



400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

AEROSPACE INFORMATION REPORT

AIR 1389

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Revised

FAA REGULATIONS COVERING THE USE OF OXYGEN IN AIRCRAFT

1. INTRODUCTION: This document presents paraphrased in tabulated form, the Federal Aviation Regulations (FAR's) for aircraft oxygen systems. It is intended as a ready reference for those considering the use of oxygen in aircraft and those wishing to familiarize themselves with the systems requirements for existing aircraft. This document is not intended to replace the oxygen related FAR's but rather to index them in some order. For detailed information the user is referred to the current issue of the relevant FAR paragraph referenced in the report.

2. REGULATIONS COVERED:

FAR 23 - Airworthiness Standards: Normal, Utility and Acrobatic
 FAR 25 - Airworthiness Standards: Transport Category Airplanes
 FAR 91 - General Operating and Flight Rules
 FAR 121 - Certification and Operations: Air Carriers and Commercial Operators of Large Aircraft
 FAR 135 - Air Taxi Operators and Commercial Operators of Small Aircraft
 JAR 25 - European Joint Air Regulations*

*JAR 25 is included with the FAR 25 section. The requirements are essentially similar except for slight differences which have been noted.

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 AIRCRAFT OXYGEN EQUIPMENT

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OXYGEN EQUIPMENT & FLOW REQUIREMENTS
FOR FAR CERTIFICATED AIRCRAFT

Oxygen Requirements										
ALTITUDE, FEET		MINIMUM (4)				D ₂ MASK TYPE		PAX SYSTEM		REMARKS
		CREW	PAX	CREW	PAX	MASK CONNECTED	MASK AUTO PRESENT	FAR PARA. REF.		
FAR PART	CABIN, MSL	OPERATION/CERTIFICATION	CREW	PAX	CREW	PAX	MASK CONNECTED	MASK AUTO PRESENT	FAR PARA. REF.	REMARKS
23 Airworthiness: Normal, Utility Aircraft	12,500-25,000	<25,000	Continuous Flow Rates in l/min. vs. Cabin Pressure Altitude are Specified in FAR 23.1443		CF (1)	CF	NO	NO	-	a. Portable Equipment Acceptable (23.1441(a)) b. O ₂ Qty. Indication to crew required (23.1441(c)) c. Flow indication required (23.1449) d. Manual override reqd. for Automatic Presentation System (23.1447(d))
	>40,000	>25,000 >30,000 >40,000	(1)		CF (1)	CF	YES	NO	23.1447(b)	
25 & (JAR-25) Airworthiness: Transport Aircraft	<25,000		149 mm Hg pO ₂ 122 mm Hg pO ₂ 122 mm Hg pO ₂ 95% O ₂		CF DF	-			25.1443(a) 25.1443(b)	a. Portable oxygen is acceptable for crew and passengers (25.1443(e) & 25.1443(b))
	25,000-35,000 35,000-40,000 10,000-18,500 >18,500-40,000				DF/QD DF/QD	-			25.1443(b) 25.1443(b)	b. Separate or separable crew and passenger O ₂ supply systems required (25.1443(e))
					-	CF			25.1443(c)(1)	
					-	CF			25.1443(c)(2)	
										c. Qty. of O ₂ supply must be determinable (25.1441(c))
					CF/DF	CF	NO	NO	25.1447(b)	
					DF/QD	CF	YES	NO	25.1447(c)	d. Qty. of passenger masks shall exceed seats by 10% (25.1447(c)(1))
					DF/QD (1)	CF (1)	YES	YES (3)	25.1447(c)	e. First aid oxygen reqd. 4/min SIPD (4.3/min, NIPD) for each user (25.1443(d))
										f. 2 masks per washroom/ lavatory above 25,000 ft. (25.1447(c)(3)) JAR 25.1447(c)(3) includes Galley work areas
										g. Chemical oxygen is acceptable (25.1450)
										h. Portable equipment must be available for each cabin attendant above 25,000 (25.1447(c)(4))
										i. Oxygen delivery verification to crew (25.1449)
Protective Breathing (2)	6,000		500 liters 600 liters	-	DF CF	-	-	-	25.1439(b)(5)	a. JAR 25.1439(b)(5) requires supply to provide 15 minutes O ₂ at 8000 ft. at 30 lpm. No inboard

ABBREVIATIONS:

CF Continuous Flow
DF Demand Flow
DF/UD Demand Flow/Quick Don (5 sec)
MSL Mean Sea Level
PAX Passenger
FAR Federal Aviation Regulations

REF: ALTITUDE EQUIVALENT
OF TRACHEAL P_{O₂}, mm Hg

149 mm Sea Level
122 mm 5000 Feet
100 mm 10,000 Feet
83.8 mm 14,000 Feet

NOTES:

- (1) Demand flow equipment and systems above 40,000 feet must be separately approved.
- (2) If Class A, B or E cargo compartment exists or in isolated separate compartment, e.g. Lower Galley.
- (3) Masks must drop by 15,000 per FAR 25.1447(c) & FAR 25.1447(c)(1) by 14,000 ft. per FAR 25.1447(c)(1).
- (4) Where oxygen partial pressures are shown, values are for tracheal pressure.

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OXYGEN EQUIPMENT & FLOW REQUIREMENTS FOR FAA CERTIFICATED AIRCRAFT

FAR PART	ALTITUDE, FEET		O ₂ USAGE		O ₂ SUPPLY REQT.		FAR REF. PARAGRAPH	REMARKS
	CABIN, MSL	FLIGHT	CREW	PAX	CREW	PAX		
91 General Operating & Flight Rules	>12,500-14,000	-	After 30 Minutes	NO	(1)	(1)	91.32(a)(1)	
	>14,000-15,000	-	YES	NO	(1)	(1)	91.32(a)(2)	
	>15,000	-	YES	YES	(1)	(1)	91.32(a)(3)	
	Pressurized	>FL250	NO	NO	10 Minute	10 Minute	91.32(b)(1)(i)	a. 10 minute supply is in addition to that required for flight at cabin altitudes above 12,500 feet
	Pressurized	>FL350-410	YES(2)(3)	NO	-	-	91.32(b)(1)(ii)	
135 Air Taxi & Commercial Operators of Small Aircraft	Unpressurized	-	After 30 Minutes	10% of PAX After 30 Min.	(1)	(1)	135.157(a)	a. Oxygen Supply pressure gages required (135.157(c)(1))
	>10,000-12,000	Same as Cabin Altitude	YES	10% of PAX After 30 Min.	(1)	(1)	135.89(a)(2) 135.157(a)(1)	b. Mask flow indicators required (135.157(c)(2))
	>12,000-15,000		YES	YES	(1)	(1)	135.157(a)(2)	c. If flight is above 10,000 ft. briefing on oxygen is reqd. (135.81(f))
	>15,000		NO	NO	(1)	(1)	135.157(b)	d. Oxygen for Medical use by passengers is described in (139.91)
	Pressurized	>10,000 to 15,000	NO	NO	60 Min. (4)	60 Min. (4)	135.157(b)(2)(ii)	e. Above 25,000 feet pilots shall have access to undiluted oxygen at their discretion (135.157(c)(3))
	<10,000	>15,000 >25,000 >25,000 to 35,000 >35,000	YES(2)(3) YES(5)	NO NO NO	2 hours 10 Min. (6)	10 Min. (6)	135.89(b)(2) 135.89(b)(3)	

NOTES:

- (1) As required by Flight Profile at these cabin altitudes.
- (2) One pilot must wear and use oxygen mask unless there are two pilots with QD masks available. (135.89(b)(2)(i)).
- (3) One pilot must wear and use oxygen mask if for any reason other pilot must leave his station. (135.89(b)(4)).
- (4) If descent can be made to 15,000 within 4 minutes only a 30 minute supply is required. If flight is between 10,000-15,000 ft. oxygen supply shall be adequate for 10% of occupants after 30 minutes.
- (5) One pilot must wear and use oxygen mask. (135.89(b)(3)).
- (6) For descent profile.