

Colorado Altitude Training

Altitude Training for Aviators



Problem Statement

Hypoxia training in a hypobaric environment can be hazardous

- Annual hypoxia training required for all pilots and aircrew
- Every year 40-60 trainees are subject to barotrauma injuries in hypobaric altitude chambers
- Hypoxia training is considered to be hazardous duty

Organizations with the Problem



U.S. AIR FORCE



Baseline Technology

Low Pressure Chamber

- Expensive to Purchase
- Expensive to Maintain
- Barotraumas & Decompression Sickness
- Limited Size & Access
- Limited Protocols



Customer Needs

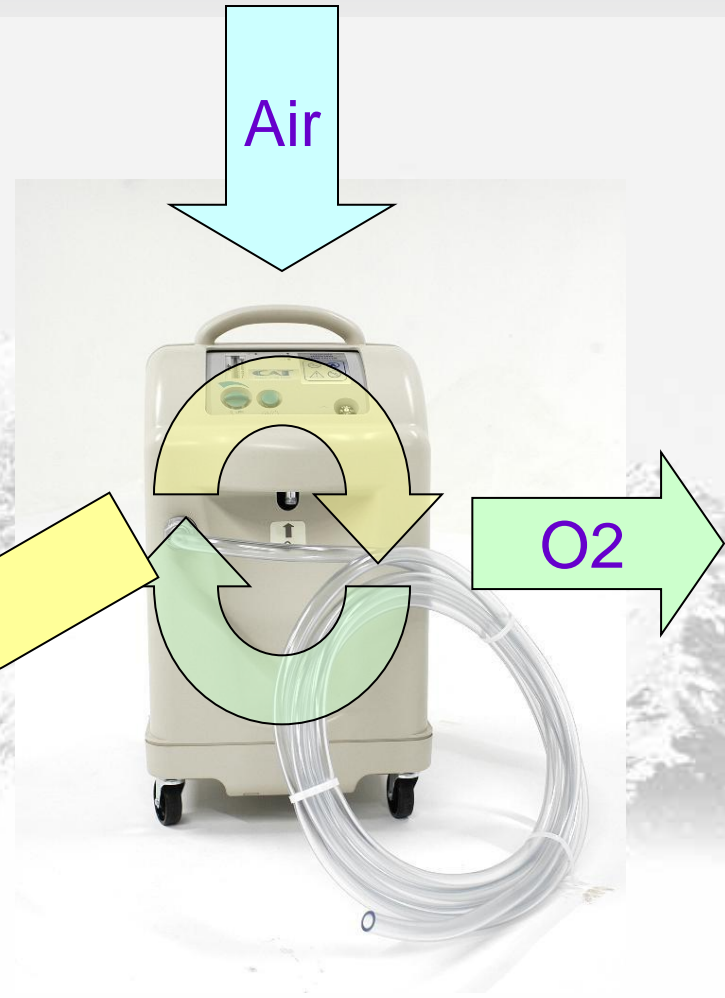
Ideal Hypoxia Training Chamber

- No risk of barotrauma to instructors and trainees
- Readily configured for multiple training scenarios
- Easily deployed and redeployed

CAT Aviation Systems



Technology – The System



Performance Specifications

Feature	Advantage	Benefit
Normobaric pressure	No risk of DCS or barotrauma injuries	Safety of trainees and trainers
Altitude simulation to 30,000 feet	Create hypoxic training scenarios for all aircraft	Specific training for specific aircraft
Flight Simulator Compatible	Operational hypoxia training	High fidelity training scenarios
Hypoxic Chamber	Realistic to cockpit environment at altitude	Realistic loss oxygen training scenarios

Advantages

- Less expensive – Immediately cost effective
 - 1/33 the cost of “altitude chambers”
 - Less expensive to buy new than to continue with old
 - No cost for injuries
 - Lower personnel requirement
- Better fidelity of training

Advantages

- Sizing
 - Make it any size
 - Fit any room
- Works in the real world training environment
 - Immediate entry or exit
 - No hazardous duty pay
 - Efficient training – rapid turnover
 - Flight simulator compatible

Current Status

- The first prototype (TRL 5) is already installed at the Aviation Survival Training Center in Miramar
- CAT already incorporated Naval Survival Training Institute (NTSI) recommendations and additional testing to TRL 6
- A second prototype (TRL 7) is now installed at NSTI in Pensacola.

Transition to the Fleet

TRL	Milestone	Date
6	Stabilization of 30,000 feet in specified size enclosure	March, 2012
7	Suitably maintaining oxygen and carbon dioxide during repeated Navy training sessions	April, 2013
9	Successfully complete validation of installed chamber	June, 2013

Types of Partners Sought

- DoD agencies, other government agencies and commercial entities that perform:
 - Hypoxia altitude training
 - Altitude training
 - Endurance conditioning
 - Fire prevention or suppression



CAT's Anticipated Role

- Manufacture of chamber
- Installation
- Validation support
- Upgrades
- Customer support

About Colorado Altitude Training

- CAT is a world leader in oxygen control
 - Altitude training systems for NHL, NBA and US Olympic Training Center
 - Hypoxic/Altitude Research at Mayo Clinic, US Army Research Institute, and universities world wide
 - Fire prevention system for the “Stars Spangled Banner” at Smithsonian Institutions’ National Museum of American History