Aviation Regulation in the US

The Federal Aviation Administration

- Is a unit of the US Department of Transportation
- Is responsible for overseeing the safe and efficient operation of the American aerospace system.
- Controls the certification standards for both aircraft and airmen.

Regulatory Documents

Code of Federal Regulations (CFRs):

- Colloquially referred to as "FARs" (Federal Aviation Regulations)
- Title 14: Aeronautics and Space
- Title 49: Transportation

Code of Federal Regulations				
Title	**Volume**	**Chapter**	**Subchapters**	
Title 14 Aeronautics and Space	1	I	A	Definitions and Abbreviations
			B	Procedural Rules
			C	Aircraft
	2		D	Airmen
			E	Airspace
			F	Air Traffic and General Rules
	3		G	Air Carriers and Operators for Compensation or Hire: Certification and Operations
			H	Schools and Other Certified Agencies
			I	Airports
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Code of Federal Regulations				
Title	**Volume**	**Chapter**	**Subchapters**	
Title 14 Aeronautics and Space	1	I	C	Aircraft
	2		D	Airmen
			E	Airspace
			F	Air Traffic and General Rules

“Regulatory” Documents

Aeronautical Information Manual (AIM):

- Basic flight information and ATC procedures
- “Pilot-Controller Glossary”

Regulatory Documents

Definitions

Categories and Classes of Aircraft:

- The certification of airmen
- The certification of aircraft

For Certification of **Airmen**

- Category represents something flyable having similar operating characteristics:
  - Airplane
  - Glider
  - Rotorcraft
  - Lighter-than-air
  - Powered-lift
  - Powered-parachute
  - Weight-shift-control

AIRCRAFT CATEGORIES HAVE SIMILARITIES

Powered parachute vehicles have a semi-rigid wing connected to a fuselage.

Gliders have fixed wings and no powerplant.

Rotorcraft have powerplants and wings that rotate.

Powered-lift vehicles are capable of vertical takeoff, vertical landing & low speed flight that depends principally on engine-driven lift devices or engine thrust for lift during these flight regimes and on nonrotating airfoil(s) for lift during horizontal flight.

Weight-shift-control aircraft have a pivoting wing that allows a pilot to control pitch and roll by shifting his weight.

Lighter-than-air aircraft achieve lift by displacing air.

Airplanes have powerplants and fixed wings.

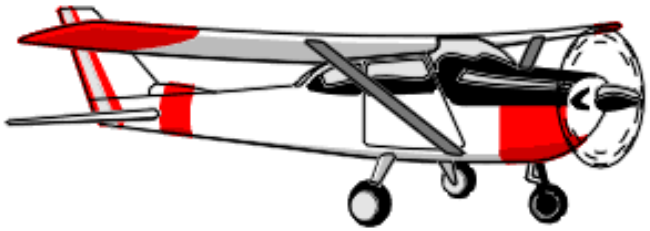
For Certification of **Airmen**

- The term class represents a subdivision within a category.
- Airplanes, for example, are divided into four classes:
  - single-engine land (SEL)
  - single-engine sea (SES)
  - multi-engine land (MEL)
  - multi-engine sea (MES)

Certification of Airmen

AIRPLANE CLASS VARIATIONS

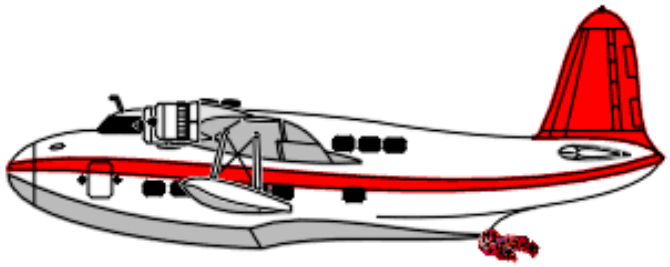
Airplane single-engine land



Airplane multi-engine land

Airplane single-engine sea

Airplane multi-eingine sea



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Certification of **Airmen**

- **Make and Model**

This can be an A36 Beechcraft Bonanza, a Cessna 152, or a Piper Malibu.

  - According to the FAA, once you have your pilot's certificate, you can legally fly any specific make and model of aircraft within the category and class for which you are rated

  - Certain makes/models require additional "type" ratings

Certification of **Aircraft**

- The term category, as used with respect to *aircraft certification*, means a grouping of aircraft based on intended use or operating limitations.
- These categories are further divided according to whether their airworthiness certificates are “Standard” or “Special.”

Certification of **Aircraft**

Standard	Special
Acrobatic	Experimental
Commuter	Light Sport
Normal	Limited
Transport	Primary
Utility	Provisional
	Restricted

Certification of **Aircraft**

- The term class, as used with respect to *aircraft certification*, means a broad grouping of aircraft having similar propulsion, flight or landing characteristics (e.g., airplane, rotorcraft, glider, balloon, landplane, seaplane).

- The salient characteristics of an aircraft certification class are what structural characteristics it possesses.

More Definitions: **Night**

- Night time is officially defined as the time between the **end** of evening civil twilight and the **beginning** of morning civil twilight.

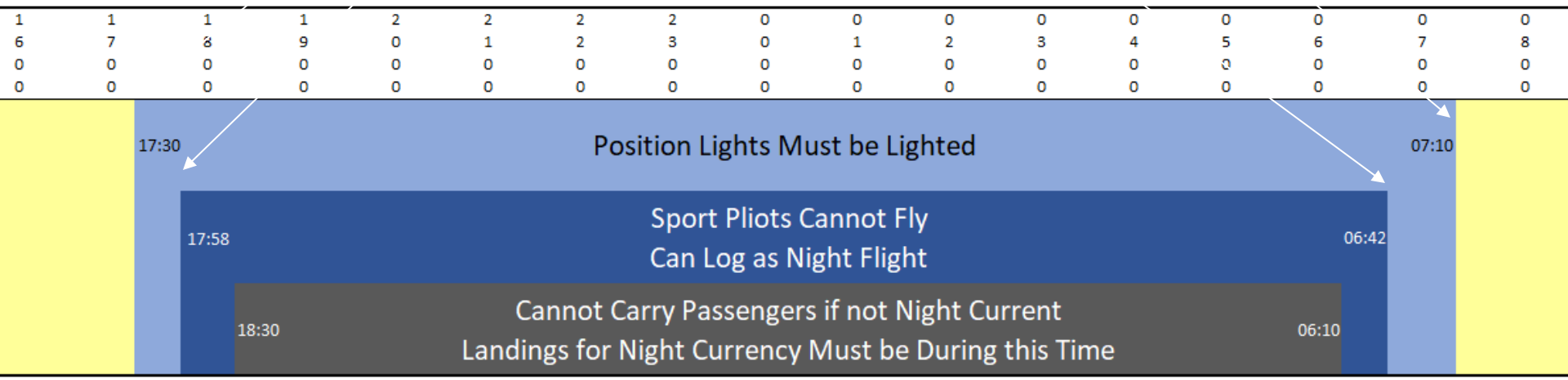
- Some regulations deal with the hours of darkness by referencing the time from sunset to sunrise.

- There is yet a different definition for the currency requirements for carrying passengers at night.

Twilight (from the Air Almanac)

- **Civil twilight** is defined to begin in the morning, and to end in the evening, when the center of the Sun is geometrically 6 degrees below the horizon.
- This is the limit at which twilight illumination is sufficient, under good weather conditions, for **terrestrial objects to be clearly distinguished.**
- At the beginning of morning civil twilight, or end of evening civil twilight, **the horizon is clearly defined and the brightest stars are visible** under good atmospheric conditions in the absence of moonlight or other illumination.
- In the morning before the beginning of civil twilight and in the evening after the end of civil twilight, artificial illumination is normally required to carry on ordinary outdoor activities.

Sunset:	17:30
End of Civil Twilight:	17:58
Beginning of Civil Twilight:	06:42
Sunrise:	07:10



More Definitions: **PIC**

Pilot in Command: The person who

- has final authority and responsibility for the operation and safety of the flight;
- has been designated as PIC before or during the flight; and
- holds the appropriate category, class and type rating, if appropriate, for the conduct of the flight.

Airmen

14 CFR Part 61

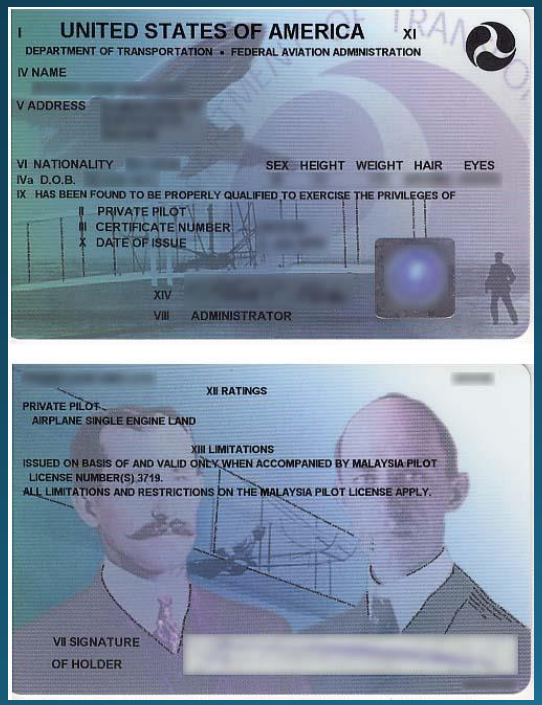
Now On to the Actual FARs: Part 61

Two basic categories of regulations regarding airmen:

- Paperwork requirements
- Skill certifications and recency of experience

Airmen Regulations: Identification

To act as pilot in command you must have your pilot certificate and photo identification (a driver's license or passport, for example). **[14 CFR 61.3]**



Airmen Regulations: Identification

Change of Address: In order to exercise your privilege to fly as PIC, you must notify the FAA when you change your address within thirty days of the move. **[14 CFR 61.60]**

Airmen Regulations: Medical Certificates

- If you are exercising your pilot privileges on the basis of an FAA medical exam you must have your medical certificate in your *physical possession* or *readily accessible* in the *aircraft*. **[14 CFR 61.23]**
- If you are exercising the privileges of a private pilot under BasicMed you must have a copy of your medical paperwork stored with your logbook (which you are not required to carry in flight). **[14 CFR 61.68]**

Airmen Regulations: Medical Certificates

- If you are exercising the privileges of a sport pilot you must have a copy of your medical paperwork stored with your logbook. **[14 CFR 68.3.b]**
- Sport pilots are supposed to carry logbooks if they contain specialized endorsements
- You must also have your US drivers license

Airmen Regulations: Medical Standards

- The greater the passenger carrying responsibility you have, the more stringent the medical exam and the shorter the duration of the medical certificate. **[14 CFR 61.23]**

ATP	Commercial	Private		Sport
1st Class	2nd Class	Third Class	BasicMed	No Medical
6 months (40+) 1 year (<40)	1 year	2 years (40+) 5 years (<40)	4 years (exam) 2 years (course)	

Airmen Regulations: Medical Standards

- The terms of all medical certificates are calculated in calendar months. In other words, the clock starts ticking on the first day of the month after the month in which you get your exam.
- If you obtain your medical in January, the monthly count starts the following month (or February)

Airmen Regulations: Medical Standards

- Assume an FAA medical administered today (1/26/2026)

	Privileges	Age < 40	Age >= 40
First Class	Airline Transport Pilot	12 months 1/31/2027	6 months 7/31/2026
Second Class	Commercial	12 months 1/31/2027	12 months 1/31/2027
Third Class	Private	60 months 1/31/2031	24 months 1/31/2028
Basic Med	Private	Physical exam 48 months (1/31/2030) Online course 24 months (1/31/2028)	

Additional Training Requirements (Private Pilot)

Additional training and endorsements are necessary to fly four different varieties of airplanes:

- *high performance airplanes,*
- *complex airplanes,*
- *pressurized airplanes capable of operating at high altitudes* and
- *tailwheel airplanes*.
- [14 CFR 61.31]

Additional Training Requirements

High Performance Airplane

- To act as pilot in command of a high performance airplane (an airplane having more than 200 horsepower) you must have received and logged ground and flight training in such an airplane from an authorized instructor.
- Your instructor must also make a one-time endorsement in your logbook certifying that you are proficient to operate a high performance airplane.

Additional Training Requirements

Complex Airplane

- A **complex airplane** is an airplane having retractable landing gear, flaps, and a controllable propeller (regardless of the horsepower).
- To act as pilot in command of a complex airplane also requires ground and flight training from an authorized instructor and a one-time endorsement in your logbook

Additional Training Requirements

Pressurized Airplanes Capable of Operating at High Altitudes

- The rule states that you may not act as PIC of a pressurized airplane capable of operating above 25,000 feet MSL unless you've received and logged ground training from an authorized instructor as well as flight training in a pressurized aircraft.
- Both the ground and flight training require separate logbook endorsements

Additional Training Requirements

Tailwheel Airplanes

- To act as PIC of a tailwheel airplane, you must have received and logged flight training from an authorized instructor in a tailwheel airplane (authorized means the instructor is qualified in the plane in which he or she is providing instruction). The instructor must find you proficient in the operation of a tailwheel airplane including at least normal and crosswind takeoffs and landings, wheel landings (unless prohibited by the manufacturer) and go-around procedures.
- The instructor must place a one-time endorsement in your logbook.

Additional Training Requirements (Sport Pilot)

Additional training and endorsements are available to extend the privileges of sport pilots:

- *Retractable gear*
- *Constant speed propellers*
- *Night VFR*

Recurring Training

61.56 Flight Review

- To act as PIC, you must have had a flight review within the preceding 24 calendar months.
- Just as with the medical, the clock starts on the month following the month in which the review takes place. If you take a flight review on January 27, 2025, this review is valid until February 1, 2027

Recent Flight Experience

Pilot In Command

- The FAA states that, to act as PIC while carrying passengers, you must have made, within the preceding 90 days, at least three takeoffs and three landings as the sole manipulator of the controls in the same category and class of aircraft you intend to fly. [14 CFR 61.57]

- If you are carrying passengers in a tailwheel airplane, the landings must be full stop. Otherwise, touch-and-goes are permitted.

Recent Flight Experience

Recent Flight Experience: PIC at Night

- There is a separate recency rule if you want to carry passengers on night flights. Night time, for the purpose of passenger currency, begins one hour after sunset and ends one hour before sunrise.

Recent Flight Experience

Recent Flight Experience: PIC at Night

- If you desire to carry passengers during this time, you must have made three night takeoffs and three night landings within the preceding 90 days.
- Once again, this must be done in the same category and class of aircraft in which you intend to carry passengers.
- Landings for the purpose of night currency must be to a full stop.

No "Flying for Hire"

- A private pilot may not pay less than the pro rata share of the *operating expenses* of a flight with the passengers, providing the expenses involve only fuel, oil, airport expenditures or rental fees.
- The only exception to this rule is if a pilot provides a ride in exchange for a donation to a charitable organization, with advance notification to the FAA. [**FAR 61.113**]

Drugs and Alcohol

The Bottle to Throttle Rule

- Regulations require you to avoid acting as pilot in command or as a required crewmember for 8 hours after consuming alcohol.
- Another part of this rule states that you may not act as PIC if you have blood alcohol content of .04% or more (by weight). (This is half the legal limit for operating a motor vehicle.)

Drugs and Alcohol

Notification of "Motor Vehicle Action"

- The FAA must be notified within 60 days if action is taken against your driver's license for an offence involving alcohol or drugs.
- Two or more actions within three years are grounds for suspension or revocation of certificates or ratings.
- An action within the past year is grounds for denial of an application for a new certificate or rating.

General Operation and Flight Rules

14 CFR Part 91

Now More Actual FARs: Part 91

- General operating rules
- Flight rules
- Equipment, instrument, and certificate requirements
- Special flight operations
- Maintenance and alterations

General Operating Rules

FAR 91.3 Responsibility and Authority of the Pilot In Command

- The regulation states that you, the pilot in command, are directly responsible for, and are the final authority as to the operation of the aircraft. It doesn't get much simpler than that.

General Operating Rules

FAR 91.7 Civil Aircraft Airworthiness

- This regulation states you may not operate an aircraft unless it's in an airworthy condition.
- It also makes you, as PIC, responsible for terminating a flight any time you believe the airplane is not airworthy due to the failure of a mechanical, electrical, or structural component.

General Operating Rules

FAR 91.9 Civil Aircraft Flight Manual, Markings and Placard Requirements.

- Airplane operating limitations come in the form of color codes, placards, and approved flight manuals.
- You, as pilot in command, are required by this regulation to comply with all the operating limitations specified in any of these ways.

General Operating Rules

FAR 91.15 Dropping Objects

- According to the regulations, the pilot in command may not drop any object in flight if it creates a hazard to persons or property.

General Flight Rules

91.103 Preflight Action

- Before you begin any flight you are required to become familiar with all the available information concerning that flight.
- For a flight not in the vicinity of the departure airport, you must check the weather reports and forecasts, fuel requirements, alternatives available if the flight cannot be completed, and any known traffic delays advised by ATC.
- You are also required to check the runway lengths at the airport you'll use.

General Flight Rules

FAR 91.105 Flight Crewmembers at Stations

- During takeoff, landing, and while en route, you, the pilot in command, shall be in your seat (sometimes called a station).
- You are required to keep your safety belt fastened while seated, and if your airplane is equipped with a shoulder harness and wearing it doesn't interfere with your duties, it must be kept fastened during takeoff and landing.

General Flight Rules

FAR 91.107 Use of Safety Belts

- What about passengers and seatbelts? Prior to takeoff, the PIC is required to brief each passenger on how to fasten and unfasten their seatbelt & shoulder harness.

General Flight Rules

FAR 91.111 Operating Near Other Aircraft

- No person may operate an aircraft so close to another aircraft as to create a collision hazard.
- No person may operate an aircraft in formation flight except by prior arrangement with the pilot in command of each aircraft in the formation.

General Flight Rules

FAR 91.123 Compliance with ATC Clearances and Instructions

- This regulation also states that, except in an emergency, no person may operate an aircraft contrary to an ATC instruction in an area in which air traffic control is exercised. All this statement does is clarify that an emergency situation allows deviation from an ATC clearance.

General Flight Rules

FAR 91.123 Compliance with ATC Clearances and Instructions

- Each pilot in command who, in an emergency, deviates from an ATC clearance or instruction is obligated to notify ATC of that deviation as soon as possible.

Equipment, Instrument, Certifications

FAR 91.203 Civil Aircraft: Certifications Required

There are four items that must be on board the aircraft at all times when it's being operated:

- **A**irworthiness certificate
- **R**egistration certificate
- **O**perating limitations
- **W**eight and balance information

Equipment, Instrument, Certifications

FAR 91.207 Emergency Locator Transmitters

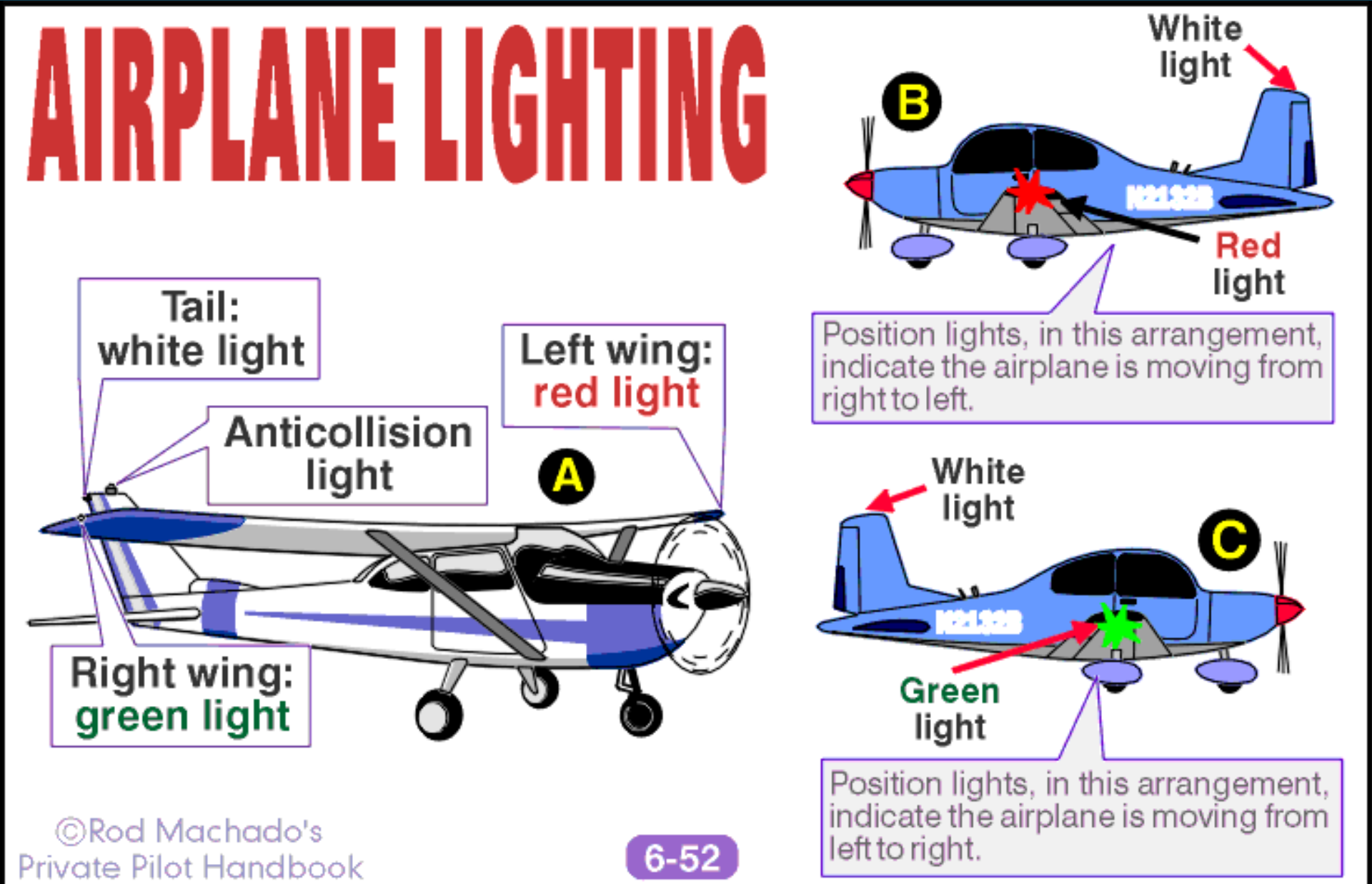
- The batteries must be replaced or recharged if the device has been in use for more than one cumulative hour, or when 50% of their useful life has expired.
- You may manually test the airplane's ELT on the ground during the first five minutes past the hour.
- Each ELT must be inspected within 12 calendar months after the last inspection for proper operation and battery expiration dates.

Equipment, Instrument, Certifications

FAR 91.209 Aircraft Lights

- Official night time for **airplanes** is from sunset to sunrise. No person may operate an aircraft during this period unless it has lighted position lights.
- Airplanes with an anti-collision light system must have these lights on at all times when the airplane is in operation. This typically consists of white strobe lights or a red rotating beacon.
- Pilots are allowed to turn off the anti-collision lighting system if the pilot in command determines, because of the operating conditions, it is unsafe.

Federal Aviation Regulations



Federal Aviation Regulations

FAR 91.211 Use of Supplemental Oxygen

- The regulations require the PIC (and any required flight crewmembers) to use supplemental oxygen when flying for more than 30 minutes above 12,500 feet up to and including 14,000 feet. If you go above 14,000 feet, you must use oxygen from the moment you exceed that altitude.

Equipment, Instrument, Certifications

FAR 91.211 Use of Supplemental Oxygen

- The pilot in command is required to provide each occupant of the aircraft with supplemental oxygen when operating at altitudes above 15,000 foot MSL.

Special Flight Rules

FAR 91.313 Restricted Category Civil Aircraft: Operating Limitations

- A restricted category aircraft (such as a cropduster) can only be used for the special purpose for which it was certificated. It cannot be used for flight involving compensation or hire when a passenger is being carried.
- Restricted category aircraft cannot be operated over a densely populated area, on a congested airway or near a busy airport where the airlines fly.

Special Flight Rules

FAR 91.319 Aircraft Having Experimental Certificates: Operating Limitations

- Until it's proven to the FAA that a homebuilt aircraft is safe to fly, no person can operate that aircraft outside a designated area.
- Passengers may be carried but passengers and property can't be carried for compensation or hire. The pilot is required to advise each person carried of the nature of the aircraft.

Maintenance and Alterations

FAR 91.403 Aircraft Maintenance: General

- Regulations place primary responsibility for maintaining an aircraft in an airworthy condition on the owner or operator.
- The owner is the person who has legal title to the aircraft. But this isn't always the person in charge of its maintenance. When an airplane is leased back to a flight school, the legal responsibility for maintaining airworthiness passes to the operator of the school.

NTSB Reporting Requirements

49 CFR Part 830

The Last FARs: 49 CFR 830

- Title 49: Transportation
  - Chapter VIII: National Transportation Safety Board
    - Part 830: Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records

Definitions

Aircraft Accident

An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.

Definitions

Serious Injury

- Requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received.
- Results in the fracture of a bone (except simple fractures of the fingers, toes or nose).
- Causes severe hemorrhages, nerve, muscle, or tendon damage.
- Involves any internal organ.
- Involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

Definitions

Substantial Damage

Damage or failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft and which would normally require major repair or replacement of the affected component. The following are NOT considered to be substantial damage for the purposes of this part:

- Engine failure or damage limited to an engine if only one engine fails or is damaged.
- Bent fairings or cowling, dented skin, small puncture holes in the skin or fabric.
- Ground damage to rotor or propeller blades and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips.

Definitions

Serious Incident (Partial List)

- (1) Flight control system malfunction or failure;
- (2) Inability of any required flight crewmember to perform normal flight duties as a result of injury or illness;
- (3) Failure of any internal turbine engine component that results in the escape of debris other than out the exhaust path;
- (4) In-flight fire;

Definitions

Serious Incident (Partial List)

- (5) Aircraft collision in flight;
- (6) Damage to property, other than the aircraft, estimated to exceed $25,000
- (7) Release of all or a portion of a propeller blade from an aircraft, excluding release caused solely by ground contact;
- (8) A complete loss of information, excluding flickering, from more than 50 percent of an aircraft's cockpit displays;

Definitions

Serious Incident (Partial List)

- (9) Damage to helicopter tail or main rotor blades, including ground damage, that requires major repair or replacement of the blade(s);
- OR
- An aircraft is overdue and is believed to have been involved in an accident

Immediate Notification

- "The operator of any civil aircraft, or any public aircraft not operated by the Armed Forces or an intelligence agency of the United States, or any foreign aircraft shall immediately, and by the most expeditious means available, notify the nearest National Transportation Safety Board (NTSB) office in case of…."

Notification and Reporting

	Notification	Report
Accident	immediate	10 days
Serious Incident	immediate	When requested
Overdue Aircraft	immediate	7 days

Notification and Reporting

1. Notify the nearest NTSB field office Immediately for …

- An aircraft **accident**
- An **overdue** aircraft that is believed to be involved in an accident.
- Any significant **incident** from the list in 49 CFR 830.5, including:
  - In-Flight Fire
  - Flight control system malfunction or failure
  - Crewmember inability to perform duties in flight due to illness or injury
  - etc.

2. File a report with the nearest NTSB field office within 10 days …

- **Always** for an aircraft **accident**
- **Upon request** for an aircraft **incident**

Accident Overdue Incident

Preservation of Wreckage

- If you are the operator of an aircraft involved in an accident or incident it's your job to protect the wreckage and everything associated with that wreckage until the NTSB arrives and assumes responsibility.
- Move or disturb only if it's necessary to help persons injured or trapped, to protect the wreckage from further damage, or protect the public from injury.

Preservation of Wreckage

- If you need to move the wreckage or anything associated with it, make notes, take photographs, or draw sketches to detail its original condition.