

Expanding Opportunities

During the past year, the FAA's Civil Aerospace Medical Institute (CAMI), located in Oklahoma City, has added new equipment and facilities to expand the training opportunities provided to the public. Included is a new twist on an old topic (hypoxia), and a tool to address a new technology (night vision systems).

Portable Normobaric Hypoxia Training

Hypoxia in aviation is a constant threat to flight safety. Despite this, very few pilots and crewmembers have had "hands-on" training to combat this killer. CAMI was one of the first to offer hypoxia training to the civil aviation community through the use of specially designed altitude chambers.

CAMI's altitude chambers have been used successfully for well over 50 years and have an impressive safety record. But, they do have limitations. First, pilots have to be clear of any upper respiratory ailments that could cause ear and sinus issues. Second, even though the chambers are considered safe, there is still a remote chance of developing decompression sickness associated with unpressurized flights to high altitudes. Finally, the pilot has to travel to CAMI to get the training.

To circumvent these issues, CAMI has developed the Portable Reduced Oxygen Training Enclosure (PROTE). The PROTE uses technology that reduces the oxygen percentage to induce hypoxia and has some distinct advantages over existing altitude chambers. For starters, since mixed gas is used, there is no need to reduce the atmospheric pressure so it is less likely that issues with ears and sinuses, or decompression sickness will occur as they do when the aviator is exposed to altitudes of 18,000 feet or higher.

Another advantage of the PROTE is its portability. With it, participants can experience their own personal symptoms of hypoxia without having to travel all the way to Oklahoma. The device can be shipped to various locations and can be set up and running within two hours. Once it is operational, the participant walks in and sits down for five minutes to experience his or her personal hypoxia symptoms. After that, the individual dons an aviation oxygen mask and the symptoms disappear. The participant departs with specific knowledge on how to recognize and identify hypoxic symptoms in flight, which enables immediate corrective action. An aviation

venue of at least three days is needed to offset the cost of transportation and manning.

If you are interested in getting the PROTE sent to your location, contact Rogers V. Shaw at 405-954-4837.

CAMI's NITE Lab Now Open for Pilots

The Night Imaging Training Environment (NITE) Lab is a CAMI training facility that specializes in demonstrating the functions and limitations of night vision goggles (NVGs). The NITE Lab can accommodate up to 20 participants and has specialized training aids to help NVG users and operators gain a better understanding of these vital safety devices.

The NITE Lab incorporates a 10' x 10' terrain board that is a 1-to-600 scale. The terrain board shows various terrain features such as deserts, rolling hills, and mountains, as well as open water. By seeing how each of these various terrains look when viewed with NVGs, the user can fully appreciate how some terrain features can be difficult or even impossible to see. The terrain board also simulates different moon phases and positions, which show how moonlight intensity and angle can directly alter the effectiveness of NVGs.

Several innovations can only be found in the NITE Lab. For example:

- a scale model of a general aviation aircraft with external lighting that can show the lights as being compatible or incompatible with NVGs
- theatrical smoke generator that shows the problems that various particles (smoke, dust, rain, haze) can cause when using NVGs
- authentic helicopter instrument panel with compatible and incompatible instrument lighting
- scale-model wind turbines that pose very unique problems for NVGs

If you are interested in scheduling NVG training, contact the NITE Lab manager, J.R. Brown, at 405-954-4837.

Frederick Tilton, M.D., M.P.H., received both an M.S. and an M.D. degree from the University of New Mexico and an M.P.H. from the University of Texas. During a 26-year career with the U.S. Air Force, Tilton logged more than 4,000 hours as a command pilot and senior flight surgeon flying a variety of aircraft. He currently flies the Cessna Citation 560 XL.