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VFR FLIGHT

OK, VFR AS OPPOSED TO WHAT?

VFR as opposed to "IFR". This is one time that aviation does get simple. When you go up in an airplane, there's only two ways to fly- VFR, or IFR. But, just to make things a little murky, it isn't the weather (usually) that makes the decision. In certain situations, you can legally be flying VFR with a visibility of only 1 mile- that's just 1/2 of a mile more visibility than a full-blown ILS approach in IFR conditions. And, conversely, you can be flying IFR when there is not a cloud in the sky and you can see forever.

SO, IT'S NOT JUST THE WEATHER THAT DETERMINES VFR OR IFR?

No. The words VFR and IFR each have two definitions- flight rules, and weather conditions.

FLIGHT RULES

VFR

VFR flight rules are established by the Federal Aviation Administration, the FAA. Generally speaking, with the exception of certain controlled airspace restrictions, you can do, within reason, what you want to do. To fly VFR, a flight plan, with a few exceptions, is not required.

IFR

IFR flight rules are also established by the FAA. They can be quite complex, and cover most every aspect of the operation. To fly IFR, a flight plan is required.

WEATHER CONDITIONS

VFR

The FAR's (Federal Aviation Regulations) establish what the prevailing flight visibility must be, and how far the airplane must remain away from clouds. The visibility and cloud minimums vary depending on the airspace that you are in. Generally speaking, if the ceiling (broken or overcast cloud bases) are more than 1,000 feet above the ground, and the visibility is three miles or more, the weather is VFR.

IFR

Generally speaking, if the ceiling (broken or overcast cloud bases) are less than 1,000 feet above the ground, and/or the visibility is less than three miles, the weather is IFR.

So, on a day that you can see forever, with sunny skies, you have your basic VFR weather. And, you could go up in your airplane and fly VFR, or IFR. If the weather was in the tank, IFR conditions, you could not fly VFR, but you could fly IFR. Does that make sense? I sure hope it does, this can be confusing.

WHY FLY VFR?

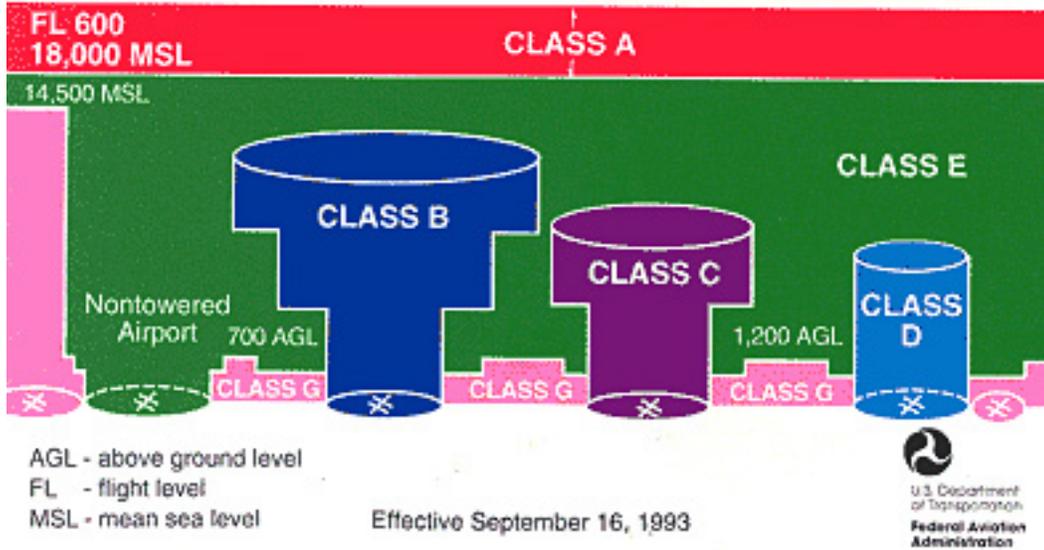
In one word, "freedom". Freedom because you can go when you want to, where you want to and how you want to, taking into account whatever airspace restrictions may be in your flight path.

In four words, "you may have to". If you don't have an instrument rating, you don't have a choice- you fly your trips VFR.

JUST WHAT ARE THE AIRSPACE RESTRICTIONS?

Take a look at this chart, it shows the what and where of VFR flight. Notice that the vast majority of U.S. airspace is Class "E", and that it is wide open for VFR operations.

U.S. Airspace Classes at a Glance



An Easy-to-Read Chart for VFR Flight

Airspace Features	Class A	Class B	Class C	Class D	Class E	Class G
Entry Requirements	ATC Clearance	ATC Clearance	Prior two-way communications	Prior two-way communications	None	None
Minimum Pilot Qualifications	Instrument rating	Private or student certificate location dependent	Student certificate	Student certificate	Student certificate	Student certificate
Two-way Radio Communications	Yes	Yes	Yes	Yes	Not required	Not required
Special VFR Allowed*	No	Yes	Yes	Yes	Yes	N/A
VFR Visibility Minimum	N/A	3 Statute miles**	3 Statute miles**	3 Statute miles**	3 Statute miles**	1 Statute mile**
VFR Minimum Distance from Clouds	N/A	Clear of clouds	500 feet below, 1,000 feet above, 2,000 feet horizontally**	500 feet below, 1,000 feet above, 2,000 feet horizontally**	500 feet below, 1,000 feet above, 2,000 feet horizontally**	Clear of clouds**
VFR Aircraft Separation	N/A	All	IFR	Runway operations	None	None
Traffic Advisories	Yes	Yes	Yes	Workload Permitting	Workload Permitting	Workload Permitting
Former Airspace Equivalent	Positive control area (PCA)	Terminal control area (TCA)	Airport radar service area (ARSA)	Airport traffic area and control zone	General controlled airspace	Uncontrolled airspace

* Authorized by an ATC clearance and conducted within the lateral boundaries of the surface area

** Flight visibility and cloud clearance requirements differ for operations below 1,200 feet AGL, above 1,200 feet AGL but below 10,000 feet MSL, above 10,000 feet MSL, day, night, or student pilot

See FARs 61.89 and 91.155 for specifics.

BEYOND THE WEATHER MINIMUMS, AND THE AIRSPACE RESTRICTIONS, ARE THERE ANY OTHER LIMITATIONS TO VFR FLIGHT?

You're pretty much a free spirit up there. You, and your aircraft must meet and follow the Federal Aviation Regulations. You must have enough fuel to fly to your destination, and then continue on in normal flight for 30 minutes, daytime, and 45 minutes, night. Also, cloud separation distances and visibility requirements increase at night.

WHERE DO YOU GET WEATHER INFORMATION FOR YOUR FLIGHT?

The wonderful folks that work for the FAA, and specialize in General Aviation- The Flight Service Station. These people work with GA pilots every day, and have all of the information available to give you a complete pre-flight briefing. This business is usually conducted over the telephone. When you call, identify yourself as a pilot (non-pilots do call for information), and tell them that you are flying VFR from so-and-so to so-and-so, at such-and-such a time, and what your routing and altitude will likely be.

Start following the weather as soon as you know that you will be making a trip. The newspaper, local TV weather, The Weather Channel, are all excellent options. You can't know too much about the weather. Period.

DO YOU HAVE TO FILE A FLIGHT PLAN?

No. There are exceptions, like if you intend to penetrate the "defense zones" that cover the ocean approaches to the U.S., but for all intents and purposes a flight plan is not required. The prime value of having a flight plan on file is that if you don't make it to your destination, your odds of having people go out looking for you are increased. However, VFR flight plans can be vastly over-rated. Quite frankly, unless you fail to show up at your destination, they don't mean much. And, there is a long period between the time you give as your ETA, and the launch of a search and rescue.

The best VFR flight plan, by far, is letting someone know where you are going, with who, and when you intend to get there. Trust me, they'll have more concern about your timely arrival, and beat more drums than a government bureaucracy will. Nothing against the good folks that work for the FAA, but they have incidents of people not canceling their VFR flight plans every day. In almost every case, the driver just plain forgot to cancel.

WHO DO YOU FILE A FLIGHT PLAN WITH?

The Flight Service Station. You can also file with a Control Tower if necessary. And, you can also file in the air using the appropriate discrete radio frequencies. This takes time though, especially if you are grinding toward poor weather.

WHAT DOES A FLIGHT PLAN LOOK LIKE?

FLIGHT PLAN						
1. Type <input type="radio"/> VFR <input type="radio"/> IFR <input type="radio"/> DVFR	2. Aircraft Identification	3. Aircraft Type / Special Equipment	4. True Airspeed KTS	5. Departure Point	6. Departure Time (Z)	
					Proposed	Actual
8. Route Of Flight						
9. Destination (Name of Airport and City)		10. Estimated Time Enroute		11. Remarks		
12. Fuel On Board		13. Alternate Airport(s)	14. Pilot's Name, Address & Telephone Number and Home Base			
Hours	Minutes					
		17. Destination Contact / Telephone (Optional)				
16. Color Of Aircraft		CIVIL AIRCRAFT PILOTS, FAR 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.				
CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL						

1. Type Your choices here are "VFR", "IFR", or "DVFR". "DVFR" is the flying through the "defense zones"

ADIZ (Aircraft Defense Identification Zone), mentioned above.

2. Aircraft identification Here you would list your "N" number, N1557G, for example.

3. Aircraft type / special equipment This is for your model number, C172, for example. And, you follow your type with a suffix that denotes what equipment you have aboard your aircraft.

/X no transponder
/T transponder, no altitude capability
/U transponder, with altitude encode capability
/D DME, no transponder
/B DME, transponder with no altitude capability
/A DME, transponder with altitude capability

and so on. If your Cessna 172 had DME, and a "mode C" transponder, you would enter "C172/A".

4. True airspeed Using the performance tables for your aircraft, enter the TAS for the altitude that you plan to cruise at.

5. Departure point Enter the Airport Identifier Code for the airport that you will be departing from. For example, "MSP" if departing from Minneapolis/St. Paul International Airport.

6. Departure time (Z) Proposed / Actual Enter your proposed departure time, in "Zulu time". That's aviation speak for GMT, Greenwich Mean Time, or UTC, Universal Time Coordinated. After you depart and call in with your departure time, it will be entered in the "Actual" box.

7. Cruising altitude The altitude that you propose to finally end up cruising at. This is advisory only, you can change your mind and fly a new altitude any time you want to.

8. Route of flight Your proposed routing. As with the altitude, this is your best estimate at the time you file. You can change your routing once you get going if you wish to. If you are proceeding direct from segment to another, use the word "direct".

So, your entry may look like this: "Direct Flying Cloud, Victor 187 Redwood Falls, Victor 217 Garden City, Direct". In this sample entry, "Flying Cloud, Redwood Falls and Garden City" are the names of the VOR's that you will be navigating to. "Victor 187" and "Victor 217" are the designated routes from one VOR to another that you will be using, and the last word, "direct", means that after Garden City you will be going direct to your landing airport.

9. Destination (name of airport and city) If you're going to, say, Chicago you'll want to let them know which airport you will be landing at.

10. Estimated time enroute Enter your best estimate, hours and minutes.

11. Remarks A golden opportunity to give your dissertation on world events, political feelings, or talk about life in general. Or, something more aviation-orientated like "Will cancel flight plan with Aberdeen Flight Service." Or, "Will customs with so and so."

12. Fuel on board, Hours / Minutes The obvious information.

13. Alternate airport(s) More for an IFR flight, which uses the same form. However, if you feel that there is a chance that you may have to land at another field, enter that information here.

14. Pilot's name, address, and telephone number and home base Pretty obvious here too. "Home base" would be the 3 letter identifier for where the airplane is normally based. You can save yourself some time here by pre-registering with your local FSS. Once that is done, you would just say "On file, MSP."

15. Number on board Usually referred to among the aviation community as "SOB", Souls On Board. A slightly haunting phrase.

16. Color of aircraft Something like "White, red trim". In case a search is necessary this information may be of value.

17. Destination contact / telephone (optional) It's a good idea to list a telephone number here. It's human nature to forget things- like canceling a flight plan.

WHAT ARE THE ADVANTAGES, OR DISADVANTAGES, TO FILING A VFR FLIGHT PLAN?

The main advantage in filing a VFR flight plan is that if you don't get to where you are going "they" will start looking for you.

Maybe.

Well, probably.

After awhile.

Don't expect the Civil Air Patrol to launch into the skies looking for your downed airplane, that may happen, but not initially. When you don't appear at your destination airport and close your flight plan, the FAA will call the airport and start asking around to see if your aircraft is parked on the ramp some place. Then, if your plane doesn't show up on that search, they'll ask aircraft traversing your area of flight to monitor frequency 121.5 to see if they can hear an ELT (Emergency Locator Transmitter) signal. This is a device, usually located in the tail cone, that is activated by a "g switch" when you crash. It emits a warbling tone on the frequency until turned off or the battery dies. Depending on the circumstances, it may be well over a day before a full search begins.

HOW DO I OPEN MY VFR FLIGHT PLAN?

If departing from a tower-controlled airport, ask the tower to activate your VFR flight plan. Otherwise, call the FSS on the radio after you are airborne.

HOW DO I CLOSE MY VFR FLIGHT PLAN?

You can cancel your VFR flight plan at any time. Enroute, by radio with the FSS. After landing, with the control tower or the FSS if they are located on the airport. And lastly, call the FSS on the telephone to cancel.

WHAT ABOUT WHILE ENROUTE? DO I HAVE TO TALK TO ANYONE?

Nope, you're free as a bird. Now, it's a good idea to make weather checks while enroute just to keep an eye on things. And, when you call the FSS on the radio, tell them that you are on a VFR flight from "here" to "there", the briefer will log that information- possibly invaluable should you not make it all of the way.

HOW HIGH CAN I FLY?

As high as you want to, as long as you don't enter controlled airspace. For all intents and purposes, don't stay above 10,000 feet for extended periods unless you have oxygen onboard.

WHAT ABOUT THIS "ODD AND EVEN" STUFF"?

If your course, the track of your airplane across the ground (not your heading), is between 000 and 179 degrees, you fly at an odd altitude, plus 500 feet. For example, 5,500 feet. If your course is between 180 degrees and 359 degrees, you fly at even altitudes, plus 500 feet. For example, 6,500 feet.

WHAT ABOUT RESTRICTED AIRSPACE? WHAT ABOUT CONTROLLED AIRSPACE?

It is your responsibility, as the PIC (Pilot In Command) to lay out your trip so that your flight does not conflict with regulated airspace. If you do need to cross into controlled airspace, call on the radio in advance to the controlling authority. All of the appropriate names and radio frequencies are listed on the sectional charts.

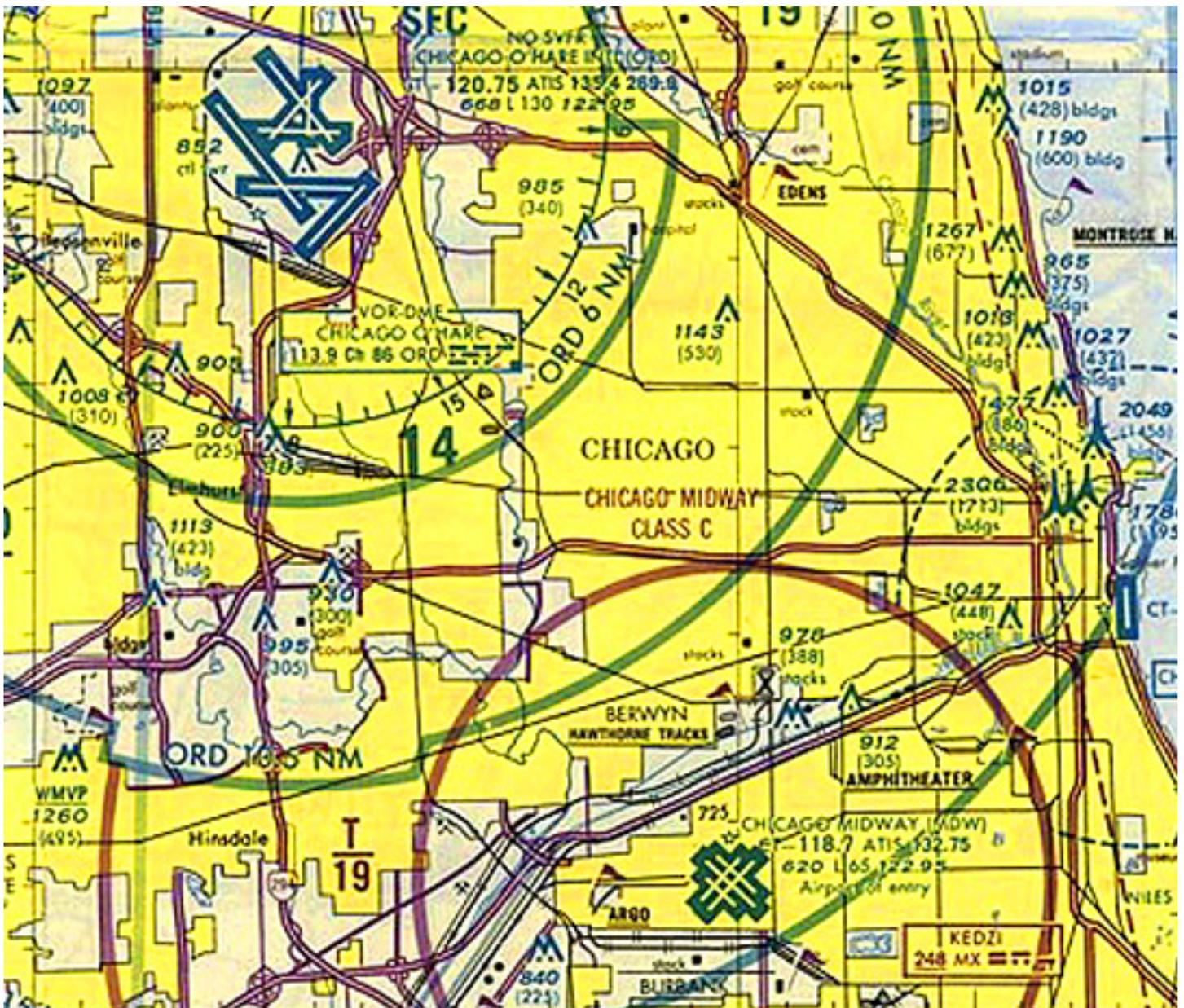
HOW DO YOU FLY A TRIP, FROM "HERE" TO "THERE" VFR?

First off, as with many things in aviation, planning is everything. When you fly what is known in aviation-speak as VFR "cross country", you fly by referencing objects on the ground. You know where these objects are because they show up on your charts. As you fly past these objects, you correct your course as necessary and continue on until you reach your destination. This is known as pilotage.

WHAT KIND OF CHARTS DO I USE?

They're called "sectionals", and contain an incredible amount of valuable information to the VFR pilot.

Here is a sample of a sectional chart in the Chicago area:



Notice that the major roads are shown, along with towers and airports.

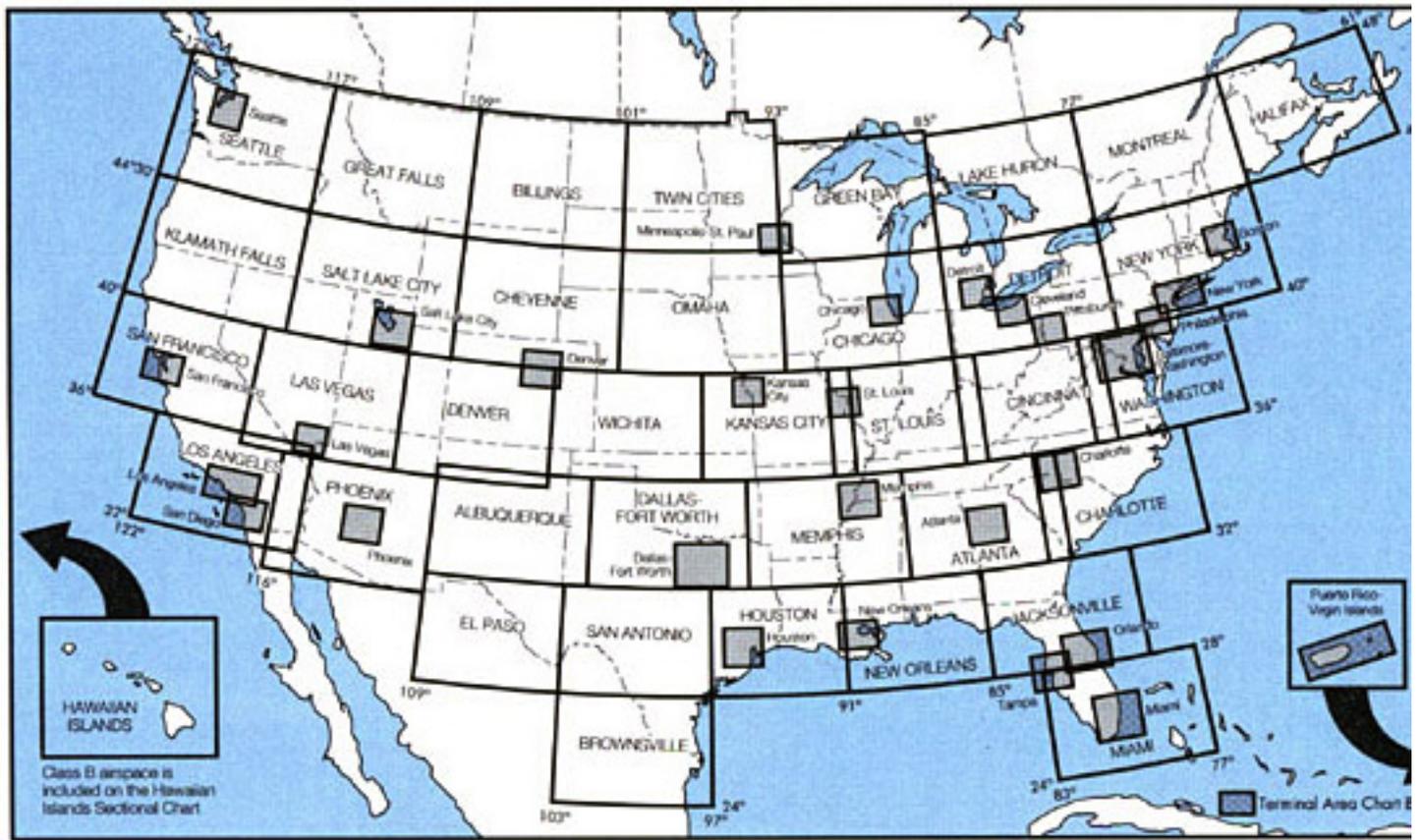
And, here is the Los Angeles "Terminal Area Chart" that shows more detail for selected major cities.



Lot of stuff crammed in, isn't there?

Explaining what all of the chart symbols mean is beyond the scope of this tutorial. If you want to pursue the subject, go out to your local small airport and purchase the sectional chart that covers your area. There is a full explanation of what each symbol means on every chart.

These charts cover the entire United States.



[FOR A COMPLETE TUTORIAL ON HOW TO NAVIGATE VFR, SEE THE TUTORIAL "How to Navigate".](#)

And, that's pretty much it. There's a lot to be said for VFR flying, but there are also a lot of obligations that are the responsibility of the Pilot In Command.

That's you.

Happy flying!

Hal Stoen

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