



# ADVANCED PILOT TRAINING



Upset Prevention and Recovery Training (UPRT)

Altitude Awareness Training

Situational Awareness (SA)

Spatial Disorientation (SD)





## ETC's NASTAR Center

The NASTAR Center's unique capabilities allow for the simulation of extreme flight conditions in a safe and controlled environment. It has completed several research studies on Loss of Control In-Flight (LOC-I) with organizations such as NASA and the FAA. Our Advanced Pilot Training Programs utilize this data to provide the most advanced Upset Prevention and Recovery Training (UPRT) and LOC-I instructional programs for regional, business jet and general aviation pilots.



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## ADVANCED PILOT TRAINING



ETC's Advanced Pilot Training Programs allow pilots to experience sustained G's for a full range of physical and physiological effects that will teach you:

- Upset Prevention & Recovery Training (UPRT) Preventing Loss of Control In-Flight
- Situational Awareness (SA) and Spatial Disorientation (SD) Instruction & Training Flights
- Hypoxia Awareness and Rapid Decompression Scenarios in an Altitude Chamber
- The Latest Information on Key Pilot Training Initiatives



# Why is Advanced Pilot Training So Important?



Loss Of Control In-Flight (LOC-I) has long been a major factor in commercial, corporate and general aviation fatalities. A review of CAST/ICAO Common Taxonomy Team (CICTT) data published by Boeing clearly shows that LOC-I is the #1 aviation safety issue\*.

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

# Upset Prevention & Recovery Training

## CLASSROOM

Knowledge & Recognition of situations that may lead to an upset

Airplane Aerodynamics

Flight Maneuvering

Lift Vector Management

Energy Management

Techniques for Recovering an Upset Airplane

## GL-2000 FLIGHTS

High Altitude Upsets, Low Altitude Upsets

Nose High, Upright & Inverted, High Energy

Nose High, Upright & Inverted, Low Energy

Nose Low, Upright, High Energy

Nose Low, Inverted, Low Energy

Inverted Recoveries

Wake Vortex Recoveries



The GYROLAB GL-2000 is a state-of-the-art, interactive training system that trains personnel in problems associated with upset flight conditions.

Aircraft upsets have been occurring since the beginning of aviation. Some minor, some tragic. In either case, we can use the lessons learned to relegate upsets to hangar tales rather than prime time news. Due to their unexpected nature, wide variety and the limited availability of realistic training, it is particularly difficult to safely teach pilots how to recover from upset flight conditions in a traditional training environment.

Most flying occurs near the center of the flight envelope. Upsets take the airplane out to or beyond its operational limits. Furthermore, you may be required to max-perform the airplane without jeopardizing structural limits. The goal of our Advanced Pilot Training (APT) and Upset Prevention and Recovery Training (UPRT) Programs is to increase the ability of pilots to recognize and avoid situations that lead to airplane upsets and to improve their ability to recover control, utilizing the aircraft's full flight envelope.

At the core of our training program is the **GYROLAB GL-2000**, a state-of-the-art, interactive training system used to train personnel in problems associated with upset flight conditions. After academic training, pilots fly the GL-2000 in a General Transport Model (GTM) configuration. Pilots will be placed in a variety upset conditions, several of which are replicated from actual events. Only training in a full-axis, G-producing simulator can provide the most accurate effects of upset flight conditions and the physiological effects of being exposed to an out-of-control aircraft where G forces are rapidly increasing.

# Altitude Awareness Training

## CLASSROOM

Gas Laws and Atmospheric Physics

Physiological Divisions of the Atmosphere

Physiology of Respiration and Circulation

Effects of Stress and Trapped Gas

Effects of Decompression Sickness (DCS)

Effects of Hypoxia and Hyperventilation

Recognition of Hypoxia and Hyperventilation

Oxygen Equipment Use

Effects of Hypoxia on Night Vision

## ALTITUDE CHAMBER

Flight Safety Briefing

Chamber Equipment

Familiarization

Helmet & Mask donning, Fit & Operation Check

Emergency Procedures Review

E & S Check at 5,000 ft.

Oxygen Pre-breathing

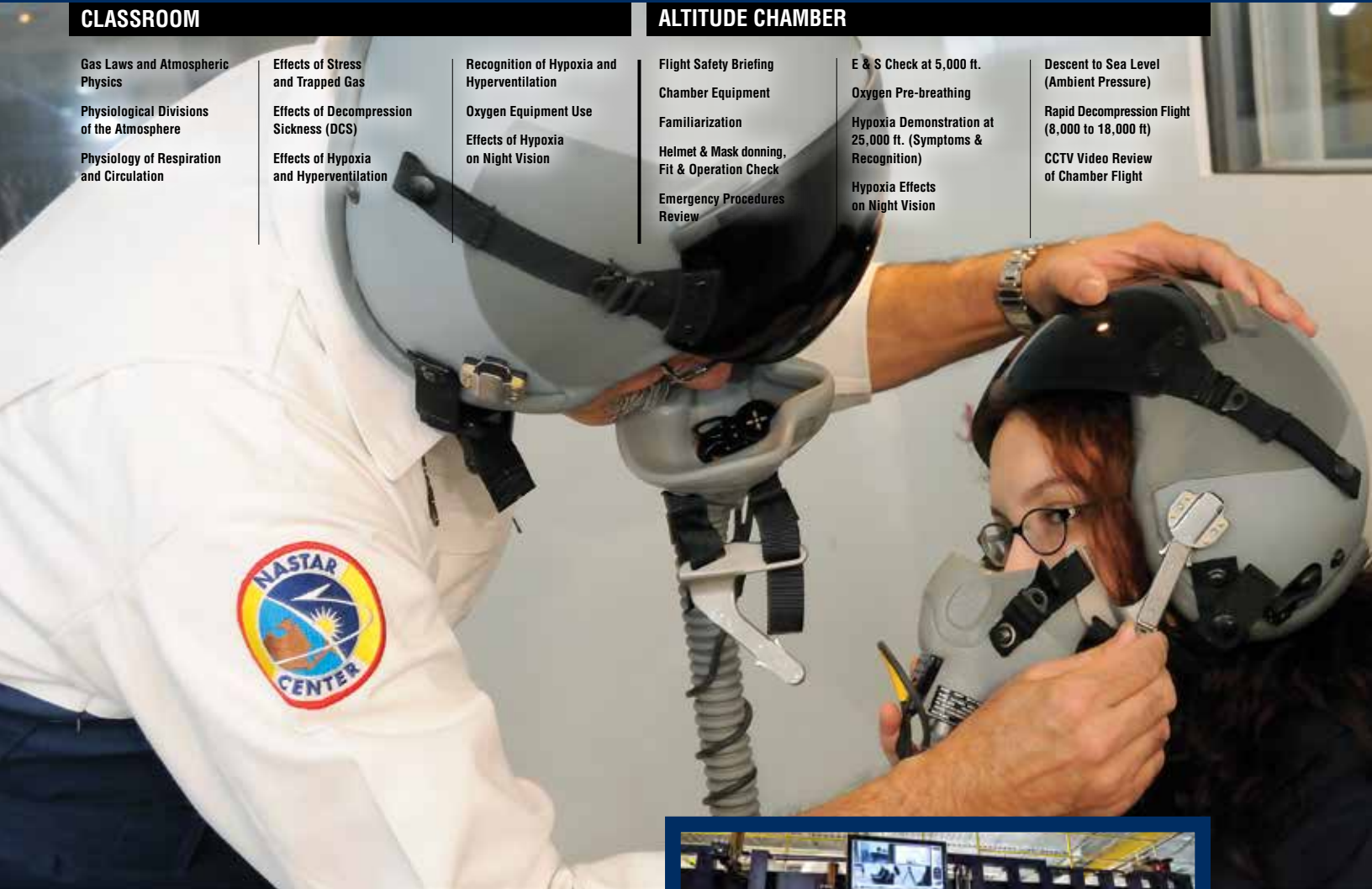
Hypoxia Demonstration at 25,000 ft. (Symptoms & Recognition)

Hypoxia Effects on Night Vision

Descent to Sea Level (Ambient Pressure)

Rapid Decompression Flight (8,000 to 18,000 ft)

CCTV Video Review of Chamber Flight



Altitude chamber training prepares you to cope with the rigors of high-altitude flight.

The USAF and USN have trained their pilots in altitude chambers for many years. Only training in an altitude chamber can provide the most accurate effects of reduced external atmospheric pressure and the complete physiological effects of altitude exposure.

Our Altitude Chamber is FAA approved and follows the same training doctrine for hypoxia training and rapid decompressions as used by the USAF and USN.

After our academic training course, pilots enter the chamber to experience their personal symptoms of hypoxia, loss of acuity and color during night flight and the physiological effects of a rapid decompression.

Upon request, training applications can extend to high-altitude physiological problems in hypoxia, hyperventilation, mechanical effects of trapped gas, gas evolution out-of-solution and stress interactions. Special classes can be provided in use of night vision devices at altitude and use of pressure suits.



# Situational Awareness & Spatial Disorientation Training

## CLASSROOM

Definitions of SA & SD  
Factors affecting a pilot's ability to maintain SA

Loss of SA and Controlled Flight Into Terrain (CFIT)

Human perception limits, information processing and their impact on aviation

Human Factor errors due to the loss of SA and/or SD

Visual and Vestibular SD Illusions

SD Prevention and Management

## GL-2000 FLIGHT

Visual Illusions in Flight

Vestibular Illusions in Flight



Pilots have been susceptible to loss of Situational Awareness (SA) and Spatial Disorientation (SD) since the beginning of aviation. A variety of accidents due to loss of SA continue to occur in the highly dynamic flight environment. SD incidents also continue to occur because the pilot fails to correctly sense the position, motion or attitude of the aircraft relative to the surface of the Earth and the gravitational vertical. The SA/SD course will provide aviation professionals and general aviation pilots with the knowledge and practical experience needed to prevent and recover from a loss of SA or SD.

The **GYROLAB GL-2000** is a state-of-the-art, interactive training system used to train personnel in problems associated with spatial disorientation. The USAF have trained their pilots on similar devices for many years. Only training in a full-axis motion simulator can provide the most accurate effects of upset flight conditions and the physiological effects of being exposed to an out-of-control aircraft.

The GL-2000 simulates the in-flight stimulation of the visual, vestibular, and proprioceptive systems that cause pilots to become disorientated while flying, as well as twenty of the most common business jet and general aviation pilot disorientation illusions.



**Contact Glenn King  
to schedule your training today.**

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TRAINING**

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