






6-7: HIGHER ALTITUDE PLANNING CHART

Goal Altitude (MSL)	Classification	License Recommended	Equipment Required ¹						Training Recommended ³	Average Freefall for 2,000 ft. AGL Opening (sec)	Time of Useful Consciousness Without Oxygen or Pressure (mm:ss)	Aircraft Required	Hypoxia Symptoms	Special Consideration
			Aircraft Onboard Oxygen Source			Bailout Oxygen Source		Pressure Suit						
70,000		USPA Class D	Mask	Aircraft Onboard Oxygen Source			Bailout Oxygen Source		Pressure Suit	Unknown	00:09		In this region, supersonic speeds may be attained during the freefall. The effects of transonic and supersonic freefall on sky divers and their equipment are not known at this time. At 63,000 feet MSL, the critical pressure of your blood and body fluids is reached. Without pressurization, or in the event of a failure of pressurization at or above this altitude, your blood and body fluids will boil. In the event of an inadvertent parachute deployment at high or extreme altitude, the parachutist (if conscious) should break away from that parachute and freefall to a lower altitude, if there is insufficient oxygen for a canopy descent to 15,000 feet MSL. The opening shock and malfunction probability of a deploying parachute increases radically with altitude. A final equipment check before leaving the aircraft will help prevent premature deployment.	
60,000				Regulator	Setting		Freefall Descent	Canopy Descent	Full pressure required.					
50,000			Auto	Manual										
45,000			Pressure suit helmet-integrated breathing apparatus required.						No suitable "off the shelf" hardware available at this time.			Partial pressure required.		
43,000			Emergency	Above 45M	Standard emergency "bailout bottle" assembly.									
40,000						45M								
35,000	43M													
33,000	41M													
35,000	High	USPA Class C	Positive Pressure	Pressure breathing	100% Oxygen ²	Safety	Average duration 10-12 mins.	Standard "bailout bottle"	None required	Physiological flight training course and at least one jump from below 15,000 feet or below using full oxygen gear in freefall.		<ul style="list-style-type: none"> • loss of: <ul style="list-style-type: none"> » consciousness⁴ » muscular control » judgment » memory » reasoning » time sense • convulsions • repeated purposeless movements • emotional outbursts 	Above 25,000 feet MSL, the skydiver is subject to decompression sickness including the bends, chokes, and cramps, resulting from the nitrogen in the bloodstream coming out of solution and forming a froth of bubbles around joints. Decompression sicknesses are avoided to a large extent by denitrogenation of the bloodstream by breathing 100% oxygen for at least one hour before reaching an altitude of 25,000 feet MSL. Air temperature above 20,000 feet MSL may be expected to be below zero, year-round. All skin should be protected from wind blast by clothing since exposed skin areas are subject to severe frostbite.	
30,000														Diluter demand
25,000														
20,000														
15,000			Intermediate	USPA Class B with 100 jumps	Constant flow	Continuous flow					On			On
10,000	Use supplemental oxygen on board above 8,000 ft. MSL until exit.													
8,000	Supplemental oxygen on board aircraft. Use above 10,000 ft. MSL, whenever elapsed time above 8,000 ft. MSL is expected to exceed 30 minutes.													
Sea level	Low	None required												

¹Minimum equipment listed. Equipment shown for higher altitudes satisfies all requirements for lower altitudes.

²Oxygen systems for high-altitude flights and skydiving should be filled with aviator's oxygen, not medical oxygen. Medical oxygen has a high moisture content which can cause oxygen mask valves to ice over in high-altitude operations.

³Always rehearse oxygen, communication, and exit procedures before takeoff.

⁴AADs are recommended as a backup system on all high-altitude jumps, due to the possibility of the skydiver being rendered unconscious by oxygen system failure.