

TITLE



GENERAL INFORMATION:

| Name of Operator: | Air Services Limited |
|-------------------------------------|-------------------------------------|
| Aircraft Manufacturer: | Cessna Company |
| Aircraft Model: | Cessna U206G |
| Nationality and Registration Marks: | 8R-CNK |
| Place of Accident/Region: | Kurupung Top Airstrip/Region#7, |
| | Guyana – 06 04 07.64N 060 20 06.09W |
| Date of Accident: | 11 th February 2017. |
| Time of Accident: | 17:16hrs UTC |

REPORT No. GAAIU 3/1/13

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 |
| ASL | - | Air Services Ltd. |
| ATC | - | Air Traffic Control |
| CPL | - | Commercial Pilot Licence |
| EFCIA | - | Eugene F. Correia International Airport |
| FOM | - | Flight Operations Manual |
| GAAIU | - | Guyana Aircraft Accident and Incident Investigation Unit |
| GARs | - | Guyana Aviation Requirements |
| GCAA | - | Guyana Civil Aviation Authority |
| GCARs | - | Guyana Civil Aviation Regulations |
| ICAO | - | International Civil Aviation Organisation |
| MEL | - | Minimum Equipment List |
| RWY | - | Runway |
| S/N | - | Serial Number |
| Sta. | - | Station |
| TBO | - | Time before Overhaul |
| TSN | - | Time since New |
| TSO | - | Time since Overhaul |
| VMC | - | Visual Meteorological Conditions |



Synopsis:

The aircraft was flying between Bartica Airstrip and Kurupung Top Airstrip. While on short final Kurupung Top, the aircraft encountered turbulence. To compensate for the turbulence, the pilot added a little more power. The aircraft bounced on landing and an attempt was made to go around but the aircraft lost altitude and crashed to the ground. The aircraft flipped over and came to rest inverted.

Two persons were on board, both of them, the pilot and the passenger were seriously injured.

The aircraft was damaged.

There was no fire.



1. Factual Information

1.1. History of the Flight

The aircraft was on its second flight for the day. The aircraft left its base at the Eugene F. Correia International Airport (EFCIA), Ogle and proceeded to Bartica Airstrip where one passenger and cargo were loaded. The aircraft proceeded to Kurupung Top Airstrip. The flight was normal. As the aircraft approached Kurupung Top, the pilot observed rain approaching the airstrip from the east. The weather prevented the pilot from making a direct approach to Kurupung Top. He headed in a westward direction, overhead the runway and turned on to a left downwind, then to left base and on to final. The pilot stated that during this time he was experiencing some amount of turbulence. He was looking at the weather and was hoping to make the landing before the rain reached the airstrip.

On final and short final for runway 09 the turbulence increased and he added a little more power than normal to counteract this. When the aircraft touched down it bounced, and the pilot made a decision to go around. The required rpm was in and the flaps were raised to 20°. The aircraft did not respond as expected and sank to the ground. The aircraft landed in heavy sand and flipped over.

1.2. Injuries to Persons

| Injury | Crew | Passengers | Others | Total |
|------------|------|------------|--------|-------|
| Fatal | 0 | 0 | 0 | 0 |
| Serious | 1 | 1 | 0 | 2 |
| Minor/None | 0 | 0 | 0 | 0 |
| Total | 1 | 1 | 0 | 2 |

Table: 1- Showing Injuries to Persons

1.3. Damage to aircraft

The nose wheel was completely separated from the airframe. The aircraft itself was found upside down. The engine, with propeller attached, had separated from its attachment points on the aircraft firewall. The firewall itself was badly wrinkled, but the battery was



still intact. All three of the propeller blades were bent backwards, indicating that the engine was powered at the time of impact. The tail section was bent upwards. The lower surface of the port wing had a deep wrinkle and the wing strut was bent approximately 60°.

1.4. Other Damage

There was no other damage.

| | 1.5 | Personnel | Information | - Pilot |
|--|-----|-----------|-------------|---------|
|--|-----|-----------|-------------|---------|

| Gender: | Male |
|---------------------------------|--------------------------------|
| Date of Birth/Age: | 21st November 1961/56 years |
| Nationality: | Guyanese |
| License: | Guyana CPL #276 |
| Date of issue: | 14 th October 2008 |
| Date of last medical: | 30 th November 2016 |
| Valid until: | 31 st May, 2017 |
| Aircraft type rating: | C206, C208, BN2 Islander, |
| Last Proficiency Check on Type: | 17th August 2016 |
| Total hours: | 9300hrs (approx.) |
| Total Hours on Type: | 5000hrs (approx.) |
| Hours in last 90 days: | 220hrs |
| Hours in last 30days: | 98:45hrs |
| Hours in last 7 days | 27:15hrs |
| Hours in last 24 hours: | 7:35hrs |

The limitations on the pilot's Class 1 Medical, which is valid until 31st May 2017, requires him to wear corrective lenses and to have a second pair of spectacles readily available while exercising the privileges of his licence.

He flies the C2O6, BN2A and the Cessna Caravan. He does most of the flights to Kurupung Top for the company. He was checked into Kurupung Top about 3 years ago. He did not do a refresher check since then. Route checks are done regularly. The pilot was hospitalized due to injuries received in the accident.



1.6 Aircraft Information

1.6.1 General

| Manufacturer: | Cessna Aircraft Company |
|-------------------------------|-----------------------------------------|
| Year of Manufacture: | 1977 |
| Aircraft Model: | Cessna U206G |
| Aircraft S/N: | U20604124 |
| Certificate of Registration: | Issued – 21 st February 2011 |
| Certificate of Airworthiness: | Valid until 3 rd March 2017 |
| Total Airframe Hours: | 11,568:25hrs |
| Maximum Take-off Weight: | 3,800lbs |
| Last Scheduled Inspection: | 100hrs |
| Time since last Inspection: | 12:30hrs |
| Next Inspection Due: | 50hrs |
| Engine Model: | Teledyne Continental Motors IO-520 |
| | F64 |
| Engine S/N: | 1011607 |
| Engine TSN: | 1405:09hrs |
| Propeller Type: | Hartzell PHC-J3YF-1RF/F8468A-6R |
| Propeller S/N: | FP7811B |
| Propeller TSN: | 3699:39hrs |
| Propeller TSO: | 1320:21hrs |
| Fuel Type: | AVGAS 100LL |
| | |

The Cessna U206G is a six-seater single-engine general aviation utility aircraft. It is powered by a 285hp Continental IO-520 engine. It is equipped with a pilot side door and large clamshell rear door serving the two rows of seats at the rear of the aircraft. This allows easy loading of oversized cargo. The aircraft has a conventional tail unit and fixed tricycle landing gear.

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.

The aircraft had been prepared for its Certificate of Airworthiness Renewal. All related documents were in the possession of the Guyana Civil Aviation Authority.

1.6.3. Mass and Balance

The passenger and cargo were loaded at Bartica Airstrip. There is no facility to weigh passengers or cargo at this airstrip. The cargo consisted of two bottles of oxygen, two and a half pails of oil, some food stuff and other boxes. The pilot estimated that the passenger's weight was 285lbs and the total weight of the cargo and the passenger, as estimated by the pilot, was eight hundred pounds.

1.7 Meteorological Information

This accident occurred in daylight. There is no observation or recording weather facility in the vicinity of the accident aerodrome. The weather reported, at the time of the occurrence, by the pilot was – turbulence on final approach, visibility – unlimited, with rain in the distance.

1.8 Aids to Navigation

Not applicable.

1.9 Communications

The frequencies available for communications between Air Traffic Services and the aircraft are; 124.2MHz, 130.125MHz, 8855KHz and 6730.5KHz. There were no reported malfunctions of the aircraft or FIC communications systems at the time. The pilot said that he had relayed the landing report to the Flight Information Center shortly before landing.

1.10 Aerodrome Information

The following information, pertinent to the Kurupung Top Airstrip, was taken from the Guyana Aeronautical Information Publication.

| Aerodrome Identification: | SYKP(T) |
|---------------------------|----------------------------|
| Coordinates: | 06 04 07.64N 060 20 06.09W |



| Elevation: | 1200ft approx. |
|---------------------|----------------|
| Runway orientation: | 09/27 |
| Runway length: | 2428ft |
| Runway width: | 33ft |

The measured width of the runway was 16ft. 800ft of the runway surface is finished with smooth concrete. Alligator cracks are visible along the entire length of the concrete surface, with mossy growth for approximately 100ft in the touch down area. The runway appears to be slippery when wet and the concrete portion is showing signs of deterioration, with loose sand and stones on the touchdown area. The airstrip itself is part of a table top mountain with low hills on both the approach and departure ends of the runway.

There are no visual or other navigation aids, nor is there any rescue facility at this runway.

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 first impact mark, visible at the airstrip was 11ft 6 inches beyond the end of the runway. The distance from the end of the runway to the nose gear was 45ft 1 inch. There was a depression in the sand where the engine came into contact with the ground. The measurement from the end of runway to the start of depression was 81ft and the length of the depression was 7ft. The main portion of the airframe was found inverted and was measured at 135ft from the end of the runway.

Indentations on the ground show that the nose wheel dug into soft sand at the end of the airstrip. The nose wheel came off the ground and dug into the ground again and became separated from the nose wheel mount.

The aircraft engine made contact with the ground 35ft from the initial point of impact. The nose of the aircraft and the engine dug into the ground and broke away from the rest of the fuselage. The aircraft engine came to rest on the right of the main fuselage, which had flipped over lengthwise, and ended up upside down, facing the direction of takeoff.



The tail of the aircraft was broken, but not separated from the fuselage. The underside of the right wing was distorted. The flaps on both wings appeared to be set at 5°. There was some up-trim on the elevator trim tab. All engine controls were forward.



Picture #1: The fuselage separated from engine and nose wheel.



Picture #2: Fuselage with separated engine and nose wheel.



Picture #3: Damaged Tail-plane



Picture #4: Distortion on starboard wing.

1.13 Medical and Pathological Information

The pilot was admitted to hospital due to injuries received in the accident. The medical report noted trauma to the chest, abdomen and both ankles. These injuries resulted in a short period of hospitalization.

1.14 Fire

There was no fire.



1.15 Survival Aspects

Although the aircraft ended up upside down, the cabin and the cockpit of the aircraft were intact after the accident. Only the first row of seats for the pilot and co-pilot were on board the aircraft.

Both the pilot and the passenger who was seated in the copilot seat, were held in place by their seat belts. Both the pilot's and the passenger's seatbelts were snugly fitted to their waists. The aircraft is equipped with a shoulder harness but these were not in use at the time.

The pilot stated that after the crash, he loosened his own seat belt and fell out of his seat when he did this. Both himself and the passenger were assisted out of the aircraft by a bystander.

The cargo was tied down with ropes. It cannot be determined if the cargo shifted when the aircraft bounced. Some of the cargo, eggs and pumpkin, was damaged in the accident. Other cargo, the oxygen bottles and pails of oil were not at the scene when the investigators got there.

The crash was notified to the company base at the EFCIA, immediately by a resident via HF radio. The aircraft only has VHF communications on board. The aircraft was equipped with a spot tracker, which was retrieved about 20 minutes after the accident, when the SOS notification was sent to the company.

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.

Air Services Ltd is a commercial aircraft operator that holds Guyana Air Operator Certificate # 001. It is primarily a domestic charter operator, with operations from its base at the Eugene F. Correia International Airport, Ogle. The company operates a variety of aircraft including BN2A Islanders, Cessna Single Engine



Variants, Turbo Thrush Commanders and helicopters. The management of this company is considered qualified and experienced to handle the tasks it undertakes.

The company also holds Guyana Approved Maintenance Organization Certificate #003. The AMO has the required management, supervisory and line staff to effectively carry out the tasks it undertakes and utilizes the AMEL system as the basis for maintenance certification. The maintenance facility is co-located with aircraft operations at the Eugene F. Correia International Airport and includes hangar space, offices, and several specialized workshops. Base and line maintenance is done on airframes, engines, avionics, instruments and propellers for aircraft below 5700kg. The company is approved to carry out these tasks on the various aircraft types they own.

1.17.2. ASL Flight Operations Manual

The PIC has the responsibility to ensure that all loads are properly distributed and safely secured and that a load sheet specific to the aircraft has been correctly filled out for each flight. He is also required to sign this and other relevant documentation to signify his acceptance of responsibility for the flight.

It is required that the aircraft be equipped with serviceable HF communications for flights within Guyana that are outside the range of VHF communications. Aircraft must also be equipped with an ELT and a suitably sized and equipped Jungle Survival Kit.

1.18 Additional Information

1.18.1. Interview with the Pilot

The pilot said that he had planned for a short field approach and held the speed at 65kts during final approach. There was heavy turbulence on final approach which caused the aircraft to bounce on landing. In his estimation, the bounce was quite high and he also thought that he would have run out of runway in which to stop the aircraft. These two factors influenced his decision to initiate the go-around. He started the go-around at the height of the bounce and had trimmed the aircraft for



takeoff. The aircraft was out of ground effect and flew for a few seconds, but it was not climbing. The aircraft sank rapidly at an angle. It hit the ground, ran off the runway and somersaulted.

His approach was a little faster than usual. This was because of the turbulence and the aircraft was close to maximum weight. He also wanted to avoid hitting the lip at the beginning of the runway. He agreed that he may have floated and did not touch down at the threshold, but a little way beyond that.

He is very familiar with the airstrip and is comfortable operating there. He did not think that his familiarity with the airstrip had caused him to become complacent, as he is always careful and he does not take flying for granted.

Normally the wind at the airstrip is quite calm, but due to the rain that was approaching from the escarpment, it was quite turbulent. He wanted to get to the airstrip before the rain because good visibility and a dry airstrip are necessary to operate there safely. He did not feel that he was rushing the approach as the rain was quite far away and reached the airstrip sometime after the accident.

The initial preflight of the aircraft was satisfactorily completed. All parameters were within limits during the pre-takeoff ground run. There were no abnormalities on the flight from EFCIA to Bartica nor from Bartica to Kurupung Top. There was no need to use excessive trim. He was able to confirm, by a quick glance at the instruments, that the aircraft did achieve max engine power during the attempted go-around. In his opinion, nothing was wrong with the aircraft or its components.

His rest and duty period was within limits and he was in good health.

Rescue was effected by the company, the same day, by helicopter.



2. Analysis 2.1. The Pilot

The pilot is 56 years old. He obtained his Guyana CPL #276 in 2008. He is properly qualified for the flight. There was no evidence of any pre-existing medical or behavioural conditions which may have adversely affected the pilot's performance during this flight.

The pilot flies three aircraft types for the company. He has the most hours on the Cessna 206. He was checked into Kurupung Top Airstrip three years ago, there is no requirement for specific recurrent checks to individual airstrips. He is very familiar with the airstrip as he does most of the flights to this airstrip for the company.

In his effort to land before the rain, the pilot may have rushed the approach and may not have configured the aircraft correctly for landing.

2.2. The Aircraft

2.2.1. Maintenance

The aircraft has a Certificate of Airworthiness which is valid until 3rd March 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.

2.2.2. Mass and Balance

The passenger and cargo were not weighed at the point of departure. It was noted that the passenger's estimated weight, according to the pilot, was 285lbs and the pilot's weight was given as 160lbs. with the passenger seated in the copilot's seat the combined weight in the first row of seats was 440lbs. This weight in the first row of seats may have contributed to the aircraft nose-diving into the ground during the attempt to go-around.

It could not be determined if the aircraft was overweight.



2.3. The Airstrip

The airstrip is short and narrow. The pilot's knowledge of the poor condition of the airstrip when wet may have influenced his decision to hurry the landing. The absence of a windsock at the airstrip prevented the pilot from making a proper assessment of prevailing wind conditions there.

2.4. The Weather

This accident occurred during the afternoon in daylight. At the time of the accident, the pilot reported that there was turbulence on final approach, unlimited visibility and rain in the distance. The attempt to land the aircraft before the approaching rain reached the airstrip may have contributed to this accident.

2.5. Survival Aspects

The first row of seats in the aircraft is equipped with both shoulder harness and seatbelts. The seatbelts functioned satisfactorily. The shoulder harnesses were not used.

Persons living in the vicinity of the airstrip assisted in removing the pilot and passenger from the aircraft which had come to a stop upside down.

2.6. The Company

The company did not provide the equipment necessary to ensure that the passengers and cargo can be weighed at the point of departure.



3. Conclusion

3.1 Cause

The probable cause of this accident was due to a rushed landing and the subsequent failed attempt to initiate a go-around.

3.2 Contributory Factors

The turbulence on final approach did not allow the aircraft to be stabilised before landing.

3.3 Findings

3.3.1. The Pilot

- 1. The pilot's licence was valid.
- 2. The pilot was qualified and experienced to carry out the intended operation.
- 3. The pilot holds Guyana CPL #276which he obtained in 1999.
- 4. His current medical is valid until 31st May 2017. He was medically fit and adequately rested to operate the flight.
- 5. His last APC on type was satisfactorily completed on 17th August 2016.
- 6. The pilot was familiar with the airstrip conditions, having operated into the airstrip frequently for several years.
- 7. The pilot may have rushed the landing in an attempt to beat the approaching weather.

3.3.2. The Company

- 1. The company holds an Air Operator Certificate and an Approved Maintenance Operator Certificate.
- 2. The company is suitably staffed and equipped for its operations.
- 3. The company did not provide equipment, at the point of departure, that is required to weigh passengers and cargo.



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 nose-dived into the ground.

3.3.4. The Weather

The weather at the airstrip at the time of the accident was VMC. However, the pilot reported turbulence on final approach and rain approaching the airstrip.

3.3.5. The Airstrip

- 1. The airstrip is short and narrow. Less than 1/3 of the runway, 800ft has a smooth concrete surface.
- 2. The airstrip is not properly maintained.
- 3. The presence of moss on the concrete surface will contribute to its surface becoming slippery with little rainfall.
- 4. The absence of the windsock contributed to the pilot being unable to correctly assess the wind at the airstrip.



4. Safety Recommendations

4.1. The Pilot

The pilot should be required to complete the following: -

- 1. Review the Aircraft Flight Manual especially the landing techniques for operations at short runways.
- 2. Review the effects of weather, especially the effects of turbulence.
- 3. Crew Resource Management with emphasis on single crew operations. This must include airmanship, attitude, the need to guard against complacency and the importance of self-discipline, situational awareness, problem solving and decision making.

4.2. The Airstrip

1. This airstrip needs to be upgraded and developed to facilitate safe aircraft operations.