COCKPIT STANDARDIZATION ISSUES

NASA/FAA/GAMA Synthetic Vision Workshop

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OVERVIEW

- Why Study Synthetic Vision?
- R&D Issues for Synthetic Vision
- How Does Synthetic Vision Relate to Cockpit Standardization?
- GAMA Recommendations and Observations

WHAT IS GAMA?

The General Aviation Manufacturers Association Is An International Organization Representing Over 50 World-Wide Manufacturers Of GA Airplanes, Avionics, Engines And Other Components. GAMA's Primary Purpose is to Promote the Safe and Efficient Use, Design and Production of General Aviation Aircraft and Components.

WHY STUDY SYNTHETIC VISION?

- Controlled Flight Into Terrain (CFIT) is a Leading Factor in Accidents
  - ✓ FAA/Industry "Safer Skies" Initiative (1997 – Now)
    - Commercial Aviation Safety Team (CAST)
    - GA–Joint Steering Committee (GA-JSC)
- Increasing Pilot's Terrain Awareness was Recommended as a Significant Intervention
  - ✓ Certification Standards for TAWS (GPWS/EGPWS)
  - ✓ Synthetic Vision (R&D)
- Synthetic Vision Could Also Reduce Runway Incursions

R&D ISSUES FOR SYNTHETIC VISION

- Terrain and Obstacle Database(s)
  - ✓ Are Our Terrain and Obstacle Databases Accurate Enough? What is "Accurate Enough"?
  - ✓ Can we Develop New Technologies to Gather Terrain and Obstacle Data?
- What are the Human Factors Issues?
  - ✓ Should SVS be Only Used for Terrain Awareness?
  - ✓ Can SVS be Used as a Means of Navigation? IFR?
    - Enroute, Approach, Taxi
  - ✓ How Does Synthetic Vision Relate to Other Cockpit Systems?
  - ✓ If SV is for Awareness Only, How Can We Ensure It's Limitations Are Understood?
- How Should the FAA Certify Synthetic Vision?
  - ✓ What Are the Minimum Safety Standards Needed (Control and Display)?
  - ✓ Part 23 versus Part 25 Avionics

NEW GAMA STANDARD: INTEGRATED COCKPITS IN SMALL AIRPLANES

- Minimize Training for Pilots Transitioning Between "All-Glass" Cockpits
  - ✓ Uniform Standards for Display and Control of Critical Functions in Airplanes Under 12,500 lbs.
  - ✓ Clear Standards for Color-Use, Labels, Abbreviations and Instrument Lay-Out
- Easier, "Slam Dunk" Certification Process
- Manufacturers Retain Leeway to Innovate

GAMA OBSERVATIONS AND RECOMMENDATIONS

- SVS Should Remain a NASA and FAA Priority
  - ✓ Increased Funding
  - ✓ FAA and NASA Operational Concepts Appear to Differ
- Output From Research Should be Recommended FAA Standards for Control and Display of SVS
  - ✓ Research is Lagging Industry Needs
- More Work on New Technologies to Gather Terrain and Obstacle Data

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