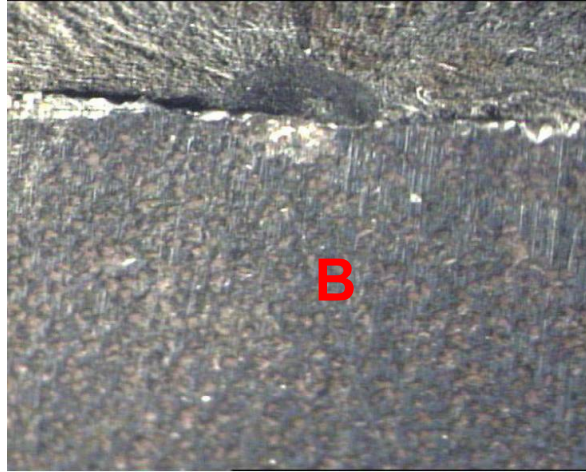
Obr. 1-1 Rozlomená noha letounu

The undercarriage strut is stressed by bending and has a rectangular cross section. The semi-finished product of the strut was surface-ground on the pressure-stressed side (A surface) to remove surface unevenness and corrosion defects.



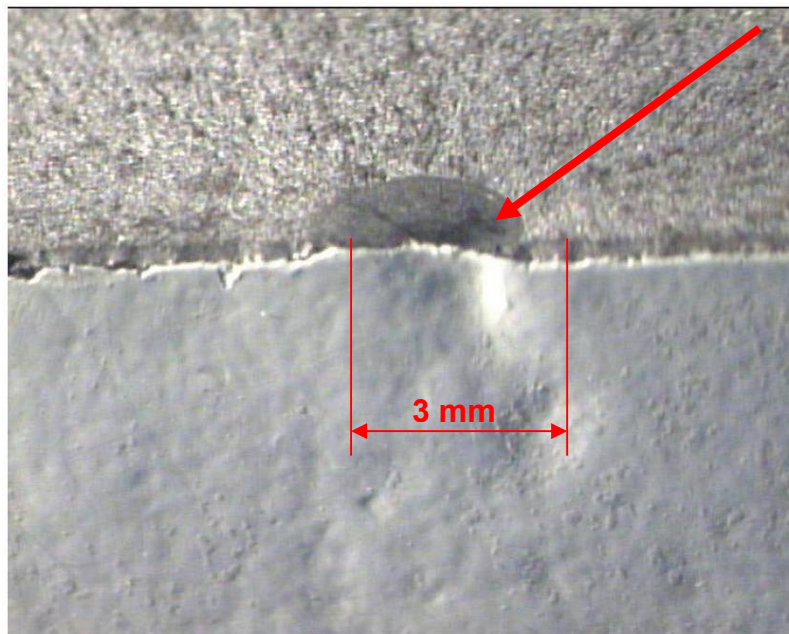
Obr. 1- 12 Povrch A po odstranění laku

The tension lower side of the semi-finished strut (B surface) had no surface treatment before colour paint was applied to it. After removing the paint, the surface showed unevenness with traces of corrosion products.



Obr. 1- 11 Povrch B po odstranění laku

The fracture was caused and initiated by surface unevenness of the strut hidden under the undercarriage paint.



Obr. 1-10 Detail - počáteční trhlinka - pohled z boku na povrch B

1.17 Organizational and management information

NIL

1.18 Additional information

The previous foreign aircraft operator had not recorded the number of operation cycles (number of landings). This figure was not logged till after the plane had been registered for operation in the Czech Republic. The number of working cycles may be determined approximately by multiplying the total flight hours by a factor of two (x 2). The result of calculation gives an approximate figure of working cycles/landings equal to 27,290.

The manufacture does not prescribe non-destructive tests of undercarriage assembly in the airplane maintenance schemes.

1.19 Useful or effective investigation techniques

The accident has been investigated according to L 13 National Regulation (Investigation into Air Accidents and Incidents).

2 Analysis

2.1 Factual Information Analysis:

- the commander had ratings for the mission;
- at the time of take-off the aircraft was airworthy and had a valid airworthiness certificate;
- the meteorological conditions had no effect on the accident;
- the previous operator did not record the number of working cycles the landing gear had gone through;
- maintenance plan does not prescribe non-destructive testing of the undercarriage.

2.2 Analysis of Landing Gear Strut Breaking-off

There was material fatigue caused by gradual increase of service time. The crucial cross-section created by propagating fatigue fracture could not resist the load and broke off completely when it was subjected to the landing forces.

3 Conclusions

The commander of the airplane could not head off the accident. The accident was caused by partial abruption of the right-hand undercarriage strut due to a hidden material defect. The occurrence was evaluated as an accident brought about by technical cause.

4 Safety recommendations

The decision on whether the Cessna 150/152 maintenance procedures should be extended to include checks on the undercarriage type concerned falls in the competency of the Czech Republic Civil Aviation Authority.