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Forum



NEMPSA Situational Awareness: New Tools on the Horizon?

In a previous Forum article, I speculated on some ways that emerging technology related to real-time terrain mapping might be combined with GPS position data and satellite imagery to generate an animated 3-D graphical display of the earth beneath and around an aircraft in flight. Such a display could help to maintain a pilot's situational awareness (SA), even when darkness or adverse weather conditions obscure the view of the terrain below. Loss of visual contact with the ground is perhaps the most hazardous instance of loss of SA, since it so often leads to loss of control or controlled flight into the terrain.

There are also other types of loss of SA that have been identified as causal factors of helicopter accidents in general, including many air medical transport accidents. Many of those accidents involve loss of SA related to the performance limitations of the helicopter.

Pilots compute the performance limits prior to each flight. Those limits include parameters such as maximum aircraft weight for flight and maximum weight for hover in ground effect (IGE) or out of ground effect (OGE). Those weights are not fixed parameters for a specific aircraft but depend on the density of the air, which in turn determines the pitch angle of the rotor blades required to produce the lift or thrust needed for flight or for hovering IGE or OGE. Air density is itself determined by the ambient pressure altitude and temperature. Although the pilot computes these maximum performance limits prior to flight, it is also important to maintain a constant awareness of the ever-changing conditions encountered during flight in order to recognize conditions that exceed any of the limits previously calculated. This can be a challenge, given the distractions associated with planning and executing an approach to a primitive landing area in

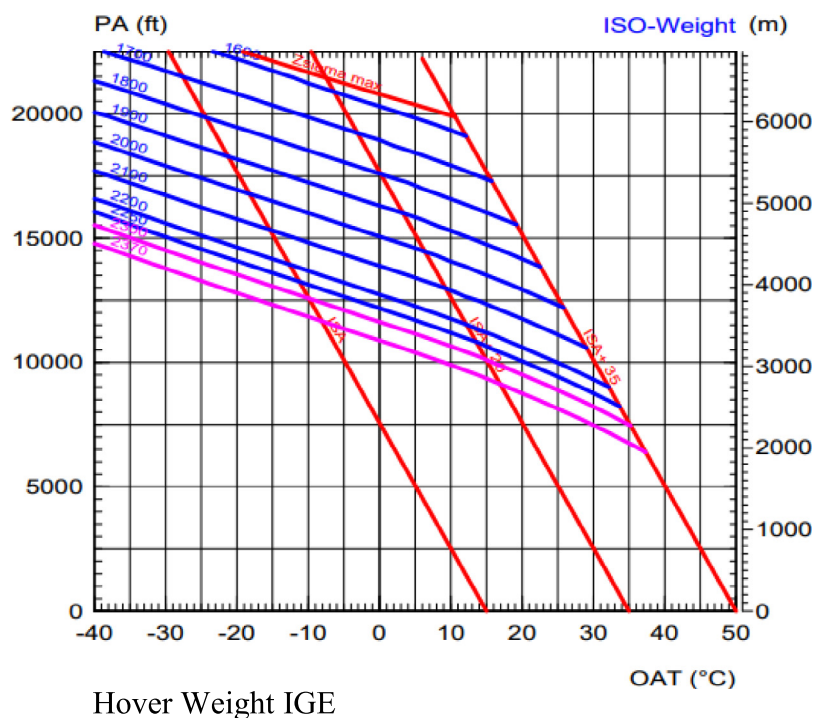
mountainous or heavily forested terrain, to cite just 1 example.

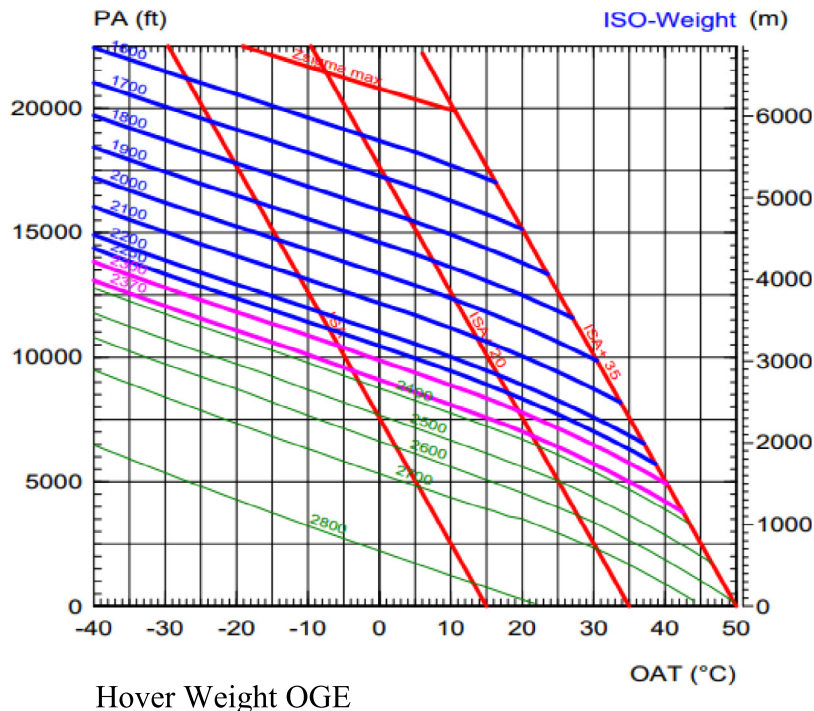
After setting up the NEMPSA booth at the recent Heli Expo Convention in Las Vegas, I was interested to note that the exhibit adjacent to ours was demonstrating a new technology designed to maintain a pilot's SA of the environmental conditions specifically associated with aircraft performance limitations. The Enhanced Situational Awareness Information Display (ESAID) is a small instrument attached to the instrument panel that shows the real-time relationship between the aircraft's current operating conditions and the limitations automatically calculated based on conditions encountered along the flight path. This new technology has not yet been approved by the FAA and is being flight tested by the manufacturer, EIT Avionics. The ESAID is

programmed with the aircraft limitations taken from charts in the aircraft flight manual or the pilots operating handbook.

Most pilots will use charts like the ones below to precalculate the maximum conditions at which their aircraft can hover IGE or OGE at the actual weight of the aircraft for each planned flight. These charts are not used during flight for single-pilot operations; rather the temperatures and pressure altitude limitations are typically extracted and written on the pilot's kneeboard for reference during flight.

In contrast to this, the ESAID display is designed to provide a real-time graphical indication of the relationship between the aircraft's current environmental conditions and the limitations that apply to those specific conditions. The graphical display is designed to provide advanced notice when





an aircraft is approaching any performance limit, and then add an audio alert whenever a limit is exceeded. The display requires the support of a flight operations data recorder to provide the inputs related to the aircraft's speed, altitude, outside air temperature, etc.



ESAID Display programmed for Robinson R44
Image from EIT brochure used with permission

At this time, this approach to enhanced SA is in a developmental stage that will require additional planning, development, and an involved approval process before it could be applied to the air medical helicopter fleet. NEMSPA has made initial contact with the developer to offer the perspectives of HAA pilots on how this type of SA enhancement technology might best be implemented for air medical operations.

Bill Winn, General Manager

AAMS Tidbits of Happenings, Past, Present and Future!

HAI's Heli-Expo came and went in Las Vegas last February. The board of the Association of Air Medical Services (AAMS), along with MedEvac Foundation International, held their meetings in conjunction with the exposition. Unlike the standard, "what happens in Vegas, stays in Vegas," our board meetings are open to association members and guests to attend. Efforts to reform Medicare continue to dominate our discussions and workflow. We continue to seek partnership and agreement with legislators and colleagues on a path to document and improve the quality of our service, capture our costs, and obtain reimbursement commensurate with both quality and cost. Everyone's help in keeping abreast of the issues and communicating with your legislators the key points that drive our initiatives is crucial to our collective success. I'm counting on us all to move Medicare reform for critical care transport across the finish line.

Another of the several fronts AAMS government relations team was closely monitoring was the ongoing attempt to privatize the air traffic control system. At the time of this writing, it appears the issue finally has been dropped.

May 20-26 is National EMS Week, presented by ACEP in partnership with NAEMT. This year's theme, building on the EMS Strong overarching theme, is "Stronger Together." While we celebrate other days of

recognition throughout the year, some specific to critical care and air medical transport, National EMS Week allows us the opportunity to stand strong with our EMS colleagues, generate a collective larger voice and image of the importance of the work we all do, and refresh the mutual respect we have for one another, serving on the front lines of health care. It is my sincere hope that all of our organizations are taking advantage of "our" special week to promote our dedication and value to our communities and to nurture our relationships with our partner agencies.

The National EMS Memorial Service Weekend of Honor, remembering and honoring EMS personnel who died in the line of duty and recognizing their ultimate sacrifice in service of their fellow man, is being held May 18-20 at the Gaylord National Resort and Convention Center in Oxon Hill, Maryland, just across the Potomac River from our nation's capital. Preceding the event is the National EMS Memorial Bike Ride East Coast route, starting in Boston and concluding at the location for the memorial service. I have participated in the memorial service, providing opening remarks once and the keynote address another time. It is the most humbling and honorable duty of my 46 years in EMS. I encourage you to attend someday, and regardless of your ability to do that, I ask that you pause for a moment on May 19 for a moment of silent, personal reflection in honor of and with thanks for the fallen. This year, I am pleased to note that a friend of my early EMS days, who passed away after a tragic ambulance fire while transporting a patient in July 1971, will finally be honored for his service and sacrifice.

The Safety Management Training Academy (SMTA), a product of the AAMS now in its 8th year, is being held June 4-7 in Cincinnati, OH. The academy is a 1-week per year, 2-year curriculum that qualifies successful candidates for certification as a Medical Transport Safety Professional (MTSP-C). First year curriculum includes incident/accident causation, systematic approach to safety, policy/regulatory environment, hazard identification/analysis, and safety education. As this May/June edition of Air Medical Journal is published, there is still time to register yourself or a fellow staffer to attend this important, potentially life-changing course. For more information, visit the AAMS website at AAMS.org, or google Safety Management Training Academy and follow the link!

The Air Medical Transport Conference, a premier international event for critical care transport professionals, is being held October 22-24 in Phoenix. Why am I

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