



AIRCRAFT ACCIDENT REPORT

Cessna 206: Registration – GDF 3

At Jaguar Airstrip Region No. 7 Guyana

24th September, 2014

REPORT # GCAA: 2/5/1/77

This report represents the conclusions reached by the Guyana Civil Aviation Authority Accident Investigation Team on the circumstances surrounding the aircraft accident, involving Guyana military registered aircraft – Cessna 206, GDF 3.

This investigation was done in accordance with Annex 13 to the Convention on International Civil Aviation. The investigation is intended neither to apportion blame, nor 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.



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ABBREVIATIONS

AMO-	Approved Maintenance Organization
AOC -	Air Operator Certificate
DG -	Dangerous Goods
ELT –	Emergency Locator Transmitter
GARs -	Guyana Aviation Safety Requirements
GCAA –	Guyana Civil Aviation Authority
GDF –	Guyana Defence Force
HF –	High Frequency
IAW -	In accordance with
ICAO –	International Civil Aviation Organization
No. -	Number
PIC –	Pilot in Command
S/N –	Serial Number
SOPs –	Standard Operating Procedures
TSO -	Time since overhaul
UTC –	Coordinated Universal Time
VFR –	Visual Flight Rules
VHF –	Very High Frequency



SYNOPSIS

On 24th September, 2014 Guyana Defence Force Cessna 206 aircraft, Registration No. GDF 3, departed Cheddi Jagan International Airport at 18:54hrs UTC for Jaguar Airstrip, location 03 18 19.07N 057 35 10.08W, with one crew and three passengers on board. The aircraft crashed during the second attempt to land at Jaguar Airstrip. The aircraft approached high and fast and touched down well beyond the normal touchdown point on the runway and subsequently ran off the runway. Dangerous Goods consisting of a fifteen gallons of fuel in a plastic fuel container was on the aircraft. There were no injuries or fatalities.

The aircraft, GDF 3 is a military aircraft and does not fall under the purview of the Guyana Civil Aviation Authority. Its records were are not fully available to the Accident Investigation Team. However the pilot has a civilian licence, thus a civilian investigation was carried out.



1. FACTUAL INFORMATION

1.1. History of the Flight

The pilot reported that on 24th September, 2014, he was scheduled to do two flights with the Cessna 206 aircraft, Registration No. GDF 3. The first flight was to Tacama Airstrip. Having completed the Tacama flight. He prepared for the second flight which was to Jaguar Airstrip. He supervised the loading and departed from his company base, Cheddi Jagan International Airport, with three passengers and cargo for Jaguar Airstrip. The flight was uneventful until the approach to Jaguar. In keeping with the procedure for operating into an uncontrolled airstrip, the pilot approached the airstrip on left circuit and checked the airstrip to observe its condition and to confirm that it was clear. He then made the approach to land but his first attempt was too high and fast and required a second approach. He made the second approach and landed. The aircraft touched down beyond the touchdown point and ran off the runway. The accident was a runway excursion that occurred during mid- afternoon. There were no injuries or fatalities.

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	3	0	4
Total	1	3	0	4



1.3. Damage to Aircraft

The Aircraft was destroyed.

1.4. Other Damage

There was no other damage

1.5. Personnel Information

1.5.1. Flight Crew

Pilot Licence	Guyana Commercial Pilot Licence #270
Aircraft Ratings	Single Engine Land; Multi Engine Land
Type Ratings	BN2 Islander, Cessna 172, Cessna 206
Date of Birth/Age	21 st March, 1980/34 years
Type of Medical	1 st Class
Medical Expiry Date	31 st January, 2015
Total Flying Hours	1820:00hrs
Hours on Type	30.00hrs approx.
Duty in Last 7 days	11:00hrs
Duty in last 24 hours	0hrs
Hours on Duty prior to landing	6hrs
Last APC/IPC	3 rd August, 2014
Aircraft Type Refresher Check	19 th September, 2014

The pilot is an officer of the Guyana Defence Force, Air Corps, having joined the organization in September, 1998. He completed his last medical on 22nd July, 2014. He



has no medical limitations. The record of his flight and duty times are within acceptable limits.

1.6. Aircraft Information

1.6.1. General

Manufacturer	Cessna Aircraft Company
Aircraft Registration	GDF 3
Type and Model	Cessna U206G
Year of Manufacture	Unknown
Serial Number	Unknown
Certificate of Airworthiness	Not Issued
Next Inspection	Unknown
No. and Type of Engine	One
Engine Serial Number	835224
Total Engine Time	Unknown
Engine TSO	112.57hrs
Maximum Allowable Take Off Weight	3600lbs
Maximum Allowable Landing Weight	3300lbs
Fuel Type	Av Gas

The history of this aircraft is largely unknown. It was acquired by the Guyana Defence Force Air Corps in 2013. A decision was taken that it could not be entered on the Guyana Civil Aircraft Register due to lack of evidence of de-registration of the aircraft and an unapproved wing/fuel tank modification. Thus, the civil regulatory body has no jurisdiction over this aircraft. The company has advised that the aircraft's engine was sent



for overhaul and the time since overhaul is 112.57hrs. The aircraft has accumulated 112:57hrs since coming into operation with the company. No other useful information was provided.

1.6.2. Maintenance

Aircraft maintenance is done by the GDF Air Corps Engineering Section which is the holder of AMO Certificate #3.

1.6.3. Mass and Balance

The aircraft was dispatched with three passengers and their personal baggage and a small amount of cargo. From the pilot's description of the payload, the aircraft was not overloaded. The pilot stated that he supervised the loading and he considered it to be satisfactory. It was noted that one passenger was seated in the co-pilot's seat. The first row of passenger seats was removed and a 15gl pail of fuel along with a small amount of cargo was put in that position. The other two passengers, with an approximate weight of 165lbs each, were seated in the two rear seats. The passengers' overnight bags along with a tool kit were behind them in the cargo compartment.

1.6.4. Crew and Passenger Entry/Exits.

The crew exit is located on the left of the cockpit near to the pilot seat. There is one other door located on the right side of the passenger section of the cabin.

1.6.5. Emergency Locator Transmitter (ELT)

The aircraft was equipped with an ELT that transmits on 121.5MHz and 406.025MHz simultaneously. The pilot stated that he activated the ELT before exiting the aircraft. The signal was received by Air Traffic Services at Timehri.

1.7. Meteorological Information

This accident occurred in daylight. There is no observation or recording station in the vicinity of the accident aerodrome. The Officer-in- Charge of this airstrip is given basic training in weather reporting. He had reported that the weather was fair with good visibility. This was confirmed by the pilot.



1.8. Aids to Navigation

There are no aids to navigation in the area.

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.

1.10. Aerodrome Information

This accident occurred at Jaguar Airstrip, location 03 18 19.07N 057 35 10.08W in Region #6, Guyana. It is 2200ft long and 50ft wide, elevation 595ft, orientation 10/28. The surface of the airstrip is undulating and consists of loam soil and grass. Jaguar is an uncontrolled VFR airstrip, equipped only with a windsock. There are no marks or other landing aids at this airstrip. It is a military airstrip that is managed and maintained by the Guyana Defence Force.

Several experienced pilots expressed the opinion that although this airstrip is in excess of 2000ft it is not an easy airstrip for inexperienced pilots to operate into because of obstacles on the landing approach.

1.11. Flight Recorders

The aircraft is not required to be equipped with flight recorders.

1.12. Wreckage Information

1.12.1. Wreckage site

The wreckage was located approximately 200ft from the end of RWY10. The aircraft was almost covered by the dense undergrowth.

1.12.2. Damage to Aircraft



The aircraft was damaged beyond economic repair. It ran head on into small but sturdy trees. This resulted in distortion of the fuselage, damage to both wings and the propeller assembly.

Most of the aircraft parts remained attached to the fuselage. Both port and starboard wings were detached from their forward attachment points and were bent and swept backwards. The port wing strut was completely broken off from the lower fuselage attachment point. The lower fuselage was wrinkled and badly damaged. The cabin was damaged. The empennage suffered minor damages.

The engine top cowls were not damaged, but the lower engine cowls were wrinkled. There was no oil on the dipstick.

The propeller blades were bent and dirt on the blade tips are indicative of a ground strike. One blade suffered loss of material at the blade tip and another showed a large cut at the tip. The third blade tip was bent.

1.13. Medical and Pathological Information

The pilot was not subjected to any medical tests.

1.14. Fire

There was no fire.

1.15. Survival Aspects

This accident was a runway excursion after landing. The vegetation in the landing direction beyond the runway was heavy bush. Thus although the aircraft was destroyed, the impact did not cause injury to the crew and passengers on board. Seats, seat belts and harnesses were intact and functioned properly. One passenger had exited the aircraft before it came to a stop. The pilot was able to open the crew door and directed the passengers to evacuate the aircraft.

The location of the airstrip in relation to the military base would have facilitated quick rescue.



1.16. Tests and Research

No tests or research were carried out.

1.17. The Organization

The Guyana Defence Force Air Corps is a military organization that operates both military and commercial flights. Traditionally aircraft operations and maintenance are in keeping with the Guyana Civil Aviation Requirements and the organization holds Air Operator Certificate (AOC) No. 5 and Approved Maintenance Organization (AMO) No. 3, certification from the GCAA.

Some of the company's aircraft are listed on the Guyana Aircraft Register having met all the requirements for registration. However some of its aircraft were unable to meet the requirements for civil registration and were subsequently given military registration numbers and are restricted to military use only. Notwithstanding the military registration, the company has given assurances that these aircraft are operated and maintained in accordance with civil aviation regulatory requirements. There are no military aviation regulations in existence in Guyana.

All of the company's approved management positions are held by military officers.

1.18. Other Information

1.18.1. General

Several eyewitnesses reported that the aircraft circled the airstrip and then made the first attempt to land, but was too high. The aircraft went around and made a second approach, it appeared to be still too high, but the aircraft touched down beyond the normal touchdown point. The aircraft bounced on touchdown, then bounced again. On the second bounce the nose of the aircraft pitched up and the tail hit the ground. The aircraft then swerved left and right across the airstrip, out of control and then went into the jungle. One eyewitness noted that he heard the aircraft engine revved up before it exited the airstrip and went into the jungle.

1.18.2. Interview with the Pilot



In his interview, the pilot stated that he made two approaches to land. The first was too high and fast and he went around. He thought that the second approach was good and he landed the aircraft. He was not sure of the touchdown point but the aircraft bounced twice and then the nose of the aircraft started bobbing up and down. He later explained that this was strange to him and he applied power to stabilize the aircraft. It was not an attempt to take off as he realized that he was too far down the runway.

He stated that it was pilot error because everything else was within normal limits.

He considered that the loading was properly done and it was not tail heavy. He was not aware that the aircraft suffered a tail strike after landing.

It was noted that except for the training and check-ride on the accident aircraft, all flying, when he resumed duties after one year out of the system, was on the Skyvan. He however did not think that he had a problem with depth perception in moving from the Skyvan to a smaller aircraft. He acknowledged that there may have been some complacency on his part and he probably took things for granted.

1.18.3. Interview with Check Airman

In an interview with the check airman he stated that he observed the training that was done with the pilot and immediately thereafter he did the check ride with him. Both the training and check were satisfactorily done. He also said that he knew that the organization had planned flights for Jaguar and he had advised the entire management of Air Corps against the pilot doing these flights unless accompanied by a more experienced pilot. On the day of the accident he was advised that the pilot would be doing a Jaguar flight and he again advised against this.

When asked he said that he did not think that he could have stopped this flight as the decision was above him. Further, Air Corps was aware of his recommendation and overriding forces may have been exerted to insist that this flight was done. The main reasons for his recommendation were his concerns about the pilot's inexperience and the critical nature of the airstrip.



1.18.4. Interview with the Director of Operations

The Director of Operations is the company's most experienced pilot on this aircraft. He is the holder of Guyana ATPL #119 and did training with the accident pilot on the aircraft. He stated that the aircraft is finicky and he had briefed the pilot about this. He had agreed with the check airman that the pilot should not go unaccompanied into Jaguar on his first few flights there.

He stated that a few days before the accident, he was told that the pilot was scheduled to do two flights to Tacama on 24th September, the day of the accident, and the next day he was scheduled for a flight to Jaguar. Although he was on vacation he had agreed to make himself available for the Jaguar flight on 25th September.

He noted that there was a communication failure as no one contacted him prior to the accident flight, therefore he was not aware of it until after the accident. There was also a breakdown in decision making as management of Air Corps was aware that the pilot was not cleared, to go unaccompanied into Jaguar, but he was nevertheless given this assignment.

He also noted that even if pressure was exerted at a higher level, the decision making of the pilot comes into question, as he should have been disciplined enough to make a rational decision, to not land and return to base, if that was warranted.

He stated that in his opinion, the things that contributed to the accident were bad load configuration, inadequate training to arrest a faulty landing, lack of situational awareness and procedures in attempting a go-around.



2.0. ANALYSIS

2.1. The Pilot

The pilot is a military officer who joined the Air Corps in 1998. He started training on the Cessna 206 in 2006 and was Type checked in 2010. When queried, he stated that he had acquired about 100hrs on the type, however review of his log book indicates that he had only achieved approximately 30hrs on type from 2006 to 2014.

The pilot was overseas on military training for one year, 2013-2014. Review of his logbook shows that, upon his return, he did refresher training and a check on the accident aircraft on 19th September, 2014 for a total of 1:5hrs. This represented his only time on this particular aircraft. Prior to this, his last flight on the type was done since November 2012. His training was done by the company's Director of Operations who is the holder of ATPL No.119, but whose civilian records do not show him as a pilot approved to do training, however he may have been so authorized by the military. This training was observed by an Approved Check Airman, who also did the check.

The pilot's limited experience both generally and specifically on the accident aircraft may have contributed to his inadequate reaction to bring the aircraft under control after landing. His inexperience may have also contributed to his incorrect reaction of accelerating the aircraft instead of shutting off the power when the aircraft bounced on landing, if he did not plan to execute a go-around.

The pilot's situational awareness may not have been at its best during the approach and landing, because the aircraft was high and fast on the second attempt and he was not sure of the touchdown point. Further although the pilot denied that he was attempting to go



around after the touchdown, this may have been his first inclination when he pushed in the power instead of shutting it down.

2.2. The Company

The military officers who manage this unit are quite knowledgeable and very enthusiastic and display great pride and unity in their unit.

The Check Airman stated that he was aware that the GDF had planned several flights to Jaguar. In the de-brief, on completion of the check ride, he advised the pilot, the Director of Operations, the Chief Pilot and the Accountable Manager that while this check ride was satisfactorily completed, this pilot should not go into Jaguar unaccompanied as he considered it to be a critical airstrip for inexperienced pilots. This recommendation was agreed to.

The Check Airman also stated that it was agreed that for this pilot's first few flights into Jaguar he would be accompanied by the Director of Operations. Five days later the pilot was assigned and accepted a flight programme to go as pilot-in-command, unaccompanied, into Jaguar. The Director of Operations stated that he was on vacation and only became aware of this flight programme when he was notified of the accident.

Although a load sheet was not presented to the Investigation Team, it was determined that the aircraft was not overloaded but was improperly loaded. The two passengers and their baggage which were put in the rear of the aircraft were much heavier than the 15gl pail of fuel, which was loaded in the front passenger section. The Director of Operations said that he had spoken to the pilot about proper loading of this aircraft as it did have a nose up tendency if not properly loaded. It is believed that this tail heavy loading contributed to the reported tail strike that the aircraft suffered on landing.

Although no maintenance records were presented, it is believed that the aircraft had no mechanical problem that could have contributed to the accident.

Jaguar airstrip is considered to be critical for inexperienced pilots as the approach to landing has to be set up very precisely. However the Chief Pilot of Air Corps said that he



does not consider this to be so, as according to the GARS, special checks are only required for airstrips less than 2000ft and Jaguar is not in that category. He failed to recognize that the GARS sets a minimum standard and length is not the only determinant for categorizing airstrips. Aircraft Operators are expected to recognize this and are required to establish their own limitations which should not be less restrictive than regulatory requirements. It is also noted that although the Chief Pilot is rated on the aircraft type he does not fly this aircraft.

Although the GDF has supplemented its flight crews with very knowledgeable and experienced civilian and ex-military pilots, it is apparent that these experienced pilots have no say in the management of the organization. Air Corps can benefit far more from the services of these pilots if their value is recognized and their advice and suggestions are taken on board not only by the management of Air Corps but also by the GDF high command.

The request for this flight was made by the GDF High Command and accepted by the Accountable Manager, who then passed the instruction on to the Chief Pilot, who in turn notified the pilot of the mission. Bearing in mind that, as previously mentioned, the entire management of Air Corps and the pilot were all aware that he was not cleared to fly unaccompanied into Jaguar, they should have refused the flight due to unavailability of crew, or arrange for the flight to be done by the Director of Operations.

It was noted that the accident pilot is also the Safety Officer of Air Corps. By accepting this assignment he violated several tenets of this position and thereby imperiled his own safety and that of the passengers.



3.0. CONCLUSION

3.1. Cause

The probable cause of the accident was that the aircraft touched down beyond the touchdown point and ran off the confines of the runway in an uncontrolled manner.

3.2. Contributory Causes

1. The approach to landing was not properly set up and the aircraft was high and fast on final.
2. When the aircraft bounced on landing it is apparent that the pilot panicked and reacted incorrectly by pushing in power, instead of cutting the power, this resulted in the aircraft running off the runway.

3.3. Findings

3.3.1. General

1. This accident was avoidable.
2. Although the pilot, who is the Safety Officer of the organization, supervised the loading, it is apparent that the aircraft was not properly loaded.
3. The management of Air Corps disregarded advice from the Check Airman by sending the pilot unaccompanied into Jaguar, based on the presumption that the airstrip is not critical because it is more than 2000ft long.



4. Bearing in mind that the pilot with the most experience on this aircraft considered it to be finicky, the accident pilot did not have enough experience on this aircraft and should not have been released as its pilot in command, unaccompanied, into this airstrip.

3.3.2. The Pilot

1. The pilot had completed his Aircraft Proficiency Check Ride on the accident aircraft five days before the accident.
2. He had acquired a total of 1820hrs and 30hrs on type.
3. The pilot is the Safety Officer for the organization.
4. He was not cleared to go into Jaguar Airstrip as pilot in command unaccompanied and although he was specifically advised against going there alone, on his first flight, he nevertheless accepted this assignment.
5. The pilot displayed poor judgment in accepting this assignment although he was previously advised against doing so.
6. The pilot's decision-making and crew resource management strategies were totally lacking.
7. The pilot displayed lack of situational awareness as he was unaware of the touchdown point of the aircraft.
8. The pilot failed to ensure that the aircraft was stabilized on final before landing it.
9. The pilot acknowledged that the accident was caused by pilot error as all other systems were functioning satisfactorily and there may have been some complacency on his part.

3.3.3. The Organization

1. The GDF Air Corps is a military organization that does both military and civilian operations.
2. Civilian operations are guided by the company's Flight Operations Manual.



3. As far as the investigating team is aware, there is no written guidance for military operations.
4. The Accountable Manager and the Chief Pilot were both aware that the pilot was not cleared into Jaguar unless accompanied by a more experienced pilot and should therefore not have given him this assignment.
6. The Accountable Manager and the Chief Pilot should have taken into account the pilot's general and specific inexperience on the type and the fact that he only recently returned after a year's absence from flying.
5. The Accountable Manager should have informed the GDF High Command that sufficient crew was not available to do this flight, or alternatively arrange for the flight to be done by the Director of Operations.
6. The Organization does not make efficient and effective use of the experienced civilian and ex-military pilots that are available to it.



4. RECOMMENDATIONS

1. The Chief Pilot must establish a method to determine critical airstrips and must establish the requirements and limitations for company operations into these airstrips.
2. Recognizing that some hinterland airstrips have peculiar operating limitations, the company must provide additional training for their pilots to ensure that they gain enough experience, are aware of the limitations, and are comfortable operating into these airstrips, before releasing them unsupervised as pilot in command to these airstrips.
3. Review training in aircraft approach and landing procedures to re-enforce the need to stabilize aircraft on final before attempting to land.
4. In reviewing the training as stated at 2. & 3. above, it is necessary to re-enforce that flight planning must include and ensure that a backup (Plan B) is considered, if an unplanned situation develops. This 'Plan B' must include a plan to proceed to an alternate airstrip or back to base.
5. The company must arrange regular briefing sessions which will remind pilots about the essentials of single crew resource management. This will include the importance of self-briefing to recognize hazards early and the decision making process to mitigate these.
6. Air Corps must move urgently to establish a Manual of Standards and Operating Procedures to provide guidance for military operations.
7. With the present lack of guidance and oversight of military aircraft operations, in the interest of safety Air Corps should consider the use of external auditors to assess the current military operations. To this end an experienced team consisting of management, engineering and operations experts from the industry could be set up for this purpose.



8. This pilot should devote his full attention towards his personal development as a professional pilot. Therefore he should be immediately relieved of the duties of Safety Officer. He needs to improve his overall standard of airmanship together with his knowledge and application of flight operations procedures. To achieve these objectives, he should fly only in two crew operations with company captains for at least two years. These captains will monitor his performance and assist with his development. This recommendation provides the opportunity for him to develop into a safe, competent and confident flight crew member.