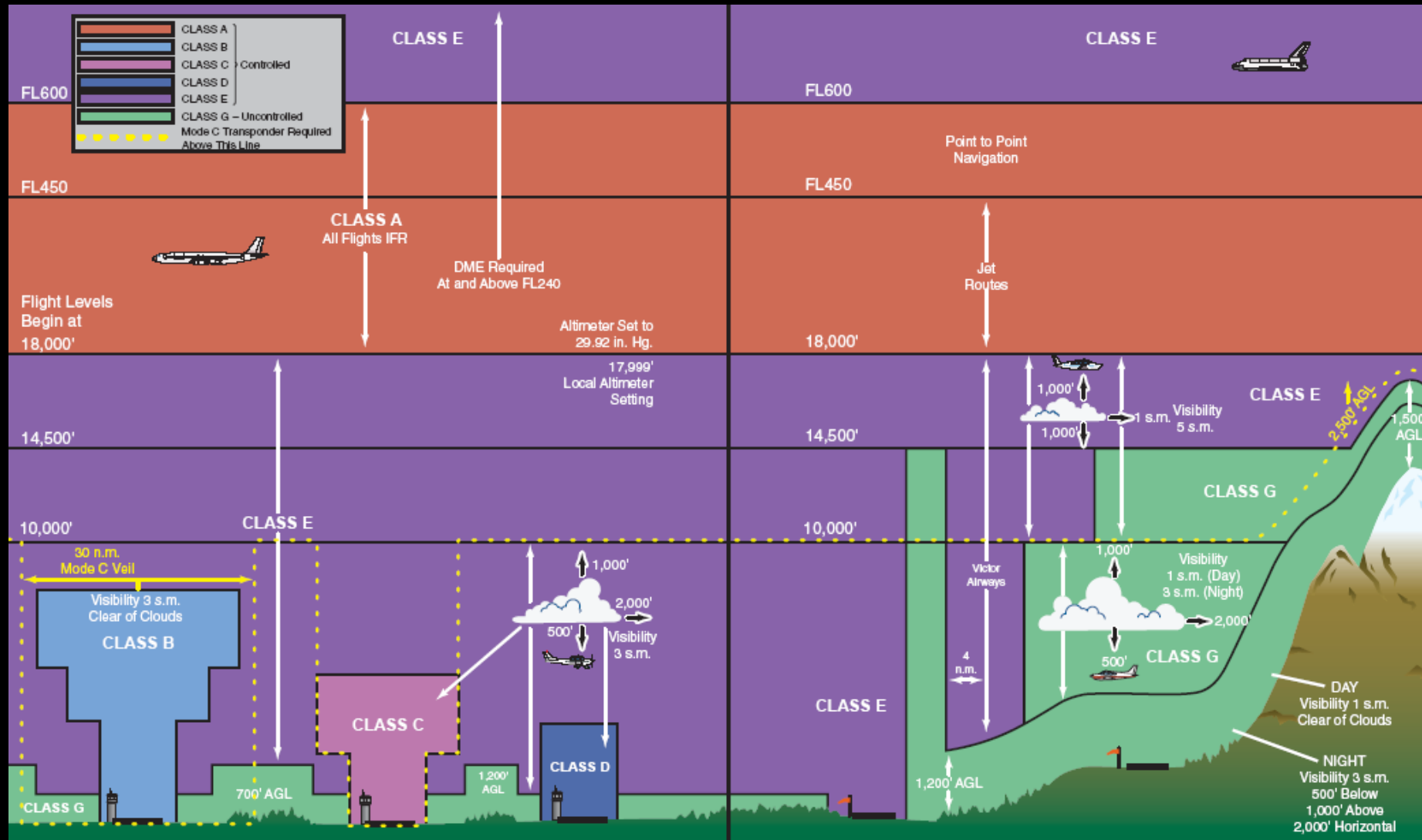


Air Space



REVIEW: National Airspace System

- Controlled Airspace: Class A, B, C, D, and E
- Uncontrolled Airspace: Class G
- Special Use Airspace: Prohibited, Restricted, Warning, Alert, and MOA
- Other kinds of airspace



Class A



Class C



Class B



Class D



Class E



SUA



Class G

Type	Mnemonics	Charted Using
Class A	Above 18,000 feet; Altitude; Approval (IFR clearance)	N/A
Class B	Biggest and Busiest Boundary(ATC clearance)	Solid Blue Line
Class C	Communication within 20 miles (with approach)	Solid Magenta Line
Class D	Dialogue (with tower)	Dashed Blue Line
Class E	Everywhere Else	Dashed Magenta Line or Vignette
Class F	Forget it (not in U.S.)	N/A
Class G	Government Free Go For It	Blue/Magenta Vignette

Class Alpha



Class A airspace is from 18,000 feet MSL to Flight Level 600 (60,000 feet pressure altitude). Its lateral extent includes the contiguous U.S. and Alaska, and extends 12 nm from the U.S. coasts. It is not shown on charts.

To fly in Class A airspace, you need:

- An instrument rating
- An IFR flight plan
- ATC clearance and control
- A Mode C transponder
- Altimeter set at 29.92



Aerobatics are prohibited in Class A airspace. Ultralight vehicles and parachute jumps are also prohibited within Class A airspace without prior permission from ATC.

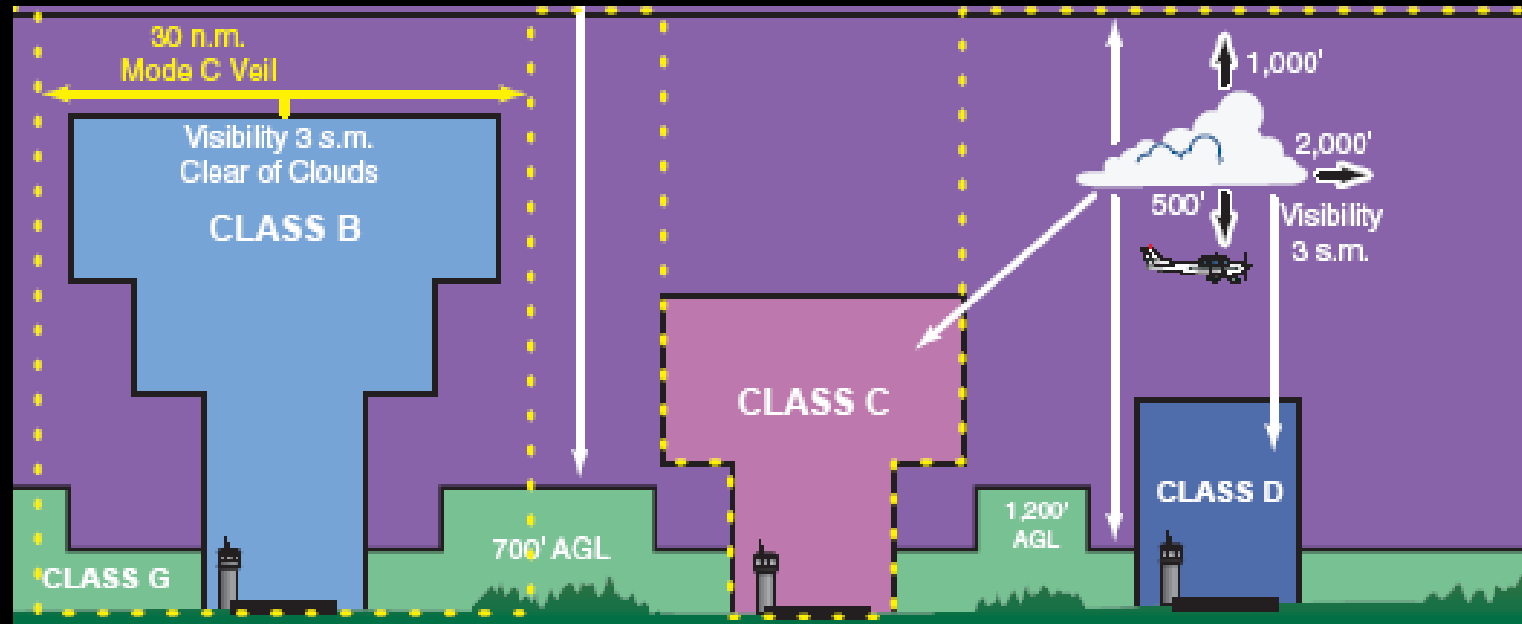


Class A airspace used to be known as the positive control area (PCA).

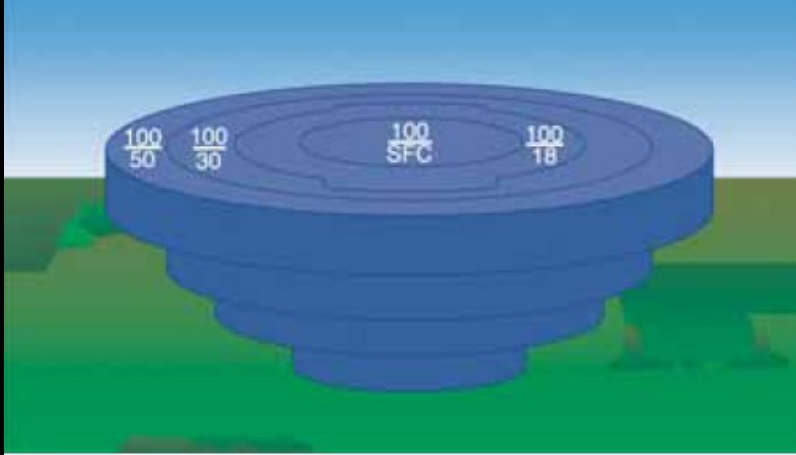
In addition, if you fly above FL240 your aircraft must have DME or a suitable RNAV system.

Since there's no VFR allowed, there are no VFR minimums to memorize.

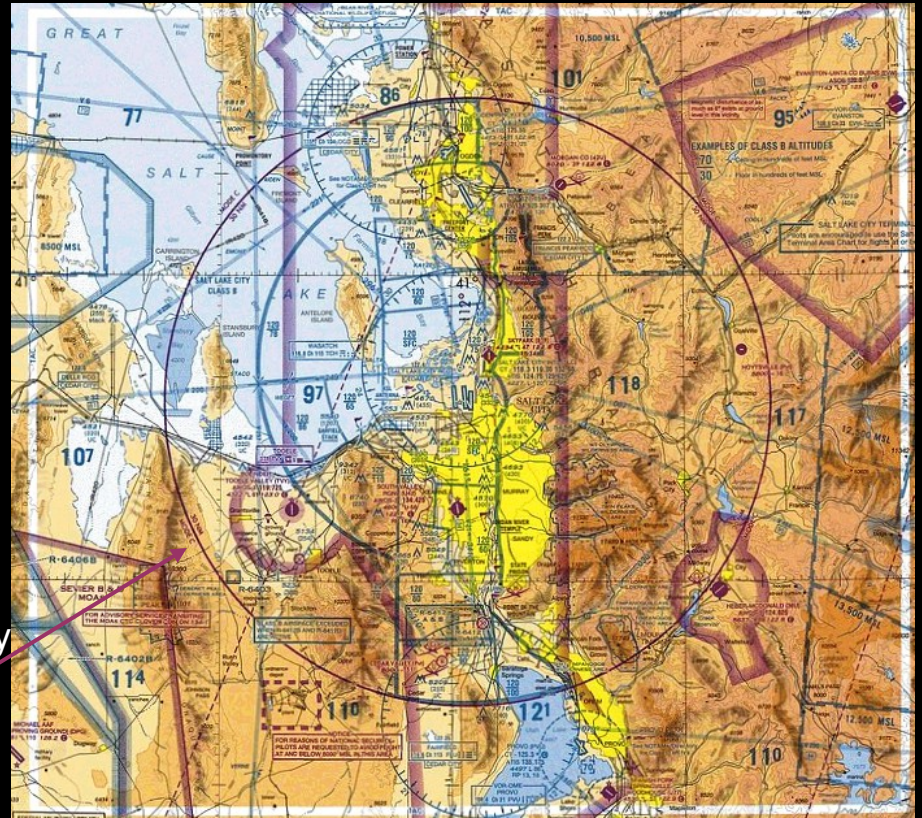
Towered Airports



Class Bravo – Big / Busy



Class B airspace surrounds 34 high-traffic airports. These areas are usually shaped like inverted wedding cakes, with different lateral dimensions at different altitudes. The dimensions vary, but usually go from the surface to 10,000 feet MSL.



All aircraft within 30 nautical miles of Class B primary airports must use a Mode C (altitude encoding) transponder. Mode C veil.

To enter Class B airspace, you need four things:

- an ATC clearance to enter,
- a two-way radio,
- a Mode C transponder, and
- at least a private certificate or a logbook endorsement.

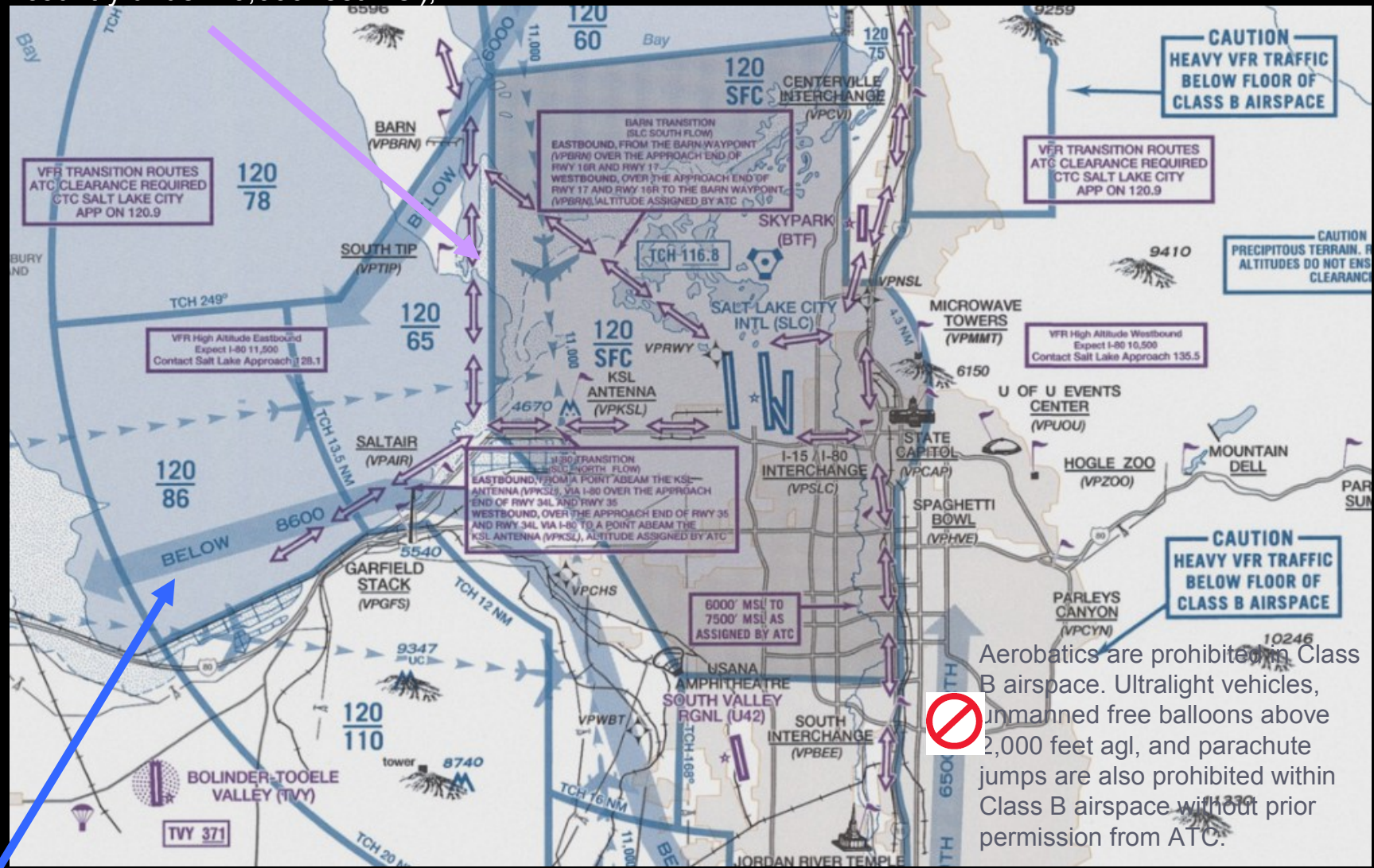
(for some class B, students are not allowed)

For VFR in Class B, you need 3 sm visibility and must remain clear of clouds.

ATC in Class B airspace provides for positive control (separation) of both VFR and IFR traffic.

[illegible]

VFR transition routes are part of the Class B airspace, and so require an ATC clearance prior to entering. A 250-knot speed limit is imposed within the Class B airspace (just like the rest of the country under 10,000 feet msl),



Aerobatics are prohibited in Class B airspace. Ultralight vehicles, unmanned free balloons above 2,000 feet agl, and parachute jumps are also prohibited within Class B airspace without prior permission from ATC.

• **VFR corridors** are passages through Class B airspace that have been essentially removed from the Class B area and converted back into Class E. Since they are a part of Class B airspace, no ATC clearance is required. 200 knot speed limit

Class Charley - Communicate



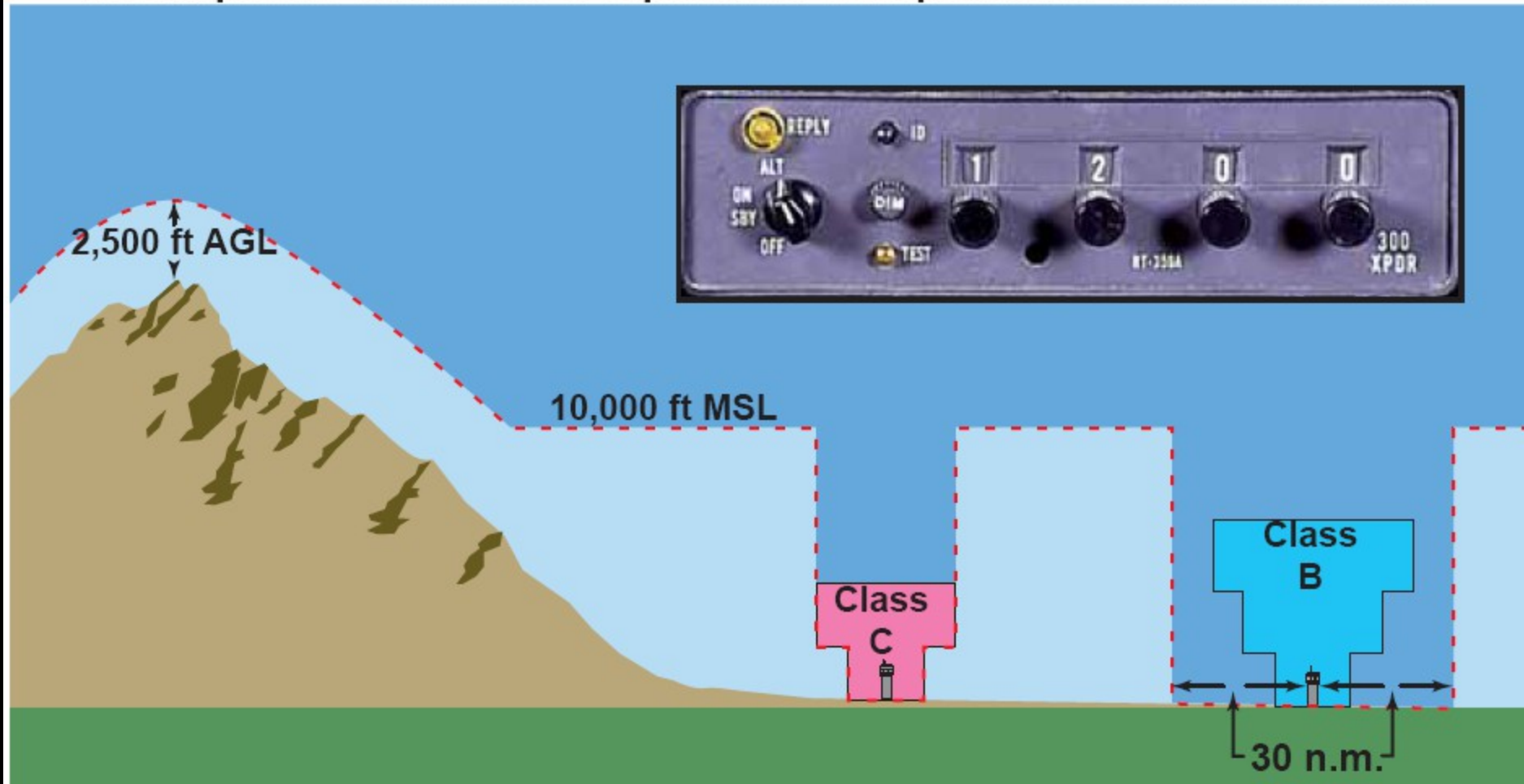
Class C is the designation for fairly busy airports with radar service and approach control. The core, which goes from the surface to 4,000 feet AGL, usually has a 5 nautical mile radius. In addition, there is generally a shelf with a 10 nm radius that reaches from 1,200 to 4,000 feet AGL. There are over 120 locations with Class C airspace.

An outer area with a 20 nm radius is not depicted on charts, and is not really part of the Class C airspace. However, ATC will provide Class C services to participating VFR traffic in that area. Contact with ATC in the outer area is encouraged, but not required.

- To operate in Class C airspace, you need a two-way radio and a Mode C transponder.
- Pilots must establish two-way voice communication before entry, but an actual ATC clearance is not required.
- VFR minimums are 3 miles visibility, and minimum cloud clearance of 1,000 feet above, 500 feet below, and 2,000 feet laterally.



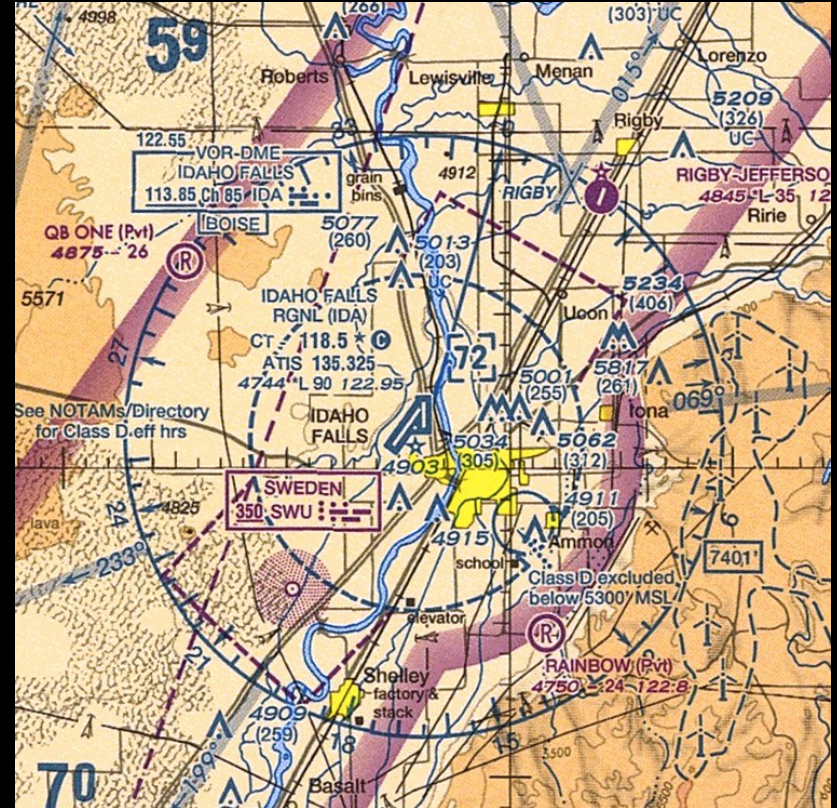
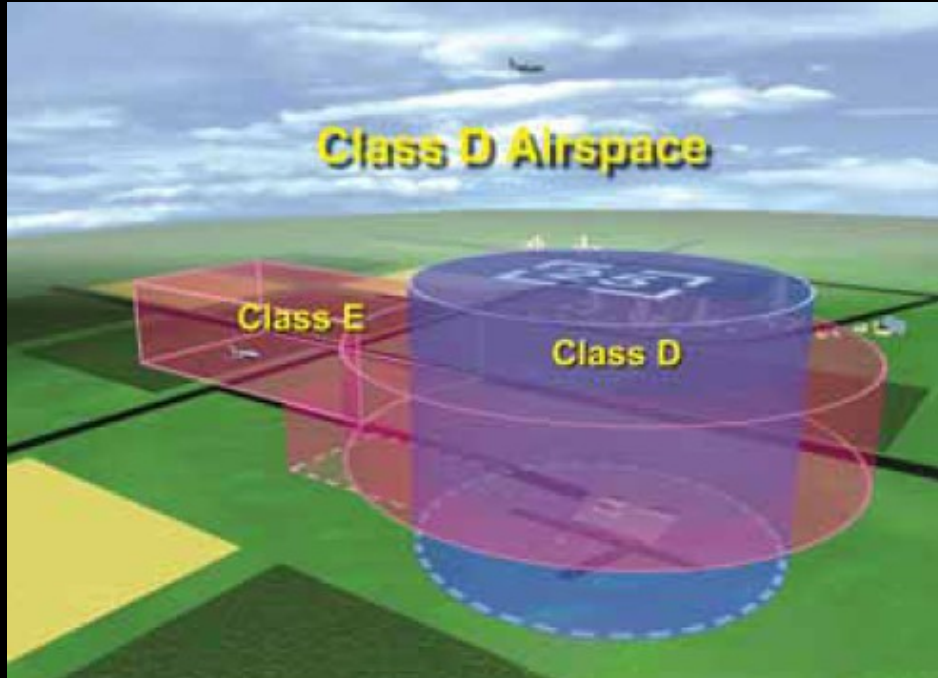
A transponder with Mode C capabilities is required above the dotted line.



The FARs require that you have an operating Mode C transponder in these situations:

- Class A airspace
- Class B airspace • Within 30 nautical miles of Class B primary airports
- Class C airspace • Above Class C airspace
- Above 10,000 MSL (excluding airspace below 2,500 AGL)

Class Delta - Dialogue

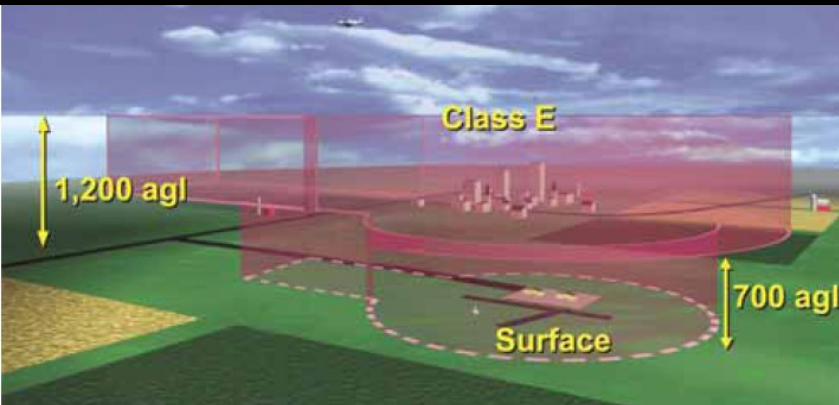


Class D airspace typically surrounds airports with Operating control towers. The airspace is usually a cylinder centered on the airport, but may include extensions to accommodate instrument approaches and departures. Dimensions vary, but usually extend up to 2,500 AGL. Class D airports revert to Class E when the tower is not in operation.

To operate in Class D airspace, you must:

- establish two-way radio communications, and
- maintain 3 sm visibility, and a minimum cloud clearance of 1,000 feet above, 500 feet below, and 2,000 feet laterally.

Class Echo – Everywhere Else



Class E

- Class E airspace exists almost everywhere above 1,200 feet AGL, and above FL600, except when it's down to 700 AGL, or down to the surface.
 - At least a student pilot certificate is required, but there are no equipment requirements.
 - You need at least 3 statute miles visibility and minimum cloud clearance of 1,000 feet above, 500 feet below, and 2,000 feet laterally below 10,000 feet MSL.
- Above 10,000 feet, you need 5 statute miles and minimum cloud clearance of 1,000 feet above, 1,000 feet below, and a mile laterally.

Question: What determines whether the airspace around an airport may be designated a Class E surface area?

Answer: The airport must have either a weather observer or a functional automated weather observing system (AWOS or ASOS).

More Class Echo



Class Foxtrot ? – Forget it

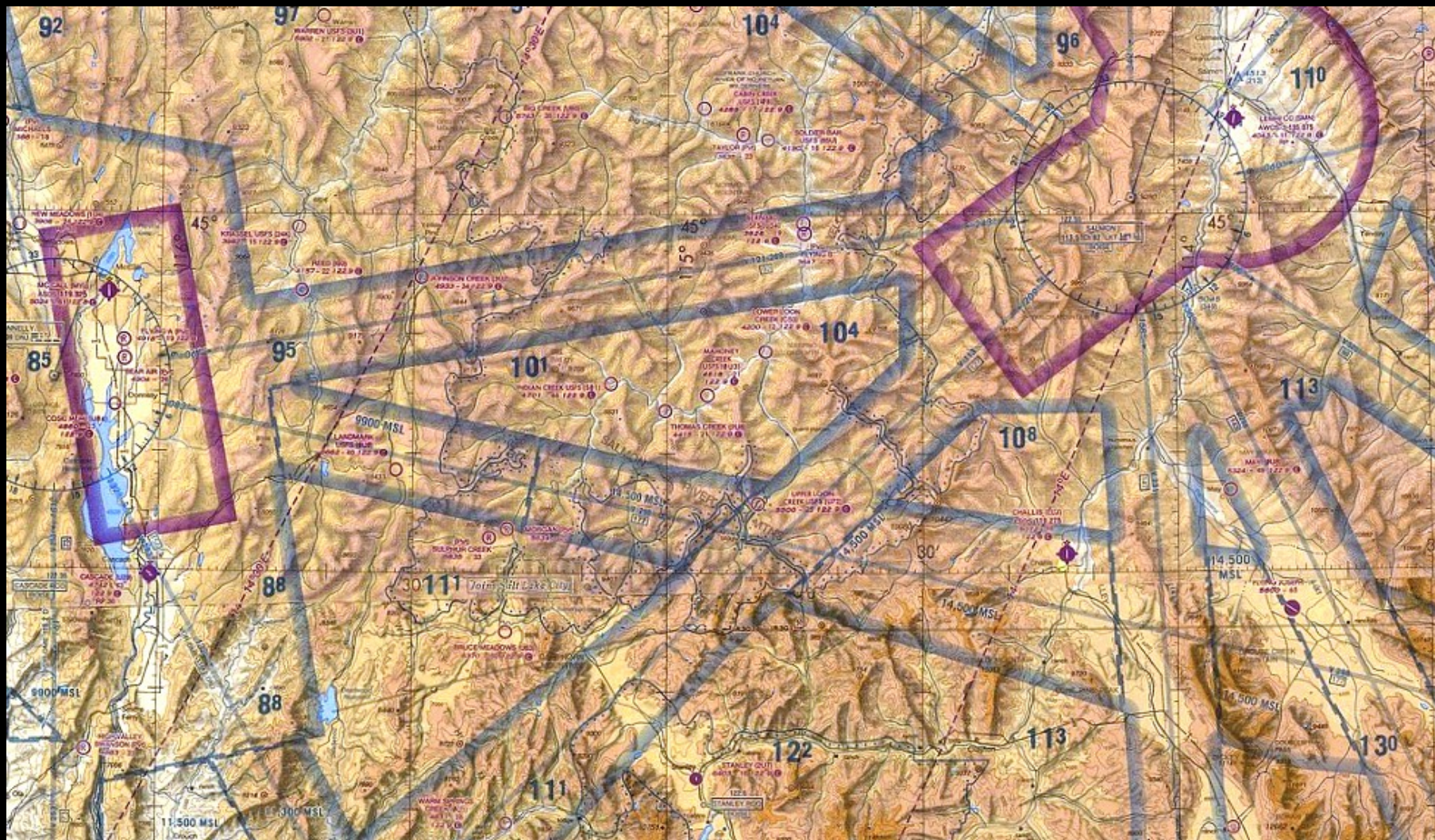
In the United States, there is no Class F airspace, so the AOPA mnemonic is “Forget it.”

Canada uses the Class F designation for what we call Special Use Airspace. There are two types of Class F airspace in Canada: CYR and CYA. CYR (restricted) is similar to Prohibited or Restricted airspace in the U.S., and CYA (advisory) roughly corresponds to Alert areas or MOAs.

CYAs also include areas for aerobatics, soaring, hang gliding, skydiving, and flight training. Class F airspace can be quite user-friendly – often, CYA areas become uncontrolled airspace when active. For example, when many soaring areas are active, they create an area where Class G airspace rules apply far above 18,000 feet, alleviating the requirement to file IFR, and to carry radios and transponders.

By the way, don’t assume that the U.S. airspace classes are valid across international borders. Airspace classifications and operational requirements may differ, even between the U.S and Canada. Always do your homework before flying in a foreign country, even if they do speak English.

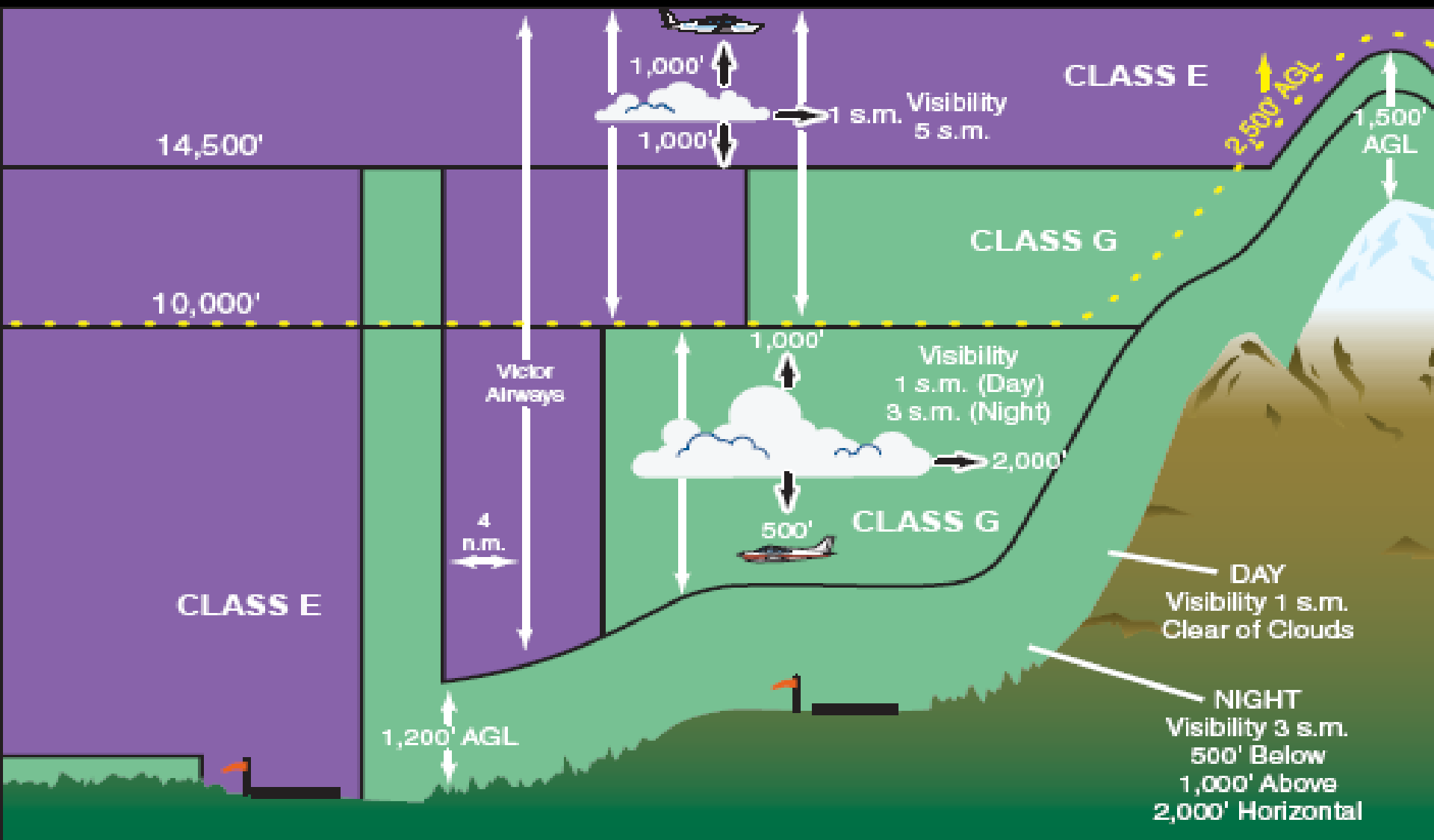
Class Golf – Go for it – Govt. Free



Class G is uncontrolled airspace.

Not that long ago, almost all airspace was uncontrolled, but now it mostly exists below 1,200 feet AGL. In general, the floor of Class E airspace is the top of Class G, so you can tell by looking at the colored vignette on sectional charts. Magenta vignette indicates a 700 foot AGL ceiling and blue indicates 1,200 AGL.

Class Golf – Vis / Cloud clearances



Visability / Cloud Clearance Review

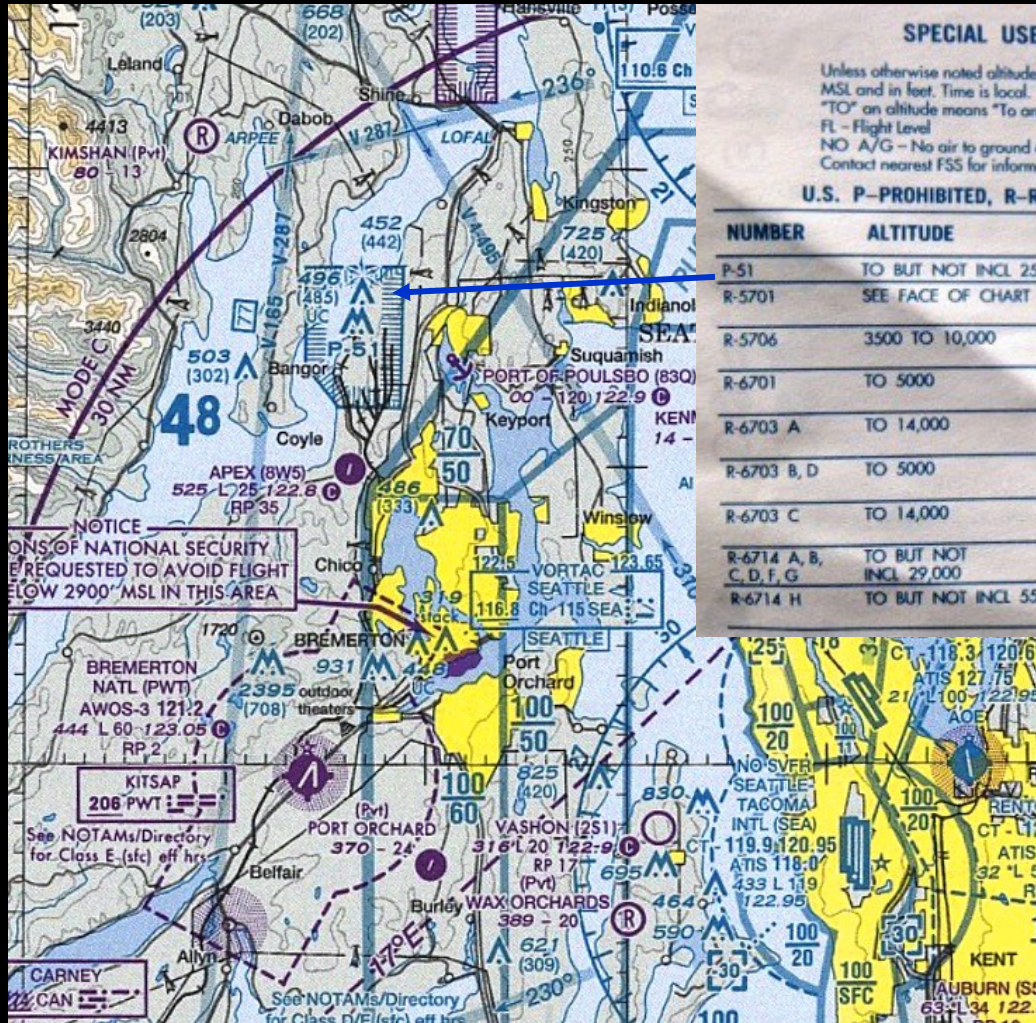
Airspace			Flight Visibility	Distance from Clouds
Class A			Not applicable	Not applicable
Class B			3 statute miles	Clear of clouds
Class C			3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
Class D			3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
Class E	At 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

REVIEW: Special Use Airspace

- Prohibited Airspace
- Alert Areas
- National Security Areas
- Warning Areas
- Controlled Firing Areas
- Military Operations Areas
- Military Training Routes
- Other Special Use Airspace

Prohibited

Prohibited Areas as our very own “No-Fly Zones.” They are active all the time. Look on the flap of a sectional or WAC chart to see where they top out.



SPECIAL USE AIRSPACE ON SEATTLE SECTIONAL CHART

Unless otherwise noted altitudes are MSL and in feet. Time is local.
 "TO" an altitude means "To and including."
 FL - Flight Level
 NO A/G - No air to ground communications.
 Contact nearest FSS for information.

† Other times by NOTAM.
 NOTAM - Use of this term in Restricted Areas indicates FAA and DoD NOTAM systems. Use of this term in all other Special Use areas indicates the DoD NOTAM system.

U.S. P-PROHIBITED, R-RESTRICTED, W-WARNING, A-ALERT, MOA-MILITARY OPERATIONS AREA

NUMBER	ALTITUDE	TIME OF USE	CONTROLLING AGENCY/ CONTACT FACILITY	FREQUENCIES
P-51	TO BUT NOT INCL 2500	CONTINUOUS	NO A/G	
R-5701	SEE FACE OF CHART	0730-2359 MON-FRI 16 HRS IN ADVN	SEATTLE CNTR	132.6 269.35
R-5706	3500 TO 10,000	0730-2359 MON-FRI 16 HRS IN ADVN	SEATTLE CNTR	132.6 269.35
R-6701	TO 5000	INTERMITTENT BY NOTAM 2 HRS IN ADVN	WHIDBEY ISLAND NAS/AULT ATCT	118.2 285.65
R-6703 A	TO 14,000	0700-2300 MON-FRI 12 HRS IN ADVN	SEATTLE-TACOMA APP	
R-6703 B, D	TO 5000	0700-2300 MON-FRI 12 HRS IN ADVN	SEATTLE-TACOMA APP	
R-6703 C	TO 14,000	INTERMITTENT BY NOTAM 2 HRS IN ADVN	SEATTLE-TACOMA APP	
R-6714 A, B, C, D, F, G	TO BUT NOT INCL 29,000	INTERMITTENT BY NOTAM	SEATTLE CNTR	118.55 251.1 132.6 269.35
R-6714 H	TO BUT NOT INCL 5500	INTERMITTENT BY NOTAM	SEATTLE CNTR	118.55 251.1 132.6 269.35

Alert Areas



Alert areas are shown on aeronautical charts to warn you of high volume pilot training or an unusual type of aerial activity, such as glider towing or parachute jumping. All pilots in Alert Areas are responsible for avoiding collisions.

Restricted



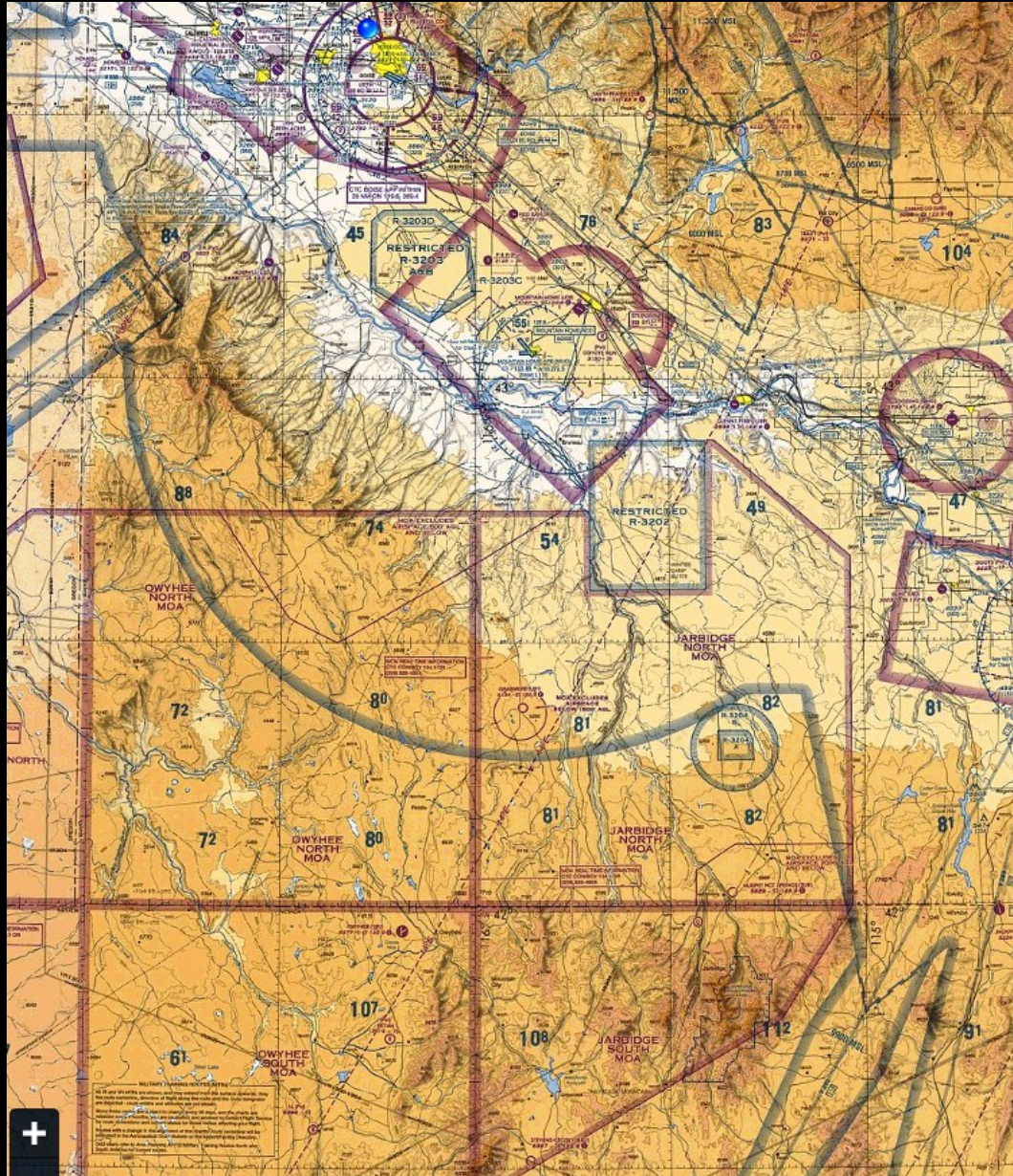
<p>Unless otherwise noted altitudes are MSL and in feet. Time is local. "TO" an altitude means "to and including." FL - Flight Level NO A/G - No air to ground communications. Contact Flight Service for information.</p>				
<p>† Other times by NOTAM. NOTAM - Use of this term in Restricted Areas indicates FAA and DoD NOTAM systems. Use of this term in all other Special Use areas indicates the DoD NOTAM system.</p>				
U.S. P-PROHIBITED, R-RESTRICTED, W-WARNING, A-ALERT, MOA-MILITARY OPERATIONS AREA				
NUMBER	ALTITUDE	TIME OF USE	CONTROLLING AGENCY/ CONTACT FACILITY	FREQUENCIES
R-3202 LOW	TO BUT NOT INCL FL 180	0730-2200 MON-FRI	SALT LAKE CITY CNTR	128.05 387.15 (N, W) 118.05 363.0 (E, S)
R-3203 A	TO 15,000	BY NOTAM 24 HRS IN ADVANCE	SALT LAKE CITY CNTR	128.05 387.15 (N, W) 118.05 363.0 (E, S)
R-3203 B	15,000 TO 22,000	BY NOTAM 24 HRS IN ADVANCE	SALT LAKE CITY CNTR	128.05 387.15 (N, W) 118.05 363.0 (E, S)
R-3203 C	TO 6000	BY NOTAM 24 HRS IN ADVANCE	SALT LAKE CITY CNTR	128.05 387.15 (N, W) 118.05 363.0 (E, S)
R-3203 D	TO 22,000	BY NOTAM 24 HRS IN ADVANCE	SALT LAKE CITY CNTR	128.05 387.15 (N, W) 118.05 363.0 (E, S)
R-3204 A	TO 100 AGL	0730-2200 MON-FRI	SALT LAKE CITY CNTR	118.05 363.0
R-3204 B	100 AGL TO BUT NOT INCL FL 180	0730-2200 MON-FRI	SALT LAKE CITY CNTR	118.05 363.0
R-402 A	TO FL 580	CONTINUOUS	SALT LAKE CITY CNTR	128.55 269.175
R-402 B	100 AGL TO FL 580	CONTINUOUS	SALT LAKE CITY CNTR	128.55 269.175
R-403	TO 9000	0800-2000 MON-THU	NO A/G	
R-404 A	TO FL 580	CONTINUOUS	SALT LAKE CITY CNTR	128.55 269.175
R-404 B	TO 13,000	CONTINUOUS	SALT LAKE CITY CNTR	128.55 269.175
R-404 C	100 AGL TO FL 280	CONTINUOUS	SALT LAKE CITY CNTR	128.55 269.175
R-404 D	13,000 TO FL 250	BY NOTAM	SALT LAKE CITY CNTR	128.55 269.175
R-405	100 AGL TO FL 580	CONTINUOUS	SALT LAKE CITY CNTR	128.55 269.175 (N) 133.45 317.625 (S)
R-406 A	TO FL 580	CONTINUOUS	SALT LAKE CITY CNTR	128.55 269.175
R-406 B	100 AGL TO FL 580	CONTINUOUS	SALT LAKE CITY CNTR	128.55 269.175
R-407	TO FL 580	CONTINUOUS	SALT LAKE CITY CNTR	128.55 269.175
R-412 A, C	TO 9000	BY NOTAM	SALT LAKE CITY TRACON	
R-412 B, D	9000 TO 10,000	BY NOTAM	SALT LAKE CITY TRACON	

Restricted Areas are similar to Prohibited Areas. One difference is that Restricted Areas usually mean airborne threats to flight safety, such as high-speed military flight maneuvers or tethered high-altitude balloons. Since these hazards are not always present, Restricted Areas may only be active at certain times. When they are not in use, no clearance or permission is required to fly through them.

If your IFR clearance sends you through a Restricted Area, either ATC has already made sure the area is inactive for you, or they are coordinating traffic within the area. On an IFR clearance, you need no further clearance through a Restricted Area.

When flying VFR, you can determine the times of use by looking on the flap of the sectional or WAC chart. For each Restricted Area on the chart, the controlling agency is listed on the flap, along with the location, altitudes, and times of use. Pilots can also call the controlling agency of the Restricted Area for permission to fly through.

Military Operations Area (MOA)



Military Operations Area (MOA) Military aircraft use that airspace for what the FAA calls "abrupt or acrobatic maneuvers." If you're not sure what that means, rent the movie "Top Gun" to see some great examples. You should also call a flight service station to check on whether the area is active or not, since the status may change several times a day.

Although VFR pilots are not prohibited from entering MOAs, they are cautioned to keep a watchful eye out for military operations such as aerial refueling, air combat training, and formation flying. The U.S. Air Force was granted permission to conduct nighttime lights-out training in certain MOAs across the country. During lights-out training, military pilots fly using night-vision goggles (NVGs) and all exterior aircraft lighting is turned off. While GA aircraft are still permitted to fly in these MOAs, pilots should be sure to contact the controlling agency for traffic advisories.

National Security Areas



National Security Areas are established to discourage pilots from flying near them below a certain altitude. Boundaries are shown by a wide magenta dashed line.

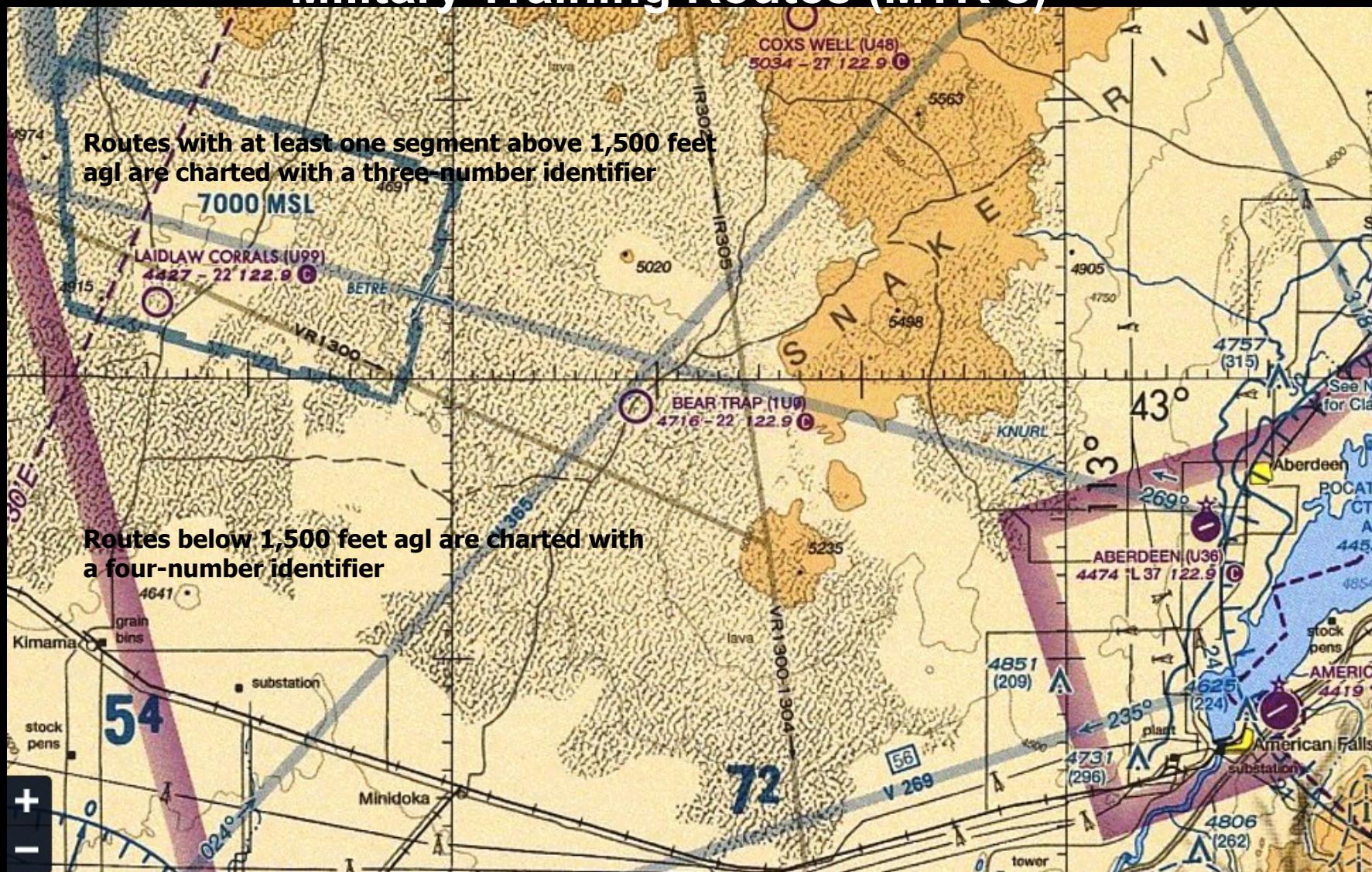
Military Operations Area (MOA)

MOA NAME	ALTITUDE*	TIME OF USE†	CONTROLLING AGENCY/ CONTACT FACILITY	FREQUENCIES
FALLON NORTH 3	200 AGL	0715-2330	SALT LAKE CITY CNTR	
FALLON NORTH 4	200 AGL	0715-2330	SALT LAKE CITY CNTR	
GANDY	100 AGL	0700-2400 MON-FRI 0800-1700 SAT	SALT LAKE CITY CNTR	128.55 380.05 (N, E) 133.45 397.85 (S) 132.25 338.35 (W)
JARBIDGE NORTH	100 AGL	0730-2200 MT MON-FRI	SALT LAKE CITY CNTR	118.05 363.0 (N, E) 132.25 338.35 (S) 128.05 387.15 (W)
JARBIDGE SOUTH	3000 AGL OR 10,000 WHICHEVER IS HIGHER	0730-2200 MT MON-FRI	SALT LAKE CITY CNTR	118.05 363.0 (N, E) 132.25 338.35 (S) 128.05 387.15 (W)
LUCIN A	100 AGL TO 9000	0700-2400 MT MON-FRI 0800-1700 MT SAT	SALT LAKE CITY CNTR	128.55 380.05 (N, S, E) 132.25 338.35 (W)
LUCIN B	100 AGL TO 7500	0700-2400 MT MON-FRI 0800-1700 MT SAT	SALT LAKE CITY CNTR	128.55 380.05 (N, S, E) 132.25 338.35 (W)
LUCIN C	100 AGL TO 6500	0700-2400 MT MON-FRI 0800-1700 MT SAT	SALT LAKE CITY CNTR	128.55 380.05 (N, S, E) 132.25 338.35 (W)
OWYHEE NORTH	100 AGL	0730-2200 MT MON-FRI	SALT LAKE CITY CNTR	128.05 387.15 (N, W) 118.05 363.0 (E) 132.25 338.35 (S)
OWYHEE SOUTH	3000 AGL OR 10,000 WHICHEVER IS HIGHER	0730-2200 MT MON-FRI	SALT LAKE CITY CNTR	128.05 387.15 (N, W) 118.05 363.0 (E) 132.25 338.35 (S)
SEVIER B	100 AGL TO 9500	0700-2400 MON-FRI 0800-1700 SAT	SALT LAKE CITY CNTR	128.55 269.175 (N) 127.825 284.675 (E) 133.45 317.625 (W)
SEVIER D	9500	BY NOTAM 6 HRS IN ADVANCE	SALT LAKE CITY CNTR	128.55 269.175 (N) 127.825 284.675 (E) 133.45 317.625 (W)
WHITE ELK	14,000	0730-2200 MON-THU 0730-1630 FRI	SALT LAKE CITY CNTR	

*Altitudes indicate floor of MOA. All MOAs extend to but do not include FL 180 unless otherwise indicated in tabulation or on chart.

†Other times by DoD NOTAM.

Military Training Routes (MTR's)

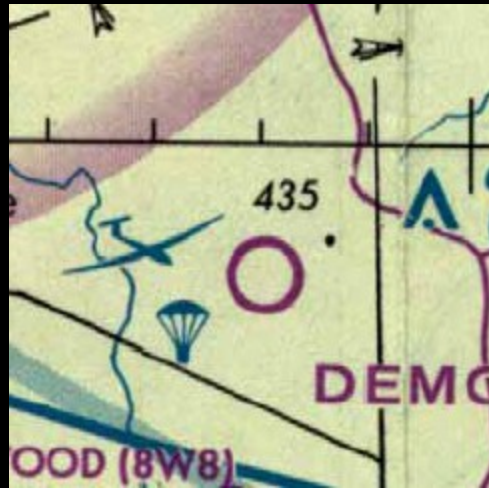


MTRs) are one-way high-speed routes for military traffic. Two types: IR (IFR) and VR (VFR). MTRs vary significantly in width and can extend several miles either side of the charted centerline. Military aircraft are not confined to MTRs, MOAs, and restricted areas. They may be encountered anywhere civil traffic flies. Rest assured, military traffic in or outside of specially designated airspace must adhere to all Federal Aviation Regulations.

Temporary Flight Restrictions (TFR's)



And there is more



- **Glider** and **Parachute jump areas** are published locations where these operations occur frequently.
- **Air defense identification zones (ADIZ)** exist over the coastal waters of the United States and along the U.S border with Mexico (contiguous ADIZ) and over some land areas (land-based ADIZ)
- **National security areas (NSAs)** are established by notam over areas that require increased security. Pilots may be asked to voluntarily avoid flying over certain areas, or flights within NSAs may be forbidden by temporary flight restrictions (TFRs).