TITLE

GENERAL INFORMATION:

Name of Operator:	ASL Flight Training School
Aircraft Manufacturer:	Cessna Company
Aircraft Model:	Cessna 172M
Nationality and Registration Marks:	8R-AFS
Place of Accident/Region:	Cheddi Jagan International Airport, Guyana – 062956.149N 0581515.670W
Date of Accident:	27th March 2017.
Time of Accident:	16:45hrs UTC

REPORT No. GAAIU 3/1/14

This investigation was conducted in accordance with ICAO Annex 13 and therefore, it is not intended to apportion blame, or to assess individual or collective liability. Its sole objective is to draw lessons from the occurrence which may help to prevent future accidents. Consequently, the use of this report for any purpose other than for the prevention of future accidents could lead to erroneous conclusions.

Note: - All times in this report are Coordinated Universal Time (UTC) unless otherwise stated. UTC is four hours ahead of Guyana Standard Time (GST).

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GLOSSARY OF ABBREVIATIONS

AIP	-	Aeronautical Information Publication
AMO	-	Approved Maintenance Organisation
AOC	-	Air Operator Certificate
ARFFS	-	Aircraft Rescue and Fire Fighting Service
ASL	-	Air Services Ltd.
ATC	-	Air Traffic Control
CPL	-	Commercial Pilot Licence
EFCIA	-	Eugene F. Correia International Airport
GAAIU	-	Guyana Aircraft Accident and Incident Investigation Unit
GCAA	-	Guyana Civil Aviation Authority
ICAO	-	International Civil Aviation Organisation
MEL	-	Minimum Equipment List
QNH (Q code)	-	Barometric pressure adjusted to sea level, which allows the aircraft altimeter to read the aircraft's altitude above mean sea level.
RWY	-	Runway
S/N	-	Serial Number
SYCJ	-	Cheddi Jagan International Airport (CJIA)
TBO	-	Time before Overhaul
TSN	-	Time since New
TSO	-	Time since Overhaul
VMC	-	Visual Meteorological Conditions

Synopsis:

The student pilot was doing her first solo flight. She was cleared to do left hand circuits/ touch and go flights on RWY 11 at the Cheddi Jagan International Airport, (CJIA). While attempting to land, the aircraft bounced on landing and ended up on its nose wheel which became detached from the nose wheel landing gear fork. This caused the propeller blades to make contact with the ground, resulting in damage to the tips of both blades.

Only the student pilot was on board the aircraft. She was not injured.

The aircraft was damaged.

There was no fire.

1. Factual Information

1.1. History of the Flight

The aircraft, with the Flight Instructor and the Student Pilot on board departed from the Eugene F. Correia International Airport to the Cheddi Jagan International Airport, to do training circuits prior to releasing the student to do her first solo flight. Eight circuits and touch and go landings were completed before the solo flights were commenced. During the third circuit of the solo flight, the aircraft was instructed to extend the downwind leg RWY11 and was eventually cleared to left base RWY06. The Student Pilot then requested to do a right-hand circuit to land on RWY11, which was approved. The aircraft touched down and bounced. It then touched down on the nose wheel which became detached from its fork.

1.2. Injuries to Persons

Table: 1- Showing Injuries to Persons

Injury	Crew	Passengers	Others	Total
Fatal	0	0	0	**0**
Serious	0	0	0	**0**
Minor/None	1	0	0	**0**
Total	**1**	**0**	**0**	**1**

1.3. Damage to aircraft

The aircraft touched down on its nose wheel which became separated from the nose wheel fork. The aircraft continued travelling along the runway, skidding on the nose wheel fork. This resulted in the nose wheel fork being eroded to approximately half its original length. The nose oleo strut was fully decompressed. Both propeller blades were broken at the tips. The engine and propeller suffered from the sudden stop. The propeller and the nose landing gear suffered extensive damages.

Picture #1 – showing damage to nose wheel fork and propeller blades

1.4. Other Damage

There was no other damage.

1.5 Personnel Information - Pilot

Gender:	Female
Date of Birth/Age:	7th January 1985/32 years
Nationality:	Guyanese
License:	Guyana SPL #484
Date of issue:	10th October 2016
Date of last medical:	25th August 2016
Valid until:	31st August 2018
Total hours:	28:24hrs
Total Hours on Type:	28:24hrs
Hours in last 7 days:	0hrs
Hours in last 24 hours:	0:20hrs

There are no limitations on the pilot's Class 11 Medical, which is valid until 31st August 2018.

The pilot had last flown on 16th March 2017, 12 days prior to the date of the accident.

On the day of the accident, she did training and the required pre-solo check with her primary flight instructor for approximately one hour before being released for her first solo flight. She stated that the accident occurred on her first attempt to touch down during her solo flight, as she did not touch during previous circuits.

1.6 Aircraft Information

1.6.1 General

Manufacturer:	Cessna Aircraft Company
Year of Manufacture:	1973
Aircraft Model:	Cessna 172M
Aircraft S/N:	17262196
Certificate of Registration:	14th September 2011.
Certificate of Airworthiness:	Valid until 5th October 2017
Total Airframe Hours:	4496:05hrs
Last Scheduled Inspection:	100hrs
Time since last Inspection:	45hrs
Next Inspection Due:	50hrs
Maximum Take-off Weight:	2450lbs
Engine Model:	Lycoming O-320-E2D
Engine S/N:	RL-40452-27E
Engine TSO:	601:02hrs
Propeller Type:	Mc Cauley IC160/CTM7553
Propeller S/N:	722420
Propeller TSN:	4433:59hrs
Propeller TSO:	1717:59hrs
Fuel Type:	AVGAS 100LL

The Cessna 172M is a four-seater single-engine general aviation utility aircraft with a fixed tricycle landing gear. The two main landing gear struts are constructed from solid leaf-spring steel and the nose landing gear is an oleo strut with an attached solid fork for the wheel attachment. At the time of the accident the aircraft was being used for flight training by the Air Services Ltd Flight Training School.

1.6.2. Maintenance

Examination of the aircraft maintenance records indicates that there were no outstanding maintenance issues. All required and scheduled maintenance had been performed and all Airworthiness Directives had been complied with. There were no outstanding MEL items on the aircraft.

1.6.3. Mass and Balance

Only the student pilot was on board the aircraft at the time of the accident. The aircraft's weight and center of gravity were within prescribed limits.

1.7. Meteorological Information

This accident occurred in daylight. The weather reported, at the time of the occurrence was – Wind – 080/16; visibility – more than 10kts; clouds – broken at 2200ft; temperature/dew point – 30/24; QNH - 1013.

1.8. Aids to Navigation

Not applicable.

1.9. Communications

The aircraft was in continuous contact with the Timehri Control Tower on frequency 118.3MHz.

1.10. Aerodrome Information

The following relevant information, pertinent to the Cheddi Jagan International Airport, was taken from the Guyana Aeronautical Information Publication.

Aerodrome Identification:	SYCJ
Coordinates:	06 29 56.149N o58 15 15.670W
Elevation:	96ft.
Runway orientation:	06/24 – 11/29
Runway 11/29 length:	1525m (5000ft)
Runway 11/29 width:	46m (150ft)

Runway 11/29 is the secondary runway at SYCJ. It has a smooth concrete surface that is properly maintained for aircraft operations. The runway is equipped with a windsock and has the required runway edge, centerline, threshold and orientation numbers markings.

There are no obstacles on the approach to RWY 11.

1.11. Flight Recorders

This aircraft is not required by regulation to be equipped with a flight recorder.

1.12 Wreckage and Impact Information

The aircraft stopped on the runway about 700ft from the threshold. The first mark on the runway was 283ft from the threshold. From this position until the aircraft came to a stop, 410ft later, marks made by the fork of the nose wheel and the two blades of the propeller were visible on the runway. The nose wheel was found 500ft behind the aircraft and 91.5ft from the runway centerline.

1.13. Medical and Pathological Information

The pilot was not injured. She was not required to complete any medical examination after the occurrence.

1.14. Fire

There was no fire.

1.15. Survival Aspects

Except for the damage to the nose wheel assembly, nose and propeller, the airframe remained intact. The pilot was held in place by her seat belt, which was in satisfactory condition.

The Guyana Fire Service which provides Aircraft Rescue and Fire Fighting Service (ARFFS), responded to the emergency 3 minutes after the occurrence, but were not required to go into action.

1.16. Tests and Research

No special tests or research were carried out.

1.17. Organisational and Management Information

1.17.1 Air Services Ltd. Flight Training School – General

Air Services Ltd Flight Training School is an approved flight training organisation that is an integral part of Air Services Ltd (ASL). ASL is an approved commercial aircraft operator that holds Guyana Air Operator Certificate, AOC #001, and an Approved Maintenance Organisation Certificate, AMO Certificate #003, both of which were issued by the Guyana Civil Aviation Authority (GCAA). The facilities of ASL are available to the Flight Training School. The training aircraft is the Cessna 172M. Maintenance of this aircraft is done by ASL Approved Maintenance Organisation (AMO).

The school has approval to train persons to obtain Private and Commercial Pilots' Licences as well as Instrument and Multi-Engine Ratings. It is adequately staffed to meet these requirements. The Chief Instructor has responsibility for both the Flight and Ground Instructors and is required to be involved in selection, training and evaluation of Instructors. The Chief Instructor is also involved in sampling and testing of students.

Students are normally assigned to a Flight Instructor, who is considered to be his/her primary instructor however, students have the option to request a change of instructor. Students who fail their first flight test are given additional training at the discretion of their primary instructor and are retested. If the second attempt is

failed, then the student is assigned to another instructor for flight test preparation. If failure results from the third attempt, the Chief Instructor will assess the student and determines if the student should be given one more opportunity or if the training should be discontinued.

Records of Flight and Ground instructors and student pilots are kept by the school in both hard and soft copies and are kept secure in locked cabinets.

The school has an approved Personal Computer Based Aviation Training Device (PCATD), which has software and hardware to replicate the aircraft that are operated by the school. Students are exposed to limited simulator training on this device before commencing flight training.

The school's training syllabus is typical for an institution of this nature. The ASL Flight Training School assigns a primary instructor to each student. The primary instructor assesses when the student is ready to solo. This assessment is followed by State checks that are carried out by a senior instructor or the Chief Instructor. These state checks are intended to confirm the primary instructor's assessment. The stage check is scheduled for the 13th lesson in the syllabus and according to the times allocated for the lessons the solo may be done in about 15-20hrs.

The flight training syllabus requires that prior to the first solo flight, a pre-solo check should be done in which the student is expected to demonstrate a consistent standard of ability by doing at least three consecutive safe circuits and landings; go-around from low level; and handling of engine failure after takeoff. The completion standard requires that the manoeuvres must be done unassisted and without prompting. It also requires the Student Pilot to demonstrate, among other things, compliance with safety requirements relating to other traffic and ATC instructions. In the pre-solo check the instructor must take into account not only the assessed performance of the student, but also his mental readiness for solo flight.

The syllabus also requires that the first solo flight, consisting of one take off, circuit and landing is to be monitored by the instructor.

1.17.2. The Flight Instructor

The Flight Instructor was the Student Pilot's primary instructor. She obtained her Guyana Commercial Pilot Licence CPL#334 on 28th April 2015. This licence was issued based on her Jamaican Licence, CL05450, which included an Assistant Flight Instructor Rating. Her Guyana Licence was issued with a 'Single Engine Instructor's Rating'. Her Guyana Licence and its Instructor Rating were both valid at the time of this occurrence. Up to the time of the occurrence she had acquired 817hrs flight time as pilot in command.

She had done the preliminary checks with the Student pilot in preparation for the Student Pilot's first solo and determined that the Student Pilot was ready to solo. On the day of the accident she had taken the Student through the required pre-solo check which she considered to be satisfactory. She noted that the landings done by the Student Pilot during training were not smooth, but they were safe.

When both the Flight Instructor and the Student Pilot agreed that the student was ready to solo, the Flight Instructor disembarked the aircraft with a hand-held radio. She was not positioned where she could see all portions of the first solo flight. From her position on the ground she could only see some parts of the circuit, the take-off/climb, cross-wind and part of the downwind leg. She could not see the final approach and landing. The Flight Instructor pointed out that there are many restricted areas at the airport and a better observation point was not available.

It was noted that this Flight instructor had previously been the primary instructor responsible for another student pilot, who had lost control of an aircraft on his first solo attempt.

1.18. Additional Information - Air Traffic Control

The report from Air Traffic Control stated that the aircraft was executing left/right hand circuits for RWY11. The student pilot had completed two circuits and two landings previous to the occurrence. For the third landing it was observed that the aircraft seemed fast on the approach. The aircraft landed hard and bounced. The

nose then came down in what appeared to be a manoeuvre to put the aircraft on the ground and the blades of the propeller made contact with the ground. The report noted that the two previous landings were not smooth. On both landings the aircraft bounced into the air, hit the ground again and rolled and took off.

The controller stated that aerodrome traffic at the time was not heavy, but he had two aircraft training in the circuit simultaneously and he kept close watch on both of them. He observed the accident aircraft more closely as the other aircraft was doing instrument training. He had recorded the touch-and-go times of each circuit done by the accident aircraft.

A transcript/notes was prepared from a series of 24 recordings received from the Control Tower. The recordings related to the solo flight. It contained transmissions between the Control Tower and the Student Pilot. It was noted that in some cases, the student pilot did not respond properly to clearances and other information provided by the Control Tower.

The transmissions were not accompanied by timelines and in some cases portions of transmissions were missing.

2. Analysis

2.1. The Student Pilot

The Student Pilot was adequately licensed to carry out the operation. Her Class 2 Medical was valid. There was no evidence of any pre-existing medical or behavioural conditions which may have adversely affected the pilot's performance during this flight.

She completed the required hours and had successfully done both the preliminary and the state check assessments, so she met the requirements to solo. On the day of the accident she had done supervised flying and the required pre-solo checks with her primary instructor for approximately one hour, before being released to solo.

It was noted that the pilot stated that she did not touch down on the first attempt because she was not comfortable. However, ATC records indicate that while the aircraft was under the control of the student pilot, it touched down twice, previous to this occurrence. The on and off times for these touch downs were recorded. This indicates that the student may have lacked situational awareness. It further points to the possibility that the student may have felt some amount of pressure to simply put the aircraft down on the runway in the third attempt.

The controller's observation that the landings were not smooth coincides with the Flight Instructor's assessment that the landings done during training by the Student were safe but not smooth.

It was also noted, from the transcript, that the phraseology used by the student pilot was very casual. She also seemed to be distracted, as some of her responses to clearances were not satisfactory. It is considered that at this stage of her training, the Student Pilot needs to be more diligent in her radio-watch to ensure that she listens to, understands and responds correctly to ATC clearances and other information being relayed on the ATC frequency.

2.1.2. The Flight Instructor

The Flight Instructor was suitably qualified and licensed to carry out flight instructions for the ASL Flight Training School.

When the Student was released for the first solo flight, the Flight Instructor failed, or was unable, to position herself where she could properly monitor the Student's first solo flight in its entirety. This is contrary to the school's syllabus, which requires that the first solo flight must be monitored by the flight Instructor.

It is unfortunate that this is the second occurrence in which student pilots lost control of an aircraft on landing during their first solo attempt, while under the guidance of this Flight Instructor.

2.2. The Aircraft

2.2.1. Maintenance

The aircraft has a Certificate of Airworthiness which is valid until 5th October,2017.

Records indicate that the aircraft was being maintained in accordance with the approved maintenance schedule. There were no noted defects or deferred maintenance items from the previous flight.

The aircraft was operated within its mass and center of gravity limitations.

2.3. The Airstrip

The runway is suitable for this type of operation.

2.4. The Weather

This accident occurred shortly after midday during daylight. The weather was satisfactory for the operation being carried out. The weather was not a contributory factor to this accident.

2.5. Survival Aspects

The pilot was strapped in with the seat belt and shoulder harness, both of which were in satisfactory condition when examined after the accident.

The response of the ARFFS was within accepted time limits.

2.6. The Company

The ASL Flight Training School is considered to be suitably equipped and staffed for the training of pilots from ab initio to commercial pilot level.

The requirement in the school's Operations Manual for the Flight Instructor to monitor the first solo flight was not met. The Flight Instructor expressed the view that the security restrictions at the Airport prevented her from positioning herself in a better position. It is necessary for the school to take action to resolve this situation.

It was noted that this was the second similar occurrence involving this Flight Instructor and two different students. It was also noted that both of these students had successfully completed their state checks. This brings into question the process for assessing and determining the readiness of students to do their first solo. There should be a reassessment of this process to determine how it can be improved.

As part of its training the school needs to insist that trainees are properly schooled in the importance of correct phraseology. It should also insist that trainees inculcate good listening and response habits that will serve them well throughout their careers.

2.7. Air Traffic Control

The Duty Controller was quite alert in his aerodrome watch and despite having to handle other traffic, his response to the occurrence is commendable. He was able to alert the ARFFS to the emergency situation almost immediately.

The quality of the ATC recordings provided was unsatisfactory. The lack of timelines on the recording, did not contribute to a full understanding of the situation.

3. Conclusion

3.1 Cause

The probable cause of this accident was due to an unstabilised approach and the pilot's failure to ensure that the aircraft was properly configured for landing.

3.2 Contributory Factors

It is considered that this student pilot may not yet have been quite ready for solo operations.

3.3 Findings

3.3.1. The Pilot

1. The pilot's student's licence permitted her to carry out the exercise.
2. The pilot was not skilled and experienced enough to carry out the intended operation.
3. Her current medical is valid 31st August 2018 She was medically fit and adequately rested to operate the flight.
4. The pilot needs to be more careful to use standardised phraseology for ATC communications.

3.3.2. The Company

1. The school is suitably staffed and equipped to carry out training for pilots. it also has the support of a company that has both an Air Operator Certificate and an Approved Maintenance Operator Certificate.
2. The company did not provide the support needed by the Flight Instructor to allow her to properly monitor the student's first solo flight. The possibility of working out a suitable arrangement with the airport and/or the management of the Timehri Control tower should be pursued.
3. The school needs to reassess its system of determining students' readiness to solo.
4. The school needs to instill, in student pilots, the necessity to use standardised phraseology during communications with ATC.

3.3.3. The Aircraft

1. The aircraft had a valid Certificate of Airworthiness and was maintained in compliance with regulations.
2. There were no outstanding maintenance or MEL issues with the aircraft.
3. The aircraft bounced on touchdown and then touched again on its nose wheel. This caused the nose wheel to be separated from its fork.
4. The aircraft's engine, propeller blades and nose and nose wheel were damaged in this accident.

3.3.4. The Weather

The weather at the airstrip at the time of the accident was VMC. The weather did not contribute to this occurrence.

3.3.5. The Airstrip

1. The runway had sufficient length and width for the operation.
2. The runway was properly maintained.

4. Safety Recommendations

4.1. The Student Pilot

The pilot should be given the opportunity to regain her confidence. This may be done by allowing her to acquire several more hours of supervised circuits and landings.

4.2. The ASL Flight School

1. The school should be required to review this occurrence along with its method of assessing and determining its students' readiness to solo; and if considered necessary, may, in discussions with the GCAA, make necessary changes, with a view to preventing recurrence.

4.3. The GCAA

The GCAA should provide greater oversight and guidance to the school to ensure that its training is in keeping with the provisions of its Operations Manual and syllabus.