



FACTUAL REPORT

EMERGENCY LANDING OF A CESSNA C177 NEAR STEGEN (L) ON 18 JANUARY 2015

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Ministry of Mobility and Public Works

Department of mobility and transports

Administration of Technical Investigations

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FACTUAL REPORT

**Emergency landing of a Cessna C177
near Stegen (L) on 18 January 2015**

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FOREWORD

In accordance with Annex 13 to the Convention on International Civil Aviation, Regulation (EU) No 996/2010 of the European Parliament and of the Council and Luxembourg amended law dated 30 April 2008 on technical investigations in relation to accidents and serious incidents which happened in the domains of civil aviation, maritime transport, railways and vehicle traffic on public roads, it is not the purpose of the aircraft accident investigation to apportion blame or liability.

The sole objective of the safety investigation and the Final Report is the prevention of accidents and incidents.

Consequently, the use of this report for purposes other than accident prevention may lead to wrong interpretations.

Note: All times indicated in this report are in UTC (LT = UTC+1), unless stated otherwise.

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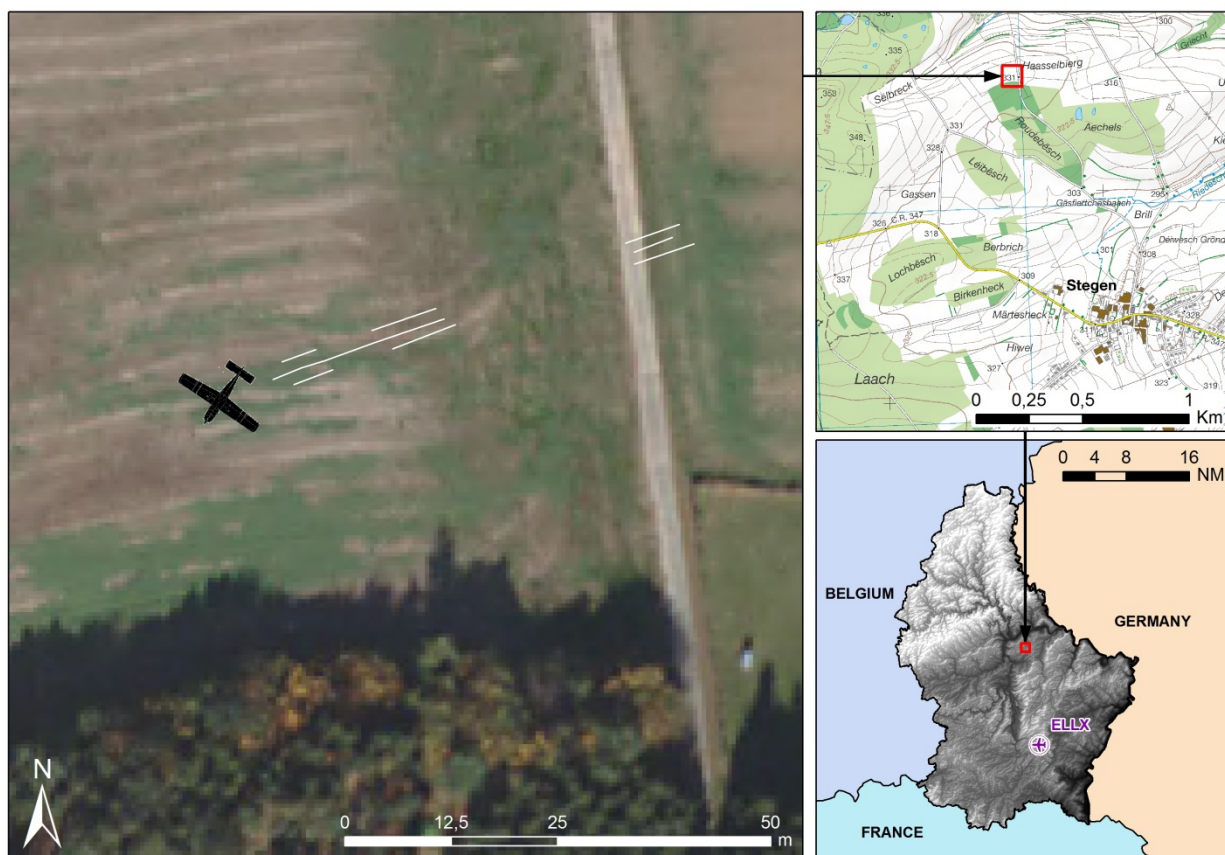
GLOSSARY OF ABBREVIATIONS AND ACRONYMS

°C	Degree Celsius
AET	Administration des enquêtes techniques (Luxembourg safety investigation authority)
APP	Luxembourg Approach
AVGAS	Aviation gasoline (100 LL)
cm	Centimeter
EHBK	ICAO code of Maastricht Aachen Airport
ELLX	ICAO code of Luxembourg International Airport
FAA	United States Federal Aviation Administration
ft	Foot
hPa	Hectopascal
ICAO	International civil aviation organization
IFR	Instrument Flight Rules
km	Kilometer
kt	Knot
L	Luxembourg
LT	Local time
m	Meter
METAR	Aerodrome routine meteorological report (ICAO Annex 3)
MSL	Mean sea level
NL	The Netherlands
NM	Nautical mile
NOSIG	No significant change
TAF	Aerodrome forecast (ICAO Annex 3)
UTC	Universal coordinated time

1. SYNOPSIS

On 18 January 2015, the pilot and two passengers were on a flight conducted under Instrument Flight Rules (IFR) from Maastricht (NL) to Luxembourg (L) in a single engine piston airplane of the type Cessna C177B Cardinal. At an altitude of 4'000 feet near Dierkirch, the engine suffered a loss of power. As power could not be restored, the pilot selected a field north of the village of Stegen (L) for an emergency landing.

During the landing sequence, the aircraft suffered damage to the rear fuselage structure, the propeller, the nose and main landing gear, the right wing and the rear back window. All three occupants left the aircraft uninjured.



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2. FACTUAL INFORMATION

2.1 History of the flight

On 18 January 2015, the pilot and two passengers were on an IFR flight from Maastricht (NL) to Luxembourg (L) in a single engine piston airplane of the type Cessna C177B Cardinal. The weather conditions at Luxembourg International Airport (ELLX) showed at the time of the occurrence a visibility of more than 10 km, a sky covered with clouds up to one quarter with a cloud base at 1'200 ft. The temperature at Luxembourg airport was 2°C, with the wind coming from a southern direction at 9 kt. The dew point was 0°C.

The pilot reported that during the approach to ELLX, after levelling off at an altitude of 4'000 feet, the engine suffered a loss of power. As power could not be restored, the pilot selected a field near Stegen (L) for an emergency landing and informed Luxembourg Approach (APP) at approximately 12:30 PM about the emergency situation and his intentions to perform an off-airport landing.

The selected field was bordered by a paved rural road on the east side, which was the side the pilot was approaching from. The aircraft first touched down in the adjoining field to the east of the rural road, approximately 3.5 m from the road, leaving visible marks in the muddy soil. It should be noted that the paved rural road is elevated by approximately 10 cm in relation to the adjoining fields. The tire marks continued for about 2 m across the rural road before disappearing. Small pieces of the nose wheel fairing could be found in close proximity to the rural road, leading to the conclusion that the nose wheel fairing had been damaged when impacting that road.

After the initial touch-down, while crossing the rural road, the aircraft became airborne again (absence of tire marks in the muddy soil). About 23 m further west, the tire marks reappeared. Based on the marks in the field, the aircraft's second touch-down was in a nose-down attitude. The nose wheel fairing then probably detached from the aircraft and came to rest in that area. Approximately 5 m after the second touchdown, the propeller impacted the muddy field several times, indicating that it was still turning. Approximately 10 m further down, the nose wheel broke off.

Shortly before coming to a stop and with the nose wheel detached, the aircraft veered to the left and the right hand wing tip impacted the field, damaging the outer portion of the leading edge.

The landing distance measured from the first contact in the field situated east of the rural road, up to the final aircraft position, was approximately 59 m. All three occupants were able to leave the aircraft on their own and uninjured.

During the landing sequence, the aircraft suffered damage to the rear fuselage structure, the propeller, the nose and main landing gear, the right wing and the rear back window.

The owner later confirmed that the aircraft was damaged beyond repair and subsequently written off.

Tire marks from first touchdown



(Source: www.rtl.lu)

Elevated rural road crossing the fields



(Source: www.rtl.lu)

Tire marks from second touchdown



(Source: www.rtl.lu)

2.2 Injuries to persons

<i>Injuries</i>	<i>Crew</i>	<i>Passengers</i>	<i>Others</i>
Fatal	0	0	0
Serious	0	0	0
Minor/None	1	2	0

2.3 Damage to aircraft

The aircraft sustained damage to the rear fuselage structure, the propeller, the nose and main landing gear, the right wing and the rear back window and was subsequently written off.



Source: AET (pictures taken one day after the occurrence)

2.4 Other damage

None.

2.5 Personnel information

The pilot was 66 years old and held a valid private pilot license for airplane, single-engine, land and a valid instrument rating issued by the US Federal Aviation Administration (FAA). He held a valid US second class medical certificate in compliance with the prevailing regulation.

The pilot had logged a total of 884 flight hours, 5.2 hours thereof during the last three months flown on the occurrence airplane.

2.6 Aircraft information

The Cessna 177B Cardinal is a light single-engine, high-wing general aviation aircraft.

Aircraft manufacturer:	Cessna Aircraft Company
Manufacturer's designation of aircraft:	C177B
Aircraft registration:	N34937

The 'Weight and Balance' calculations for the occurrence flight were not available, but a reasonable assumption permitted to conclude that the aircraft remained within the prescribed envelope.

The type of fuel used for the accident aircraft was AVGAS 100LL. The pilot's logbook shows a 'fuel flight' to Luxembourg International Airport (ELLX) on 13 November 2014 and a return flight to Maastricht Aachen Airport (EHBK) the same day. The return flight took approximately one hour and was the last flight before the occurrence flight on 18 January 2015. About 1.8 hours of fuel had been used since the last refueling.

2.7 Meteorological information

The aerodrome forecast (TAF) is a format for reporting weather forecast information for aviation. TAF bulletins are issued every six hours and generally apply to a 24- hour or a 30- hour period.

ELLX TAF:

TAF ELLX 180500Z 1806/1912 18005KT 7000 BKN010
TEMPO 1806/1810 2000 BR BKN002
PROB40 TEMPO 1806/1810 0500 FZFG BKN001
BECMG 1810/1813 17010KT 9999 BKN012
PROB40 TEMPO 1807/1813 2000 -SHSN -SHRASN BKN002
BECMG 1820/1823 VRB03KT 3000 BR BKN003
PROB40 TEMPO 1901/1907 0300 FZFG BKN001
TEMPO 1907/1912 1200 -SHSN BKN002=

TAF ELLX 181100Z 1812/1918 18005KT 9999 SCT030
BECMG 1822/1824 4000 BR
PROB40 TEMPO 1903/1908 0800 BCFG SCT000
BECMG 1908/1910 31004KT
BECMG 1912/1914 SCT020 BKN100
TEMPO 1914/1918 8000 -SNRA SCT009 BKN015=

TAF ELLX 181700Z 1818/1924 16005KT CAVOK
BECMG 1822/1824 4000 BR NSC
TEMPO 1903/1908 0800 BCFG SCT001
BECMG 1909/1911 VRB02KT CAVOK
BECMG 1914/1916 33005KT SCT025 BKN100
TEMPO 1916/1920 5000 -SN SCT009 BKN015
BECMG 1920/1922 3500 BR BKN006=

The observed meteorological conditions were available as coded information through the aerodrome routine meteorological report (METAR). A new METAR is published every 30 minutes.

ELLX METAR:

201501181120 METAR ELLX 181120Z 18009KT 150V220 9999 FEW012 01/00 Q1014 NOSIG=

201501181150 METAR ELLX 181150Z 17008KT 140V210 9999 FEW012 01/00 Q1014 NOSIG=

201501181220 METAR ELLX 181220Z 17009KT 140V210 9999 FEW012 02/00 Q1013 NOSIG=

201501181250 METAR ELLX 181250Z 17008KT 140V210 9999 FEW012 01/00 Q1014 NOSIG=

201501181320 METAR ELLX 181320Z 19007KT 150V220 9999 FEW012 01/00 Q1013 NOSIG=

The relevant METAR at Luxembourg International Airport, which is situated 13 NM South of the accident site, was as follows:

Time of the weather report:	12:20
Wind direction:	170° (Magnetic North)
	Wind variable between 140° and 210°
Wind force:	9 kt
Visibility:	More than 10 km
Cloud:	Few at 1'200 ft
Temperature:	2°C
Dew point:	0°C
Local atmospheric pressure:	1'013 hPa
Weather evolution:	NOSIG (no significant weather change is expected to the reported conditions within the next 2 hours)

2.8 Aids to navigation

Not relevant.

2.9 Communications

The pilot was in contact with Luxembourg Approach (APP) when the engine suffered a loss of power. He subsequently informed APP about an engine failure and his intention to perform an emergency landing in a field.

APP contacted the police helicopter which was operating in the vicinity of the occurrence site. The police helicopter landed on-site and informed APP that there were three persons on board the occurrence aircraft and no injuries. Later on, an air rescue helicopter also landed at the occurrence site.

2.10 Aerodrome information

The pilot made an emergency landing in a field situated approximately 13 NM north of Luxembourg International Airport, close to the town of Stegen.

2.11 Flight recorders

The accident aircraft was not equipped with any kind of flight recorders, nor was it required to carry such equipment.

2.12 Wreckage and impact information

The field is situated about 13 NM north (~350° magnetic heading) of the aerodrome reference point of Luxembourg International Airport.

During landing, the aircraft sustained damage to the rear fuselage structure, the propeller, the nose- and main landing gear, the right wing and the rear back window.

There was no third party damage.

2.13 Medical and pathological information

Not available.

2.14 Fire

The airplane did not catch fire.

2.15 Survival aspects

All three occupants were uninjured. Damage to the airplane did not impair the livable space of the cabin.

3. CONCLUSIONS

On an IFR flight from Maastricht (NL) to Luxembourg (L), the aircraft suffered a loss of engine power after leveling off at an altitude of 4'000 ft. Unable to restore the engine power, the pilot performed an off-airport emergency landing in a field.

During the landing, the aircraft sustained damage to the rear fuselage structure, the propeller, the nose- and main landing gear, the right wing and the rear back window. All three occupants were able to leave the aircraft on their own and uninjured. The aircraft was considered to be damaged beyond repair and subsequently written off.