

Safety Investigation Report

Ref. AAIU-2018-05-18-01

Issue date: 18 July 2018

Status: Final

Classification:	Accident	Type of operation:	Non-commercial – Flight training - Solo
Level of investigation:	Desk	Phase:	Take-off
Date and time:	18 May 2018 at 12:54 UTC	Operator:	Royal Aéro ParaClub de Spa
Location:	Aérodrome Spa/La Sauvenière	Persons on board:	1
Aircraft:	Cessna 152	Aircraft damage:	Substantial
Occurrence category:	Runway excursion	Injuries:	None

Flight history

Ten days before the accident, the student pilot performed a first successful solo flight with 3 touch and goes. A few days after, he made an additional flight with his instructor.

The day of the accident started with a 40 minutes instructional dual flight consisting of touch and goes after which the instructor suggested to perform a few solo touch and goes under his supervision. The active runway was 05 with a right-hand circuit. According to the instructor, all touch and goes were performed with the same flap setting (10° down) for both the landing and take-off. The first touch and go was uneventful. When flying at the end of the final leg of the second circuit the student pilot realized he was a little too high and decided to perform a go around. This was considered by the instructor as a good decision.

The third leg happened uneventfully and was ended by a very good landing according to the instructor. However, after touchdown, when the student pilot applied full power, the aeroplane drifted to the left, hit a runway edge light with the right-hand main wheel and left the concrete runway to roll in the grass of the runway strip. The aeroplane briefly went airborne and the student pilot reacted by closing the throttle. Shortly after the aeroplane violently touched down on the nose landing gear that collapsed. The aeroplane sustained damage to the propeller, the nose landing gear, the engine mount and the firewall. The pilot climbed out uninjured.

Aircraft inspection

The post-accident inspection of the aeroplane did not show any pre-impact damage and/or anomaly that could have caused the loss of control during the take-off roll.

Analysis

After the accident, the student pilot stated that he didn't understand why he couldn't control properly the yaw of the aeroplane using the right rudder pedal after applying full throttle.

At that time, the wind speed was 07 kt, coming from 330° which is a gentle left cross wind with respect to runway 05. It is possible that the student pilot was surprised by the combination of the

slipstream effect of the propeller with the light left crosswind, both causing a yawing moment to the left. Slightly more right rudder would be needed to compensate the combination of these two effects. However, as the student pilot properly performed the first touch and go, it is demonstrated that he was able to control the aeroplane in the same flying conditions. So maybe a combination of stress, fatigue and a brief relaxation of attention after the touch down played a contributing role.

Another possible contributing factor could be that the pilot induced a wheelbarrowing phenomenon just after the landing. This occurs when a pilot permits the airplane weight to become concentrated about the nosewheel during the take-off or landing roll when forward pressure is applied on the control wheel. This may cause loss of directional control when the airplane tends to swerve or pivot on the nosewheel, particularly in crosswind conditions. One of the most common causes is a simultaneous touchdown of the nose- and main wheel in combination with excessive speed.

When feeling the start of the drift to the left, it is possible that the pilot has had as reaction to turn the control wheel to the right, just as he was in a car. This is a typical student pilot error. In this case, the dissymmetrical drag between both wings will cause an opposite yaw and thus even increase the drifting tendency to the left.

Findings and probable cause

The probable cause of the accident is the combination of an inadequate yaw and pitch control after applying full throttle during the take-off roll in a touch and go.

Safety actions

When asked about possible measures to avoid the reoccurrence of such an event, the instructor pilot stated that it would maybe be better to start the first solo flights with single landings followed by a stop, taxi back and a new take-off instead of touch and goes.

Aircraft information

Type	Aeroplane	Certificate of Airworthiness:	EASA Form 25 issued on 22 January 2008 by Belgian CAA
Manufacturer:	Cessna	Airworthiness Review Certificate:	Valid up to 30 June 2018
Model:	152	State of registry:	Belgium
Built year:	1984	Total airframe time:	7903h18
Serial number:	152-85903	Time since last inspection:	97h12 since 100h inspection
Maximum take-off weight:	757 kg	Number and type of engine(s):	1 reciprocating
Airworthiness:	EASA Aircraft	Engine:	Lycoming O-235-N2C

Meteorological information

Source:	METAR EBSP	Clouds:	CAVOK
Time:	12:50 UTC	Temperature:	12°
Distance from site:	On site	Dew point:	04°
Wind direction:	330 Variable between 290 and 010	QNH:	1022
Wind speed:	07 kt	Reported visibility on site:	CAVOK

Visibility:	CAVOK	Reported wind on site:	Gentle left cross wind on RWY 05
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Student pilot information

Age:	52 years	Medical:	Class 2 (PPL): valid 21/09/2018 LAPL: valid 21/09/2019
Nationality:	Belgian	Last medical exam:	21/09/2017
License:	No license, not required	Injuries:	None
Ratings:	Not applicable	Restraint used:	3-point (Lap + single shoulder belt)
Flight experience:	About 20 hours of instruction in duo – 5 solo touch and goes		

Flight instructor (FI) information

Age:	52 years	Medical:	/
Nationality:	Belgian	Last medical exam:	/
License:	CPL(A)	Injuries:	Not applicable
Ratings:	SEP (Land) SP – FI(A)	Restraint used:	Not applicable
Flight experience:	First license held on 09/12/1997 – Total flight experience as PIC: about 2100 hours - FI since 2012 – Total flight experience as FI: about 550 hours.		

About this report

As per Annex 13 and EU regulation EU 996/2010, each safety investigation shall be concluded with a report in a form appropriate to the type and seriousness of the accident and serious incident. For this occurrence, a limited-scope, fact-gathering investigation and analysis was conducted in order to produce a short summary report.

It is not the purpose of the Air Accident Investigation Unit to apportion blame or liability. The sole objective of the investigation and the reports produced is the determination of the causes, and, where appropriate define recommendations in order to prevent future accidents and incidents.