The Crash of One-Two-GO Airlines Flight 269

The Etiology of a Preventable Accident

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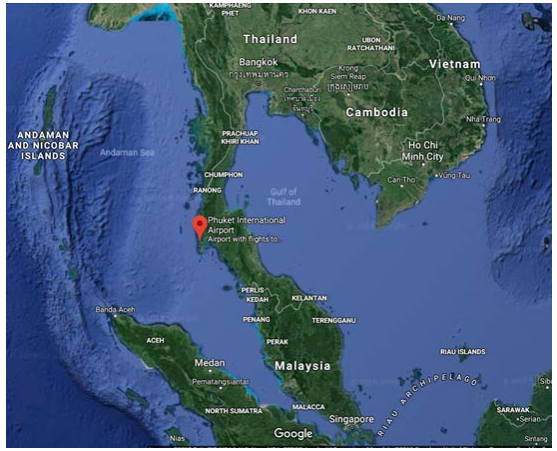
September, 2018

The Aviation Consulting Group

“At least 88 people have been confirmed killed in a plane crash in the tourist resort of Phuket in southern Thailand”…

September 16, 2007



On 16 September 2007, at approximately 14:30 hours, an airplane MD-82 of One-Two-GO Airlines Company Limited (One-Two-GO), nationality and registration HS-OMG, departed from Don Mueang International Airport to Phuket International Airport on a domestic flight **OG 269** with 130 crewmembers and passengers onboard.

At 15:40:10 hours, while conducting a go-around at Phuket International Airport, the airplane veered off and hit an embankment located north of Runway 27, broke up in flames, and was completely destroyed. As a result, 90 crew members and passengers died, 26 were seriously injured, and 14 suffered minor injuries.

Synopsis

Preamble

- Although this accident occurred in 2007, its impacts were long lasting.
- This was no ordinary accident. It involved willful misconduct, negligence, collusion, and more. Profit was clearly put before safety.
- The purpose of this presentation is to create an awareness of the factors that led to this tragedy. There were failures in all parts of the system.
- This presentation is dedicated to the memory of those 90 people that lost their lives as a result of these failures.

Preamble

- Airline ownership structure/history-
  - One-Two-GO Airlines Co. Ltd. was a low-cost airline based in Don Mueang, Bangkok, Thailand. Its main base was Don Mueang International Airport, Bangkok.
  - One-Two-GO was a subsidiary of Orient Thai Airlines, wholly owned by CEO Udom Tantiprasongchai and his wife Nina Tantriprasongchai.
  - The One-Two-GO brand was retired in July 2010, and the aircraft re-branded as Orient Thai Airlines.

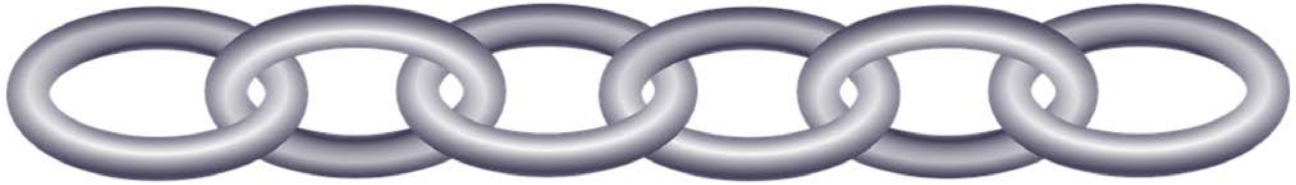
Preamble

- Information sources-
  - All information has been extracted from the Thailand AAIC and U.S. NTSB official accident reports. These reports can be viewed at the end of this presentation.
  - Some of the information in the AAIC report has been edited for clarity, grammar, punctuation, and English translation issues.
  - Additional information was obtained from an independent website set up by the family members of accident victims who sought (and subsequently found) evidence of fraud and misconduct. That website is provided at the end of this presentation.

Preamble

- Structure-
  - This presentation is divided into the following sections:
    - Accident Sequence
    - Contributing Factors
    - Investigation Findings
    - Safety Recommendations
    - Evidence of Corruption and Illegal Acts
    - Summary

Accident Sequence



Accident Sequence

PIC was PNF; FO was PF

15:36:21

- Previous arriving aircraft reported 'Cumulonimbus and windshear on approach,' resulting in an airspeed gain and loss of 15 kts.
- ATC asked OG269 whether they acknowledged the weather conditions reported by previous arriving flight. OG269 acknowledged the information.

Accident Sequence

15:37:31

- ATC informed OG269 of surface winds from 240 degrees at 15 kts and gave clearance to land on Runway 27 with wet runway precaution.

15:38:27

- ATC informed OG269 of surface winds from 240 degrees at 30 kts and asked OG269 to state its intention of landing. OG269 affirmed.

Accident Sequence

15:39:00

- OG269 requested information of surface wind condition.
- ATC informed a surface wind condition of 240 degrees at 40 kts and OG269 acknowledged.
- At that instant, the Radio Altitude Aural Call-Out system automatically called out '50 feet' and the PIC called out that the airspeed was at 136 kts.

15:39:23

- The PIC ordered for more engine power and reminded the FO that the airplane was descending below the ILS glideslope.
- The FO affirmed the correction.
- The PIC then ordered to increase engine power three more times. During that time, the airplane was at an altitude of 100 feet.

Accident Sequence

15:39:45

- The Radio Altitude Aural Call-Out system automatically called out '40 feet' and the EGPWS called out 'sink rate-sink rate’.

15:39:49

- The FO called out for a go-around and the PIC said 'Okay, Go Around’.

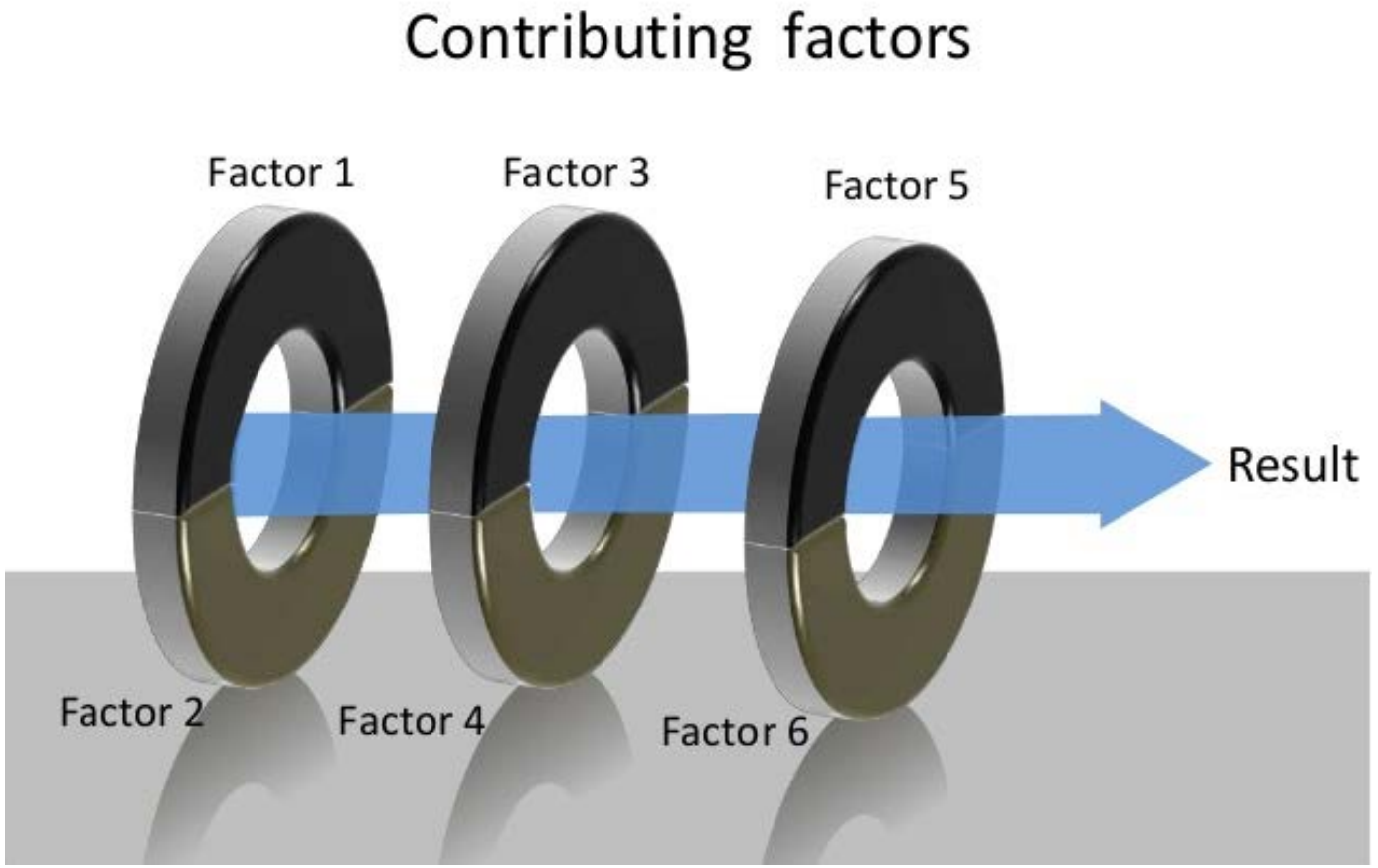
15:39:50

- The FO called for 'flaps 15' and transferred the airplane control to the PIC.
- Then, the PIC told the FO to set the autopilot airplane heading and to retract the landing gear.

15:40:11

- The airplane veered off and hit an embankment north of Runway 27 and broke up in flames.

Contributing Factors



Contributing Factors (probable causes)

- The flight crew did not follow the SOP of Stabilized Approach, Call Out, Go Around, and Emergency Situation as specified in the airlines' FOM.
- The TO/GA switch was not activated, resulting in the inability of the airplane to increase in airspeed and altitude during the go around.
- Also, there was no monitoring of the change in engine power and movement of throttle levers, especially during the critical situation.

Contributing Factors (probable causes)

- The flight crew coordination was insufficient and the flight crew had heavy workloads.
- The weather condition changed suddenly over the airport vicinity.
- The flight crew had accumulated stress, insufficient rest, and fatigue.
- The transfer of aircraft control took place at a critical moment, during the go around.

Investigation Findings

ICAO Aerodrome SARPs

Phuket Intl. Airport (HKT)
Photo credit: Jakkrit Prasertwit

- HKT is categorized in Aerodrome Reference Code 4E.
- However, its runway strips are 75 meters in width on each side of the center line, which did not comply with the SARP of Annex 14: Precision Approach Runway
  - Annex 14 specifies that the width of runway strips shall extend laterally to a distance of at least 150 meters on each side.
- HKT does not meet this criteria due to the fact that the airport has physical limitation surfaces: the embankment on the side of its runway.
- This limitation is announced in the AIP Thailand.

Airport Rescue and Fire Fighting (HKT)

- There is a ditch of 3.5 meters in width and 1.3 meters in depth located to the north, and parallel to Runway 27. The ditch led to difficulties for rescue and fire fighting.
- The airport has entrances for rescue and fire fighting at both ends of the runways. However, these entrances were not used in this accident.
- Airport fire station’s water and foam had not been restocked since a rescue simulation 3 days before.

Airport Rescue and Fire Fighting (HKT)

- There was no effective on-site fire fighting capabilities at HKT. It was staffed with 1 or 2 people at the time of the crash-
  - The rescue crew had to come from town.
  - It took at least 20 minutes for anyone to get there.
- The call for rescue came across as an airplane "slid off" the runway," therefore the rescue wasn't initiated with appropriate seriousness.
- These inadequate materials and delays may have had a negative impact on passengers who initially survived the crash. Some bodies were found days later in the mud beneath the aircraft.

Airline/Airport Emergency Response Plans

- One-Two-GO Airlines had not included 'Crash on Airport' procedures in the Manual of Air Traffic Service, as to comply with the Airport Emergency Plan: Aircraft Accident on Airport.
- The HKT ERP did not include the Narenthom Center, which has emergency medical services, in the contact list as an agency that could be called for assistance. Thus, there was a lack of coordination with the rescue and fire fighting station(s).

Weather Conditions at the time of accident (HKT)

- The Airport AWOS was functioning properly.
- The LLWAS was not useful, due to some of the sensors not working.
- However, the crew of the prior landing aircraft informed OG269 about the windshear and OGF269 had confirmed the acknowledgement of severe weather conditions with ATC.
- The weather and wind conditions during the landing approach of the airplane were threats to landing. The visibility decreased and the surface wind had suddenly gained speed.

SOPs

- The PIC and FO did not comply with SOPs pertaining to-
  - Stabilized Approach
  - Call Outs
  - Approach Checklist
  - Operations in Deteriorating Weather
  - Transfer of Control
  - Go Around

Rostering

- Within the last 7 days before the accident, the PIC had exceeded flight time and flight duty period, and had less rest period than mandated.
- Within the last 30 days, and 7 days before the accident, the FO had exceeded flight time and flight duty period, and had less rest period than mandated.

CRM

- The Automation Man-Machine Interface arrangement was deficient because the localizer was offset from the centerline of the runway by 1.4 degrees.
- The FO had to manually control the airplane for landing to the centerline of the runway which created a high workload, requiring additional monitoring and increased situation awareness. Combined with fatigue and stress, this may have resulted in improper decision making.

CRM

- The flight crew directly received weather conditions from ATC, as reported by the prior landing flight, indicating that there was windshear.
- Also, the airplane was experiencing oscillations in airspeed without engine power changes.
- Even with this critical information, the pilot insisted on landing rather than going around.

CRM

- FO could not maintain a Stabilized Approach below 1,000 feet.
- FO did not activate the TO/GA switch during the go around, but instead, increased the power by moving the thrust levers forward.
- There was no call out from both the PIC and the FO, as required in the go around procedures.
- The above elements indicated a lack of SOP usage.

Training

- The flight simulators used in the Pilot Proficiency Check did not have installed the Windshear Alerting and Guidance System and the EGPW
  - It does not match the configuration of the MD-82 aircraft that the company operates.
- The Pilot Proficiency Check was incomplete as required by the course.

Corporate Culture

- One-Two-GO Airlines had reports of incidents and deficiencies in flight operations and maintenance.
- The incident and deficiency reports were reviewed; however, the reports had not been acted upon in order to improve safety in the operation.
- Each department did not encourage staff to report deficiencies in operations, or to comply with the laws and regulations of civil aviation.
- Staff felt insecure regarding their job security, which suppressed their ability to speak up and report safety issues.
- Upper management lacked of governance.

Post Mortem

- The autopsy samples (specimens) of both the PIC and FO were not kept for laboratory examination.

Safety Recommendations

Aircraft Accident Investigation Committee

Ministry of Transport, Thailand

Directed to **Orient Thai Airlines Company Limited** and **One-Two-GO Airlines Company Limited**

- Establish CRM course, approved by the DCA, for all related personnel in every concerned sections. The course should comprise of initial and recurrent trainings, having contents according to ICAO requirements.
- Strictly train flight crew according to the flight crew training course and flight procedures in SOPs.
- Amend the Operating Procedures on 'Transfer of Control during Critical Phase of Flight' in SOP to be most clear and definite.
- Perform the pilot training check, as appointed by the DCA, to meet applicable standards, especially the pilot proficiency check.

Directed to **Orient Thai Airlines Company Limited** and **One-Two-GO Airlines Company Limited**

- Use a flight simulator that could simulate the systems, equipment, and instruments of the airplane with the same configuration the Airline operates.
- Arrange the crew schedule, according to the requirements in Flight Time and Flight Duty Periods Limitations, by establishing a checking system with advance warning function before exceeding the limitation. The system should also enable the flight crew to check their status.
- Establish an SMS in order to identify and mitigate the risk leading to any accident or incident, and to improve the safety of flight operations to meet the required standards.

Directed to **Orient Thai Airlines Company Limited** and **One-Two-GO Airlines Company Limited**

- Direct all management levels to encourage personnel to have unique corporate culture in having values and beliefs to perform their jobs, in accordance with laws and regulations, and to report any wrongful misconduct where may come of use for improving task efficiency and increasing safety performance. This could be done through training and motivation.

Directed to **The Airport of Thailand Public Company Limited**

- Expedite the improvement of runway strip to meet the standard prescribed in Annex 14 of ICAO or revise the category of instrument approach procedure to suit the current runway strip. The Company shall also establish an SMS in order to identify and mitigate the risk.

Directed to **The Airport of Thailand Public Company Limited**

Rescue and Fire Fighting-

- Construct more access roads across the ditch along runway 27 to inaccessible areas at HKT to facilitate any rescue and fire fighting team in order to reach any accident area in due time. The Company should also arrange the rescue and fire fighting exercise in those areas in order to mitigate the difficulties in rescue and fire fighting.
- Include the Emergency Medical Institute of Thailand (formerly Narenthom Center), which is the government institute that coordinates and provides medical emergency service, in the Airport Emergency Plan.

Directed to **The Airport of Thailand Public Company Limited**

- Perform a full scale emergency exercise, which should cover the participation of all responsible sectors and personnel, to comply with the Airport Emergency Plan in the most efficient manner, when an accident occurs.

Directed to **The Department of Civil Aviation of Thailand**

- Oversee the operation of One-Two-GO Airlines Company Limited and Orient Thai Airlines Company Limited in order to improve their safety efficiency. The DCA should also issue regulations indicating the guidelines and practices of CRM training.
- Improve the measure for regulating and overseeing the air operators under the DCA supervision to achieve the most efficiency.

Directed to **The Department of Civil Aviation of Thailand**

- Coordinate with the Aero Thai Company Limited in order to specify operational guidelines of 'Crash on Airport' into 'Manual of Air Traffic Services'. The guidelines should also be detailed in accordance with Doc. 9137/An898 Airport Service Manual, Part 7: Airport Emergency Planning, Chapter 4, Responsibility and Role of Each Type of Emergency.
- Coordinate with the Meteorological Department to review all LLWAS installations to identify possible deficiencies in performance, similar to those identified at HKT, and correct such deficiencies to ensure optimum performance of the LLWAS. Furthermore, the DCA should consider the installation of efficient LLWAS with advanced systems to cover other airports, as considered necessary.

Directed to **The Department of Civil Aviation of Thailand**

- Coordinate with the following medical centers that perform medical examinations on post-accident of flight crew involved.
- **Institute of Aviation Medicine, RTAF to-**
  - Perform a physical examination on post-accident of surviving flight crew.
  - Perform an autopsy and collect samples for laboratory examination by physicians from Ministry of Public Health and/or physicians from the Institute of Forensic Medicine, Royal Thai Police.

Directed to **The Department of Civil Aviation of Thailand**

- **Institute of Forensic Medicine, Royal Thai Police to-**
  - Collect and send samples of autopsy to the Institute of Aviation Medicine, RTAF, for further laboratory examination, in cases where the Institute of Forensic Medicine, Royal Thai Police arrive at the accident site first.
  - Perform an autopsy and collect samples for laboratory examination with the Institute of Aviation Medicine, RTAF, and/or physicians from Ministry of Public Health.

Directed to **The Department of Civil Aviation of Thailand**

- **Ministry of Public Health to-**
  - Collect and send samples of autopsy to the Institute of Aviation Medicine, RTAF, for further laboratory examination, in cases where physicians from Ministry of Public Health arrive at the accident site first.
  - Perform an autopsy and collect samples for laboratory examination with the Institute of Aviation Medicine, RTAF, and/or the Institute of Forensic Medicine, Royal Thai Police.

Evidence of Corruption and Illegal Acts

Evidence

Ordering the Coverup-

- Orient Thai/One-Two-GO COO copies Udom Tantiprasongchai (the CEO) on this email to the flight scheduler detailing the falsification of the pilots' work hour records.

Roster Fraud-

- This spreadsheet with false work hours was submitted to the NTSB, the "ghost" writers of the crash report for the Thai government.

Evidence

Thai CAA admits to receiving fraudulent hours-

- The Deputy Director General of the Thai CAA acknowledges the receipt of false paperwork and vastly excessive flight hours.
- No action was taken against the airline or management for the fraud, nor was the U.S. NTSB informed of the fraud.

Evidence

Illegally Excessive Work Hours-

- These are the actual scheduled hours for Captain Arief and First Officer Montri during August and September.
- They show scheduled flight hours vastly in excess of the ICAO maximums of 100 work hours and Thai maximums of 110 hours per 30 days.
- After the crash of OG269 in September, excessive pilot work hours continued as shown by this December company roster.

Evidence

Orient Thai/One-Two-GO Checkride Fraud-

- The Captain was on leave. He is not paid for the month. Yet he approved the checkrides of 4 pilots, Natsir, Purwanic, Hendrarto, and Haryanto.

Temporary Grounding-

- Thailand's Civil Aviation Department temporarily revoked One-Two-GO's AOC July 21, 2008 - December 5, 2008 for grossly unsafe business practices.

Evidence

International Flight *With* Passengers *Without* an AOC-

- As shown here on October 11, 2008 One-Two-GO flew Hong Kong to Bangkok without an AOC regularly.

No Change in Airline Management or Oversight Authority-

- Udom Tantiprasongchai and Cho Ting Tsang remained in operational control of Orient Thai and One-Two-GO. Thai Civil Aviation Authorities, Director General Chaisek, and Deputy Director General Vuttichai remained in their aviation oversight and investigatory positions in Thailand.

Evidence

- Before the crash, at least two Orient Thai/One-Two-GO pilots tried to prevent tragedy. Clement Campeau wrote to Orient Thai's Chief Pilot, John McDermott. He warned of compromised training, skills and maintenance. He forecast the impending crash.
- A second pilot, who needed to remain anonymous, because he continued to work in SE Asia, wrote to the Hong Kong, Korean, and Thai Civil Aviation Authorities of dangerous flight, bribes, excessive work hours and more. Nothing changed.

Evidence

- The US FAA audits every country that has or wants to have flight rights to the United States. In fact, 2 month before the crash of OG269, as part of their audit of Thailand aviation, the FAA had notified Thailand that their Civil Aviation Authority was "seriously deficient" in providing oversight. The FAA did not inform the public.

Evidence

- The FAA continued their audit of Thailand through 2007 and into 2008, returning to Thailand to meet with the Thai Civil Aviation Authority in August 2008. On July 18, 2008, the Thai Civil Aviation Authority suddenly determined that Orient Thai and One-Two-Go were unsafe due to excessive flight hours, poor training, check-ride fraud and no quality control.
- They revoked the AOC for only One-Two-GO for 90 days.
- In August 2008, the FAA concluded Thailand met ICAO standards.

Summary

- This was a systemic accident caused by multiple contributing factors. There were failures at every level, including:
  - Oversight (the Regulator)
  - Airline upper/middle management
  - The airport operator
  - Flight crew
- Gross negligence was a major contributing factor.
- The end result was a crash that killed 90 people.
- This accident was both foreseeable and preventable.

THANK YOU!

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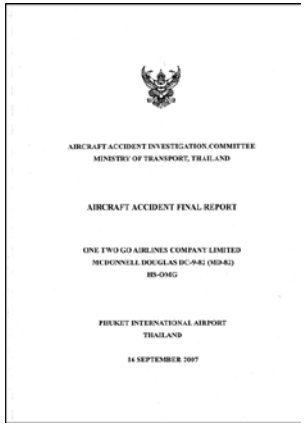
The Aviation Consulting Group
www.tacgworldwide.com

Official Accident Report

Aircraft Accident Investigation Committee

Ministry of Transport, Thailand



AIRCRAFT ACCIDENT INVESTIGATION COMMITTEE
MINISTRY OF TRANSPORT, THAILAND

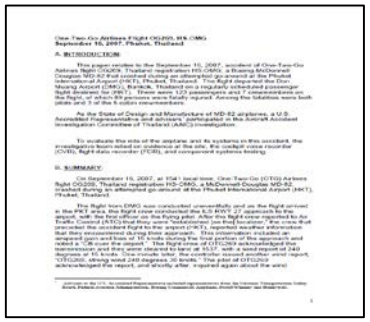
AIRCRAFT ACCIDENT FINAL REPORT

ONE TWO GO AIRLINES COMPANY LIMITED
MCDONNELL DOUGLAS DC-9-82 (MD-82)
HS-OMG

PHUKET INTERNATIONAL AIRPORT
THAILAND

16 SEPTEMBER 2007

NTSB Report



Independent Website

Evidence of fraud and misconduct

investigateudom.com