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Running up and down Kill Devil Hill at Kitty Hawk, North Carolina, the Wright Brothers' primary concern was whether or not they had a steady, strong breeze. When Orville's 12-second, 120-foot flight finally launched off the track on December 17, 1903, the traffic pattern was clear except for a few birds. But things have changed in aviation. If the Wrights made the same flights today, they would need one mile visibility and have to remain clear of clouds as long as they stayed less than 1,200 feet AGL. That same flight today proceeding four miles east would be in Warning Area W-72A and proceeding 12 miles southwest, it would be in Restricted Area R-5314C.

As the numbers of aircraft, pilots, and flights increase, so does the amount of designated airspace. Each additional airspace designation seems to carry with it new equipment requirements, such as transponders, encoding altimeters, TCAS, and other sophisticated types of avionics gear.

Controlled Airspace

Over the years, the lack of controlled airspace has instead become an abundance of controlled airspace. Many of us grew up in the aviation world with Terminal Control Areas (TCAs), Continental Control Area, Positive Control Area, and other types of airspace with names that implied their meaning. But that has all changed. Back in September of 1993, the FAA decided to change the naming conventions of different types of airspace to match the terms used by ICAO.

That is good news and bad news. The good news is that the airspace classifications that we learn will help all of us understand requirements that are essentially the same all over the world. One type of controlled airspace labeled with a letter is supposed to be the same regardless of where in the world we fly. Also, since the letters of the alphabet closer to the letter "A" are generally more restrictive, the system is logical. The bad news? Letters have no intuitive meaning. The term "Positive Control Area" definitely said something by its name. The term "Terminal Control Area" implied a meaning for the airspace around an airport. Now, Terminal Control Areas have become Class B airspace and Positive Control Areas are Class A airspace.

The Chart Clinic – Sixth in a Series

Class A Airspace

Class A airspace is the most restrictive and requires the most amount of pilot experience and control by ATC. The classes of airspace were created and then specified in FAR Part 71. This FAR also says if there are overlapping types of airspace, then the one that is the most restrictive is the one that applies. In the United States, Class A airspace begins at 18,000 feet MSL and extends up to FL 600. Class A airspace does not include any airspace less than 1,500 feet above the ground (a small area above Mt. McKinley in Alaska). All aircraft in Class A airspace must be operated under an Instrument Flight Rule and the pilot must have at least an instrument rating. Above FL 600? Well if you can get there, you are back in Class E airspace.

There is no symbol that is used for Class A airspace since it covers the entire United States. A note on the front panel of the high altitude enroute chart states that all the airspace in the U.S. and Canada at and above 18,000 feet MSL up to and including FL 600 is Class A airspace.

Class B Airspace

In the mid 1970s, the FAA created a new type of airspace surrounding about 21 terminal areas in order to have more complete control over all aircraft operating in that airspace surrounding the airport. The current Class B airspace is an inverted wedding cake concept which allows flights for some aircraft beneath the edges of the Class B airspace without meeting all of the Class B requirements. The Class B airspace boundary at the uppermost level is shown on the Jeppesen enroute and area charts by a light magenta shaded area. Inset in the Class B line is the capital letter B to additionally identify the airspace type.

The equipment, pilot, and other requirements for Class B airspace operations are included in FAR 91.117, 91.131, and 91.215. In the beginning of TCAs, there were three different classes which had different requirements, but all Class B airspace is under one category, and the operation, equipment, and pilot requirements are the same for all Class B locations.

A requirement for a 4096 code transponder with mode C automatic altitude reporting capability is associated with Class B airspace, but the boundaries for the transponder requirement are not exactly the same as the Class B airspace. The transponder requirement is for all operations within 30 nautical miles of a Class B airport up to 10,000 feet MSL or the ceiling of Class B, whichever is lower. When the change was made for the mode C requirement from 10,000 feet MSL all the way down to the ground, it became known as the

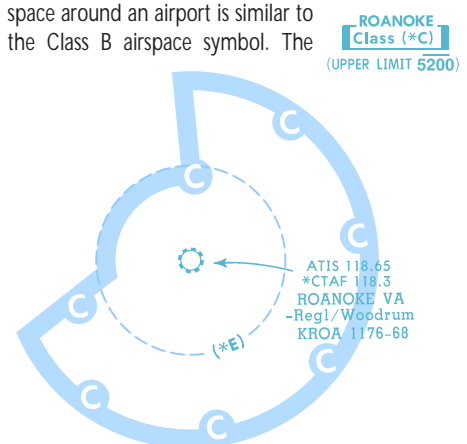
"Mode C veil" since it did not match the floors of the different Class B sectors. A listing of the 33 Class B airports with Mode C veils can be found in FAR Part 91, Appendix D, Section 1.

The maximum airspeed below the Class B airspace area is 200 knots and the max speed inside the Class B airspace is 250 knots even though the maximum speed below 2,500 feet above the surface and within 4 nautical miles of a Class C or D airport is 200 knots. The FAA is currently experimenting with eliminating the 250-knot maximum airspeed within Class B airspace.

Class B airspace charts are included as 10-1A charts at the beginning of each of the Jeppesen approach charts at airports where Class B airspace is in effect. The Class B charts show the designated vertical and horizontal limits of each sector. A textual description of the Flight Procedures is also included on the Class B pages.

Class C Airspace

The airspace around airports formerly known as Airport Radar Service Areas (ARSAs) is now Class C airspace. Two-way radio communications with the appropriate ATC facility (usually approach control) are required prior to entry into this airspace. The airspace around Class C airports has a speed limit of 200 knots for aircraft at or below 2,500 feet above the surface within 4 nautical miles of the primary airport. A transponder with Mode C altitude reporting is required within the limits of the Class C airspace. The symbol for the Class C airspace around an airport is similar to the Class B airspace symbol. The



main difference is that the Class C airspace symbol is blue and contains the letter "C" on the perimeter. The top of the Class C airspace around each airport is included below the box which includes the name of the airport in the Class C airport. At Roanoke, Virginia, note the upper limit of the Class C airspace is 5,200 feet.

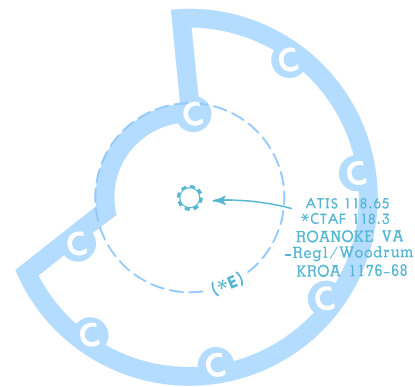
Class D Airspace

The airspace formerly known as Airport Traffic Areas has been classified as Class D airspace. These are airports where there is an operating control tower. Anyone operating in Class D airspace must establish two-way communications with the tower before operating in the airspace. The same maximum airspeed regulations apply to Class D airspace that are in effect within Class C airspace. A Mode C transponder is not specifically required, however.

If there is Class D airspace around an airport, you can tell by looking at the dashed line surrounding the airport. A letter "D" will be included in parentheses in the dashed line.

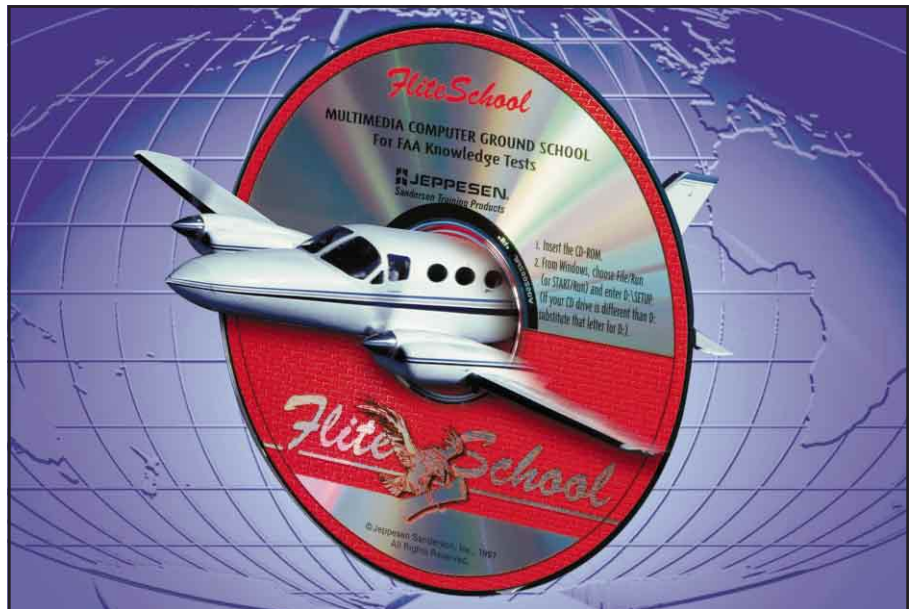
Class E Airspace

There are two principally different areas for Class E airspace. All airspace at and above 14,500 feet MSL is controlled airspace and is known as Class E airspace. This area was formerly known as the Continental Control Area. Class E airspace around



an airport was established for one purpose -- to keep VFR pilots out of the designated airspace when the ceiling becomes less than 1,000 feet or the visibility less than three statute miles. The size and shape of the Class E airspace is based on the type of IFR approach into the airport. Class E airspace is shown with a dashed line with the letter "E" included within parentheses in the dashed line. The designation of controlled airspace is included on the IFR charts to let the instrument pilot know when it is necessary to change from VFR to IFR.

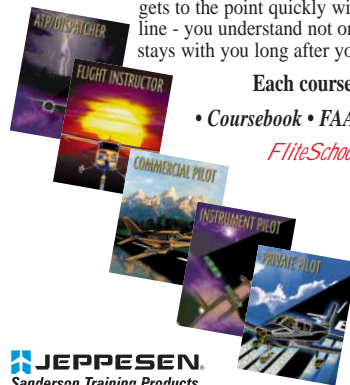
Class E airspace around an airport is an often misinterpreted section of airspace. It does **not** need to have a control tower. It does **not** need a Flight Service Station. In order for Class E airspace to be established around an airport, there must be some



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type of approved weather reporting service. This reporting can be done by tower personnel, FSS personnel, or any other person approved by the National Weather Service. There are some locations where an ASOS (Automated Surface Observation System) is used to provide the weather in Class E airspace. In the next article, we will continue with controlled airspace and special use airspace.



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