AIRCRAFT ACCIDENT REPORT

NCAT/2018/09/26/F

Accident Investigation Bureau

Report on the accident involving Tampico TB-9 with nationality and registration marks 5N-CBJ operated by Nigerian College of Aviation Technology (NCAT) Zaria which occurred at Zaria Aerodrome on 26th September, 2018.

This report was produced by the Accident Investigation Bureau (AIB), Murtala Muhammed Airport Ikeja, Lagos. The report was based upon the investigation carried out by AIB, 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 2019. 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.

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Safety Recommendations in this report are addressed to the Regulatory Authority of the State, as well as other stakeholders, as appropriate. The Regulatory Authority is the authority that ensures implementation and enforcement.

Printed in Nigeria for the Accident Investigation Bureau (AIB)

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GLOSSARY OF ABBREVIATIONS USED IN THIS REPORT

AFIS	Aeronautical Flight Information System
AIB	Accident Investigation Bureau
ARFFS	Aerodrome Rescue and Fire Fighting Services
ATO	Approved Training Organization
CVR	Cockpit Voice Recorder
DATCO	Duty Air Traffic Controller
DNZA	Zaria Aerodrome
FAA	Federal Aviation Administration
FAAN	Federal Airports Authority of Nigeria
FDR	Flight Data Recorder
FMD	Flight Maintenance Department
ICAO	International Civil Aviation Organization
KIAS	Knot Indicated Air Speed
NCAT	Nigerian College of Aviation Technology
ROD	Rate of Descent
RPM	Revolution Per Minute
VSO	Stall Speed with Landing Configuration
RWY	Runway

SP	Student Pilot
VFR	Visual Flight Rules

Aircraft accident report number:	NCAT/2018/09/26/F
Registered owner and operator:	Nigerian College of Aviation Technology (NCAT), Zaria
Manufacturer:	DAHER-SOCATA, France
Aircraft type and model:	Tampico TB-9
Year of manufacture:	1998
Serial number:	1863
Nationality and registration marks:	5N-CBJ
Location:	Zaria Aerodrome 11°07'50"N 7°41'10"E
Date and Time:	26th September, 2018 at 09:32 hours *(All Times in this report are local time equivalent to (UTC+1), unless otherwise stated)*

SYNOPSIS

Accident Investigation Bureau (AIB) was notified of the accident at 10:10 h on the day of occurrence by the Nigerian College of Aviation Technology (NCAT) through a phone

call. Safety Investigators were mobilized and arrived NCAT at about 18:30 h on the same day.

On 26th September, 2018 at 09:28 h, a Tampico TB-9 aircraft operated by Nigerian College of Aviation Technology (NCAT) Zaria, with nationality and registration marks 5N-CBJ departed Zaria aerodrome Runway (RWY) 23 on a visual flight rule (VFR) flight plan with an endurance of four hours. The Student Pilot (SP), as the only person on board, was scheduled to perform five take-offs and landings using the 180° glide manoeuvre.

At 09:32 h, during the first circuit, the aircraft touched down on RWY 23 at about 121 m from the threshold and veered off to the left, exiting the RWY at 184 m from the threshold into the waterlogged grass area. The aircraft came to a final stop at a perpendicular distance of 73 m from the RWY centreline. The SP exited the aircraft without injury.

This investigation identified the following causal and contributory factors:

Causal factor

Late decision to initiate a go-around after touchdown which resulted in loss of directional control of the aircraft after landing.

Contributory factors

1. Inappropriate control inputs during landing roll
2. Intermittent interruptions in training program

One Safety Recommendation was made.

1.0 FACTUAL INFORMATION

1.1 History of the flight

Evidence, which facilitated the reconstruction of the sequence of events, was obtained from witness accounts; the Student Pilot, Flight Instructor, Air Traffic Control transcript, the report by Duty Air Traffic Controller (DATCO) and site inspection.

On 26th September, 2018 at 09:28 h, a Tampico TB-9 aircraft operated by Nigerian College of Aviation Technology (NCAT) Zaria, with nationality and registration marks 5N-CBJ departed Zaria aerodrome (DNZA), Runway (RWY) 23 on a visual flight rules (VFR) flight plan with one occupant on board and four hours fuel endurance. The student pilot (SP), was scheduled to perform five take-offs and landings using the 180° glide manoeuvre[1].

At 09:30 h, the SP requested to position for left downwind RWY 23. Tower granted approval and also instructed the SP to report 'Finals'. At 09:31 h, the SP reported Finals and requested for touch and go clearance for RWY 23. Tower cleared the SP for touch and go RWY 23, with a reported wind of 250° at 06 kt.

At 09:32 h, 5N-CBJ landed on RWY 23 about 121 m from the threshold.

The SP stated during the post-occurrence interview, that the approach was stable. He also stated that after touchdown, he felt the landing gear was shaking accompanied with noise and the aircraft suddenly and randomly skidded. He added that, he tried to control the aircraft by advancing the throttle to FULL to execute a go-around, but the aircraft was slow to respond and instead veered off the RWY to the left into the grass area.

[1] 180° Glide Manoeuvre (180° power-off approach) is executed by gliding with the power off from a given point on a downwind leg to a preselected landing spot.

The SP further stated that the aircraft speed was high in the grass area, he depressed the brake pedals for maximum braking. When the aircraft came to the final stop, he shut down the engine and exited without injury.

Duty Air Traffic Controller (DATCO) reported that the approach was stable, after touchdown the aircraft ballooned, skidded and veered off to the left of the runway into the grass area.

Tower sounded the crash alarm and notified the relevant authorities.

The Aerodrome Rescue and Fire Fighting Services (ARFFS) personnel arrived the accident site within two minutes of occurrence.

The accident occurred in daylight. Visual meteorological conditions (VMC) prevailed at the time of the accident.

1.2 Injuries to persons

Injuries	Crew	Total in the aircraft
Fatal	Nil	Nil
Serious	Nil	Nil
Minor	Nil	Nil
None	1	1
Total	1	1

1.3 Damage to aircraft

The aircraft was substantially damaged.

1.4 Other damage

Nil

1.5 Personnel information

1.5.1 Pilot (Student pilot)

Nationality:	Nigerian
Age:	33 years
Licence type:	Commercial Pilot Licence (H)
Licence validity:	27th November, 2022
Medical validity:	11th September, 2018
Ratings:	Student Pilot Authorization
Total flight time:	43:45 h
Last 24 hours:	0:17 h

The SP obtained a CPL (Helicopter) in 2016 but had no line experience. He was admitted in NCAT in 2017 for a standard pilot course on fixed wing.

The SP had several breaks during the training:

1. 21 March to 16 April, 2018
2. 10 May to 26 June, 2018
3. 2 July to 1 August, 2018
4. 14 August to 17 September, 2018

1.5.2 Instructor

Nationality:	Nigerian
Age:	46 years
Licence type:	Airline Transport Pilot License (A)
Medical validity:	26th September, 2018
Ratings:	Piper Aztec PA-23, Tampico TB-9, Trinidad TB-20, Beechcraft Baron BE-58
Total flight time:	2,710 h

1.6 Aircraft information

1.6.1 General

Manufacturer:	DAHER-SOCATA, France
Serial number:	1863
Year of manufacture:	1998
Total airframe time:	4,303:05 h
Total landing:	10,037
Certificate of Insurance validity:	9th October, 2018
Certificate of Airworthiness validity:	12th August, 2019
Fuel type:	AVGAS 100LL

5N-CBJ had been maintained by the Flight Maintenance Department (FMD) of NCAT in accordance with the Approved Maintenance Program. The last scheduled maintenance on the aircraft was VP 100 (4A) Inspection which was carried out on 23rd September, 2018. Records indicated that there was no deferred defect; the aircraft was serviceable and appropriately released to service on the day of the accident.

Another student pilot had earlier in the morning operated 5N-CBJ between 07:00 h and 08:05 h for five landings without report of any malfunction or abnormality.

1.6.2 Engine

Manufacturer:	AVCO Lycoming, USA
Type/model:	Lycoming O-320-D2A
Serial number:	L-17835-39A
Time since new:	1805:33 h
Time since overhaul:	1114:56 h

The SP did not report any engine malfunction during the flight.

1.7 Meteorological information

Time:	**09:35 h**
Wind:	240°/10 kt
Visibility:	10 km
Weather:	Nil

Cloud:	No significant cloud (NSC)
Temp/Dew:	27/22˚C
QNH:	1016 h Pa

1.8 Aids to Navigation

There was serviceable Non Directional Beacon (NDB) available at Zaria Aerodrome in addition to Windsock and Aerodrome beacon at the time of the occurrence.

1.9 Communication

There was good communication between the tower and the aircraft during the training flight.

1.10 Aerodrome information

Aerodrome Code:	DNZA
Airport Name:	Zaria aerodrome
Airport Address:	Sokoto Road, Zaria
Airport Class:	III
Airport Authority:	Federal Airport Authority of Nigeria (FAAN)

Airport Service:	Aerodrome flight information service (AFIS)
Type of traffic permitted:	Visual flight rules (VFR)
Coordinates:	11°07'50" N 7°41'10"E
Runway:	05/23
Elevation:	661 m (2170 ft)
Runway Length:	1670 m
Runway Width:	30 m
Meteorological Service:	Half hourly observation
Markings:	Simple runway markings

1.11 Flight recorders

The aircraft was not equipped with Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR) neither of which was required by the current aviation regulations for this aircraft type.

1.12 Wreckage and impact information

The aircraft landed 121 m from the threshold of Runway 23 and exited to the left of the centre line at about 184 m from the threshold. It touched down with the left main wheel, skidded to the left of the runway unto the unprepared surface with the nose

gear off the ground. The nose gear bounced twice and on the third bounce, sank into the soft ground, got bogged down and broke off at some of the firewall attachment points.

The aircraft travelled 133 m in the waterlogged grass area, came to rest on a heading of approximately 160° and at a perpendicular distance of about 73 m from the runway centreline. The seats, seat belts and shoulder harnesses were found intact.

The left main wheel tyre marks seen on the runway depicted a curved track from the touchdown point to where the aircraft exited the runway to the left. The nose wheel tyre marks were seen at just three spots along the grass area until a few feet to where the aircraft stopped.

Post-occurrence assessment of the aircraft and its cockpit revealed the following:

1. The throttle was found at FULL position
2. Mixture lever was at RICH position
3. Fuel selected to the left tank
4. The rudder pedals were found in the full left position
5. The rudder was deflected to full left
6. The ailerons were deflected to full left roll
7. Flaps fully down
8. All the three tires were found to be in good condition and remained inflated
9. Flight control surfaces were checked and found in good condition
10. The main landing gears were checked and found in good condition

The aircraft sustained damage in the following sections:

1. Nose landing gear attachment points.
2. The fire wall.

3. The right side of the cockpit floor.
4. Lower engine cowling.
5. One propeller blade bent rearward.

Figure 1: Aircraft wreckage at its final position

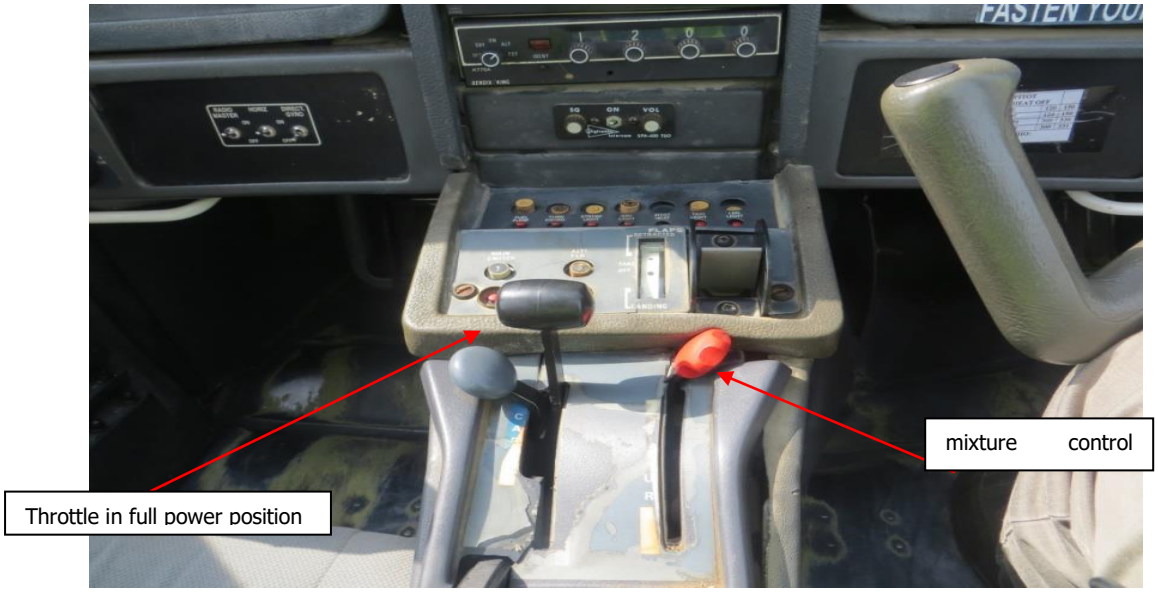


Figure 2: Engine Control Levers with throttle at FULL power position and Fuel Mix Lever at RICH position after the incident.

Figure 3: Collapsed Nose Landing Gear

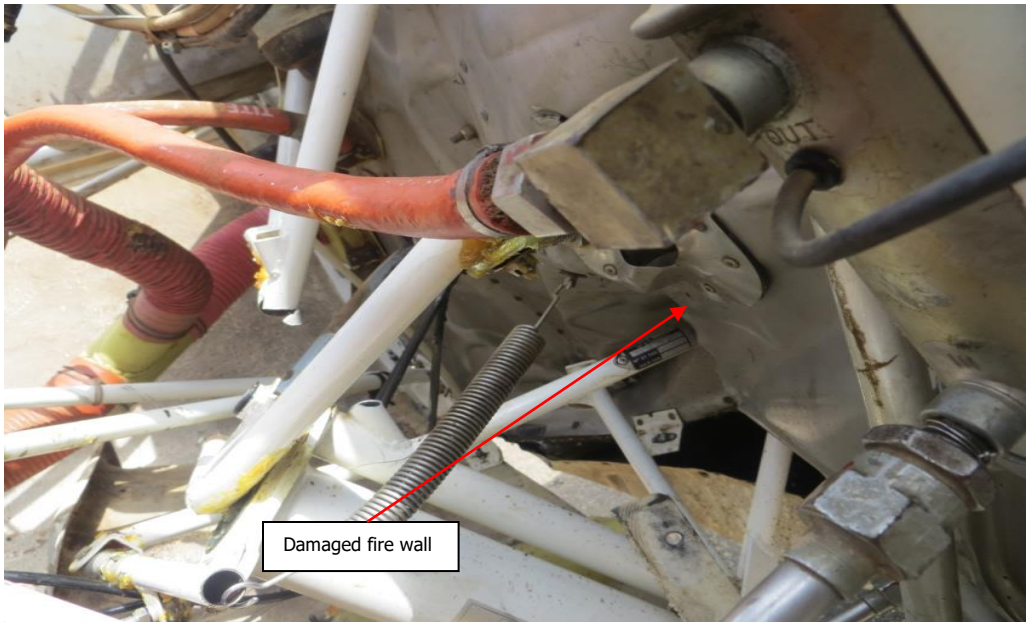


Figure 4: Damaged fire wall and detached nose gear mounts

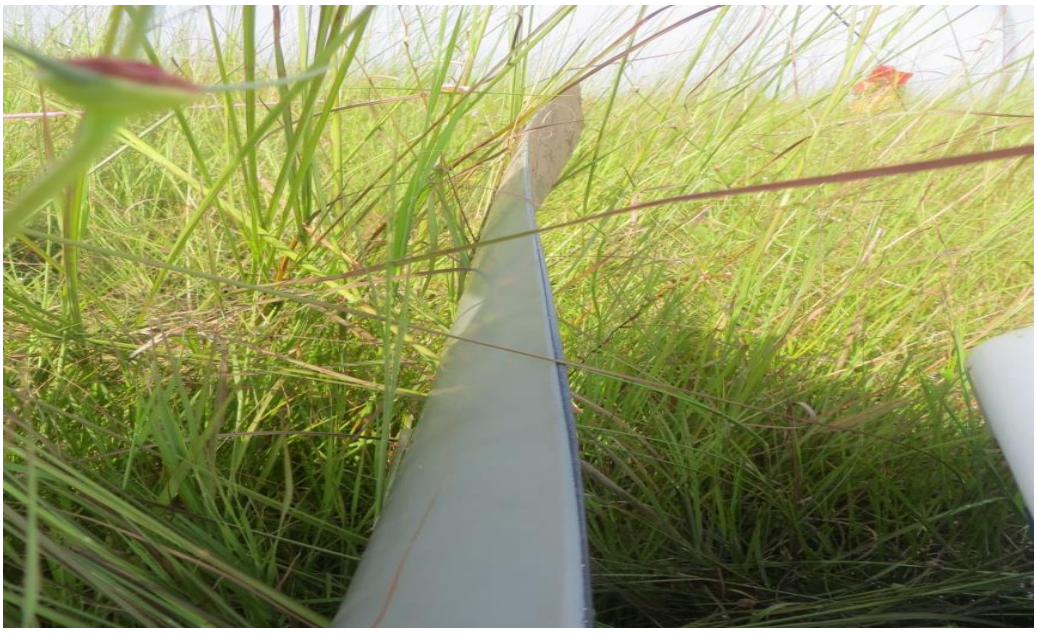


Figure 5: Damaged propeller blade.

Figure 6: Aircraft exit point on RWY 23 showing left wheel tyre marks

1.13 Medical and pathological information

Following the accident, the SP was immediately taken to the NCAT Aeromedical Centre for clinical examination and drug/alcohol test. The result for drugs/alcohol was negative.

1.14 Fire

There was no pre or post-accident fire.

1.15 Survival aspects

There was a liveable volume in the cockpit area as the whole aircraft remained in one piece. The seats, seat belts and harnesses were found intact. The SP exited the aircraft without injury. The ARFFS personnel arrived the site within two minutes.

1.16 Test and research

Nil.

1.17 Organisation and management information

1.17.1 Nigerian College of Aviation Technology (NCAT)

The Nigerian College of Aviation Technology (NCAT) is a Nigerian Civil Aviation Authority (NCAA) Approved Training Organization (ATO) located in Zaria, Kaduna State. It has a fleet of 23 aircraft which consists of 10 single-engine Tampico TB9, five single-engine Trinidad TB20, three twin engine Beechcraft Baron BE-58 and one TBM 850, 1 Diamond DA40D, 1 Diamond DA42NG, and 2 Bell 206L4 Helicopters. NCAT is designated by the International Civil Aviation Organization (ICAO) as a Regional Training Centre of Excellence (RTCE). The Regional Training Centres of Excellence (RTCEs) are regional TRAINAIRPLUS, leading Full Members that can develop and deliver Competency Based ICAO courses using ICAO provisions (Annexes and guidance material).

It is also registered with the Aviation Accreditation Board International (AABI) as a Non-Accredited Educator Member.

1.17.2 Nigerian Civil Aviation Authority (NCAA)

In Nigeria, NCAA is the regulatory body overseeing the activities of all airlines/operators, crew, engineers, navigation aids, all service providers including airport authorities and air traffic services.

Below are excerpts from Nigeria Civil Aviation Regulations (2015) Nig. CARs 2.3.3. STUDENT PILOTS

(d) Solo flight requirements: A student pilot shall not fly solo:

(1) Unless holding at least a Class 2 Medical Certificate; and

(2) Unless under the supervision of, or with the authority of, an authorized flight instructor, and;

(3) In international flight unless there is a special or general arrangement between Nigeria and the intended State of flight.

(e) A student pilot shall meet the requirements prescribed by the Authority.

The Authority shall ensure that the privileges granted shall not permit student pilots to constitute a hazard to air navigation.

1.18 Additional information

1.18.1 Power-Off approaches

Below are excerpts from AIRPLANE FLYING HANDBOOK FAA-H-8083-3 Pages 20 –24.

Power-Off Accuracy Approaches

Power-off accuracy approaches are approaches and landings made by gliding with the engine idling, through a specific pattern to a touchdown beyond and within 200 feet of a designated line or mark on the runway. The objective is to instil in the pilot the judgment and procedures necessary for accurately flying the airplane, without power, to a safe landing. The ability to estimate the distance an airplane will glide to a landing is the real basis of all power-off accuracy approaches and landings. This will largely determine the amount of maneuvering that may be done from a given altitude. In addition to the ability to estimate distance, it requires the ability to maintain the proper glide while maneuvering the airplane. With experience and practice, altitudes up to approximately 1,000 feet can be estimated with fair accuracy, while above this level the accuracy in the judgment of height above the ground decreases since all features tend to merge. The best aid in perfecting the ability to judge height above this altitude is through the indications of the altimeter and associating them with the general appearance of the Earth. The judgment of altitude in feet, hundreds of feet, or thousands of feet is not as important as the ability to estimate gliding angle and its resultant distance. The pilot who knows the normal glide angle of the airplane can estimate with reasonable accuracy, the approximate spot along a given ground path at which the airplane will land, regardless of altitude. The pilot, who also has the ability to accurately estimate altitude, can judge how much maneuvering is possible during the glide, which is important to the choice of landing areas in an actual emergency.

The objective of a good final approach is to descend at an angle that will permit the airplane to reach the desired landing area, and at an airspeed that will result in minimum floating just before touchdown. To accomplish this, it is essential that both the descent angle and the airspeed be accurately controlled. Unlike a normal approach when the power setting is variable, on a power-off approach the power is fixed at the idle setting. Pitch attitude is adjusted to control the airspeed. This will also change the glide or descent angle. By lowering the nose to keep the approach airspeed constant, the descent angle will steepen. If the airspeed is too high, raise the nose, and when the airspeed is too low, lower the nose. If the pitch attitude is raised too high, the airplane will settle rapidly due to a slow airspeed and insufficient lift. For this reason, never try to stretch a glide to reach the desired landing spot.

Uniform approach patterns such as the 90°, 180°, or 360° power-off approaches are described further in this chapter. Practice in these approaches provides the pilot with a basis on which to develop judgment in gliding distance and in planning an approach. The basic procedure in these approaches involves closing the throttle at a given altitude and gliding to a key position. This position, like the pattern itself, must not be allowed to become the primary objective; it is merely a convenient point in the air from which the pilot can judge whether the glide will safely terminate at the desired spot. The selected key position should be one that is appropriate for the available altitude and the wind condition. From the key position, the pilot must constantly evaluate the situation. It must be emphasized that, although accurate spot touchdowns are important, safe and properly executed approaches and landings are vital. The pilot must never sacrifice a good approach or landing just to land on the desired spot.

90° POWER-OFF APPROACH

The 90° power-off approach is made from a base leg and requires only a 90° turn onto the final approach. The approach path may be varied by positioning the base leg closer to or farther out from the approach end of the runway according to wind conditions. [Figure 8-25] The glide from the key position on the base leg through the 90° turn to the final approach is the final part of all accuracy landing maneuvers. The 90° power-off approach usually begins from a rectangular pattern at approximately 1,000 feet above the ground or at normal traffic pattern altitude. The airplane should be flown onto a downwind leg at the same distance from the landing surface as in a normal traffic pattern. The before landing checklist should be completed on the downwind leg, including extension of the landing gear if the airplane is equipped with retractable gear. After a medium-banked turn onto the base leg is completed, the throttle should be retarded slightly and the airspeed allowed to decrease to the normal base-leg speed. [Figure 8-26] On the base leg, the airspeed, wind drift correction, and altitude should be maintained while proceeding to the 45° key position. At this position, the intended landing spot will appear to be on a 45° angle from the airplane's nose. The pilot can determine the strength and direction of the wind from the amount of crab necessary to hold the desired ground track on the base leg. This will help in planning the turn onto the final approach and in lowering the correct amount of flaps.

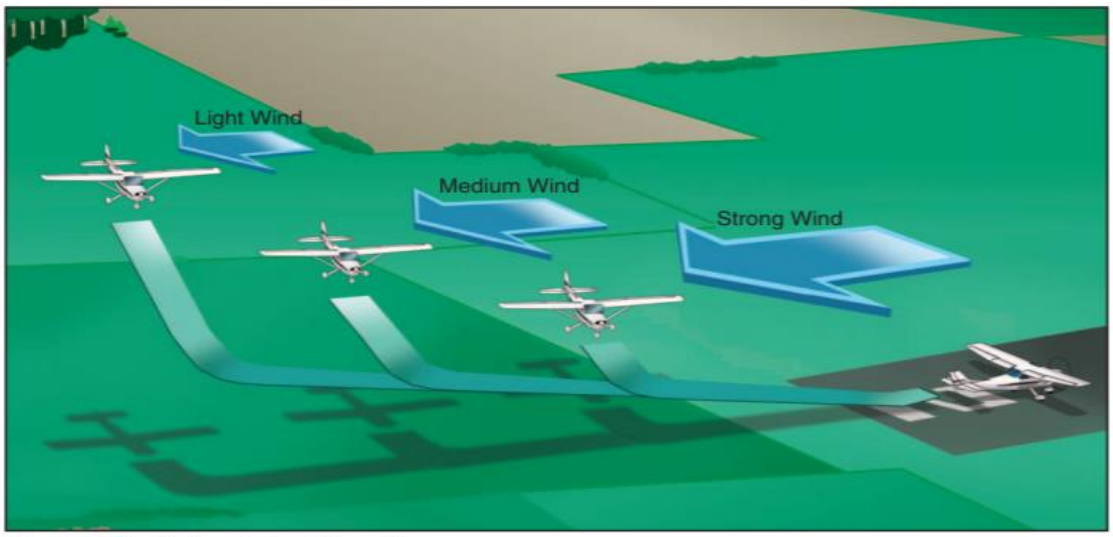


Figure 8-25. Plan the base leg for wind conditions.

At the 45° key position, the throttle should be closed completely, the propeller control (if equipped) advanced to the full increase r.p.m position, and altitude maintained until the airspeed decreases to the manufacturer's recommended glide speed. In the absence of a recommended speed, use 1.4 VSO. When this airspeed is attained, the nose should be lowered to maintain the gliding speed and the controls retrimmed. The base-to-final turn should be planned and accomplished so that upon rolling out of the turn the airplane will be aligned with the runway centerline. When on final approach, the wing flaps are lowered and the pitch attitude adjusted, as necessary, to establish the proper descent angle and airspeed (1.3 VSO), then the controls retrimmed. Slight adjustments in pitch attitude or flaps setting may be necessary to control the glide an;8gle and airspeed.

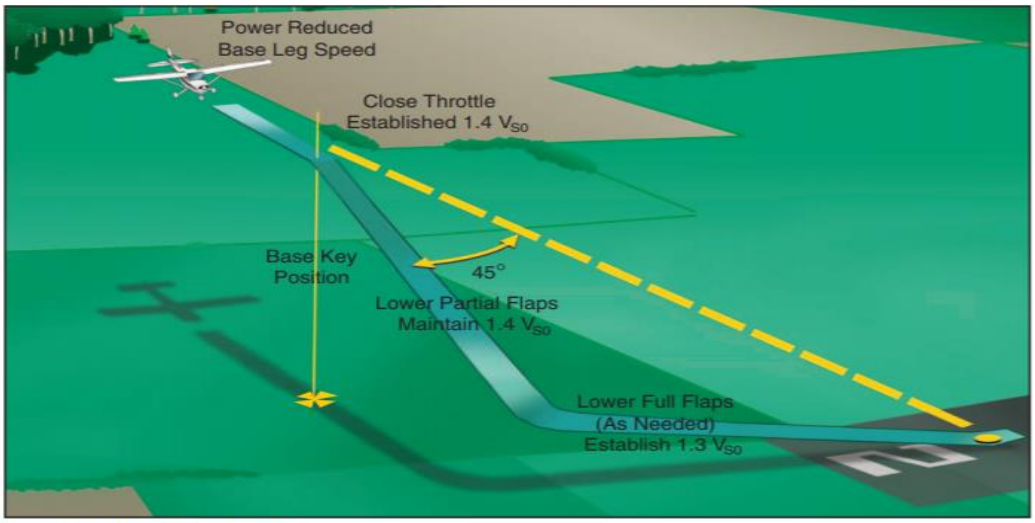


Figure 8-26. 90° power-off approach.

8-22

However, NEVER TRY TO STRETCH THE GLIDE OR RETRACT THE FLAPS to reach the desired landing spot. The final approach may be made with or without the use of slips. After the final approach glide has been established, full attention is then given to making a good, safe landing rather than concentrating on the selected landing spot. The base-leg position and the flap setting already determined the probability of landing on the spot. In any event, it is better to execute a good landing 200 feet from the spot than to make a poor landing precisely on the spot.

180° POWER-OFF APPROACH

The 180° power-off approach is executed by gliding with the power off from a given point on a downwind leg to a preselected landing spot. [Figure 8-27] It is an extension of the principles involved in the 90° power-off approach just described. Its objective is to further develop judgment in estimating distances and glide ratios, in that the airplane is flown without power from a higher altitude and through a 90° turn to reach the base-leg position at a proper altitude for executing the 90° approach. The 180° power-off approach requires more planning and judgment than the 90° power-off approach. In

the execution of 180° power-off approaches, the airplane is flown on a downwind heading parallel to the landing runway. The altitude from which this type of approach should be started will vary with the type of airplane, but it should usually not exceed 1,000 feet above the ground, except with large airplanes. Greater accuracy in judgment and maneuvering is required at higher altitudes. When abreast of or opposite the desired landing spot, the throttle should be closed and altitude maintained while decelerating to the manufacturer's recommended glide speed, or 1.4 VSO. The point at which the throttle is closed is the downwind key position. The turn from the downwind leg to the base leg should be a uniform turn with a medium or slightly steeper bank. The degree of bank and amount of this initial turn will depend upon the glide angle of the airplane and the velocity of the wind. Again, the base leg should be positioned as needed for the altitude, or wind condition. Position the base leg to conserve or dissipate altitude so as to reach the desired landing spot. The turn onto the base leg should be made at an altitude high enough and close enough to permit the airplane to glide to what would normally be the base key position in a 90° power-off approach. Although the key position is important, it must not be overemphasized nor considered as a fixed point on the ground.

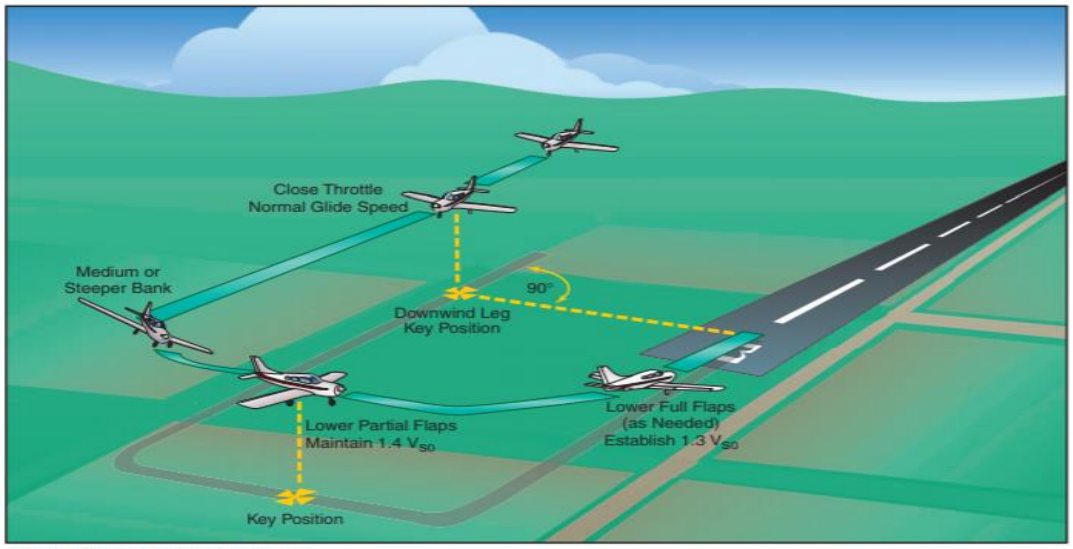


Figure 8-27. 180° power-off approach.

Many inexperienced pilots may gain a conception of it as a particular landmark, such as a tree, crossroad, or other visual reference, to be reached at a certain altitude. This will result in a mechanical conception and leave the pilot at a total loss any time such objects are not present. Both altitude and geographical location should be varied as much as is practical to eliminate any such conception. After reaching the base key position, the approach and landing are the same as in the 90° power-off approach.

1.18.2 NCAT's glide approach and landing exercises

Glide Approach and Landing Exercise

When practicing inform ATC/circuit spacing/carb heat/windshear

1. *Trim for best glide airspeed 80 KIAS*
2. *Use flap A/R. Maintain airspeed*
3. *With full flap-Nose attitude is very low, R.O.D. High Approx. 1pm*
4. *Commence roundout higher than normal*
5. *Flare as for normal landing Warning.*

While practicing, if obviously undershooting, use power and go-around.

See Appendix I for NCAT's glide approach and landing procedures.

1.19 Useful or effective investigation techniques

Not applicable.

2.0 ANALYSIS

2.1 General

The aircraft had a valid Certificate of Airworthiness and the maintenance records indicated that it was operated and maintained in accordance with the existing regulations and approved procedures.

Flight control surfaces and main landing gears were checked and found in good conditions.

Weather was not a factor in this accident.

2.2 Conduct of the flight

The SP was adequately rested to operate the flight. Although his medical certificate had expired 15 days prior to the day of the occurrence the medical examination conducted by NCAT after the accident did not reveal any underlying medical condition that could have contributed to the accident.

The accident occurred on the first flight of what would have been five circuits of 180^{o} glide manoeuvre. The take-off and climb to the circuit were normal. The SP made normal calls to the Tower at designated positions. The SP executed the Downwind and Base maneuvers.

The aircraft touched down close to the target landing spot. The exercise was a 180^{o} glide and the final turn to land was relatively close to a short final executed using uniform medium or slightly steeper bank. The SP probably did not level out the aircraft before touchdown as indicated by left main wheel tyre marks on the runway.

After touchdown, the aircraft skidded to the left. The vibration and noise from the main wheels, as heard by the SP were probably due to the aircraft skidding. The SP advanced throttle with the intention to go around, but could not control the aircraft. The attempted landing, go around and the subsequent loss of control were due to inappropriate handling techniques.

The SP's frequent disengagement from flying occasioned by long days of intermittent breaks during the training, probably contributed to his inadequacies and handling skills.

2.3 Training interruption

According to the records available to the Bureau, the following interruptions were observed in the SP's training:

1. 21 March to 16 April, 2018 (26 days)
2. 10 May to 26 June, 2018 (47 days)
3. 2 July to 1 August, 2018 (30 days)
4. 14 August to 17 September, 2018 (34 days)

The SP's frequent disengagement from flying occasioned by long periods of intermittent breaks during the training, probably contributed to his inadequacies in handling skills, which led to inconsistency and degradation of consolidation during this training.

3.0 CONCLUSION

3.1 Findings

1. The SP was on a solo flight to perform five circuits of take offs and landings for 180° glide manoeuver.
2. The accident occurred during the first circuit of the five scheduled 180° glide manoeuver.
3. The SP exited aircraft without injury.
4. ARFFS officials arrived the accident site within two minutes.
5. The SP's medical certificate expired 15 days prior to the day of the accident
6. The post-occurrence medical report on the SP indicated no drug or alcohol and was certified mentally and physically fit.
7. The SP had long days of intermittent interruptions in training.
8. The aircraft landed on its left main landing gear and veered off left of the RWY into the grass area.
9. The aircraft stopped at a perpendicular distance of 73 meters from the runway centerline.
10. There was no pre or post-accident fire.
11. All the three wheels were found in good condition and inflated.
12. The main landing gears were found in good condition.
13. The nose landing gear was damaged by impact forces in the grass area.
14. Rudder pedals were found full left position and rudder was at corresponding full left deflection.
15. The control wheel was found turned fully to the left and the left aileron was found in full up position while the right aileron was in full down position.
16. Flaps were fully down.

17. Throttle was at FULL.
18. Mixture lever was at RICH.
19. Fuel selector was to the left tank.

3.2 Causal factor

Late decision to initiate a go around after touch down which resulted in loss of directional control of the aircraft after landing.

3.3 Contributory factors

1. Inappropriate control inputs during landing roll.
2. Intermittent interruptions in training program.

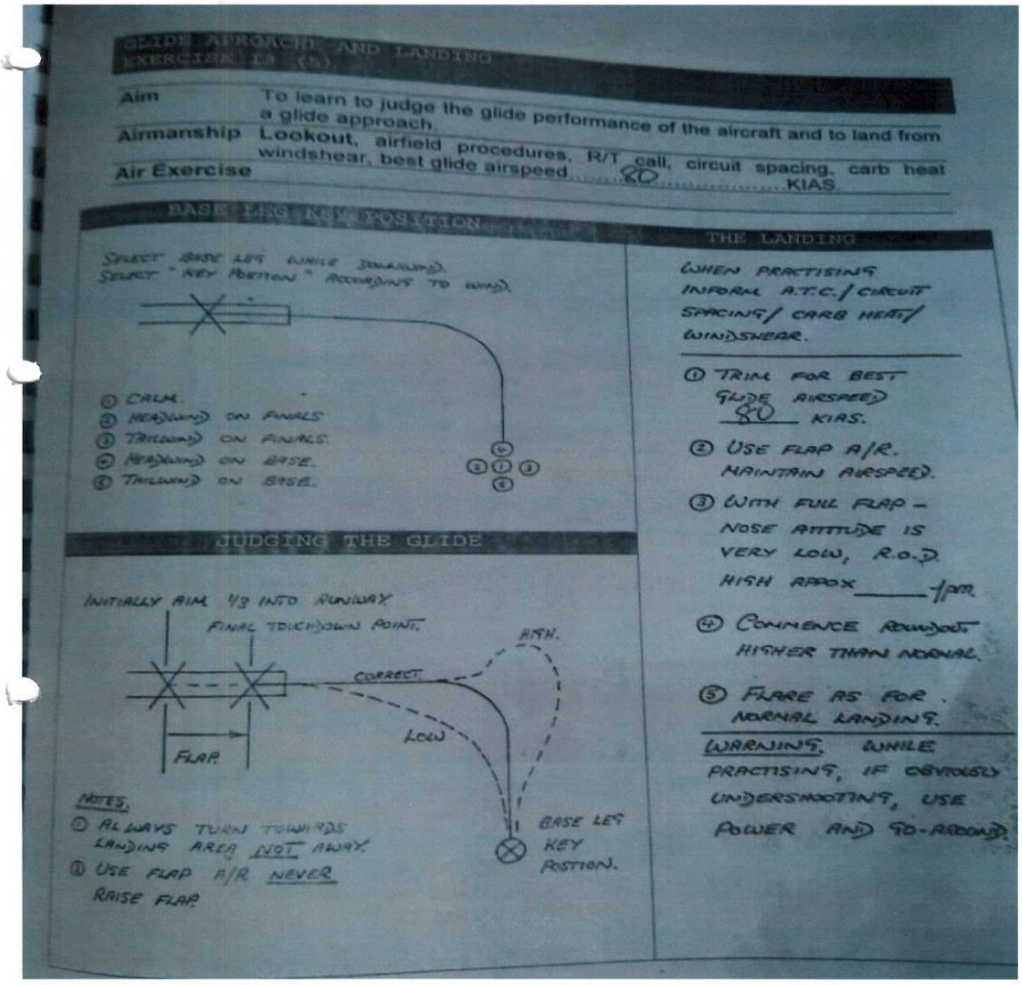
4.0 SAFETY RECOMMENDATIONS

4.1 Safety Recommendation 2020-022

The Nigerian College of Aviation Technology should ensure that where there are gaps in student pilots' training, Policies and Procedures should be put in place in the training programme so that the student are brought up to speed in both theory and practice.

APPENDIX I:

NCAT's glide approach and landing.



GLIDE APPROACH AND LANDING
EXERCISE 13 (b)

Aim — To learn to judge the glide performance of the aircraft and to land from a glide approach.

Airmanship — Lookout, airfield procedures, R/T call, circuit spacing, carb heat windshear, best glide airspeed.

Air Exercise — 80 KIAS

BASE LEG KEY POSITION

Select base leg while downwind.
Select "key position" according to wind.

① Calm.
② Headwind on finals.
③ Tailwind on finals.
④ Headwind on base.
⑤ Tailwind on base.

JUDGING THE GLIDE

Initially aim 1/3 into runway
Final touchdown point.
High
Correct
Low
Flap

Notes:
① Always turn towards landing area not away.
② Use flap A/R never raise flap.

Base leg key position.

THE LANDING

When practising inform A.T.C./ circuit spacing/ carb heat/ windshear.

① Trim for best glide airspeed 80 kias.
② Use flap A/R. Maintain airspeed.
③ With full flap – nose attitude is very low, R.o.D. high approx ____ fpm.
④ Commence roundout higher than normal.
⑤ Flare as for normal landing.

Warning: while practising, if obviously undershooting, use power and go-around.