CIVIL AVIATION
ADVANCED PILOT TRAINING PROGRAMS AND RESEARCH OPPORTUNITIES
The National AeroSpace Training And Research (NASTAR) Center (est. 2007) is a non-government state-of-the-art aerospace training, research, and education facility aimed at optimizing human performance in extreme environments.

The NASTAR Center’s Advanced Pilot Training courses allow pilots to experience a full range of physical and physiological effects. Unique simulation capabilities allow for simulation of extreme flight conditions in a safe and controlled environment.

The NASTAR Center has completed several research studies on Loss of Control In-Flight (LOC-I) with organizations such as NASA and the FAA.

ADVANCED PILOT TRAINING PROGRAMS OFFER:

• Upset Prevention & Recovery Training (UPRT) for Loss of Control In-flight
• Situational Awareness (SA) and Spatial Disorientation (SD) instruction
• Full-scale Altitude Chamber for Hypoxia and Rapid Decompression scenarios
• Latest information regarding key pilot training initiatives
Loss Of Control In-flight (LOC-I) has long been a major factor in aviation fatalities for commercial, corporate, and general aviation. A review of CAST/ICAO Common Taxonomy Team (CICTT) data published by Boeing clearly shows that LOC-I is the #1 aviation safety issue*.

The NASTAR Center's Advanced Pilot Training programs will educate aviators on critical human factors and other aspects of the flight environment. Pilots will gain valuable knowledge on how to prevent or recover from upsets, unusual attitudes, spatial disorientation events, and other in-flight emergencies.

**UPSET PREVENTION AND RECOVERY TRAINING (UPRT)**

This 1.5-day skills-based course covers the important differences between the normal flight regime and the one associated with upsets. Numerous high-profile aviation accidents due to Loss of Control In-Flight (LOC-I) are reviewed and pilots are provided critical industry information on upset prevention and recovery. Academic knowledge is reinforced in our dynamic simulator that provides elevated g forces and other aspects not found in a typical pilot training simulator.

**ALTITUDE AWARENESS TRAINING**

This half day course reviews incidents involving hypoxia, the sudden loss of cabin pressure, and other relevant aviation physiology issues that can be encountered at altitude. Participants will have the opportunity to identify their unique hypoxia symptoms, experience a rapid decompression scenario, and understand important limitations of the human body at altitude upon completion of the program.

**SITUATIONAL AWARENESS (SA)**

The ever-changing dynamics of the flight environment demand that one maintain constant Situational Awareness. The course provides participants with key elements of human performance in a three dimensional environment, paying close attention to those items that can diminish or interfere with a pilot's SA. This academics-only course complements the training received during the Spatial Disorientation program and it is highly recommended that the SA and SD courses be accomplished together.

**SPATIAL DISORIENTATION (SD)**

The Spatial Disorientation course can be accomplished as either a half day or full day course. Spatial Disorientation is a major contributor to aviation fatalities, and this course will allow pilots to obtain important human factors knowledge while experiencing numerous visual and vestibular illusions in our unique SD trainer. It is highly recommended that the course on situational awareness be coupled with this course as the combination of academics and flight simulation provides the best learning experience.

The NASTAR Center offers flexible access to our cutting-edge simulation equipment and expert staff. Cockpits, flight profiles development (nominal and off-nominal), and medical and flight data capture are supported. Rapid turnaround internal Institutional Review Board (IRB) is available for human subject research projects.

**RESEARCH AREAS**

- Human Factors & Human Systems Interaction
- Learning & Training Methodologies
- Stress, Cognition & Human Performance
- Sensory Physiology & Motion Perception

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**RESEARCH & TESTING**

- **ECG (12 lead)**
- **Heart Rate or Pulse**
- **Galvanic Skin Response**
- **Blood Pressure Respiration**
- **Pneumograph**
- **Infrared (IR) CCTV**
- **Multi-Channel Audio**

- **PHOENIX CENTRIFUGE**
  Hypo/hyper acceleration and vibration flight environment. Replicates flight dynamics, visuals, audio and cockpit.

- **GYRO IPT III**
  Multi-axis (360° yaw, pitch, roll, heave and surge, sway) emergency and spatial disorientation flight environment.

- **GYROLAB GL-2000**
  Multi-axis (360° pitch, roll, yaw, planetary) upset recovery and spatial disorientation flight environment.

- **ALTITUDE CHAMBER**
  Research hypoxia, rapid decompression, and other related altitude challenges in our chamber that is capable of profiles up to 100,000 feet.