SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division **Accident and Incident Investigations Division** Form Number: CA 12-55

LIMITED SERIOUS INCIDENT REPORT

Reference Number	CA18/3/2/1363								
Classification	Serious Incident	**Date**	16 August 2021		**Time**	1150Z			
Type of Operation	Training (Part 141)								
Location									
Place of Departure	Port Alfred Aerodrome (FAPA), Eastern Cape Province	**Place of Intended Landing**	Port Alfred Aerodrome (FAPA), Eastern Cape Province						
Place of Occurrence	Runway 11 at East London Airport (FAEL), Eastern Cape Province								
GPS Co-ordinates	Latitude	S33° 2'.23"	Longitude	E27°48'.42"	Elevation	433 feet			
Aircraft Information									
Registration	ZS-EVJ								
Model/Make	Piper PA-28-140 Cherokee								
Damage to Aircraft	Substantial	Total Aircraft Hours	2422.2						
Pilot-in-command									
Licence Valid	Yes	Gender	Female	Age	19				
Licence Type	Student Pilot Licence (SPL)								
Total Hours on Type	59.3	Total Flying Hours	59.3						
People On-board	1 + 0	Injuries	0	Fatalities	0	Other (On Ground)	0		
What Happened									

On Monday 16 August 2021, the student pilot on-board a Piper PA-28-140 Cherokee aircraft with registration ZS-EVJ was on a training flight from Port Alfred Aerodrome (FAPA) in the Eastern Cape Province with the intention to conduct a touch-and-go landing at East London Airport (FAEL), and then return to FAPA. The flight was conducted under Visual Meteorological Conditions (VMC) by day and the flight plan was filed with Cape Town (FACT) briefing. The student pilot reported that prior to departing for FAEL, she obtained the appropriate weather information for the planned route, which was fine conditions. She later carried out a pre-flight inspection on the aircraft and all was normal. The aircraft had a total of 40 gallons of Avgas LL100 fuel in the tanks and it was free from contaminants. The student pilot boarded the aircraft, started the engine, and taxied to Runway 28L. The take-off was without incident. The aircraft climbed to flight level (FL) 075, travelling at 104 indicated airspeed (IAS).

Upon approaching FAEL, the student pilot broadcasted her intentions to FAEL approach on 120.10-Megahertz (MHz) frequency. The pilot was instructed to use asphalt Runway 11 for landing, which is about 1939 metres (m) in length. In addition, the weather condition update was communicated to the student pilot and it was reported to be fine with no clouds and with light turbulence; the wind was approximately 090/20 knots. The student pilot stated that the approach was stable and touchdown on the main wheels on Runway 11, about 370m from the threshold, was smooth. After the nose wheel had touched down on the runway surface, the student pilot opened the throttle with the intention to take-off and return to FAPA. During the take-off run, the student pilot felt what appeared to be a zig-zag movement and an imbalance on the aircraft's main landing gear. She then decided to reject the take-off. The student pilot closed the throttle and applied maximum brakes with the intention to bring the aircraft to a stop on the remaining runway surface, but without success. The aircraft continued to veer off to the left, exited the runway and came to a stop on the grass in a nose down position, about 900m from Runway 11 threshold (see Figure 1). During the serious incident, the aircraft's nose gear oleo bent, and the propeller blades struck the ground.

The FAEL air traffic control (ATC) activated the crash alarm and the Airport Rescue and Fire Fighting (ARFF) team dispatched to the scene of the serious incident. The aircraft was substantially damaged, and the student pilot was not injured. The aircraft was removed from the incident site to allow for safe operation of other aircraft on the active runway. The flight lasted approximately 1.6 hours.

Figure 1: The position of ZS-EVJ aircraft as found post-incident. (Source: Operator)

Post-incident examination of the main landing gear by the Aircraft Maintenance Organisation (AMO) chief engineer indicated that each main gear wheel assembly (combination of 6.00 x 6 Goodyear brand six ply tyre and 2 Cleveland hubs) bearings and caps (2 per wheel assembly) and nuts (1 per gear axle) with split pins (1 per gear axle) were fitted in accordance with (IAW) the aircraft maintenance manual (AMM), chapter 32-40-00. Both main wheel assemblies rotated freely on their respective axles. The main landing gear oleo-pneumatic (air-oil) shock absorbers were inflated to 150 pounds per square inch (psi) and about 4.50 inches of chrome was showing on each main landing gear oleo IAW the AMM. The main gear tyres were inflated to 26 psi of nitrogen each IAW the AMM. Examination of the nose wheel assembly indicated nothing abnormal, except the failure that occurred during the serious incident. The nose gear tyre was inflated to 26 psi IAW the AMM.

Figures 2/3: The aircraft resting on a failed nose gear strut oleo (left picture); and the condition of the left main landing gear (right picture). (Source: Operator)

The MIL-H-5606 (petroleum base) hydraulic fluid reservoir was intact and was properly installed on the left forward section of the engine firewall. The hydraulic fluid level in the reservoir was adequate as recommended in the Pilot Operating Handbook (POH). The brake lines, pads and callipers on the main landing gear wheels were correctly fitted and no evidence of hydraulic fluid leaks was noted. The rudder responded accordingly when operated from the cockpit and the toe-brakes pressure was adequate or satisfactory when modulated. The investigation indicated no evidence of anomalies on the aircraft's main landing gear wheels brakes and the rudder operation.

Post-incident interview with the chief engineer indicated that the aircraft was serviceable prior to the student pilot undertaking the flight. Examination of the aircraft's technical records indicated that the aircraft was properly certificated and maintained IAW the South African Civil Aviation Authority (SACAA) regulations and approved procedures. There were no open or deferred maintenance items listed in the aircraft flight folio before the flight, and there was no evidence that failure of the aircraft structures, flight control system or engine contributed to the serious incident.

Examination of the student pilot's record kept at the SACAA indicated that she was correctly licensed and fit to undertake the flight. The information obtained from the FAEL ATC official who was on duty at the time indicated that the student pilot seemed relaxed and nothing out of the ordinary was detected during their communication.

The investigation concluded that the serious incident was caused by the student pilot's loss of directional control of the aircraft during the rejected take-off as a result of incorrect application of the rudder or incorrect application of the toe-brakes during an attempt to bring the aircraft to a stop on Runway 11.

Safety Action/s

None.

Safety Message and/or Safety Recommendation/s

None.

Purpose of the Investigation

In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and ***not to apportion blame or liability****.*

About this Report

Decisions regarding whether to investigate, and the scope of an investigation are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, no investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this brief report. The report has been compiled using information supplied in the initial notification, as well as follow-up information to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar accident.

This report provides an opportunity to share safety message/s in the absence of an investigation.

All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.

Disclaimer

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Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa