TRANSPORT ACCIDENT INVESTIGATION COMMISSION
TE KOMIHANA TIROTIRO AITUA WAKA

AIRCRAFT ACCIDENT REPORT

No. 91-005

Piper PA32

ZK-DOJ

Ngawihi Airstrip

24 February 1991

Transport Accident Investigation Commission
Wellington · New Zealand

Price $10.75 (including G.S.T.)

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Aircraft Type, Serial Number and Registration:	Piper PA32S-300,32S-40638, ZK-DOJ
Number and Type of Engines:	One Lycoming IO-540R-145
Year of Manufacture:	1968
Date and Time:	24 February 1991 at 1540 hours NZDT
Location:	Ngawihi Airstrip Latitude: 41°34'S Longitude: 175°14'E
Type of Flight:	Air Transport (Charter Air Cargo)
Persons on Board:	Crew: 1 Passengers: 1
Injuries:	Crew: 1 Nil Passenger: 1 Nil
Nature of Damage:	Substantial to wing, fuselage and undercarriage
Pilot in Command's Licence:	Commercial Pilot Licence (Aeroplane)
Pilot in Command's Age:	27
Pilot in Command's Total Flying Experience:	1302 hours 86 on type
Information Sources:	Transport Accident Investigation Commission field investigation
Investigator in Charge:	Mr R Chippindale

1. NARRATIVE

1.1 The pilot was employed by the operator and was tasked to fly a load of crayfish from Hawera to the airstrip near the processing plant at Ngawihi.

1.2 The pilot was accompanied by an Air Traffic Control Officer on a familiarisation flight.

1.3 The flight proceeded without incident. On arrival overhead the Ngawihi Airstrip the pilot noticed that the wind vane appeared to indicate variable wind direction and he assessed from the absence of white water in Palliser Bay and the dust rising from a vehicle travelling to the north-west, that the wind strength was about 5 knots.

1.5 He decided to make his first approach to vector 33 of the bi-directional strip as this had a slight upslope. He used this approach to confirm his assessment of the wind conditions so it was followed by an intentional go-around from an indicated height of about 200 feet. The pilot assessed that his ground speed appeared normal so he decided to land in the same direction off the next approach.

1.6 The driver of a truck, who was awaiting the arrival of the aircraft, was surprised at the direction of approach as a steady breeze was blowing in the direction of the landing. He thought that the pilot had noticed this and had abandoned his attempt to land downwind, prior to making an approach from the opposite direction.

1.7 The wind vane at the strip consisted of an orange painted metal plate mounted on a rod which rotated within a 50 mm diameter metal pipe. The rod was held up in the pipe by a flat plate which skidded on the top end of the pipe without the benefit of any lubricant or other form of bearing.

1.8 The witness on the ground was certain that the vane was indicating the wind direction correctly and the pilot allowed that this could have been the case but stated that it had been difficult to determine, when he was flying overhead, whether the vane was indicating downwind or upwind. Due to its shape a 180° ambiguity existed.

1.9 The pilot made a second approach and noted that he was overshooting the touch down point so he initiated a go around from approximately 100 feet indicated.

1.10 The pilot considered the third approach to the 33 vector was normal but at about 20 to 30 feet above the ground he noted the aircraft's ground speed was too high and not reducing normally. He suspected that the tailwind component which he assessed as 5 knots was beginning to affect the aircraft's touchdown point but considered a go around was not practicable at that point as the aircraft was below the decision height of 50 feet so he persevered with his attempt to land.

1.11 The aircraft touched down well past the normal point and from thereon the pilot applied maximum braking. He assessed the braking action as good but thought that the aircraft lofted off a rise on the strip and lost some stopping distance as a result. When the aircraft touched down again the pilot was unable to keep it straight and it slewed through 90° to the left.

1.12 The aircraft's left mainwheel attachment broke as the aircraft slewed to the left. The fuselage and wing undersurfaces and the flap suffered some compression buckling. The left-hand tip tank was damaged sufficiently to cause a minor fuel leak.

1.13 The witness marks on the strip substantiated the pilot's recollection of events except that the aircraft did not appear to have left the ground after its initial touch down.

1.14 The strip was not of adequate length and slope for the pilot to have attempted to land the aircraft in compliance with the requirement of Civil Aviation Safety Order (CASO) Number 4 unless he landed upslope into a five knot wind or downslope into a ten knot wind. CASO 4 required a strip over 550 m in length for an air transport operation with this aircraft landing upslope with a 5 knot tailwind. The Ngawihi airstrip was 430 m.

1.15 The eyewitness evidence made it clear that the pilot had misjudged the strength of the tailwind which was closer to 10 knots. He had landed on the strip 5 or 6 times previously but only on one other occasion in the PA32 aircraft.

1.16 The Landing Ground Authorisation (LGA) for the company to operate from the Ngawihi (also known as Ngawi) Airstrip was dated 28 February 1991 which was four days after the accident occurred. However this was due to an administrative delay and verbal approval had been given prior to the accident. The LGA required specifically that the aircraft used be able to meet CASO 4 performance requirements and not exceed 2300 kg maximum certificated take-off weight (MCTOW).

1.17 If the pilot had referred to the CASO he would have known that he would have to exercise particular care and assess the wind accurately to land the PA 32 aircraft on the Ngawihi Airstrip at its estimated landing weight of 3400 pounds (1542 kg).

1.18 The load sheet was completed for the flight. Together with reference to the aircraft's flight manual this would have made the pilot aware of the critical nature of the landing distance available versus that required.

1.19 The pilot knew the limitations of the wind vane and attempted to resolve the question of which vector the wind favoured by flying across the strip before making his approach but the result was inconclusive. With the benefit of two previous approaches before he made the last attempt to land it should have been obvious that to land in that direction required a touchdown no later than the normal touchdown point and when it became apparent that this was not going to be achieved an immediate go around was essential.

1.20 There were no impediments to a go around from a low level, the terrain past the far threshold had no vertical obstructions and the slope of the strip was less than one percent upwards.

1.21 It was incumbent upon the pilot not to accept the task if he established that it could not be completed safely in compliance with existing regulations or to ensure that the existing requirements were met.

2. FINDINGS

2.1 The pilot was appropriately qualified for the flight.

2.2 The aircraft was airworthy prior to the attempt to land.

2.3 The weather was not a factor in the accident.

2.4 Verbal approval had been given for the operator to use the Ngawihi airstrip for air transport operations.

2.5 Written approval was signed four days after the accident for the operator to use the Ngawihi airstrip for operations with aircraft not exceeding 2300 kg MCTOW.

2.6 The approval permitted the operator to use PA 32 aircraft.

2.7 The PA32 aircraft was less than 2300 kg MCTOW.

2.8 The aircraft's landing weight was not in excess of the maximum acceptable for the available landing distance in the conditions prevailing at the time of the accident.

2.9 The airstrip was of sufficient length for an air transport operation in the PA 32 aircraft type to comply with the Requirements of CASO 4.

2.10 The approval for the company to use aircraft up to 2300 kg MCTOW on the Ngawihi airstrip may have mislead the pilot into thinking that it was unnecessary for him to establish the landing distance required for the PA 32 at an all up weight of 1545 kg.

2.11 It was the pilot in command's responsibility to ensure the requirements of CASO 4 could be met for the operation.

2.12 The pilot should have ascertained from the two trial approaches that the landing in the selected direction would be downwind.

2.13 There was no impediment to the pilot making a third go around when it became apparent that the aircraft would not touch down in the selected area.

2.14 The cause of this accident was the pilot's failure to establish that he would be landing downwind. Other factors were an unsatisfactory wind indicating system and a landing weight above that permissible in the prevailing conditions.

3. RECOMMENDATIONS

3.1 As a result of this investigation it was recommended to the Company's Chief Executive Officer that he:

Liaise with the owner of the Ngawihi Airstrip to improve the wind indicating system at the airstrip.

Require his pilots to compute required landing distances for the destination before loading their aircraft.

3.2 The windsock was replaced with a standard type a few days after the accident occurred and the strip was extended to 500 m in length. New "painted tyre" markers were placed to define the strip boundaries and the operator discontinued Cherokee 6 operations into Ngawihi Airstrip.

12 November 1992

M F DUNPHY
Chief Commissioner