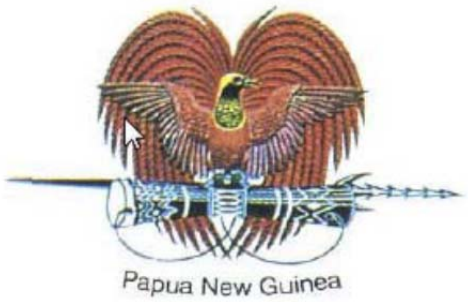

FINAL REPORT

AIC 13-1002

PAPUA NEW GUINEA

ACCIDENT INVESTIGATION COMMISSION

MAF-PNG

P2-MFA

Cessna Aircraft Company 172SP

Loss of directional control – overturned on soft flight strip

Mt Hagen Airport, Western Highlands Province

PAPUA NEW GUINEA

17 January 2013

About the AIC

The Accident Investigation Commission (AIC) is an independent statutory agency within Papua New Guinea (PNG). The AIC is governed by a Commission and is entirely separate from the judiciary, transport regulators, policy makers and service providers. The AIC's function is to improve safety and public confidence in the aviation mode of transport through excellence in: independent investigation of aviation accidents and other safety occurrences within the aviation system; safety data recording and analysis; and fostering safety awareness, knowledge and action.

The AIC is responsible for investigating accidents and other transport safety matters involving civil aviation, in PNG, as well as participating in overseas investigations involving PNG registered aircraft. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The AIC performs its functions in accordance with the provisions of the PNG Civil Aviation Act 2000 (As Amended), Civil Aviation Rules 2004 (as amended), and the Commissions of Inquiry Act 1951 (as amended), and in accordance with Annex 13 to the Convention on International Civil Aviation.

The object of a safety investigation is to identify and reduce safety-related risk. AIC investigations determine and communicate the safety factors related to the transport safety matter being investigated.

Readers are advised that in accordance with Annex 13 to the Convention on International Civil Aviation, it is not the purpose of an AIC aircraft accident investigation to apportion blame or liability. The sole objective of the investigation and the Final Report is the prevention of accidents and incidents. (Reference: ICAO Annex 13, Chapter 3, paragraph 3.1.)

However, it is recognised that an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the AIC endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why it happened, in a fair and unbiased manner.

About this report

The AIC did not conduct an investigation into this occurrence.

The investigation was conducted by the operator's International organisation, MAF International (MAFI). This report was produced by the MAFI Regional Safety Manager Asia Pacific after considerable input from the MAF-PNG team, assistance by the MAFI Safety and Quality team, external experts, acceptance by the MAF Asia Pacific Regional Quality Team, and approval by the MAF International Safety Action Group.

AIC comment

The AIC acknowledges the detailed investigation conducted by MAF International and has accepted the report as written and notes the MAF recommendations at Part 4 of the report.

Safety Action

On 5 June 2015, the Civil Aviation Safety Authority of PNG (CASA) informed the Accident Investigation Commission:

> As the previous certificate [Aerodrome Operating Certificate] for Mt Hagen Airport was expiring on 31st March 2015, the Director out of his discretion renewed the certificate ADOC 139/019 for an interim period of 6 months which will expire on 30/09/2015. This is to allow CASA to conduct a proper renewal audit (5 phase audit cycle) within certification period for the purpose of renewing the interim [certificate]. The audit proper was later conducted on 13-14 April, 2015, and we are now in the process of liaising with the [airport] operator (NAC) [National Airports Corporation] to resolve all critical and major findings before a recommendation can be made to the Director [CASA]

AIC comment on the Safety Action

The AIC received a copy of the Aerodrome Operating Certificate 139/019, issued 1 April, 2015, which remains in force until 30 September 2015.

Recommendation number AIC 15-R08/13-1008 to the Civil Aviation Safety Authority of PNG.

The Accident Investigation Commission recommends that the Civil Aviation Safety Authority of PNG should actively monitor the progress of the safety action by the National Airports Corporation to resolve the aerodrome audit deficiencies, with particular attention to rectifying the soft flight strip hazard, before renewing the Mt Hagen Aerodrome Operating Certificate.

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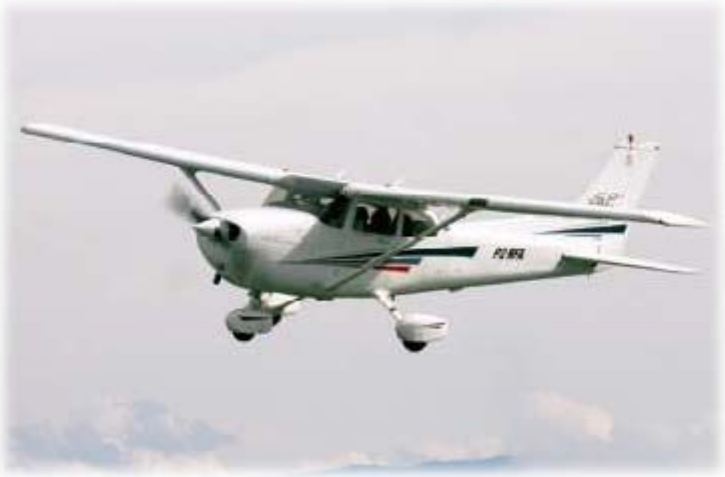
CESSNA 172S
P2-MFA

Kagamuga Airport
Mount Hagen

17 January 2013

ACCIDENT REPORT



The accident site at Kagamuga Airport Mount Hagen

The aircraft came to rest within the cone markers of the flight strip.

Acknowledgements.

This report has been produced by the MAFI Regional Safety Manager Asia Pacific after considerable input from the PNG team, assistance by the MAFI Safety and Quality team, external experts, acceptance by the Asia Pacific Regional Quality Team, and approval by the International Safety Action Group.

INTRODUCTION

On 17 January 2013 the MAF-PNG (Papua New Guinea's) Aviation Training Centre (ATC) Chief Flying Instructor (CFI) approved a student pilot to do a solo circuit in Cessna 172 P2-MFA. The take-off and circuit were uneventful, but the approach to land was steeper than normal. The aircraft bounced severely on landing and the student lost directional control. Following a second bounce the aircraft ran off the runway onto the soft grass strip where the nose wheel dug in and the aircraft overturned, coming to rest just inside the cone markers. The student was unhurt and exited the aircraft. The accident occurred at 1545 local time.

1. FACTUAL INFORMATION

1.1. History of the flight

The student had an introductory flight and a flight assessment for suitability as a pilot in December 2011.

The student joined the ATC and began flight training on 15 May 2012. The training followed the ATC training course syllabus and the student made a first solo flight on 12 September 2012. The total flight time accrued prior to the first solo flight was 26.8 hours.

Following this block of training the student left the ATC for an extended period of time because of work and family commitments, but resumed training with ATC on 2 January 2013. Extensive revision flying was carried out between 2 and 17 January with a total of 10 separate flights and 9.9 hours flight time. The student's records showed a continual improvement during these sessions.

On 17 January 2013 five circuits were conducted with the flight instructor. A tendency to balloon during the round out (flare) was noted on the training records, but also that appropriate actions were taken to recover. During these circuits the student had to cope with conflicting traffic and a change of runway direction. After taxing back to the ATC and shutting down, the CFI approved the student for a solo circuit.

Two days previously the CFI had told the student to expect a solo flight, but on the preceding day (16 January) weather conditions were unsuitable.

The take-off, crosswind and downwind with a normal left hand circuit from Runway 30 were all reported to be normal. On late downwind and when just about to turn on to base leg, the Tower (aerodrome) controller instructed the student to make a right orbit due to conflict with an arriving Dash-8 aircraft that was joining right hand down wind for a non-standard circuit.

After one orbit the student was preparing to re-join the circuit on base when the student saw the traffic on right base approaching from the Kuli Gap area. The student requested another orbit, which Tower approved. The student later said these orbits took the aircraft closer than normal to terrain, which created a distraction along with the student thinking that the solo flight would have been given priority over other traffic.

After the second orbit the student re-joined base leg, and recognised that the aircraft was high when it was turned on to final. The student reduced power to try and bring the aircraft on to the correct descent profile and said that because of the distraction didn't consider going around. While the airspeed was said to have been brought back to the target 60 knots by the flare, the approach angle and rate of descent were described as still being steep.

The student reported that the aircraft ballooned in the flare, but all witnesses reported that the aircraft bounced severely. The student said that a lot of power was applied to stabilise the aircraft and then re-flared it. The aircraft was described as ballooning again with a loss of directional control so that it went off the left side of the runway. Marks on the side of the runway indicated a second bounce, which was confirmed by witnesses, although the second bounce was not as high as the first.

The aircraft left wheel tracks in the grass to the side of the runway, which indicated that for a short period it was nearly airborne again and skidding in a slight left turn. After this the wheel tracks showed that the nose wheel had dug into the soft grass, the skidding left turn caused the right wing to impact the ground and the aircraft tipped onto its back.

The student being uninjured unbuckled the seatbelt harness and escaped from the badly damaged aircraft through the side window. There was no fire.

The Mount Hagen aerodrome controllers had observed the accident but none of the telephone lines were operational for outside calls. Soon afterwards one of the controllers ran outside and shouted to alert the fire tender personnel, who departed a short time later for the scene.

The CFI (and ATC manager) who had been monitoring the circuit observed the accident, and went to the accident site with the fire tender. Soon after an MAF vehicle was organised (a dome light and VHF handheld radio are kept for emergency use) and the Engineering Manager, accompanied by another engineer, also travelled to the site. As well as ensuring that the student was uninjured, the CFI secured the fuel and electrical systems to prevent a fire; all other controls were untouched.

1.2. **Injuries to persons**

Nobody was injured.

1.3. **Damage to aircraft**

The aircraft was damaged substantially, beyond economical repair.

1.4. **Other damage**

There was no other damage.

1.5. **Personnel information**

1.5.1. CFI

a) Age 62 years

Commercial Pilot Licence

Instructor Rating (Category B) valid to 27 June 2013

Class 1 medical valid to 17 March 2013.

1.5.2. Student Pilot

a) Age 31 years.

Student Pilot Licence, issued 29 February 2012

Class 2 medical valid to 23 December 2014

b) Total aeronautical experience: 37.3 hours

Hours dual:	37.0
Hours pilot in command:	0.3
Hours last 90 days:	9.5

c) The student's records showed that PNG Civil Aviation Rule 61.105, Pilot Licences and Ratings, Sub Part D Student Pilots, Solo Flight Requirements, had been complied with prior to the first solo flight.

1.6. Aircraft information

Cessna 172 SP	Manufactured in 2001
Aircraft hours	3105.7
Last maintenance	Check 1 on 10 -11 January 2013
Fuel	160 litres, approximately
Aircraft weight	971 kg (maximum all-up-weight 1156 kg)
Centre of Gravity	1020.0168 (within limits).

The aircraft documentation recorded that the aircraft was certified, equipped and maintained in accordance with existing regulations and approved procedures, at the time of the accident. There were no known aircraft deficiencies, and the aircraft weight and balance was within limits.

1.7. Meteorological Information

Winds calm to light and variable

Cloud scattered at 7,000 feet

Visibility 10 + km

There had been light rain overnight and early morning drizzle making the runway surface damp.

1.8. Aids to Navigation

Not applicable.

1.9. Communication

All radio communications were by VHF transceiver with Hagen Tower on 120.50 MHz.

The aerodrome controllers said they were not aware that the flight was a first or early solo flight, even though the student thought it had been mentioned to the Tower during engine start for the solo flight. Normally the CFI would advise the Tower that it was a first or early solo, but the CFI had not done so on this occasion.

The CFI monitored the Tower frequency but the radio did not have voice transmission capability, so it was not possible for to communicate directly with the student.

At the time of the accident no external telephone lines where available for the aerodrome controllers to alert the emergency services or other parties.

1.10. Aerodrome Information

PNG Civil Aviation Rule Part 139, Aerodromes – Certification and Operation, said that any aerodrome that served aeroplanes engaged in regular air operations with passenger seating configurations of 20 or more seats must be a certificated aerodrome. If a number of conditions were met the Director could issue an exemption against this requirement.

Kagamuga Airport Mount Hagen was an aerodrome that required certification but it had lost its certification status because it was not in compliance with Part 139. No exemptions against the legislative requirements were known to have been granted to the aerodrome operator.

The Director had granted those operators required to operate into certificated aerodromes exemptions against Civil Aviation Rule Part 121, Air Operations – Large Aeroplanes, so they could operate into Kagamuga Airport. This was subject to various conditions including operators doing their own internal risk assessment and mitigation.

Latitude	5° 49′ 36.44″ South
Longitude	144° 17′ 45.10″ East
Elevation	5,388 feet AMSL
Runways	12 - 30 and 08 - 26. Runway 30 with a left-hand circuit was in use at the time of the accident
Length	Runway 30, 2190 m
Width	Runway 30 m, strip 90 m
Surface	Grooved bitumen seal with a grass edge strip overrun area
Slope	Runway 30, 0.2% upslope.

The surface of the grass edge strip overrun area inside the cone markers was inadequately maintained and not drained appropriately, and was extremely soggy after some days of heavy rain. Approximately 4 cm of standing water was measured in the ground scours that the aircraft made during the accident.

1.11. Flight Recorders

The aircraft was not equipped nor required to be equipped with any flight recorders.

1.12. Wreckage and Impact Information

See previous information.

1.13. Medical and Pathological Information

The student had a current medical certificate and no medical issues were known to have contributed to the accident.

1.14. Fire

No fire occurred.

1.15. Survival Aspects

The aircraft made a second bounce at the edge of the runway and deviated on to the grass strip. The grass strip was poorly maintained and very soft following significant rain during the preceding days. The soft ground enabled the nose gear to sink in, causing the aircraft to overturn longitudinally. The cabin area remained intact, providing a survivable space for the student.

The student was wearing a three-point inertia reel seatbelt. After the aircraft had come to rest the student removed the seatbelt, and seeing that the window in the right hand door had popped open and the stay had broken, exited the aircraft through the side window.

Whether any attempt was made to open either door was not known. The CFI said that neither door was open when arriving at the scene.

1.16. Tests and Research

None were carried out or considered necessary.

1.17. Organisational and Management Information

Any relevant issues are discussed in the various other sections.

1.18. Additional Information

1.18.1. The ATC manual MPC01 did not include any specific procedures for the supervision of first and early solo flights such as having two-way radio communications between the student and instructor, notifying Air Traffic Control, or for the instructor to supervise the flight from the aerodrome control Tower or other suitable facility, if available.

As a usual practice, instructor supervision of first and early solo flights was conducted from the Tower, or where a radio was located for a common aerodrome frequency at uncontrolled airfields.

1.18.2. The CFI reported the standard landing approach procedure that ATC taught was as follows:

Downwind 2200 rpm, power to 1700 rpm when the runway is 30 degrees off the wing, hold height until speed is below 85 knots, lower 10 degrees flap and turn onto base, maintain speed of 75 knots.

Flaps to 20 degrees on base, assess height and position to the runway.

Turning on final full flaps are selected (earlier if high, later if low on the base leg), height is checked to be 500 feet AGL (5800 on the altimeter). Aiming point is identified and speed maintained with power. If the aircraft is high, power is reduced or brought to idle; if low, power is maintained at 1500 rpm or above until the correct profile is regained.

Reference is made to the vertical speed indicator (VSI) but the emphasis is on the aiming point and assessing the profile and whether the aircraft is high, on profile or low. At 60 knots the rate of descent should be 300 feet minute.

On short final a visual check is made to confirm that full flap is set, the runway is clear and the windsock for wind indications. Maintain 60 knots of airspeed and directional control along the runway centre line.

Over the threshold power is reduced to idle, the aircraft rounded out to fly parallel with the runway, and the pilot to keep looking ahead down the runway. The aircraft is held off the runway until it touches down on the main wheels, the wings kept level and the rudder used to maintain direction control.

The ATC standard for an approach is that it must be stabilised by 300 feet AGL, otherwise a go-around should be made. A stabilised approach is achieved when the aircraft is on speed, on centreline, full flaps selected and the checks are complete. If the pilot is not satisfied with any factor, a go-around is expected.

Go-arounds are taught as low as 50 to 100 feet AGL, but not from the flare for pre-solo students.

The CFI said the student had ballooned the aircraft several times during circuit training, which were recovered correctly. Bounce recovery had been discussed but had not been practised or experienced by the student. Some approaches had been high but the student had managed to correct each of them. The CFI commented that while the student was slow to recognise when the aircraft was high or low, once recognised the student had made appropriate corrections.

The bounce recovery technique taught at the ATC is essentially the same as that for a balloon:

> Apply full power, maintain airspeed, reduce power and re-flare ensuring power is idle as the wheels touch.

Because there is a greater risk of a bounce being followed by a pitch down if mishandled, students are taught to go-around from a severe bounce. The student had not experienced a bounce during training, nor had one been demonstrated because of the unnecessary hazard of doing so.

The CFI said that the flight was not treated as a first solo because the student's actual first solo had already taken place on 12 September 2012.

1.18.3. The Australian Flight Instructor Manual, a standard reference, included very little about recovery from ballooning and bounces. The Australian VFR syllabus required students to "perform mislanding procedures" without further definition.

No requirement other than for go-around training was located in PNG Civil Aviation Rules or associated documents.

An accepted industry standard from instructor briefing material for ab-initio students advised that if the situation involved a "high balloon and low airspeed" or a "high bounce and low airspeed", then a go-around should be initiated.

2. ANALYSIS

2.1 Introduction

The aircraft was serviceable and suitable for the flight. The student had demonstrated competence for solo circuits to the satisfaction of the CFI who authorised the flight. The weather conditions did not contribute to the accident.

Given these, this report focuses on:

- The aerodrome controllers procedures especially with regard to first solo flights and managing inexperienced student pilots
- ATC procedures with regard to supervising first solo or inexperienced student pilot flights
- The ATC syllabus and training with regard to mishandled approaches and landings.

2.2 Notification of first and early solo student flights

Because the student had previously flown solo, the CFI had not regarded or treated the accident flight as a first solo. However, because there had been a four month gap since the student's actual first solo, even though there had been substantial retraining to bring the student up to solo circuit standard, the CFI would have been justified in treating the flight in the same way as for a first solo flight. By doing so the CFI should have been prompted to go to the Tower and monitor the flight and be in a position to offer assistance if required, as would have been done for a first solo flight.

The aerodrome controllers were not aware that the flight was a first, or early solo flight, and being flown by a very inexperienced student. Not knowing this, they were unaware they should accommodate the student by giving the aircraft some leeway with the other traffic, or to offer the student any assistance. The student's assumption however was the aerodrome controllers were aware of the first solo status of the flight because it was understood to have at least been mentioned during start. Consequently, the student would have assumed the controllers had considered the situation that the aircraft was being flown by an inexperienced student, when issuing instructions to orbit to accommodate the other joining traffic.

The miscommunication with the controllers meant there were differing expectations of the student pilot's capability, which had an effect on the flight and its outcome.

The aerodrome controllers' lack of awareness that the pilot was an inexperienced student probably contributed to them issuing orbiting instructions that potentially unsettled the student and resulted in an unstable approach.

2.3 Supervision of first and early solo flights

Because the ATC manual MPC01 did not include any requirements or guidance material for the supervision and notification of first and early solo flights, there was no point of reference or written procedures for the CFI to follow when deciding on the level of supervision to provide for the student, or for notifying the aerodrome Tower.

The CFI was only able to monitor the student's radio transmissions using a handheld receiver and was unable to transmit. This prevented the CFI from being able to instruct the student to go-around after seeing that the student's landing approach was too steep.

Had the CFI treated the flight as a first and early solo flight and been in the Tower the controllers would have been aware of the nature of the flight and probably controlled other traffic to accommodate the student. The CFI would have also been able to readily communicate and reassure student, or instruct him to go-around if necessary.

The CFI's inability to communicate with the student prevented appropriate instructions from being issued to the student such as to execute a missed approach and go-around.

2.4 Circuit procedures

When the aerodrome controller instructed the student to orbit to allow opposite, non-standard, right-hand circuit traffic, the student became distracted because of the expectation that a first solo would be given priority. The orbits took the aircraft closer to terrain than was usual in the circuit, and this along with the conflicting traffic was sufficiently distracting to prevent the student from considering going around, even though the student had judged the approach to be steep.

The student's distraction resulted in a fixation on the landing without properly considering the effects of a steep approach and the need to make a missed approach.

2.5 Base and final approach

The student had recognised that the aircraft was high both on base and final approach, and said that the power and flap settings were in accordance with ATC standard procedures. However, by focusing primarily on maintaining the aiming point and correcting the airspeed to a target of 60 knots, the student missed the cues that should have signalled the need to go-around and fly another circuit.

The VSI was not taught as a standard reference for a stable approach for pre-solo students, because of the danger of information overload. Instead, emphasis was placed on visual assessment of the outside 'picture' and identification of the aiming point, with airspeed being controlled by power.

Even though the VSI would have shown a high descent rate the student would not have referenced or interpreted it because normal training for ab-initio students precluded teaching its use.

Because of inexperience the student tolerated an approach that was unstable, without understanding the implications that a steep approach angle and high rate of descent would have for the flare and landing.

2.6 Student pilot exposure to poor landings

The student had experienced some ballooning but no bounces during training and had correctly recovered from them. As part of the training syllabus, discussion of mishandled landings including balloons and bounces was part of the briefings given to all student pilots, but this was not detailed in the training curriculum. The technique ATC taught to recover from both was much the same, except that for a bounce a go-around was emphasised.

The student described what had happened as a balloon rather than a bounce, which indicated a misunderstanding of what had actually occurred and could explain why the student didn't apply power and go-around.

Practically it is not feasible to safely teach bounces, and because the student had not experienced a bounce with an instructor the recovery technique had not been applied in a real situation. This might have contributed to the student not applying the proper recovery technique, coupled with a lack of training emphasis to always go-around after a significant balloon or bounce event, and to treat them the same.

2.7 Bounces and ballooning

A balloon can occur when an aircraft approaches too fast and is over-flared. Lowering the nose, usually without the addition of power, enables the aircraft to regain the appropriate height parallel to the runway surface and then be re-flared. Essentially it is a high energy event.

A bounce can occur with an aircraft that is either on speed or slower than desirable and in a higher than normal rate of descent. Impact with the ground catapults the aircraft back into the air and

increases the angle of attack in doing so. The aircraft therefore is flying nose high, with high aerodynamic drag at a slow airspeed and is likely to stall if it is not recovered promptly and correctly.

In a light training aircraft full power should be applied and the nose lowered to regain airspeed to go-around. Rudder and aileron inputs are necessary to maintain directional control. A bounce can therefore be regarded as a low energy event.

By the application of power, even in light training aircraft, the effect of asymmetric thrust from the propeller will tend to turn the nose of the aircraft to the left. Slow airspeed at the same time will mean that control effectiveness is significantly reduced, so rudder and aileron inputs may be inadequate to prevent a left turn.

The student using an incorrect recovery technique, inexperience, a lack of awareness of the difference between a balloon and a bounce and the need to apply power and go-around, contributed to the loss of control and the aircraft leaving the runway.

2.8 Aerodrome condition

The aerodrome emergency services response to the accident was delayed because the aerodrome controllers had no serviceable outside telephone lines available to alert the emergency services to the accident.

Although the aerodrome was supposed to be certificated because it served large aeroplanes engaged in regular air operations with 20 or more passenger seats, it had lost its certification status because it was not in compliance with aviation legislation.

Because it was not properly drained, the grass area constituting the airstrip between the sealed runway and the cone markers had become extremely soft after significant heavy rain in the preceding days.

The soft state of the grass strip on the side of the runway inside the cone markers contributed to the aircraft damage. Had the grass surface been kept well-drained and the grass well-cut, it is more likely than not that the nose wheel would not have dug into the ground, the aircraft would not have overturned and the damage would have been significantly less.

3. CONCLUSIONS

3.1. FINDINGS

1. The aerodrome controllers gave no priority to the student pilot's flight as would normally be the case, because they said they were unaware the flight was by a first or early solo student.
2. A lack of ATC documented procedures for the supervision of first and early solo flights contributed to the CFI not treating the flight as a first solo, and the aerodrome controllers not being advised about the nature of the flight.
3. The four month gap between the student's first solo flight and this flight, despite substantial retraining, meant the student was effectively on a first solo flight. The CFI would therefore have been justified in treating the flight in the same way as for a first solo flight. By doing so the CFI should have been prompted to go to the Tower and monitor the flight and be in a position to offer assistance if required, as would have been done for a first solo flight.
4. The aerodrome controllers interrupted the student's circuit by requiring the aircraft to orbit, in order to give priority to another aircraft that was joining the circuit in a non-standard right hand downwind approach.
5. The student was distracted by the orbits and the non-standard traffic and subsequently re-joined the circuit on a higher base than normal, which set up a steep final approach.
6. A lack of communication facilities with the student prevented the CFI from telling the student to go-around and re-circuit, after seeing that the landing approach was too steep.
7. The steep final approach, albeit with a fixed aiming point and correct airspeed at the time of the flare, with a high rate of descent resulted in a severe bounce.
8. The student did not appreciate the implications of continuing with an unstable approach and of not going around.
9. After the severe bounce the student applied an incorrect recovery technique, resulting in a loss of directional control and subsequent runway departure.
10. The student was unfamiliar with a bounce, and the training curriculum didn't emphasis the need to always apply power and go around after a high balloon or bounce with low airspeed.
11. The inadequate maintenance of the aerodrome runway grass edge strip led to soft and soggy ground inside the cone markers, which allowed the nose wheel to dig in and the aircraft to overturn. The resulting damage to the aircraft was beyond economical repair.
12. The emergency services were delayed in their response to the accident because the aerodrome controllers' outside telephone communication system was unserviceable.

4. RECOMMENDATIONS

That the MAF ISAG ensure:

1. Standard ...
2. The ...
3. That ...
4. That the PNG National Airports Corporation is made aware that the inadequate maintenance of the aerodrome at Kagamuga Airport Mount Hagen and the consequent soft and soggy edge strip inside the cone markers was the main contributor to the extensive aircraft damage.
5. The procedures for solo training circuits and the use of non-standard circuits at Kagamuga Airport Mount Hagen, and the state of its Tower telephone facilities, are discussed with PNG Air Services Limited.

Appendix 1.

Images showing the accident diagram, runway departure tracks, the nose wheel rut, the soft wet state of the runway edge grass strip and the final position of the aircraft.