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**Safety recommendation: AIC 15-R15/13-1007**

**Addressed to: PNG Airline Operators (Air Niugini; Airlines PNG; Travel Air Ltd;  
Hevilift (PNG) Ltd)**

**Date issued: 7 August 2015**

**Investigation link: AIC 13-1007**

**Action status: Issued**

### **Safety deficiency description**

On 19 October 2013, an Avions de Transport Régional ATR42-320 freighter, registered P2-PXY (PXY) and operated by Air Niugini, taxied to depart from runway 25 at Madang Airport. The take-off roll was normal until the pilot in command tried to rotate at  $V_R$  (which the flight crew had calculated to be 102 knots). He subsequently reported that the controls felt very heavy in pitch and he could not pull the control column back in the normal manner. Flight data recorder (FDR) information indicated that approximately 2 seconds later the PIC aborted the takeoff and selected full reverse thrust. He reported later that he had applied full braking. It was not possible to stop the aircraft before the end of the runway and it continued over the embankment at the end of the runway (Figure 2) and the right wing struck the perimeter fence. The investigation found that the aircraft load was in excess of the maximum permissible weight, and cargo zone 'A' at the front cargo area was significantly heavier than the structural limit for the aircraft, which placed the aircraft in a nose heavy configuration. Air Niugini's lack of robust loading supervision and procedures for the ATR 42/72 aircraft, and the inaccurate weights provided by the consignor/client company likely contributed to the overload.

The investigation also found the following:

The Madang Airport runways do not have runway end safety areas (RESA) at either end. The PNG Civil Aviation Rules permit ATR 42/72 and Fokker 100 aircraft to operate into Madang and other airports within PNG that do not have a RESA.

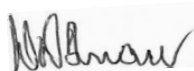
While the evidence strongly suggests that PXY would not have been able to be stopped in the available length even if a RESA had been available, this must be viewed as a potential safety hazard for the higher weight faster take-off speed jet aircraft such as the Fokker 100.

## **Recommendation number AIC 15-R15/13-1007 to Papua New Guinea airline operators (Air Niugini; Airlines PNG; Travel Air Ltd; Hevilift (PNG) Ltd)**

The Accident Investigation Commission recommends that PNG airline operators review their published procedures and ensure their procedures mitigate the risks associated with a runway end safety area (RESA) not being available at PNG airports, other than Port Moresby International (Jacksons Airport). The runway end safety area requirements are contained in ICAO Annex 14 Volume 1.

### **Action requested**

The AIC requests that PNG Airline Operators note recommendation AIC 15-R15/13-1007 above, and provide a response to the AIC within 60 days of the issue date, and explain (including with evidence) how PNG ASL has addressed the safety deficiency identified in the AIC investigation report AIC 13-1007.



**David Inau, ML**

**Chief Executive Officer**

### **1.1.1.1 Air Niugini response**

Signed response dated 11 September 2015.

Air Niugini has reviewed its process and procedures and has amended its published procedures to mitigate the risks associated with operating into airfield that do not have a runway end safety area (RESA), as required by the Safety recommendation: AIC 15-R15/13-1007.

It should be noted that almost all aerodromes in PNG have been constructed or are operated without a RESA as recommended by ICAO.

According to CAR 121.69(a)(2)(i)(ii), RESA is a requirement for all airfields that are certified as International Aerodromes.

Madang is considered a Domestic Aerodrome which does not require a RESA per the ICAO Standard.

Regardless, Air Niugini has taken a further step to review its process by applying for an exemption to the RULE (stated above) to operate to ALL aerodromes without RESA.

#### **1.1.1.1.1 PNG Accident Investigation Commission (AIC) assessment of Air Niugini response**

The AIC has assessed the Air Niugini response as satisfactorily addressing the identified safety deficiency. With respect to AIC 15-R15/13-1007 addressed to Air Niugini the **Status of the AIC Recommendation: Closed**

### **1.1.1.2 Travel Air Ltd., response**

Emailed response dated 12 October 2015.

Due to runway shortening at Vanimo, airport currently being 1320 meter in length, the following calculation based upon data from the Fokker 50 Airplane Flight Manual regarding the Take-Off Weight limited by Fieldlength Requirements is as follow:

1. For the TWO engine operating:  
R/W 1300M, Flaps 5, Temp 30 dgr C,  
Zero Wind, Airport altitude of 100ft, Maximum performance limited TOW is 19400KG.

2. For ONE engine operating:  
With the same condition as stated here above, the Reference Accelerate Stop Distance and Reference Take Off Distance are respectively 1000 and 1100 meters which allow to have a maximum allowable TOW of 1900 KG.

When using Flaps 10 / 15, this will yield in a more weight and less distance.

Although the condition as described is not a limiting factor for the operation at Vanimo, r/w length of 1320 meters, take-off flap setting 5, I strongly recommend all crew using Flaps 15 for take-off. Coordinating with Load Master for proper loading the aircraft and requiring flight crew awareness operating at Vanimo airport will surely

#### **1.1.1.2.1 PNG Accident Investigation Commission (AIC) assessment of Travel Air Ltd., response**

The AIC has assessed the Travel Air Ltd., response as not satisfactorily addressing the identified safety deficiency. While the response satisfactorily addressed the safety concern with respect to Travel Air Ltd., operations to and from Madang, it did not address the risk associated with operations to and from other PNG airports. With respect to AIC 15-R15/13-1007 addressed to Travel Air, the **Status of the AIC Recommendation: Active**

#### **1.1.1.3 Airlines PNG response**

Signed response dated 9 October 2015.

As requested by PNG AIC, Airlines PNG has reviewed our published procedures for regulated take-off weight (RTOW) performance and confirms that this data mitigates the risk of no RESA at various PNG airports.

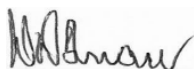
Airlines PNG use APG as our performance calculation provider and publishes this data in our CASA accepted RTOW manual. The performance data published ensures that accelerate stop distance availability (ASDA) is available as part of the calculation when reviewing the weight based on air temperature and humidity.

#### **1.1.1.3.1 PNG Accident Investigation Commission (AIC) assessment of Airlines PNG response**

The AIC has assessed the Airlines PNG response as satisfactorily addressing the identified safety deficiency. With respect to AIC 15-R15/13-1007 addressed to Air Niugini the **Status of the AIC Recommendation: Closed**

#### **1.1.1.3.2 PNG Accident Investigation Commission (AIC) overall assessment**

The AIC has reviewed the CASA response addressing the identified safety deficiency with respect to Recommendation AIC 15-R16/13-1007. Based on that response, and the fact that CASA PNG has regulatory oversight of the Airline Operators, the AIC has determined the while not all of the operators have responded to Recommendation AIC 15-R15/13-1007 (Awaiting a response from Hevilift (PNG) Ltd., and Travel Air Ltd.) it should be assigned a response unsatisfactory rating. Accordingly, the AIC records the **Status of the Recommendation: Dormant.**



**David Inau, ML**

**Chief Executive Officer**

**13 October 2015**

#### 1.1.1.4 Hevilift (PNG) Ltd response

On 16 August 2015, Hevilift provided details covering loading and flight operations at Madang. On 14 October, Hevilift provided the following information with respect to mitigating the risk of not having a RESA at aerodromes used by the Hevilift ATR aircraft.

##### Appendix to Response to AIC RESA Mitigation.

Hevilift to review their published procedures and the following procedures we believe mitigate the risks associated with a runway end safety area (RESA) **not being available at PNG airports**, other than Port Moresby International (Jacksons Airport).

The risk mitigation is for all airports into which Hevilift operates the ATR.

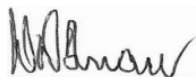
- Hevilift have introduced specific accelerate/stop exercises in current June-December 2015 into LOFT simulator training. This also includes out of trim scenarios.
- Hevilift are consulting with possible clients who intend building ATR (Part 121) size airports in PNG for future operations. We have recommended that RESA's be included in these plans. To date this recommendation has been accepted by one such project however this is commercially sensitive and no detail is available.
- Hevilift uses an external performance contractor (APG) for all ATR performance data and the lack of RESA's are included in all calculations.
- Flight crew performance training in all type rating training and refresher training is provided which includes RESA requirements in performance calculations.

##### 1.1.1.4.1 PNG Accident Investigation Commission (AIC) assessment of Hevilift (PNG) Ltd response

The AIC has assessed the Hevilift (PNG) Ltd response as satisfactorily addressing the identified safety deficiency. With respect to AIC 15-R15/13-1007 addressed to Hevilift (PNG) Ltd, the **Status of the AIC Recommendation: Closed**

##### 1.1.1.4.2 PNG Accident Investigation Commission (AIC) overall assessment

The AIC has reviewed the responses from the Airline Operators (other than Travel Air Ltd.) addressing the identified safety deficiency with respect to Recommendation AIC 15-R15/13-1007. The AIC assigned these responses a satisfactory rating. However, as the AIC is still awaiting a response from Travel Air Ltd., the AIC records the overall **Status of the AIC Recommendation: Dormant**



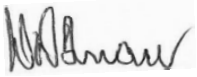
David Inau, ML

Chief Executive Officer

16 October 2015

#### **1.1.1.4.3 PNG Accident Investigation Commission (AIC) overall assessment**

Travel Air Ltd., ceased operating in February 2016. As the Travel Air Ltd., response with respect to Recommendation AIC 15-R15/13-1007 was the only response outstanding, the AIC had assigned the other operator's responses as satisfactory, the AIC has determined the overall **Status of the AIC Recommendation: Closed response accepted.**



**David Inau, ML**

**Chief Executive Officer**

**4 March 2016**