Vertically Speaking

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One Size Does Not Fit All

There are few marketing phrases that are more dubious than the one stating "one size fits all." For the most part it's just not true. And even if it does "fit," there are times where it might just not fit your specific needs at the time.

The same concept often applies to aviation safety. In these pages we've discussed how adapting some elements of Safety Management Systems (SMS) designed for large air carriers can be a very effective way of improving our own safety management system and enhancing your own safety culture. The key in that idea is that we adapt them to serve our own unique set of circumstances when preparing for flight. We often just have to make the process work for our own unique set of circumstances — plain and simple.

The FAA's Aviation Safety Information Analysis and Sharing (ASIAS) Program is one such SMS product that we are currently adapting. Soon it will be coming to a helicopter hovering in your neck of the woods. ASIAS gathers information from the usual FAA databases as well as information from participating air carriers and corporate operators Flight Operations Quality Assurance (FOQA) and Aviation Safety Action Programs (ASAP). This gives ASIAS specific details about accidents and incidents that the FAA records for discovering potential precursors found in FOQA and ASAP data. The goal of having this additional data isn't for the purpose of enforcement action, but rather for gaining a better understanding of the operational environment for helping operators mitigate risk associated with various helicopter mission profiles.

The goal of having this additional data is to get a much better picture of what's happening and help come up with solutions to prevent the next accident.

Helicopters are different from fixed wing aircraft in many ways. This means that a straight application of ASIAS parameters to the helicopter world would probably provide information incongruous to helicopter pilots. In the large air carrier world, details about what parameters to record and at what interval to record them have all been standardized with FOQA. Efforts are also well underway to bring fixed-wing GA onboard with a similar Flight Data Monitoring (FDM) program (see the Jan/Feb 2016 issue for more on that). Unfortunately though, FDM is less robust on the rotorcraft side. This means that in order for a database like ASIAS to work, a lot of vetting and standardization legwork has to be completed upfront to better ensure quality information is provided to end users. We also have to redefine what it means to exceed safe operation limitations, as well as establish (and validate) parameters specific to rotorcraft operations. Things that would seem devilishly dangerous in a fixed wing aircraft might be par for the course in a helicopter.

To help get us to that point, the FAA is working with the Partnership to Enhance General Aviation Safety, Accessibility, and Sustainability (PEGASAS), a group of world-class researchers, educators, and industry leaders focused on enhancing GA safety.

As part of the FAA's work on this topic, a team of researchers from the William J. Hughes Technical Center near Atlantic City, NJ, led by engineer Cliff Johnson, are busy working on FDM applications for helicopters. Currently the FAA is testing out these platforms on a Sikorsky S-76 that can record multiple FDM units of measure during a single mission. Combined with research from other partners of PEGASAS, this allows the team to test findings and validate certain assumptions. The Sikorsky helicopter utilized at the Tech Center also allows researchers to move the FDM measuring units around in the helicopter to test what effect this might have on the data gathered and on the aircraft's flight characteristics. It is important to provide consistent and usable data, and to ensure that it is comparable across various different types of helicopter operations.

By determining how that data might be configured into the ASIAS database, the members of PEGASAS and the FAA hope to be able to provide this valuable tool to the rotorcraft community. The enormous strides made in the part 121 air carrier are due in large part to the ability to find accident precursors in data and mitigate those risks before they become an accident. Our hope is that ASIAS will bring the same improvement to the helicopter community as it has to the commercial aviation industry. Now that's a safety standard that should fit most, if not all our needs and desires.

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