BASICS FOR AIR TRAFFIC CONTROL – TITLE 14 CODE OF FEDERAL REGULATIONS (CFR) PART 91

MODULE OVERVIEW

Purpose: This module introduces selected provisions of flight rules pertaining to aircraft operations and pilot responsibilities. You will also become familiar with supplemental oxygen requirements.

MODULE OUTLINE

Lesson: Flight Plans

Purpose: The purpose of this lesson is to discuss why flight plans are filed and the rules pilots must follow when filing a flight plan.

Objectives:

- Identify the purpose of a flight plan
- Identify rules for filing a flight plan in accordance with Title 14 CFR Part 91

Topics:

- Title 14 CFR Part 91
  - Overview
  - Contents
  - Applicability
- Knowledge Check
- Flight Plans
- Filing Flight Plans
- Flight Plan Rules
  - Visual Flight Rules
  - Instrument Flight Rules
  - Defense Visual Flight Rules
- Knowledge Check
- Review/Summary

Lesson: VFR Flight Plan Requirements and Rules

Purpose: This lesson identifies the requirements for aircraft that operate under Visual Flight Rules (VFR) and discusses regulations and limitations for maneuvering in this environment.

Objectives:

- Identify VFR flight plan requirements
- Identify VFR flight plan rules

Topics:

- VFR Flight Plan Requirements
- Knowledge Check
- Flight Plan Cancellation/Closure
- Basic VFR Weather Minima

- Minimum Cloud Clearance
- Knowledge Check
- Special Visual Flight Rules (SVFR)
  - SVFR Conditions
  - SVFR Operations
  - SVFR Authorizations
- VFR Altitudes
- Knowledge Check
- VFR-on-Top
  - Rules
- Knowledge Check
- Review/Summary

Question and Answer Session – *Parking Lot*

Lesson: IFR Flight Rules

Purpose: The purpose of this lesson is to identify rules pilots must follow when operating on an IFR flight plan and procedures to follow if a radio failure occurs.

Objectives:

- Identify IFR flight rules
- Identify supplemental oxygen requirements per Title 14 CFR Part 91

Topics:

- IFR Flight Rules
- Standard Takeoff Minimums
- Minimum Altitudes for IFR Operations
  - Mountainous Area
  - Non-Mountainous Area
- IFR Cruising Altitude or Flight Level
  - Below 18,000 feet MSL
  - FL 180 up to and Including FL 410
  - Cruising Altitudes above FL 410
- Knowledge Check
- Reporting Weather Conditions and Flight Safety Information
- IFR Communications
- IFR Radio Communications Failure
- IFR Two-Way Radio Failure
  - Routes
  - Altitudes
  - Clearance Limit
- Knowledge Check
- Supplemental Oxygen Requirements
- Knowledge Check
- Review/Summary

Question and Answer Session – *Parking Lot*

Game – Flying by the Rules

Question and Answer Session – *Parking Lot*

End-of-Module (EOM) Test

INTRODUCTION

LESSONS	■ Flight Plans ■ VFR Flight Plan Requirements and Rules ■ IFR Flight Rules
TOTAL ESTIMATED RUN TIME	2 hrs. 47 mins.
MODULE CONTENT	■ Module Overview ■ Lesson: Flight Plans ■ Lesson: VFR Flight Plan Requirements and Rules ■ Q&A Session – Parking Lot ■ Lesson: IFR Flight Rules ■ Q&A Session – Parking Lot ■ Game – Flying by the Rules ■ Q&A Session – Parking Lot ■ End-of-Module Test

FACILITATOR INSTRUCTIONS	**DELIVERY METHOD**
■ Instruct students to select ***Title 14 Code of Federal Regulations (CFR) Part 91*** module link within Blackboard ■ Instruct students to read the module introduction and then wait quietly for additional instructions	Blackboard
	EST. RUN TIME
	2 mins.

Knowledge of the Code of Federal Regulations (CFR) that govern Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) provides the Air Traffic Control (ATC) specialist with the understanding of what a pilot is expected to do in given situations.

Pilots flying under VFR operate under a completely separate set of rules than pilots flying under IFR. As a controller, you need to know these differences because you will handle them another way. Also, if you don't know the differences in the rules, you could give an incorrect or inappropriate control instruction to a pilot.

This module introduces selected provisions of flight rules pertaining to aircraft operations and pilot responsibilities. You will also become familiar with supplemental oxygen requirements.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE *Flight Plans*** and ***VFR Flight Plan Requirements and Rules*** lessons in Blackboard ■ Instruct students to navigate to the ***Flight Plans*** lesson in Blackboard ■ Instruct students to work individually through the lesson content ■ Upon completion of ***Flight Plans*** instruct students to navigate to the ***VFR Flight Plan Requirements and Rules*** lesson in Blackboard ■ Instruct students to work individually through the lesson content ■ Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	Blackboard **EST. RUN TIME** 20 mins.

FLIGHT PLANS

Purpose: The purpose of this lesson is to discuss why flight plans are filed and the rules pilots must follow when filing a flight plan.

Objectives:

- Identify the purpose of a flight plan
- Identify rules for filing a flight plan in accordance with Title 14 CFR Part 91

References for this lesson are as follows:

- Title 14 Code of Federal Regulations, Part 91, General Operating and Flight Rules
- Aeronautical Information Manual (AIM)
- FAA Order JO 7110.65, Air Traffic Control
- FAA Order JO 7110.10 Flight Services

Title 14 CFR Part 91

Title 14 CFR Part 91 Overview

Title 14 Code of Federal Regulations Part 91, General Operating and Flight Rules, prescribes the operating and flight rules governing aircraft operations within the United States, including the airspace within 12 nautical miles (NM) of the U.S. coast.

Title 14 CFR Part 91 Contents

Title 14 CFR Part 91 regulations are intended to ensure the safety of the pilots, passengers, aircraft, persons and property on the ground.

Title 14 CFR Part 91 includes rules for:

- Aircraft right-of-way
- Compliance with Air Traffic Control (ATC) instructions
- Operation in various classes of airspace
- Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) weather minimums and cruising altitudes
- Equipment requirements for certain flight operations
- Portable electronic devices
- Aircraft maintenance and systems airworthiness
- Large and turbine-powered aircraft

Title 14 CFR Part 91 Applicability

All aircraft, including foreign carriers, operating within the United States and 12NM of the coast are subject to Title 14 CFR Part 91. In addition, if an aircraft is being used for hire or commercial purposes, other parts of the Title 14 CFRs also apply.

- Air taxi – Parts 91 and 135
- Scheduled airlines – Parts 91 and 121

All flight operations are subject to Part 91 rules and regulations regardless of flight plan status (IFR, VFR, Defense Visual Flight Rules [DVFR], and no flight plan).

Knowledge Check A

REVIEW what you have learned so far about flight plans. ANSWER the questions listed below.

1. Title 14 CFR Part 91 regulations cover the airspace within how many NM of the U.S. coast? *(Select the correct answer.)*
   - ❑ 13
   - ❑ 15
   - ❑ **12**

2. Which aircraft are subject to Title 14 CFR Part 91? *(Select the correct answer.)*
   - ❑ Foreign aircraft only
   - ❑ Air taxi and scheduled airlines only
   - ❑ **All aircraft, including foreign carriers operating within the United States**

Flight Plans

A flight plan is specified information relating to the intended flight of an aircraft that is filed orally or in writing with a Flight Service Station (FSS) or an ATC facility.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION **FLIGHT PLAN**	(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR ☐ STOPOVER	TIME STARTED	SPECIALIST INITIALS

1. TYPE ☐ VFR ☐ IFR ☐ DVFR	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED KTS	5. DEPARTURE POINT	6. DEPARTURE TIME PROPOSED (Z)	6. DEPARTURE TIME ACTUAL (Z)	7. CRUISING ALTITUDE

8. ROUTE OF FLIGHT

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE HOURS	10. EST. TIME ENROUTE MINUTES	11. REMARKS

12. FUEL ON BOARD HOURS	12. FUEL ON BOARD MINUTES	13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE	15. NUMBER ABOARD
			17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	

16. COLOR OF AIRCRAFT	CIVIL AIRCRAFT PILOTS, FAR 91 requires you to file an IFR flight plan to operate under Instrument Flight Rules in controlled airspaces. Failure to file could result in a civil penalty not to exceed $1000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.

There are three types of domestic flight plans:

- VFR
- IFR
- DVFR

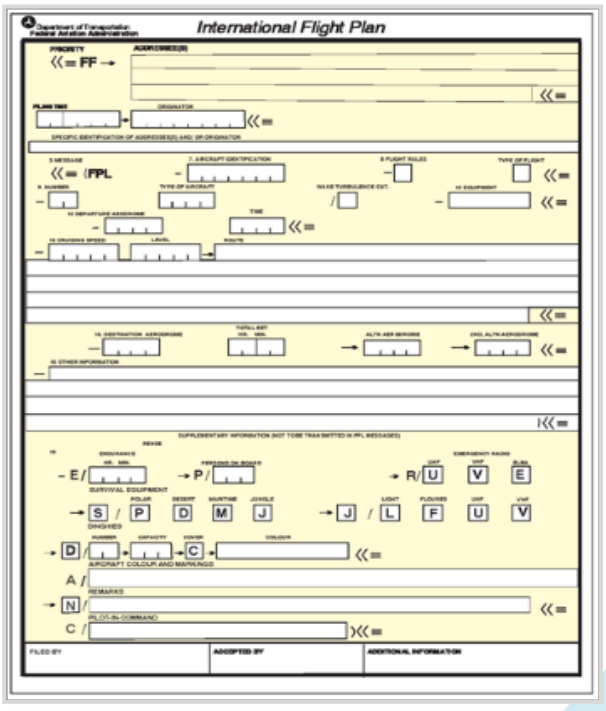
All Flight Plans provide basic information such as:

- Route of flight
- Pilot contact information
- When the pilot plans to depart and arrive
- Color and type of aircraft
- Number of people (personnel) on board

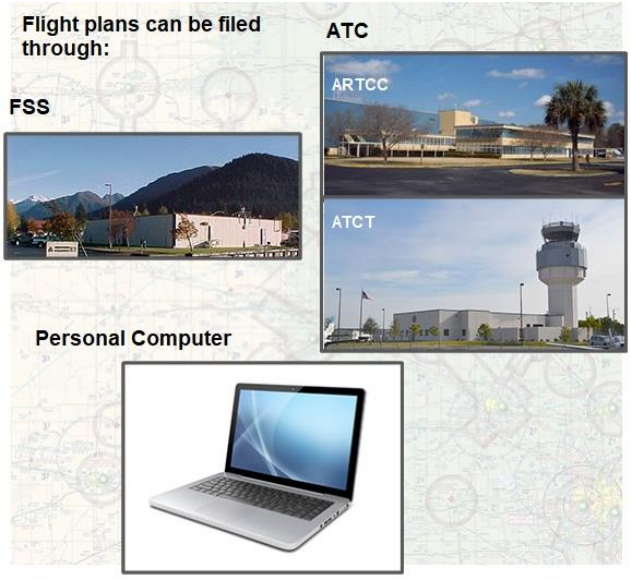
This information enables Search and Rescue Operations should the aircraft be overdue or not reach its destination.

An International Civil Aviation Organization (ICAO) flight plan must be filed for international and some oceanic operations.

Note: *Appendix A of JO 7110.10 offers greater detail on ICAO Flight Plans.*



Filing Flight Plans



A flight plan may be filed:

- Verbally or in writing with:
  - An FSS
  - An ATC facility
- Electronically via the internet using personal computer

Flight Plan Rules

Visual Flight Rules

Flights filing VFR flight plans are conducted in accordance with rules that govern the procedures for conducting flight under visual conditions.

Under VFR:

- Pilots are responsible for collision avoidance
- Flight may be conducted only when the weather is at or above VFR minimums
- Filing a VFR flight plan is not mandatory, except when operating in or penetrating an Air Defense Identification Zone (ADIZ) but is strongly encouraged
- The pilot is responsible for closing the flight plan

Note: *VFR weather minimums are considered to exist when the cloud ceiling is at or above 1,000 feet Above Ground Level (AGL) and the visibility is at or above 3 statute miles.*

Instrument Flight Rules

Flights filing IFR flight plans are conducted in accordance with IFR. IFR are rules that govern the procedures for instrument flight.

Requirements:

- ATC is responsible for separation between IFR aircraft and VFR aircraft in certain airspace classes
- An IFR flight plan is required to operate in IFR conditions
- Pilots are required to cancel their IFR flight plan after completing the flight
  - The flight plan is automatically cancelled when the aircraft lands at an airport with an operational control tower

Note: *Generally, IFR weather conditions exist when the cloud ceiling is below 1,000 feet AGL or the visibility is below 3 statute miles.*

Defense Visual Flight Rules

DVFR flight will be conducted in accordance with the special requirements of Title 14 CFR Part 99.

For DVFR flight plans:

- Filing is required:
  - For VFR flights into a coastal or domestic ADIZ
  - For security reasons
  - Prior to departure (within the Alaskan ADIZ, may file immediately after takeoff if not able to file prior to departure due to lack of communications)
- The pilot is responsible for closing a DVFR flight plan

Note: *A Special Flight Rules Area (SFRA) flight plan is required to operate within 30NM of Washington DC.*

Knowledge Check B

REVIEW what you have learned so far about flight plans. ANSWER the questions listed below.

1. What is one of the reasons flight plans are filed? *(Select the correct answer.)*
   - ❑ Enter restricted airspace
   - ❑ **Provide information for search and rescue**
   - ❑ Fly in the U.S.

2. Which of the following statements about a VFR flight plan is true? *(Select the correct answer.)*
   - ❑ It is mandatory for all VFR flights
   - ❑ **It is strongly encouraged**
   - ❑ It is required for entering all Class G airspace

3. When landing at an airport with an operational Airport Traffic Control Tower (ATCT), an IFR flight plan_____. *(Select the correct answer.)*
   - ❑ Must be cancelled by the pilot
   - ❑ **Is automatically cancelled**
   - ❑ Remains open until departure

4. Where can a pilot submit a flight plan? *(Select all correct answers that apply.)*
   - ❑ **Via the internet**
   - ❑ The FAA headquarters
   - ❑ **A Flight Service Station**
   - ❑ **An ATC facility**

Flight Plans Summary

Title 14 CFR Part 91 provides the operating and flight rules for aircraft within the United States and covers the rules regarding the different types of flight plans. All aircraft and flight operations are subject to these rules and regulations, regardless of the flight plan status or if the aircraft is being used for hire or commercial purposes. As an air traffic controller, you will need to know the differences in flight plans to allow you to respond appropriately and understand what is expected of each pilot.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ ***Note: VFR Flight Plan Requirements and Rules*** should have already been enabled in Blackboard, if not ensure it is enabled ■ Instruct students to navigate to the ***VFR Flight Plan Requirements and Rules*** lesson in Blackboard ■ Instruct students to work individually through the lesson content ■ Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	Blackboard **EST. RUN TIME** 20 mins.

VFR FLIGHT PLAN REQUIREMENTS AND RULES

Purpose: This lesson identifies the requirements for aircraft that operate under Visual Flight Rules and discusses regulations and limitations for maneuvering in this environment.

Objectives:

- Identify VFR flight plan requirements
- Identify VFR flight plan rules

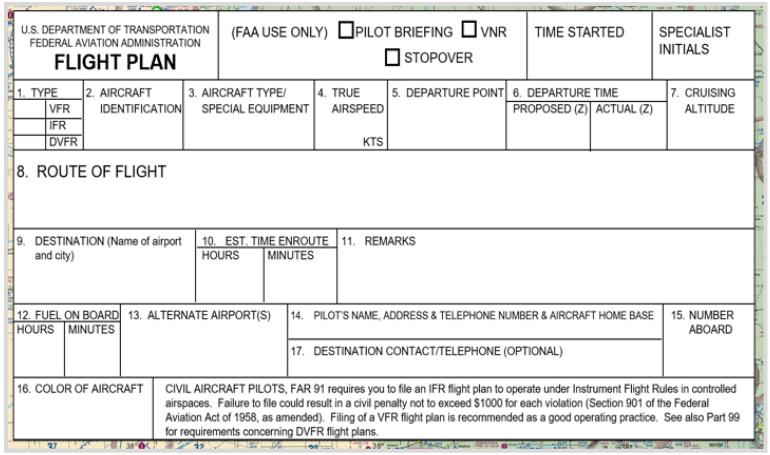
References for this lesson are as follows:

- Title 14 Code of Federal Regulations, Part 91, General Operating and Flight Rules
- Aeronautical Information Manual (AIM)
- FAA Order JO 7110.65, Air Traffic Control

VFR Flight Plan Requirements

A VFR flight plan is required to include the following information:

- Type of flight plan
- Aircraft identification
- Aircraft type
- True airspeed
- Departure point
- Departure time
- Cruising altitude
- Route of flight
- Destination
- Estimated time en route
- Fuel on board (in time)
- Pilot's name, contact information
- Number on board
- Aircraft color
- Any other information the pilot feels is necessary


U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FLIGHT PLAN

(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR ☐ STOPOVER | TIME STARTED | SPECIALIST INITIALS

1. TYPE: VFR / IFR / DVFR | 2. AIRCRAFT IDENTIFICATION | 3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT | 4. TRUE AIRSPEED KTS | 5. DEPARTURE POINT | 6. DEPARTURE TIME: PROPOSED (Z), ACTUAL (Z) | 7. CRUISING ALTITUDE

8. ROUTE OF FLIGHT

9. DESTINATION (Name of airport and city) | 10. EST. TIME ENROUTE: HOURS, MINUTES | 11. REMARKS

12. FUEL ON BOARD: HOURS, MINUTES | 13. ALTERNATE AIRPORT(S) | 14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE | 15. NUMBER ABOARD

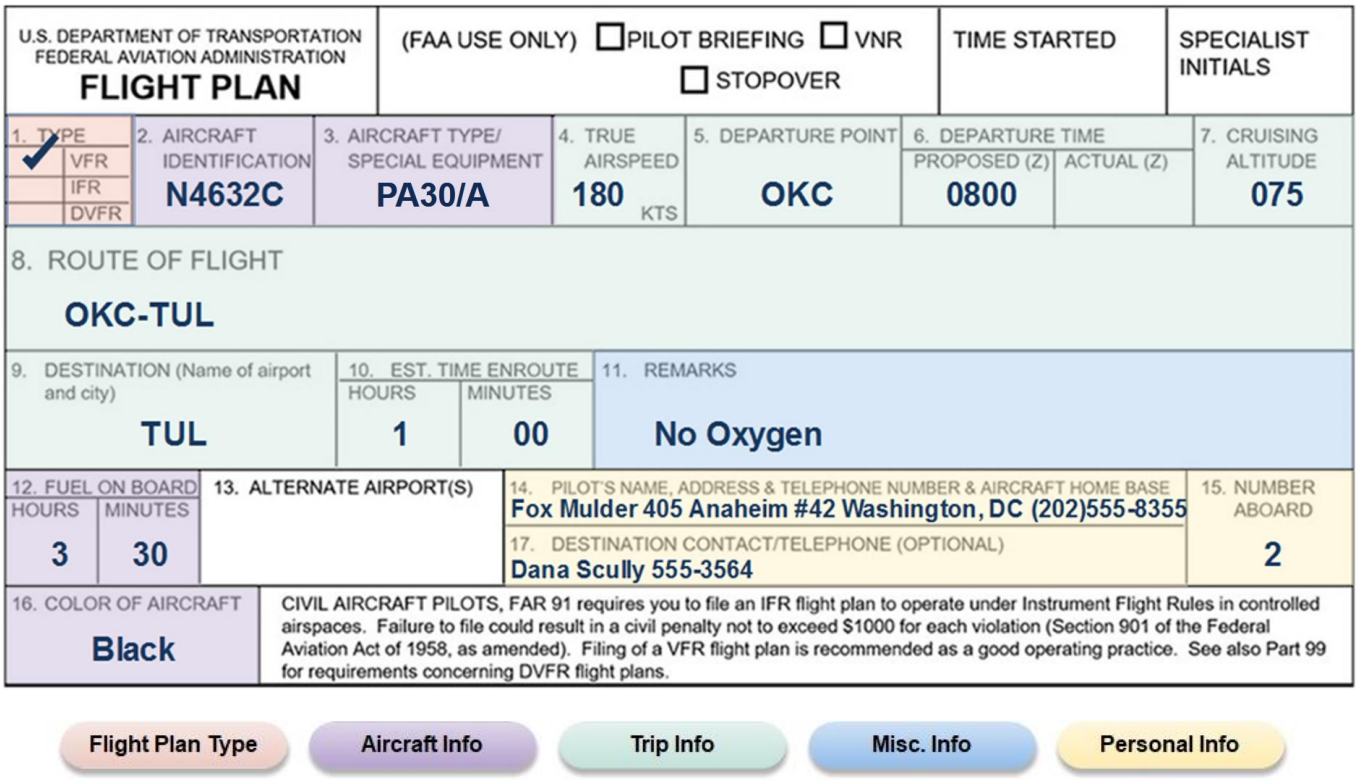
17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)

16. COLOR OF AIRCRAFT

CIVIL AIRCRAFT PILOTS, FAR 91 requires you to file an IFR flight plan to operate under Instrument Flight Rules in controlled airspaces. Failure to file could result in a civil penalty not to exceed $1000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.

Note: *A flight plan should be filed from the departure airport to the airport where a landing will be made, even if it is an interim fuel stop and not the final destination.*

Below is an example of how a pilot might complete a VFR flight plan.



Knowledge Check C

REVIEW what you have learned so far about VFR flight. ANSWER the question listed below.

1. A VFR flight plan is required to include which of the following information? *(Select all correct answers that apply.)*
   - ❑ **Aircraft type**
   - ❑ Names of passengers
   - ❑ **Cruising altitude**
   - ❑ **Route of flight**
   - ❑ **Destination**

Flight Plan Cancellation/Closure

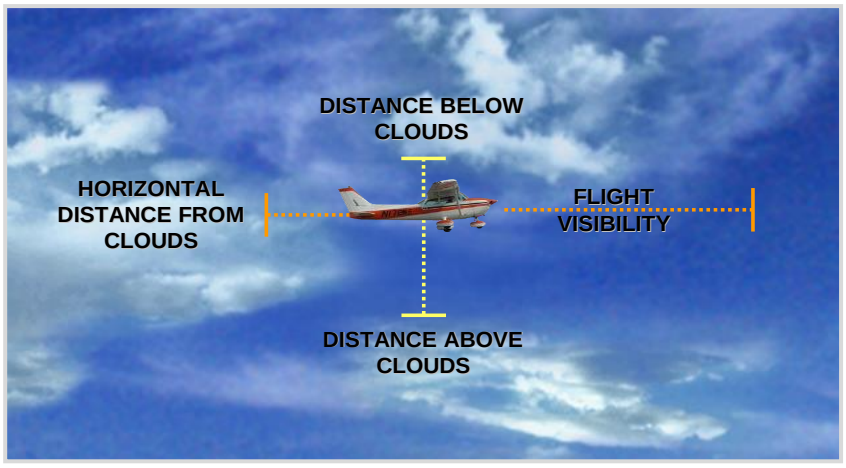
When a VFR flight plan has been activated, the pilot in command shall notify a Flight Service Station (FSS) or Air Traffic Control (ATC) facility when the aircraft arrives at the destination.

Basic VFR Weather Minima

No person may operate an aircraft under VFR flight rules in Class A airspace. No person may operate an aircraft under VFR flight rules in Classes B, C, D and E unless they meet basic VFR weather minimums.

Minimum Cloud Clearance

Except class A, each class of airspace has VFR cloud clearance requirements stated in distance above, below, and horizontally from the aircraft and forward flight visibility.



Knowledge Check D

REVIEW what you have learned so far about VFR flight. ANSWER the questions listed below.

1. A person may not operate an aircraft under VFR flight rules in which airspace? *(Select the correct answer.)*
   - ❑ **Class A airspace**
   - ❑ Class B airspace
   - ❑ Class C airspace

2. Which VFR requirements are stated in distance above, below, and horizontally from the aircraft and forward flight visibility? *(Select the correct answer.)*
   - ❑ Aircraft clearance
   - ❑ **Cloud clearance**
   - ❑ Airspace clearance

Special Visual Flight Rules (SVFR)

Special Visual Flight Rules (SVFR) allows aircraft to land, depart, or conduct flight operations within a Class B, C, D and E surface area (below 10,000 feet MSL) when the weather conditions are below Basic VFR weather minima.

SVFR Conditions:

- SVFR conditions are meteorological conditions that are less than those required for basic VFR flight in Class B, C, D and E surface areas and in which some aircraft are permitted flight under VFR

SVFR Operations:

- Must be requested by the pilot
- Does not require written flight plan, but an ATC clearance must be received prior to the aircraft operating within a Class B, C, D or E surface area
- May be approved only if arriving and departing IFR aircraft are not delayed

A SVFR clearance is automatically cancelled when the:

- Aircraft lands
- Aircraft leaves the surface area

Visibility/cloud clearance requirements for SVFR operations:

- At least 1 statute mile **flight** visibility for operations **within** Class B, C, D and E surface areas (i.e. aircraft transiting through the surface area), except for helicopters
- At least 1 statute mile **ground** visibility if **taking off** or **landing**, except for helicopters
- Helicopters have no minimum visibility requirements
- All SVFR flights must remain clear of clouds
  - A SVFR clearance will not contain a specific altitude as the pilot must remain clear of clouds

SVFR operations by fixed-wing aircraft are prohibited between sunset and sunrise unless:

- Pilot is instrument rated
- Aircraft is equipped for IFR flight

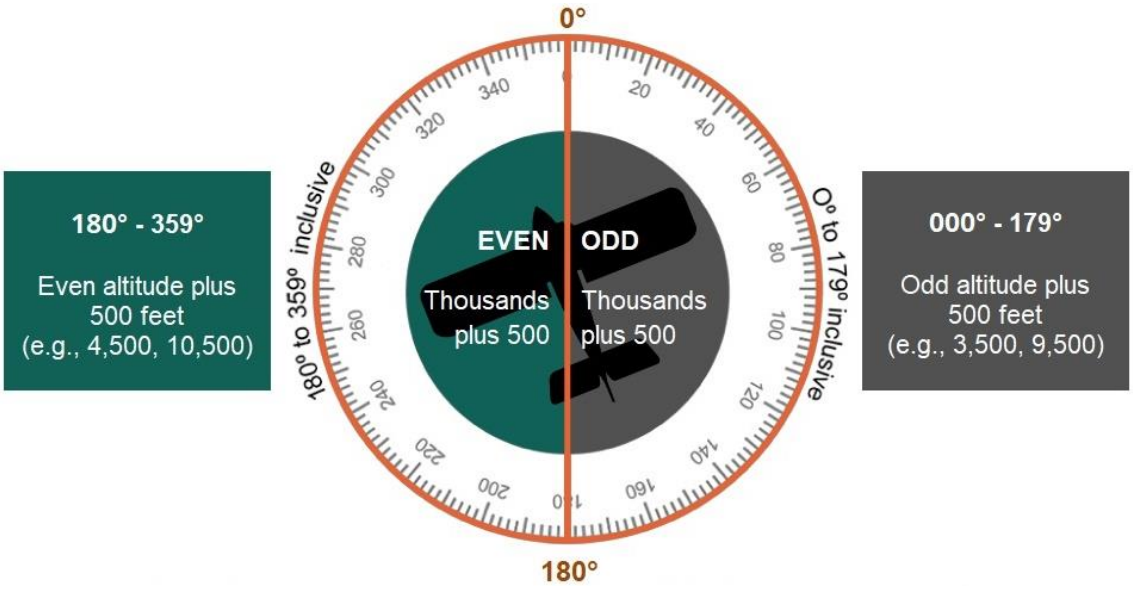
SVFR Operations:

SVFR operations are:

Not Authorized	Authorized
■ Within clouds ■ At night for fixed-wing aircraft (unless pilot is rated and aircraft equipped for IFR)	■ In Class B, C, D and E surface areas below 10,000' MSL ■ With ATC clearance ■ With at least 1 SM of visibility (except helicopters)

VFR Altitudes

VFR aircraft in level cruising flight above 3,000 feet above the surface up to, but not including, 18,000 feet MSL shall maintain the following altitudes on magnetic courses:



Note: *In air traffic, controllers never assign heading 0 or 000. Use heading 360.*

Knowledge Check E

REVIEW what you have learned so far about VFR flight. ANSWER the questions listed below.

1. If the surface visibility is **NOT** reported during SVFR operations, flight visibility must be at least how far? *(Select the correct answer.)*
   - ❑ 2 SM
   - ❑ 1 NM
   - ❑ **1 SM**

2. What would be an appropriate VFR altitude on a magnetic course of 250 degrees and more than 3,000 feet above the surface? *(Select the correct answer.)*
   - ❑ 7,000
   - ❑ 7,500
   - ❑ **8,500**

3. What is the correct altitude for a VFR aircraft on a magnetic course of 090 degrees? *(Select the correct answer.)*
   - ❑ Even plus 500 feet
   - ❑ **Odd plus 500 feet**
   - ❑ Odd plus 1000 feet
   - ❑ Even plus 1000 feet

4. What is the correct altitude for a VFR aircraft on a magnetic course of 180 degrees? *(Select the correct answer.)*
   - ❑ **Even plus 500 feet**
   - ❑ Odd plus 500 feet
   - ❑ Odd plus 1000 feet
   - ❑ Even plus 1000 feet

5. What is the correct altitude for a VFR aircraft on a magnetic course of 360 degrees? *(Select the correct answer.)*
   - ❑ Even plus 500 feet
   - ❑ **Odd plus 500 feet**
   - ❑ Odd plus 1000 feet
   - ❑ Even plus 1000 feet

VFR-on-Top

Pilots may request an IFR clearance to climb through the clouds to VFR conditions "on top" of the cloud layer and, once cleared to "maintain VFR-on-top," may then choose and change altitudes at will. Pilots should advise ATC prior to any altitude change to ensure the exchange of accurate traffic information.

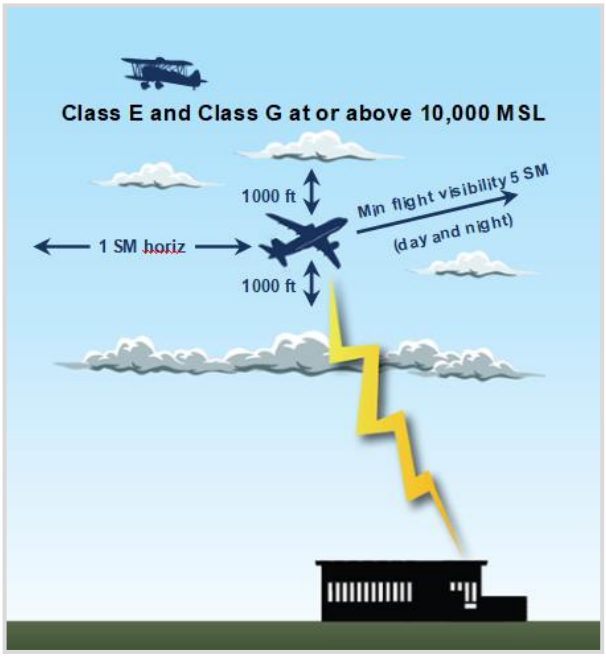
VFR-on-Top Rules

VFR-on-top is an IFR clearance to operate in VFR conditions at any appropriate VFR altitude (below 18,000 MSL).

- Pilot must request VFR-on-top
- Pilot must remain on the route issued by ATC, but the assigned altitude is "VFR-on-top"
- Altitude may be subject to ATC restriction
- Minimum IFR altitudes must be observed

An aircraft operating under VFR-on-top may not fly through clouds.

- Pilot must comply with VFR visibility and cloud clearance criteria
- Pilot is responsible for separation from other aircraft, except when:
  - Class B, Class C, and Terminal Radar Service Area (TRSA) require the controller to apply separation minimums
  - Traffic advisories and safety alerts continue to be provided by ATC



Pilot must comply with IFR rules applicable to the flight (e.g., adherence to ATC clearances).

A VFR-on-top clearance allows pilots the flexibility to choose their own altitude and still have the assurance of obtaining a descent clearance through the clouds when approaching their destination.

Knowledge Check F

REVIEW what you have learned so far about VFR flight. ANSWER the question listed below.

1. VFR-on-top is which type of clearance? *(Select the correct answer.)*
   - ❑ **IFR**
   - ❑ VFR
   - ❑ SVFR

VFR Flight Plan Requirements and Rules Summary

VFR flight is based on the principle of “see and avoid.” VFR weather minimums are established for aircraft flying at lower altitudes that are moving more slowly. This lesson identified the requirements for aircraft that operate under Visual Flight Rules and discussed regulations and limitations for maneuvering in this environment. Your knowledge and expertise on Visual Flight Rules is crucial to pilot and passenger safety.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ Review content presented in the ***Flight Plans*** and ***VFR Flight Plan Requirements and Rules*** lessons ■ Navigate to the ***Parking Lot*** link within Blackboard and review any student questions ■ Address ***Parking Lot*** questions and facilitate a brief discussion of the lesson content	Facilitated Discussion **EST. RUN TIME** 15 mins.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE *IFR Flight Rules*** lesson in Blackboard ■ Instruct students to navigate to the ***IFR Flight Rules*** lesson in Blackboard ■ Instruct students to work individually through the lesson content ■ Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	Blackboard **EST. RUN TIME** 25 mins.

IFR FLIGHT RULES

Purpose: The purpose of this lesson is to identify rules pilots must follow when operating on an IFR flight plan and procedures to follow if a radio failure occurs.

Objectives:

- Identify IFR flight rules
- Identify supplemental oxygen requirements per Title 14 CFR Part 91

References for this lesson are as follows:

- Title 14 Code of Federal Regulations, Part 91
- FAA Order JO 7110.65, Air Traffic Control

IFR Flight Rules

No person may operate an aircraft in controlled airspace under IFR unless that person has filed an IFR flight plan and received an appropriate air traffic control (ATC) clearance.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FLIGHT PLAN

(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR ☐ STOPOVER | TIME STARTED | SPECIALIST INITIALS

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME PROPOSED (Z)	6. DEPARTURE TIME ACTUAL (Z)	7. CRUISING ALTITUDE
☑ IFR	N6017Q	P28A/A	110 KTS	OKC	2140		070

8. ROUTE OF FLIGHT: OKC V4 TUL

9. DESTINATION (Name of airport and city)	10. EST TIME ENROUTE HOURS	10. EST TIME ENROUTE MINUTES	11. REMARKS
TUL	1	18	

12. FUEL ON BOARD HOURS	12. FUEL ON BOARD MINUTES	13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE	15. NUMBER ABOARD
3	30	MLC	Jones, 11 W Main, OKC 405-681-5555, OKC 17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	2

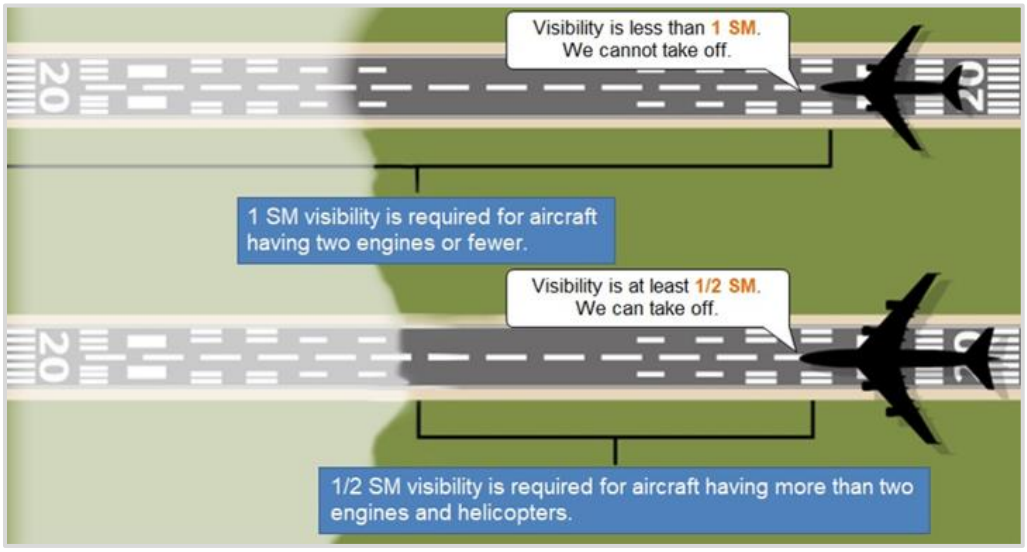
16. COLOR OF AIRCRAFT: WHITE

CIVIL AIRCRAFT PILOTS, FAR 91 requires you to file an IFR flight plan to operate under instrument flight rules in controlled airspaces. Failure to file could result in a civil penalty not to exceed $1000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.

FAA FORM 7233-1 (8-82) CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

Standard Takeoff Minimums

Takeoff minimums at civil airports apply to revenue flights only, such as an air taxi or an air carrier. Standard takeoff minimums are displayed in the graphic in statute miles (SM).



Minimum Altitudes for IFR Operations

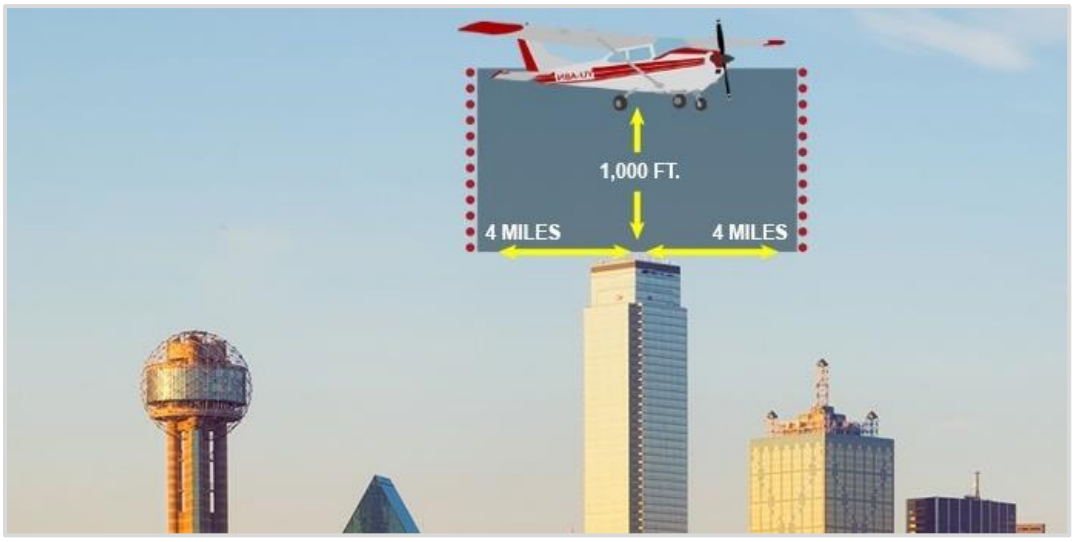
No person may operate an aircraft on an IFR flight plan below applicable minimum altitudes unless he/she is taking off or landing. Minimum IFR altitudes are applied in mountainous areas and non-mountainous areas.

Mountainous Areas

Operations in areas where no applicable minimum altitude is prescribed: Altitude 2,000 feet above the highest obstacle within horizontal distance of 4 nautical miles (NM).

Non-Mountainous Areas

Operations in areas where no applicable minimum altitude is prescribed: Altitude 1,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles (NM).

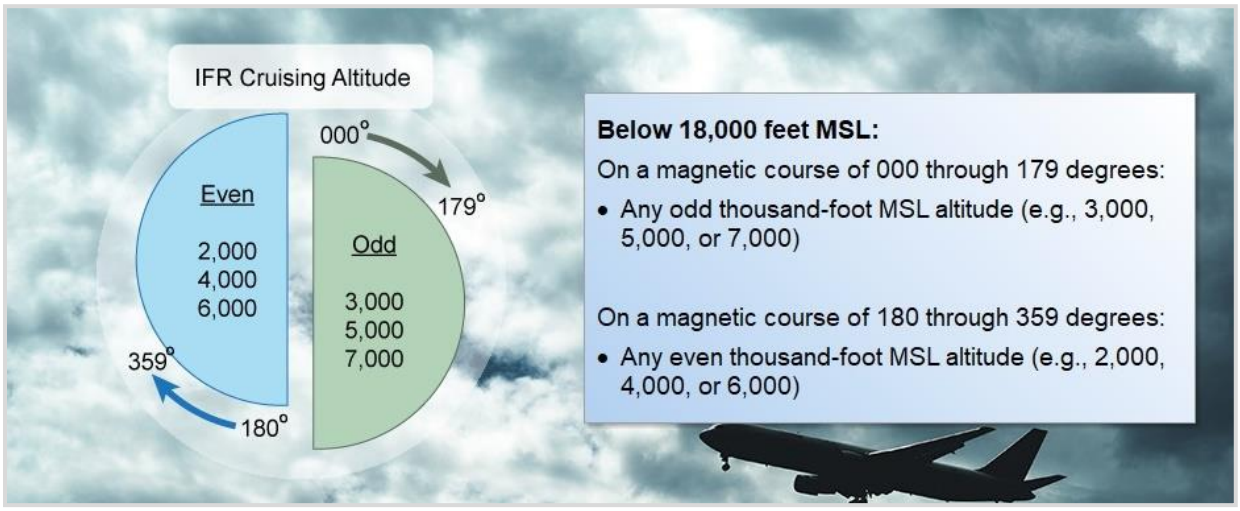


IFR Cruising Altitude or Flight Level

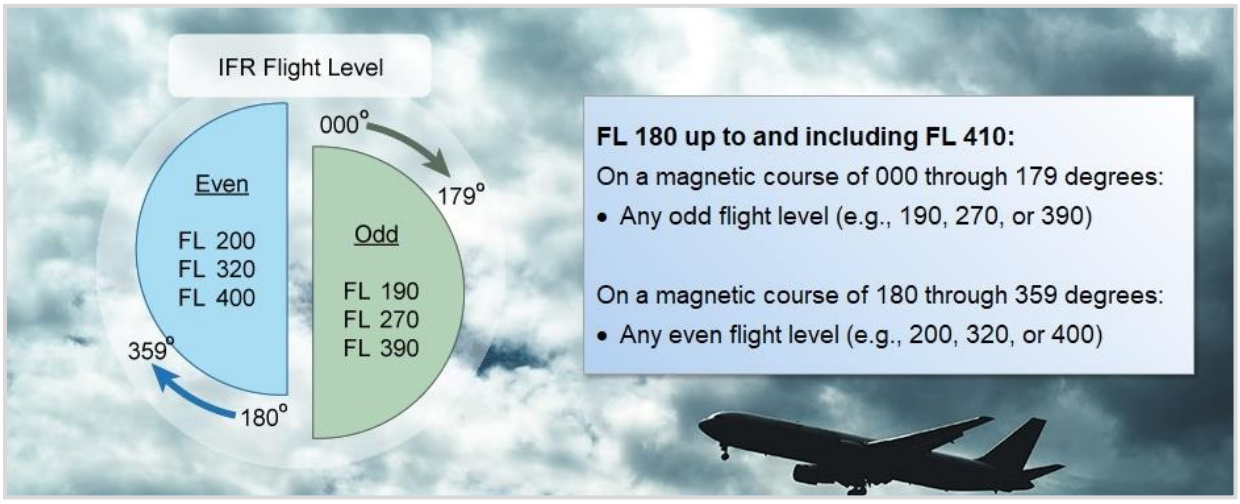
Each person operating an IFR aircraft in controlled airspace shall maintain an altitude or flight level assigned by ATC.

IFR aircraft are assigned cardinal altitudes below 18,000 Mean Sea Level (MSL) (in thousands of feet above sea level), or in flight levels at or above FL 180.

Below 18,000 feet MSL



FL 180 up to and including FL 410



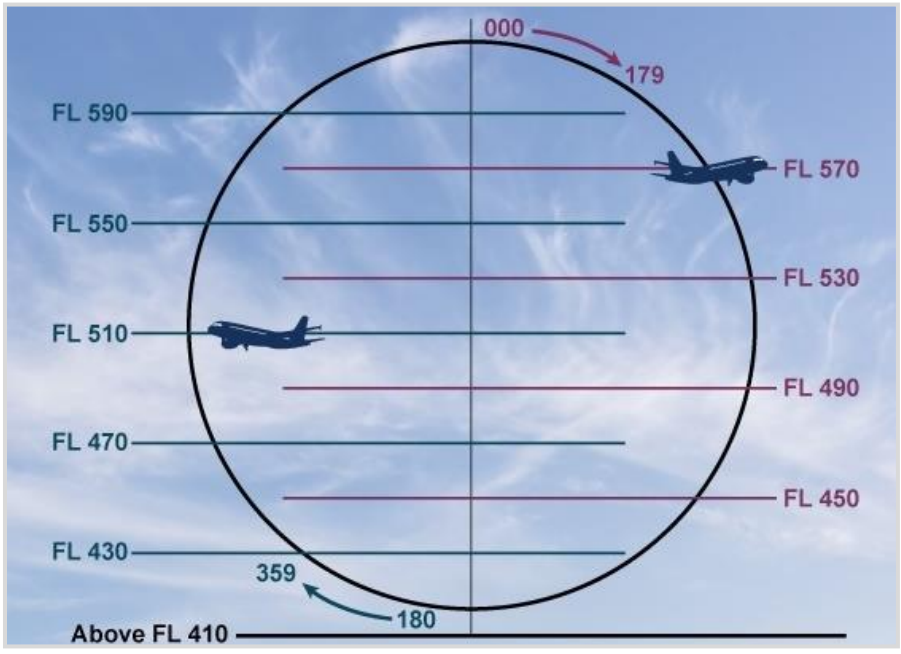
Cruising Altitudes above FL 410

On a magnetic course of 000 through 179 degrees:

- Any flight level, at 4,000-foot intervals, beginning at FL 450 (e.g., 490, 530, or 570)

On a magnetic course of 180 through 359 degrees:

- Any flight level, at 4,000-foot intervals, beginning at FL 430 (e.g., 470, 510, or 550)



Knowledge Check G

REVIEW what you have learned so far about IFR flight. ANSWER the questions listed below.

1. What is required before a person may operate aircraft in controlled airspace under IFR? *(Select the correct answer.)*
   - ❑ File an IFR flight plan
   - ❑ **File an IFR flight plan and receive an ATC clearance**
   - ❑ File an IFR flight plan and request a clearance

2. What is the minimum visibility for an IFR departure when the takeoff minimum at a civil airport is **NOT** prescribed for a twin-engine aircraft? *(Select the correct answer.)*
   - ❑ 1 ½ mile
   - ❑ ½ mile
   - ❑ **1 mile**

Reporting Weather Conditions and Flight Safety Information

Controllers are responsible for becoming familiar with and staying aware of current weather conditions needed to perform ATC duties.

Controllers must provide and solicit weather information in accordance with procedures and requirements outlined in the 7110.65.

IFR Communications

In controlled airspace, each IFR aircraft shall:

- Continuously monitor appropriate frequency
- Report passing each designated reporting point when in a non-radar environment
- When under radar control, pilots do not report any fix unless requested by ATC
- Report any unforecasted weather conditions encountered
- Any information related to safety of flight

Note: *A pilot weather report (PIREP) is a report of meteorological phenomena encountered by aircraft in flight.*

IFR Radio Communications Failure

Pilots of aircraft experiencing two-way radio communications failure (“NORDO”) while operating under IFR are expected to follow specific procedures.

If the radio failure occurs in VFR weather conditions, or if VFR conditions are encountered after the failure, the pilot shall remain in VFR conditions and land as soon as practicable.

IFR Two-Way Radio Failure

If the radio failure occurs in IFR weather conditions, the pilot shall follow procedures pertaining to three clearance items: routes, altitude, and time the aircraft will leave clearance limit.

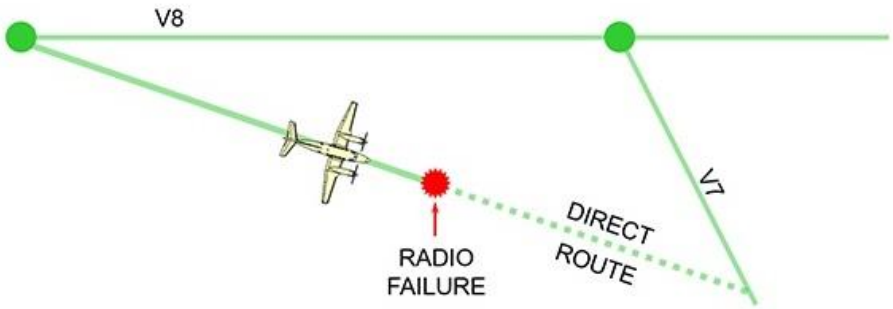
IFR Two-Way Radio Failure – Routes

The pilot shall comply with one of the following four applicable route requirements:

1. If ATC has assigned a route, the pilot shall proceed by the route assigned in the last ATC clearance received.

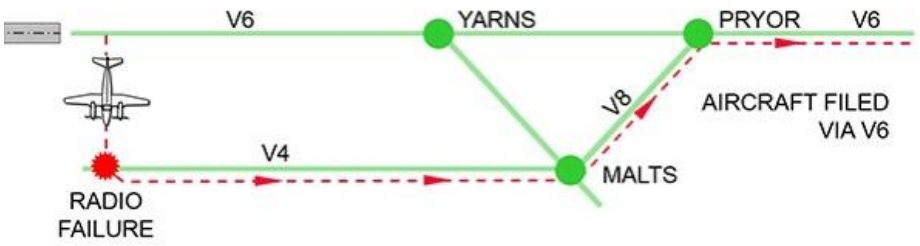
CLEARANCE: “NOVEMBER ONE TWO THREE FOUR FIVE CLEARED TO MEMPHIS AIRPORT VIA VICTOR SIX.”

2. If the aircraft is being radar-vectored, the pilot shall proceed by the direct route from the point of radio failure to the fix, route, or airway specified in the vector clearance.



CLEARANCE: “TURN RIGHT HEADING ONE TWO ZERO VECTOR TO VICTOR SEVEN.”

3. If ATC has not yet assigned a route, but has told the pilot to expect a certain route, the pilot shall proceed by the route that ATC advised may be expected in a further clearance.



CLEARANCE: "NOVEMBER FOUR FIVE ZULU CLEARED TO MALTS INTERSECTION VIA VICTOR FOUR, EXPECT FURTHER CLEARANCE VIA VICTOR EIGHT PRYOR VICTOR SIX MEMPHIS."

4. If no route has been assigned and ATC has not told the pilot to expect a certain route, the pilot shall proceed via the route filed in the flight plan.

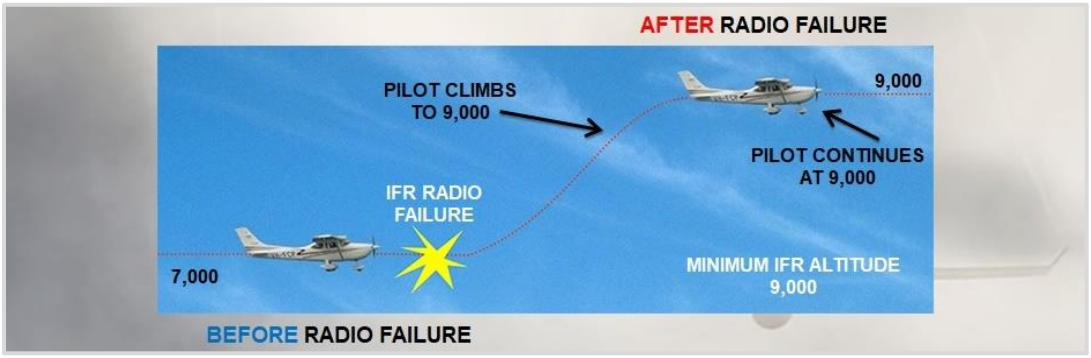
IFR Two-Way Radio Failure – Altitude

The pilot will fly at the highest of the following three altitudes or flight levels for the route segment being flown:

1. The altitude or flight level assigned in the last ATC clearance received.

2. The altitude or flight level ATC advised may be expected in a further clearance.

3. The minimum altitude or flight level for IFR operations along the aircraft's route segment being flown.



IFR Two-Way Radio Failure – Clearance Limit

A **clearance limit** is the fix, point, or location to which an aircraft is cleared when issued an air traffic clearance.

When the clearance limit is a fix from which an approach begins,	When the clearance limit is **NOT** a fix from which an approach begins,
■ If an expect further clearance (EFC) has been received, the pilot will commence descent or descent and approach as close as possible to the EFC ■ If an EFC has **NOT** been received, the pilot will commence descent or descent and approach as close as possible to the estimated time of arrival (ETA) as calculated from the filed or amended (with ATC) estimated time en route	■ If an expect further clearance (EFC) has been received, the pilot will leave the clearance limit at the expect-further-clearance time ■ If an EFC has **NOT** been received, the pilot will leave the clearance limit upon arrival over the clearance limit, and proceed to a fix from which an approach begins and commence descent or descent and approach as close as possible to the estimated time of arrival (ETA) as calculated from the filed or amended (with ATC) estimated time en route
Note: *The intent of the Title 14 CFR is to arrive as close as possible to the ETA at the destination.*	

Knowledge Check H

REVIEW what you have learned so far about IFR flight. ANSWER each question listed below.

1. An aircraft is cleared from Altus to the Enid airport by a routing other than the one filed. How will the pilot proceed if radio failure occurs? *(Select the correct answer.)*
   - ❑ **By the route assigned in the last ATC clearance received**
   - ❑ Via the route filed in a further clearance
   - ❑ By the direct route from the point of radio failure to the airway specified in the vector clearance

2. If a route has **NOT** been assigned, or if ATC has **NOT** advised that a route may be expected, what action will the pilot take in the event of radio failure? *(Select the correct answer.)*
   - ❑ Proceed by a direct route from the point of radio failure to the fix
   - ❑ **Proceed by the route filed in the flight plan**
   - ❑ Proceed by the route ATC advised may be expected in a further clearance

3. What is the fix, point, or location to which an aircraft is cleared when issued an air traffic clearance? *(Select the correct answer.)*
   - ❑ Minimum vector altitude
   - ❑ Direct route
   - ❑ **Clearance limit**

4. When there is a two-way radio failure, what is a pilot expected to do when the aircraft arrives at a clearance limit from which an approach begins? *(Select all correct answers that apply.)*
   - ❑ **Commence descent as close as possible to the EFC, if one has been received**
   - ❑ **Without an EFC, commence descent and approach as close as possible to the ETA**
   - ❑ **Without an EFC, commence descent as near as possible to the ETA**
   - ❑ **Commence approach as close as possible to the EFC, if one has been received**

5. Match the description of the IFR flight rule with the compliance for completing the flight rule. Enter your answers in the spaces below.

Description	Compliance to Complete
e No person may operate an aircraft in controlled airspace under IFR	a. 4NM
b Takeoff minimums from aircraft having more than two engines departing an airport without prescribed takeoff minimums	b. ½ SM visibility
a Horizontal distance required in non-mountainous areas where no applicable minimum altitude is prescribed	c. Passing designated reporting point
d Minimum altitude required in mountainous areas where no applicable minimum altitude is prescribed	d. 2,000 feet above highest obstacle
c This report is not required by aircraft under radar control	e. Without a filed IFR flight plan and receipt of ATC clearance

Supplemental Oxygen Requirements

No person may operate an unpressurized civil aircraft of U.S. registry at altitudes:

- Above 12,500 feet MSL up to and including 14,000 feet MSL unless the required minimum flight crew is provided with and uses supplemental oxygen on flights longer than 30 minutes in duration

- Above 14,000 feet MSL unless the required minimum flight crew is provided with and uses supplemental oxygen during the entire flight time at those altitudes

- Above 15,000 feet MSL unless each occupant of the aircraft is provided with supplemental oxygen

Knowledge Check I

REVIEW what you have learned so far about IFR flight. ANSWER each question listed below.

1. What is the supplemental oxygen requirement for 15,250 feet MSL for a U.S.-registered aircraft? *(Select the correct answer.)*
   - ❑ Flight crew
   - ❑ **Everyone aboard**
   - ❑ Pilot and flight crew

2. At what duration is supplemental oxygen required on a U.S.-registered aircraft flying above 12,500 feet MSL, up to and including 14,000 feet MSL? *(Select the correct answer.)*
   - ❑ 1 hour
   - ❑ 45 minutes
   - ❑ **More than 30 minutes**

IFR Flight Rules Summary

Rules and regulations are established by the FAA to govern flight under conditions that are not safe. This lesson identified the IFR flight rules pertaining to aircraft operations and supplemental oxygen requirements per Title 14 CFR Part 91. IFR flight operations depend upon these regulations.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ Review content presented in ***IFR Flight Rules*** lesson ■ Navigate to the ***Parking Lot*** link within Blackboard and review any student questions ■ Address ***Parking Lot*** questions and facilitate a brief discussion of the lesson content	Facilitated Discussion **EST. RUN TIME** 15 mins.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE *Flying by the Rules*** in ***Exercises and Activities*** folder in Blackboard ■ Instruct students to navigate to the ***Exercises and Activities*** folder in Blackboard ■ Instruct students to locate ***Flying by the Rules*** game ■ The game will be performed individually ■ Instruct students to answer each question ■ At the end, the game will evaluate the students' performance ■ Suggest allowing opportunities to repeat the game during periods of down time	Game **EST. RUN TIME** 15 mins.

GAME: FLYING BY THE RULES (ANSWER KEY)

Note: *The questions in the key and their distractors may appear in a different order than displayed here due to game question randomization.*

Question	Answer
1. Title 14 CFR Part 91 includes, but is not limited to, rules for:	**All of the above** **Compliance with ATC instructions;** **Operation in various classes of airspace;** **VFR and IFR weather minimums and cruising altitudes;** **Portable electronic devices**
2. Which of the following is not a type of a flight plan?	**SVFR** VFR DVFR IFR
3. What is one of the reasons for filing a VFR flight plan?	**Conduct search and rescue operations** Conduct flight in low visibility conditions Ensure ATC is responsible for separation
4. Which of the following are methods for filing a flight plan?	**Verbally or in writing;** **With an FSS or ATC facility;** **Electronically** Only in writing Only verbally
5. What is the minimum altitude prescribed for aircraft flying over mountainous areas?	**2,000 feet above highest obstacle within a horizontal distance of 4NM** 1,000 feet above highest obstacle within a horizontal distance of 4NM 2,000 feet above highest obstacle within a horizontal distance of 6NM 1,000 feet above highest obstacle within a horizontal distance of 6NM
6. No person may operate an aircraft under VFR flight rules in_____.	**Class A airspace, without exception** Class B airspace, without exception Class C airspace, without exception

Question	Answer
7. Which of the following is true of SVFR operations?	**Must be requested by the pilot;** **Designed to help pilots land and depart in marginal weather** Must be filed as a written flight plan Clearance must be cancelled by the pilot
8. Under what circumstances would SVFR operations by fixed-wing aircraft be permitted between sunset and sunrise?	**Pilot is IFR rated;** **Aircraft is equipped for instrument flight** Pilot has requested VFR-on-top Pilot is SVFR rated
9. Which of the following statements is true of VFR-on-top flight rules?	**Pilot must comply with VFR visibility and cloud clearance criteria** Altitude is no longer subject to ATC restriction An aircraft VFR-on-top may fly through clouds
10. In controlled airspace, which of the following must each IFR aircraft report?	**Passing each designated reporting point in a nonradar environment;** **Any un-forecast weather conditions encountered; Information related to safety of flight** Each fix, NAVAID, and arc
11. If radio failure occurs in IFR weather conditions, which clearance item procedures shall the pilot follow?	**Route;** **Altitude;** **Clearance limit** Arc

SUMMARY

This module introduced selected provisions of flight rules pertaining to aircraft operations and pilot responsibilities. Additionally, you should now be familiar with supplemental oxygen requirements.

In accordance with Title 14 Code of Federal Regulations, Part 91, General Operating and Flight Rules; FAA Order JO 7110.65, Air Traffic Control; and the Aeronautical Information Manual (AIM), you should now be able to:

- Identify the purpose of a flight plan
- Identify rules for filing a flight plan in accordance with Title 14 CFR Part 91
- Identify VFR flight plan requirements
- Identify VFR flight plan rules
- Identify IFR flight rules
- Identify supplemental oxygen requirements per Title 14 CFR Part 91

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ Navigate to the ***Parking Lot*** link within Blackboard and review any student questions ■ Address ***Parking Lot*** questions and facilitate a brief discussion of the lesson content ■ Instruct students to prepare for the ***End-of-Module test*** by putting away their Student Guides	Facilitated Discussion **EST. RUN TIME** 15 mins.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE *Title 14 CFR Part 91 End-of-Module Test*** link in Blackboard ■ Instruct students: ○ Clear desks ○ Do not write anything during or after the test ○ Navigate to the ***Title 14 CFR Part 91 End-of-Module Test*** link in Blackboard ○ Once they are satisfied with their responses, click “Save and Submit;” do not click “OK” to review results until directed to do so ○ Choose “Cancel” if they receive a warning message that the test has unanswered questions; choosing OK will submit the test and not allow them to go back and answer the questions ○ Leave the room after submitting the test and return at the “Be Back” time ■ ***Note:*** *This test is scored but not graded* ■ During test, monitor students to ensure a secure testing environment ■ Identify the most commonly missed questions by reviewing student statistics in Blackboard ■ Instruct students to click “View Results” when ready to review commonly missed questions ■ Review commonly missed questions with students	Blackboard Assessment **EST. RUN TIME** 20 mins.

END-OF-MODULE TEST (ANSWER KEY)

Note: *Test questions in Blackboard are presented to the students in random order. Please be aware the test key question order will not match the student version.*

1. Who is subject to Title 14 CFR Part 91, General Operating and Flight Rules? *(Select the correct answer.)*
   - ❑ **All aircraft**
   - ❑ Foreign aircraft only
   - ❑ Air taxi only
   - ❑ Scheduled aircraft only

Reference(s): Title 14 CFR Part 91

2. How can a flight plan be filed? *(Select the correct answer.)*
   - ❑ **All of the answers**
   - ❑ Verbally or in writing
   - ❑ With an FSS or ATC facility
   - ❑ Electronically via a computer

Reference(s): AIM, Chap. 5

3. When a VFR flight plan has been activated, the pilot in command must notify an FSS or ATC facility of the cancellation _____. *(Select the correct answer.)*
   - ❑ **On arrival**
   - ❑ On approach
   - ❑ On departure
   - ❑ En route

Reference(s): AIM, Chap. 5

4. Which of the following statements is **NOT** true regarding SVFR clearances to fixed-wing aircraft? *(Select the correct answer.)*
   - ❑ **An SVFR flight plan must be filed**
   - ❑ The pilot must request SVFR clearance
   - ❑ Flight visibility must be at least 1 SM
   - ❑ SVFR shall only be approved below 10,000 MSL

Reference(s): JO 7110.65, Chap. 7

5. An aircraft on an IFR flight plan is in VFR conditions when a two-way radio failure occurs. The pilot shall _____. *(Select the correct answer.)*
   - ❑ **Proceed VFR and land as soon as practicable**
   - ❑ Return IFR to point of departure
   - ❑ Squawk code 7500
   - ❑ Proceed to nearest airport and execute an IFR approach

Reference(s): Title 14 CFR 91.185

6. A pilot, flight crew, and passengers operating above _____ MSL must be provided supplemental oxygen. *(Select the correct answer.)*
   - ❑ **15,000 feet**
   - ❑ 18,000 feet
   - ❑ 16,000 feet
   - ❑ 14,000 feet

Reference(s): Title 14 CFR 91.211

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE *End-of-Block 2 Test*** in Blackboard ■ Instruct students: ○ Clear desks ○ Do not write anything during or after the test ○ Navigate to the ***End-of-Block 2 Test*** link in Blackboard ○ Once they are satisfied with their responses, click “Save and Submit;” do not click “OK” to review results until directed to do so ○ Choose “Cancel” if they receive a warning message that the test has unanswered questions; choosing OK will submit the test and not allow them to go back and answer the questions ○ The test will auto-submit when the time limit is reached ○ Leave the room after submitting the test and return at the “Be Back” time ■ ***Note:*** *This test is scored but not graded* ■ During test, monitor students to ensure a secure testing environment ■ Instruct students to click “View Results” when ready to review results; do not review commonly missed questions	Blackboard Assessment **EST. RUN TIME** 60 mins.