

2018 Research Week Proposal

Title – Analyzing the Effects of Glass Cockpit Avionics on Pilot Safety as Compared to Conventional Avionics

Program of Study – Aeronautics

Presentation Type – PowerPoint

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Category – Investigative

Abstract:

It is no secret that technology integration in the aviation industry has sky rocketed over the past decade. With newer and more advanced avionics finding their way into increasingly more cockpits, the question is raised of what effect these new cockpit technologies are having on the pilots of such equipped aircraft. Of particular interest is the effect on piloting skills such as situational awareness, pilotage, instrument scanning techniques, and resource management. This paper will compare and analyze the transition from conventional “steam gauge” avionics to modern avionics systems, such as “glass cockpits,” and the effects. Areas of examination will include the aforementioned areas, with an overall emphasis on safety considerations. The primary source of research will be a 2010 study conducted by the NTSB investigating the effects of the increased incorporation of glass cockpit avionics into the cockpits of light, general aviation aircraft. In the study, the NTSB performed a quantitative analysis of accident data from 2002-2008, a qualitative assessment, and then some case studies from incidents to draw some conclusions of effects. While the NTSB report is the primary source of review, other sources of

research will be reviewed to provide additional viewpoints and more recent findings. Several additional sources will examine the specific effect of glass cockpits on flight training. The overall goal of this investigative research is to determine if there is a consensus on what the effects of increased use of glass cockpits have been regarding safety, and if so, what the consensus is.

Christian Worldview Integration:

As Christians, we are all called to be like Christ and set an example for Godly living in our everyday lives. As pilots, aviation is their platform for setting those examples. By being safe, professional pilots, they are showing those around them that they value setting themselves to a higher standard. Colossians 3:23 reminds us that everything we do on this earth should be done intentionally with the kingdom in mind. Not only is aviation a work that serves people, but ultimately serves God. Pilots should strive to be the best they can be, because a Christian worldview says that they are working for their fellow man, as well as the heavenly father. Pilots carry the responsibility of doing their best for their God, as well as keeping their passengers safe. With this added responsibility, it is important that the people in this industry always keep learning new ways to improve safety. We believe that the findings of our research could help increase the knowledge of all aviators, and therefore increase the safety of all aviators. Our research has been conducted with this worldview in mind, even though all our research sources, and the studies in them have been conducted in the secular arena. In conclusion, to quote the late Dr. Falwell, Sr. "if it's Christian, it ought to be better" and so we as pilots strive to be the most efficient, and safest we can be in order to properly serve our fellow man as well as represent our God.