



AIRCRAFT ACCIDENT REPORT

AIB /NCAT/ 2008/07/22/F

Accident Investigation Bureau

**Report On The Accident Involving
TAMPICO Club 9
Registration No. 5N-CAV Which Occurred
On the 22nd July, 2008.**



This report was produced by the Accident Investigation Bureau (AIB), Murtala Muhammed Airport, Ikeja, Lagos.

The report is based upon the investigation carried out by Accident Investigation Bureau, in accordance with Annex 13 to the Convention on International Civil Aviation, Nigerian Civil Aviation Act 2006, and Civil Aviation (Investigation of Air Accidents and Incidents) Regulations.

In accordance with Annex 13 to the Convention on International Civil Aviation, it is not the purpose of aircraft accident/serious incident investigations to apportion blame or liability.

Readers are advised that Accident Investigation Bureau investigates for the sole purpose of enhancing aviation safety. Consequently, Accident Investigation Bureau reports are confined to matters of safety significance and should not be used for any other purpose.

As the Bureau believes that safety information is of great value if it is passed on for the use of others, readers are encouraged to copy or reprint for further distribution, acknowledging Accident Investigation Bureau as the source.

Recommendations in this report are addressed to the regulatory Authorities of the state (NCAA). It is for this authority to decide what action is taken.

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GLOSSARY OF ABBREVIATION USED IN THIS REPORT

AIB	Accident Investigation Bureau
AOL	All Operators Letters
AMO	Approved Maintenance Organization
EFATO	Engine Failure after Take-Off
FMD	Flight Maintenance Department
FTD	Flight Training Department
MAY DAY	Code Used By Pilots to Declare Emergency
MEL	Minimum Equipment List
MMEL	Master Minimum Equipment List
NAMA	Nigeria Airspace Management Agency
NCAA	Nigerian Civil Aviation Authority
NCAR	Nigerian Civil Aviation Regulation(s)
NCAT	Nigerian College of Aviation Technology
NDB	Non Directional Beacon
NIMET	Nigerian Meteorological Agency
NM	Nautical Mile(s)
MOE	Maintenance Organization Exposition
SB	Service Bulleting
SOP	Standard Operating Procedure
UTC	Universal Time Coordinated
VP2A	Manufacturer's Code for 50 hrs Inspection A=25 HRS
QNH	Altimeter Setting that Causes Altimeter to Indicate Altitude above Sea Level
PPL	Private Pilot License
CPL	Commercial Pilot License
SPL	Student Pilot License
ERP	Emergency Response Plan
SP	Standard Pilot
KTS	Knots (Nautical mile per hour)



Aircraft Accident Report No: (NCAT/2008/07/22/F)

Registered Owner and Operator: Nigerian College of Aviation Technology, (NCAT) Zaria.

Aircraft Type and Model: Tampico Club TB-9

Registration: 5N-CAV

Place of Accident: Zaria Aerodrome

Date and Time: 22nd of July, 2008 at 0851hrs

(All the times in this report are local time equivalent to UTC + 1) unless otherwise stated).

SYNOPSIS

The Accident Investigation Bureau (AIB) was notified of the Accident at 1000hrs on the 22nd of July, 2008. The AIB arrived Zaria at 2000hrs on the same day. Before the arrival of AIB Investigators, the Head of the Flying School, in company of other instructors had visited the crash site.

A Tampico aircraft 5N-CAV on a solo flight within the training area in Zaria, with one student pilot on board, and four hours endurance, crash landed into the aerodrome fence, 200 meters from end of the runway 24 along the extended center line.

The Nigerian College of Aviation Technology (NCAT), Zaria is charged, among others, with the responsibility of providing approved training for private and commercial pilot licenses with multi engine and instrument ratings.

The investigation identified the following factors:

Causal Factor

The decision of the Instructor to release the student for first solo flight despite inadequate training.

Contributory Factors

- (i) The inappropriate use of carburetor heat by the student led to reduced power, engine vibration, which consequently caused the student to panic and lost control of the aircraft.
- (ii) Non-adherence to procedures for release of the student for first solo flight as specified in the NCAT Flight Training Manual.

Three safety recommendations have been made and the operator's responses are in Appendix 2.

1.0 FACTUAL INFORMATION

1.1 History of Flight:

The student resumed at 0650hrs, checked her schedule and was told that she was to fly that morning. She met the instructor who briefed her of the day's exercise. After completing the pre-flight exercise, the engine was started and all checks were carried out in accordance with the checklist. The instructor and the student taxied the aircraft to the holding point of runway 24. Departure clearance was given and the aircraft was cleared for take-off.

The Instructor and the student performed various exercises, which included normal circuits with touch-and-go, and engine failure after take-off (EFATO). They did a total of seven touch and go before the solo flight. The Instructor was satisfied with the student's performance, and asked if she was ready for a first solo flight, which the student answered in affirmative.

After briefing the student, the Instructor cleared her for the flight and went up to the control tower to inform the air traffic controllers and to monitor the solo flight before he was later joined by two other instructors.

The student took-off at 0932hrs after completing the checks. It was a normal take-off. The climb out, cross wind, downwind, base and final legs were also normal. The prevailing weather was Visual Meteorological Condition (VMC).

On final approach, the aircraft appeared too high, the student tried to correct by pitching down, flared the aircraft, contacted the runway and bounced three times before executing a go-around. The next circuit after the go-around was normal until the final approach. On the final approach the aircraft appeared to be low, and

contacted the ground before the threshold, went up again flew low along the runway, contacted the runway again, before the student decided to go around for the second time. After the go around, the aircraft flew low. The Instructor at the control tower took over the microphone from the controller to advise the student to clean up (flaps up) and use maximum power setting. After the advice, the aircraft started gaining height. The Instructor asked the student of the current indicated airspeed, the student replied '70 kts' and then later increased to 80 kts.

The student made several turns to avoid obstacles. The aircraft was seen heading towards the runway and appeared to be losing altitude. The student turned towards runway 06 and meanwhile there was another aircraft on finals runway 24. The student then turned the aircraft to the right side of runway 06, descended into the grass and the port wing of the aircraft impacted the ground, lost control of the aircraft and crashed into the aerodrome fence at 0951hrs.

There was no outbreak of fire; no fatality and no one sustained injury both in the aircraft and on the ground.

1.2 Injuries to Persons

Injuries	Crew	Passengers	Others
Fatal	Nil	Nil	Nil
Serious	Nil	Nil	Nil
Minor/None	Nil	Nil	Nil

1.3 Damage to Aircraft

The aircraft was destroyed as a result of impact with the aerodrome fence.

1.4 Other Damage

A section of the aerodrome fence was damaged.



Photograph showing damage to the section of the perimeter fence of the Aerodrome and the Aircraft.

1.5 Personnel Information

1.5.1 The Student Pilot

Age:	32 years
Nationality:	Nigerian
Gender:	Female
Flying Experience:	24 hours: 50 Minutes.
License No:	Student Pilot Licence (SPL) 5082
Validity:	21/05/08 to 31/05/10
Medical Expiry:	31/05/10

The Student Pilot

She was admitted into NCAT on 17/3/08 as a student pilot for PPL course and started the PPL-ground studies. Before her admission into the college, she worked with Mobile Telecommunications Limited (MTEL), and was privately sponsored for the PPL training. Before her admission into the college, she obtained higher National Diploma from Nigerian Institute of Science and Technology, Jos, Plateau State on 24th of April 1997. She had also attended some courses in NCAT such as satellite communication principles and flight operations basic course in the year 2007.

1.5.2 Instructor

Age:	41 years
Nationality:	Nigerian
Gender:	Male

Flying Experience: 1173 hours.

License No: CPL 4732

Validity: 31/07/08

Medical Expiry: 31/07/08

Proficiency: 31/01/08

1.5.3 Licensed Aircraft Engineer who released the Aircraft to service

Nationality : Nigerian

Age : 44 years

Gender : Male

Location : Zaria Aerodrome

License/Ratings : CAT 'A' & 'C' TB-9 Land Planes

Relevant approvals : CAT 'A' & C, TB-20

Experience : 10 years

Duty Pattern/Shift : 3 days morning, 3 days
afternoon and 3 days off

1.6 Aircraft Information

1.6.1 General Information

Registration:	5N-CAV
Owner/Operator:	NCAT
Type:	TAMPICO Club TB-9
C of A validity:	2 nd October, 2008
Serial Number:	1842
Year of Manufacture:	1997
Airframe life at time of accident:	599 hours
Engine Type:	Avco Lycoming O320-D2A
Year of manufacture:	1993
Serial Number:	L-17992-9A
Hours/Cycles:	312 hours
Type of fuel used:	Aviation Gasoline (Avgas)

1.6.2 Maintenance History of Engine/Log Book Entries

The aircraft was manufactured in 1997 and was fitted with engine manufactured in 1993. The aircraft 5N-CBE was duly registered according to Civil Aviation Regulation and accumulated a total flying time of 746 hours and 35 minutes before it was overhauled on the 15th of March, 2007 at the Facility of Don George Aircraft USA, an FAA Approved Repair Station. After the overhaul, the engine was issued with Export Certificate of Airworthiness dated 4th of April 2007.

On arrival in Nigeria, the engine (L-17992-39A) was fitted on 5N-CBE which was issued C of A by Nigerian Civil Aviation Authority (NCAA) on the 30th of April 2007. On the 8th of October, 2007 this engine was transferred to 5N-CAV after servicing and Certificate of Release to Service (CRS) was issued.

From available records, the aircraft was maintained in accordance with Socata Maintenance Schedule. However, 5N-CAV had only 45 minutes before the next VP 2A (50 hours) inspection but the aircraft was released for flight. A total flying time of 1hr 39 mins was used for the flight, out of which 1hr 20 mins was used for the dual flight, while 19 minutes was used for the solo flight.

The aircraft had completed a total of 598hrs 55 mins flight time; the engine had completed 312 hrs before the accident, however the aircraft was flown 54 mins beyond the scheduled maintenance time. There were cancellations in both the technical and engine log books.

1.6.3 Solo Flight Schedule

On arrival of the instructor at the Flight Operations room on the 22nd of July, 2008, he was scheduled to fly with this student, followed by another student. He made entries into the flight authorization sheet and then proceeded with the student to the airplane. The instructor in company of the student jointly performed all the checks using check list and requested for taxi. The exercise was circuit which consisted, take off, climb, cross wind, downwind, base, final, and touchdown. The instructor in company of this student performed seven touchdown, in which the student was on the controls. After taxiing off the runway, the instructor told this student that he was satisfied with the performance and asked the student to prepare for a solo-flight.

1.6.4 Training System and Student Flying Progress Record

The first solo exercise is a major milestone on the road to successful flying career and the instructor was responsible for ensuring that the student was well prepared for solo flight before being released. Before the solo flight exercise, various trainings which included aircraft familiarization to effects of control and subsequent review of progress checks were carried out.

1.7 Meteorological Information

1.7.1 Meteorological Condition

The meteorological condition as obtained from Nigerian Meteorological Agency (NIMET) was as follows:

Time:	0800 UTC
Wind:	230/10 kts
Visibility:	20 km
Temperature:	21 ⁰ C
QNH:	1015 hpa

1.8 Aids to Navigation

Non Directional Beacon (NDB) was serviceable at the time of the accident.

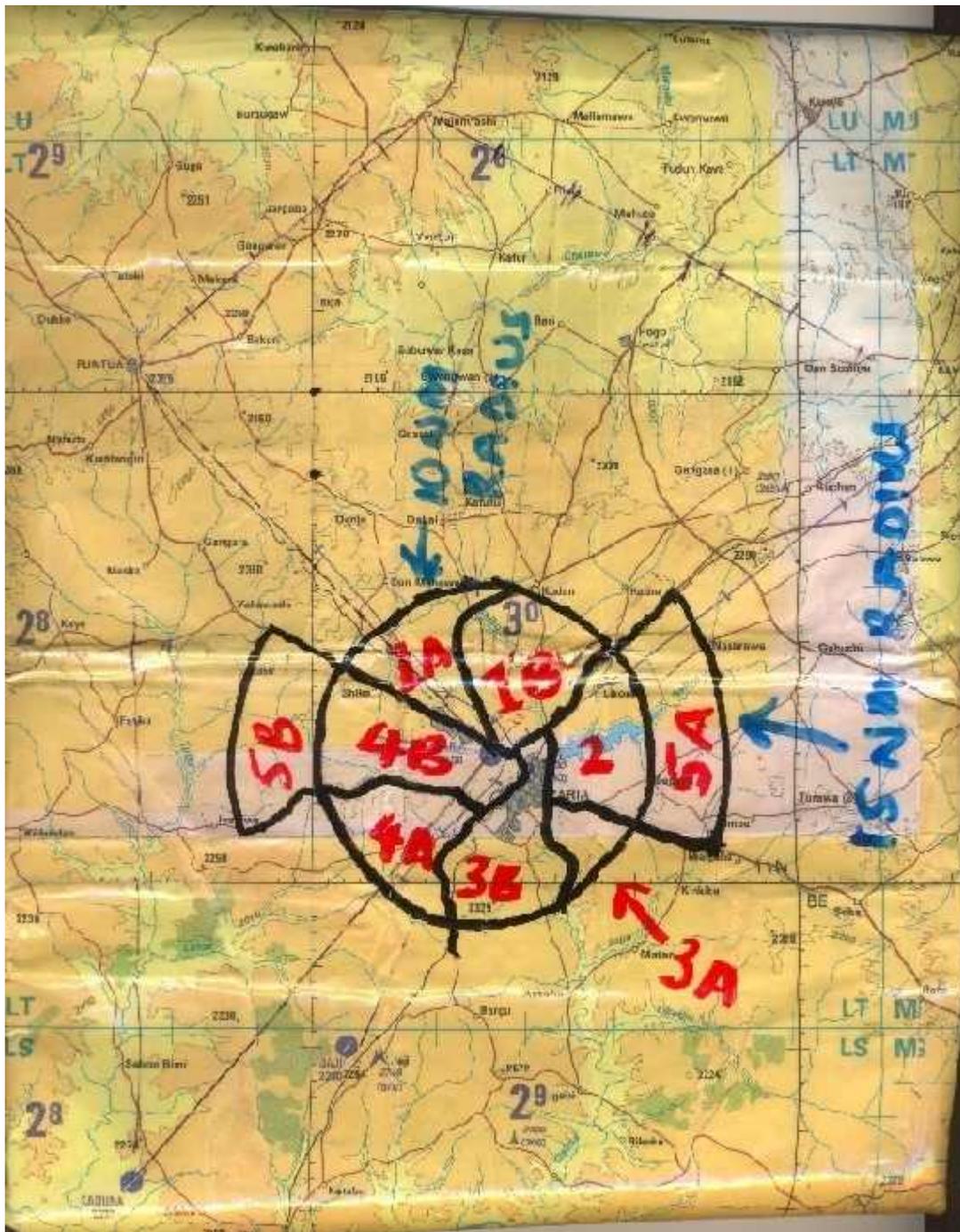
1.9 Communication

There was good communication between the aircraft and the control tower throughout the duration of the flight.

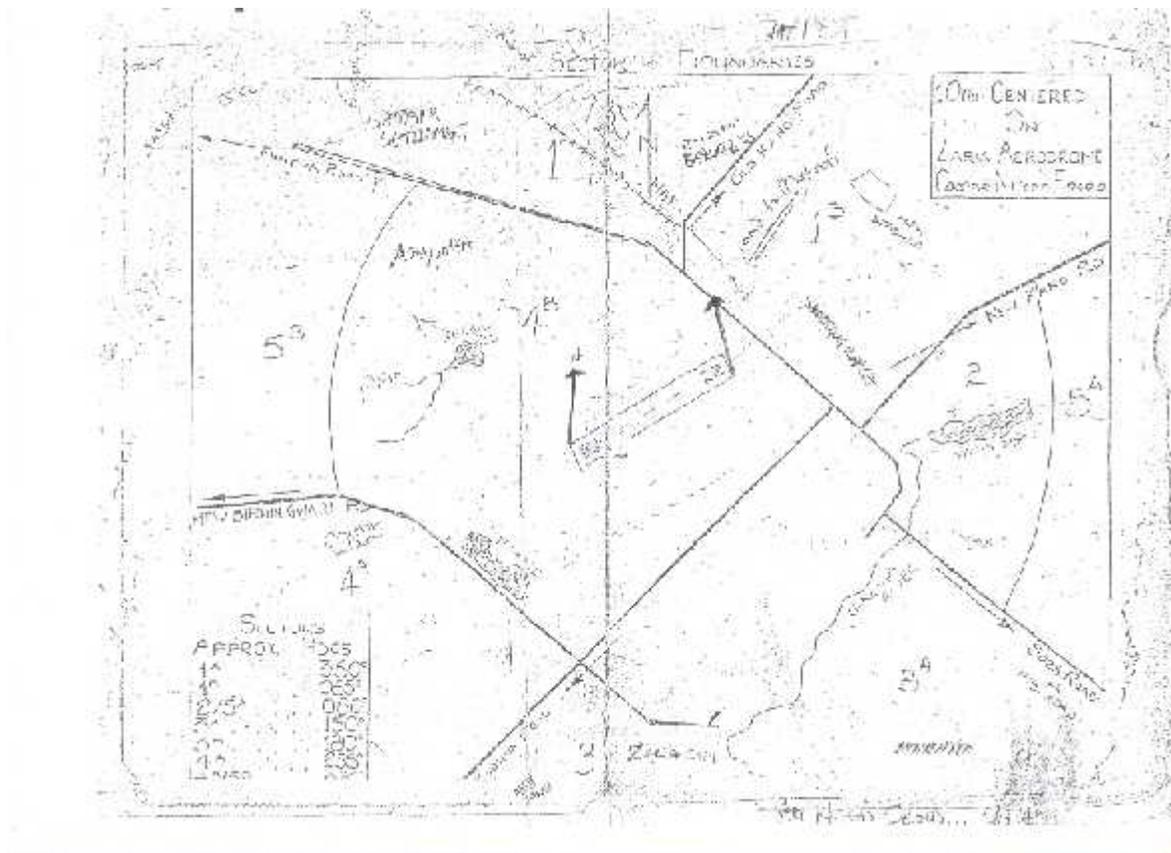
1.10 Aerodrome Information

The aerodrome is situated to the south of Zaria - Sokoto Road and to the north of Kufena hills. It has coordinate of 110800N 0074057E, 4km North-west of the city. It is a controlled airfield limited to daylight operations. The runway was 46 meters wide and 1646 meters long.

There was adequate fire cover at the aerodrome and was properly manned by Federal Airport Authority of Nigeria (FAAN) fire service.



Photograph showing Zaria aerodrome area map including the training sectors



Sketch of the training sectors and their dimensions

1.10.1 Airport Emergency Service

Zaria Aerodrome has an Emergency Response Plan (ERP).

1.11 Flight Recorder

Not required for this aircraft category.

1.12 Wreckage and Impact Information

The aircraft's first point of contact with the ground was 435ft to the point of rest, while it impacted and destroyed the Localizer monitor located at 84ft from the point of impact. The total distance from the point of first impact to the final resting position at the fence was 519ft. The aircraft arrived the impact point intact, the starboard wing was substantially damaged due to impact, while the port

wing was twisted backward and bent parallel to the fuselage. The windshield and engine cowling were all damaged. Both fuel tanks were intact and not ruptured.



Photograph showing main wreckage

1.12.1 Cockpit Instrument and Controls Readings

The positions indicated were as follows:

Throttle	:	Forward
Mixture	:	Full rich
Cab-Heat	:	Mid Position
Flaps	:	Up



Photograph showing cab-heat lever in mid position



Photograph showing damaged propeller blades

1.13 Medical and Pathological Information

The student was immediately taken to the college medical center where she was examined and subsequently referred to Army Hospital, Zaria. She was certified to be physically and psychologically fit and was later discharged.

1.14 Fire

There was no fire outbreak though there was a quick response from the fire service.

1.15 Survival Aspect

The accident was survivable as the aircraft crash landed with a livable volume that existed where the student was.

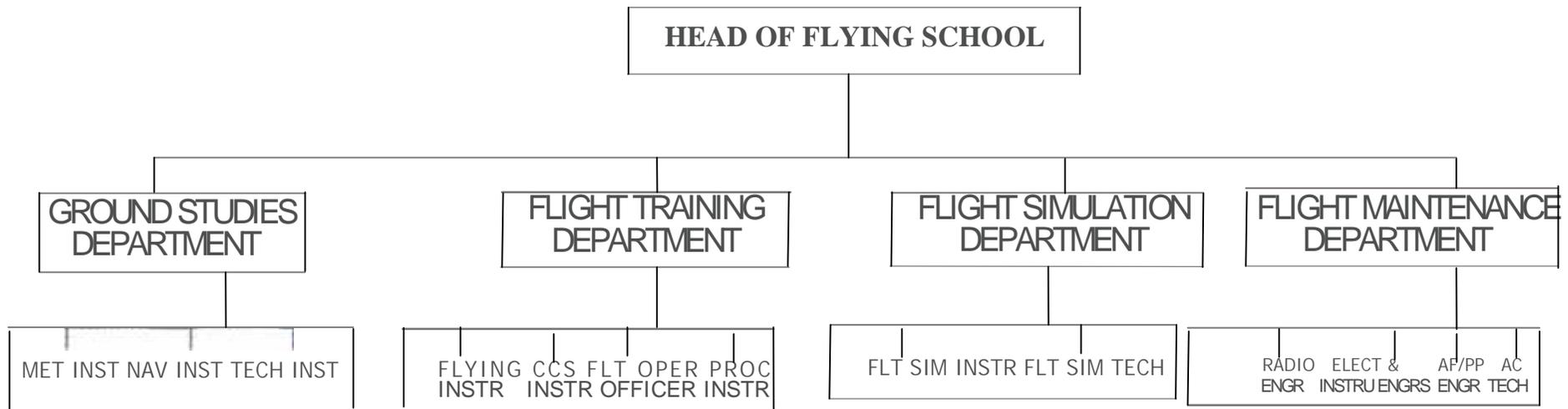
1.16 Test and Research

Not applicable.

1.17 Organization and Management Information



NIGERIAN COLLEGE OF AVIATION TECHNOLOGY, ZARIA CAREER PATH FOR EACH CATEGORY OF STAFF IN FLYING SCHOOL



CHIEF FLYING INSTRUCTOR/HEAD OF FLYING SCHOOL

Duties

The Head of Flying School is responsible for the day to day administration of the Flying School. Has responsibility for ensuring quality and safety in all activities of the school and is a member of the management review meeting.

The position carries the following responsibilities:

- *Organizing and coordination all training activities/examination in the flying school.*
- *Coordinating and supervising the updating of syllabi of courses in the school.*
- *Conducting proficiency/quality control checks on both Instructors & Students from time to time to monitor the training standards.*
- *Preparing the budget and statement of expecting expenditure of the school for the year.*
- *Preparing annual report on activities of the school.*
- *Maintaining accurate training records of staff and students in the school.*
- *Establishing and maintaining liaison between all the departments/units in the school with other schools and service departments.*

- *Taking full responsibility for proper maintenance and control of the stores in the school.*
- *Supervising and coordinating the proper use of training aids, materials, laboratories, workshops and classrooms in the school.*
- *Participating in the recruitment of staff and students for the school.*
- *Maintaining liaison with the Deputy Rector & Registrar on all matters affecting training and personnel respectively.*
- *Performing instructional duties and any duties that may from time to time be assigned to the Head of School.*
- *Drawing up course for the training development and recurrency of instructors in the school.*
- *Coordinating with NCAA via the Chief Executive for all matters affecting the school and NCAA.*
- *Representing proposals, advices and inputs to the Chief Executive for the effective, safe and efficient running of the school.*
- *Representing the school in any function.*
- *Carries out Administrative ferry and test flight.*
- *Any other duty that might be assigned from time to time.*

HEAD OF FLIGHT TRAINING DEPARTMENT

- *Accountable to the Head of School.*
- *Coordinates flight programmes and training in flight training department.*
- *Takes responsibility for all the activities in the department.*
- *Ensures the effective running of flight training department.*
- *Involves in interviews with SP-Courses.*
- *Keeps accurate record of staff, student and course running in the department.*
- *Represents the HOS when necessary.*
- *Coordinates management meetings.*
- *Carries out progress checks for student.*
- *Carries out Admin, ferry (sic Ferry) and test flight.*
- *Resents (sic Presents) proposals, advices and inputs for efficient running of the department.*
- *Is involved in the training of student pilots.*
- *Any assignment that will be delegated from time to time.*

- *Responsible for drawing out budget and training proposal for the Department.*

COURSE MASTERS (COURSE COORDINATOR)

- *Accountable to Head of Department.*
- *Draw out daily flight programme for the course*
- *Sees to the daily needs of student in his course.*
- *1st contact of the student courses with the Ground School via the Head of Department and Head of School for the training of SP-Course.*
- *Write weekly report of student programmed (sic Programmes) and progress.*
- *Reports to the Head of School via, Head of Department concerning all the training matters of student.*
- *Liaise with the NCAA via CE Head of School, Head of Department concerning matters affecting student training.*
- *Ensures smooth and regular training of student.*
- *Keeps accurate record of students programmes performance and progress.*
- *Directly responsible for discipline, standards and welfare office safety.*

- *Any assignment that will be delegated.*
- *Be involved in the training of students.*
- *Report earning (sic erring) students to the Head of Department.*

FIRST SOLO (Extract from NCAT Flight Training Manual)

➤ AIM

The student pilot only becomes really confident in his own ability to fly when he knows that he can do it without the aid of an instructor. There are therefore, obvious advantages in allowing him to go solo as soon as he is fit to do so.

The student's instructor must exercise very careful judgment in this matter and should arrange the pre-solo test with another experienced instructor only when the student has complied with all the statutory and practical flight requirements.

- (i) Principles involved*
- (ii) The air exercise briefing*
 - (a) Applicable procedures and checklists*
 - (b) Aircraft handling techniques*
 - (c) Considerations of airmanship and engine handling*
 - (d) Similarity to previous exercises*
 - (e) De-briefing after flight.*

➤ Principles involved

Statutory requirements

(i) Valid Student Pilot's license

This ensures that the student has met the following requirements:-

- (a) Passed within the last 30 days the written Student Pilot License air law examination for the issue of the above License.*
- (b) Passed a written technical examination on the aircraft type.*
- (c) Is able to use the aircraft radio with reasonable Confidence.*
- (d) Is medically fit to hold Student Pilots License.*

(ii) Flight instruction.

- (a) The student must have satisfactorily completed training on sequences 1 to 14 of the flight instruction syllabus prescribed in NCAR.*
- (b) The student pilot must have written authority from the instructor to undertake the solo flight and his authority must be made in writing in the student's presence. (i.e. authorization sheet).*

Note: The student's first solo flight normally come at the end of a period of dual circuits and landings and he should,

therefore, only be given a short briefing on what to expect and solo for during his first solo flight.

Do not confuse him with a lot of detail which he already knows about because he should not be undertaking his first flight if the instructor is not confident about sending him solo.

Remember that the standard required for the first solo is safety before precision.

1.18 Additional Information

There were inconsistencies in the Personnel Log Book Entry.

1.19 Useful or Effective Investigation Techniques

Nil

2.0 ANALYSIS

2.1 History of the Solo Flight

A first solo flight is a major milestone on the road to a successful flying career and the instructor is responsible for ensuring that the student is well prepared for it.

On the 22nd of July, 2008, the student was scheduled to fly with the instructor on the first detail for the day. The preflight inspection was carried out on the aircraft by the student which was supervised by the instructor. When the preflight inspection was completed, the instructor asked the student if she had enough rest the previous night to which the student answered in the affirmative. The instructor and the student started the engine, carried out all the necessary checks and requested for taxi clearance.

They taxied to the holding point of runway 24 where they conducted power checks with all parameters within limit. Then they requested for departure and were cleared for takeoff. The circuit consists of the following:

- ❖ Take off, Climb (upwind), Cross wind, Downwind, Base, Final legs and Touchdown.
- ❖ During the second circuit, the instructor gave the student Engine Failure After Takeoff (EFATO) practice but the student delayed in selecting a field.
- ❖ The third circuit was normal.
- ❖ During the fourth circuit the instructor gave the student another EFATO practice which the student performed well.
- ❖ The fifth circuit was normal.

- ❖ The sixth circuit was also EFATO practice which was normal.
- ❖ The last landing was also normal.

After seven unassisted circuits including three simulated engine failures which lasted for 1 hour 20 minutes, the instructor taxied off the runway in preparation to release the student for the solo flight.

After clearing off the runway, the instructor told the student that he was satisfied with the performance and asked her if she could go on her own, “would you want to go?” The student answered in the affirmative and the instructor told her that he would be in the tower in case she needed any assistance. The decision to release the student for a solo flight was taken by the instructor after the dual exercise on the day of the accident. There was no second opinion on the performance of the student before she was released for the solo flight.

NCAT Flight Training Manual contained the policy for the first solo flight.

Before the student was asked to go on the solo flight, the Head of Flying School was not aware and no senior instructor assessed the student before embarking on the flight as indicated in the NCAT Flight Training Manual.

Conduct of the Solo Flight

At 0920hrs the instructor cleared the student for solo flight exercise after she had completed seven circuits. The instructor thereafter climbed up to the Control Tower so as to observe the circuit exercise and to be available in case the student had any question during the exercise. Two other instructors joined him at the tower to watch the exercise. The student took off at 0932hrs, climbed out, cross wind and downwind legs were normal. On final approach, the aircraft

appeared high and then pitched down, which increased its approach speed. The student flared, touched down and ballooned because of the high speed. The aircraft bounced and went up again, at which point she added power and executed a go-around.

The 2nd circuit was normal. On final approach, the aircraft appeared low but the student delayed adding power; the aircraft contacted the ground before the threshold, bounced and flew low over the runway. The student was expected to have reduced power and landed, instead she carried out a go around. The climb was shallow.

The instructor told the controller to tell the student to check power and retract flaps, which the student confirmed was done. After the aircraft began to gain height, the controller handed over the microphone to the instructor who kept encouraging the student and asked her of the speed which the student gave as 70kts. While the student was talking, the instructor heard the stall warning sound from the aircraft and instructed the student to pitch down a little and asked to confirm the speed as 80 kts.

The student was instructed to maintain 80 kts and fly a normal circuit. The instructor kept encouraging her, but the student headed towards runway 06 at which point the instructor asked her to go around because there was another airplane on final for runway 24. There was no response from her. The aircraft started descending with a left bank and impacted the ground with the left wing causing the student to lose control and crashed into the aerodrome fence.

NCAT Flight Training Manual outlined all the required exercises a student must undergo before the release for First Solo Flight. From the available records, the student did not satisfactorily complete the required fourteen exercises before being released for the first solo flight.

2.2 Log Book Entries

2.2.1 Pilot Log Book: Extract from NCAR Part 8 Ops.

"Each pilot shall maintain a personal log book, in a form acceptable to the Authority, for recording the aeronautical training and experience used to meet the requirements for a license or rating or recency of experience. Each pilot in command shall carry his or her log book on all general aviation flights. Also student pilot shall carry his or her log book including the proper flight endorsement, on all solo cross country flights".

The instructor's pilot log book did not reflect his total flying hours.

2.2.2 Engine and aircraft log book entries

Log Book entry can be defined as written record of a flight, flying hours, maintenance checks, for an aircraft, engine or propeller. From the engine log book, before the engine was removed from 5N-CBE, overhauled and fitted on 5N-CAV, the log book entry as at 746:00 hours was not documented in accordance with NCAA log book instruction No. 2. Log book entries should be made clear and written in indelible ink. Cancellations/Alterations in the log book should be followed by a signature of who effected the alteration. On the 6th of December, 2007, a flight of 30 minutes duration was made, but was not recorded until 14th of December, 2007. This was not in accordance with the Civil Aviation (Air Navigation Regulations) Act No.49 of 1999.

2.3 Student Training and Progress Record

The flying and progress record book includes the hour log and the progress made during training. This also includes flying time, grading, comments, recommendations, signature and date of instruction.

On the average, the grade awarded the student pilot by the instructor was not a true reflection of actual performance. The student was graded “A” and yet, could not tell whether the aircraft was high or low during final approach. This is an important phase of a student training; the student must have situation awareness at any particular time.

On 28th of July 2008, after the crash, the Chief Flying Instructor took the student on an assessment flight, and recommended the student start the flight training all over.

On 30th of July, 2008, a third instructor took the student out on a training exercise which lasted for 1hour 10mins and at the end of the exercise the instructor made the following remarks:

Grade BA = Below Average

“Student was taken through normal climb, medium level turns and descent. She was yet to grasp the basic use of power – i.e. reduction or removal of power in a descent. Look out during turns poor.

- *Not much achieved due to low clouds*
- *Student still to understand the correct perspective on final approach.”*

The above is an evidence that the student was not ready for her first solo flight.

2.4 AIRPORT EMERGENCY RESPONSE PLAN

Zaria aerodrome has an emergency response plan based on documents submitted to the Bureau.

However, there is no evidence to show that the emergency response plan has ever been tested to ascertain its efficiency in emergency or any evidence of meeting of emergency committee.

It is pertinent to note that emergency plan should not be independent; it should be an integral part of the organization's safety management system.

The submitted document contained the following:

- a) Survivor reception centre.
- b) Casualty Clearing/Station Centre.
- c) Telephone enquiry centre.
- d) Friends and relatives reception centre.
- e) Press liaison area.
- f) Temporary mortuary.
- g) The Investigation.

There is no evidence to show that above components of the emergency plan are in place or tested every two years or with a similar exercise every year as requested by ICAO, neither was the emergency plan activated on the day of the accident.

According to ICAO, Emergency Response Plan is to ensure:

- i) Planned action to minimize indirect or consequential damage upon the occurrence at a major incident or accident.
- ii) Recovery action as well as procedure for orderly transition from normal to emergency operations.

- iii) Designation of emergency responsibilities.
- iv) Authorization by key personnel for action contained in the plan.
- v) Coordination of efforts to cope with emergency.
- vi) Safe continuation of operations, or return to normal operation as soon as possible.

3.0 CONCLUSION

3.1 Findings

- 3.1.1 The aircraft had 45 mins. left to the next scheduled inspection before the commencement of the flight of the day.
- 3.1.2 The total flying time was 1 hour 39 mins. of which 1 hour 20 mins. was with the flying instructor and 19 mins. was first solo flight.
- 3.1.3 The aircraft was flown 54 mins. beyond the scheduled inspection time.
- 3.1.4 The instructor's log book did not reflect his total flying hours.
- 3.1.5 There were two petrol filling stations opposite the aerodrome fence, on the approach path of runway 24.
- 3.1.6 There was no radio or telephone communication between the tower and the fire service at the time of the accident.
- 3.1.7 The controllers at the aerodrome were always on duty from 7.00 am. to 7.00 pm. (12 hours).
- 3.1.8 The training received by the student before being cleared for the first solo flight was not adequate as it was not in accordance with NCAT Flight Training Manual and as evident in the student's progress report book.
- 3.1.9 The grading before the first solo flight was not consistent with actual performance of the student pilot.
- 3.1.10 Improper documentation in the aircraft and engine log books.

- 3.1.11 The engine of 5N-CBE, which was fitted on 5N-CAV after overhaul was 14 years old before the overhaul as against 12 years by EADS Socata.
- 3.1.12 The carburetor heat knob was at mid position.
- 3.1.13 Zaria aerodrome had an Emergency Response Plan (ERP) in place but there was no evidence that it had been tested in accordance with ICAO annex 14 recommendations.
- 3.1.14 Physical examination and checks of cockpit controls revealed no evidence of pre-impact failure or malfunction.
- 3.1.15 Damage to the airframe, propeller and marks on the ground were all consistent with engine under power at impact.

3.2 Causal Factor

The decision of the Instructor to release the student for first solo flight despite inadequate training.

3.3 Contributory Factors

- (i) The inappropriate use of carburetor heat by the student led to reduced power, engine vibration, which consequently caused the student to panic and lost control of the aircraft.
- (ii) Non-adherence to procedures for release of the student for first solo flight as specified in the NCAT Flight Training Manual.

4.0 SAFETY RECOMMENDATIONS

4.1 Safety Recommendation 2010-016

- (i) NCAT should adhere to all requirements contained in the NCAA approved flight training manual.
- (ii) NCAT should ensure that aircraft maintenance checks conform with the intervals specified in the Approved Maintenance Schedule.

4.2 Safety Recommendation 2010-017

NCAT Quality Assurance (Engineering) should ensure that all entries made in the aircraft log books are legible and devoid of obliterations.

4.3 Safety Recommendation 2010-018

NCAT should implement all provisions of its Airport Emergency Plan and should be test run as recommended by ICAO.

APPENDIX 2

RESPONSE TO SAFETY RECOMMENDATIONS

SAFETY RECOMMENDATION 2010 - 016

- (i) NCAT should adhere to all requirements contained in the NCAA Approved Flight Training Manual
- (ii) NCAT should ensure that aircraft maintenance checks conform with intervals specified in the approved maintenance schedule.

RESPONSE TO SAFETY RECOMMENDATION 2010 - 016

The college accepts this recommendation and has initiated implementation as follows:

- 1 *The training on flight training manual and all standard operating procedures (SOPs) has been made a part of the induction process for new instructors.*
- 2 *NCAT adheres strictly to the inspection calendar specified in the NCAA Approved Maintenance programme for the fleet of aircraft.*

SAFETY RECOMMENDATION 2010 - 017

NCAT Quality Assurance (Engineering) should ensure that all entries made in the aircraft log books are legible, devoid of obliterations.

RESPONSE TO SAFETY RECOMMENDATION 2010 - 017

The institution accepts this recommendation and responds as follows:

All the staff in Planning and Technical records were trained on documentation to ensure that all entries made in aircraft documents are legible and devoid of all obliterations.

SAFETY ACTIONS

The college has addressed the following safety issues, therefore no safety recommendations are being considered.

STUDENT CLEARANCE FOR FIRST SOLO FLIGHT.

The flying school has issued the flight training manual to all flight instructors. Adherence to procedure is mandatory.

1. Furthermore, internal memo was issued in 2007 on adherence to procedures with regards to first solo flight clearance and progress checks.

APPENDIX 1 refers

2. The flying school will always ensure that a student is adequately trained and passes all the progress checks/clearances before being released for Solo Flight as specified in the Flying School (SOPs).

TWO PETROL STATIONS ON THE APPROACH PATH OF RUNWAY 24

- 1. The college considers the two filling stations as hazards to flight training operations, which can affect safety of operations. Therefore the college has requested that the filling stations be removed. This prompted Kaduna State Government to summon a meeting between the college and the owners of the two petrol stations. The college will continue to insist that the two filling stations be relocated by the owners.*

APPENDIX I

