



AIRCRAFT ACCIDENT REPORT
CAA OCCURRENCE NUMBER 09/2776
REIMS AVIATION CESSNA F152
ZK-NPI
CONTROLLED FLIGHT INTO TERRAIN
40KM WEST OF TE KUITI
21 JULY 2009

Foreword

As a signatory to the Convention on International Civil Aviation 1944 (“the Chicago Convention”) New Zealand has international obligations in respect of the investigation of accidents and incidents. Pursuant to Articles 26 and 37 of the Chicago Convention, the International Civil Aviation Organisation (“ICAO”) issued Annex 13 to the Convention setting out International Standards and Recommended Practices in respect of the investigation of aircraft accidents and incidents.

New Zealand’s international obligations are reflected in the Civil Aviation Act 1990 (“the Act”) and the Transport Accident Investigation Commission Act 1990 (“the TAIC Act”).

Section 72B(2)(d) and (e) of the Civil Aviation Act 1990 Act also provides:

72B Functions of Authority

(2) The Authority has the following functions:

- (d) To investigate and review civil aviation accidents and incidents in its capacity as the responsible safety and security authority, subject to the limitations set out in section [14\(3\)](#) of the [Transport Accident Investigation Commission Act 1990](#):
- (e) To notify the Transport Accident Investigation Commission in accordance with section [27](#) of this Act of accidents and incidents notified to the Authority:

Following notification to the Transport Accident Investigation Commission (“the Commission”) of any accident or incident which is notified to the Authority, an investigation may be conducted by the Commission in accordance with the TAIC Act. CAA may also investigate subject to the requirements of the TAIC Act.

The purpose of an investigation by the Commission is to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future, rather than to ascribe blame to any person.

CAA however investigates aviation accidents and incidents for a range of purposes under the Act. Investigations are primarily conducted for the purpose of preventing future accidents by determining the contributing factors or causes and then implementing appropriate preventive measures - in other words to restore safety margins to provide an acceptable level of risk. The focus of CAA safety investigations is therefore to establish the causes of the accident on the balance of probability.

Accident investigations do not always identify one dominant or ‘proximate’ cause. Often, an aviation accident is the last event in a chain of several events or factors, each of which may contribute to a greater or lesser degree, to the final outcome.

CAA investigations may also inform other regulatory-safety decision making or enforcement action by the Director.

In the case of a fatal aviation accident, the final CAA investigation report will generally be highly relevant to an inquiry, and in some circumstances, an inquest, conducted by a Coroner.

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Glossary of Abbreviations used in this report:

AMSL	above mean sea level
ARA	Annual Review of Airworthiness
ATIS	Automatic terminal information service
C	celsius
CAA	Civil Aviation Authority
CAR	Civil Aviation Rule(s)
CPL(A)	Commercial Pilot Licence(Aeroplane)
DME	distance measuring equipment
E	east
ELT	emergency locator transmitter
ft	foot or feet
GPS	Global Positioning System
hPa	hectoPascals
hrs	hours
kg	kilogram(s)
km	kilometre(s)
kts	knots
m	metre(s)
mm	millimetre(s)
MHz	megahertz
METAR	aviation routine weather report
NZST	New Zealand Standard Time
RNZAF	Royal New Zealand Air Force
S	south
SPAR	Special Aerodrome Report
SSR	Secondary Surveillance Radar
TAF	Terminal Aerodrome Forecast
UTC	co-ordinated universal time
VFR	visual flight rules
VHF	very high frequency
VOR	VHF Omni-directional radio range
W/V	wind direction and velocity

AIRCRAFT ACCIDENT REPORT

CAA OCCURRENCE No. 09/2776

Aircraft type, serial number and registration:	Reims Aviation Cessna F152, S/N 1863 ZK-NPI
Number and type of engines:	One, Lycoming O-235-L2C
Year of manufacture:	1980
Date and time of accident:	21 July 2009, 1922 hours ¹ (approximately)
Location:	40 km west of Te Kuiti Latitude ² : S 38° 24' 50.88 Longitude: E 174° 42' 13.98
Type of flight:	Flight Training
Persons on board:	Crew: 1
Injuries:	Crew: 1 (fatal)
Nature of damage:	Aircraft destroyed
Pilot-in-command's licence	Commercial Pilot Licence (Aeroplane)
Pilot-in-command's age	28 years
Pilot-in-command's total flying experience:	285.9 hours, 50 hours on type
Information sources:	Civil Aviation Authority Field Investigation
Investigator in Charge:	Mr A Daley

¹ All times in this report are NZST (UTC + 12 hours) unless otherwise specified.

² NZ Geodetic Datum WGS-84 co-ordinates.

Synopsis

At 2046 hrs on 21 July 2009 the Civil Aviation Authority (CAA) was notified by the Rescue Coordination Centre of New Zealand (RCCNZ) that the aircraft was missing, a search was initiated that evening. The aircraft wreckage was located in rugged bush the following day. The Transport Accident Investigation Commission was in turn notified but declined to investigate, a CAA Field Investigation was commenced later the same day.

The pilot was conducting a night Visual Flight Rules (VFR) cross country flight from North Shore Aerodrome to New Plymouth Aerodrome, he was the only person on board the aircraft. Following some turning manoeuvres over rugged terrain, the aircraft collided with a ridge top near Tirua Point about 40 km west of Te Kuiti. The aircraft was destroyed and the pilot received fatal injuries.

1. Factual information

1.1 History of the flight

- 1.1.1 The pilot was completing a course of training at his local aero club in New Plymouth for his Category C Flight Instructor Rating. His flight test was booked for the following week but he still required approximately 8.5 hrs to meet the Pilot in Command experience requirement of 150 hrs. He had discussed options with his supervising instructor and it was agreed that he would fly from New Plymouth to Hamilton on 20 July. The pilot would then make a decision based on weather suitability to fly either south via Palmerston North and return to New Plymouth, or fly north then return to New Plymouth.
- 1.1.2 The pilot's instructor authorised the flight with a requirement for him to complete a navigation flight log and lodge a flight plan for the routes to be flown. Around mid afternoon the supervising instructor encouraged the pilot to depart to Hamilton as he did not want him flying in the dark to his destination. The pilot responded that he was night rated and current. Some discussion took place with the instructor who then advised the pilot that although he could legally fly at night he did not want him to en-route to Hamilton as the risks were greater at night.
- 1.1.3 The instructor had discussed night cross country flights with him the previous week including those which were approved by the aero club. The pilot had also discussed with a couple of his instructor course colleagues that he was going to complete his required hours by completing a night cross country flight. One of these discussions took place on 20 July. The pilot departed New Plymouth Aerodrome at about 1530 hrs that afternoon and arrived at Hamilton, he then spent the evening with relatives.
- 1.1.4 On the morning of 21 July the pilot went to the local aero club at Hamilton where he met an aviation colleague from New Plymouth and they discussed a trip north. At 0938 hrs the pilot downloaded an aviation meteorological briefing and Notams, he then completed his navigation log and filed a flight plan.
- 1.1.5 The pilot departed Hamilton Aerodrome at about 1100 hrs and flew to Waihi Beach, Pauanui Beach, Whitianga, Great Barrier, Whangarei, and landed at Kaitaia Aerodrome at about 1400 hrs and refuelled the aircraft. He spent about

an hour and a quarter on the ground at Kaitaia and filed another flight plan. At about 1520 hrs he departed Kaitaia Aerodrome for Cape Reinga returned overhead Kaitaia and then flew via Dargaville and landed at North Shore Aerodrome at approximately 1735 hrs.

- 1.1.6 At 1739 hrs, the pilot called the National Briefing Office and requested the termination of his flight plan. He then requested from the officer the New Plymouth and Hamilton weather as he "may be doing a night flight back to New Plymouth". The officer suggested the pilot could extend his SARTIME rather than terminate his flight plan. The officer then extended his SARTIME to 2030 hrs and read the New Plymouth METAR, and the Hamilton METAR and SPAR to the pilot.
- 1.1.7 The pilot departed North Shore Aerodrome at approximately 1800 hrs (Evening Civil Twilight was 1753 hrs and this was recorded on the pilot's navigation log). At 1810 hrs he communicated with Whenuapai Tower and advised that he was tracking south bound through VFR Transit Lane T156 at 1400 ft. Whenuapai Tower advised they were on watch and that there was no traffic in the Transit Lane.
- 1.1.8 Primary radar returns from Auckland International Airport showed the aircraft heading south generally following the west coast. At 1833 hrs the aircraft was overhead Port Waikato. At 1841 hrs the primary radar target stopped. At 1853 hrs the pilot called Christchurch Information requesting the New Plymouth weather which was given to him.
- 1.1.9 At 1901 hrs a Secondary Surveillance Radar (SSR) target with a code of 0365 (this SSR code was given to the pilot when he filed his flight plan on the Kaitaia to North Shore leg) appeared on the southern coast of Kawhia Harbour at an altitude of 2900 ft. The aircraft continued tracking south and arrived overhead Taharoa at 1905 hrs and then descended to 2300 ft. Over the next six miles it gradually climbed back to 3000 ft. At 1911 hrs the aircraft was one mile to the west of Kiritehere over the coast and had descended to 2600 ft. The next SSR return was at 1913 hrs and positioned the aircraft one mile east of Tirua Point at 1800 ft. It continued tracking south for about another minute and descended to 1600 ft.
- 1.1.10 The next group of SSR returns commenced at 1917 hrs and positioned the aircraft approximately five miles south-east of Tirua Point at an altitude of 1800 ft and in a left hand turn. The final SSR return was at 1918 hrs with the aircraft at one and a half miles to the east of Mt Whareorino (2129 ft) near the Mangatoa Saddle.
- 1.1.11 The first Emergency Locator Transmitter (ELT) signal was received at 1922 hrs by the RCCNZ and a search was initiated that evening. The wreckage was located the following morning by an RNZAF Iroquois helicopter approximately one mile to the north-west of the final SSR return. Refer to figure 1.

SKYLINE AIRCRAFT TRACK PLOT

Plot number: Plot 2869a

Plotting Date/Time: 21/07/2009 22:52:48 © 2001, Airways New Zealand

RADAR DATA PLOTTING SELECTION CRITERIA

Time Period: From 2009/07/21 0701:47.104 To 0718:35.886

Track Type: System Track

Picture Center: (Long)174.796, (Lat)-38.2666

Picture Width: 21.1033 NM

Selected Maps: , Notes, Roads, _262coast, VNC_Overlay

LEGENDS

- ◊ - Reinforced
- - PSR Only
- - SSR Only
- ✗ - Coasted
- ✚ - Interpolated
- ★ - Alert

Radar precision is limited and depends on several factors.

Indicated aircraft locations may on some occasions vary from actual aircraft position by up to 0.5nm in any direction.

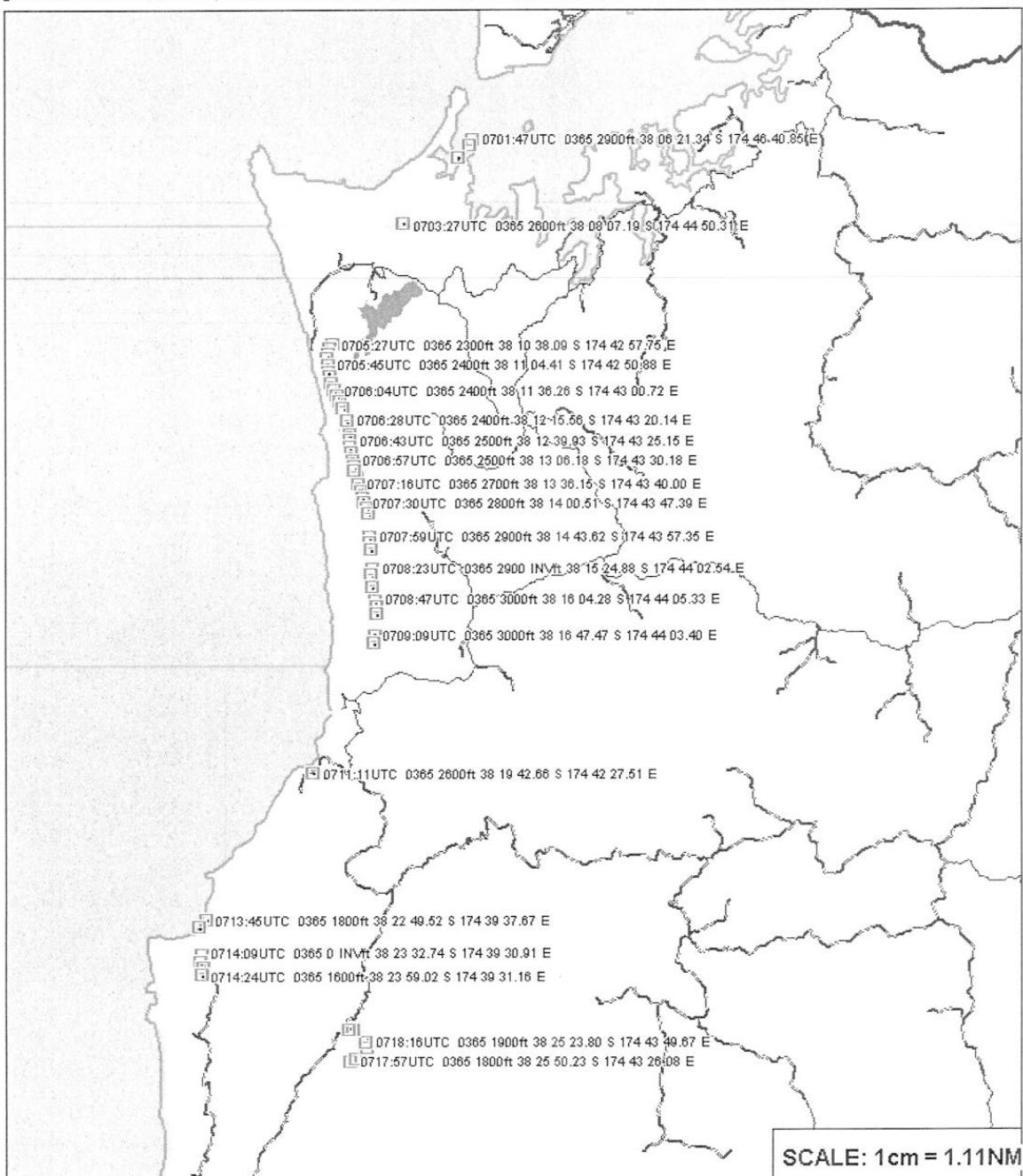


Figure 1: Primary Radar and SSR Returns

- 1.1.12 The accident occurred in darkness at approximately 1922 hours at an elevation of 1900 ft amsl, Latitude S 38° 24' 50.88 Longitude E 174° 42' 13.98

1.2 Injuries to persons

<i>Injuries</i>	<i>Crew</i>	<i>Passengers</i>	<i>Other</i>
Fatal	1	0	0
Serious	0	0	0
Minor/None	0	0	

1.3 Damage to aircraft

- 1.3.1 The aircraft was destroyed.

1.4 Other damage

- 1.4.1 Nil.

1.5 Personnel information

- 1.5.1 The pilot held a valid CPL(A) and a Class 2 Medical Certificate. He had approximately 285 hrs total flight time and 50 hrs on the aircraft type.
- 1.5.2 He was scheduled to resit his Class 1 Medical which had expired on 18 July 2009.
- 1.5.3 The pilot had flown 50 hours in the previous 90 days.
- 1.5.4 He had completed an Instrument Rating (Multi Engine and Single Pilot) on 9 December 2008 with endorsements for NDB, VOR, ILS, and DME ARC. All of these flights were conducted during the day.
- 1.5.5 The pilot held CPL privileges for night flying and had completed a total of 11.6 hrs (the CPL requirement is 10 hrs). His most recent night flight was 30 minutes of circuits (solo) at New Plymouth Aerodrome on 8 July 2009.
- 1.5.6 The pilot had not completed any previous night VFR cross country flights.

1.6 Aircraft information

- 1.6.1 Reims Cessna F152 II, serial number F152-1862 was manufactured in France by Reims Aviation in December 1980. The aircraft was imported into New Zealand from the United Kingdom in 1995 and registered as ZK-FCP. The aircraft sustained major damage following a forced landing due to fuel exhaustion in November 1994. It was subsequently rebuilt and re-registered as ZK-JCP in April 1997. Later in April 1997 it was re-registered to become ZK-NPI and entered service with the New Plymouth Aero Club.
- 1.6.2 The aircraft was powered by a Lycoming O-235-L2C engine driving a McCauley 1A-103/TCM fixed pitch propeller. Up to 13 July 2009 the aircraft had accrued 12428.5 hrs time in service. The engine had been installed in the airframe in August 2005 and had accrued 2750.3 hrs time in service since overhaul.

The propeller was installed on 13 November 2007 and had accrued 1237.1 hrs of flight time since overhaul.

- 1.6.3 The most recent scheduled maintenance was a 50 hr inspection which had been carried out on 13 July 2009, after which the aircraft was released to service.
- 1.6.4 The all up weight of the aircraft on take-off from North Shore Aerodrome was estimated to be 1521 lbs, the maximum allowable take-off weight for the aircraft is 1670 lbs.
- 1.6.5 The centre of gravity for the aircraft was determined by calculation to be within the prescribed limits.

1.7 Meteorological information

- 1.7.1 At 1800 hrs on 21 July 2009 an anticyclone centred in the Tasman Sea was nearly stationary and extended a ridge of high pressure eastward past the north of New Zealand. A broad trough of low pressure was moving eastward over the country and a frontal system was moving north-eastward over the Tasman Sea towards the North Island. Refer to figure 2 below.

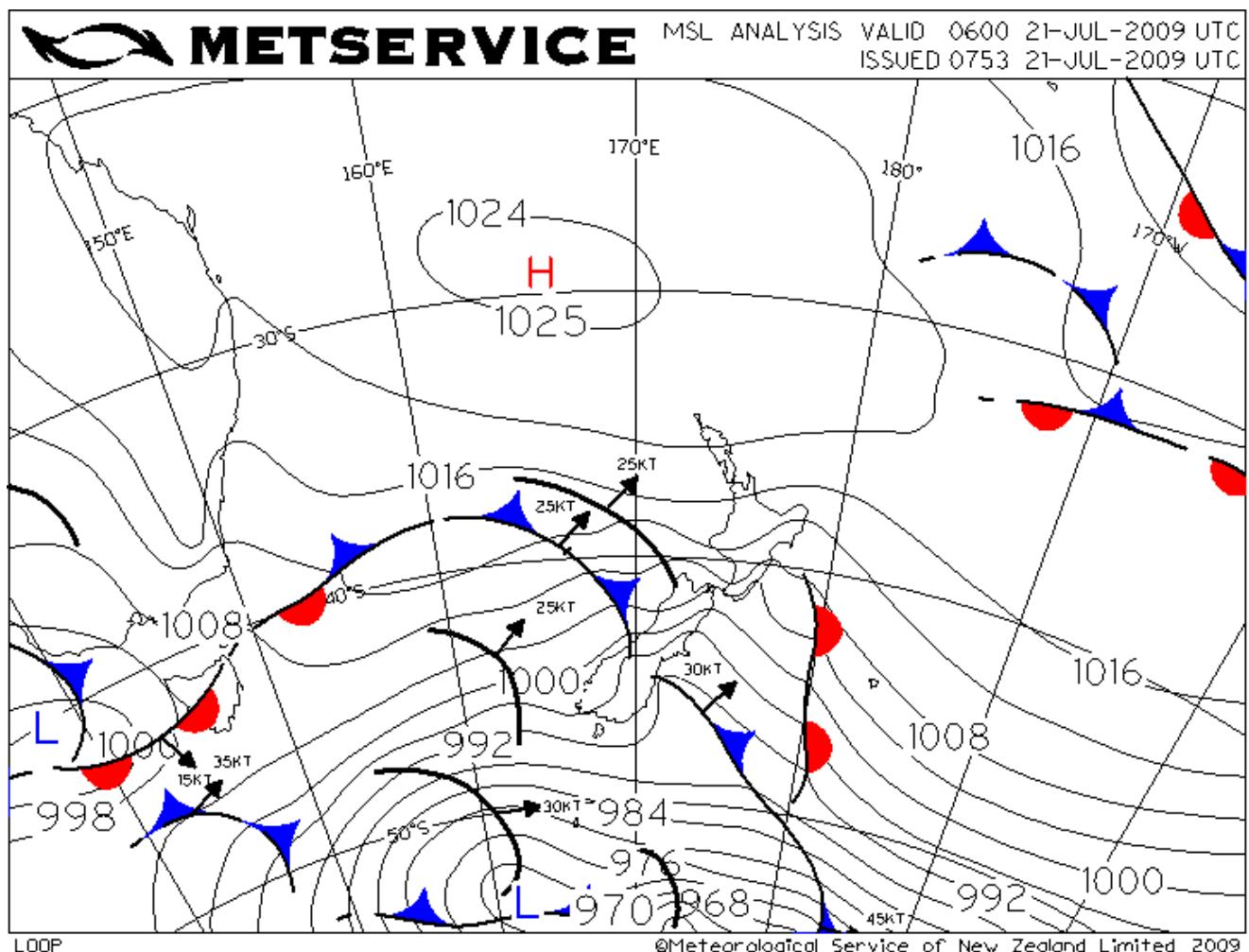


Figure 2: Synoptic Meteorological Chart

- 1.7.2 At 0938 hrs on 21 July 2009 the pilot downloaded the relevant meteorological information at Hamilton prior to his flight north.
- 1.7.3 The Te Kuiti Area Forecast valid from 1100 hrs to 2400 hrs was issued at midday. The forecast was for increasing wind velocity from the west from 1800 hrs, the visibility reducing to 4000 metres in rain showers, with rain and cloud reducing to scattered Stratus at 1200 ft developing in the extreme south-west of the forecast area.
- 1.7.4 An amended TAF (Terminal Aerodrome Forecast) for New Plymouth Aerodrome was issued at 1234 hrs and was valid from 1200 hrs to 2400 hrs. The forecast also showed a deterioration in meteorological conditions. Surface wind 300/18 kts gusting to 30kts, 20 km visibility, rain showers, cloud broken at 2000 ft, TEMPO from 1200 hrs to 1400 hrs visibility reducing to 6000 metres in rain showers. From 1800 hrs to 2400 hrs visibility reducing to 6000 metres in rain showers. 2000 ft W/V 250/25 kts becoming from 1600 hrs to 1800 hrs 280/35 kts.
- 1.7.5 At time 1739 hrs (refer para 1.1.5) the pilot had requested and received the weather for Hamilton and New Plymouth Aerodromes, which were in the form of two METARS. New Plymouth 1730 hours (Automatic); Surface wind 300/19 kts, visibility 15 km, cloud few at 2700 ft, broken at 6000 ft, temperature 13°C, dew point 10°C, QNH 1014 hPa. Hamilton 1700 hrs; surface wind 270/14 kts, 25 km visibility, cloud scattered at 1500 ft and broken at 2900 ft, temperature 13°C, and dew point 9°C, QNH 1015 hPa. SPAR at Hamilton at 1655 hrs; surface wind 250/15 kts maximum 20 kts, crosswind on runway 18 similar.
- 1.7.6 At time 1853 hrs (refer para 1.1.7) the pilot had requested the New Plymouth Aerodrome weather from Christchurch Information and was given the latest METAR. New Plymouth automatic at 1830 hrs; Surface wind 300/20 kts, visibility 17 km non directional visibility, light showers of rain, cloud scattered at 2800 feet, scattered at 6000 ft, broken at 7500 ft, temperature 13°C dew point 10°C, aerodrome QNH 1013 hPa.
- 1.7.7 The pilot had also received the New Plymouth Aerodrome ATIS "November" and had recorded this on his navigation flight log. The runway in use at New Plymouth was 23, surface wind 280/18 kts, visibility 20 km, showers in the vicinity, cloud was few at 1500 ft, scattered at 2400 ft, temperature 13°C, dew point 10°C, QNH 101 (incomplete), 2000 ft W/V 260/35 kts.
- 1.7.8 The Meteorological Service of New Zealand (METSERVICE) gave the following assessment of visibility and cloud conditions between 1700 hrs and 2100 hrs based on direct cloud observations along the route and satellite images. The assessment of visibility is based on observations from Auckland and New Plymouth Aerodromes:

Between 1700 and 1800 hrs from North Shore Aerodrome to Waikato Heads:

Visibility was good about 30 km although towards 1800 hrs a narrow band of rain or showers was approaching the area from the west, and locally visibility in this

precipitation would have been reduced to 6 km. Cloud was 3 to 4 eighths at about 3000 ft.

Between 1800 and 1900 hrs from the Auckland Region to Raglan:

Mostly, visibility was good about 30 km. Around 1800 hrs there was a narrow band of rain or showers approaching the Auckland region from the west, however these dissipated near the west coast. Cloud cover was increasing to 4 to 7 eighths at 3500 ft to 4000 ft.

Between 1900 and 2000 hrs from Waikato Heads/Raglan to New Plymouth:

Visibility was variable between about 20 km and 12 to 15 km in light rain or drizzle and possibly lowering to 5 or 6 km in heavier or more extensive precipitation. Cloud was more covered than open at 5 to 8 eighths, about 4000 ft in the north and shelving up to about 6000 ft near New Plymouth. There were patches around 3000 ft also.

- 1.7.9 METSERVICE also provided composite radar images based from New Plymouth and Auckland which depicted the showers passing through the area at the time of the flight. Refer Figure 3.

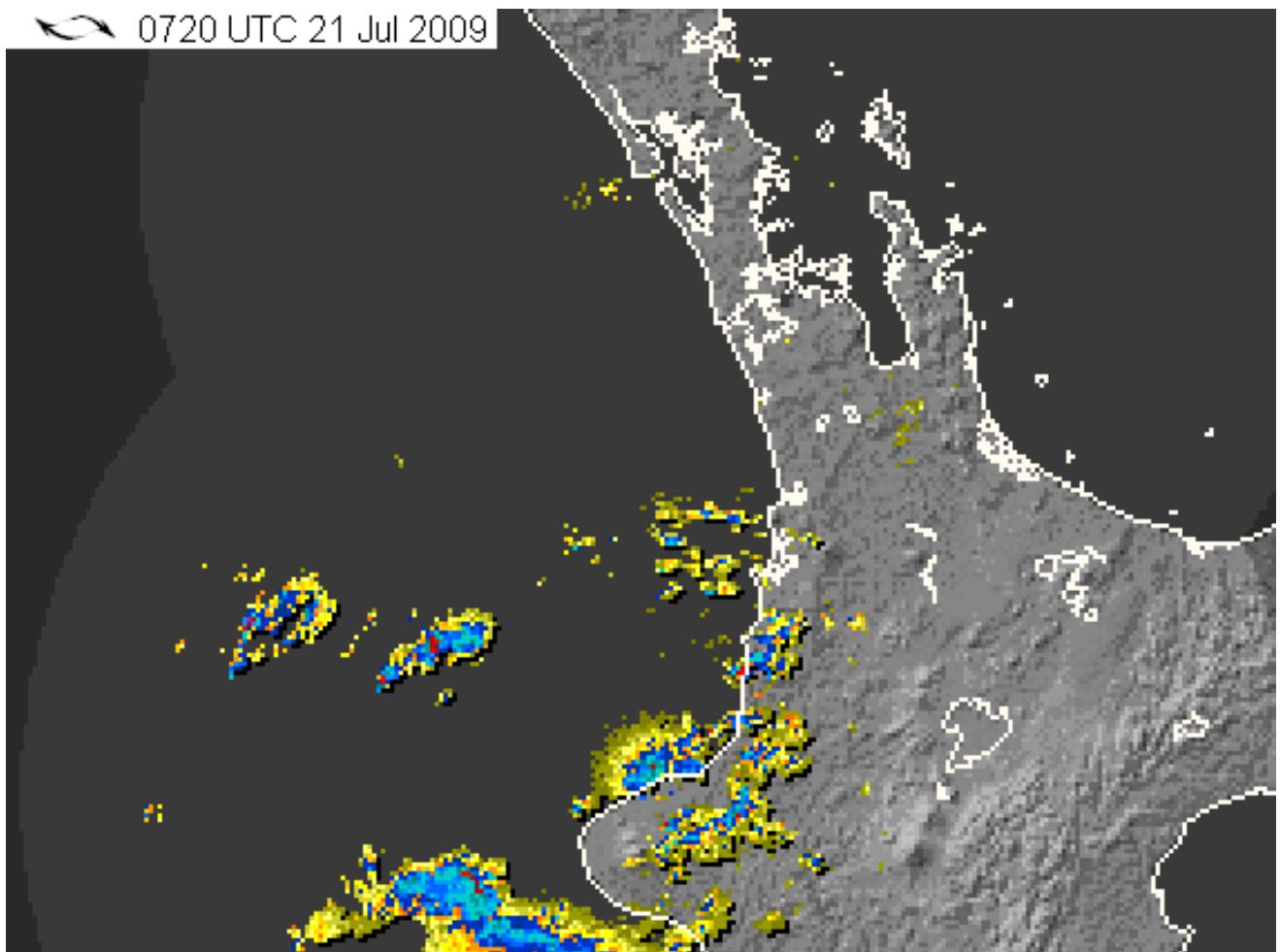


Figure 3: Radar Returns of Shower/Rain Activity

1.7.10 The phase of the moon on the evening of the flight was a waning crescent with 2% of the Moon's visible disk illuminated. This would have provided no useful illumination for the pilot's visual reference.

1.8 Aids to navigation

1.8.1 Not applicable.

1.9 Communications

1.9.1 There were no emergency communications heard from the aircraft.

1.10 Aerodrome information

1.10.1 Not applicable.

1.11 Flight recorders

1.11.1 Not applicable.

1.12 Wreckage and impact information

1.12.1 The aircraft initially struck a large tree on a ridgeline in rugged bush heading in a south-easterly direction at an elevation of approximately 1900 ft amsl. The wreckage trail extended for approximately 300 metres. Owing to the limitations of the terrain, a helicopter was used in an aerial search to assist with identification of key components of the aircraft structure.

1.12.2 Located near the fuselage on the ground were the pilot's navigation charts, the navigation logs for the flights that day, and the front page of the weather briefing which he received at 0938 hrs at Hamilton.

1.12.3 The pilot's laptop computer was removed from the site by search and rescue personnel.

1.13 Medical and pathological information

1.13.1 Post-mortem examination showed that the pilot died of multiple injuries.

1.13.2 There was no indication of any pre-existing medical condition that would affect the pilot's ability to operate the aircraft normally.

1.13.3 The results of toxicological testing showed no alcohol or drugs present in the blood.

1.14 Fire

1.14.1 Fire did not occur.

1.15 Survival aspects

1.15.1 Although the pilot was restrained by a harness, the impact forces were not survivable.

1.15.2 The aircraft was fitted with an Artex ME 406 ELT operating on both 121.5 and 406 MHz, which activated on impact. The 406 MHz transmissions were received by a Search and Rescue satellite and detected by the Wellington Local User Terminal (LUT) and received by the Rescue Coordination Centre at 1722 hrs. The 121.5 MHz transmissions were used in the search which commenced the evening of the accident.

1.16 Tests and research

- 1.16.1 A fuel sample was unable to be taken from the aircraft due to the disruption of the fuel system. The aircraft had been refuelled prior to the accident flight from a commercial Avgas installation at North Shore Aerodrome, therefore, fuel contamination is not considered to be a contributing factor.
- 1.16.2 An engine investigation was carried out at an engine overhaul facility under the supervision of the CAA. Although the engine and accessories exhibited some signs of wear, this was considered to be normal for a high time engine. No abnormalities were found which would preclude the engine from operating normally at the time of the accident.
- 1.16.3 The exhaust system was recovered at the accident site. Examination showed signs of ductile bending of the exhaust headers which indicated that the exhaust system was hot at the time that the aircraft struck the trees, and therefore, that the engine was developing power at the time of the accident.
- 1.16.4 The Artificial Horizon, Directional Indicator, and Turn Co-ordinator gyro flight instruments were recovered at the accident site and removed for later examination. All other flight instruments had been destroyed.
- 1.16.5 The recovered instruments were taken to an instrument overhaul facility and examined under CAA supervision. No useful readings or indications could be gained from the instruments. No abnormalities were found with the gyro instruments, it was considered that they were serviceable and would have been operating normally at the time of the accident.

1.17 Organisational and management information

- 1.17.1 The New Plymouth Aero Club flight authorisation includes a section which states: "*Have read the bylaws of the New Plymouth Aero Club and will comply with them.*" Section 1.16.5 of the Bylaws states. "*Pilots may be authorised for night cross country flights. Routes to be flown must be geographical points clearly visible by night.*"
- 1.17.2 The pilot's flight authorisation from the aero club that was signed by both the pilot and his supervising instructor did not authorise any night cross country flights.

1.18 Additional information

- 1.18.1 CAA CAR 91.301 *VFR meteorological minima*. Table 4, Airspace VFR meteorological minima states: Class F and G airspace at or below 3000 ft amsl or 1000 ft above the terrain whichever is the higher. Clear of cloud and in sight of the surface. Flight visibility 5 km.
- 1.18.2 CAA CAR 91.311 *Minimum heights for VFR flights*. Paragraph (a)(2)(i) A pilot in command of an aircraft must not operate under VFR over any other area at a height of less than 500 ft above the surface.

1.19 Useful or effective investigation techniques

- 1.19.1 Not applicable.

2. Analysis

- 2.1 The pilot had expressed to his supervising instructor and two of his instructor course colleagues that his intention was to complete a night VFR cross country flight. Discussion had taken place on 20 July with both his instructor and a colleague trying to dissuade him from this plan because of the risk regarding night VFR and the intended routes the pilot had discussed. The instructor had spoken to him the previous week and advised the pilot that the only night VFR cross country routes that students complete from New Plymouth were to either Wanganui or Palmerston North Aerodromes. This was because they can follow the lights and the main road all the way for navigation purposes.
- 2.2 Although the pilot held CPL(A) privileges at night, there was no evidence in his logbook that he had completed any night VFR cross country flights.
- 2.3 The pilots navigation logs and charts for his flights on 21 July were recovered from the accident site. Although he had procured the applicable meteorological forecast for his flights from Hamilton then north to Kaitaia returning to North Shore Aerodrome, he had not applied forecast winds or magnetic variation to give a magnetic heading for accurate navigation. The pilot had used a still air groundspeed of 95 kts for the calculations of his flight time and fuel requirements.
- 2.4 The pilot called the National Briefing Office at 1739 hrs to terminate his SARWATCH for the Kaitaia to North Shore sector of his flight. During that phone call and on the basis of the weather reports the pilot made the decision to fly to New Plymouth Aerodrome as a night VFR flight.
- 2.5 He refuelled the aircraft and departed North Shore Aerodrome at approximately 1800 hrs. There was no evidence of navigation calculations on the navigation log with regards to track, wind velocity, or heading. Once again the pilot had simply used a still airspeed of 95 kts and recorded the North Shore to Raglan sector as 75 nm with a flight time of 48 minutes and the Raglan to New Plymouth sector as 85 nm with a flight time of 54 minutes. The only line drawn on his navigation charts was a pencil line from Raglan to Urenui (near New Plymouth).

- 2.6 The pilot generally followed the west coast of the North Island as he headed south. The aircraft altitude was varying from 2900 ft at Kawhia Harbour at 1901 hrs, to 2300 ft at Taharoa at 1905 hrs, and to 1800 ft at Tirua Point at 1913 hrs. The pilot was more than likely trying to establish his geographical location relative to the coast searching for any ground lights that would help establish his position. South of Raglan to New Plymouth there are very few towns with significant lighting which would help establish visual reference with the ground. Showers and rain which were forecast for the area would have limited visibility and may also account for his altitude variations. The lowest recorded altitude was at 1914 hrs when the aircraft was to the south of Tirua Point at 1600 ft.
- 2.7 The final group of SSR returns commenced at 1917 hrs and positioned the aircraft inland of the coast approximately five miles south-east of Tirua Point at an altitude of 1800 ft in a left hand turn. The final SSR return was at 1918 hrs with the aircraft one and a half miles to the east of Mt Whareorino (2129 ft) near the Mangatua Saddle at an altitude of 1900 ft.
- 2.8 There is a time difference of some four minutes between the final SSR return and the first ELT transmissions being received. The aircraft maintained an altitude of 1900 ft apparently in a level left turn striking the terrain at approximately 1922 hrs while tracking in a south-easterly direction.
- 2.9 The pilot was manoeuvring over an area of rugged terrain at night with ridges higher than his altitude. The most likely reasons for this was that he was lost, had no visual reference with the ground due to darkness, or had to divert due to the reduced visibility in passing showers. The strong westerly wind would be blowing him inland unless he corrected for the drift.

3. Conclusions

- 3.1 The pilot was appropriately licenced, held a current medical certificate, and type rating for the aircraft.
- 3.2 The pilot had the required flight experience for a CPL(A) flight at night.
- 3.3 The pilot had no previous night VFR cross country flight experience.
- 3.4 The pilot had spoken openly about completing a night VFR cross country and both his supervising instructor and colleagues endeavoured to dissuade him.
- 3.5 The pilot did not comply with his flight authorisation or the bylaws of the aero club.
- 3.6 The pilot's decision to complete a flight of over 150 nm at night, on a route with limited ground lighting (towns) and into deteriorating meteorological conditions, was flawed.
- 3.7 After crossing Tirua Point (and for reasons that could not be determined) the pilot turned inland from the coast towards rising terrain.

- 3.8 The pilot breached the requirements of CAR 91.301 *VFR meteorological minima* and 91.311 *Minimum heights for VFR flights*.
- 3.9 The accident was not survivable.

4. Safety actions

- 4.1 Nil

Report written by:

Mr Alan Daley
Safety Investigator
Date 02 March 2012

Authorised by:

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