



# DEUS EX Machina

For the most part, we know how to be safe. Much of our current safety work involves promoting proven procedures and technologies to prevent the same kind of accident from happening over and over again. As Bill Voss points out in his column this month, the American Airlines 737 accident in Jamaica involved, among other factors, a runway that lacked an adequate runway end safety area. A few weeks later, on Jan. 19, the pilots of a US Airways Express Bombardier CRJ-200 with 31 passengers and a crew of three rejected a takeoff from the hilltop Yeager Airport at Charleston, West Virginia, U.S., and did not plunge off of the side of the mountain because the airport management had installed an engineered material arresting system (EMAS) at the runway's end.

This compare-and-contrast exercise is so obvious I'm almost embarrassed to do so, yet I feel obligated to point out once again the number of technologies that exist and are just waiting for use to either avoid incidents and accidents, or minimize damage and injuries when something bad does happen. The event at Charleston was prevented from becoming a very expensive, very fatal catastrophe by a few hundred feet of EMAS bed

that will cost much less than \$1 million to fix, an amount that the airline's insurance company is happily paying.

The title of this column is, of course, what it is about, for just as ancient Greek plays often end with a god being lowered to the stage by a mechanism – hence, the god from the machine – to resolve the drama, so, too, does aviation have access to salvation through the use of a variety of technologies. While much of our current work involves the human side of the equation and developing procedures to avoid known pitfalls, sometimes you really can just go out and buy enhanced safety. The most dramatic example of this is the use of terrain awareness and warning systems that can eliminate controlled flight into terrain, the class of accident that used to kill more people than any other.

Along the way, some have been reluctant to buy the latest devices, which, in part, is understandable when the technology is new and rapidly evolving. But some of these safety enhancements have been with us for years, decades even, and yet many still choose not to invest. One such technology that immediately springs to mind is the head-up guidance system (HGS).

Perhaps people have no money right now — who does? — or are waiting for the next generation aircraft, or the integration of HGS with enhanced vision and/or synthetic vision, with regulatory buy-in in the form of reduced minima to improve schedule regularity. Then there is the next generation air traffic control system transition on the horizon, also promising benefits in both safety and operational efficiency, and a flood of associated products leveraging the automatic dependent surveillance-broadcast technology. And even simple-sounding stuff, like the Airbus system that tells pilots where on the runway they are going to land and whether the space is sufficient, is becoming available and appears to offer great value.

There are a lot of products either here or arriving soon that can reduce the risk of an accident, and isn't that what we are all trying to do? Budget planning should reflect that intention.

A handwritten signature in black ink that reads "J.A. Donoghue".

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