



MINISTRY OF TRANSPORTATION

National Transportation Safety Committee

Gedung Karya Lt. 7
Departemen Perhubungan
Jl. Medan Merdeka Barat No. 8
JKT 10110 INDONESIA

Phone : (6221) 3517606,
(6221) 3811308 Ext. 1497
TOKA : 19811
Fax : (6221) 3847601

Website : www.dephub.go.id/knkt
Email : knkt@dephub.go.id

PUBLIC RELEASE OF FINAL REPORT – PK-KKW - FL DHI 574

Today the National Transportation Safety Committee is releasing its final report into the accident involving AdamAir PK-KKW Flight DHI 574 on 1 January 2007.

We extend our prayers and condolences to the families of the passengers and crew.

The NTSC has reviewed the comments on the draft final report from the related parties in accordance with ICAO Annex 13. Now I am able to report to you that as of today, strong and appropriate safety action had been taken during the course of the investigation by the DGCA and AdamAir and Angkasa Pura I, on eight of the eleven recommendations in the report. The last three recommendations are only being issued today.

The Boeing 737, registered PK-KKW, departed from Djuanda Airport, Surabaya at 05:59 Coordinated Universal Time (UTC) under the instrument flight rules (IFR), with an estimated time of arrival (ETA) at Sam Ratulangi Airport, Manado of 08:14. There were 102 people on board; two pilots, 4 cabin crew, and 96 passengers comprised of 85 adults, 7 children and 4 infants. The aircraft disappeared from radar while cruising at 35,000 feet.

Following an extensive land, air, and sea search, wreckage was found in the water and on the shore along the coast near Pare-Pare, Sulawesi 9 days after the aircraft disappeared. Locator beacon signals from the flight recorders were heard on 21 January 2007 and their positions logged.

The search was suspended when it was determined that the wreckage was located in the ocean at a depth of about 2,000 meters, requiring specialized recovery equipment not available in the Region. The salvage operation to recover the flight recorders commenced on 24 August 2007 and the Digital Flight Data Recorder and Cockpit Voice Recorder were recovered on 27 and 28 August 2007 respectively.

The CVR revealed that both pilots were concerned about navigation problems and subsequently became engrossed with trouble shooting Inertial Reference System

(IRS) anomalies for at least the last 13 minutes of the flight, with minimal regard to other flight requirements. This included identification and attempts at corrective actions.

The DFDR analysis showed that the aircraft was in cruise at FL 350 with the autopilot engaged. The autopilot was holding 5 degrees left aileron wheel in order to maintain wings-level. Following the crew's selection of the number-2 (right) IRS Mode Selector Unit to *ATT* (Attitude) mode, the autopilot disengaged. The control wheel (aileron) then centered and the aircraft began a slow roll to the right. The aural alert, *BANK ANGLE*, sounded as the aircraft passed 35 degrees right bank.

The DFDR data showed that even after the aircraft had reached a bank angle of 100 degrees, with the pitch attitude approaching 60 degrees aircraft nose down, the pilot did not roll the aircraft wings level before attempting pitch recovery in accordance with standard procedures.

The aircraft reached 3.5g, as the speed reached Mach 0.926 during sustained nose-up elevator control input while still in a right bank. The recorded airspeed exceeded V_{dive} (400 kcas), and reached a maximum of approximately 490 kcas just prior to the end of recording.

Flight recorder data indicated that a significant structural failure occurred when the aircraft was at a speed of Mach 0.926 and the flight load suddenly and rapidly reversed from 3.5g to negative 2.8 g. This g force and airspeed are beyond the design limitations of the aircraft. The aircraft was in a critically uncontrollable state at that time.

There was no evidence that the pilots were appropriately controlling the aircraft, even after the *BANK ANGLE* alert sounded as the aircraft's roll exceeded 35 degrees right bank.

This accident resulted from a combination of factors including the failure of the pilots to adequately monitor the flight instruments, particularly during the final 2 minutes of the flight. Preoccupation with a malfunction of the Inertial Reference System (IRS) diverted both pilots' attention from the flight instruments and allowed the increasing

descent and bank angle to go unnoticed. The pilots did not detect and appropriately arrest the descent soon enough to prevent loss of control.

Technical log (pilot reports) and maintenance records showed that between October and December 2006, there were 154 recurring defects, directly and indirectly related to the aircraft's Inertial Reference System (IRS), mostly the left (number-1) system.

There was no evidence that AdamAir included component reliability in their Reliability Control Program (RCP) to ensure the effectiveness of the airworthiness of the aircraft components for the fleet at the time of the accident.

During the investigation the NTSC issued a number of recommendations to the Directorate General Civil Aviation (DGCA) and AdamAir relating to IRS maintenance and training of flight crews in IRS and aircraft upset recovery.

I am pleased to announce the following strong positive safety actions.

AdamAir advised the NTSC and DGCA that it has taken safety action to address the IRS defect troubleshooting procedures and maintenance oversight supervision. It issued Engineering Orders with instructions and procedures for the evaluation and rectification of repetitive IRS problems, and from November 2007 has had extensive liaison with the IRU manufacturer. The safety action taken to date by AdamAir includes ground school and aircraft simulator training for pilots to ensure proficiency in upset recovery from 14 January 2008.

The DGCA advised the NTSC that on 23 November 2007 it issued a Safety Circular, to all airline operators, requiring specific action to address deficiencies noted by the NTSC, in particular the IRS maintenance and pilot training deficiencies.

The DGCA requires operators to conduct continuing analysis and surveillance of repetitive defects and ensure immediate follow up corrective action.

The DGCA has also informed operators that it is actively monitoring aircraft defects, in particular repetitive defects, and when the on-condition basis of maintenance is deemed to be insufficient to eliminate repetitive defects, DGCA will require component replacement on a hard-time basis.

On 10 March 2008, the DGCA informed the NTSC that in addition to requiring upset recovery training from 8 January 2008, the DGCA requires operators to include spatial disorientation and its effects in their syllabus of initial and recurrency training.

The DGCA plans to ensure, through routine flying operations inspections, that operators and flying schools are complying with this requirement.

The report will be available on the NTSC web site after the media conference:
http://www.dephub.go.id/knkt/ntsc_aviation/aaic.htm

JAKARTA, 25 MARCH 2008



Komite
Keselamatan

Tatang Kurniadi

TATANG KURNIADI
CHAIRMAN - NTSC