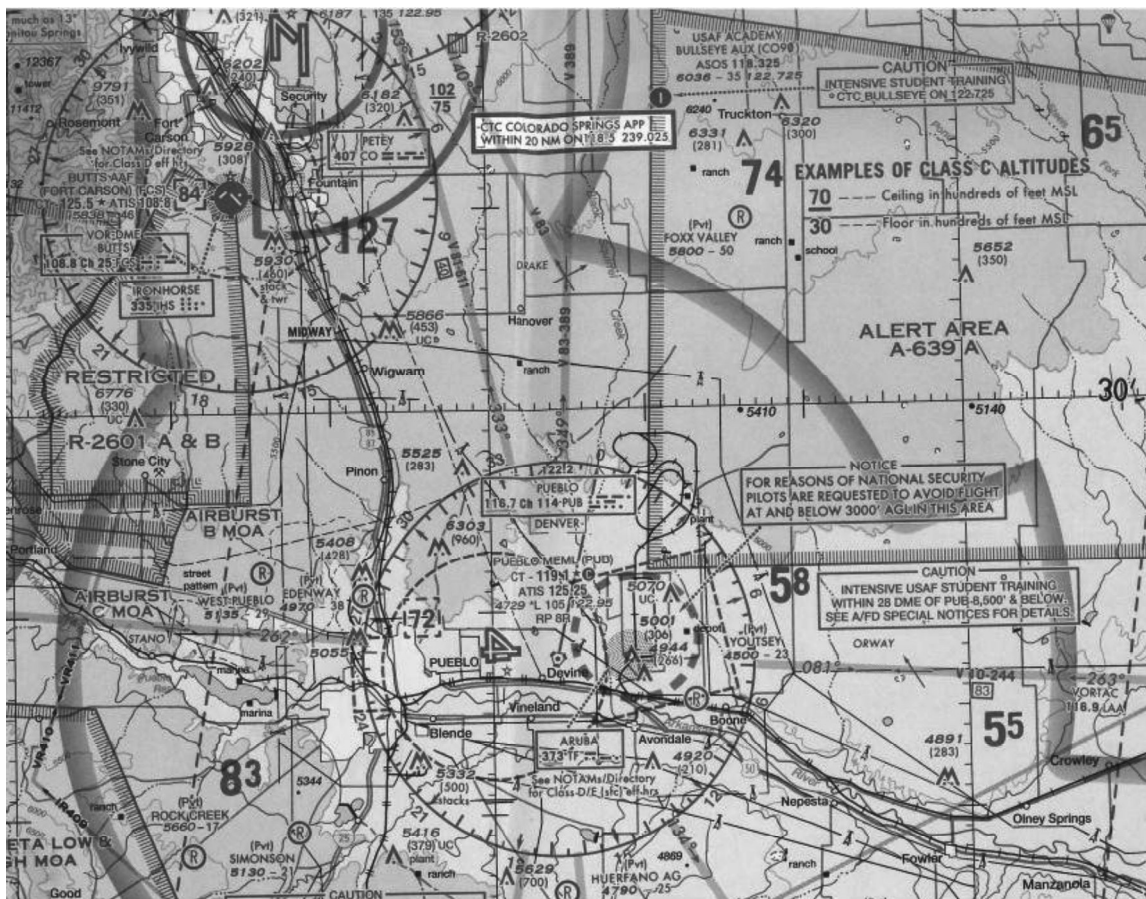


AIRSPACE, SPECIAL USE AIRSPACE, and TEMPORARY FLIGHT RESTRICTIONS



Course Notes

Introduction:

Today's pilots face many airspace challenges. The lack of knowledge of the airspace or improper preflight planning may result in a pilot deviation and violation of a FAR. It may even result in a serious incident or accident.

The objective of this course is to help you understand:

- Classes of Controlled Airspace - communication and entrance requirements
- Temporary flight restrictions (TFRs);
- Other types of special use airspace to include Prohibited Areas, Restricted Areas, National Security Areas and Air Defense Identification Zones.
- Other Sources of information.

Please note: There is a separate course found here on FAASafety.gov that covers the Washington D.C. Special Flight Rules Area (SFRA).

One of the most important concepts to take from this course is the need to understand the type of airspace you will be flying in and to check notices to airmen (NOTAMS) before every flight – even a short flight in your local airport practice area.

To help prevent pilot deviations occurring from a lack of understanding of airspace issues this course was updated August 2010 to help pilots better understand airspace. It was formerly called "TFRs and Special Use Airspace".

If you have any questions about the content of this course please contact:

Dennis Seals
dennis.a.seals@faa.gov

The course assumes a basic understanding of aircraft operation, air navigation, and air traffic control procedures. You can take the course at your own pace, exit at any time, and come back whenever it is convenient. Course notes are available for download. At the end of the course is a 20-question multiple choice quiz that you will need to take in a single session to complete the course. You may print a certificate of completion for your records upon successful completion of the course. **WINGS** credit will automatically appear on your transcript upon successful completion of the end of course exam.

Introduction

Chapter 1 – Classes of Airspace

Chapter 2 – Temporary Flight Restrictions

Chapter 3 – Types of Temporary Flight Restrictions

Chapter 4 – Prohibited Areas

Chapter 5 – Restricted Areas

Chapter 6 – Other Special Use Airspace

Chapter 7 – SFARs & Emergency Rules

Chapter 8 – Sources of Airspace Information

Review

Chapter 1:



Controlled Airspace is a generic term that covers the different classifications of airspace (Class A, B, C, D and E airspace) and defined dimensions within air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

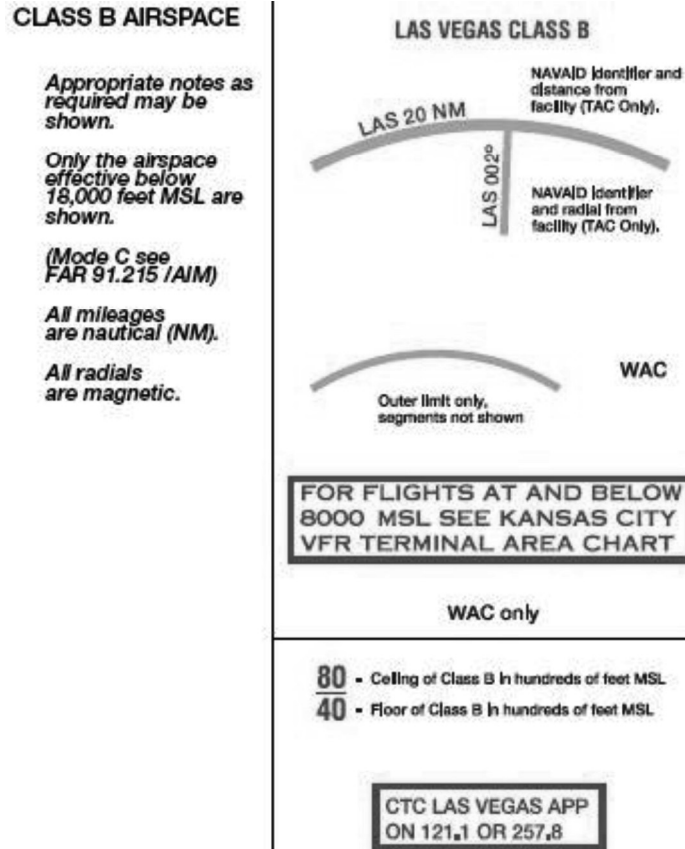
Definitions:

Class A Airspace - Generally that airspace from 18,000 feet MSL up to and including FL 600, including the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska; and designated international airspace beyond 12 nautical miles of the coast of the 48 contiguous States and Alaska within areas of domestic radio navigational signal or ATC radar coverage, and within which domestic procedures are applied.

Unless otherwise authorized, all persons must operate their aircraft under IFR.

Class B Airspace - Generally, that airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of IFR operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspace areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace.

An ATC clearance is required for all aircraft to operate in Class B Airspace, and all aircraft that so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds".



Arriving or transiting aircraft must obtain an ATC clearance prior to entering Class B airspace on the appropriate frequency and relation to geographical fixes shown on local Class B charts. Departing aircraft require a clearance to depart Class B airspace and should advise clearance delivery of their intended altitude and route of flight.

Unless otherwise authorized by ATC, aircraft must be equipped with an operable two-way radio capable of communicating with ATC on appropriate frequencies for that Class B airspace. Also unless otherwise authorized by ATC the aircraft must be equipped with an operable radar beacon transponder with automatic altitude reporting equipment.

There are currently 12 airports with Class B airspace where the pilot in command must hold at least a private pilot certificate to take off and land. At other Class B airports a student pilot or recreational pilot who seeks private pilot certification may take off and land if certain requirements are met. The student or recreational pilot must receive ground and flight instruction from an authorized instructor and receive an endorsement from that instructor stating the student or recreational pilot is proficient to conduct solo operations at the specific Class B Airport & Airspace.

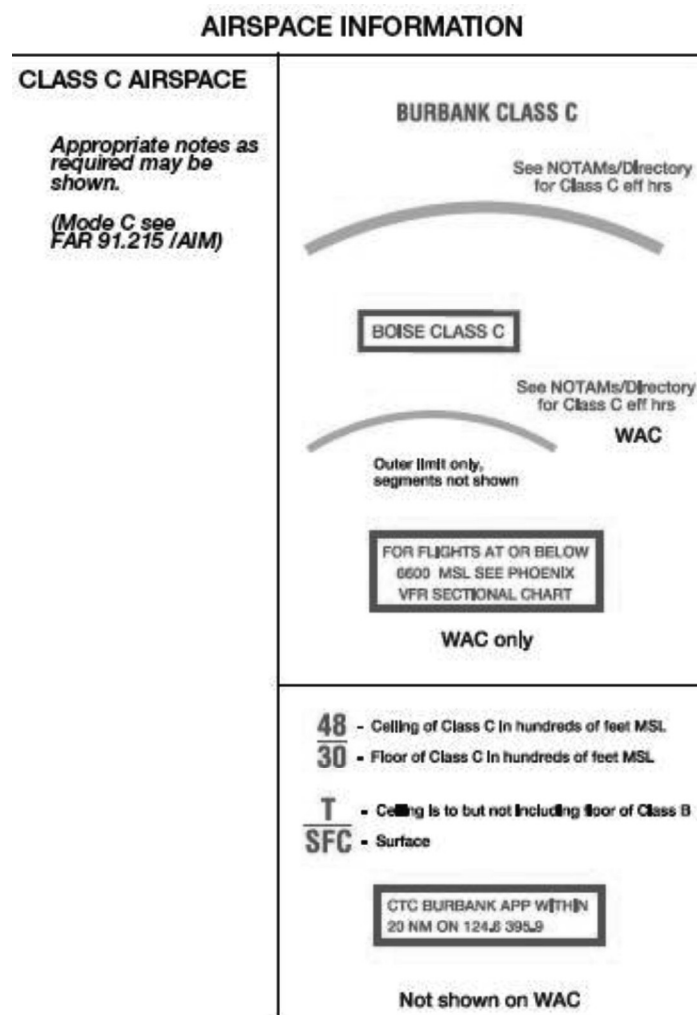
Mode C Veil A mode C transponder with altitude reporting is required within 30 nautical miles of a Class B airport from the surface to 10,000 feet MSL. An aircraft that was not originally certificated with engine driven electrical system or which has not subsequently been certified with a system installed may conduct operations within a Mode C veil provide the aircraft

remains outside Class A, B, or C airspace; and below the altitude of the ceiling of a Class B or Class C airspace area designated for an airport or 10,000 feet MSL, whichever is lower.

Class C Airspace

Class C Airspace is generally that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and have a certain number of IFR operations or passenger enplanements.

Although the configuration of each Class C airspace area is individually tailored, the airspace usually consists of a 5 NM radius core surface area that extends from the surface up to 4,000 feet above the airport elevation, and a 10 NM radius shelf area that extends no lower than 1,200 feet up to 4,000 feet above airport elevation.



No specific pilot certification is required to operate in Class C airspace. **A two way radio and unless otherwise authorized by ATC an operable radar beacon transponder with automatic altitude reporting equipment is required.**

Two way radio communication must be established with the ATC facility providing ATC services prior to entry and thereafter maintain those communications while in Class C airspace. Pilots of arriving aircraft should contact the Class C airspace ATC facility on the publicized frequency and give their position, altitude, radar beacon code destination, and request Class C service.

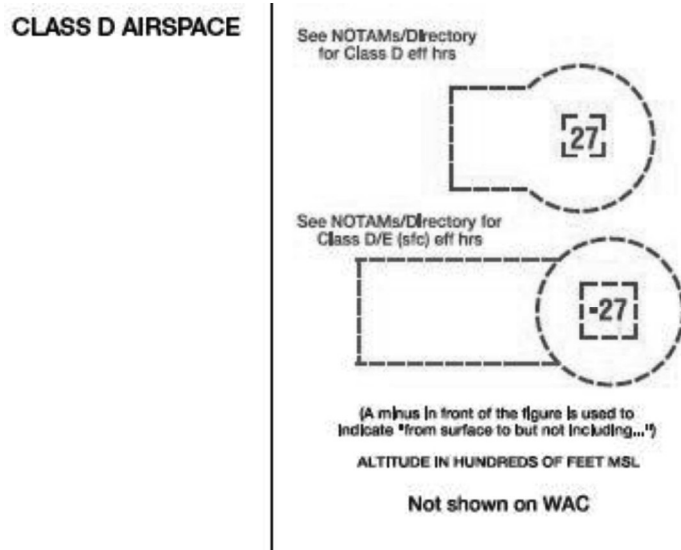
Radio contact should be initiated far enough from the Class C airspace boundary to preclude entering Class C airspace before two way radio communications are established. If the controller responds to a radio call with, "aircraft call sign, standby" radio communications have been established and the pilot can enter the Class C airspace.

If workload or traffic conditions prevent immediate provision of Class C services, the controller will inform the pilot to remain outside the Class C airspace until conditions permit the services to be provided.

It is important to understand that if the controller responds to the initial radio call without using the aircraft call, radio communications have not been established and the pilot may not enter the Class C airspace.

Class D Airspace

Class D airspace is generally that airspace from the surface to 2,500 above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures.



No specific pilot certification is required. Unless otherwise authorized by ATC, **an operable two way radio is required.**

Two way radio communication must be established with the ATC facility providing ATC services prior to entry and thereafter maintain those communications while in Class D airspace. Pilots of arriving aircraft should contact the control tower on the publicized frequency and give their position, altitude, destination, and any request(s). Radio contact should

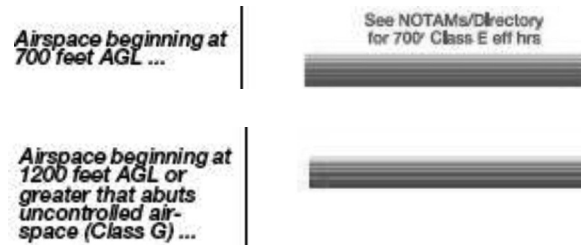
be initiated far enough from Class D airspace boundary to preclude entering the Class D airspace boundary to preclude entering Class D airspace before two way radio communications are established.

If the controller responds to a radio call with, "aircraft call sign, standby," radio communications have been established and the pilot can enter the Class D airspace. If workload or traffic conditions prevent immediate entry into Class D airspace, the controller will inform the the pilot to remain outside the Class D airspace until conditions permit entry.

Class E Airspace

Generally, if the airspace is not Class A, B, C, or D, and is controlled airspace it is Class E airspace. There are no specific pilot certification or equipment requirements to operate in Class E airspace. **Special VFR operations are permitted but clearance must be obtained from the controlling facility.**

Class E airspace is depicted in blue or magenta on sectional charts and white on low altitude enroute charts.



For VFR operations basic VFR visibility and distance from clouds must be maintained.

Below 10,000 MSL feet this is 3 statute miles visibility and 500 feet below, 1000 feet above, and 2000 feet horizontally. Above 10,000 feet MSL this increases to 5 statute miles visibility, 1000 feet above, 1000 feet below and 1 mile horizontally.

Airspace			Flight Visibility	Distance from Clouds
Class A			Not applicable	Not applicable
Class B			3 statute miles	Clear of clouds
Class C			3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
Class D			3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
Class E	At or above 10,000 feet MSL		5 statute miles	1,000 feet above 1,000 feet below 1 statute mile horizontal
	Less than 10,000 feet MSL		3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
Class G	1,200 feet or less above the surface (regardless of MSL altitude).	Day, except as provided in section 91.155(b)	1 statute mile	Clear of clouds
		Night, except as provided in section 91.155(b)	3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
	More than 1,200 feet above the surface but less than 10,000 feet MSL.	Day	1 statute mile	1,000 feet above 500 feet below 2,000 feet horizontal
		Night	3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
	More than 1,200 feet above the surface and at or above 10,000 feet MSL.		5 statute miles	1,000 feet above 1,000 feet below 1 statute mile horizontal

More complete information is available in the Aeronautical Information Manual.

Chapter 2:

A temporary flight restriction (TFR) is a regulatory action that temporarily restricts certain aircraft from operating within a defined area in order to protect persons or property in the air or on the ground. TFRs are issued in a NOTAM. You must obtain the NOTAM that establishes a TFR and understand what is and isn't allowed. To obtain the most current information it is necessary to contact a FSS.

There are several types of TFRs defined in the regulations. Since TFRs are, by definition, "temporary" in nature, it is extremely important to check the FDC NOTAMs before every flight you make.

TFRs are not depicted on any navigational charts. Size, shape, altitudes, and other details vary. resources are available to help you visualize and understand restrictions.

FDC NOTAMs that establish TFRs follow a very specific format. All begin with the phrase, "FLIGHT RESTRICTIONS" and include the following information:

1. Location of the TFR area
2. Effective period
3. Defined area
4. Altitudes affected
5. FAA coordination facility and telephone number
6. Reason for the TFR
7. Agency directing relief activities (if applicable) and telephone number
8. Any other information considered appropriate.

The FAA's TFR website (<http://tfr.faa.gov/tfr2/list.html>) provides multiple options for finding a specific TFR. In addition to reviewing the text, this website offers the option of a graphical depiction of the affected area.

An example of a TFR NOTAM text only is as follows:

```
NOTAM : 0/9367

FDC 0/9367 ZFW TX.. FLIGHT RESTRICTIONS MCKINNEY, TX. EFFECTIVE IMMEDIATELY UNTIL
FURTHER NOTICE. PURSUANT TO 14 CFR SECTION 91.137(A)(1) TEMPORARY FLIGHT
RESTRICTIONS ARE IN EFFECT FOR LAW ENFORCEMENT OPERATION. ONLY RELIEF AIRCRAFT
OPERATIONS UNDER DIRECTION OF MCKINNEY POLICE DEPT ARE AUTHORIZED IN THE
AIRSPACE AT AND BELOW 3999 FEET AGL WITHIN A 3 NAUTICAL MILE RADIUS OF
331324N/0963839W OR THE COWBOY /CVE/ VOR/DME 027 DEGREE RADIAL AT 23.8 NAUTICAL
MILES. MCKINNEY POLICE DEPT TELEPHONE 972-467-8580 IS IN CHARGE OF ON SCENE
EMERGENCY RESPONSE ACTIVITY. FORT WORTH /ZFW/ ARTCC TELEPHONE 817-858-7503 IS THE
FAA COORDINATION FACILITY.
```

FAA's TFR website example of the same TFR NOTAM above:

NOTAM

Number : FDC 0/9367 Download shapefiles
Issue Date : August 17, 2010 at 1617 UTC
Location : MCKINNEY, Texas near COWBOY VOR/DME (CVE)
Beginning Date and Time : Effective Immediately
Ending Date and Time : Until further notice
Reason for NOTAM : Temporary flight restrictions
Type : Hazards
Replaced NOTAM(s) : N/A
Pilots May Contact : FORT WORTH (ZFW) Center, 817-858-7503

Jump To: [Affected Areas](#)
[Operating Restrictions and Requirements](#)
[Other Information](#)

**Affected Area(s)**[Top](#)**Airspace Definition:**

On the COWBOY VOR/DME (CVE) 027 degree radial at
Center: 23.8 nautical miles. (Latitude: 33°13'24"N, Longitude:
96°38'39"W)
Radius: 3 nautical miles
Altitude: From the surface up to and including 3999 feet AGL

Effective Date(s):

From August 17, 2010 at 1617 UTC
Until further notice

[Click for Sectional](#)[NOTAM Text](#)**Operating Restrictions and Requirements**[Top](#)

No pilots may operate an aircraft in the areas covered by this NOTAM (except as described).

ONLY RELIEF AIRCRAFT OPERATIONS UNDER DIRECTION OF MCKINNEY POLICE DEPT ARE AUTHORIZED IN THE AIRSPACE AT AND BELOW

Other Information:[Top](#)

ARTCC: ZFW - Fort Worth Center
Point of Contact: MCKINNEY POLICE DEPT
Telephone 972-467-8580
Authority: Title 14 CFR section 91.137(a)(1)

Chapter 3:

No matter where you live, chances are good that you will at some point be affected by TFRs issued under 14 CFR 91.141, "Flight restrictions in the proximity of the Presidential and other parties." This rule states that:



No person may operate an aircraft over or in the vicinity of any area to be visited or traveled by the President, the Vice President, or other public figures contrary to the restrictions established by the Administrator and published in a Notice to Airmen (NOTAM).

Violation of a TFR issued under this regulation could lead to very adverse consequences, since security of the President and Vice President is taken very seriously. This rule is also used to establish TFRs for the protection of presidential candidates. Because "presidential TFRs" are often established on very short notice, it is extremely important to check FDC NOTAMS before every flight – even routine flights in the vicinity of your home airport.

Be sure you understand where the TFR is centered and its effect on the dimensions of the no-fly area. Violations often occur when the pilot does not understand where the TFR is centered and its dimensions.

Several different regulations permit the FAA to establish temporary flight restrictions (TFRs) for a variety of special events.

Air Shows and Sporting Events



For aircraft operations in the vicinity of aerial demonstrations and major sporting events, 14 CFR 91.145 gives the FAA authority to establish TFRs to protect persons or property on the ground or in the air, to maintain air safety and efficiency, or to prevent the unsafe congestion of aircraft in the vicinity of an aerial demonstration or sporting event. In practice, TFRs issued under 14 CFR 91.145 are issued primarily for air shows. The FAA determines when a 14 CFR 91.145 TFR should be issued for a sporting event on a case-by-case basis.

Stadiums



FDC NOTAM 0/0367, issued under 14 CFR 99.7 on "Special Security Instructions," restricts flight over stadiums during major league baseball, National Football League, NCAA, and motor speedway events. The so-called "stadium TFR" prohibits all aircraft and parachute operations at or below 3,000 AGL within a 3 nm radius of any stadium with a seating capacity of 30,000 or more people when there is a major league baseball game, NFL game, NCAA division one football game, or major motor speedway event occurring. This TFR applies to the entire US domestic national airspace system, and takes effect from one hour before the scheduled event time until one hour after the event concludes.

Disaster/Hazard Areas



The FAA has the authority under 14 CFR 91.137 to restrict aircraft operation in designated areas unless they are participating in disaster/hazard relief efforts. The three types of TFRs issued under this regulation are to:

1. ***Protect persons or property*** on the surface or in the air from a hazard associated with an incident on the surface (14 CFR 91.137(a)(1)). Fire fighting activities involving the use of aircraft are normally protected by a TFR.
2. ***Provide a safe environment*** for the operation of disaster relief aircraft (14 CFR 91.137(a)(2)).
3. ***Prevent unsafe congestion*** of sightseeing or other aircraft above an incident or event which may generate a high degree of public interest (14 CFR 91.137(a)(3)). Aircraft accident sites or similar activities may be issued a TFR.

Space Flight



The FAA has the authority under 14 CFR 91.143 to issue FDC NOTAMs restricting flight in areas designated for space flight operations.

For detailed information on each type of regulatory TFR, please review FAA Advisory Circular AC 91-63C, which includes recent changes to 14 CFR Part 91.

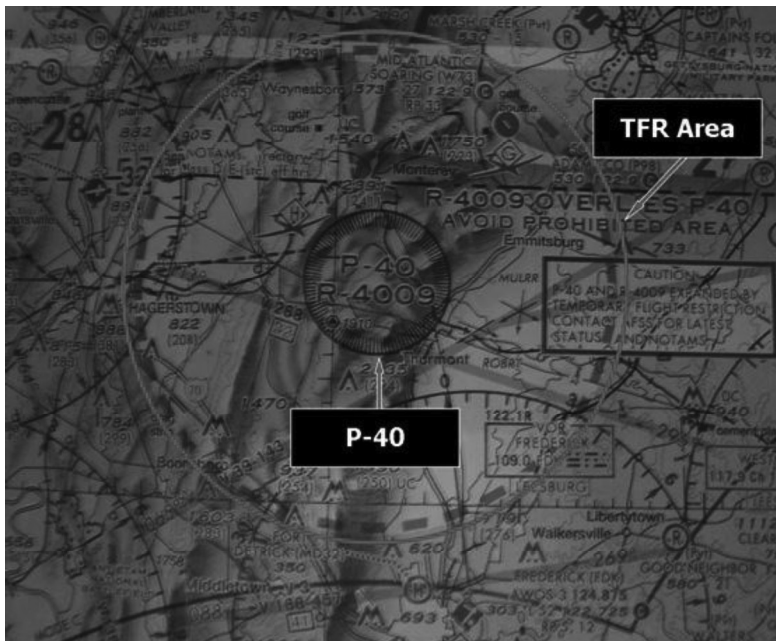
As is the case for any kind of TFR, it is imperative that you carefully review and fully understand the NOTAM that establishes a TFR before attempting to fly in, or in the vicinity of, such restrictions.

Chapter 4:

A prohibited area begins at the surface and has defined dimensions in which the flight of unauthorized aircraft is prohibited. Such areas are established when necessary to prohibit flight in the interest of national security and welfare.

Prohibited areas are depicted on aeronautical charts. Examples include P-40 (central Maryland), P-49 (central Texas), P-47 (Texas panhandle), P-67 (Maine coast), P-73 (northern Virginia), and P-204/205/206 (northern Minnesota).

Important: When the president travels, the FAA uses TFRs (issued via FDC NOTAM under 14 CFR 91.141) to increase restrictions to airspace surrounding prohibited areas associated with presidential activities. These airspace restrictions can change on very short notice. In the Washington DC metropolitan area, for example, P-40 – the prohibited area surrounding the presidential retreat at Camp David, Maryland – is limited to a 3 nm radius. When the president visits Camp David, however, the FAA issues a TFR that covers the airspace within a 10 nm radius of this location.



The FDC NOTAM that defines this TFR may authorize pilots meeting certain requirements (e.g., squawk and talk on a VFR or IFR flight plan) to operate inside portions of the TFR area surrounding the prohibited airspace -- but ***always*** read the NOTAM carefully before attempting to operate in or near such areas.

Chapter 5:

A restricted area is airspace within which the operation of aircraft is subject to restriction. Restricted areas are established to separate activities considered to be hazardous to other aircraft, such as artillery firing or aerial gunnery.



Restricted areas are depicted on sectional charts, as well as on en route charts appropriate for the altitudes or flight levels affected. These charts show vertical dimensions, name of the controlling agency, and times that the restricted area is in use. Times of use shown on the chart are *not* exclusive; in fact, some restricted areas include the notation "other times by NOTAM."

If you wish to fly VFR in or through a restricted area, check NOTAMS to determine whether times of use have changed. Once airborne, contact the controlling agency to determine whether the restricted area is "hot" and to request permission to fly in this airspace. Frequencies for the controlling agency are listed on Sectional Charts.

For more information, see 14 CFR 73.13 and *Aeronautical Information Manual* section 3-4-3.

Chapter 6:

Chapter 3 of the Aeronautical Information Manual (AIM) describes other types of special use airspace (SUA), defined in AIM 3-4-1 as:

Airspace wherein activities must be confined because of their nature, or wherein limitations are imposed on aircraft operations that are not a part of those activities, or both.

The chart below summarizes different types of SUA.

Type of SUA	Regulatory	Dimensions & Purpose	Depicted on chart	ATC clearance needed for VFR
Warning Area	No	3 nm from US coast Warns non-participating pilots of activities that may be hazardous	Yes	No, but advisable!
Military Operations Area	No	Defined vertical and lateral limits Separates certain military training activities, such as air combat tactics, aerobatics, and formation training, from IFR traffic	Yes	No, but exercise caution!
Alert Areas	No	Defined area Informs non-participating pilots of areas that may contain a high volume of pilot training or unusual aerial activity	Yes	No
Controlled Firing Areas	No	Not charted Includes activities that could be hazardous to non-participating aircraft CFA activities are suspended immediately when spotter aircraft, radar, or ground lookouts observe the approach of a non-participating aircraft.	No	No

You can also find information on special use airspace on the FAA's SUA Website (<http://sua.faa.gov/sua/Welcome.do>).

Air Defense Identification Zone

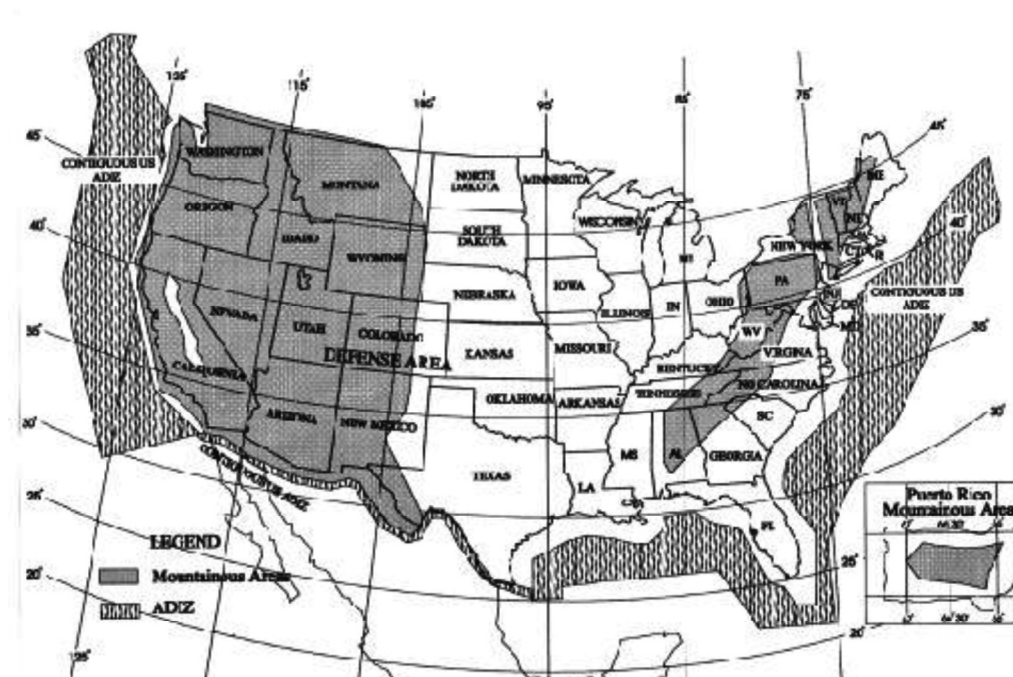
All aircraft entering domestic U.S. airspace from points outside must provide for identification prior to entry. To facilitate early aircraft identification of all aircraft in the vicinity of U.S. and international airspace boundaries, Air Defense Identification Zones (ADIZ) have been established.

For the majority of operations associated with an ADIZ, an operating two way radio is required. Unless otherwise authorized by ATC, each aircraft conducting operations, into, within, or across the Contiguous U.S. ADIZ must be equipped with an operable radar beacon transponder having altitude capability.

Generally a DVFR flight plan must be filed to enter an ADIZ. There are exceptions for aircraft operations that remain within 10 nautical miles of the point of departure point within the 48 contiguous states and the District of Columbia, or within the State of Alaska: Over any island, or within 3 nautical miles of the coastline of any island: or Associated with any ADIZ other than the Contiguous U.S. ADIZ when the aircraft true airspeed is less than 180 knots.

An air filed VFR makes an aircraft subject to interception for positive identification when entering an ADIZ. Pilots are, therefore, urged to file the required DVFR flight plan either in person or by telephone prior to departure.

Air Defense Identification Zone Boundaries Designated Mountainous Areas



Chapter 7:

A Special Federal Aviation Regulation (SFAR) pertaining to airspace is typically a temporary rule to address a temporary situation. It is generally not used to replace or enforce regulations that are to remain in effect for many years. Consequently, an SFAR has an expiration date, usually no more than 3 years from its effective date. SFARs are listed at the beginning of the most relevant Code of Federal Regulations (CFR), and may be cross-referenced to other regulations. SFARS can prohibit, restrict, or have additional requirements to operate in the airspace the SFAR applies to.

SFARs cover a broad range of topics, for example:

- SFAR 50-2, Special Flight Rules in the Vicinity of the Grand Canyon National Park , AZ;
- SFAR 73-2, Robinson R-22/R-44 Special Training And Experience Requirements

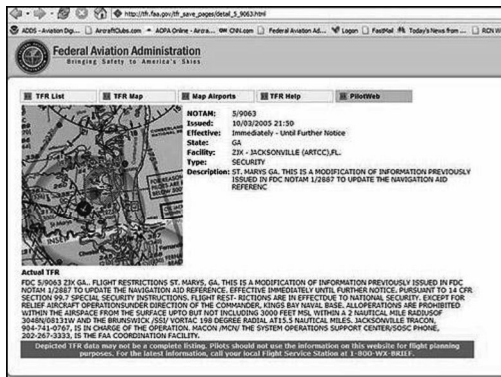
When authorities determine there is (or will be) an emergency condition affecting the FAA's ability to operate the air traffic control system with the necessary level of safety and efficiency, the Administrator may issue an air traffic rule with immediate effect – that is, a rule that does not go through the normal rule making processes.

The NOTAM system is used to disseminate information on the precise impact, terms, and conditions of the emergency air traffic rule, so it is imperative to check FDC NOTAMs before every flight.

Chapter 8:

Because TFRs and other restrictions often arise on very short notice, there is no substitute for a thorough preflight briefing from a source such as Flight Service (1-800-WX-BRIEF or 1-800-992-7433) or 1800wxbrief.com. These sources have the most current FDC NOTAM information. NOTAMs are part of the standard briefing, but it is a good idea to ask specifically if there are any FDC NOTAMs relevant to your route of flight. Don't forget to ask for published NOTAMs, which may also be relevant.

If the FDC NOTAMs indicate that TFRs will exist -- or arise -- along your route, be sure to note the times of TFR operation, the area included around a fixed point, and whether there are procedures for flying into, or through, this airspace.



If you learn about the existence of a TFR in a telephone briefing from an AFSS specialist, review the text and print a copy to carry along on your flight.

The FAA's TFR website (<http://tfr.faa.gov/tfr2/list.html>) provides multiple options for finding a specific TFR. In addition to reviewing the text, this website offers the option of a graphical depiction of the affected area.

There is a similar FAA graphical website for information on special use airspace. Go to <http://sua.faa.gov/sua/Welcome.do> for this tool.

Review:

Air Traffic Clearance is required to operate in Class A, B, C, & D airspace. depending upon weather it may be required to operate in Class E airspace. Pilot deviations occur when pilots enter controlled airspace without clearance.

A temporary flight restriction (TFR) is a regulatory action, issued in an FDC NOTAM, that temporarily restricts certain aircraft from operating within a defined area in order to protect persons or property in the air or on the ground.

Presidential TFRs can appear on very short notice, as can the many types of special event TFRs. Because TFRs are by nature temporary, pilots must be sure to check FDC NOTAMs before every flight, even one in the local practice area.

A prohibited area begins at the surface and has defined dimensions in which the flight of unauthorized aircraft is prohibited.

A restricted area is airspace within which the operation of aircraft is not entirely prohibited, but is subject to restriction.

Special Use Airspace is the term used for airspace wherein activities must be confined because of their nature, or wherein limitations are imposed on aircraft operations that are not a part of those activities, or both.

A Special Federal Aviation Regulation (SFAR) is typically a temporary rule to address a temporary situation. It usually expires after three years.

Thorough preflight planning – including a review of FDC NOTAMs and the airspace to be flown in – is critical, not only to the safety of your flight, but also to avoiding violation of TFRs and other flight restrictions. FDC NOTAMs are regulatory in nature and contain such items as amendments to published Instrument Approach Procedures, changes to aeronautical charts, and TFRs. You *must* check with Flight Service or DUATs to ensure that you have the most up-to-date information on flight restrictions and special use airspace along your intended route of flight.

Now that you have finished the course please take the end of course exam by clicking on the link at the bottom or top of this page. Any **WINGS** - Pilot Proficiency Program credits will be applied automatically upon completion of the exam.