

**Aviation Safety Investigation Report
199400431**

**Partenavia Costruzioni Aeronautiche
SPA
P.68B**

19 February 1994

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

The Bureau did not conduct an on scene investigation of this occurrence. The information presented below was obtained from information supplied to the Bureau.

Occurrence Number: 199400431 **Occurrence Type:** Accident
Location: 8km W Carnarvon
State: WA **Inv Category:** 3
Date: Saturday 19 February 1994
Time: 1230 hours **Time Zone** WST
Highest Injury Level: None

Aircraft Manufacturer: Partenavia Costruzioni Aeronautiche SPA
Aircraft Model: P.68B
Aircraft Registration: VH-PNS **Serial Number:** 71
Type of Operation: Miscellaneous Search and Rescue
Damage to Aircraft: Substantial
Departure Point: Carnarvon WA
Departure Time: 1200 WST
Destination: Carnarvon WA

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command	Commercial	70.0	1137

Approved for Release: Wednesday, January 24, 1996

1. FACTUAL INFORMATION

Sequence of events

The aircraft was involved in Civil Search and Rescue Unit training at the time of the occurrence and the trainee dropmaster was undertaking his first live dispatch of a twin raft training pack under the supervision of an instructor. The aircraft was being flown at 120 knots and 200 feet above sea level for the exercise.

The drop proceeded normally until the first raft pack was dispatched after which the trainee retained his grip on the second raft pack beyond the point in time when the second pack should have been dispatched. As the rope reached full length a tug was felt and shortly afterwards the first raft pack entered the water placing a much greater load on the rope causing the second raft pack to be pulled from the trainee's grip. It struck the rear door frame before exiting the aircraft, causing substantial damage.

Raft dropping procedures

Raft packs connected by 440 m of rope are normally dispatched from the aircraft at six second intervals allowing the rope to be pulled completely from special containers attached to each raft pack. The raft packs are normally located one on top of each other and protrude through the door. They are pushed outwards and downwards by the dispatcher to ensure they remain clear of the aircraft. The dropmaster may also use an alternative procedure by waiting until he feels a tug on the rope before dispatching the second raft. During training, raft packs made from a solid wooden cylinder and webbing are used in lieu of rubber rafts. The training pack has less elasticity than the actual pack.

When an actual raft is dropped it begins to inflate during its descent and will not generally contact the water before the second raft is released. However, a training raft pack does not inflate and therefore it falls at a faster rate, entering the water sooner than an actual raft. On this flight the early entry into the water of the training pack led to the uncontrolled release of the second raft and the subsequent damage to the aircraft. The twin raft deployment system does not include a weak/frangible link to protect the aircraft from damage resulting from such circumstances.

Pre-flight training/briefing

The trainee dropmaster had been trained and subsequently briefed for a single raft drop. On the day of the occurrence the aircraft to be used for the single raft training became unserviceable and the exercise was re-scheduled for a twin raft drop. He had not been trained or briefed for the twin drop until immediately prior to departure. Before each flight the crew normally received a briefing from the pilot-in-command on the procedures and calls to be used during the drop.

During the preflight briefing by the pilot-in-command, it became evident that the trainee dropmaster was not familiar with the twin raft drop procedures. The briefing was discontinued to allow the the trainee dropmaster to be given instruction on twin raft drops by the dropmaster instructor. The preflight briefing was subsequently resumed but the dropmaster instructor did not attend this briefing as he had become occupied with other duties. The trainee did not carry out any dummy runs to practise the twin raft drop procedures.

During the flight the dropmaster instructor introduced procedures that had not been explained during the preflight briefing. In addition, the intercom between the dropmaster and pilot failed and hand signals (a normal alternative procedure) were used. Additionally, the clock, used for timing the drop sequence, was stopped during the live drop run causing the dropmaster to lose his timing reference.

3. CONCLUSIONS

Findings

1. The trainee dropmaster was inadequately prepared for the twin raft sequence due to insufficient instruction and a lack of dummy training runs.
2. There was a breakdown in standardisation and communication because the dropmaster instructor did not attend the preflight briefing given by the pilot-in-command.
3. The twin raft deployment system does not include a weak/frangible link to protect the aircraft from damage should there be a hang-up and one raft pack enters the water.

Significant Factors

1. The training system in use was not mature enough to cope with a last minute change in the program caused by an aircraft unserviceability.
2. Training staff did not ensure that dropmaster training was adequate and that procedures were clearly understood prior to departure for the flight.
3. The design of the training raft packs was deficient in that it did not provide a fail safe system in the event of a hang-up during normal dispatch.

4. SAFETY ACTION

4.1 The Civil Aviation Authority suspended all training using the twin raft system pending the results of an investigation into the safety of the system.

4.2 The Bureau of Air Safety Investigation issued Safety Advisory Notice SAN 940076 on 29 March 1994, suggesting that the Civil Aviation Authority review the Search and Rescue twin life raft system to ensure:

- (a) that a weak/frangible link is included between the two rafts for twin unit deployments;
- (b) that ab-initio trainee dropmasters undertake at least one practice drop run before attempting an actual deployment; and

(c) that communication and teamwork between flight crew and the drop crew is improved on SAR training flights.

The Civil Aviation Authority responded on 7 June 1994 advising that:

(a) in future there will be no change of the supply drop process during a planned training program for an ab-initio dropmaster trainee;

(b) ab-initio trainee dropmasters will undertake a minimum of ground training drop simulation and one airborne practice drop prior to an actual life raft/dummy unit deployment;

(b) the Dropmaster and Pilot SAR Manuals will be amended to delete the use of the tug on the rope as an alternate indication to an elapsed time of 6 seconds for the release the second raft;

(c) the dropmaster instructor and the pilot tutor will attend the preflight briefing given by the pilot in command, prior to each training flight and all crew members will attend the preflight brief given to the trainee dropmaster;

(d) where possible training is to be conducted with rubber compound units,
- Technical Services Division (TSD) are about to place an order for the manufacture and supply of rubber compound units, which will replace the wooden logs currently in use. A time frame for delivery and replacement is not known; and

(e) TSD have developed a weaklink for use on all training equipment (Single, Twin and Multi-unit drops). Testing of this weaklink is presently being conducted.

Status of response: Closed - accepted.