



NTSB National Transportation Safety Board

Flight Deck Automation Working Group

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September 10, 2008



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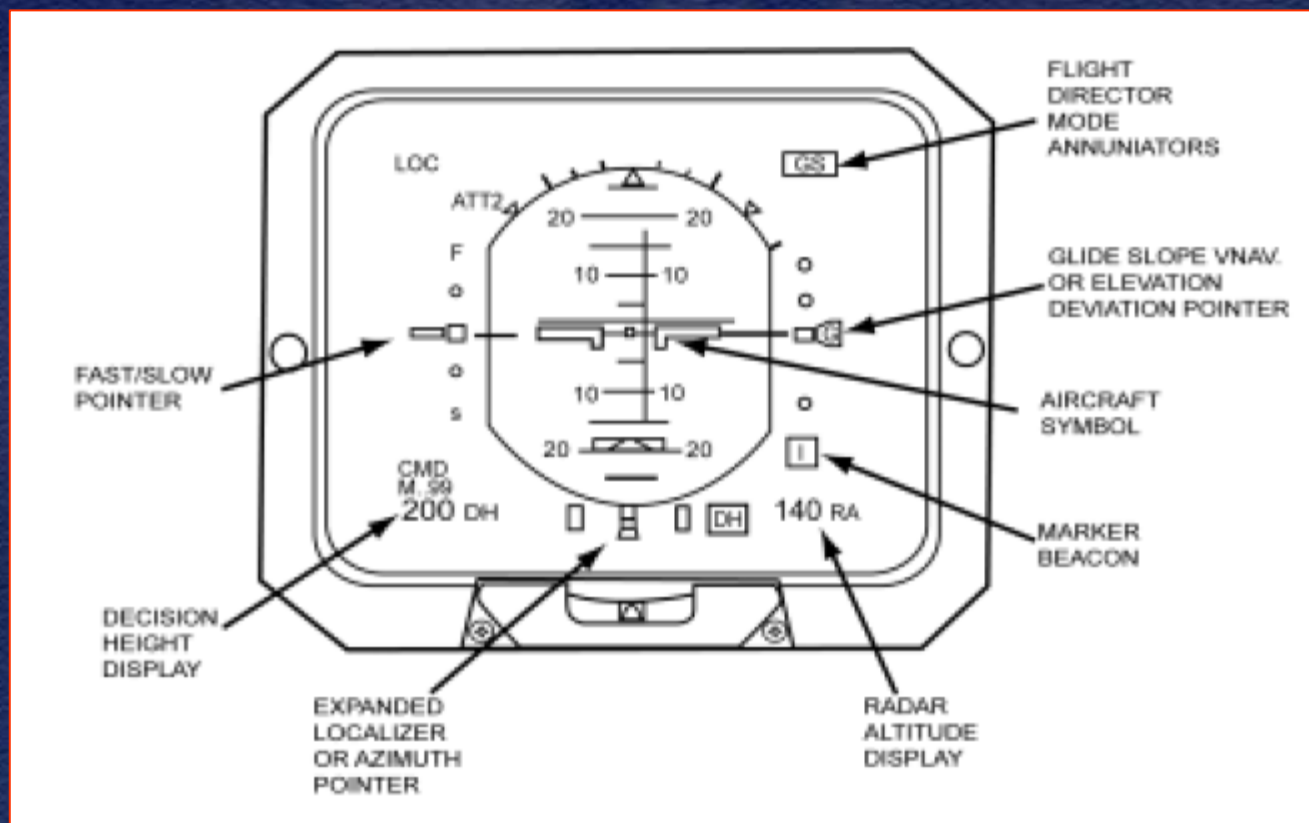
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G-3 at Houston



- Aircraft had GS indicator on Left side of PDF.
 - Fast/Slow on Right side
- Configuration of other company aircraft flown by accident pilots:
 - 5 had GS on Left
 - 3 had GS on Right
- AC 25-11 (July 16, 1987) recommends that GS indication be located on Right side of display,
 - Accident aircraft was manufactured before this guidance was issued.

NTSB Analysis

“The pilots most likely mistook the fast/slow indicator for the glideslope indicator throughout the approach sequence.”





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Office of Aviation Safety

Pinnacle Airlines Flight 3701 Jefferson City, Missouri

October 14, 2004



“The Safety Board concludes that the flight crew’s inappropriate use of the vertical speed mode during the climb was a misuse of automation that allowed the airplane to reach 41,000 feet in a critically low energy state.”

Southwest at Midway



Onboard Performance Computer



Onboard Performance Computer

- OPC assumptions:
 - Reverse thrust use assumed
 - Tailwind component limit (5 kt)
- Had the actual 8 kt tailwind component been displayed, the stopping value would be **-260 feet**

NTSB Recommendation

“Require that all 14 CFR Part 121 and 135 operators ensure that all onboard electronic computing devices they use automatically and clearly display critical performance calculation assumptions.” (A-07-58)

Era Helicopters



Pitch command cue

or

Roll command cue



- Ensure that all operators of helicopters equipped with either the SPZ-7000 or SPZ-7600 dual digital automatic flight control systems provide training that includes information on flight director and coupling status annunciations; the command cue presentations when only the pitch or the roll mode is engaged; and, if applicable, the differences between the SPZ-7000 and the SPZ-7600. (A-06-20)

Hendrix Motor Sports



- GPS not certified for IFR
- BALEs intersection and airport were waypoints
- GPA auto-sequenced to airport

FAA HF Team Report

Recommendation Measures-2

- In accident/incident investigations where human error is considered a potential factor, the FAA and the National Transportation Safety Board should thoroughly investigate the factors that contributed to the error, including design, training, operational procedures, the airspace system, or other factors.

FAA HF Team Report

Recommendation Measures-2 (con't)

- The FAA should encourage other organizations (both domestic and foreign) conducting accident/incident investigations to do the same. This recommendation should apply to all accident investigations involving human error, regardless of whether the error is associated with a pilot, mechanic, air traffic controller, dispatcher, or other participant in the aviation system.

Safety Order of Precedence

1. Design for Minimum Risk (engineering solution)
 - Hazard is corrected and eliminated
2. Control/Guard Solution
 - Guards put up to decrease exposure
3. Personnel Warning System
 - Warn personnel if you can't eliminate or control the hazard
4. Develop Procedures and Training



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