

§ 121.329 Supplemental oxygen for sustenance: Turbine engine powered airplanes.

(a) *General.* When operating a turbine engine powered airplane, each certificate holder shall equip the airplane with sustaining oxygen and dispensing equipment for use as set forth in this section:

(1) The amount of oxygen provided must be at least the quantity necessary to comply with paragraphs (b) and (c) of this section.

(2) The amount of sustaining and first-aid oxygen required for a particular operation to comply with the rules in this part is determined on the basis of cabin pressure altitudes and flight duration, consistent with the operating procedures established for each operation and route.

(3) The requirements for airplanes with pressurized cabins are determined on the basis of cabin pressure altitude and the assumption that a cabin pressurization failure will occur at the altitude or point of flight that is most critical from the standpoint of oxygen need, and that after the failure the airplane will descend in accordance with the emergency procedures specified in the Airplane Flight Manual, without exceeding its operating limitations, to a flight altitude that will allow successful termination of the flight.

(4) Following the failure, the cabin pressure altitude is considered to be the same as the flight altitude unless it is shown that no probable failure of the cabin or pressurization equipment will result in a cabin pressure altitude equal to the flight altitude. Under those circumstances, the maximum cabin pressure altitude attained may be used as a basis for certification or determination of oxygen supply, or both.

(b) *Crewmembers.* Each certificate holder shall provide a supply of oxygen for crewmembers in accordance with the following:

(1) At cabin pressure altitudes above 10,000 feet, up to and including 12,000 feet, oxygen must be provided for and used by each member of the flight crew on flight deck duty and must be provided for other crewmembers for that part of the flight at those altitudes

that is of more than 30 minutes duration.

(2) At cabin pressure altitudes above 12,000 feet, oxygen must be provided for, and used by, each member of the flight crew on flight deck duty, and must be provided for other crewmembers during the entire flight at those altitudes.

(3) When a flight crewmember is required to use oxygen, he must use it continuously except when necessary to remove the oxygen mask or other dispenser in connection with his regular duties. Standby crewmembers who are on call or are definitely going to have flight deck duty before completing the flight must be provided with an amount of supplemental oxygen equal to that provided for crewmembers on duty other than on flight duty. If a standby crewmember is not on call and will not be on flight deck duty during the remainder of the flight, he is considered to be a passenger for the purposes of supplemental oxygen requirements.

(c) *Passengers.* Each certificate holder shall provide a supply of oxygen for passengers in accordance with the following:

(1) For flights at cabin pressure altitudes above 10,000 feet, up to and including 14,000 feet, enough oxygen for that part of the flight at those altitudes that is of more than 30 minutes duration, for 10 percent of the passengers.

(2) For flights at cabin pressure altitudes above 14,000 feet, up to and including 15,000 feet, enough oxygen for that part of the flight at those altitudes for 30 percent of the passengers.

(3) For flights at cabin pressure altitudes above 15,000 feet, enough oxygen for each passenger carried during the entire flight at those altitudes.

§ 121.331 Supplemental oxygen requirements for pressurized cabin airplanes: Reciprocating engine powered airplanes.

(a) When operating a reciprocating engine powered airplane pressurized cabin, each certificate holder shall equip the airplane to comply with paragraphs (b) through (d) of this section in the event of cabin pressurization failure.

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(b) *For crewmembers.* When operating at flight altitudes above 10,000 feet, the certificate holder shall provide enough oxygen for each crewmember for the entire flight at those altitudes and not less than a two-hour supply for each flight crewmember on flight deck duty. The required two hours supply is that quantity of oxygen necessary for a constant rate of descent from the airplane's maximum certificated operating altitude to 10,000 feet in ten minutes and followed by 110 minutes at 10,000 feet. The oxygen required by §121.337 may be considered in determining the supplemental breathing supply required for flight crewmembers on flight deck duty in the event of cabin pressurization failure.

(c) *For passengers.* When operating at flight altitudes above 8,000 feet, the certificate holder shall provide oxygen as follows:

(1) When an airplane is not flown at a flight altitude above flight level 250, enough oxygen for 30 minutes for 10 percent of the passengers, if at any point along the route to be flown the airplane can safely descend to a flight altitude of 14,000 feet or less within four minutes.

(2) If the airplane cannot descend to a flight altitude of 14,000 feet or less within four minutes, the following supply of oxygen must be provided:

(i) For that part of the flight that is more than four minutes duration at flight altitudes above 15,000 feet, the supply required by §121.327(c)(3).

(ii) For that part of the flight at flight altitudes above 14,000 feet, up to and including 15,000 feet, the supply required by §121.327(c)(2).

(iii) For flight at flight altitudes above 8,000 feet up to and including 14,000 feet, enough oxygen for 30 minutes for 10 percent of the passengers.

(3) When an airplane is flown at a flight altitude above flight level 250, enough oxygen for 30 minutes for 10 percent of the passengers for the entire flight (including emergency descent) above 8,000 feet, up to and including 14,000 feet, and to comply with §121.327(c) (2) and (3) for flight above 14,000 feet.

(d) For the purposes of this section it is assumed that the cabin pressurization failure occurs at a time during

flight that is critical from the standpoint of oxygen need and that after the failure the airplane will descend, without exceeding its normal operating limitations, to flight altitudes allowing safe flight with respect to terrain clearance.

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§ 121.333 Supplemental oxygen for emergency descent and for first aid; turbine engine powered airplanes with pressurized cabins.

(a) *General.* When operating a turbine engine powered airplane with a pressurized cabin, the certificate holder shall furnish oxygen and dispensing equipment to comply with paragraphs (b) through (e) of this section in the event of cabin pressurization failure.

(b) *Crewmembers.* When operating at flight altitudes above 10,000 feet, the certificate holder shall supply enough oxygen to comply with §121.329, but not less than a two-hour supply for each flight crewmember on flight deck duty. The required two hours supply is that quantity of oxygen necessary for a constant rate of descent from the airplane's maximum certificated operating altitude to 10,000 feet in ten minutes and followed by 110 minutes at 10,000 feet. The oxygen required in the event of cabin pressurization failure by §121.337 may be included in determining the supply required for flight crewmembers on flight deck duty.

(c) *Use of oxygen masks by flight crewmembers.* (1) When operating at flight altitudes above flight level 250, each flight crewmember on flight deck duty must be provided with an oxygen mask so designed that it can be rapidly placed on his face from its ready position, properly secured, sealed, and supplying oxygen upon demand; and so designed that after being placed on the face it does not prevent immediate communication between the flight crewmember and other crewmembers over the airplane intercommunication system. When it is not being used at flight altitudes above flight level 250, the oxygen mask must be kept in condition for ready use and located so as to be within the immediate reach of