

FEDERAL AVIATION ADMINISTRATION

AIR TRAFFIC BASICS | Lesson 10: Introduction to Federal Aviation Regulations

ALL LESSONS FRAME: 1

Introduction to Federal Aviation Regulations

NEXT



Can you imagine what the sky would look like without rules?

LEARN MORE

It would be like rush hour traffic with no speed limits, stop signs, or lane markings! The rules for road traffic are state regulated. The rules for the sky are contained in the Federal Aviation Regulations (FARs).

Knowledge of the general operating and flight rules will help the controller understand what pilots are expected to do in various circumstances. These rules provide for standardization and order in Air Traffic Control (ATC).



Purpose

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This lesson will cover the rules and regulations that pilots and controllers must follow to be a part of the ATC system and the meaning of selected terms and definitions.



Objectives

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In this lesson, you will identify the following:

1. Terms and definitions
2. General operating rules
3. General flight rules
4. ATC certification
5. Medical requirements

You will meet the objectives in accordance with the following references:

- Federal Aviation Regulations (FARs) 1, 61, 65, 67, 71, 73 and 91
- FAA Orders
 - JO 7110.65, Air Traffic Control
 - 3930.3, Air Traffic Control Specialist Health Program





Federal Aviation Regulations (FARs)

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Federal Aviation Regulations (FARs)

- Are issued by authority of the FAA Administrator
- Establish and provide rules and regulations for operation of aircraft within the United States
- Give pilots directions that promote the safety of flight
- Prescribe the action a pilot must take under various circumstances (Example: Compliance with air traffic clearances)
- Apply to all aircraft operating in the United States, including foreign aircraft

Structure of FARs

- Code of Federal Regulations, Title 14
- Arranged by:
 - Part
 - Subpart
 - Section

NOTE: All FARs are available online @ <http://rgl.faa.gov>



FEDERAL AVIATION ADMINISTRATION AIR TRAFFIC BASICS | Lesson 10: Introduction to Federal Aviation Regulations

ALL LESSONS FRAME: 5

Terms and Definitions

BACK NEXT

General Definitions

"CLEARED TO LAND."

"CLEARED FOR TAKEOFF."

LEARN MORE

The **Administrator** is the Federal Aviation Administrator or any person to whom he/she has delegated authority in the matter concerned.

Air traffic is aircraft operating in the air or on an airport movement area.

Air traffic clearance is an authorization by ATC for the purpose of preventing collision between known aircraft and for an aircraft to proceed under specified conditions within controlled airspace.

- Can be issued in Visual Flight Rules (VFR) or Instrument Flight Rules (IFR) weather conditions
- Clearance examples
 - Landing/Takeoff
 - En Route
 - Instrument approach

Includes means "includes but is not limited to."

References:

- JO 7110.65, Glossary
- FAR, 1.3

FEDERAL AVIATION ADMINISTRATION AIR TRAFFIC BASICS | Lesson 10: Introduction to Federal Aviation Regulations

ALL LESSONS FRAME: 6

Terms and Definitions

BACK NEXT

Types of Aircraft



Airplane



Glider



Airship



Balloon



Helicopter

LEARN MORE

An **aircraft** is a device that is used or intended to be used for flight in the air and may include the flight crew in ATC terminology. Aircraft, as a category, include the following:

- Airplane
- Airship
- Balloon
- Glider
- Helicopter

An **airplane** is an engine-driven, fixed-wing aircraft heavier than air that is supported in flight by the dynamic reaction of the air against its wings.

An **airship** is an engine-driven, lighter-than-air aircraft that can be steered.

A **balloon** is a lighter-than-air aircraft that is not engine-driven.

A **glider** is a heavier-than-air aircraft that is supported in flight by the dynamic reaction of the air against its lifting surfaces and whose free flight does not depend principally on an engine.

A **helicopter** is a rotorcraft that, for its horizontal motion, depends principally on its engine-driven rotors.

Reference:

- FAR, Part 1, Section 1.1



Terms and Definitions

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General Definitions



An airport is an area of land or water that is used or intended to be used for the landing and takeoff of aircraft and includes its buildings and facilities, if any.

An alternate airport is an airport at which an aircraft may land if a landing at the intended airport becomes inadvisable.

Air Traffic Control (ATC) is a service by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

The pilot in command is the pilot responsible for the operation and safety of aircraft during flight time.

Altimeter setting is the barometric pressure reading used to adjust a pressure altimeter for variations in existing atmospheric pressure or to the standard altimeter setting (29.92). Pilots shall maintain an altitude/flight level by reference to an altimeter setting.

JO 7110.65, Glossary; FAR, 1



Terms and Definitions

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General Definitions

Flight Level (FL) is a level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet.

Reporting point is a geographical location in relation to which the position of an aircraft is reported.

Positive control is the separation of all air traffic within designated airspace by ATC.

Distance Measuring Equipment (DME) is equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

A flight plan is specified information, relating to the intended flight of an aircraft that is filed orally, in writing, or by computer with ATC. Flight plans may be filed as VFR or IFR.

JO 7110.65, Glossary; FAR 1





Terms and Definitions

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Word Meanings

Approved separation means separation in accordance with the applicable minima in FAA Order JO 7110.65.

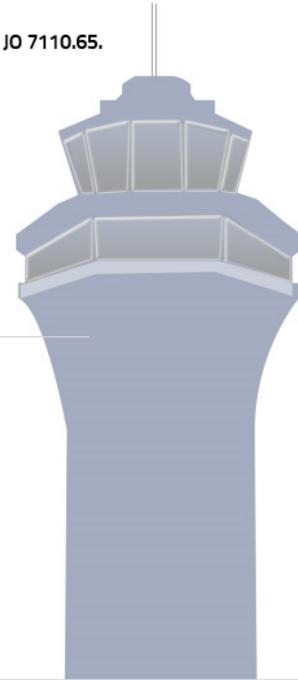
Miles means Nautical Miles (NM), unless otherwise specified.

- Statute Miles (SM) are used in conjunction with visibility.
- One NM equals one point one five (1.15) SM.

Time, as used for ATC operational activities:

- Coordinated Universal Time (UTC); the term "zulu" may be used
- Change to the next minute is made at the minute plus 30 seconds
 - Except time checks given to nearest quarter minute

JO 7110.65, Glossary and Chap 1; FAR 1





General Operating Rules

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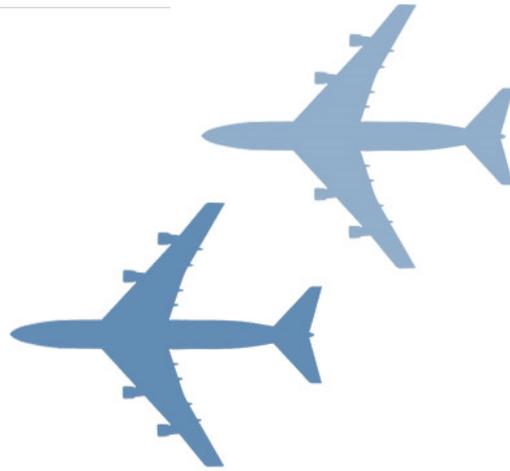
Applicability

FAR 91.1 through 91.25 govern all aircraft operations within the United States including the:

- Waters within 3 NM of the U.S. Coast
- Airspace within 12 NM of the U.S. Coast

NOTE: In other words, sections 91.1 through 91.25 apply to all aircraft operations.

FAR 91.1





Terms and Definitions

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Responsibility & Authority

The pilot in command of an aircraft:

- Is directly responsible for and is the final authority for the operation of the aircraft
- May deviate from FAR 91 in an emergency requiring immediate action
- Who deviates from FAR 91 shall, upon request, send a written report of the deviation to the Administrator

FAR 91.3





Terms and Definitions

BACK

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Careless or Reckless Operations

No person may operate an aircraft:

- In a careless or reckless manner so as to endanger the life or property of another

NOTE: An example of a careless and reckless manner is lack of vigilance, buzzing, and flying in proximity of home, vehicle, vessel, or a group of persons on the ground.

FAR 91.13



General Flight Rules

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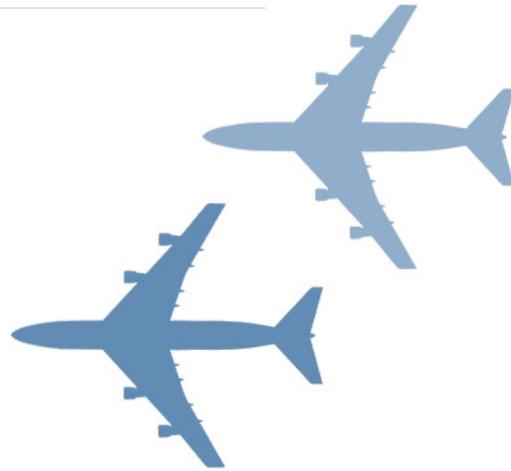
Applicability

FAR 91.101 through 91.199 prescribe flight rules governing the airborne operation of all aircraft within:

- United States
- 12 NM from the U.S. Coast

NOTE: In other words, sections 91.101 through 91.199 apply to all aircraft operations in the air.

FAR 91.101





General Flight Rules

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Weather, fuel, runway length, NOTAMs...

LITTLE ROCK

OKC

Pre-flight Action

Prior to beginning a flight, each pilot in command:

- Shall be familiar with all available information concerning that flight

FAR 91.103



General Flight Rules

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Operations Near Other Aircraft

No person may operate an aircraft:

- In proximity to another aircraft so as to create a collision hazard

- In a formation flight:
 - Without prior arrangement with the pilot in command of each aircraft in formation
 - When carrying passengers for hire



FAR 91.111



General Flight Rules

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Right-of-Way (Excluding Water Operations)



Weather conditions permitting, pilots in command (regardless of VFR or IFR operation) must maintain a vigilance so as to see and avoid other aircraft.

FAR, 91.113



General Flight Rules

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Right-Of-Way Rules

The following right-of-way rules apply.

- Aircraft in distress
 - Right-of-way over all other air traffic



General Flight Rules

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NEXT

Right-Of-Way Rules

- Converging aircraft of the same category (i.e., two airplanes)
 - Aircraft to right has right-of-way



- Approaching head-on
 - Each pilot gives way to the right



NOTE: The following right-of-way rules apply when one or both aircraft are uncontrolled (VFR).

FAR 91.113



General Flight Rules

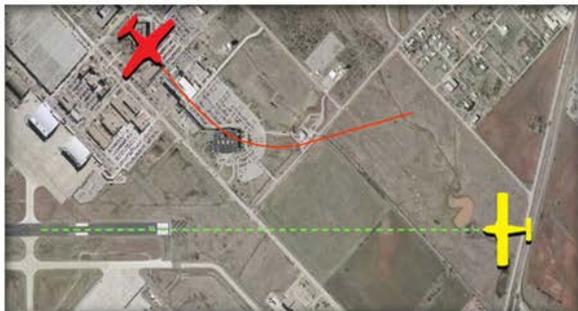
BACK

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Right-Of-Way Rules

- Overtaking
 - Aircraft being overtaken has right-of-way
 - Overtaking aircraft passes on the right

- Landing
 - Aircraft on final approach to land or while landing have right-of-way over other aircraft in the air or on the ground.
 - At controlled airports, the Tower Controller will provide the sequence.
 - Approaching aircraft at lower altitude has right of way.



FAR 91.113



General Flight Rules

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10,000 ft MSL



maximum speed = 250 knots IAS

Aircraft Speed

Unless otherwise authorized, aircraft below 10,000 feet Mean Sea Level (MSL) must operate at a speed of not more than 250 knots Indicated Air Speed (IAS).

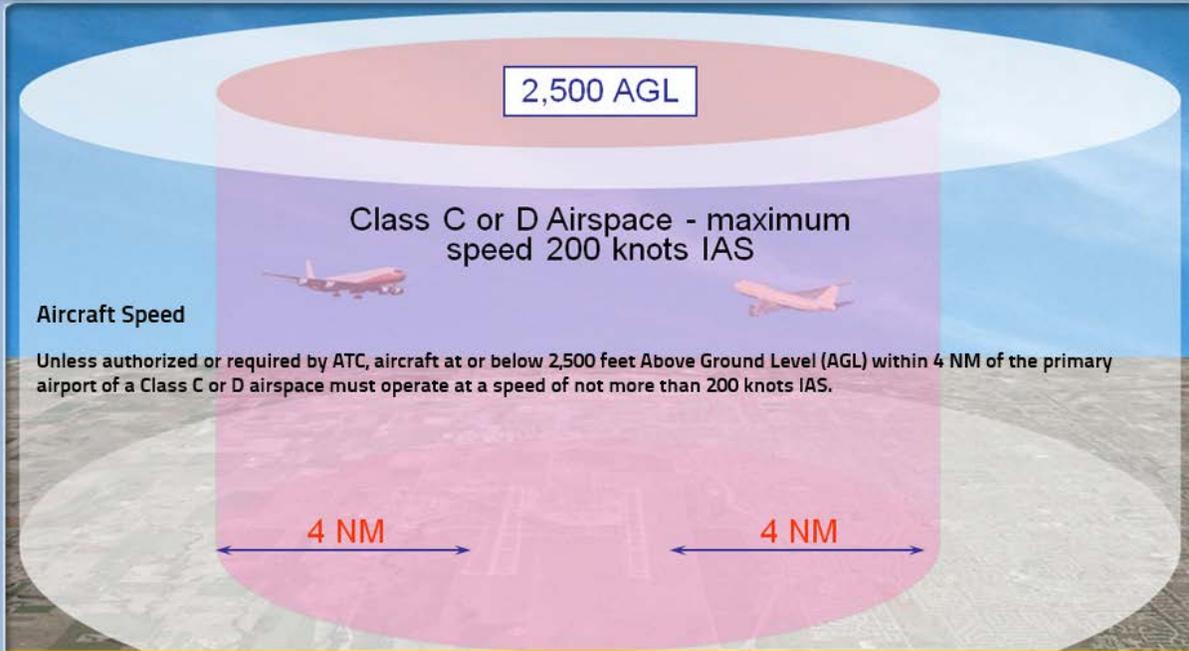
FAR 91.117



General Flight Rules

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Aircraft Speed

Unless authorized or required by ATC, aircraft at or below 2,500 feet Above Ground Level (AGL) within 4 NM of the primary airport of a Class C or D airspace must operate at a speed of not more than 200 knots IAS.

FAR 91.117

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General Flight Rules

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Below a shelf of Class B Airspace
maximum speed 200 knots IAS

Aircraft Speed

LEARN MORE

No person may operate an aircraft at more than 200 knots indicated air speed:

- Below Class B airspace
- In a VFR corridor designated through a Class B airspace

For aircraft with a minimum safe speed greater than maximum prescribed speed:

- Minimum safe speed will apply

Reference: FAR 91.117



General Flight Rules

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[LEARN MORE](#)

Except for takeoff or landing, no person may operate an aircraft:

- Below an altitude which, if a power unit fails, allows an emergency landing without undue hazard to persons or property on the surface.

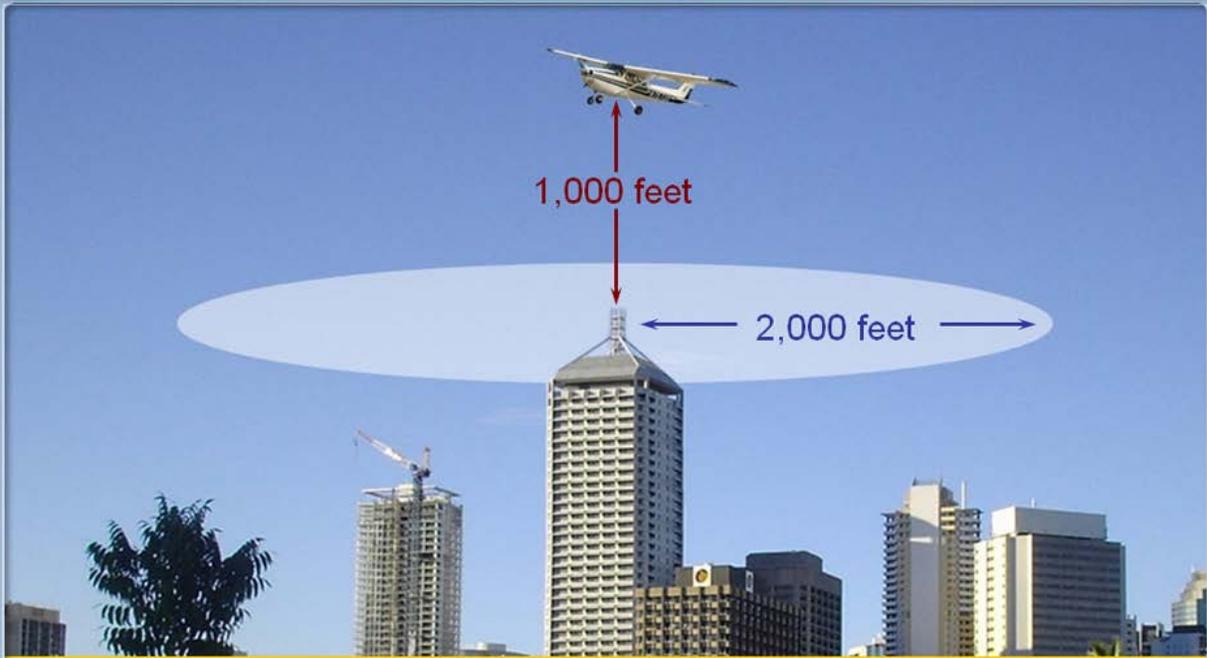
Reference: FAR 91.119

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General Flight Rules

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1,000 feet

2,000 feet

Minimum Safe Altitudes Over Congested Areas (VFR)

LEARN MORE

Except for takeoff or landing, no person may operate an aircraft:

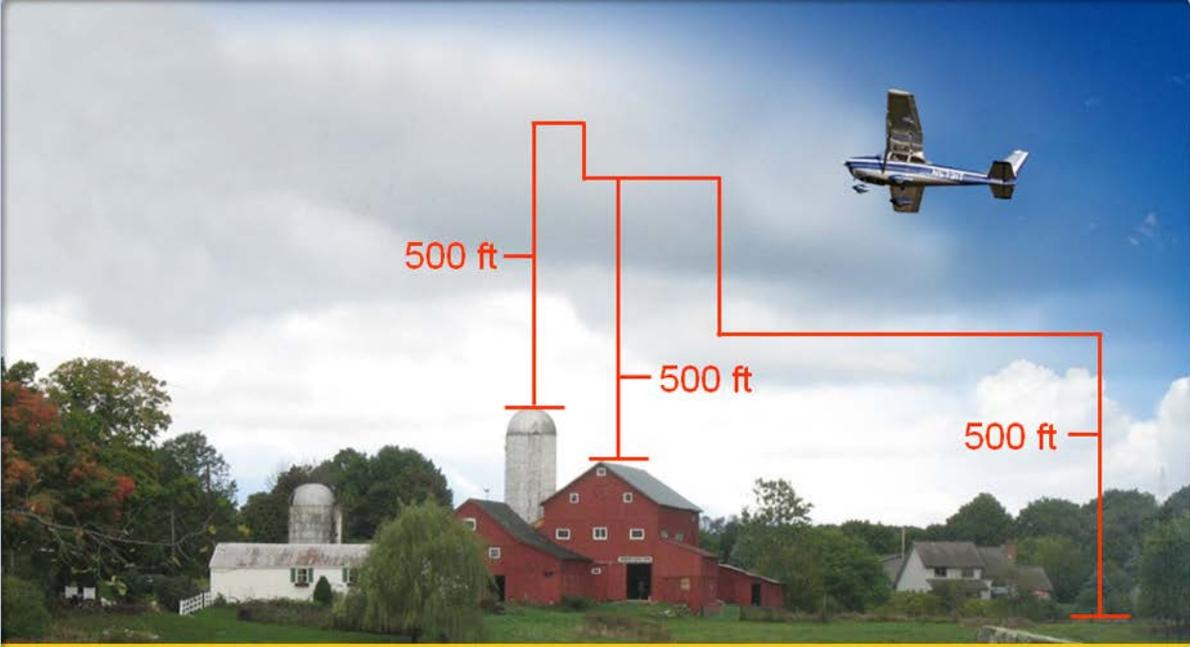
- Over congested areas of a city, town, settlement, or open air assembly of persons:
 - Below 1,000 feet above highest obstacle within horizontal radius of 2,000 feet of the aircraft

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General Flight Rules

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500 ft

500 ft

500 ft

Minimum Safe Altitudes Over Other Than Congested Areas (VFR)

LEARN MORE

Except for takeoff or landing, no person may operate an aircraft:

- Over other than congested areas:
 - An altitude of 500 feet above the surface except over open water or sparsely populated areas
 - ♦ In those cases, aircraft may not be operated closer than 500 feet away from any person, vessel, vehicle, or structure.

Reference: FAR 91.119



General Flight Rules

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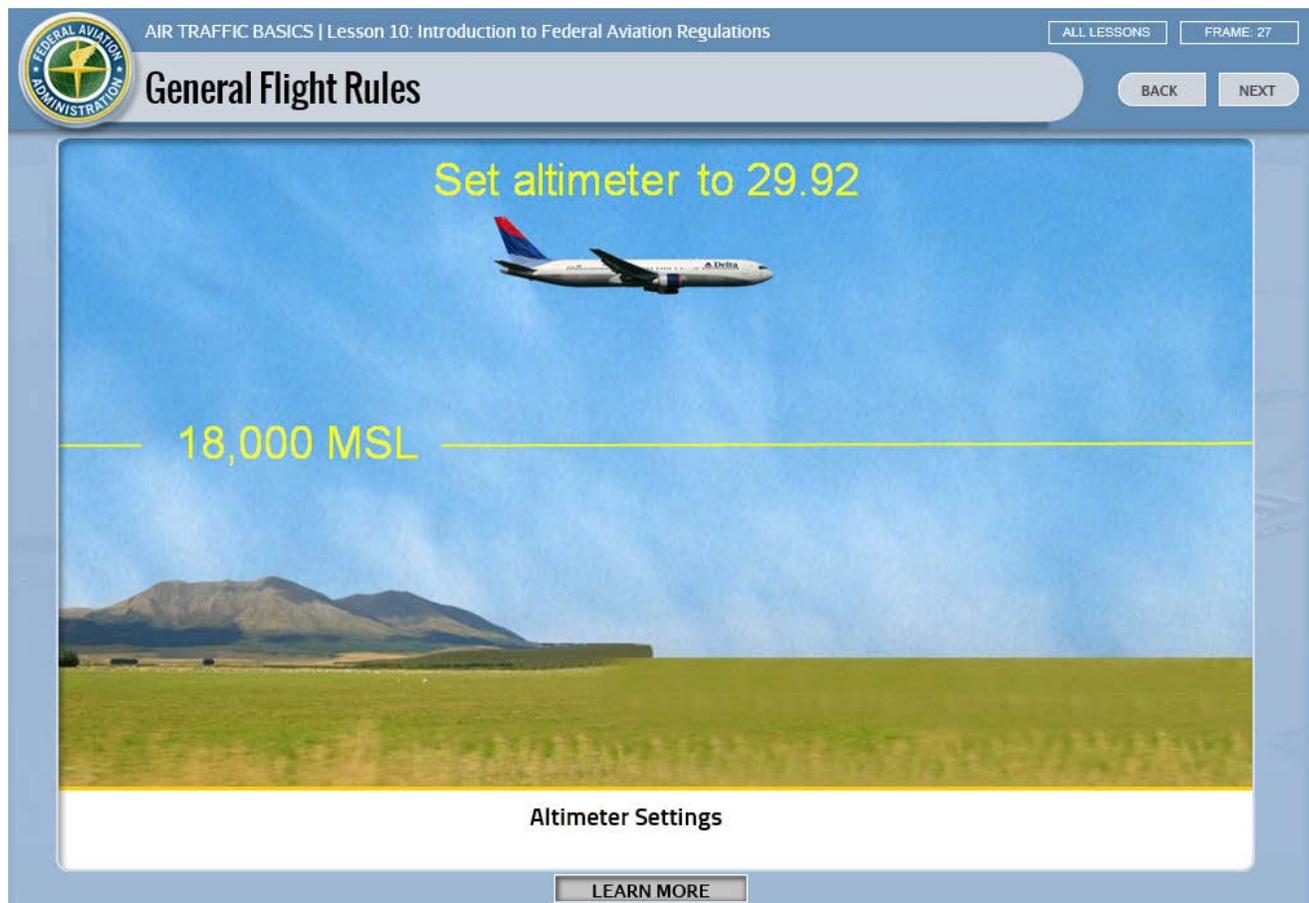
Minimum Safe Altitudes for Helicopters (VFR)

LEARN MORE

Helicopters may be operated below minimum safe altitudes provided operation is:

- Conducted without hazard to persons or property on the surface
- In compliance with any routes or altitudes specifically prescribed for helicopters by the Administrator

Reference: FAR 91.119



The screenshot shows a web interface for a lesson titled "General Flight Rules" from the "AIR TRAFFIC BASICS | Lesson 10: Introduction to Federal Aviation Regulations" series. The FAA logo is in the top left. Navigation buttons for "ALL LESSONS", "FRAME: 27", "BACK", and "NEXT" are in the top right. The main content area features a photograph of an airplane flying over a green field with mountains in the background. A yellow horizontal line is drawn across the image at the 18,000-foot level, labeled "18,000 MSL". Above the airplane, the text "Set altimeter to 29.92" is displayed in yellow. Below the photograph, the text "Altimeter Settings" is centered, and a "LEARN MORE" button is located at the bottom center of the content area.

Each person operating an aircraft shall maintain the cruising altitude or flight level by reference to an altimeter:

- Below 18,000 MSL
 - Current altimeter setting reported by a station along the route within 100 NM of the aircraft
- At or above 18,000 feet MSL
 - Altimeter set at 29.92

Reference: FAR 91.121

FEDERAL AVIATION ADMINISTRATION

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General Flight Rules

BACK NEXT

When an ATC clearance has been obtained, no pilot may deviate from that clearance, except in an emergency or TCAS alert, unless he/she obtains an amended clearance.



Air Traffic Clearance Compliance

LEARN MORE

The pilot may not deviate from ATC clearance except:

- If an emergency exists
- If pilot obtains an amended clearance
- In response to a Traffic Alert and Collision Avoidance System (TCAS) resolution advisory

Reference: FAR 91.123



General Flight Rules

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IFR Cancellation

The pilot may cancel IFR when:

- Operating in VFR conditions
- Outside Class A Airspace

FAR 91.123





General Flight Rules

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Emergency Deviation

Pilots who deviate, in an emergency, from an ATC clearance:

- Must notify ATC of the deviation as soon as possible

FAR 91.123





General Flight Rules

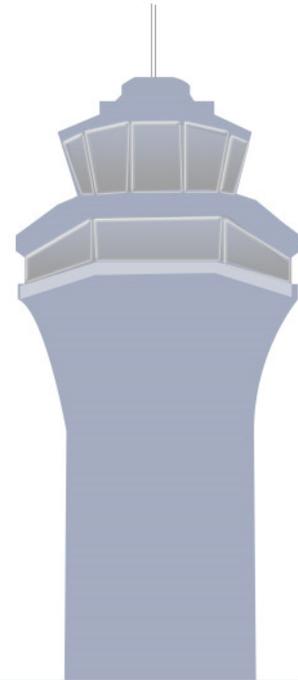
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ATC Priority

Pilots receiving priority from ATC for an emergency shall, upon request, submit a detailed report of the emergency within 48 hours to the manager of the affected facility.

FAR 91.123





General Flight Rules

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Operations Class G Airspace

Pilots in command (unless otherwise authorized) who are operating an aircraft on or in the vicinity of an airport in Class G airspace must comply with the following requirements:

- Direction of turns at airports without an operational control tower:
 - Make all turns to the left unless approved markings or light signals indicate differently.
 - Helicopters must avoid flow of fixed-wing aircraft.
- Two-way communications must be maintained at airports with operating control towers:
 - By aircraft operating to, from, through, or on the airport
 - Prior to 4 NM from the airport
 - Up to and including 2,500 feet Above Ground Level (AGL)

NOTE: An example of a control tower in Class G airspace would be a temporary tower that is operating solely for the purpose of regulating the flow of traffic involved in firefighting operations, or during an airshow, at a normally uncontrolled airport. No Class D airspace would exist because airspace designations can only be established through a lengthy rule making procedure and published as a FAR. The airspace around the airport would therefore remain as Class G, even though there is a tower established for a short period of time.



FAR 91.126



General Flight Rules

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Operations Class E Airspace

Unless otherwise authorized, pilots operating on or in the vicinity of an airport in Class E airspace must comply with the following requirements:

- Any traffic patterns established for that specific airport
- Two-way communication at airports with control towers must be established and maintained:
 - By aircraft operating from the airport
 - By aircraft operating to the airport or through the airspace prior to 4 NM from the airport
 - For all aircraft up to and including 2,500 feet AGL

FAR 91.127





General Flight Rules

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Operations Class C or D Airspace

[LEARN MORE](#)

No person may operate an aircraft in Class C or D airspace:

- Unless two-way communications are maintained with the facility providing ATC services

NOTE: *If radio fails and weather is VFR, pilots shall maintain visual contact with tower for light gun clearance to land.*

References:

- FAR 91.129, FAR 91.130



General Flight Rules

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Minimum Altitudes

Pilots flying in Class C or D airspace must abide by the minimum altitudes below:

- Large or turbine-powered aircraft
 - Enter traffic pattern at least 1,500 feet AGL
 - Maintain 1,500 feet AGL within airport traffic area until starting descent to land

FAR 91.129 and 91.130

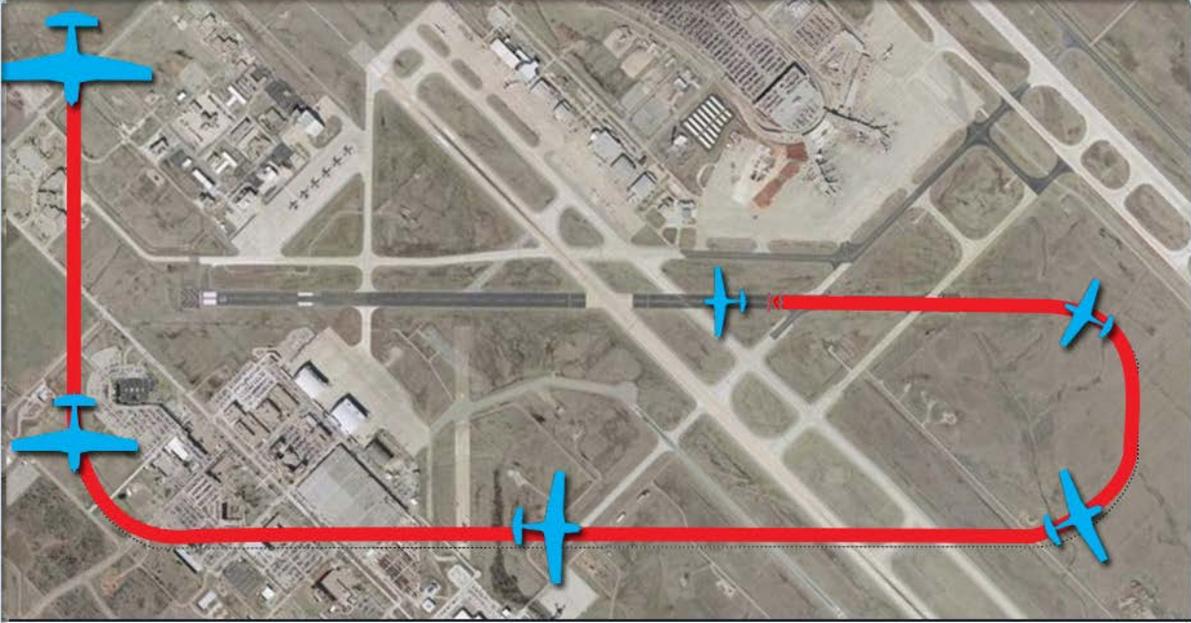


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General Flight Rules

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Traffic Pattern

LEARN MORE

Pilots in command landing at an airport within Class C or D airspace:

- Shall circle the airport to the left unless otherwise instructed by the tower
- If operating a helicopter, avoid the flow of fixed-winged aircraft

References: FAR 91.129 and 91.130



General Flight Rules

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Departure Procedures



When departing a Class C or D surface area, pilots shall comply with published procedures for that airport.

- If flying a large or turbine-powered aircraft, climb to 1,500 AGL as rapidly as practical.

FAR 91.129 and 130



General Flight Rules

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Noise Abatement



At airports having a designated runway usage for a noise abatement program, pilots shall:

- If operating a large or turbine-powered aircraft, use the ATC assigned runway for noise abatement.
- If in the interest of safety, pilots may request another runway.

FAR 91.129 and 91.130





General Flight Rules

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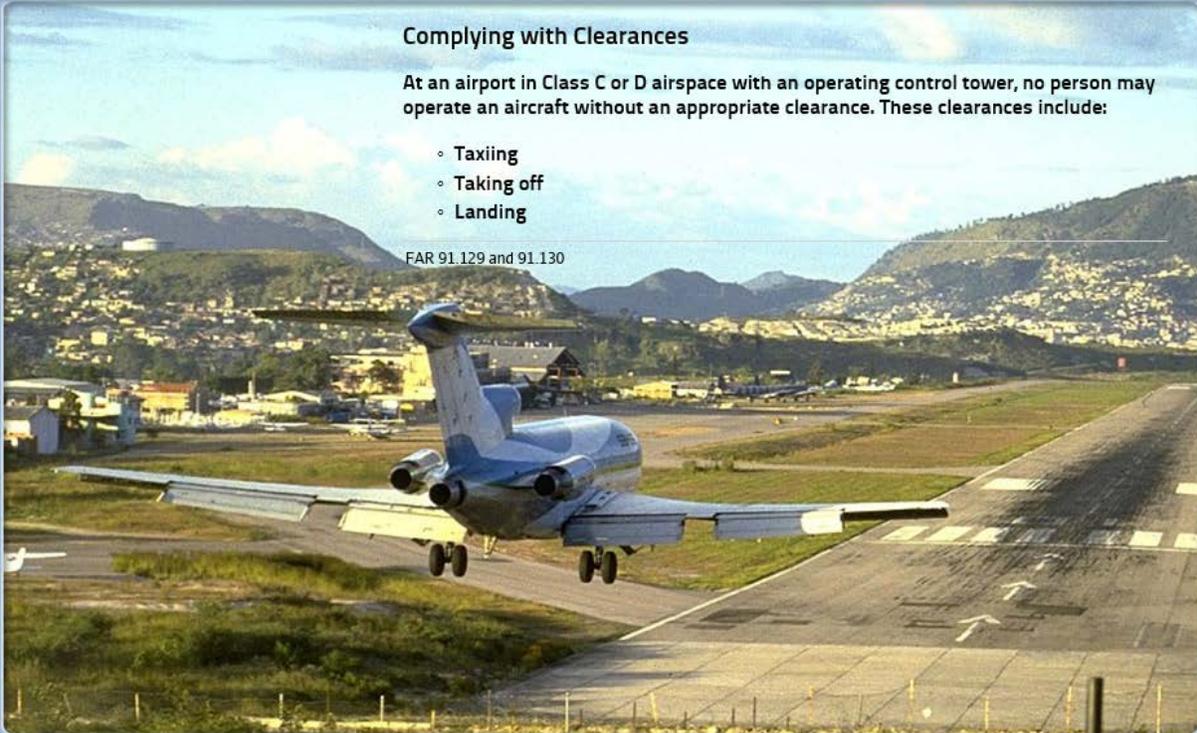
NEXT

Complying with Clearances

At an airport in Class C or D airspace with an operating control tower, no person may operate an aircraft without an appropriate clearance. These clearances include:

- Taxiing
- Taking off
- Landing

FAR 91.129 and 91.130





General Flight Rules

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Class B Operations

No person may operate an aircraft within Class B airspace without:

- ATC clearance
- Two-way radio communication
- Proper aircraft navigational equipment
- Transponder (4096) with Mode C

FAR 91.131





General Flight Rules

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Class A Operations

No person may operate an aircraft within Class A airspace without:

- IFR clearance
- An IFR rating
- Two-way radio communication
- IFR flight equipment
- Transponder (4096) with Mode C

FAR 91.135 and 91.215





ATC Certifications

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LEARN MORE

No person may act as an ATC Tower Operator at an ATC Tower in connection with civil aircraft unless they:

- Hold an ATC Tower Operator certificate
- Hold a facility rating for that tower or are working under direct supervision of a facility rated ATCS

Reference: FAR 65.31



ATC Certifications

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Eligibility Requirements

Eligibility requirements for an ATC tower certificate are to:

- Be at least 18 years old
- Be of good moral character
- Be able to read, write, and understand the English language and speak it without accent or impediment
- Hold a valid second class medical certificate

FAR 65.33; 7210.3, Chap. 2





ATC Certifications

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Knowledge Requirements

Applicants for an ATC Tower Operator's certificate must pass a written test on:

- Flight rules
- Airport traffic control procedures
- En Route traffic control procedures
- Communications operating procedures
- Flight assistance service
- Air navigation and aids to air navigation
- Aviation weather

FAR 65.35





ATC Certifications

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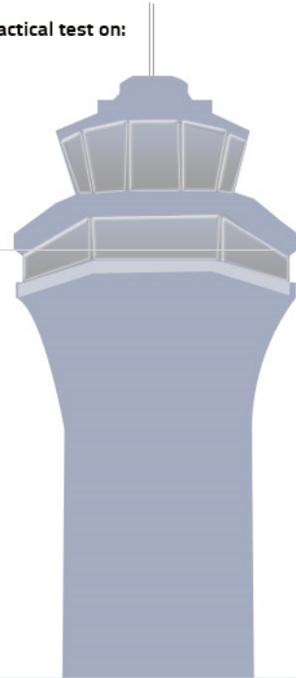
NEXT

Skill Requirements

You may not act as an ATC Tower Operator at any operating position unless you have passed a practical test on:

- Control tower equipment and its use
- Weather reporting procedures
- Notices to Airmen and use of the Aeronautical Information Manual (AIM)
- Use of operational forms
- Performance of non-control operational functions
- Performance of control duties applicable to the operating position on which you are testing

FAR 65.37





ATC Certifications

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General Operating Rules

Personnel holding an ATC Tower Operator's certificate shall:

- Keep it readily available when performing duties in the tower
- Present the certificate and/or medical certificate for inspection upon request of authorized officials
- Not perform duties during any physical deficiency that does not meet the medical requirements
- Not control air traffic with equipment the Administrator finds inadequate
- Upon reasonable request of the Administrator, cooperate fully in any test requested of them

FAR 65.49





ATC Certifications

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Performance of Duties

An ATC Tower Operator shall perform their duties in accordance with:

- Limitations on their ATC certificate
- Procedure and practices prescribed in ATC manuals

FAR 65.45





ATC Certifications

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Alcohol or Drugs

A conviction for a violation of any federal or state statute relating to alcohol or drugs is grounds for:

- Denial of an application for an ATC Control Tower Operator's certificate for a period of up to 1 year after the date of final conviction
- Suspension or revocation of an ATC Control Tower Operator's certificate

FAR 65.12; FAR, 65.23





ATC Certifications

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Duration of Certificate

An ATC Control Tower Operator certificate is effective until it is:

- Surrendered
- Suspended
- Revoked

FAR 65.15





ATC Certifications

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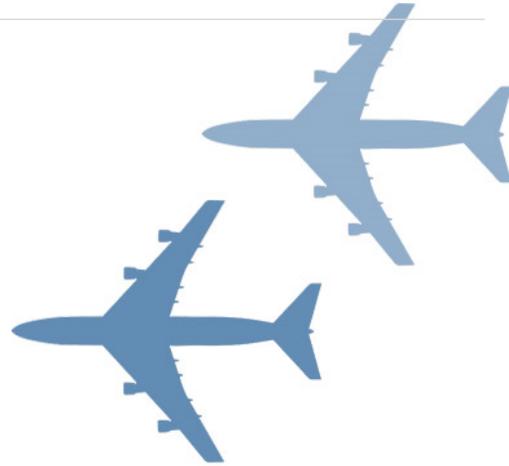
NEXT

Certificate Failure

A person who fails a written, oral, or practical test for an ATC Control Tower Operator's certificate may apply for retesting:

- 30 days after the date of the failure of the test
- Before the 30 days have expired provided the applicant presents a signed statement from a person holding an ATC Control Tower Operator's certificate certifying the applicant has been:
 - Given additional instruction on each of the subjects failed
 - Considered by the certificate holder as ready for retesting

FAR 65.19





Medical Requirements

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General

Employees engaged in the actual control of air traffic must meet and retain the medical requirements, as specified by FAR 67 and FAA Order 3930.3.

Required medical examinations shall be performed by flight surgeons or designated aviation medical examiners at FAA medical offices located at Air Route Traffic Control Centers (ARTCCs).

ATC Specialists shall be scheduled by facility managers for medical examinations as follows:

FAR 67.201, 67.405; 3930.3, p.15



Age	Terminal/Center	Flight Service
39 and below	2 year	3 years
40 and above	1 year	2 years



Conclusion

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Lesson Summary



This lesson covered:

- Introduction to Federal Aviation Regulations (FARs)
- Terms and Definitions
- General Operating Rules
- General Flight Rules
- ATC Certifications
- Medical Requirements

