



**The Twentieth First Meeting of the Informal South Pacific ATS Coordinating Group
(ISPACG/21)**

Auckland New Zealand March 06 to March 08 2007

Agenda Item 3: Review relevant work since the last meeting.

UAL870 16 January 2007 MAYDAY

(Presented by United Airlines)

SUMMARY

On January 16, 2007 a United Airlines Boeing 747-400 aircraft operating as UAL870 from Sydney Australia to San Francisco California declared a Mayday via CPDLC in the vicinity of Nuku Alofa Tonga due to a cargo fire warning.

1. INTRODUCTION

1.1 The B747-400 was operating within the Auckland Oceanic airspace when a forward cargo fire warning alert was received on the EICAS at 08:20:04 UTC. The flight crew took appropriate action to extinguish the alert by activating the cargo fire suppression, (firing the bottles). After coordinating with company dispatch and maintenance via sitcom voice, a decision was made to divert to Pago Pago. The flight crew down linked a “Mayday” via CPDLC to advise Auckland Oceanic of the diversion to Pago Pago.

2. DISCUSSION

2.1 The flight was operating normally on a UPR routing from Sydney Australia to San Francisco and was approximate 100nm north east of Nuku Alofa, Tonga, logged on to NZZOt FL 320

2.2 The crew was alerted by a forward cargo fire warning at 08:20:04 UTC.

2.3 08:20:44 UTC The crew made satcom voice contact with company dispatch. Dispatch patched company line maintenance into the call to discuss the situation.

2.4 08:21 UTC The fire bottles were activated by the crew

2.5 08:34:40 UTC After review of possible diversions stations and discussion concerning the likelihood of a real fire, a decision was made to divert to Pago Pago, American Samoa.

2.6 08:36 UTC The crew sent a CPDLC message to NZZO: MAYDAY MAYDAY MAYDAY DESCENDING TO 5000 POSTION REPORT 1858S17408W 0836 DIVERTING TO NSTU VIA... This was received by Auckland however the last part of the message simply read “Diverting to via”

2.7 08:39:27 UTC Satcom voice between the crew and company dispatch, Captain asks Dispatch if tower and ARFF will be available? Dispatch responds with “we’re working on it.” (This is the last voice contact between the flight and dispatch).

- 2.8 08:40:38 UTC ACARS printer is receiving airport runway data for Pago Pago
- 2.9 08:44:54 UTC The flight declares a MAYDAY on HF frequency with Auckland Radio and advises "MAYDAY MAYDAY EMERGENCY AIRCRAFT CARGO FIRE WE REQUEST CPDLC WE ARE GOING TO LAND PAGO PAGO WE NEED CLEARANCE PAGO PAGO AT THIS TIME. A clearance was provided direct to NSTU and contact Faleola Tower on 118.1
- 2.10 08:46:33 UTC Aircraft heading (flight recorder data) changes to NSTU
- 2.11 08:46:38 UTC Destination changed to NSTU (flight recorder data).
- 2.12 08:48:29 UTC (ACARS/SITA) "up intercept no station to" and "up intercept not logged on" messages begin to appear in data for ADS and Dispatch messages concerning airfield information and question about prep for ditching.
- 2.13 08:48:58 UTC Flight begins descent from FL 320
- 2.14 08:54:36 UTC Dispatch uplink message advising flight that NSTU is alerted. No response or ACK from flight
- 2.15 09:02 UTC Auckland Radio contacts flight and is advised of present position 130nm south of NSTU (Pago Pago). Auckland Radio do you need any assistance? UAL870 requests Fire Truck on arrival. UAL870 asks if there is a tower available at Pago Pago. Auckland Radio replies there is no tower at Pago Pago, only in Faleolo You can contact Faleolo on 118.1 UAL870 advises they tried that and will try again, they are at 8000 feet 120nm south of Pago Pago.
- 2.16 09:04 UTC Auckland Radio advises UAL870 that they cannot guarantee any fire trucks or anything at Pago Pago. Are you able to make Faleolo? UAL870 replies " Yes we can." Auckland Radio clears UAL870 Direct to Faleolo. UAL870 requests if there is fire equipment there? Auckland Radio replies AFFIRM.
- 2.17 09:05:33 The heading changes from NSTU to NSFA (Faleolo) (flight recorder data)
- 2.18 09:06:55 The destination is changed in FMC (flight data)
- 2.19 09:35 UTC (ACARS/SITA message reads "09:35Z ON AT APIA")
- 2.20 09:37:22 UTC United Dispatch office in Chicago received a telephone call from Auckland Radio? ATC that the aircraft is on the ground at NSFA (Faleolo). This is the first and only contact between dispatch and ATC.
- 2.21 09:41:36 UTC (ACARS/SITA message reads "SAFELY LANDED AT NSFA"

3. CONSIDERATIONS/ASSUMPTIONS

- 2.1 The loss of CPDLC and ADS data link occurred due to the cargo fire bottles activation resulting in an overheating of the Satcom antenna and subsequent shutdown of all data link and voice via satcom. The 747-400 is not "protected" by an overheated antenna, where as the Boeing 777 models are.
- 2.2 Due to the initial CPDLC MAYDAY and subsequent loss of satcom data, there was concern that the aircraft may have been "lost."
- 2.3 United Company Dispatch was unaware of either the CPDLC MAYDAY or HF MAYDAY transmissions and treated the diversion as more of a mechanical diversion than an "Emergency" diversion. Dispatch did not coordinate with Auckland Oceanic due to the assumption that a clearance was obtained and no extraordinary actions were required.
- 2.4 Auckland Radio/ATC called United dispatch after the flight had landed Faleolo unaware that dispatch had coordinated emergency equipment to stand by at Pago Pago.
- 2.5 The flight was unaware of all airport capabilities within range of the initial incident and chose Pago Pago as the diversion airport instead of one of several alternatives

4. RECOMMENDATIONS

- 4.1 All Air Traffic Service Providers associated with ISPACG should take note of this incident and the loss of communications (data link).
- 4.2 A request has been made to Boeing to address the lack of back up cooling for the satcom antenna on the 747-400 when cargo fire suppression is activated.
- 4.3 ATSPs are requested to consider immediate contact with airline dispatch centers whenever an emergency is declared to ascertain the situation.
- 4.4 All operators should review their emergency procedures associated with loss of data link and dispatch procedures relative to en-route diversions.