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Safety recommendation: AIC 24-R13/24-1001

Addressed to: Tropicair Limited

Date issued: 29 November 2024

Investigation link: AIC 24-2001

Action status:

Introduction

On 8 June 2024 at 13:23 local time (03:23 UTC), the AIC was notified by the operator via telephone of a serious incident at Kikori Airstrip, Gulf Province, that occurred on 8 June 2024 at 11:43 local, involving a DHC6-300 Twin Otter aircraft, registered P2-BBM, owned and operated by Tropicair Limited. The AIC immediately commenced an investigation and deployed a team of investigators to perform on-site activities on 9 June 2024.

Occurrence

On 8 June 2024, at 11:43 local (01:43 UTC), a DHC6-300 aircraft registered P2-BBM, owned and operated by Tropicair Limited was conducting an IFR Fares and Freight flight from Kerema Airport to Kikori Airstrip, Gulf Province, Papua New Guinea, when during landing, the aircraft experienced a loss of directional control on touchdown and subsequent runway excursion.

There were 16 persons on board: 2 pilots and 14 passengers. None of the aircraft's occupants were injured.

Safety Deficiency Description

Following touchdown, the aircraft experienced an uncommanded yaw to the left during the landing roll, upon the application of Beta. The crew attempted to correct, which, however, resulted in an elevated loss of directional control and subsequent runway excursion.

The investigation discovered that it is common for the Beta System on the DHC-6 to, in certain circumstances, operate in asymmetry where one system would delay or be less effective than the other, resulting in drag asymmetry condition. In reaction to such a condition, the pilot's situational awareness is vital in countering and correcting accordingly. In addition, the physical characteristics and condition of the landing runway surface also determines how well directional control is corrected and maintained.

According to the Operators *DHC-6-300 Standard Operating Procedures Manual*, 3.13.3 *Use of Reverse*:

“Reverse thrust, defined as power lever movement aft of the IDLE stop that results in an NG increase at negative blade angles is most effective at speeds greater than 60 KIAS.

If required, full reverse should be selected (and held only as long as necessary) immediately after touch-down for maximum effectiveness with the objective being to use reverse thrust as a primary force to decelerate the aircraft speed to less than 60 KIAS. On dry runways that offer good braking action, reverse thrust is of little value once speeds decrease to less than 40 KIAS.

In any case, Beta should be selected on all landings to slow the aircraft to taxi speed, thereby minimising the use of brakes”.

It was noted during the investigation that a similar Beta asymmetry condition was experienced on the previous sector, however, since the landing was on a wide, paved runway that was dry at the time of the landing, the crew was able to counter and maintain directional control on the landing roll. The investigation concluded that although the crew attempted to correct the uncommanded yaw experienced during the landing roll in Kikori, this led to a loss of control due to the unpaved airstrip being narrow and wet at the time of the serious incident

Recommendation number AIC 24-R13/24-2001 to Tropicair Limited

The PNG Accident Investigation Commission (AIC) recommends that the operator, Tropicair Limited ensures that:

- a) Awareness is made during initial training, on the latent condition of Beta Asymmetry on landing, or aborted take-offs, to ensure that crew are situationally aware of the effects of Beta Asymmetry, and the appropriate handling techniques and or procedures to counter such a condition.
- b) Incorporate guidance into Standard Operating Procedures, on the operation of Beta on runway surfaces that may pose controllability issues. Procedures may cover Runways that reduce safety margins, such as Narrow, Unpaved and Wet Unpaved Runways.

Action requested

The AIC requests that Tropicair Limited note recommendation AIC 24-R13/24-2001 and provide a response to the AIC within 90 days of the issue date, but no later than 27 February 2025 and explain (including with evidence) how Tropicair Limited has addressed the safety deficiency identified in the safety recommendation.



Maryanne J. Wal
Chief Commissioner

Tropicair Limited Response to Safety Recommendation AIC 24-R13/24-2001

On 27 February 2025, Tropicair Ltd responded via email providing their corrective action to address the *Safety Recommendation AIC 24-R13/24-2001*. Tropicair Ltd, they has;

- Amended the *Tropicair DHC-6-300 Standard Operating Manual Section 3 Normal Procedures-* to reflect the use of Reverse Thrust or Beta Range as follows.

3.13.3 Use of Reverse

Reverse thrust, defined as power lever movement aft of the IDLE stop that results in an NG increase at negative blade angles is most effective at speeds greater than 60 KIAS.

If required, full reverse should be selected (and held only as long as necessary) immediately after touch-down for maximum effectiveness with the objective being to use reverse thrust as a primary force to decelerate the aircraft speed to less than 60 KIAS. "Reverse thrust or beta range should be used only as necessary to reduce speed until a safe Taxi speed is achieved."

In any case, Beta should be selected on all landings to slow the aircraft to taxi speed, thereby minimising the use of brakes.

NOTE: *There is a one-minute time limit on the use of reverse and the T5 limits of 790 °C must be observed.*

NOTE: *Unless an emergency exists or the loss of brakes require its use, reverse thrust should be restricted to speeds greater than 40 KIAS to avoid propeller damage and possible FOD caused by ingestion.*

- Amendments have also been made to the *Part D- Volume 1- Training and Competency Manual Section 2- Training*, to caution pilots on narrow and contaminated runways.

NOTE: *TRI to highlight to Pilot under training*

Caution:

Contaminated Runways

The AFM for the DHC6 for crosswind landings cautions not to use Brakes until taxi speed.

The same can be said for contaminated runways. A skid develops no braking action, just less control.

If the aircraft yaws the resultant reverse vector will drag the tail towards the runway edge, whether the yaw is from wind, wheel digging in or poor technique.

As per the AFM early identification of any yawing or asymmetry, judicious use of reverse early and landing on the centreline are the best preventative actions.

Tropicair Limited has provided copies of the Manual Amendments to the AIC.

PNG AIC assessment of Helifix Operations Limited Response

The AIC reviewed Tropicair corrective actions to address *Safety Recommendation AIC 24-R13/24-2001* and notes that the corrective actions addressed the safety deficiency in the safety recommendation.

The AIC assigned this response as *satisfactory rating*.

The AIC recorded the Status of the AIC Recommendation: **CLOSED**



Maryanne J. Wal

Chief Commissioner

28 May 2025