China Airline CI676
Nagoya Incident

26 April 1994

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China Airline CI676
(A300B4-622R B1816)

Taipei to Nagoya:
2hr 30min

April 26, 1994
Accident Background

- Stall 1730 ft (11:15'25")
- Stall warning (11:15'21")
- Captain takes over, Go Around (11:15'03")
- Alpha floor at 570 ft (11:14'57")
- AP engaged at 1040 ft (11:14'18")
- TOGA mode activated at 1070 ft (11:14'05")
- ILS approach AP disengaged ATS engaged (11:11'35")
- Impact (11:15'45")
- AP disengaged (11:14'49")

Glideslope
Investigation Results

- TOGA mode by the First Officer
- Misunderstanding of the state of the aircraft (out-of-trim condition)
  - Autopilot activation in TOGA mode
  - Pilots opposing the aircraft’s motion
- Poor crew coordination—miscommunication and poor execution
- Earlier service bulletin not enforced
Go Lever Position

(Image removed due to copyright considerations.)
A300-600 Out-of-Trim Condition

- Trimmable Horizontal Stabilizer (THS) Out-of-trim Condition
  - THS controlled by AP
  - Override elevator control by crew

- Accidents
  - March 1, 1985
  - January 9, 1989
  - February 11, 1991

- Service Bulletin: SB A300-22-6021
  - “Modifications to the AFS which disengages the AP when a force in excess of 15kgf is applied...”--June 24, 1993
Airbus Automation Issues

- Autopilot disconnect
  - Captain mental model mismatch between B747 and the Airbus
- Disengagement of TOGA mode
- Airbus automation philosophy
  - Who has the last word?
Recommendations

- Clearer Crew Operating Manual
  - AFS operational ambiguity
  - Recovery procedures
- More informative auditory warnings
  - “Click Click Click”—huh?
- Display information should be modified based on “human cognitive process in high-stress situation”
  - At time of accident, aircraft mode on FD
  - Display aircraft mode clearly
“There have been issues with the design of the Airbus autopilots having to do with the automation philosophy Airbus uses.”

(CNN February 16, 1998)
Conclusion

- Human error was first mistake
- Automation misinterpretation contributed to escalation of accidental TOGA activation in a time-critical situation
- Service bulletin could have prevented the accident
- If crew had not opposed Go Around mode, could the crash have been avoided?