

High Altitude Operations Training Course

Enrollment Prerequisites: A pilot may enroll for High Altitude Operations training, provided the pilot:

1. Holds a private pilot certificate, commercial pilot certificate, ATP certificate, ICAO recognized license.
2. Holds an instrument airplane rating or an ATP certificate with an airplane rating.
3. Holds an airplane multiengine land rating.

Description of Course: The High Altitude Operations Course is scheduled for one day and consist of the following minimum programmed hours:

Classroom training	6.0
FTD training.....	2.0
Post/Preflight Brief.....	0.5

Course Objectives:

The pilot will acquire the necessary knowledge and skills to demonstrate that he/she meets the requirements of FAR 61.31(g) (1) (2) for the High Altitude endorsement.

1. Classroom Training 6 hours

- 1) **High Altitude Flight Environment.**
 - a) Airspace
 - b) FAR 91.211, requirements for use of oxygen
 - c) FAR 91.215, requirement for mode C transponder
 - d) FAR 91.121, requirement for altimeter setting of 29.92
 - e) FAR 91.135, requirement for IFR in Class A airspace
 - f) FAR 91.159, & 179, specify cruising altitudes
 - g) FAR 91.180, operations in airspace designated as RVSM
- 2) **High Altitude Weather**
 - a) The Atmosphere
 - i) Troposphere
 - ii) Tropopause
 - iii) Statosphere
 - b) Winds
 - i) Jet Stream
 - ii) Polar Front Jet Stream
 - iii) Low Pressure System Circulation
 - iv) Clear Air Turbulence
 - c) Clouds and Thunderstorms
 - d) Icing
- 3) **Flight Planning and Navigation**

- a) Flight Planing *
 - i) Time, Fuel and Distance Climb
 - ii) Time, Fuel and Distance to Descend
 - iii) Normal Cruise Power
 - iv) Economy Cruise Power
 - v) Holding Time
- b) Gradual Descents
- c) Weather Charts
 - i) Low level significant weather prog
 - ii) High level significant weather prog
 - iii) Forecast winds and tempatures aloft
 - iv) Observed winds aloft
 - v) Tropopause data chart
 - (1) Wind shear
- d) Navigation
 - i) Jet Routes
 - ii) RNAV Routes
 - iii) Navaids
- 4) Physiological Training**
 - a) Respiratory System
 - b) Hypoxia, Effects, Causes, Symptoms
 - i) Hypoxic (Altitude) Hypoxia
 - ii) Histotoxic Hypoxia
 - iii) Hypemic (Anemic) Hypoxia
 - iv) Stagnent Hypoxia
 - v) Times of Useful Consciousness
 - vi) Prolonged use of Oxygen
 - vii) Rapid Decompression
- 5) High Altitude Systems and Components ***
 - a) Turbochargers
 - i) Manual Waste Gate
 - ii) Fixed Waste Gate
 - iii) Absolute Variable Controller
 - b) Pressurazation Systems
 - i. Sea Level Controller
 - ii. Cabin Pressure/Dump Switch
 - iii. Rate Control Knob
 - iv. Cabin Climb Indicator
 - v. Cabin Altimeter
 - vi. Pressure Differential
 - vii. Bleed Air Pull to Dump
 - viii. Cabin Altitude Warning
 - c) Oxygen Systems
 - ix. Masks
 - x. Oxygen duration charts
- 6) High Altitude Aerodynamics**
 - a) Effects on controls

- b) Engine cooling
- c) Engine power
- d) Angle of attack
- e) IAS vs TAS

7) Emergencies

- a) Loss of Pressurization
 - i) Explosive decompression
 - ii) Rapid decompression
 - iii) Gradual decompression
 - iv) Emergency descent

Completion Standard:

The student will have completed this lesson by achieving a score of 70% or better on each end of lesson test and corrected it to 100%

Flight Training Device FTD Lesson *

Lesson

2 hours *

Objective: . Receive training and demonstrate proficiency in normal and emergency flight operations at altitudes above 25,000 feet as required in FAR 61.31 (g) (2).

Events:

Preflight Briefing

Before Starting Engines Checks

- a. Airspeeds for Safe operation
- b. Electrical System Checks
- c. Fuel Quantity & Selectors
- d. Annunciator Lights Check
- e. Landing Gear Handle & Lights

Normal Engine Start

Before Taxi Checks

- a. Aux Fuel Pumps
- b. Charging Instruments Checked
- c. Vacuum System Check
- d. Lights
- e. Flight Instruments

Before Take-off

- a. Engine Runup
- b. Ice Protection
- c. Pressurization set
- d. Trim set
- f. Flaps set

Maneuvers:

1. Normal Take-off
2. Normal Climb to Flight Levels
3. Cruise
4. Normal descent
5. Instrument approach
6. Landing
7. After Landing shut down and securing

Emergency Procedures (reposition FTD to cruise flight in Flight Levels) *

1. Smoke in Cockpit
2. Loss of Pressurization & Emergency Descent
3. Cabin Over Pressure

Completion Standard: The student will demonstrate proficiency in all the procedures and maneuvers required in 61.31(g) (2).

* Note:

These lessons can be combined and completed while taking an initial transition course for a pressurized aircraft