

3. 1 Findings

1. The pilots were trained and properly certified to conduct the flight. Neither was experiencing behavioral or physiological impairment at the time of the accident.
2. American Airlines provided training in flying in South America that provided flightcrews with adequate information regarding the hazards unique to operating there.
3. The AA965 flightcrew accepted the offer by the Cali approach controller to land on runway 19 at SKCL.
4. The flightcrew expressed concern about possible delays and accepted an offer to expedite their approach into Cali.
5. The flightcrew had insufficient time to prepare for the approach to runway 19 before beginning the approach.
6. The flightcrew failed to discontinue the approach despite their confusion regarding elements of the approach and numerous cues indicating the inadvisability of continuing the approach.
7. Numerous important differences existed between the display of identical navigation data on approach charts and on FMS-generated displays, despite the fact that the same supplier provided AA with the navigational data.
8. The AA965 flightcrew was not informed or aware of the fact that the "R" identifier that appeared on the approach (Rozo) did not correspond to the "R" identifier (Romeo) that they entered and executed as an FMS command.
9. One of the AA965 pilots selected a direct course to the Romeo NDB believing that it was the Rozo NDB, and upon executing the selection in the FMS permitted a turn of the airplane towards Romeo, without having verified that it was the correct selection and without having first obtained approval of the other pilot, contrary to AA's procedures.
10. The incorrect FMS entry led to the airplane departing the inbound course to Cali and turning it towards the City of Bogota. The subsequent turn to

intercept the extended centerline of runway 19 led to the turn towards high terrain.

11. The descent was continuous from FL 230 until the crash.

12. Neither pilot recognized that the speedbrakes were extended during the GPWS escape maneuver, due to the lack of clues available to alert them about the extended condition.

13 Considering the remote, mountainous terrain, the search and rescue response was timely and effective.

14. Although five passengers initially survived, this is considered a non survivable accident due to the destruction of the cabin.

15. The Cali approach controller followed applicable ICAO and Colombian air traffic control rules and did not contribute to the cause of the accident.

16. The FAA did not conduct the oversight of AA flightcrews operating into South America according to the provisions of ICAO document 8335, parts 9.4 and 9.6.33.

17. AA training policies do not include provision for keeping pilots' flight training records, which indicate any details of pilot performance.

18. AA includes the GPWS escape maneuver under section 13 of the Flight Instrument Chapter of the Boeing 757 Flight Operations Manual and Boeing Commercial Airplane Group has placed the description of this maneuver in the Non Normal Procedures section of their Flight Operations Manual.

3.2 Probable Cause

Aeronautica Civil determines that the probable causes of this accident were:

1. The flightcrew's failure to adequately plan and execute the approach to runway 19 at SKCL and their inadequate use of automation.

2. Failure of the flightcrew to discontinue the approach into Cali, despite numerous cues alerting them of the inadvisability of continuing the approach.

3. The lack of situational awareness of the flightcrew regarding vertical navigation, proximity to terrain, and the relative location of critical radio aids.

4. Failure of the flightcrew to revert to basic radio navigation at the time when the FMS-assisted navigation became confusing and demanded an excessive workload in a critical phase of the flight.

3.3 Contributing Factors

Contributing to the cause of the accident were:

1. The flightcrew's ongoing efforts to expedite their approach and landing in order to avoid potential delays.

2. The flightcrew's execution of the GPWS escape maneuver while the speedbrakes remained deployed.

3. FMS logic that dropped all intermediate fixes from the display(s) in the event of execution of a direct routing.

4. FMS-generated navigational information that used a different naming convention from that published in navigational charts.